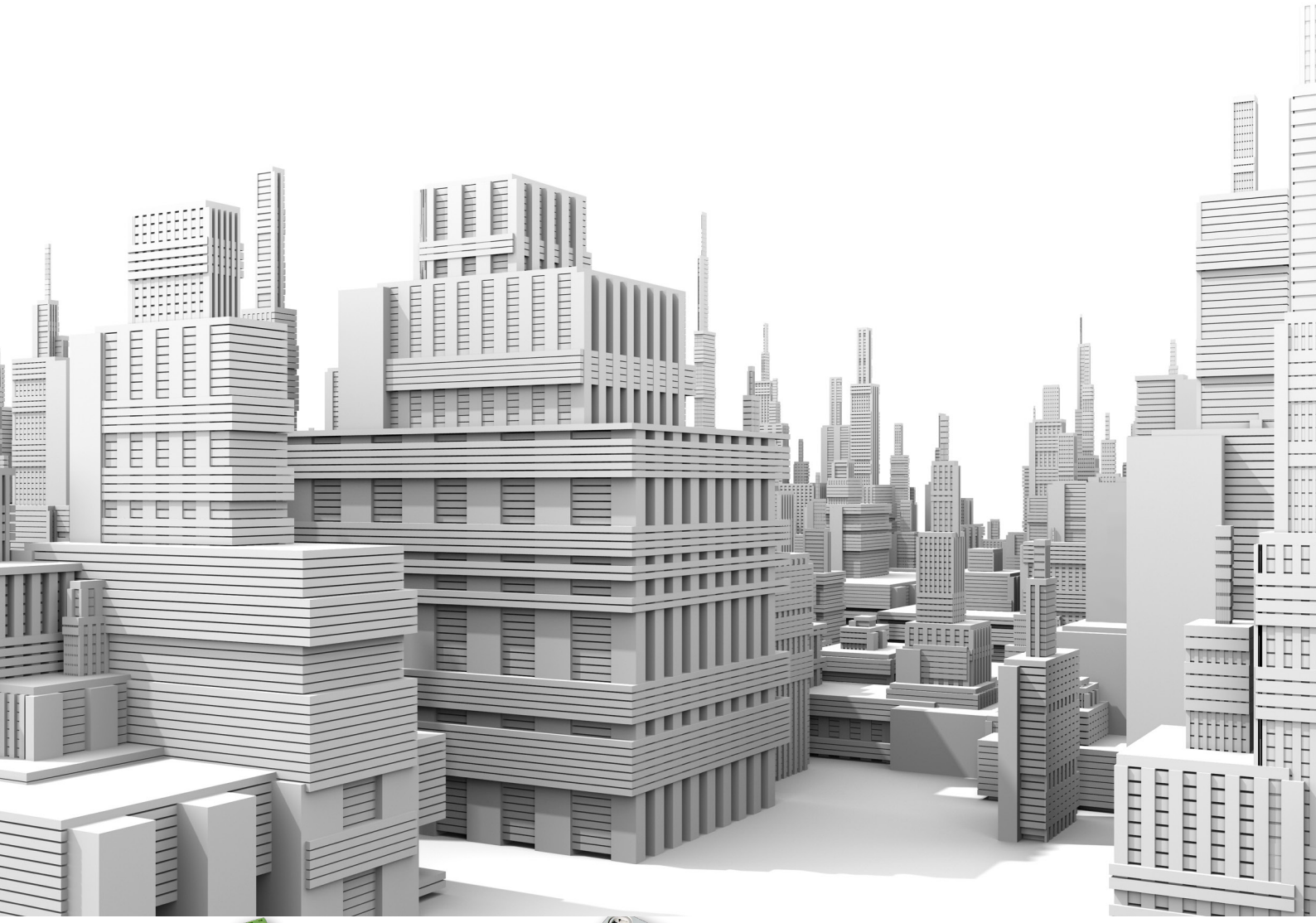
English

ZDANIA

Product Catalog

iBASe® 2020



INTEGRATED AUTOMATION AND BUILDING SAFETY SYSTEMS

ZDANIA
SINCE 1992

About us

We conduct industrial research and development works in order to discover new ways and possibilities of operating in the modern automation industry.

We design, manufacture, supply and implement safe and innovative solutions for building management and increasing energy efficiency.

We are a high quality, dynamic, medium-sized innovative design and implementation company, with a national and international reach, we are constantly building market position and customer satisfaction, together with a network of partners.

We use innovative technologies and open communication protocols in trend-setting products. We create the basis for effective system integration and high energy efficiency during operation and protection of facilities.

Contact

ZDANIA Sp. o.o.

ul. Mazowiecka 25, 30-019 Kraków

biuro@zdania.com.pl, phone number +48 12 638 05 67

www.zdania.com.pl

LOYTEC
COMPETENCE CENTER IN POLAND

KNX EN 50090

MEMBER OF ASHRAE BACnet INTEREST GROUP EUROPE

LONMARK PARTNER

LONMARK FRANCE

LONMARK GERMANY

Member of BACnet International

enocean alliance Member

Digital Illumination Interface Alliance

iBASe®

Building automation system

Product Catalog 2020

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Content

SYSTEM CHARACTERISTICS

iBASe®

General characteristics

The iBASe ™ system is a comprehensive hardware solution for open, distributed automation and security systems of public buildings, which uses typical data transmission standards. The system ensures effective and economical control of ventilation and air conditioning, cooling, heating, lighting and shading installations and devices. The system allows visualization of the building's technical installations, master control and archiving of important parameters, monitoring of energy consumption as well as registration of operator's activities.

The algorithms used in the system's devices implement control at the level of individual rooms, applying the principle of supplying energy to each room depending on actual demand. In accordance with PNEN 15232, this guarantees the maximum impact of automation on building energy efficiency. In the iBASe™ system, it is possible to directly integrate functionalities ensuring comfort, security (access control as well as burglary and assault signaling) and optimization of the costs of using buildings due to the direct synergy of automation and security systems.

Sensors

Sensors are devices that are used to measure various physical quantities related to the environment and convert the results to electrical quantities accepted by the automation system, in analog or digital form.

Analog signals can be connected directly to the inputs of the appropriate controllers, and digital signals can be transmitted to the control network using one of the standard protocols used in the system. Information from the sensors is the basis for the correct operation of the system.

I/O modules

I / O modules are devices that expand the capabilities of controlers and other automation system devices by increasing the number of physical inputs and outputs. In the case of controllers, this allows for wider functionality.

The iBASe™ system has a number of I / O modules with various sets and properties of inputs and outputs.

Module inputs are available as binary inputs (voltage free contact support) as well as analog voltage or current and thermistor (NTC thermistor).

Object Controllers

Object controllers are dedicated devices designed to perform tasks related to the selected functionality in the building automation system.

The main property of the field controller is the control of a specific technological device in the room (e.g. fan coil unit, VAV device, humidifier, lighting).

In addition, each of the object controllers has the ability to detect unauthorized presence (SSWiN functionality). In special cases, controllers can support several devices, e.g. fan coil unit and two VAV devices. Due to their functionality, the controllers have been divided into several groups.

The iBASe ™ system devices are available in versions with the BACnet MS / TP, MODBUS RTU (RS485) or LON TP / FT-10 interfaces and work with any devices from many manufacturers. Currently, devices with WiFi interface are being prepared for production, with BACnet / IP, MODBUS / TCP and LON / IP protocols. The main areas of application of the iBASe ™ system are office buildings, public buildings, schools and universities, scientific institutions and research laboratories, data processing centers , Shopping centers, healthcare buildings and industrial buildings.The system consists of: sensors, input / output (I / O) modules, field controllers for specific functionalities (controlling fan coil units, VAV devices, humidifiers, floor heating, access control controllers), network infrastructure elements and data converters. The system components work with programmable controllers, automation servers and SCADA visualization and archiving software from various manufacturers, as well as Web applications.

The basic measured physical quantities are temperature (air, utilities, building structure elements), relative humidity, pressure (absolute, relative, pressure difference), air flow parameters (linear speed, volumetric flow efficiency), CO2 (or other gases) concentration, air quality, lighting intensity and more.

In turn, the module outputs appear as two-state transistor, triac or relay outputs as well as analog voltage outputs. In addition to handling the module's inputs and outputs, the internal software of the I / O modules also enables the implementation of simple logical dependencies using built-in functional blocks (digital and analog).I / O modules are designed for mounting on a standard TS35 rail in local electrical switchboards or automation cabinets.

Air conditioning controllers.

The basic functionality of the controllers is to provide thermal comfort in the room.

The main controllers in this group are fan coil controllers. Different models are available depending on the control system and the media used. The control algorithm is based on measurements of room temperature, in addition, the situation in the room (presence, opening of a window or door, excessive moisture condensation) is taken into account.

Ventilation controllers

Sterowniki z tej grupy przeznaczone są do stosowania w obsłudze wentylacji ze zmiennym przepływem powietrza (urządzenie VAV).

Sterowniki mogą pracować w różnych trybach w zależności od potrzeb, jedna ze standardowej aplikacji modułu aplikacji regulacji regulacji przepływu powietrza w pomieszczeniu

Lighting controller

The controller is designed for use in automatic lighting control systems and its intensity according to various scenarios manually, from presence, from external lighting or from the schedule. The controller works with luminaires controlled by 010 V.

Access controller and SSWiN

Controllers designed for use in passage control systems or controlled access to protected rooms (one or two-sided control)

Restricting unauthorized access allows you to increase the level of system security. Additional functionality of the controllers is the possibility of implementation

Network Infrastructure

Network infrastructure includes devices not directly related to control in the system, but improving communication between its individual elements.

The device group includes a repeater (amplifier and signal regenerator in LON networks) and bus terminators

Data Converters

It is a group of devices that allows integration in the automation system of separate subsystems with its own communication, or also devices normally provided for autonomous operation.

The converters ensure the integration of media counters connected by MBus or media counters with pulse output. A separate converter allows you to connect systems with a local Modbus RTU bus.

Another device the surface heating controller works in heating or cooling mode. Provides multi-zone temperature control in installations including floors, walls and ceilings.

The last controller in this group is designed to maintain a specific humidity in the room via steam humidifiers by controlling VAV devices on supply and exhaust, depending on the current CO concentration, pressure difference between the room and e.g. the corridor and the user's presence in the room or opening a window or door .

An additional functionality of the controller is the possibility of using it in burglary and assault signaling systems burglary and assault signaling system functions. One of the iBASe™ access control controllers models is TECHOM certified.

One of the iBASe ™ access control controllers models is TECHOM certified.

An important element of the system is a dedicated server storing the configured authorization database and event log for typical LON TP / FT10, BACnet MS / TP and Modbus RTU control networks. In addition, LOYTEC IP / BACnet / LON routers are used in the iBASe ™ control network infrastructure when integration with the main bus is not desired for various reasons.

A converter is also available to connect devices with a local RS232 short distance interface, based on a dedicated company protocol (e.g. when integrating an automation system with a dedicated audiovisual system).

System structure

iBASe®

Operator station BMS

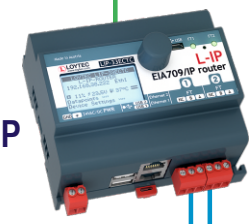
Software
- Proficy iFIX
- LWEB

Server BMS (opction)

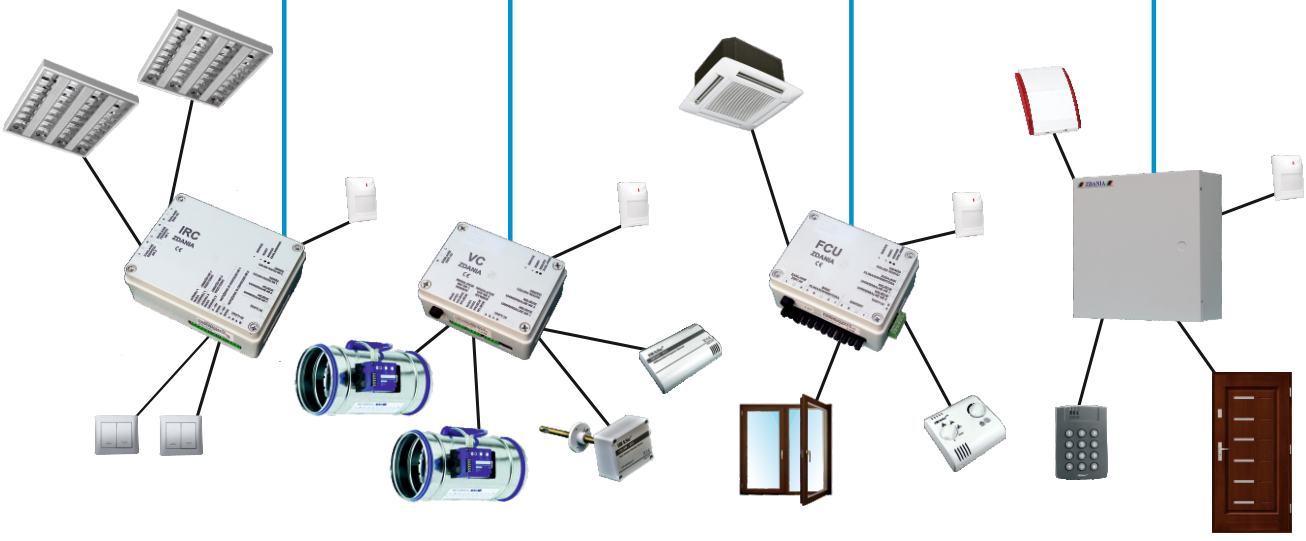
Ethernet/IP

xServer
Element of the access control system

Router EIA-709/IP



LON TP/FT-10



Controllers with field devices

LON TP/FT-10

Sensors

Modules installed in building automation distribution cabinets

I/O modules

System structure

Security system station

Software

- xServer Configurator
- Proficy iFIX
- LWEB

Intranet
Internet
VPN

Ethernet/IP

Automation server and router
EIA-709/IP
Modbus/IP

Router
BACnet/IP

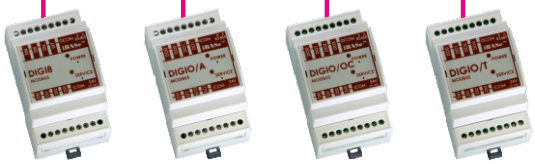
BACnet MS/TP

Modules installed
in building automation control cabinets

Moduły I/O

Modules installed
in building automation control cabinets

Modbus RTU



I/O modules

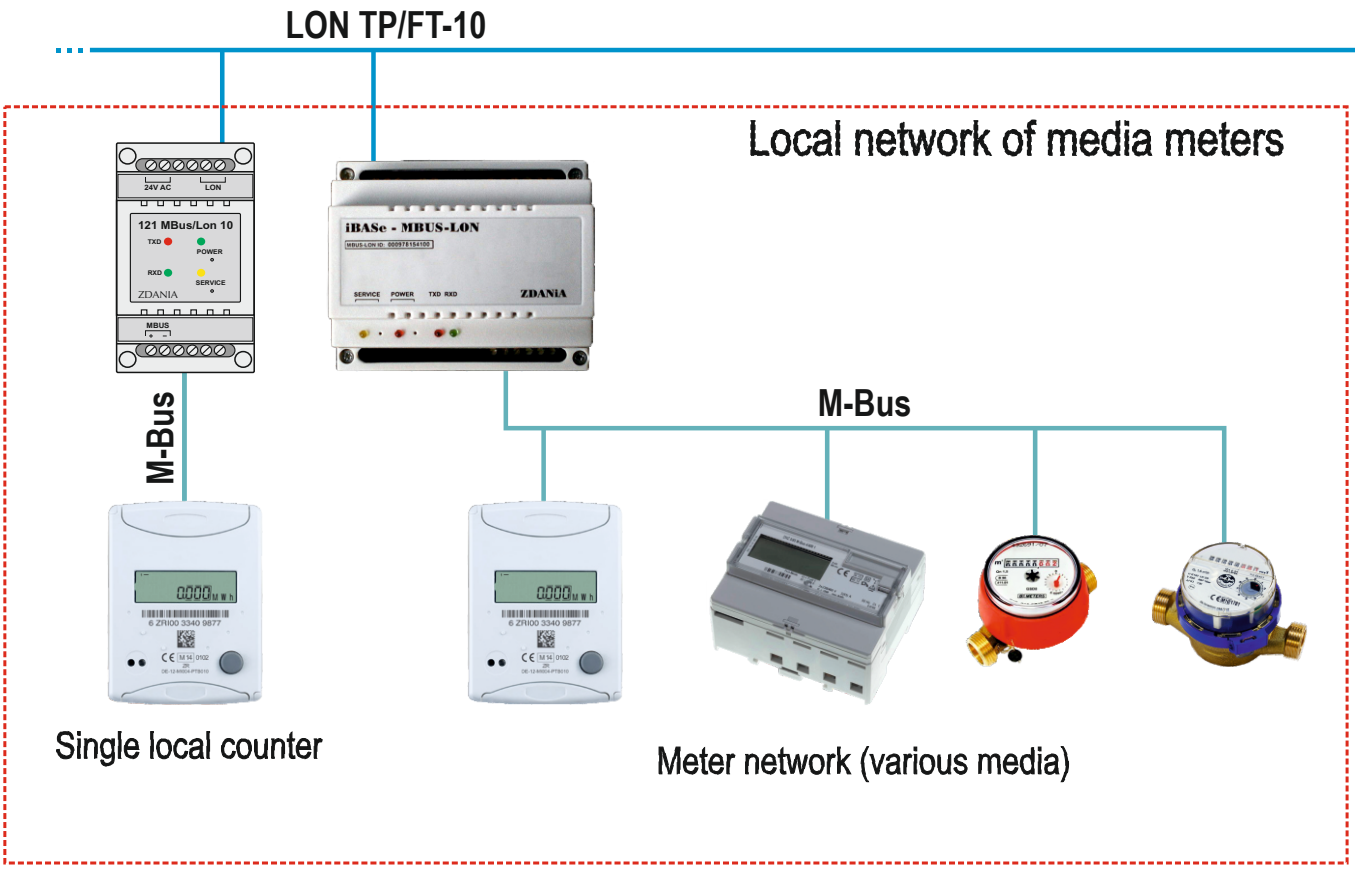
Sensors

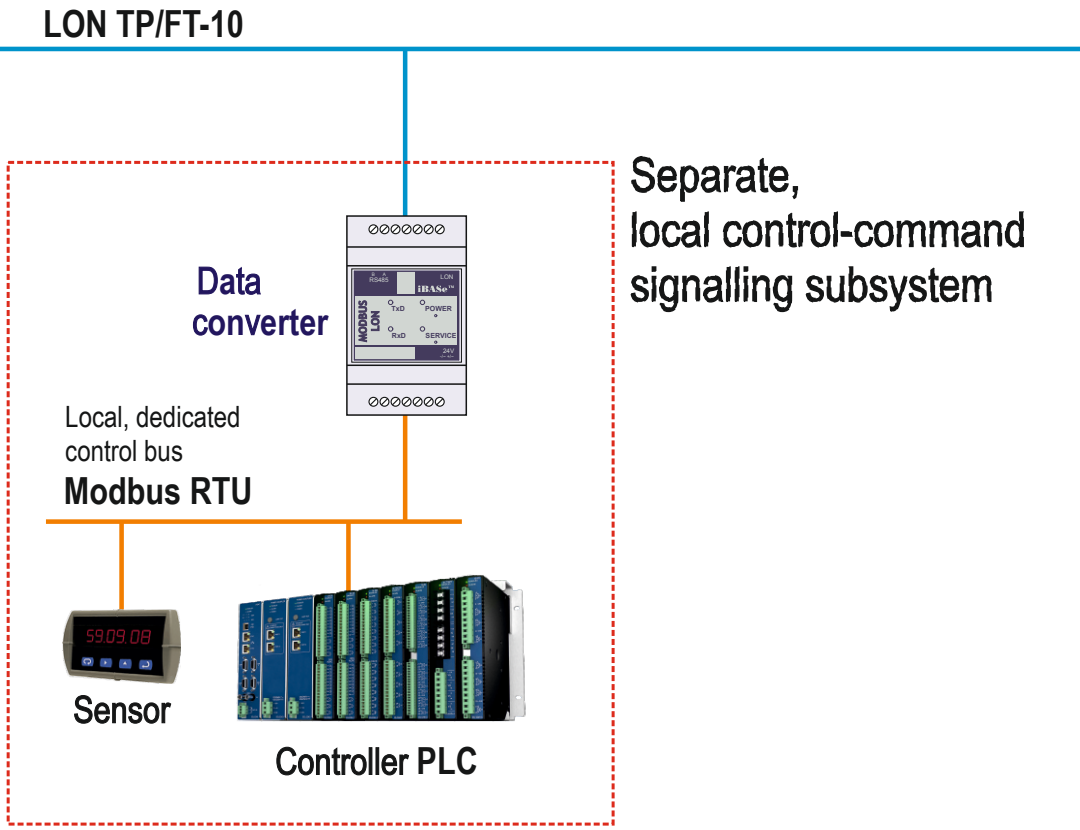
LON TP/FT-10

Other subsystems LonWorks ...

System structure

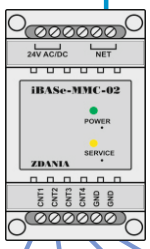
iBASe®





System structure

Integration of existing standard meters



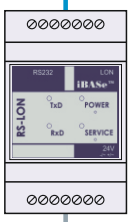
Media counters with pulse output

Repeater

Used for long bus segments

Local System with own communication

Data converter



EIA-232

Locak interface with short connections

Sound system

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Channel sencors

CO_2SM-001 — **CO_2 level channel sensors**
Voltage interface

HSM-101 — **Humidity and temperature channel sensor**
LONWORKS Interface®

HSM-301 — **Humidity and temperature channel sensor**
Modbus interface

TSM-101 — **Temperature channel sensor**
LONWORKS Interface®

Room sensors

CO_2SM-021 — **CO_2 level room sensor**
Voltage interface

CO_2SM-121 — **CO_2 level room sensor**
LONWORKS interface®

DPSM-021 — **Fifferential pressure room sensor**
Voltage interface

HSM-121 — **Humidity and temperature room sensor**
LONWORKS interface®

HSM-322 — **Humidity and temperature room sensor with LCD display**
Modbus interface

TSM-121 — **Temperature room sensor**
LONWORKS interface®

Czujniki zewnętrzne

LSM-111 — **Illumination sensor**
LONWORKS interface®

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Charakteristic

The **CO SM_2-001** sensor converts the CO_2 concentration in the air ducts into a standard signal Voltage **0-10 V**, proportional to the measured value. The sensor is used in ventilation and air conditioning installations.

0-10V DC

Measurement

Measuring element

Digital integrated semiconductor sensor - non dispersive infrared NDIR

Parameter

Measuring range	0-2000 ppm
Accuracy	±30 ppm ±3% read
Warm-up time	1 min
Setting time $T_{63\%}$	20 s
Sensor life	>15 lat

Voltage interface

Standard	Voltage analog signal
Output range	08 V DC
Characteristic	linear
Minimal resistance	10 kΩ
Load	
Connector	Joining strip with screw terminals, 5.08 mm pitch, maximum cable cross section 2,5 mm^2

Signaling

Power	Diode **POWER** green LED	The signaling element is visible after removing the sensor cover

Power

Supply voltage	12 V DC
Power consumption	60 mA
Connector	Connection strip with screw terminals, grid 5.08 mm pitch, maximum cross-section of cable 2,5 mm^2

Environmental conditions

Working temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, no condensation

Housing and assembly

Conection head

Stuff	ABS, light gray
Dimensions (L × W × H)	89 × 74 × 41 mm
Level of security	IP65 (head)
Cable gland	PG7

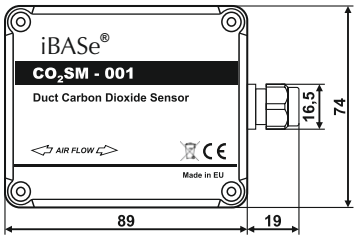
Casing pipe

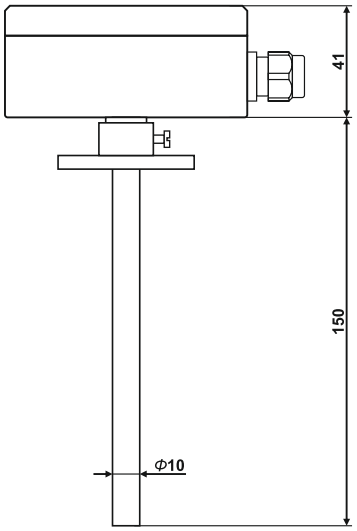
Stuff	brass
Dimensions Φ × D	Φ10 × 150 mm

Assembly

In the duct using a sliding mounting flange

Dimensions



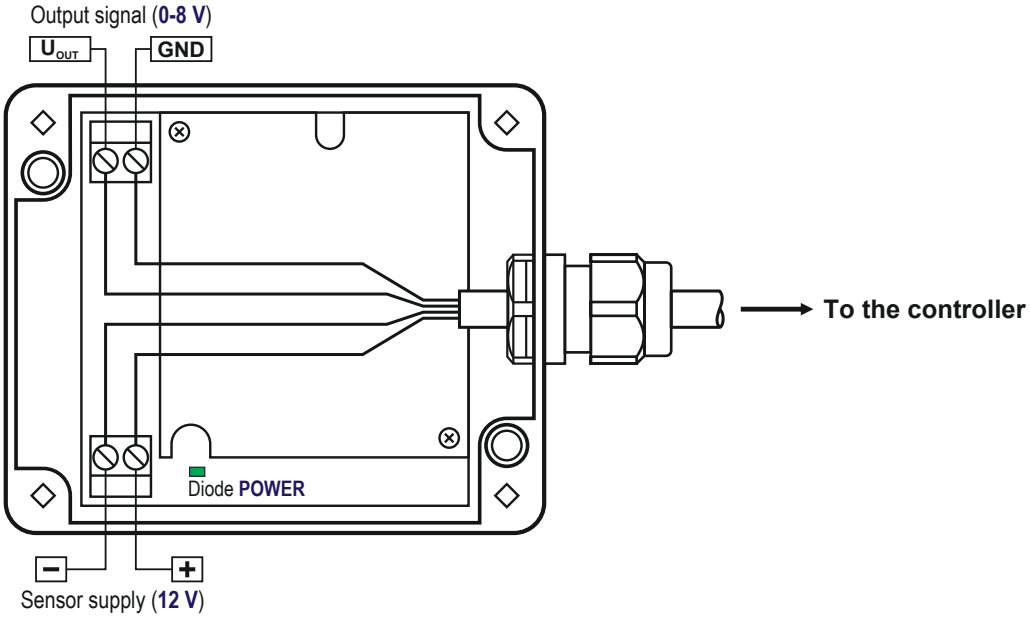


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

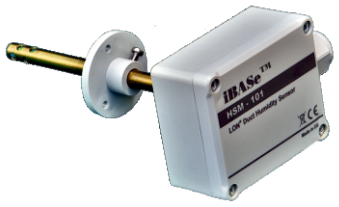
Humidity and temperature sensor

Characteristic

HSM-101 sensor converts the relative humidity and temperature in air ducts into numerical values stored in standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. The sensor is used in heating, ventilation and air-conditioning systems.

Communication with the sensor is carried out via **LON TP/FT-10** interface.

LONWORKS®



Measurement

Measuring element

Digital integrated semiconductor sensor

Parameter	Relative humidity	Temperatura
Measuring range	0-100% RH	from -10 to 85°C
Accuracy	±1,8% RH (range 10-90% RH)	±0,8°C (range -10 to 60°C)
Establishment time $T_{63\%}$	8 s	30 s

Communication interface

Standard	LONWORKS 2.0 (without integration fees)
Transceiver	TP/FT-10 Free Topology Transceiver
Neuron Chip	5000
Transmission protocol	LonTalk
Data Format	Standard Network Variables (SNVT)
Baud rate	78 kb/s
Maximum distance	Bus topology 2700 m / 64 network nodes (devices)
Transmission medium	Free topology 500 m / 64 network nodes (devices) Steam twisted
Connector	Connection strip with screw terminals, grid 5,08 mm, Maximum conductor cross section 2,5 mm^2

Signalling and control

Network integration	Button **Service**
Manual initialization	Button **Reset**
Power supply and identification	Diode **Power/Wink** - green LED Diode
Network status LON TP/FT-10	**Service** - yellow LED

Signaling and control elements are available when the sensor cover is removed

Power supply

Supply voltage	24V AC/DC
Current consumption	50 mA
Connector	Connection strip with screw terminals, raster 5,08 mm, Maximum conductor cross section 2,5 mm^2

Environmental conditions

Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Connection head

Material	ABS, light grey 89 ×
Dimensions (D × S × W)	74 × 41 mm IP65
Degree of protection	(head) PG13,5
Cable gland	

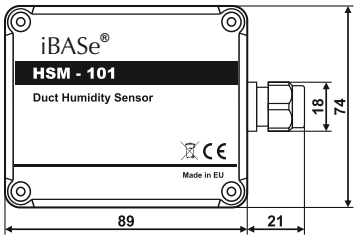
Protective tube with measuring probe

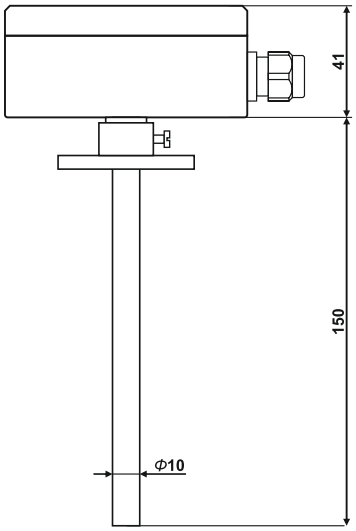
Material	brass
Dimensions ΦD	Φ10 × 150 mm

Assembly

In the duct with the use of a sliding mounting flange

Dimensions



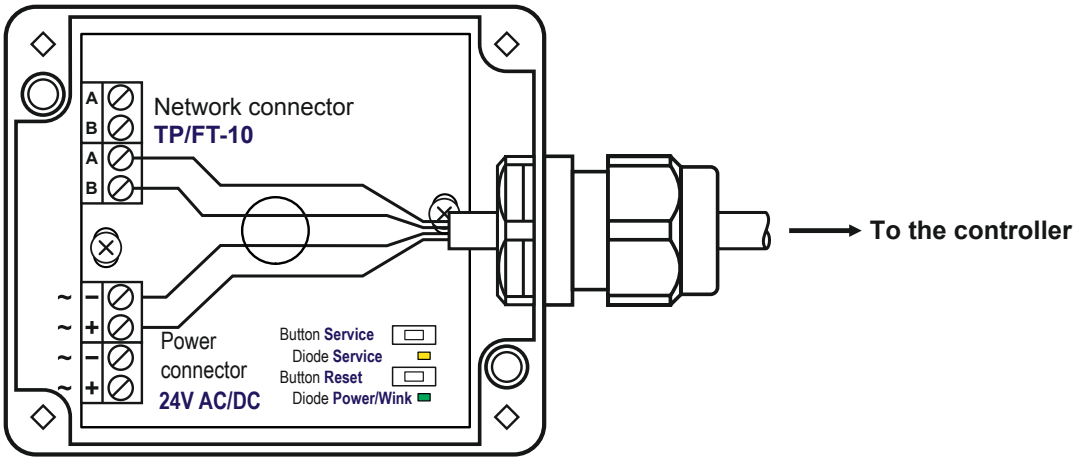


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application



Comments

1. When using direct current, observe polarity.
2. The power supply and **TP/FT-10** interface terminals have been doubled for ease of connection.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Humidity and temperature sensor

Characteristic

HSM-301 sensor converts relative humidity and temperature in air ducts into numerical values recorded in **Modbus** registers. The sensor is used in heating, ventilation and air conditioning installations.

Communication with the sensor takes place via the **EIA-485** interface, with the use of protocol **Modbus RTU**.

Measurement

Measuring element

Digital integrated semiconductor sensor

Parameter	Relative humidity	Temperature
Measuring range	0-100% RH	from -10 to 85°C
Accuracy	±1,8% RH (w zakresie 10-90% RH)	±0,8°C (range -10 - 60°C) 30 s
Establishment time $T_{63\%}$	8 s	

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	Modbus RTU
Mode of operation	Slave
Baud rate	9600 bps
Frame format	8N1
Module addressing	In accordance with the Modbus standard (address programmable, stored in non-volatile memory)
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	None
Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2,5 mm^2

Signalling and control

Network integration	Button **Service**
Manual initialization	Button **Reset**
Power supply and identification	Diode **Power** - green LED Diode
Communication status	**Traffic** - yellow LED

Signaling and control elements are available when the sensor cover is removed

Power supply

Supply voltage	24 V AC/DC
Current consumption	50 mA
Connector	Connection strip with screw terminals, grid 5.08 mm, maximum conductor cross section 2.5 mm^2

Environmental conditions

Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Connection head

Material	ABS, light grey
Dimensions (D × S × W)	89 × 74 × 41 mm
Degree of protection	IP65 (head)
Cable gland	PG13,5

Protective tube with measuring probe

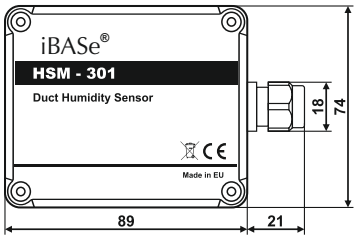
Material	brass
Dimensions ΦD	Φ10 × 150 mm

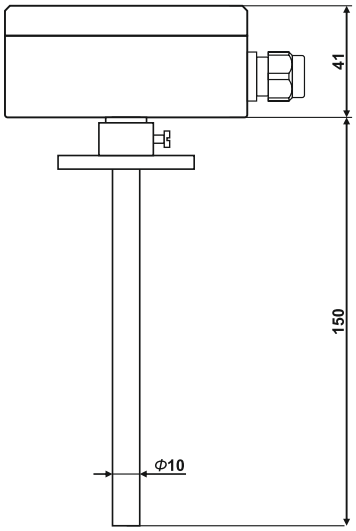
Assembly

In the duct with the use of a sliding mounting flange

Modbus

Dimensions



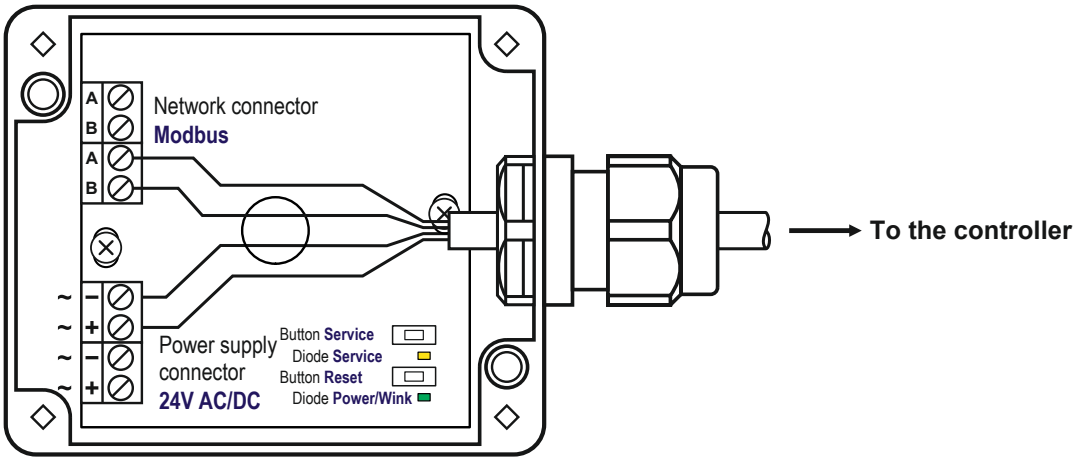


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application



Comments

1. Pay attention to polarity when using direct current.
2. The power supply and **Modbus** have been doubled for ease of connection.
3. The **Modbus** communication installation must be carried out in accordance with the general guidelines for this type of system.

Characteristic

TSM-101 sensor converts the relative humidity and temperature in air ducts into numerical values stored in standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. The sensor is used in heating, ventilation and air-conditioning systems.

Communication with the sensor is carried out via **LON TP/FT-10** interface.

Measurement

Parameter	Digital semiconductor sensor
Measuring range	from -10 to 85°C
Accuracy	±0,8°C (range -10 to 60°C)
Establishment time $T_{63\%}$	30 s

Communication interface

Standard	LONWORKS 2.0 (without integration fees)
Transceiver	TP/FT-10 Free Topology Transceiver
Neuron Chip	5000
Transmission protocol	LonTalk
Data Format	Standard Network Variables (SNVT)
Baud rate	78 kb/s
Maximum distance	Bus topology 2700 m / 64 network nodes (devices)
Transmission medium	Free topology 500 m / 64 network nodes (devices)
	Steam twisted
Connector	Connection strip with screw terminals, grid 5,08 mm, Maximum conductor cross section 2,5 mm^2

Signalling and control

Network integration	Button **Service**
Manual initialization	Button **Reset**
Power supply and identification	Diode **Power/Wink** - green LED Diode
Network status LON TP/FT-10	**Service** - yellow LED

Signaling and control elements are available when the sensor cover is removed

Power supply

Supply voltage	24V AC/DC
Current consumption	50 mA
Connector	Connection strip with screw terminals, raster 5,08 mm, Maximum conductor cross section 2,5 mm^2

Environmental conditions

Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Connection head

Material	ABS, light grey 89 ×
Dimensions (D × S × W)	74 × 41 mm IP65
Degree of protection	(head) PG13,5
Cable gland	

Protective tube with measuring probe

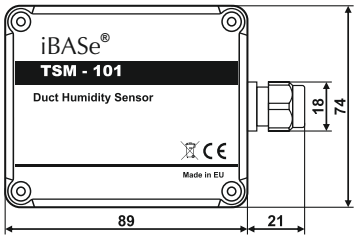
Material	brass
Dimensions ΦD	Φ10 × 150 mm

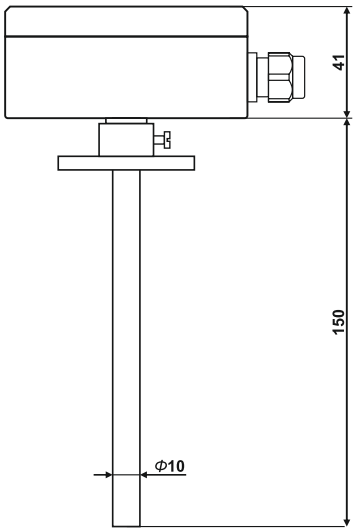
Assembly

In the duct with the use of a sliding mounting flange

LONWORKS®

Dimensions



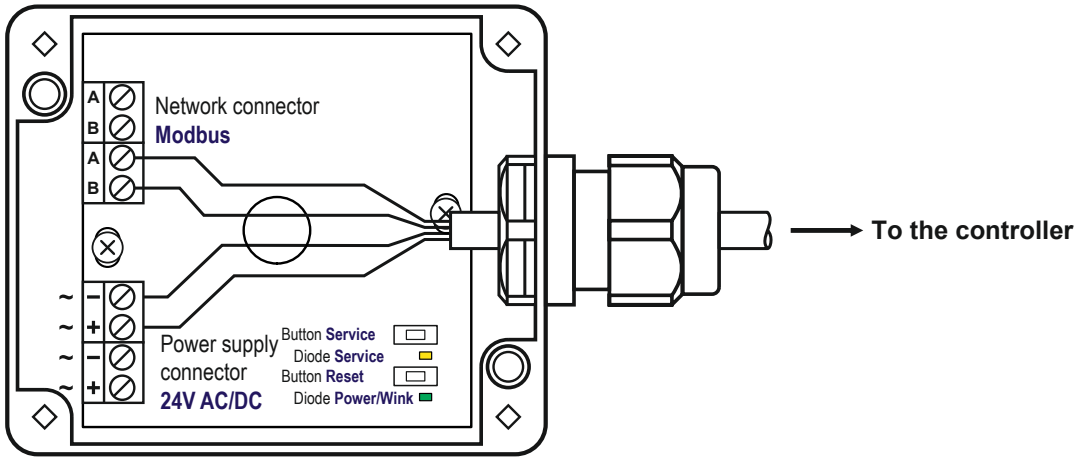


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application



Comments

1. Pay attention to polarity when using direct current.
2. The power supply and **TP/FT-10** network interface terminals are doubled for connectivity convenience.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

CO_2SM-021

CO^2 level sensor

0-10V DC

Characteristics

CO SM-021$_2$ converts the CO_2 concentration in the room into a standard **0-10 V**, voltage signal, proportional to the measured value. The sensor is used in ventilation and air conditioning systems.

Measurement

Measuring element

Digital integrated semiconductor sensor non dispersive infrared NDIR

Parameter	
Measuring range	0-2000 ppm
Accuracy	±30 ppm ±3% read
Establishment time$T_{63\%}$	1 min
Sensor lifetime	20 s
	>15 years

Measuring interface

Standard	Analogue voltage signal 0-10
Output range	V DC
Characteristics	Linear
Minimum load resistance	10 kΩ
Connector (one of the options)	• telecommunications **4P4C** (RJ-10), hared with signal output • Connection strip with screw terminals, grid 5 mm, maximum conductor cross section 1.5 mm^2

Signaling

CO_2 Concentration thresholds	Diode **Green** - CO_2 **concentration** is normal (< 700 ppm) Diode **Yellow** - alert **threshold exceeded** (700/800 ppm) Diode **Red**- alarm **threshold exceeded** (900/1000 ppm)
Arrangement of three LEDs of different colors	Signaling elements are visible through the ventilation slots of the housing. When the method of signaling is adopted, a separate power supply signaling diode is not required.

Power supply

Supply voltage	12 V DC
Current consumption	60 mA
Connector (one of the options)	• telecommunications 4P4C (RJ-10), hared with signal output • Connection strip with screw terminals, grid 5 mm, maximum conductor cross section 1.5 mm2

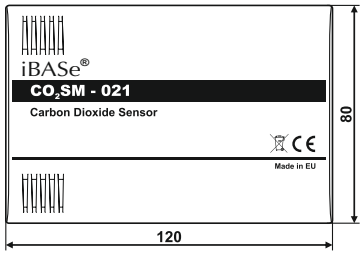
Environmental conditions

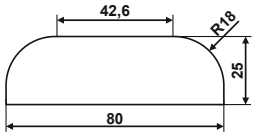
Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Material	ABS, light gray
Dimensions (D × S × W)	120 × 80 × 25 mm
Degree of protection	IP20
Assembly	Wall-mounted, inside the room

Dimensions





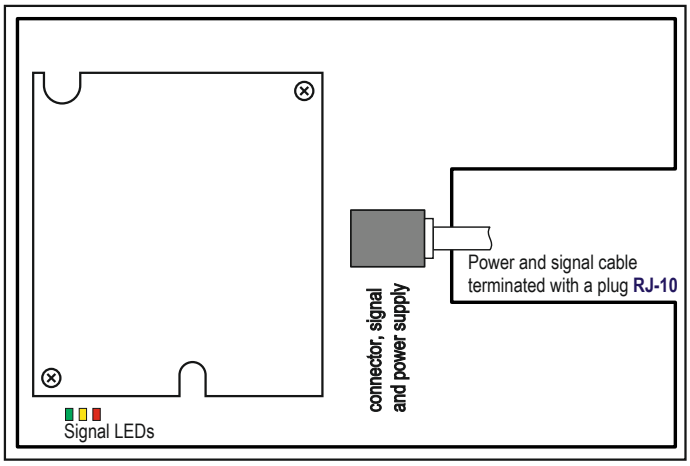
ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application

Version with 4P4C connector (RJ-10)

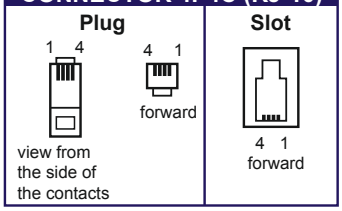


Assignment of signals to contacts

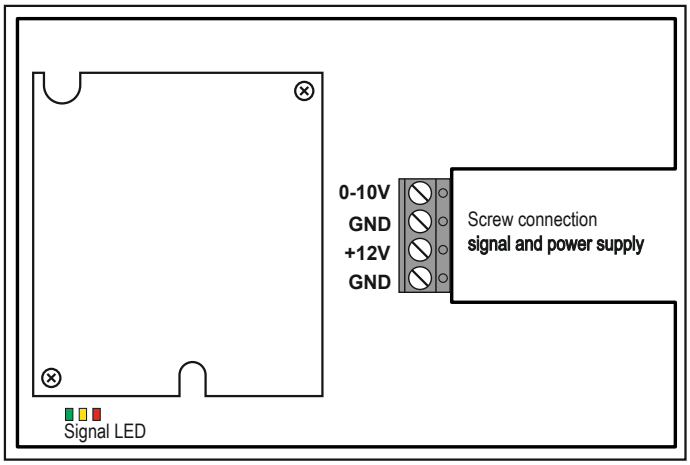
Sensor (4P4C)	
1	GND
2	Power +12 V
3	GND
4	Signal 0-10 V

Connector pin layout

CONNECTOR 4P4C (RJ-10)



Version with screw connection



Level CO_2 indication

Active diode	Stan
Green	CO2 concentration is normal (< 700 ppm)
Yellow	Alert threshold exceeded (700/800 ppm)
Red	Alarm threshold exceeded (900/1000 ppm)

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **CO $_2$ SM-121** sensor converts the CO 2 carbon dioxide concentration in the room into numerical values stored in standard network variables (**SNVT**). The variables and configuration parameters are collected in a profile defined by the LONMARK standard. The sensor is used in ventilation and air-conditioning systems.

Communication with the sensor takes place via the **LON TP/FT-10** interface.

Measurement

Measuring element

Digital integrated semiconductor sensor non dispersive infrared NDIR

Parameter	
Measuring range	0-2000 ppm
Accuracy	±30 ppm ±3% read
Establishment time$T_{63\%}$	1 min
Sensor lifetime	20 s
	>15 years

Measuring interface

Standard	LonWorks 2.0 (without integration fees)
Transceiver	TP/FT-10 Free Topology Transceiver
Neuron Chip	5000
Transmission protocol	LonTalk
Data Format	Standard Network Variables (SNVT)
Baud rate	78 kb/s
Maximum distance	Bus topology 2700 m / 64 network nodes (devices)
	Free topology 500 m / 64 network nodes (devices)
Transmission medium	Steam twisted
Connector	Connection strip with screw terminals, grid 5,08 mm, Maximum conductor cross section 2,5 mm^2

Signaling and control

Network integration Manual initialization

Power supply and identification

Network status LON TP/FT-10

CO_2 Concentration thresholds Three LEDs system with different colors.

Button **Service**

Button **Reset**

Diode **Power/Wink** - green LED Diode **Service** - yellow LED

Signaling and control elements are available when the sensor cover is removed

Diode **Green** - CO_2 **concentration** is normal (< 700 ppm)

Diode **Yellow** - alert **threshold exceeded** (700/800 ppm)

Diode **Red** - alarm **threshold exceeded** (900/1000 ppm)

Diodes of CO_2 concentration thresholds are visible through the ventilation slots of the enclosure

Power supply

Napięcie zasilania	24V AC/DC
Pobór prądu	50 mA
Złącze	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 1.5 mm^2

Environmental conditions

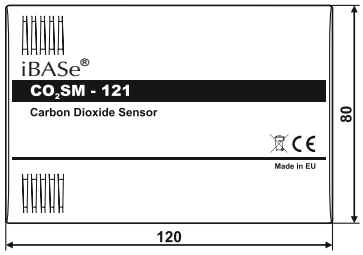
Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

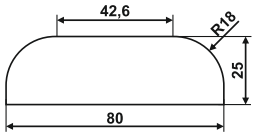
Housing and installation

Material	ABS, light grey
Dimensions (D × S × W)	89 × 74 × 41 mm
Degree of protection	IP65 (head)
Assembly	PG13,5

LonWorks®

Dimensions



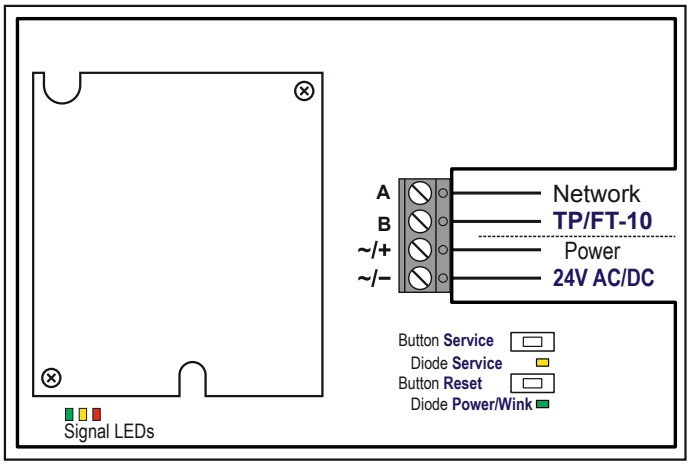


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application



Comment
Pay attention to the polarity when using direct current.

Signalling the level of CO_2

Active diode	Condition
Green	CO_2 **concentration** is normal (< 700 ppm)
Yellow	Alert **threshold exceeded** (700/800 ppm)
Red	Alarm **threshold exceeded** (900/1000 ppm)

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

DPSM-021 sensor converts the differential pressure value between zones into a standard **0-10 V** voltage signal proportional to the measured value. The sensor is used in ventilation systems or in the exhaust systems of laboratory fume cupboards. The sensor enables precise measurement of small pressure differences and can be used in the following cases:

- differential pressure control systems between rooms, e.g. in locks (cascade of pressures) or between corridor and room (overpressure or underpressure),
- air flow control systems in laboratory fume cupboards,
- air flow measurement systems in ventilation ducts (in cooperation with with mechanical back-up devices (measuring orifices or crosses),
- variable air flow control (VAV) systems in ventilation ducts with the use of three-position controlled flap actuators.

Measurement

Parameter	Digital semiconductor sensor
Measuring range	from -62 to 62 Pa (enforcement **DPSM-021/0-10/62**)
Accuracy	from -5 to 125 Pa (enforcement **DPSM-021/0-10/125**)
Establishment time $T_{63\%}$	±1Pa
	40 ms

Measuring interface

Standard	Analogue voltage signal
Output range	0-10 V DC
Characteristics	Linear
Minimum load resistance	10 kΩ
Connector (one of the options)	

- telecommunications **4P4C** (RJ-10), hared with signal output
- Connection strip with screw terminals, grid 5,08 mm, maximum conductor cross section 1.5 mm²

Signaling and control

POWER diode	The signaling element is visible when the sensor housing is removed.
green LED	

Power supply

Supply voltage	12 V DC
Current consumption	15 mA
Connector (one of the options)	• telecommunications **4P4C** (RJ-10), hared with signal output • Connection strip with screw terminals, grid 5,08 mm, maximum conductor cross section 1.5 mm²

Environmental conditions

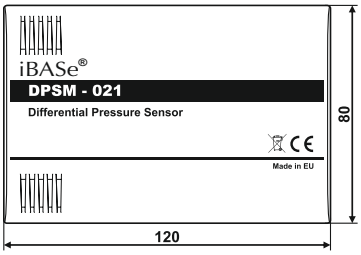
Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

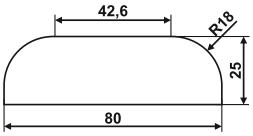
Housing and installation

Material	ABS, light gray
Dimensions (D × S × W)	120 × 80 × 25 mm
Degree of protection	IP20
Assembly	Wall-mounted, inside the room

0-10V DC

Dimensions





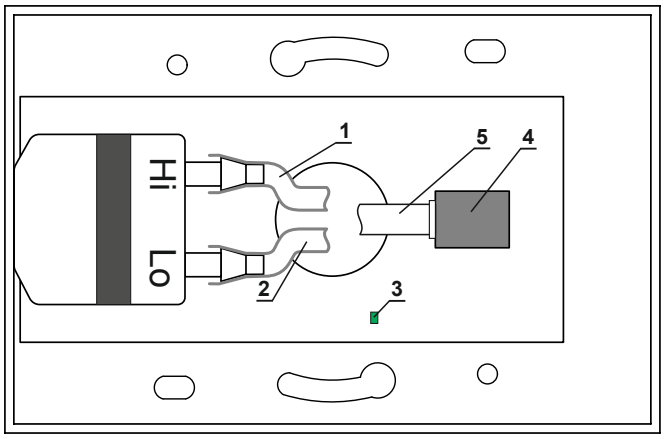
ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application

Version with RJ10 connector (4P4C)



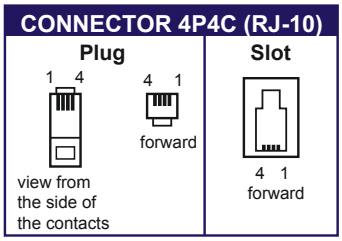
Designations
1 flexible hose from a higher pressure zone
2 flexible hose from the lower pressure zone
3 indication of sensor power supply
4 - **RJ-10** connector for sensor power supply and output signal
5 power and signal cable terminated with **RJ-10** plug

Assignment of signals to contacts

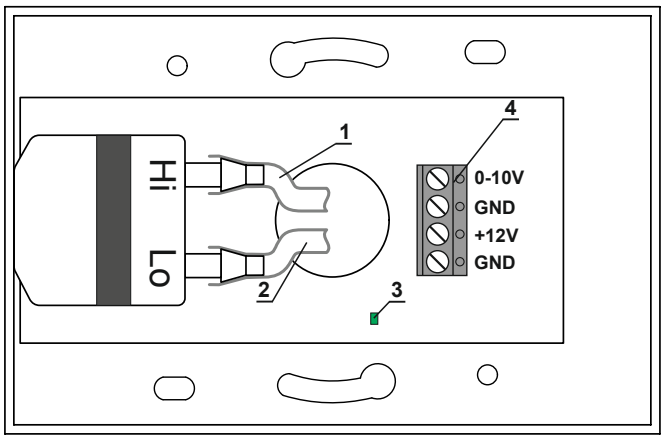
Sensor (4P4C)	
1	GND
2	Power **+12 V**
3	GND
4	Signal **0-10 V**

Connector pin layout

CONNECTOR 4P4C (RJ-10)



Version with screw connection



Designations
1 flexible hose from a higher pressure zone
2 flexible hose from the lower pressure zone
3 indication of sensor power supply
4 connector for sensor power supply and output signal

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

Humidity and temperature sensor

Characteristic

LonWorks®

HSM-121 sensor converts the relative humidity and temperature in air ducts into numerical values stored in standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. The sensor is used in heating, ventilation and air-conditioning systems.

Communication with the sensor is carried out via **LON TP/FT-10** interface.

Measurement

Measuring element

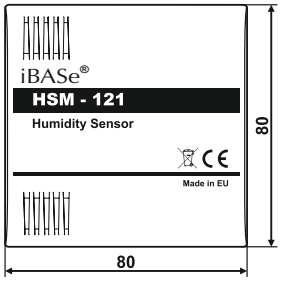
Digital integrated semiconductor sensor

Parameter	Relative humidity	Temperatura
Measuring range	0-100% RH	from -10 to 40°C
Accuracy	±1,8% RH (range 10-90% RH)	±0,8°C
Establishment time $T_{63\%}$	8 s	30 s

Communication interface

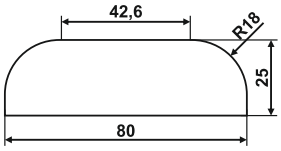
Standard	LonWorks 2.0 (without integration fees)
Transceiver	TP/FT-10 Free Topology Transceiver
Neuron Chip	5000
Transmission protocol	LonTalk
Data Format	Standard Network Variables (SNVT)
Baud rate	78 kb/s
Maximum distance	Bus topology 2700 m / 64 network nodes (devices)
Transmission medium	Free topology 500 m / 64 network nodes (devices)
	Steam twisted
Connector	Connection strip with screw terminals, grid 3,5 mm,
	Maximum conductor cross section 1,5 mm^2

Dimensions



Signalling and control

Network integration	Button **Service**	Signaling and control elements are available when the sensor cover is removed
Manual initialization	Button **Reset**	
Power supply and identification	Diode **Power/Wink** - green LED Diode	
Network status LON TP/FT-10	**Service** - yellow LED	



Power supply

Supply voltage	24V AC/DC
Current consumption	50 mA
Connector	Connection strip with screw terminals, raster 3,5 mm,
	Maximum conductor cross section 1,5 mm^2

Environmental conditions

Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Connection head

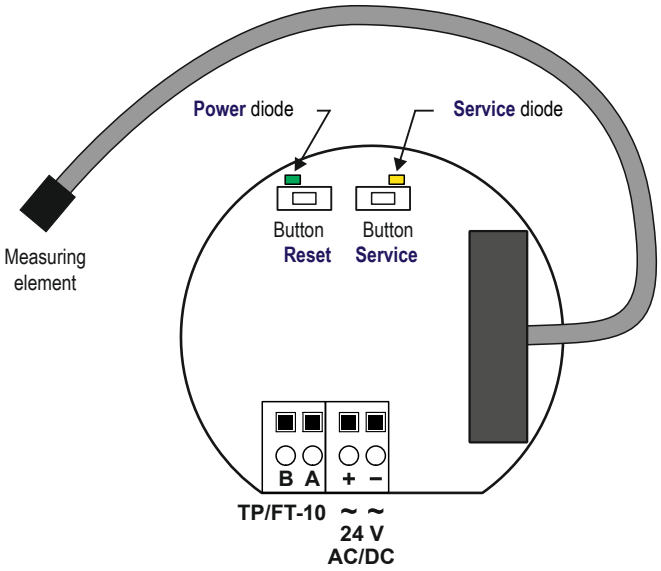
Material	ABS, light grey
Dimensions (D × S × W)	80 × 80 × 25 mm
Degree of protection	IP20
Assembly	wall-mounted, inside the room, on the installation box Φ60

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor aplication



Comments

1. The sensor module should be located in such a place that it is not exposed to direct heating (heat sources, operating devices, sunny areas).
2. When supplying the sensor with DC voltage, pay attention to polarity.
3. In order to avoid mistakes, the color convention for the terminals has been adopted when connecting the sensor:
   - **TP/FT-10** network - **orange** color
   - power **24 V AC/DC** - **blue** color
4. During installation, the measuring element must be placed in a wall-mounted housing at the bottom of the ventilation openings and the electronics board must be placed inside the installation box Φ60.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

Humidity and temperature sensor

Characteristic

The **HSM-322** ensor converts the values of relative humidity and room temperature into numerical values stored in the **Modbus** registers. The measured values are alternately displayed on the LCD display. The display of the sensor is backlit and the illumination intensity depends on the ambient lighting.

The sensor is used in heating, ventilation and air-conditioning systems.

Communication with the sensor takes place via the **EIA-485**, interface, using the **Modbus RTU** protocol.

Measurement

Measuring element

Digital integrated semiconductor sensor

Parameter	Relative humidity	Temperatura
Measuring range	0-100% RH	from -10 to 40°C
Resolution	±1% RH	0,1°C
Measurement accuracy	±2% RH	±0,3°C

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	Modbus RTU
Mode of operation	Slave
Baud rate	9600 bps
Frame format	8N2
Module addressing	In accordance with Modbus standard (program addressing)
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	None
Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 1.5 mm^2

Display

Type	Graphic, LCD
Displayed data	• temperature [°C] • relative humidity [% RH]
Display mode	Alternating, with configurable display time
Backlight	Illumination-dependent intensity, configurable thresholds

Power supply

Supply voltage	9-24 V DC
Current consumption	0,5 W
Connector (one of the options)	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 1.5 mm^2

Environmental conditions

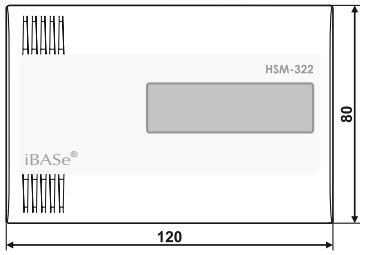
Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

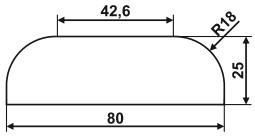
Housing and installation

Material	ABS, light gray
Dimensions (D × S × W)	120 × 80 × 25 mm
Degree of protection	IP20
Assembly	Wall-mounted, inside the room

Modbus

Dimensions



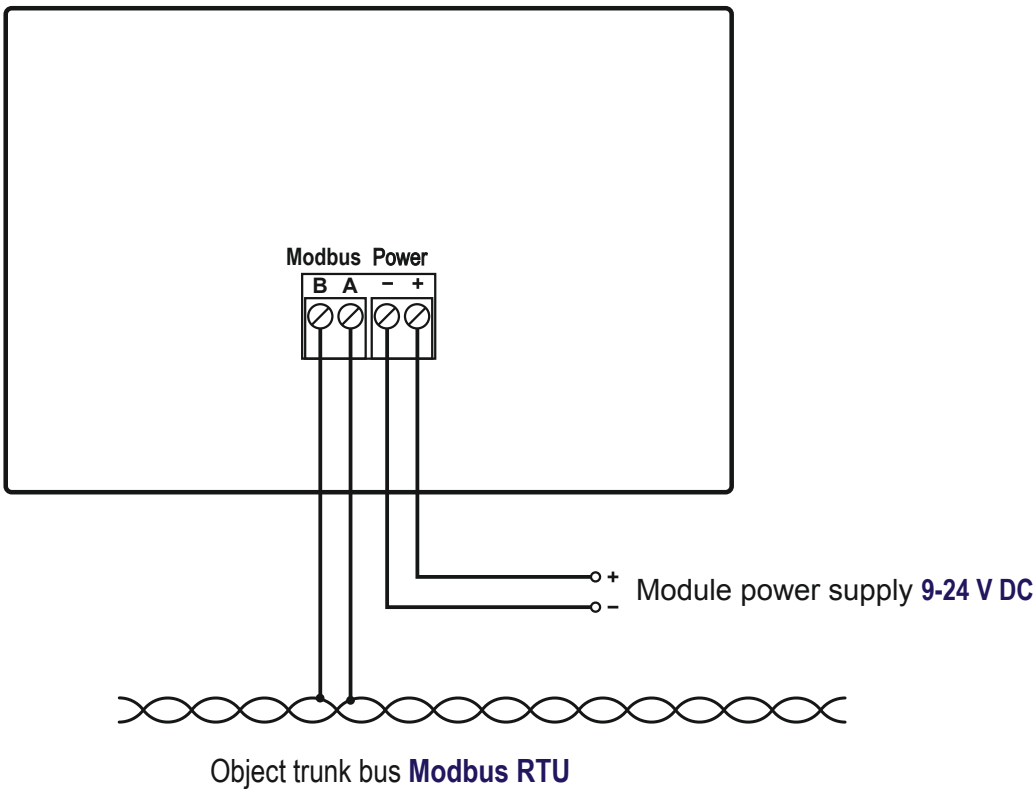


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application



Comments

1. Pay attention to polarity when connecting the power supply.
2. The **Modbus** communication installation must be carried out in accordance with the general guidelines for this type of system.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

LONWORKS®

Characteristic

TSM-101 sensor converts the relative humidity and temperature in air ducts into numerical values stored in standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. The sensor is used in heating, ventilation and air-conditioning systems.

Communication with the sensor is carried out via **LON TP/FT-10** interface.

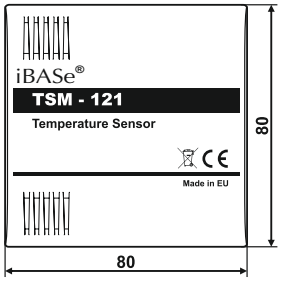
Measurement

Parameter	Digital semiconductor sensor
Measuring range	from -10 to 85°C
Accuracy	±0,8°C (range -10 to 60°C)
Establishment time $T_{63\%}$	30 s

Communication interface

Standard	LONWORKS
Transceiver	TP/FT-10 Free Topology Transceiver
Neuron Chip	3120
Transmission protocol	LonTalk
Data Format	Standard Network Variables (SNVT)
Baud rate	78 kb/s
Maximum distance	Bus topology 2700 m / 64 network nodes (devices)
Transmission medium	Free topology 500 m / 64 network nodes (devices)
	Steam twisted
Connector	Connection strip with screw terminals, grid 3,5 mm, Maximum conductor cross section 1,5 mm^2

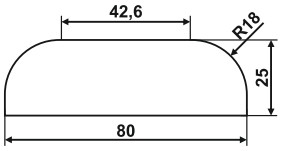
Dimensions



Signalling and control

Network integration	Button **Service**
Manual initialization	Button **Reset**
Power supply and identification	Diode **Power/Wink** - green LED Diode
Network status LON TP/FT-10	**Service** - yellow LED

Signaling and control elements are available when the sensor cover is removed



Power supply

Supply voltage	24V AC/DC
Current consumption	50 mA
Connector	Connection strip with screw terminals, raster 3,5 mm, Maximum conductor cross section 1,5 mm^2

Environmental conditions

Operating temperature (head)	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Connection head

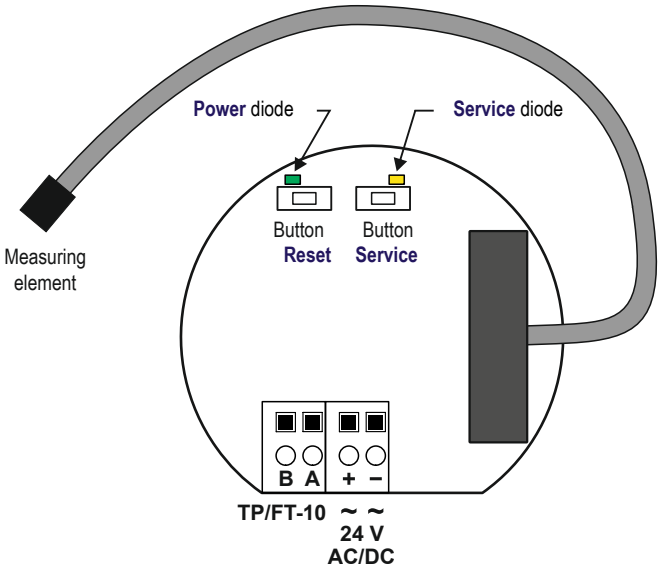
Material	ABS, light grey
Dimensions (D × S × W)	80 × 80 × 25mm
Degree of protection	IP20
Assembly	wall-mounted, inside the room, on the installation box Φ60

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor aplication



Comments

1. The sensor module should be located in such a place that it is not exposed to direct heating (heat sources, operating devices, sunny areas).
2. When supplying the sensor with DC voltage, pay attention to polarity.
3. In order to avoid mistakes, the color convention for the terminals has been adopted when connecting the sensor:
   - **TP/FT-10** network - **orange** color
   - power **24 V AC/DC** - **blue** color
4. During installation, the measuring element must be placed in a wall-mounted housing at the bottom of the ventilation openings and the electronics board must be placed inside the installation box Φ60.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **LSM-111** converts the ambient light intensity into numerical values stored in the standard network variables (**SNVT**). The variables and configuration parameters are collected in a profile defined by the LonMark standard. The sensor is used in lighting control systems.
Communication with the sensor takes place via the **LON TP/FT-10** interface.

LonWorks®

Measurement

Measuring element	Digital illuminance sensor
Measuring range	1-65 535 lx
Measurement accuracy	±10%

Measuring interface

Standard	LonWorks	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	3120	
Transmission protocol	LonTalk	
Data Format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	WAGO type PUSH WIRE, gird 3,5 mm, maximum cable cross section1,5 mm^2	

Signaling and control

Network integration	Button **Service**
Manual initialization	Button **Reset**
Power supply and identification	Diode **Power/Wink** - green LED Diode
Network status LON TP/FT-10	**Service** - yellow LED

Signaling and control elements are available when the sensor cover is removed

Power supply

Supply voltage	24V AC/DC
Current consumption	30 mA
Connector	WAGO type PUSH WIRE, gird 3,5 mm, maximum cable cross section1,5 mm^2

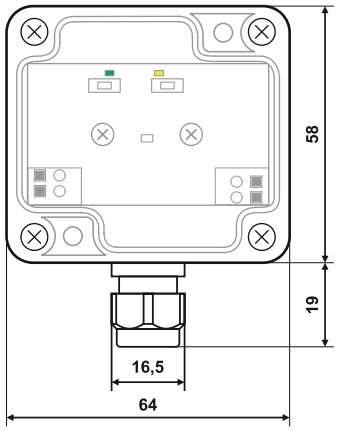
Environmental conditions

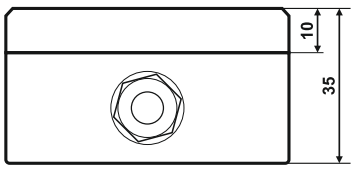
Operating temperature	od -25 do 60°C
Storage temperature	od -30 do 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Cabinet material	ABS, light grey
Cover material	Polycarbonate, transparent
Dimensions (D × S × W)	58 × 65 × 35 mm
Degree of protection	IP65
Cable gland	PG7
Assembly	Wall-mounted, external

Dimensions



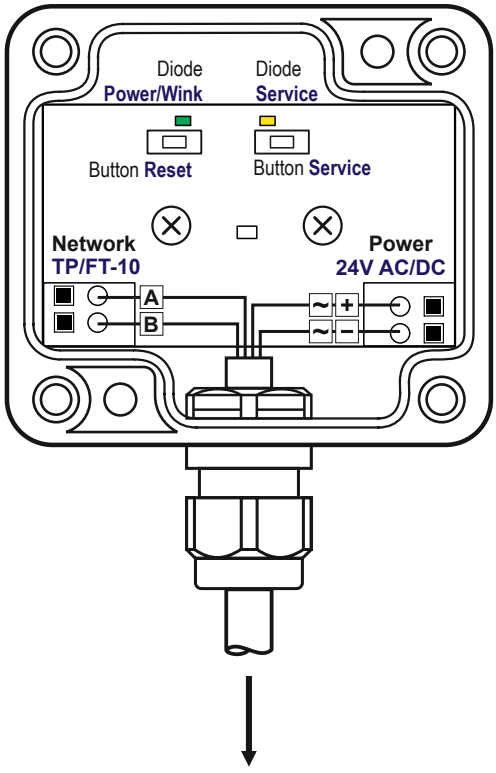


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Sensor application



To the controller

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

Inputs and outputs (I/0) modules

LonWorks® interface

AIO/0-10 — **Analog input and output module**
Voltage inputs and outputs

AIO/4-20 — **Analog input and output module**
Current inputs, voltage outputs

AIO/10N — **Mixed input and output module**
Voltage inputs, thermistor inputs, voltage outputs

AIO/N — **Mixed input and output module**
Binary inputs, thermistor inputs, voltage outputs

DIGI8 — **Two-state input module**
Dual state inputs

DIGIO/A — **Mixed input and output module**
Two-state inputs, voltage outputs, relay outputs

DIGIO/OC — **Two-state input/output module**
Dual state inputs, transistor outputs (DC)

DIGIO/T — **Two-state input/output module**
Dual state inputs, triac outputs (AC)

BACnet® interface

DIGI8 — **Two-state input module**
Dual state inputs

DIGIO/A — **Mixed input and output module**
Two-state inputs, voltage outputs, relay outputs

DIGIO/OC — **Two-state input/output module**
Dual state inputs, transistor outputs (DC)

DIGIO/T — **Two-state input/output module**
Dual state inputs, triac outputs (AC)

Modbus interface

DIGI8 — **Two-state input module**
Dual state inputs

DIGIO/A — **Mixed input and output module**
Two-state inputs, voltage outputs, relay outputs

DIGIO/OC — **Two-state input/output module**
Dual state inputs, transistor outputs (DC)

DIGIO/T — **Two-state input/output module**
Dual state inputs, triac outputs (AC)

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Signal summary

Types of inputs and outputs in individual modules

Module	Input and output signals								
	DI	DO/OC	DO/R	DO/T	AI/10	AI/4-20	AO/10	NTC1,8	NTC10
AIO/0-10	-	-	-	-	8	-	2	-	-
AIO/4-20	-	-	-	-	-	8	2	-	-
AIO/10N	-	-	-	-	6	-	2	2	-
AIO/N	6	-	-	-	-	-	2	-	2
DIGI8	8	-	-	-	-	-	-	-	-
DIGIO/A	2	-	2	-	-	-	2	-	-
DIGIO/OC	4	4	-	-	-	-	-	-	-
DIGIO/T	4	-	-	4	-	-	-	-	-

Module types with particular types of inputs and outputs

Sygnal	Module							
	AIO/0-10	AIO/4-20	AIO/10N	AIO/N	DIGI8	DIGIO/A	DIGIO/OC	DIGIO/T
DI	-	-	-	6	8	2	4	4
DO/OC	-	-	-	-	-	-	4	-
DO/R	-	-	-	-	-	2	-	-
DO/T	-	-	-	-	-	-	-	4
AI/10	8	-	6	-	-	-	-	-
AI/4-20	-	8	-	-	-	-	-	-
AO/10	2	2	2	2	-	2	-	-
NTC1,8	-	-	2	-	-	-	-	-
NTC10	-	-	-	2	-	-	-	-

Comment
The above tables contain the same data, differ only in the way they are presented

Types of signals

DI	Active digital input (with contact supply)
DO/OC	DC transistor output with **OC** (open collector), **NPN**, output transistor, load between output and power supply
DO/R	Low power relay output **NO** contact (normally open)
DO/T	Triac output load supplied with AC voltage
AI/10	Voltage input **0-10 V DC**
AI/4-20	Current input **4-20 mA DC**
AO/10	Voltage output **0-10 V DC**
NTC1,8	Thermistor input thermistor **1,8 kΩ** at **25°C**
NTC10	Thermistor input thermistor **10 kΩ** at**25°C**

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Analog input and output module

Characteristic

The **AIO/0-10** module extends the capabilities of the automation system by a set of analog inputs and outputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **LON TP/FT-10** interface.

Analog inputs

Standard	Voltage
Number of inputs	8
Input range	0-10 V
Resolution	8 bits
Input resistance	100 kΩ

Analog outputs

Standard	Voltage
Number of inputs	2
Input range	0-10 V
Resolution	8 bits
Minimum load	10 kΩ

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	2 W

Connectors

Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

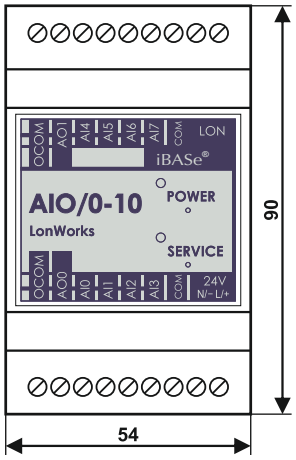
Housing and installation

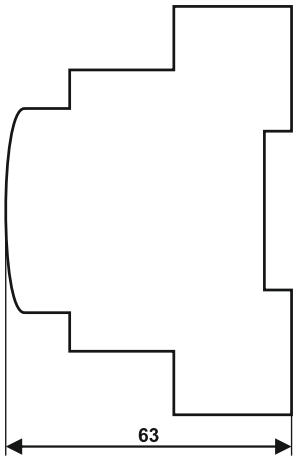
Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

LonWorks®

LonMark®

Dimensions



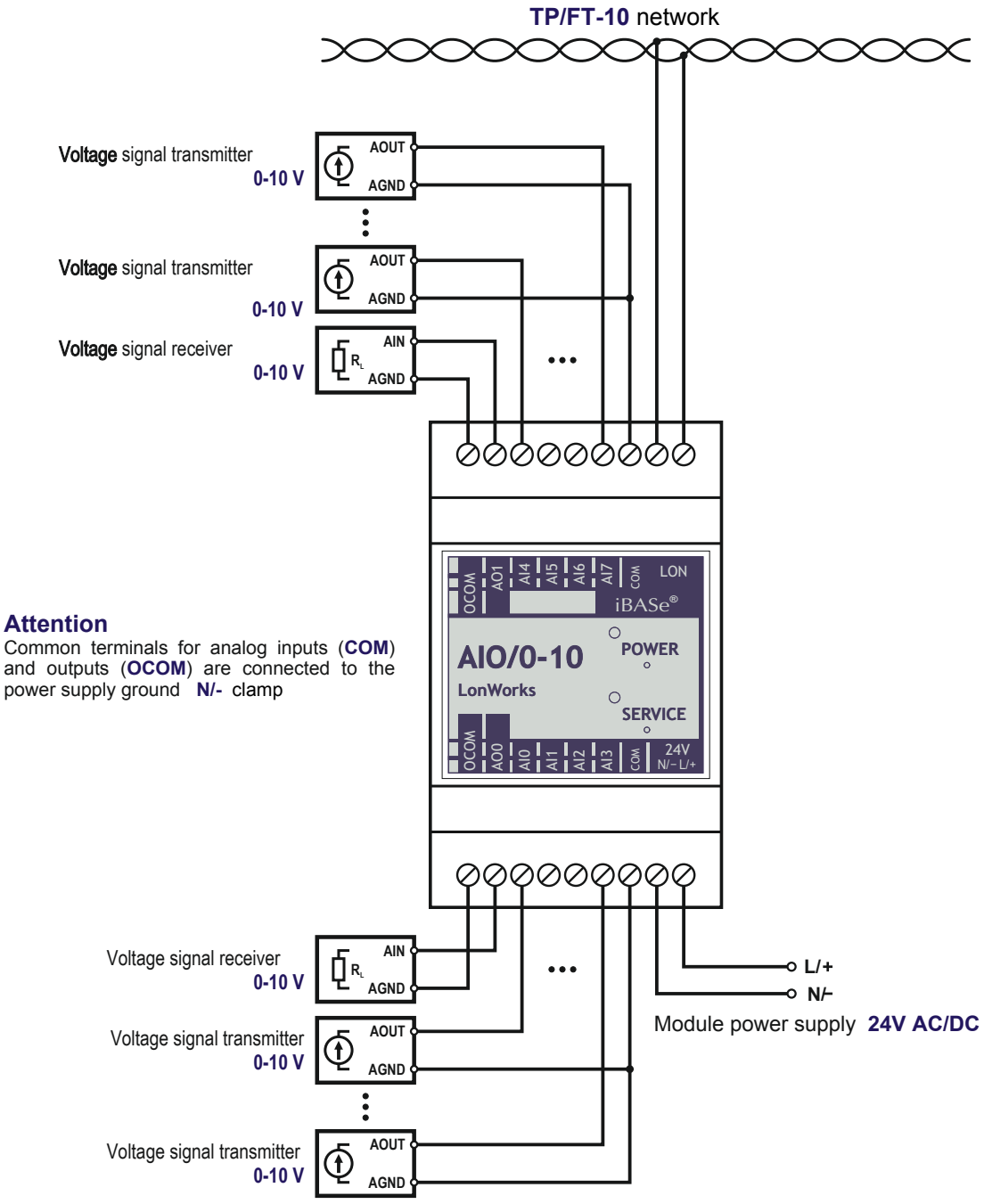


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Attention
Common terminals for analog inputs (**COM**) and outputs (**OCOM**) are connected to the power supply ground **N/-** clamp

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal N/-), unless otherwise stated.
Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged..

Power 24 V AC

The assignment of the L and N terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

ZDANIA SINCE 1992

Analog input and output module

Characteristic

The **AIO/0-10** module extends the capabilities of the automation system by a set of analog inputs and outputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **LON TP/FT-10** interface.

Analog inputs

Standard	Voltage
Number of inputs	8
Input range	4-20 mA
Resolution	8 bits
Input resistance	250 Ω

Analog outputs

Standard	Voltage
Number of inputs	2
Input range	0-10 V
Resolution	8 bits
Minimum load	10 kΩ

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	2 W

Connectors

Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

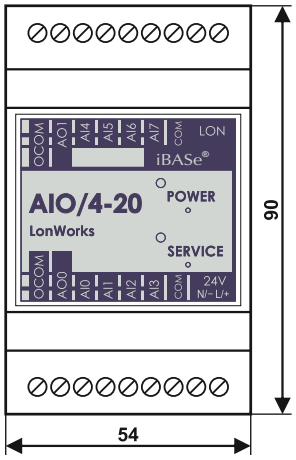
Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

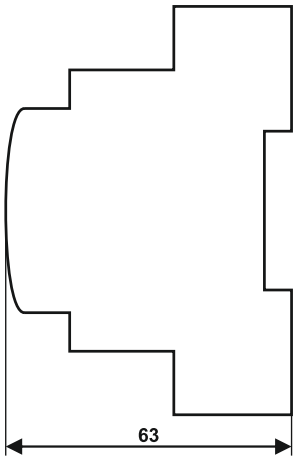
Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

LonWorks®

Dimensions



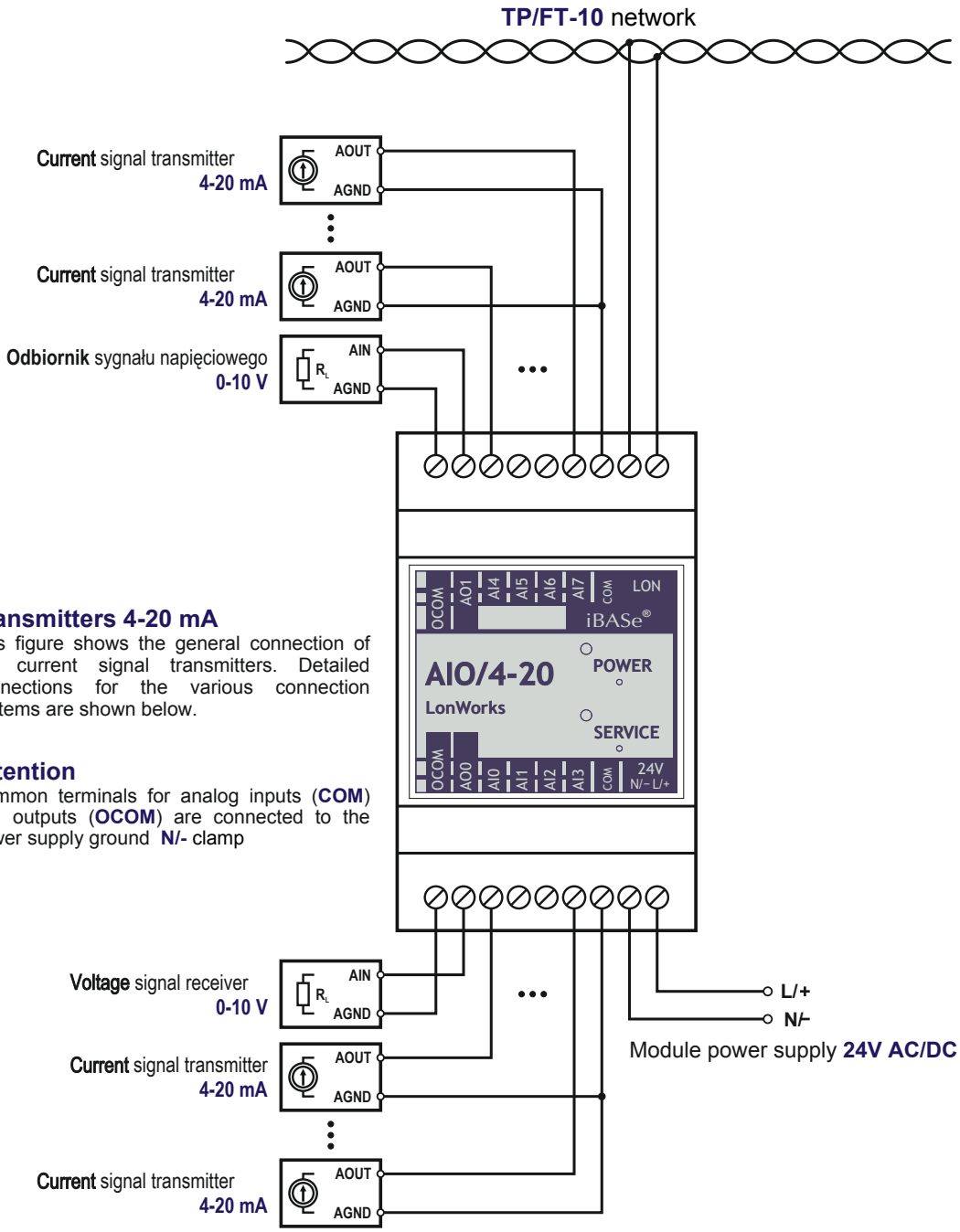


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Transmitters 4-20 mA

This figure shows the general connection of the current signal transmitters. Detailed connections for the various connection systems are shown below.

Attention

Common terminals for analog inputs (**COM**) and outputs (**OCOM**) are connected to the power supply ground **N/-** clamp

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

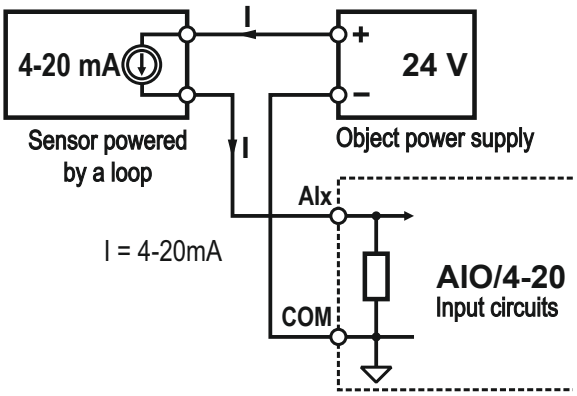
Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

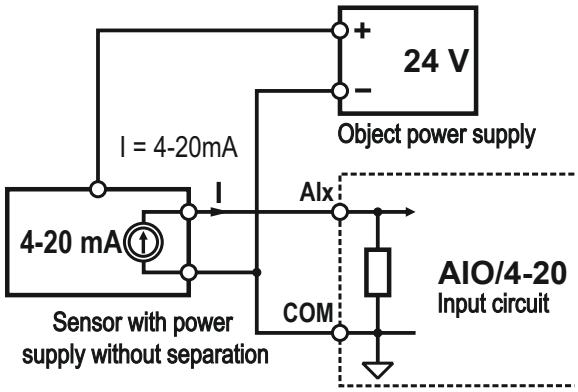
ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

Module application overview of input circuits

Connection of the two-wire sensor

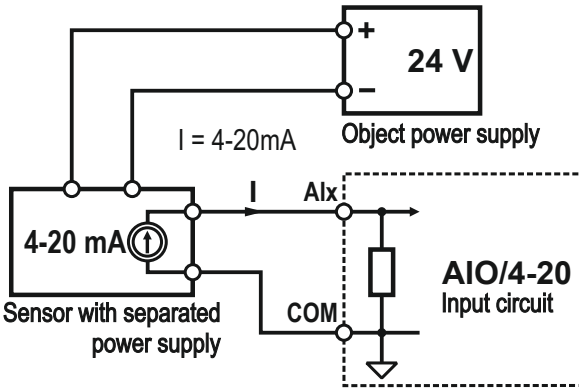


Three-wire sensor connection

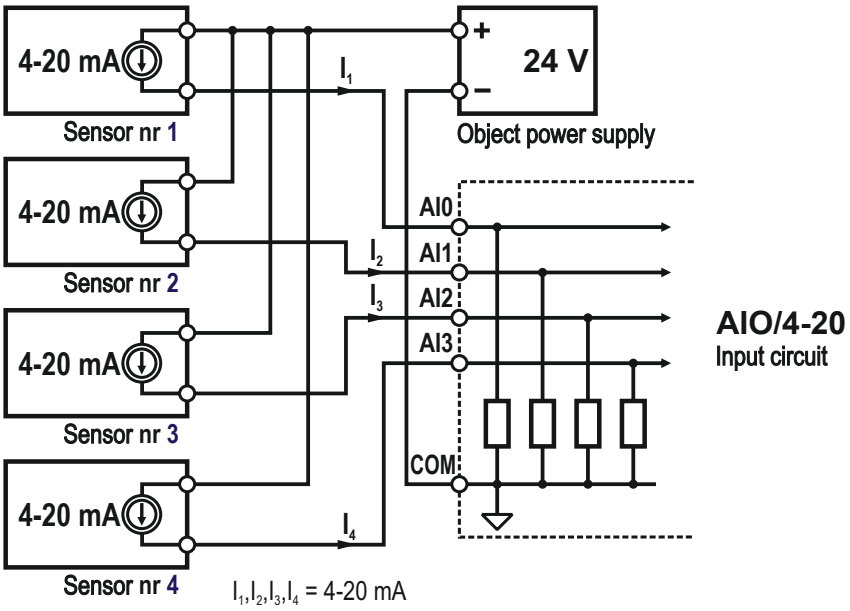


Attention
This is a combination of a **low-side shunt**. It is not possible to use the **AIO/4-20** module in the an alternative **high-side shunt**.

Four-wire sensor connection



Connection of a group of sensors



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Characteristic

The **AIO/0-10** module extends the capabilities of the automation system by a set of mixed inputs and outputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **LON TP/FT-10** interface.

LONWORKS®

LONMARK®

Analog inputs

Standard	Voltage
Number of inputs	6
Input range	0-10V
Resolution	8 bits
Input resistance	100 kΩ

Analog outputs

Standard	Voltage
Number of inputs	2
Input range	0-10 V
Resolution	8 bits
Minimum load	10 kΩ

Temperature inputs

Standard	Termistoric
Number of inputs	2
Measuring element	NTC 1,8 kΩ at 25°C
Measuring range	0-40°C
Accuracy	±0,5°C

Communication interface

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	2 W

Connectors

Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

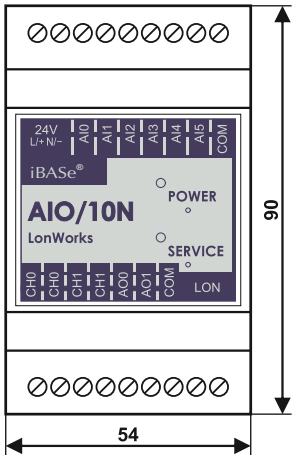
Environmental conditions

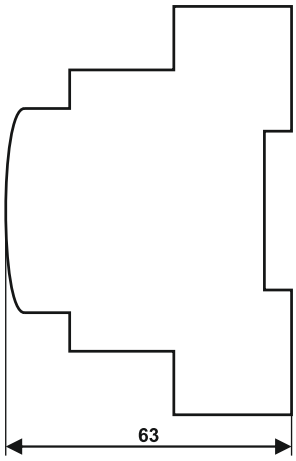
Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Dimensions



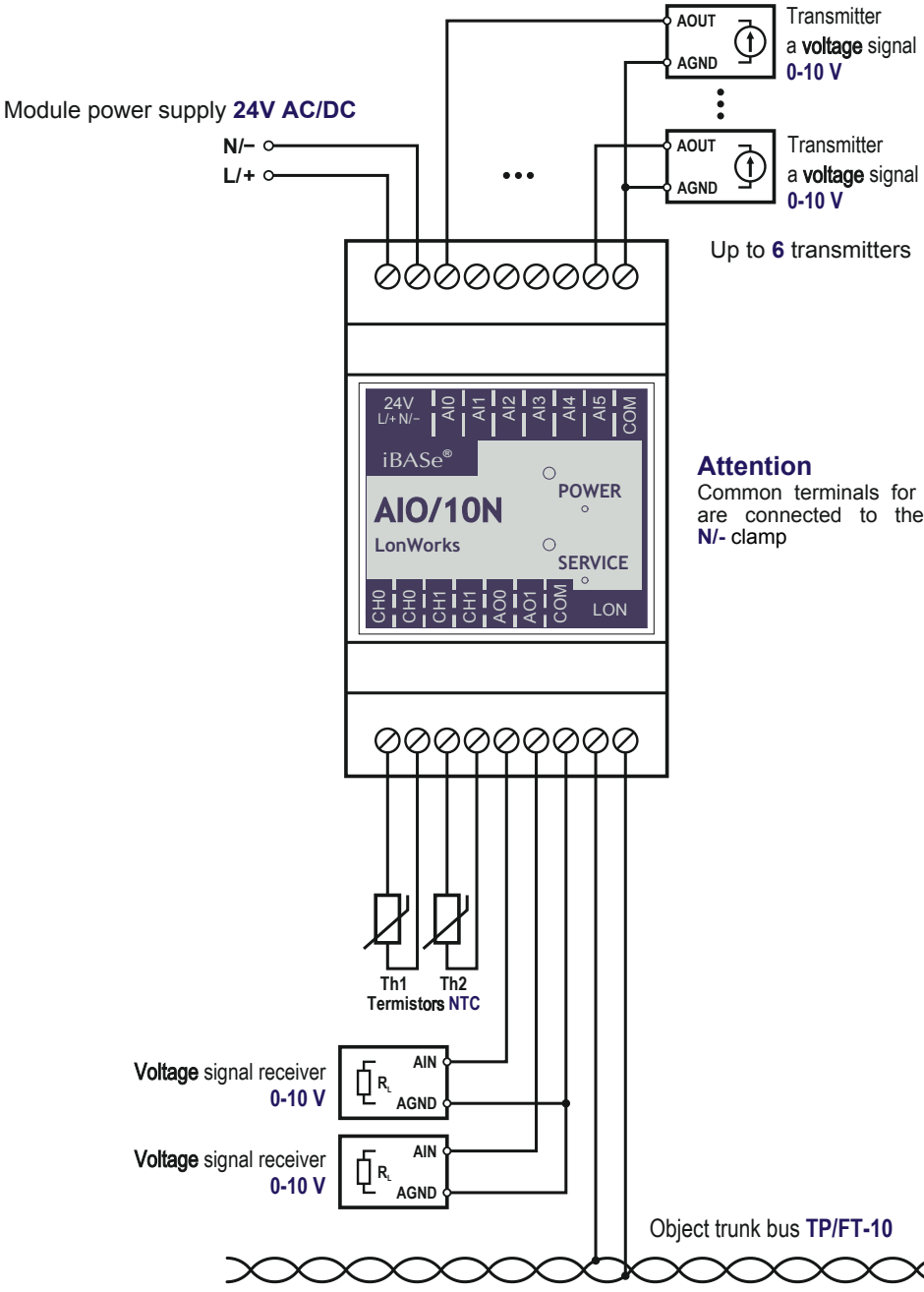


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Attention

Common terminals for analog inputs (**COM**) are connected to the power supply ground **N/-** clamp

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków

+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl

@ biuro@zdania.com.pl

Mixed input and output module

Characteristic

The **AIO/0-10** module extends the capabilities of the automation system by a set of mixed inputs and outputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **LON TP/FT-10** interface.

LONWORKS®

LONMARK®

Dual state inputs

Standard	Active
Number of inputs	6
Supports	reactive contact **NO**/**NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

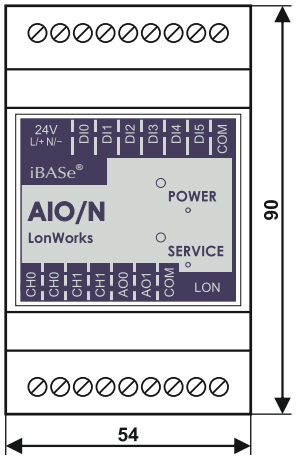
Analogue outputs

Standard	Voltage
Number of outputs	2
Output range	0-10 V
Resolution	8 bits
Minimum load	10 kΩ

Temperature inputs

Standard	Termistoric
Number of inputs	2
Measuring element	NTC 10 kΩ at 25°C
Measuring range	0-40°C
Accuracy	±0,5°C

Dimensions



Communication interface

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	2 W

Connectors

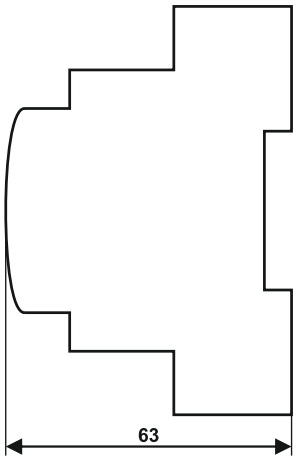
Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

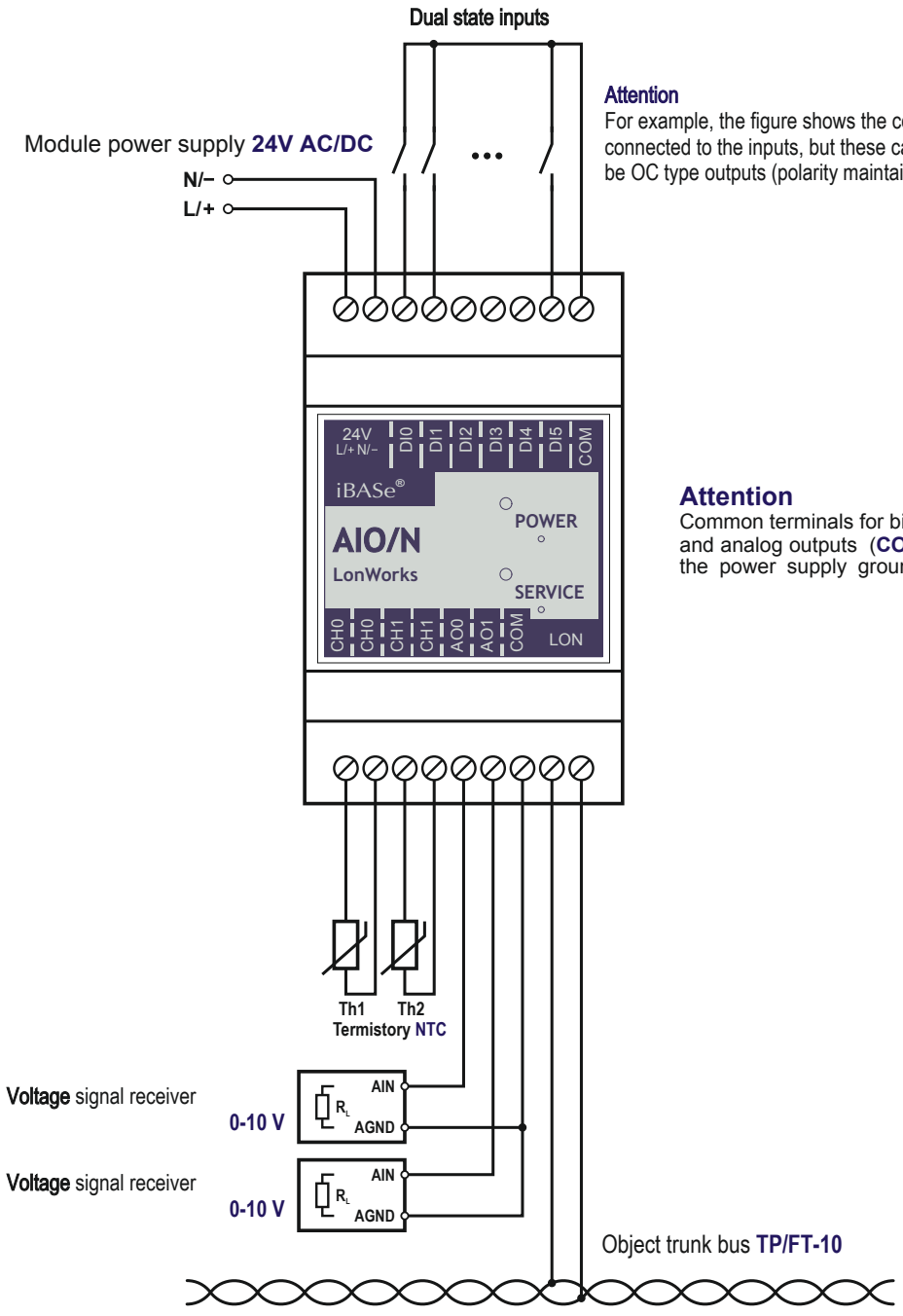


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Attention
For example, the figure shows the contacts connected to the inputs, but these can also be OC type outputs (polarity maintained).

Attention
Common terminals for binary inputs and analog outputs (**COM**) are connected to the power supply ground **N/-** clamp

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.
Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
ZDANIA SINCE 1992
www.zdania.com.pl
biuro@zdania.com.pl

Characteristic

LONWORKS®

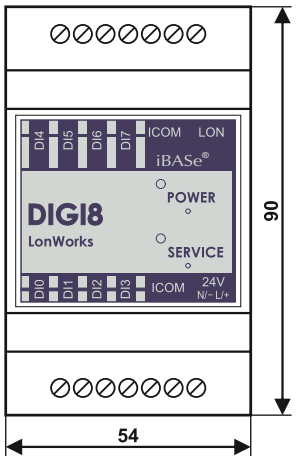
The **AIO/0-10** module extends the capabilities of the automation system by a set of binary inputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **LON TP/FT-10** interface.

LONMARK®

Dual state inputs

Standard	Active
Number of inputs	8
Supports	reactive contact **NO**/**NC**
	type layout **OC** (**NPN**)
Filtration	Program filtration of
	contact vibrations (50ms)
Separation	Partial

Dimensions



Communication interface

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

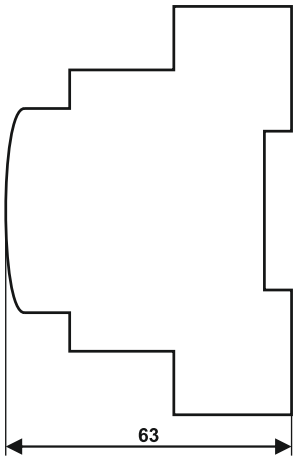
Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	3 W

Connectors

Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2



Environmental conditions

Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

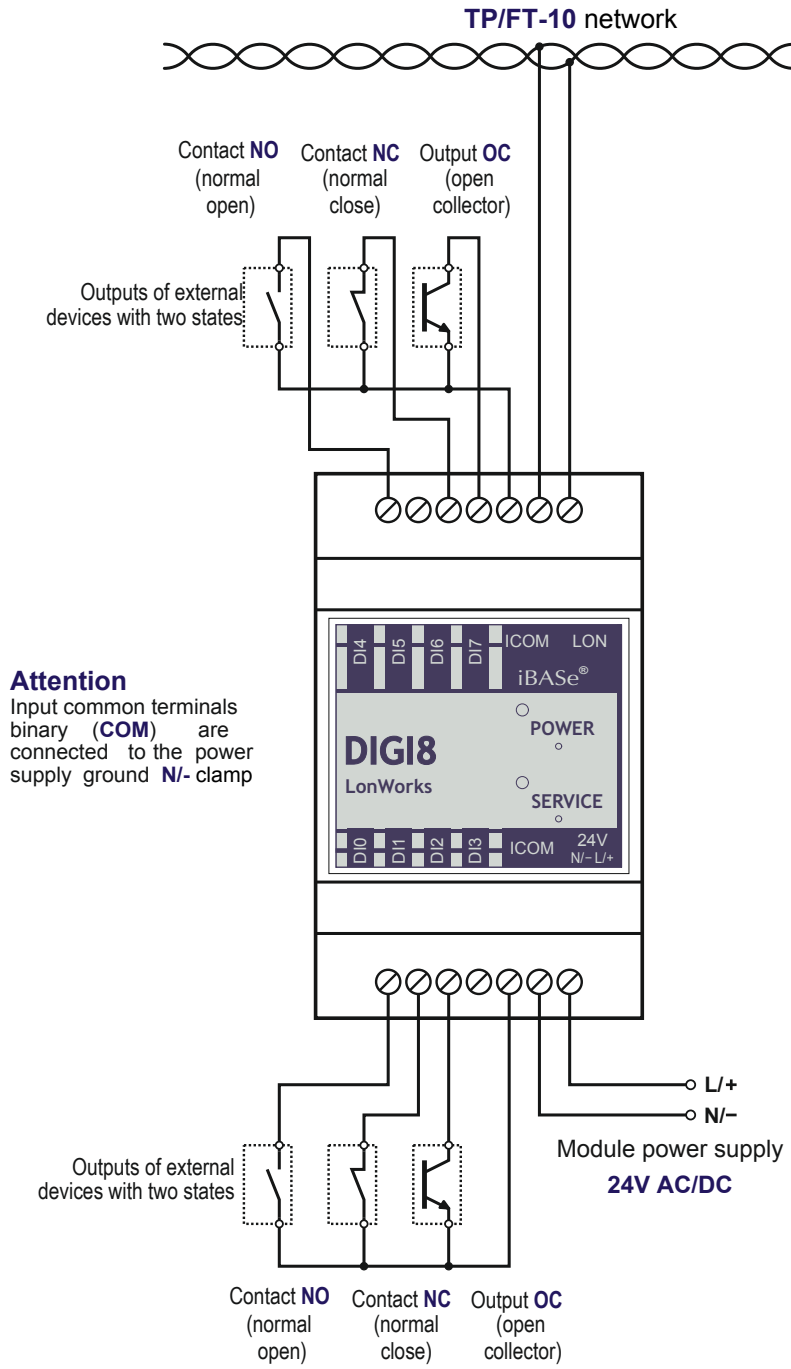
Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Attention
Input common terminals binary (**COM**) are connected to the power supply ground **N/-** clamp

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.
Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

Characteristic

The **DIGIO/A** module extends the capabilities of the automation system by a set of mixed inputs and outputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **LON TP/FT-10** interface.

LONWORKS®

Dual state inputs

Standard	Active
Number of inputs	2
Supports	reactive contact **NO**/**NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

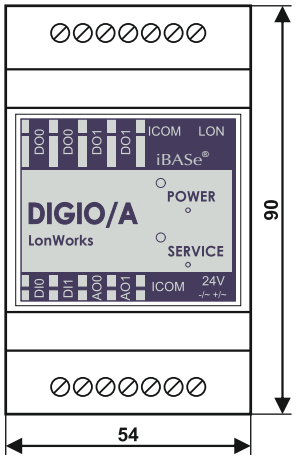
Analogue outputs

Standard	Voltage
Number of outputs	2
Output range	0-10 V
Resolution	8 bits
Minimum load	10 kΩ

Dual state outputs

Standard	Relay, **NO**
Number of outputs	2
Measuring element	24 V DC / 50V AC
Contact current	500mA
Separation	Yes

Dimensions



Communication interface

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	3 W

Connectors

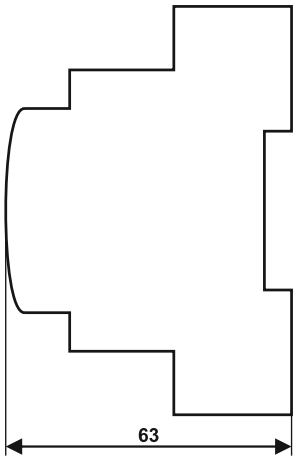
Inputs, outputs, network and power supply	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

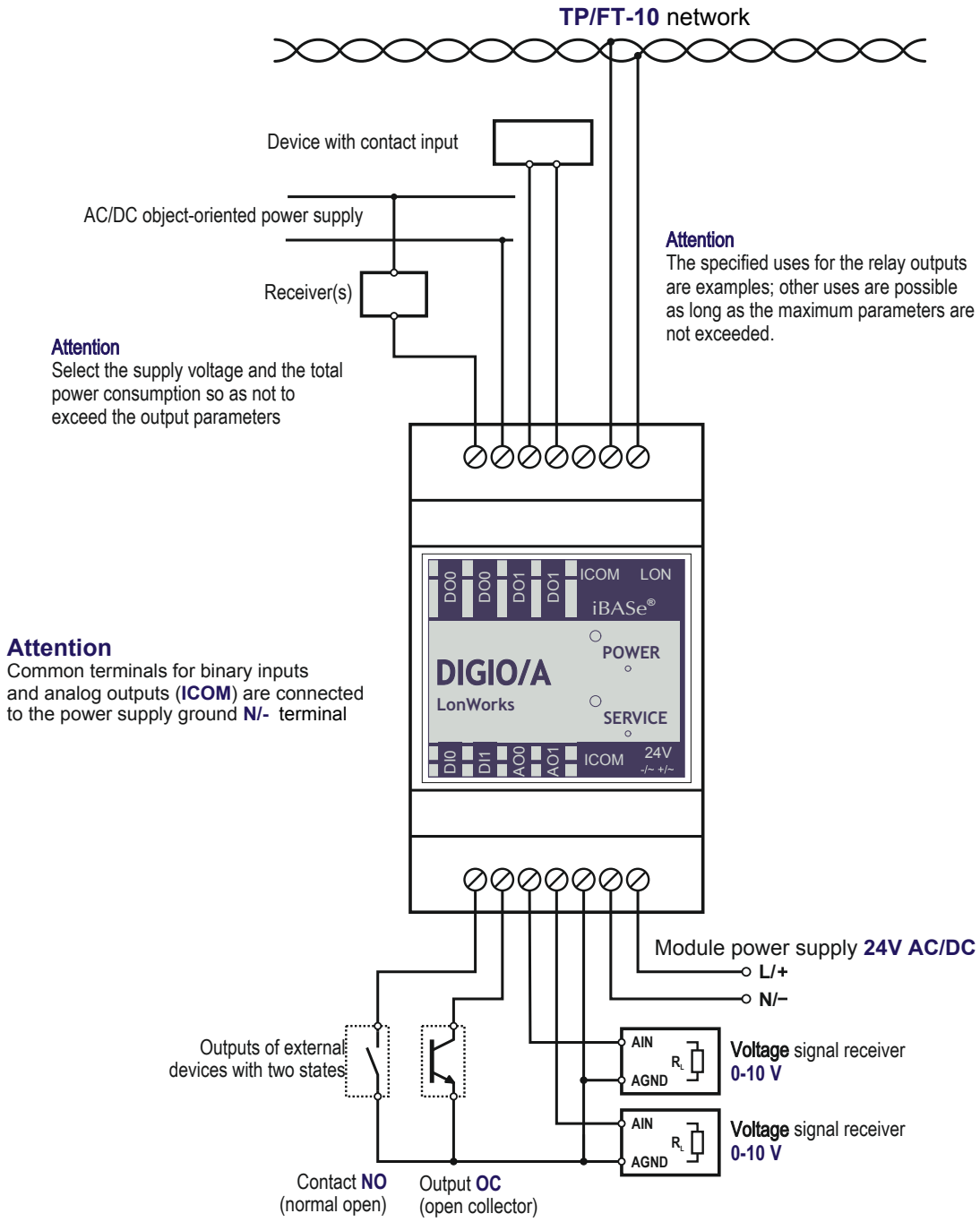


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Charakterystyka

LONWORKS®

The **DIGIO/OC** extends the capabilities of the automation system by a set of binary inputs and outputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **LON TP/FT-10** interface.

LONMARK®

Dual state inputs

Standard	Active
Number of inputs	4
Supports	reactive contact **NO**/**NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

Dual state outputs

Standard	Transistor, **OC**
Number of outputs	4
Configuration	**Sink** type (output current),
Maximum voltage	24 V DC
Contact current	250mA
Separation	No

Communication interface

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V DC
Power consumption	2,5 W

Connectors

Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

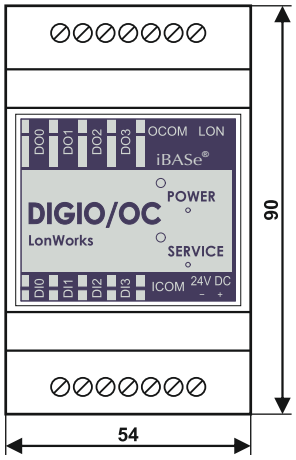
Environmental conditions

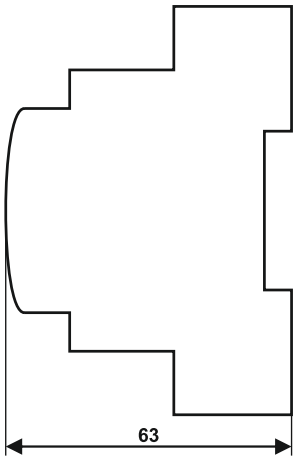
Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Dimensions



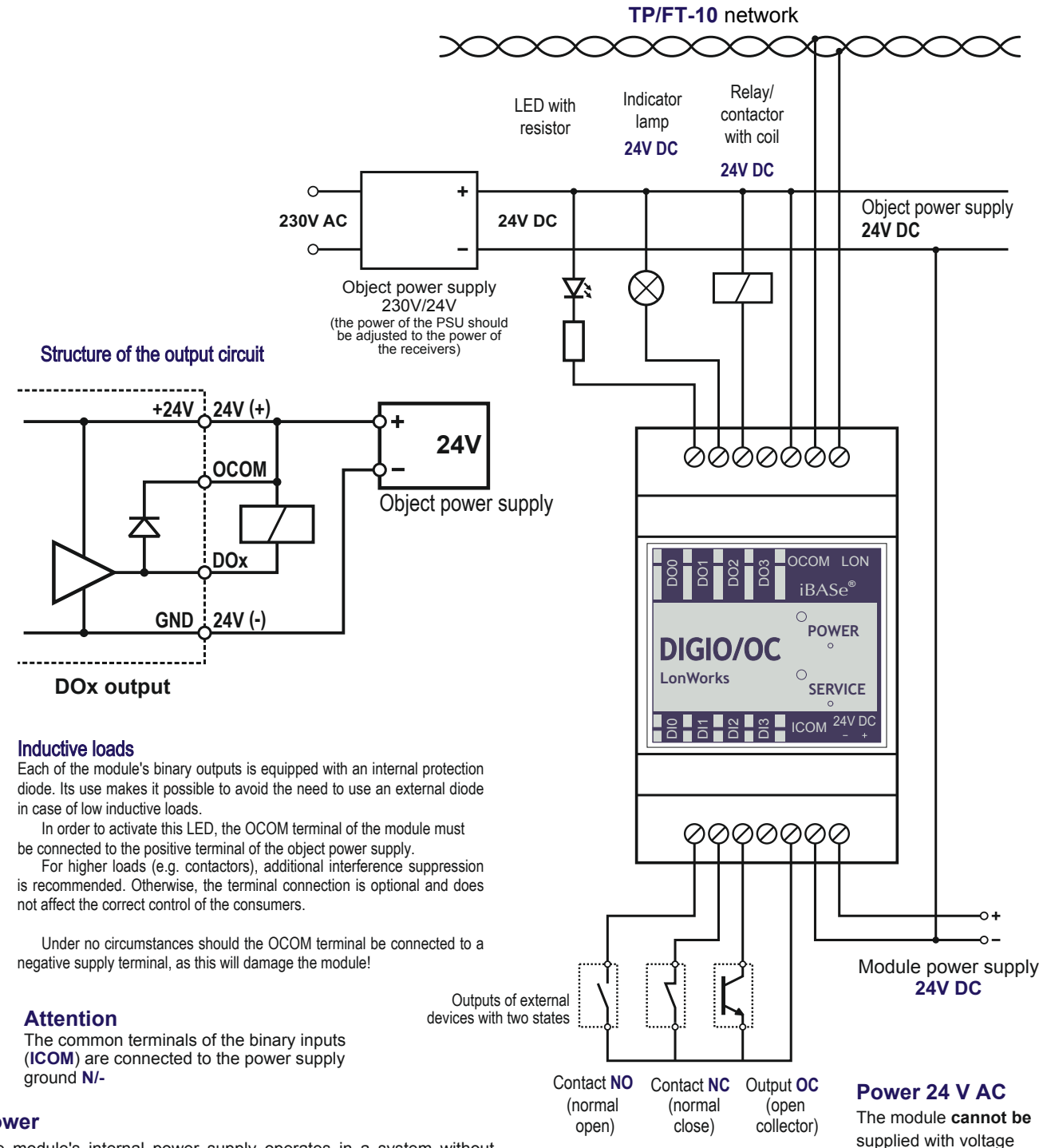


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Inductive loads

Each of the module's binary outputs is equipped with an internal protection diode. Its use makes it possible to avoid the need to use an external diode in case of low inductive loads.

In order to activate this LED, the OCOM terminal of the module must be connected to the positive terminal of the object power supply.

For higher loads (e.g. contactors), additional interference suppression is recommended. Otherwise, the terminal connection is optional and does not affect the correct control of the consumers.

Under no circumstances should the OCOM terminal be connected to a negative supply terminal, as this will damage the module!

Attention

The common terminals of the binary inputs (**ICOM**) are connected to the power supply ground **N/-**

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V AC

The module **cannot be** supplied with voltage alternate (AC)!

Power 24 V DC

Make sure that the voltage is polarized correctly. Improper polarity in the case of connected consumers can cause **damage to the module!**

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Charakterystyka

LONWORKS®

The **DIGIO/OC** extends the capabilities of the automation system by a set of binary inputs and outputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **LON TP/FT-10** interface.

LONMARK®

Dual state inputs

Standard	Active
Number of inputs	4
Supports	reactive contact **NO**/**NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

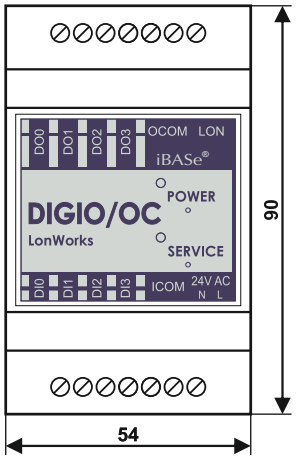
Dual state outputs

Standard	**Triac**
Number of outputs	4
Maximum voltage	48 V AC
Contact current	500mA
Separation	Galvanic separation from module electronics

Communication interface

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Dimensions



Signalling and control

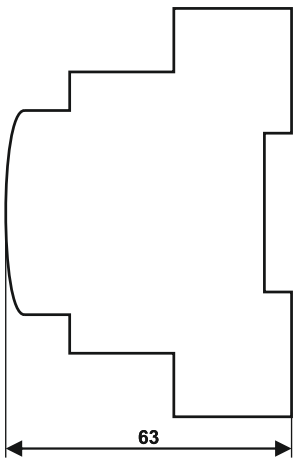
Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC
Power consumption	2,5 W

Connectors

Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2



Environmental conditions

Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

Housing and installation

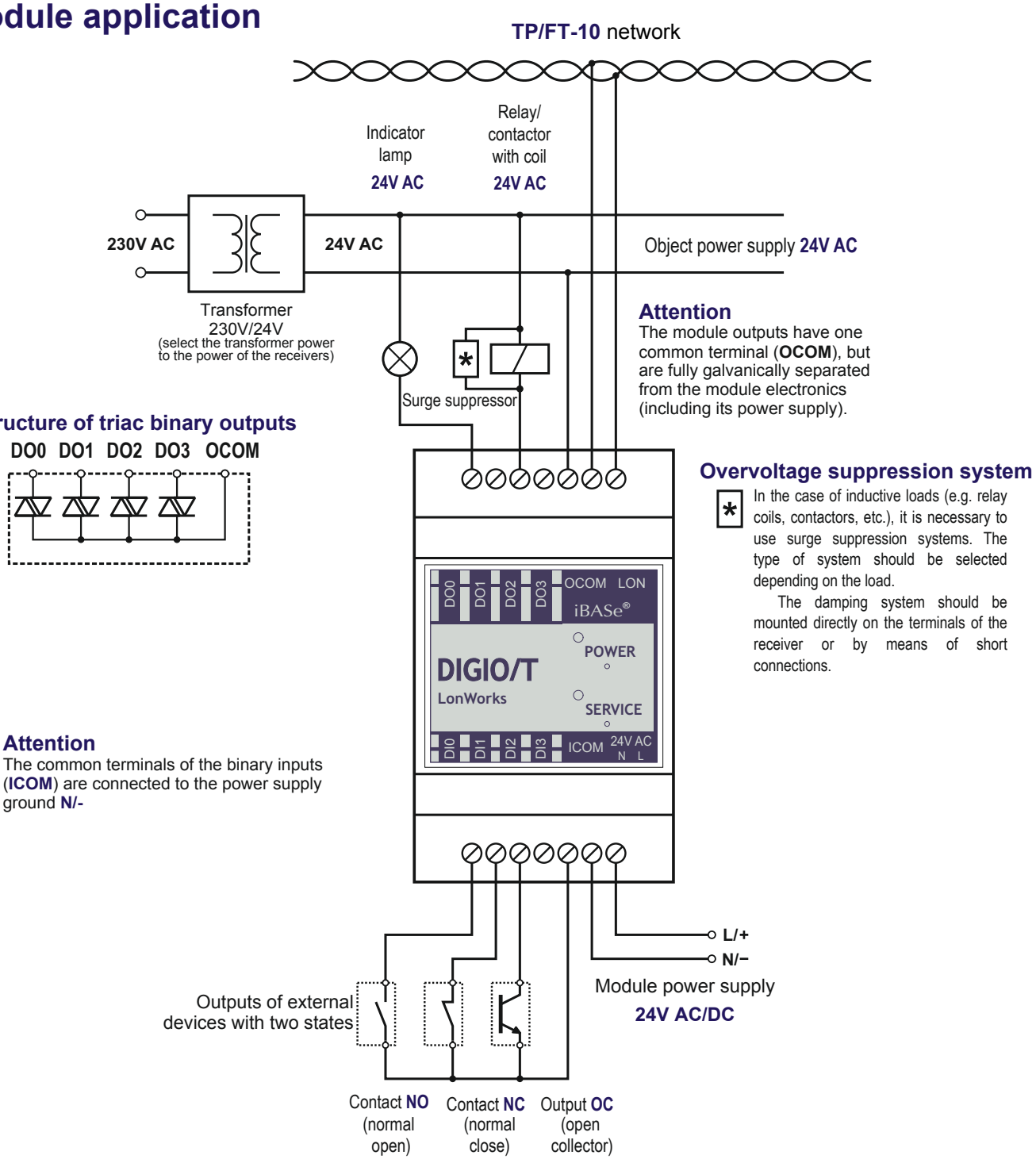
Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristic

The **DIGI8-B** module expands the capabilities of the automation system by a set of two-state inputs.
Input signals are mapped by a set of standard **BACnet** objects.
Communication with the module takes place via the **BACnet MS/TP** interface.

Dual state inputs

Standard	Active
Number of inputs	8
Supports	reactive contact **NO**/**NC**
	type layout **OC** (**NPN**)
Filtration	Program filtration of
	contact vibrations (50ms)
Separation	Partial

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	BACnet MS/TP
Baud rate	From 9600 to115 200 bps
Frame format	8N1 (other optional)
Module addressing	According to the BACnet standard
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	No

Signalling and control

Networking	Button **IAM** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **IAM** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	3 W

Connectors

Signals, power supply and network BACnet MS/TP	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

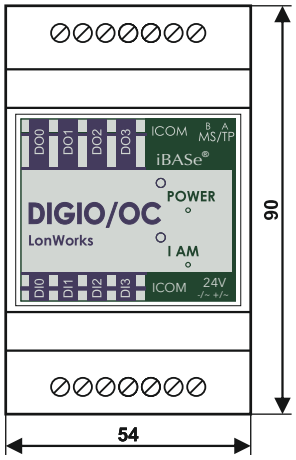
Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

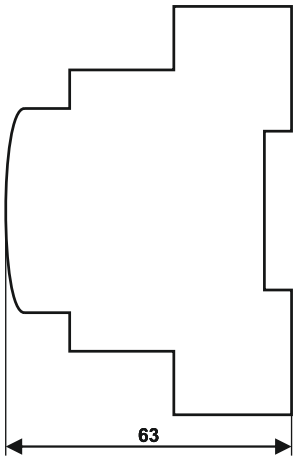
Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

BACnet®

Dimensions

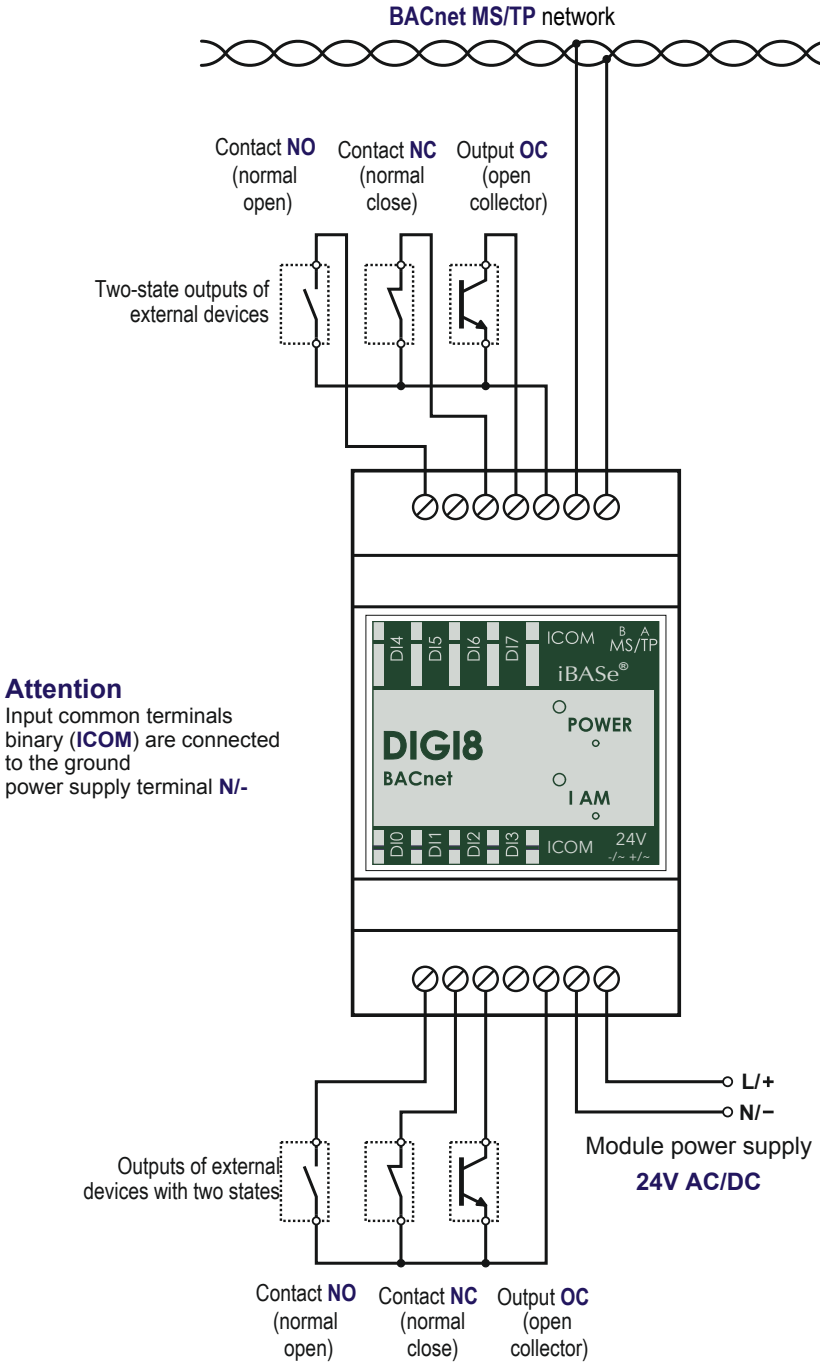




ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Attention
Input common terminals binary (**ICOM**) are connected to the ground power supply terminal **N/-**

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.
Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

DIGIO/A-B

Mixed input and output module

Characteristic

The **DIGIO/A-B** module extends the capabilities of the automation system by a set of mixed inputs and outputs. Input and output signals are mapped by a set of standard network variables (**SNVT**). Variables and configuration parameters are collected in profiles defined by the LONMARK standard. Communication with the module takes place via the **BACnet MS/TP** interface.

Dual state inputs

Standard	Active
Number of inputs	2
Supports	reactive contact **NO**/**NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

Analogue outputs

Standard	Voltage
Number of outputs	2
Output range	0-10 V
Resolution	8 bits
Minimum load	10 kΩ

Dual state outputs

Standard	Relay, **NO**
Number of outputs	2
Measuring element	24 V DC / 50V AC
Contact current	500mA
Separation	Yes

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	BACnet MS/TP
Baud rate	From 9600 to115 200 bps
Frame format	8N1 (other optional)
Module addressing	According to the BACnet standard
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	No

Signalling and control

Networking	Button **IAM** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **IAM** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	3 W

Connectors

Sygnały, zasilanie i sieć BACnet MS/TP	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

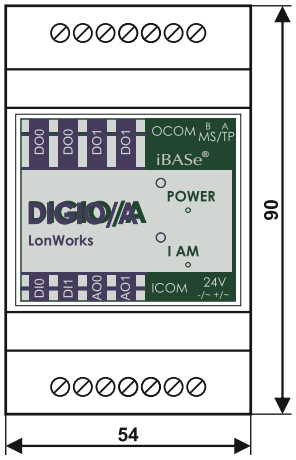
Housing and installation

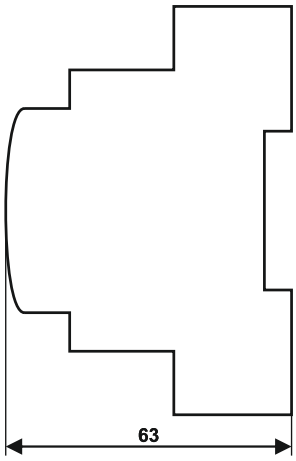
Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

BACnet®

LONMARK®

Dimensions

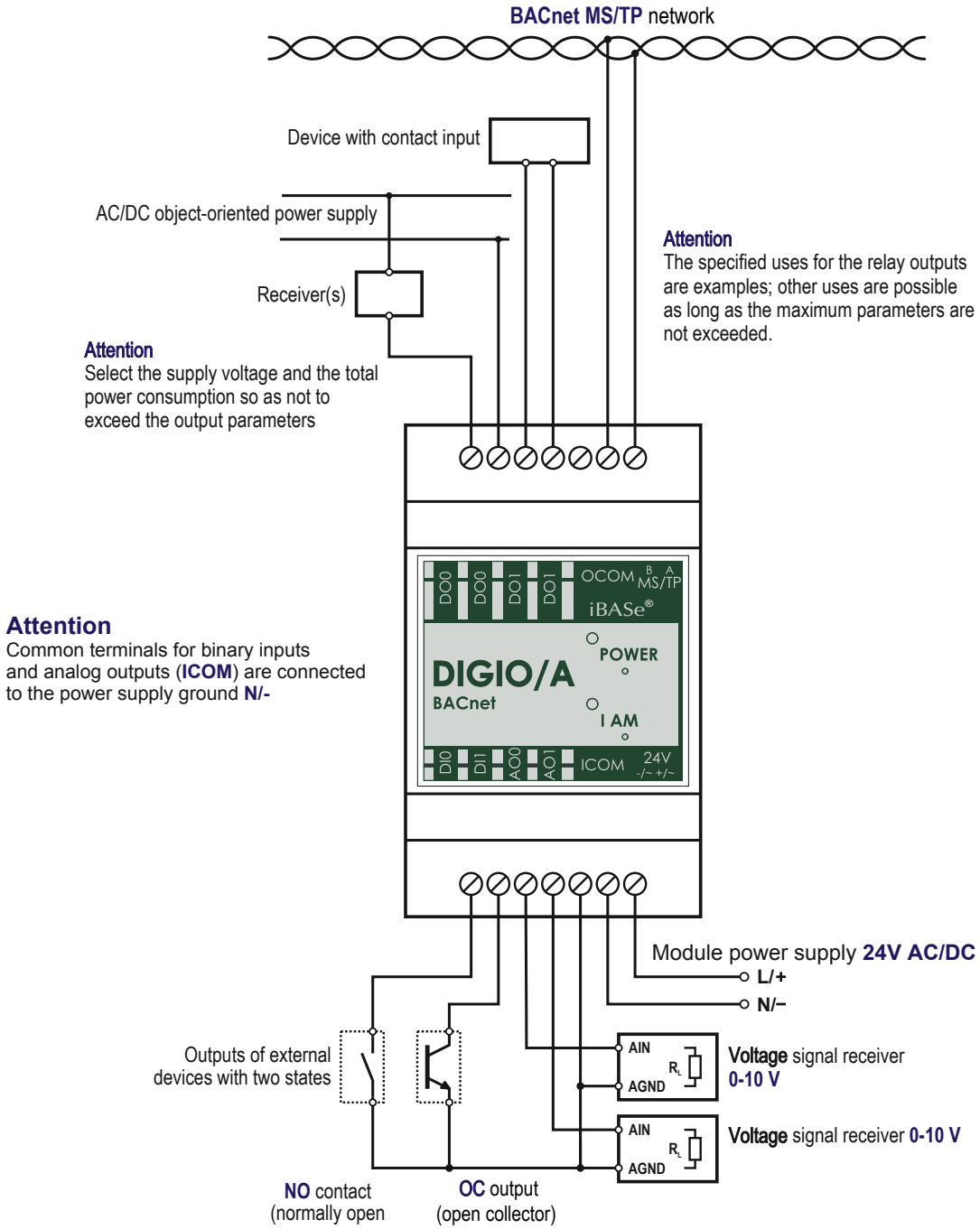




ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

ZDANIA SINCE 1992

Module application



Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

DIGIO/OC-B

Two-state input/output module

Characteristics

The **DIGIO/OC-B** module expands the capabilities of the automation system by a set of binary inputs and outputs. Input and output signals are mapped by a set of standard **BACnet** objects. Communication with the module takes place via the BACnet **BACnet MS/TP** interface.

Dual state inputs

Standard	Active
Number of inputs	4
Supports	reactive contact **NO**/**NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

Dual state outputs

Standard	Transistor, **OC**
Number of outputs	4
Configuration	**Sink** type (output current)
Maximum voltage	24 V DC
Contact current	250mA
Separation	No

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	BACnet MS/TP
Baud rate	From 9600 to115 200 bps
Frame format	8N1 (other optional)
Module addressing	According to the BACnet standard
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	No

Signalling and control

Networking	Button **IAM** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **IAM** - red LED

Power supply

Supply voltage	24 V DC
Power consumption	2,5 W

Connectors

Sygnały, zasilanie i sieć BACnet MS/TP	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

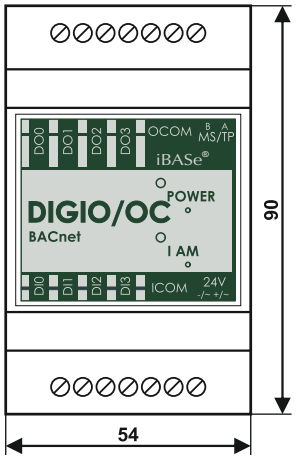
Housing and installation

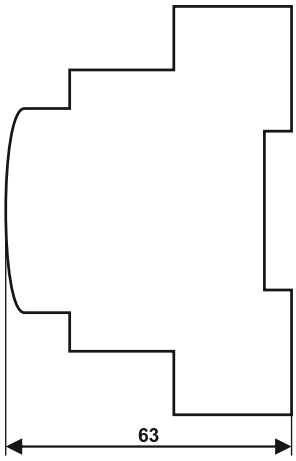
Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

BACnet®

LONM

Dimensions



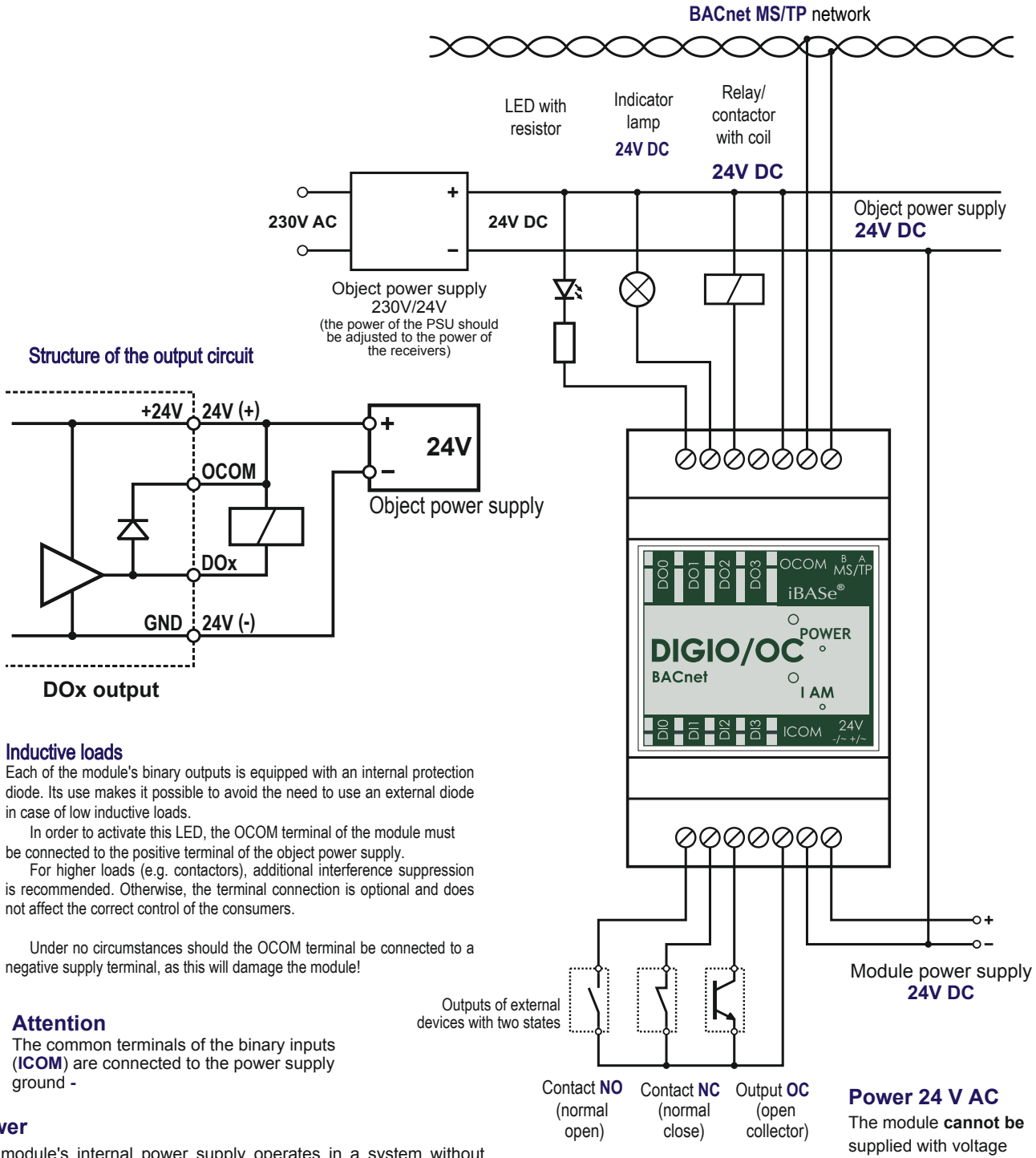


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Module application



Inductive loads

Each of the module's binary outputs is equipped with an internal protection diode. Its use makes it possible to avoid the need to use an external diode in case of low inductive loads.

In order to activate this LED, the OCOM terminal of the module must be connected to the positive terminal of the object power supply.

For higher loads (e.g. contactors), additional interference suppression is recommended. Otherwise, the terminal connection is optional and does not affect the correct control of the consumers.

Under no circumstances should the OCOM terminal be connected to a negative supply terminal, as this will damage the module!

Attention

The common terminals of the binary inputs (**ICOM**) are connected to the power supply ground **-**

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal -), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V AC

The module **cannot be** supplied with voltage alternate (AC)!

Power 24 V DC

Make sure that the voltage is polarized correctly. Improper polarity in the case of connected consumers can cause **damage to the module!**

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **DIGIO/T-B** module expands the capabilities of the automation system by a set of binary inputs and outputs. Input and output signals are mapped by a set of standard **BACnet** objects. Communication with the module takes place via the BACnet **BACnet MS/TP** interface.

Dual state inputs

Standard	Active
Number of inputs	4
Supports	reactive contact **NO/NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

Dual state outputs

Standard	**Triac**
Number of outputs	4
Maximum voltage	48 V AC
Contact current	500mA
Separation	Galvanic separation from module electronics

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	BACnet MS/TP
Baud rate	From 9600 to115 200 bps
Frame format	8N1 (other optional)
Module addressing	According to the BACnet standard
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	No

Signalling and control

Networking	Button **IAM** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Power supply and identification	Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **IAM** - red LED

Power supply

Supply voltage	24 V AC
Power consumption	2,5 W

Connectors

Sygnały, zasilanie i sieć BACnet MS/TP	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

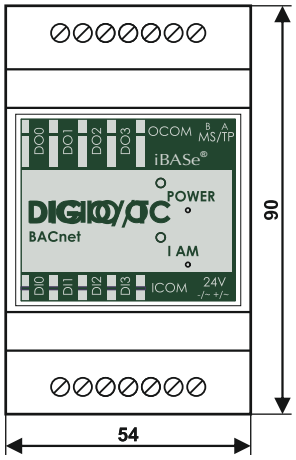
Housing and installation

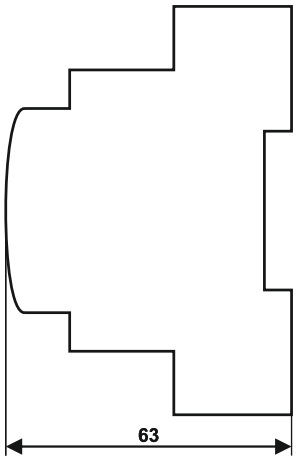
Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

BACnet®

M

Dimensions



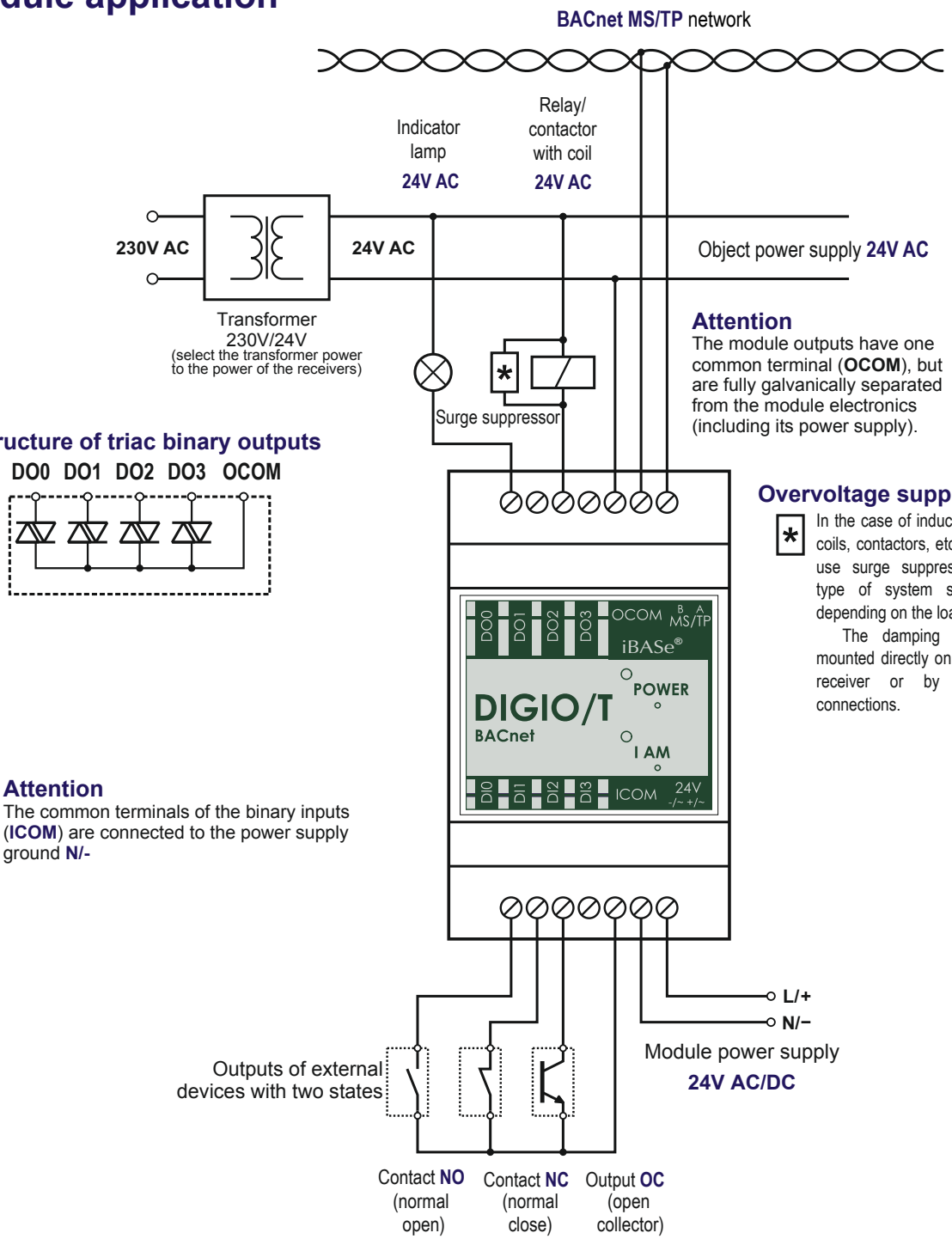


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **DIGI8-M** module expands the capabilities of the automation system by a set of two-state inputs.
Input signals are mapped by a set of standard **Modbus** registers.
Communication takes place via the **EIA-485** interface, using the **Modbus RTU** protocol.

Dual state inputs

Standard	Active
Number of inputs	8
Supports	reactive contact **NO**/**NC**
	type layout **OC** (**NPN**)
Filtration	Program filtration of
	contact vibrations (50ms)
Separation	Partial

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	ModBus RTU
Operating mode	Slave
Baud rate	From 9600 to115 200 bps
Frame format	8N1 (other optional)
Module addressing	According to the ModBus standard
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	No

Signalling and control

Networking	Button **SERVICE** - available through a hole in the
Manual initialization	faceplate Button **RESET** - available through a hole in the
Power supply and identification	faceplate Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	3 W

Connectors

Signals, power supply and	Connection strip with screw terminals, grid 5.08 mm,
Modbus network	maximum cable cross section 2.5 mm^2

Environmental conditions

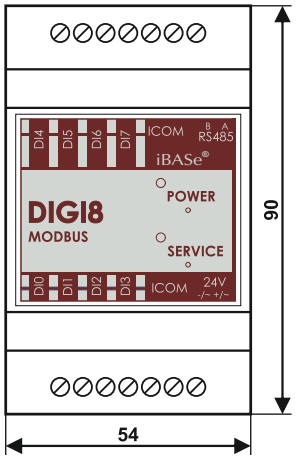
Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

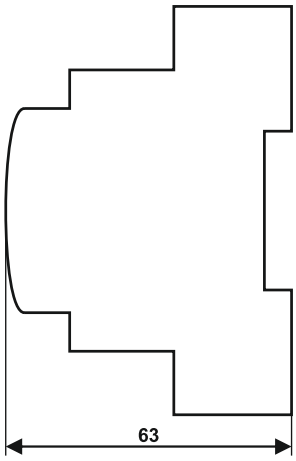
Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Modbus

Dimensions



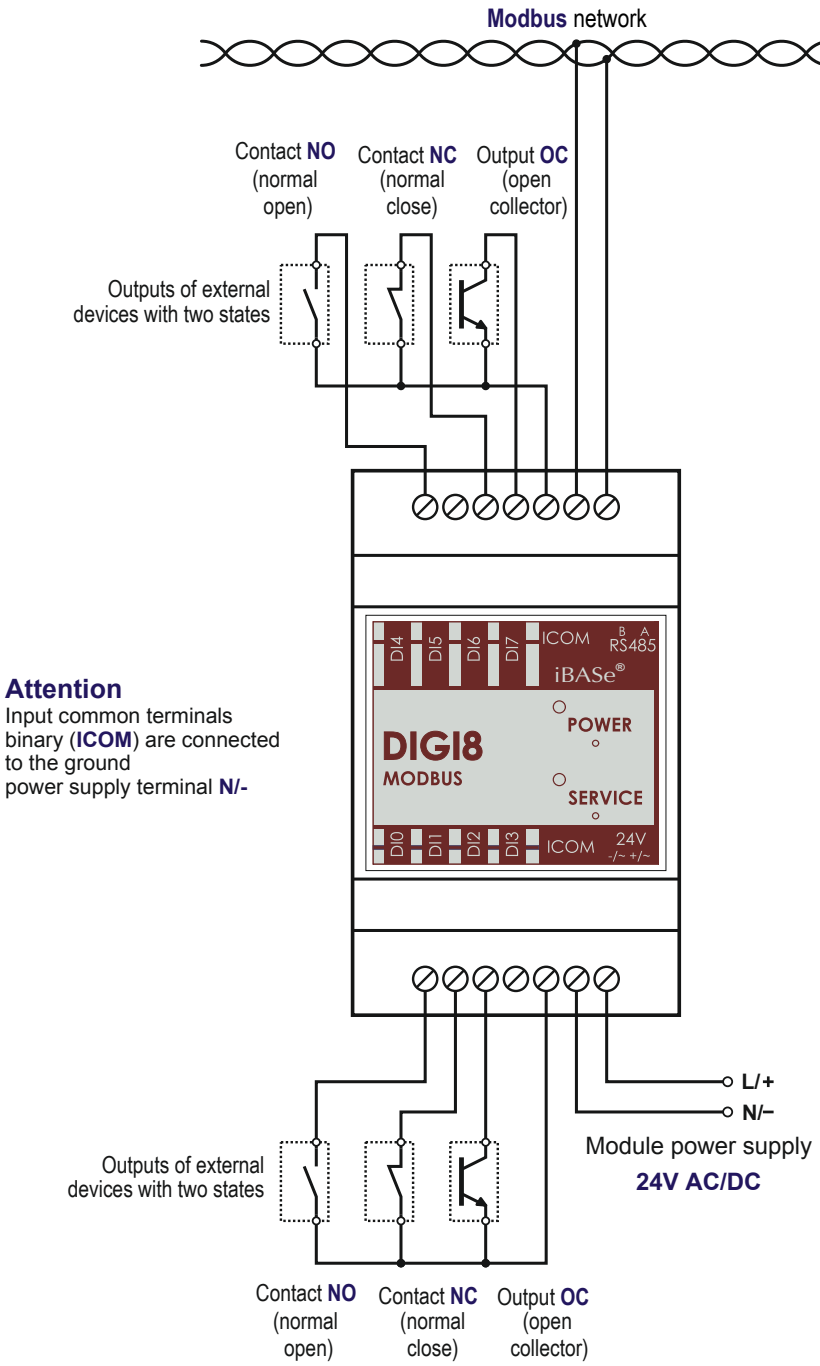


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Attention
Input common terminals binary (**ICOM**) are connected to the ground power supply terminal **N/-**

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **DIGIO/A-M** module expands the capabilities of the automation system by a set of mixed inputs and outputs. Input and output signals are mapped by a set of standard **Modbus** registers. Communication takes place via the **EIA-485** interface, using the **Modbus RTU** protocol.

Dual state inputs

Standard	Active
Number of inputs	2
Supports	reactive contact **NO**/**NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

Analogue outputs

Standard	Voltage
Number of outputs	2
Output range	0-10 V
Resolution	8 bits
Minimum load	10 kΩ

Dual state outputs

Standard	Relay, **NO**
Number of outputs	2
Measuring element	24 V DC / 50V AC
Contact current	500mA
Separation	Yes

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	ModBus RTU
Operating mode	Slave
Baud rate	From 9600 to115 200 bps
Frame format	8N1 (other optional)
Module addressing	According to the ModBus standard
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	No

Signalling and control

Networking	Button **SERVICE** - available through a hole in the
Manual initialization	faceplate Button **RESET** - available through a hole in the
Power supply and identification	faceplate Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	3 W

Connectors

Signals, power supply and Modbus network	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

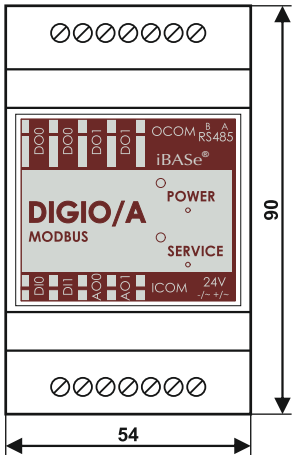
Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

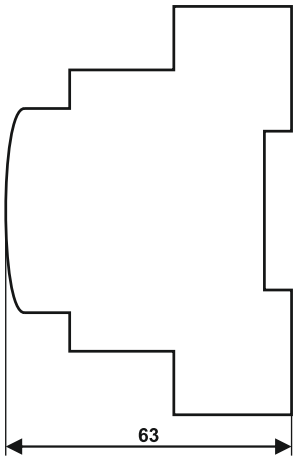
Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Modbus

Dimensions



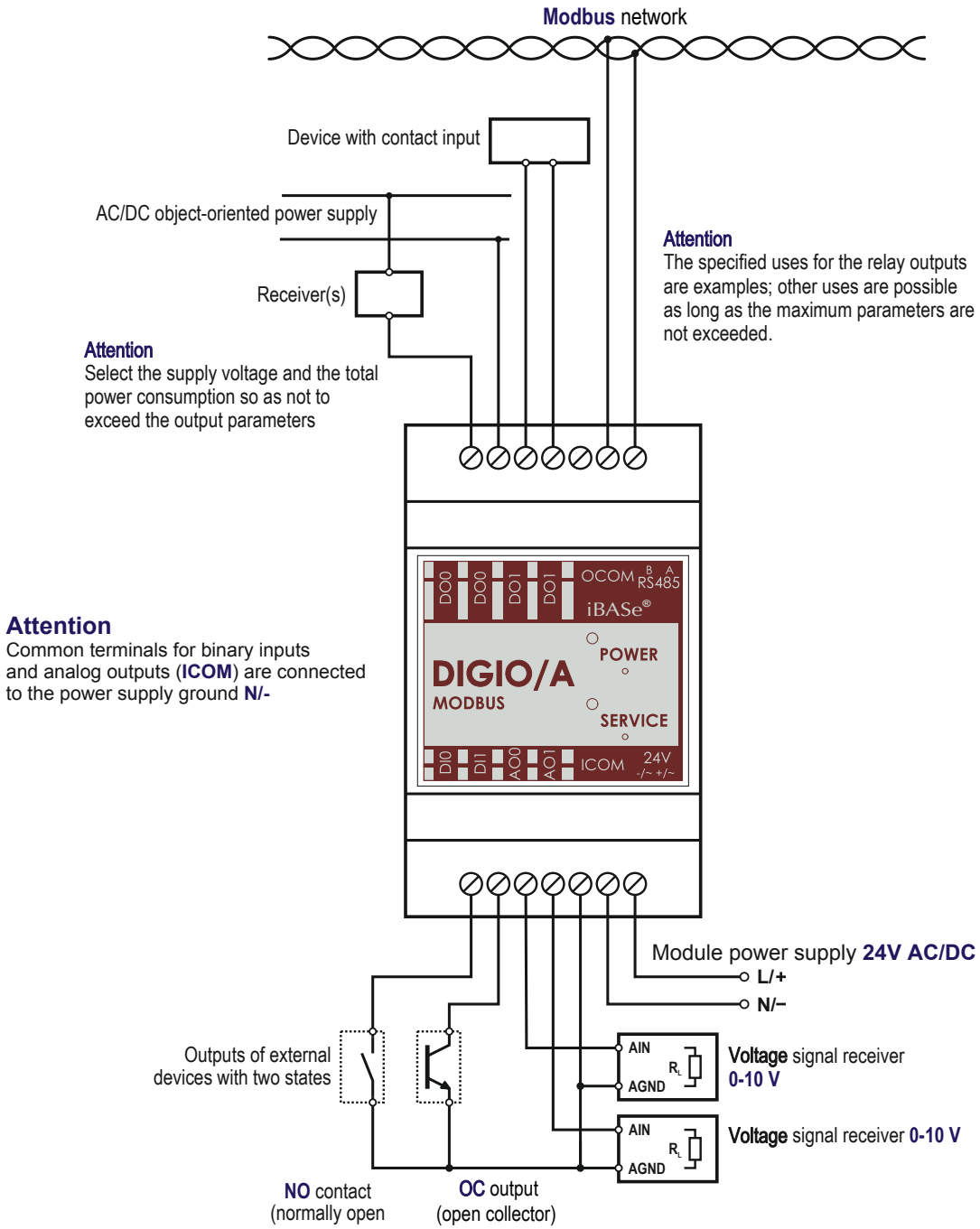


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **DIGIO/OC-M** module extends the capabilities of the automation system by a set of binary inputs and outputs. Input and output signals are mapped by a set of standard **Modbus** registers. Communication takes place via the **EIA-485** interface, using the **Modbus RTU** protocol.

Dual state inputs

Standard	Active
Number of inputs	4
Supports	reactive contact **NO**/**NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

Dual state outputs

Standard	Transistor, **OC**
Number of outputs	4
Configuration	**Sink** type (output current)
Maximum voltage	24 V DC
Contact current	250mA
Separation	No

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	ModBus RTU
Operating mode	Slave
Baud rate	From 9600 to115 200 bps
Frame format	8N1 (other optional)
Module addressing	According to the ModBus standard
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	No

Signalling and control

Networking	Button **SERVICE** - available through a hole in the
Manual initialization	faceplate Button **RESET** - available through a hole in the
Power supply and identification	faceplate Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V DC
Power consumption	2,5 W

Connectors

Signals, power supply and Modbus network	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

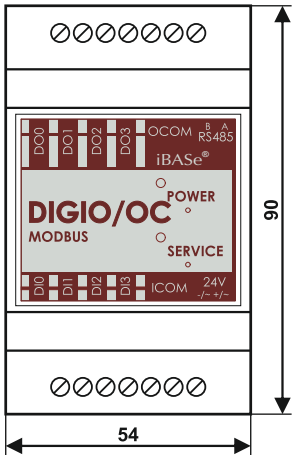
Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

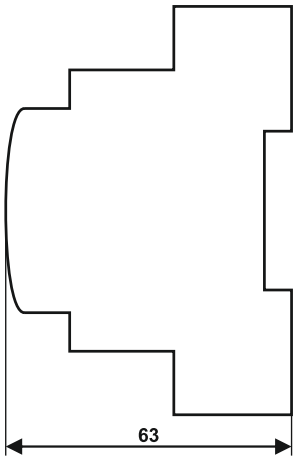
Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Modbus

Dimensions



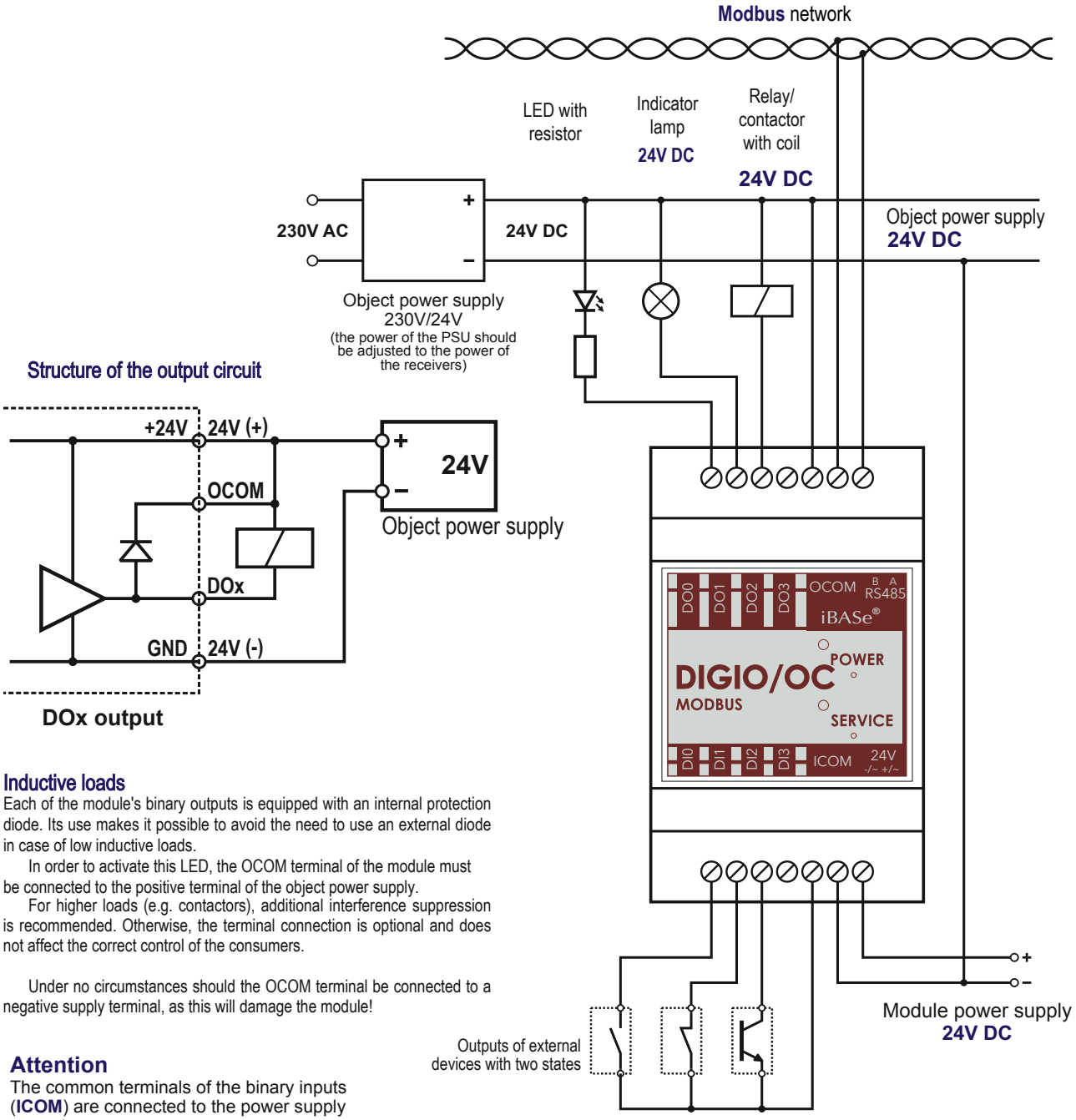


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Inductive loads

Each of the module's binary outputs is equipped with an internal protection diode. Its use makes it possible to avoid the need to use an external diode in case of low inductive loads.

In order to activate this LED, the OCOM terminal of the module must be connected to the positive terminal of the object power supply.

For higher loads (e.g. contactors), additional interference suppression is recommended. Otherwise, the terminal connection is optional and does not affect the correct control of the consumers.

Under no circumstances should the OCOM terminal be connected to a negative supply terminal, as this will damage the module!

Attention

The common terminals of the binary inputs (**ICOM**) are connected to the power supply ground **-**

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal -), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V AC

The module **cannot be** supplied with voltage alternate (AC)!

Power 24 V DC

Make sure that the voltage is polarized correctly. Improper polarity in the case of connected consumers can cause **damage to the module!**

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków

+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl

@ biuro@zdania.com.pl

Characteristics

Moduł **DIGIO/OC-M** module extends the capabilities of the automation system by a set of binary inputs and outputs. Input and output signals are mapped by a set of standard **Modbus** registers. Communication takes place via the **EIA-485** interface, using the **Modbus RTU** protocol.

Dual state inputs

Standard	Active
Number of inputs	4
Supports	reactive contact **NO/NC** type layout **OC** (**NPN**)
Filtration	Program filtration of contact vibrations (50ms)
Separation	Partial

Dual state outputs

Standard	**T**riac
Number of outputs	4
Maximum voltage	48 V AC
Contact current	500mA
Separation	Galvanic separation from module electronics

Communication interface

Interface standard	EIA-485 (RS-485)
Transmission protocol	ModBus RTU
Operating mode	Slave
Baud rate	From 9600 to115 200 bps
Frame format	8N1 (other optional)
Module addressing	According to the ModBus standard
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted
Galvanic separation	No

Signalling and control

Networking	Button **SERVICE** - available through a hole in the
Manual initialization	faceplate Button **RESET** - available through a hole in the
Power supply and identification	faceplate Diode **POWER** - blue LED
Network status LON TP/FT-10	Diode **SERVICE** - red LED

Power supply

Supply voltage	24 V AC
Power consumption	2,5 W

Connectors

Signals, power supply and Modbus network	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

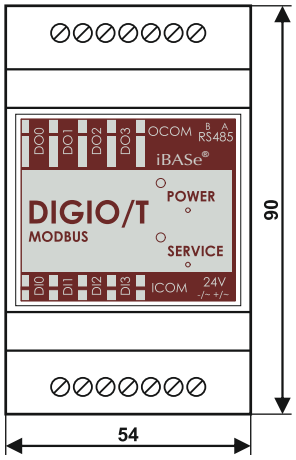
Temperature of work	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

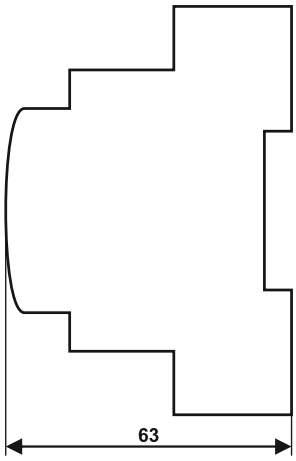
Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Modbus

Dimensions



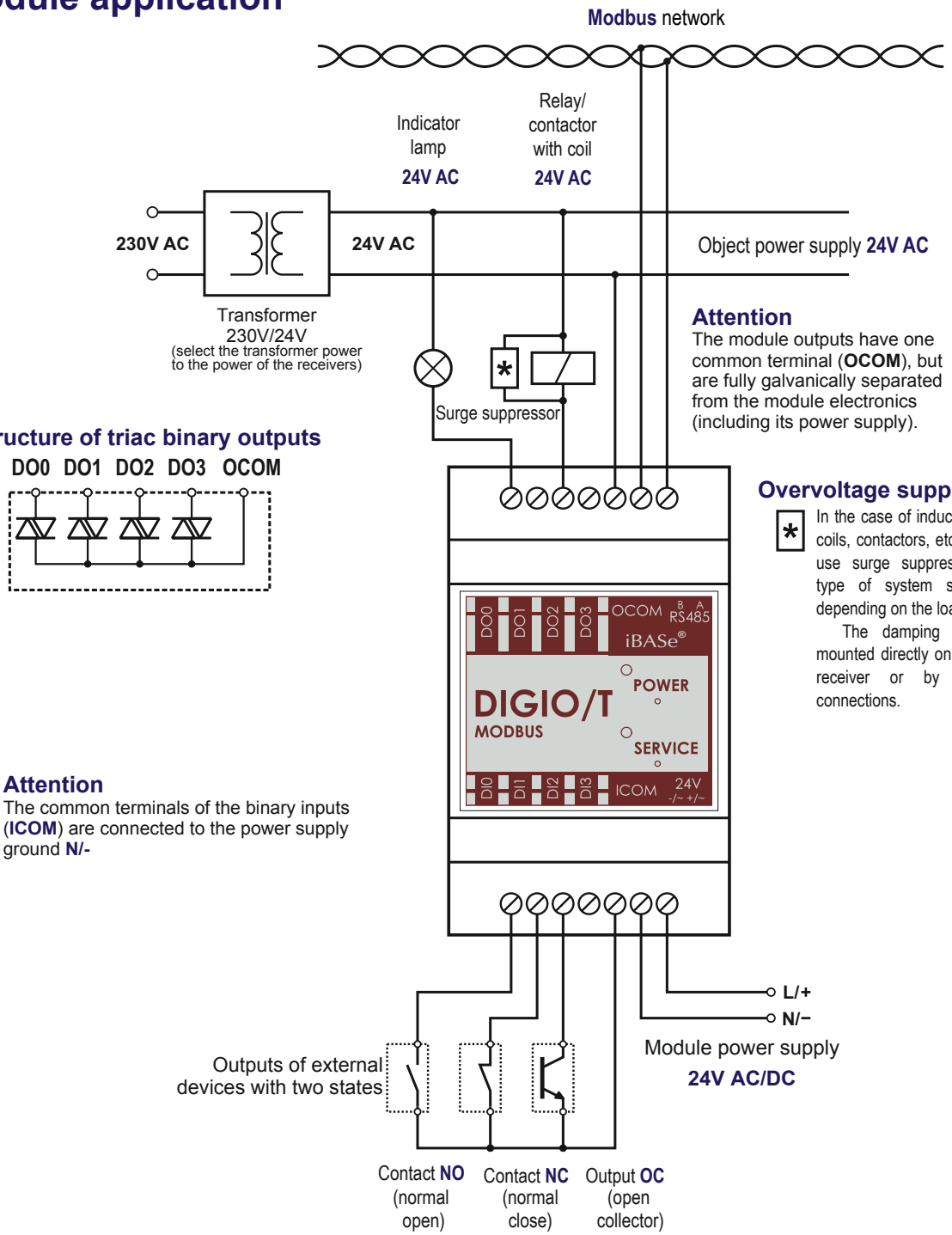


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Structure of triac binary outputs

DO0 DO1 DO2 DO3 OCOM

Attention

The module outputs have one common terminal (**OCOM**), but are fully galvanically separated from the module electronics (including its power supply).

Overvoltage suppression system

* In the case of inductive loads (e.g. relay coils, contactors, etc.), it is necessary to use surge suppression systems. The type of system should be selected depending on the load.

The damping system should be mounted directly on the terminals of the receiver or by means of short connections.

Attention

The common terminals of the binary inputs (**ICOM**) are connected to the power supply ground **N/-**

Power

The module's internal power supply operates in a system without galvanic separation, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N**/-), unless otherwise stated.

Such a system should be taken into account when designing the system.

Power 24 V DC

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but it is not damaged.

Power 24 V AC

The assignment of the **L** nad **N** terminals terminals is conventional, but there must be consistency when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Air conditioning controllers

FCU — **Fan coil controller**
Controllable medium valve actuators 230V AC

FCU24 — **Fan coil controller**
Controllable medium valve actuators 24V AC

FCU-A — **Fan coil controller**
Analogue-controlled fan 0-10V DC

FCU-R — **Fan coil controller**
Control of the electric heater

STC — **Heating or cooling plane controller**
Multi-zone heating or cooling control functionality

XIO — **Humidification system controller**
Control of two sets of steam humidifiers

FCWM — **Fan coil control unit**
Temperature measurement and correction, operation control

RK-2 — **Fan coil distributor**
Control of a group of two fan coil units

VAV controllers

VC — **Air flow controller (standard version)**
Control in variable flow regulated systems

VC4 — **Air flow controller (extended version)**
Control in variable flow regulated systems. Extended version

VC-D — **Fume cupboard extraction system controller**
Comprehensive control of a single fume cupboard extraction system

Integrated controllers

IHC — **Integrated air conditioning and ventilation controller**
Two functionalities in one controller

Lighting controllers

IRC — **Integrated lighting controller**
Control of lighting in a dual circuit system, additional functionality of IHAS

Access control and IHAS controllers

SKD (v1) — **Access control and IHAS controller**
Economical basic version

SKD 2 — **Access control and IHAS controller**
Extended basic version

SKD 3 — **Access control and IHAS controller**
Access control and IHAS functionality

iSKD-4 — **Access control and IHAS controller**
Access control and extended functionality IHAS certified controller

xServer — **Database server in access control systems**
Distributed authorization database server on systems access control

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
ZDANIA SINCE 1992
www.zdania.com.pl
biuro@zdania.com.pl

Fan coil controllers

	FCU	FCU24	FCU-A	FCU-R	IHC FCU+VC
Fan control	3-speed fan 230 V AC supply from relay outputs		Analogue-controlled fan 230 V AC supply from relay output, speed control by voltage signal 010 V	3-speed fan 230 V AC supply from relay outputs	
Cooling medium control	Valve actuator 230 V AC supply from triac output	Valve actuator 24 V AC supply from triac output	Valve actuator 230 V AC supply from triac output	Valve actuator 230 V AC supply from triac output	Valve actuator 24 V AC supply from triac output
Heating medium control	Valve actuator 230 V AC supply from triac output	Valve actuator 24 V AC supply from triac output	Valve actuator 230 V AC supply from triac output	Electric heater 230 V AC power supply Contactor control from the relay output The heater requires a separated power supply installation that meets the requirements of its technical specification.	Valve actuator 24 V AC supply from triac output
Condensate pump	230 V AC power supply Input for alarm contact	230 V AC power supply Input for alarm contact			230 V AC power supply Input for alarm contact
Dual state inputs (DI), passive contact Application-dependent function assignment	2 inputs • window opening sensor • condensate pump alarm	2 inputs • window opening sensor • condensate pump alarm	1 input • window opening sensor or • condensate pump alarm	2 inputs • window opening sensor • condensate pump alarm	2 inputs • window opening sensor • condensate pump alarm
Sensor inputs (AI), voltage signal. Function assignment depends on the application					2 inputs • sygnal 0-10 V • sensor supply 12 V DC
Power supply	230 V AC Power consumption 6 VA (control unit only)	230 V AC Power consumption 30 VA (controller + actuators)	230 V AC Power consumption 6 VA (control unit only)	230 V AC Power consumption 6 VA (control unit only)	230 V AC Power consumption 30 VA (controller + actuators)
Powering external devices from the controller - additional requirements	The controller is adapted to work with a single fan coil unit, in the case of a larger number of them the solution should be used:: • Connect the valve actuators in parallel and connect them to the controller, • Connect the condensate pump power supply in parallel and connect to the controller; connect the condensate pump (NC) failure contacts in series and connect to the assigned two-state controller input, • Connect the fans to the relay distributor systems and supply a separate 230 V AC power supply according to the technical specification of the distributors.				

Commnets

1. Unless otherwise stated, all field devices are powered from the controller.
2. The table lists only the characteristics of individual controller models.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Characteristics

FCU unit is used to control thermal comfort in the room by means of fan air-conditioning convectors, working in two or four-pipe system.

- **double-pipe system** - in this system there is a single heat exchanger working alternately as a heater or cooler depending on the season and the available medium,
- **four-pipe system** - in this system there are two heat exchangers working simultaneously one as a heater and the other as a cooler. The selection of the active device at a given moment is made automatically on the basis of the relation between the current temperature and the desired temperature. In this system it is necessary to have both heating and cooling media available.

On the basis of the current room temperature measurements, the internal control algorithm works out the fan coil control:

- The air velocity of the three-speed fan ensures the air circulation,
- valve(s) of the media.

The control algorithm also takes into account additional factors:

- presence in the room - automatic switching between economy and comfort modes,
- opening the window switch off the control system during ventilation,
- excessive condensation build-up deactivation of the control system to prevent flooding of the space.

Control system configuration and operating parameters are set remotely from the master system. The measurement of the current temperature is provided by a wall-mounted referencing-unit, which additionally allows for local adjustment of selected parameters according to individual requirements. If there is no referencing-unit, the parameters are sent to the controller via the communication network from the BMS system.

The **FCU** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space. Fan coil (fan, valve actuators and condensate pump) are supplied directly from the controller with **230V AC** voltage, while other devices are also supplied directly from the controller, but already with safe voltages in the **SELV** system, with double galvanic isolation from **230V AC** supply voltage. The **FCU** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

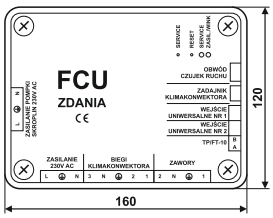
Fan control	Control of the fan coil fan with three speeds 230 V AC power supply
Actuator control	Control of heating and cooling medium valve actuators 230 V AC power supply
Condensate pump supply	Power supply for the drainage pump from the fan coil system 230 V AC power supply
Referral interface	Power supply and communication with the wall-mounted referencing-unit
Dual state inputs	Reading passive contacts from additional object devices, e.g. window opening sensor or alarm from a condensate pump
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

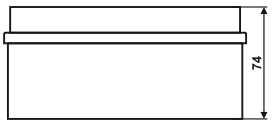
The presented **FCU** controller model is dedicated to work in **LON TP/FT-10** network.

We also offer **FCU** models to work in **BACnet MS/TP** or **Modbus RTU**.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Fan coil controller

Fan control

Number of outputs	3
Output type	Relay
Supply voltage	230 V AC
Maximum current	2 A
Security	Locking of the possibility of simultaneous shifting of several gears
Connector	Safety Connector Wieland (5 pins)

Control of valve actuators

Number of outputs	2
Output type	Triac
Actuator supply voltage	230 V AC
Maximum/minimum current	500/50 mA
Connector	Safety Connector Wieland (4 pins)

Condensate pump supply

Supply voltage	230 V AC
Maximum current	0,2 A
Connector	Safety Connector Wieland (3 pins)

Wall module interface

Communication	Serial interface as **EIA-485** (RS-485) standard
Supply voltage	5 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Universal inputs

Number of inputs	2
Standard	Active with contact power supply
Supported signals	Passive contact (potential-free) **NO**/**NC** type Open collector(**OC**) time output - transistor **NPN**
Filtration of contact vibrations	Filtration time 50 ms
Separation	Partial
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2

Signalling and controle

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	7 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

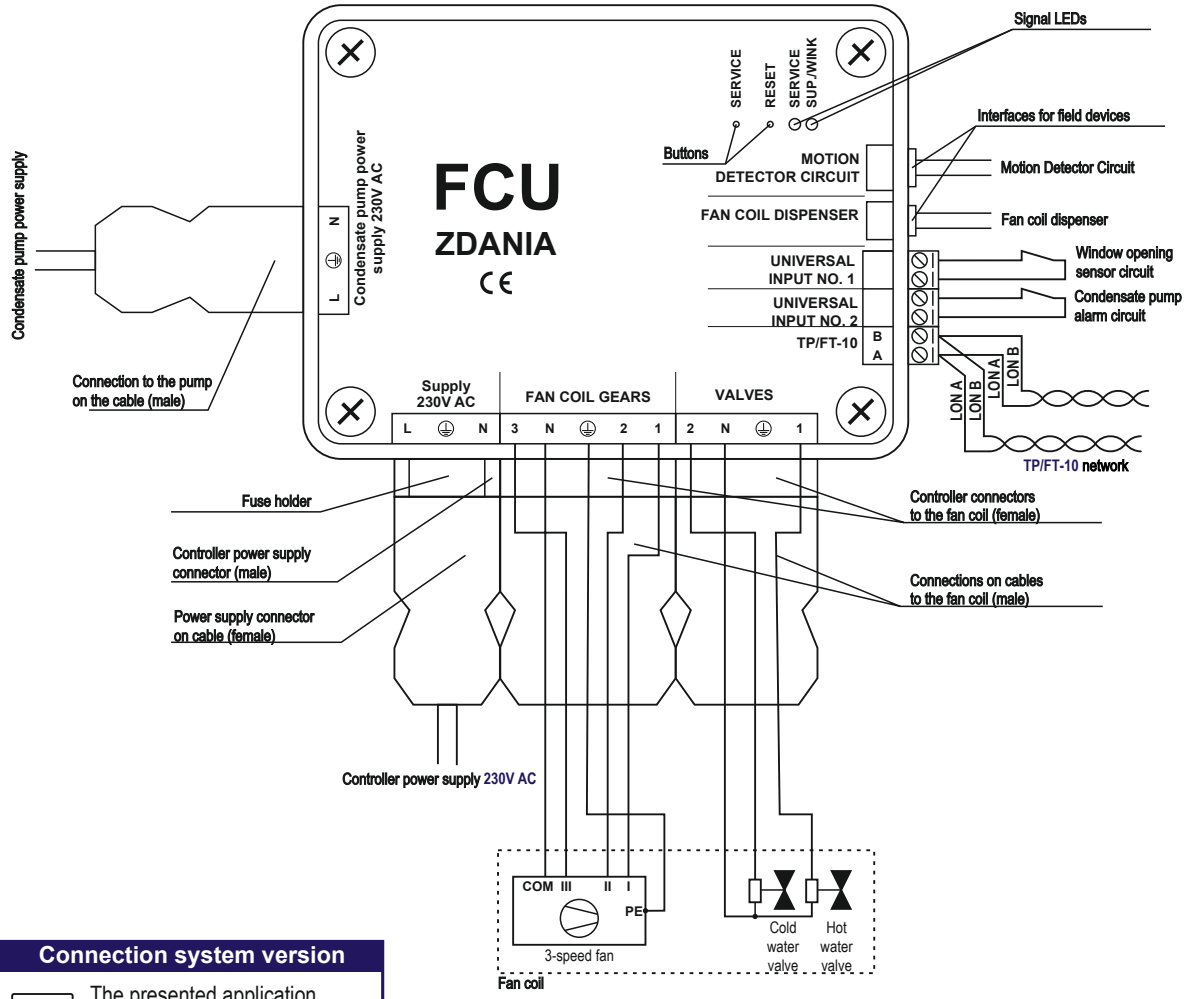
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • upper connection system, • lower connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
FCU	3-speed fan, 230V AC valve actuators	**FCU/LON-FT**	**FCU/BACnet MS/TP**	**FCU/Modbus RTU**
FCU24	3-speed fan, 24V AC valve actuators	FCU24/LON-FT	FCU24/BACnet MS/TP	FCU24/Modbus RTU
FCU-A	Analogue controlled fan, 230V AC valve actuators	FCU-A/LON-FT	FCU-A/BACnet MS/TP	FCU-A/Modbus RTU
FCU-R	Three-speed fan, 230V AC chilled water valve actuators, electric heater	FCU-R/LON-FT	FCU-R/BACnet MS/TP	FCU-R/Modbus RTU

Controller aplication



Connection system version

The presented application concerns the controller model with the **lower** connection system

Tables for assigning signals to RJ-xx type connectors

W-m referencing-unit (4P4C)	
1	GND
2	Data line DATA-
3	Data line DATA+
4	+5 V

Motion detector (6P6C)	
1, 2	Tamper contact
3, 4	Motion contact
5	GND
6	+12 V

Connector contact numbers RJ-xx

CONNECTION 4P4C (RJ-10)

Plug	Slot
1 4 Contact side view	4 1 Front view
4 1 Front view	

CONNECTION 6P6C (RJ-12)

Plug	Slot
1 6 Contact side view	6 1 Front view
6 1 Front view	

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

FCU24 unit is used to control thermal comfort in the room by means of fan air-conditioning convectors, working in two or four-pipe system.

- **double-pipe system** - in this system there is a single heat exchanger working alternately as a heater or cooler depending on the season and the available medium,
- **four-pipe system** - in this system there are two heat exchangers working simultaneously one as a heater and the other as a cooler. The selection of the active device at a given moment is made automatically on the basis of the relation between the current temperature and the desired temperature. In this system it is necessary to have both heating and cooling media available.

On the basis of the current room temperature measurements, the internal control algorithm works out the fan coil control:

- The air velocity of the three-speed fan ensures the air circulation,
- valve(s) of the media.

The control algorithm also takes into account additional factors:

- presence in the room - automatic switching between economy and comfort modes,
- opening the window switch off the control system during ventilation,
- excessive condensation build-up deactivation of the control system to prevent flooding of the space.

Control system configuration and operating parameters are set remotely from the master system. The measurement of the current temperature is provided by a wall-mounted referencing-unit, which additionally allows for local adjustment of selected parameters according to individual requirements. If there is no referencing-unit, the parameters are sent to the controller via the communication network from the BMS system.

Sterownik **FCU24** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space. Fan coil (fan, valve actuators and condensate pump) are supplied directly from the controller with **230V AC** voltage, while other devices are also supplied directly from the controller, but already with safe voltages in the **SELV** system, with double galvanic isolation from **230V AC** supply voltage. The **FCU24** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

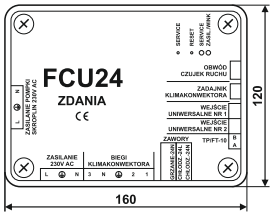
The execution of tasks is ensured by a set of functional elements of the controller

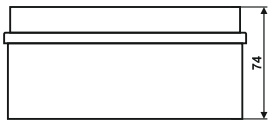
Fan control	Control of the fan coil fan with three speeds 230 V AC power supply
Actuator control	Control of heating and cooling medium valve actuators 24V AC power supply
Condensate pump supply	Power supply for the drainage pump from the fan coil system 230 V AC power supply
Referral interface	Power supply and communication with the wall-mounted referencing-unit
Dual state inputs	Reading passive contacts from additional object devices, e.g. window opening sensor or alarm from a condensate pump
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

The presented **FCU24** controller model is dedicated to work in **LON TP/FT-10** network. We also offer **FCU24** models to work in **BACnet MS/TP** or **Modbus RTU**.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Fan coil controller

Fan control

Number of outputs	3
Output type	Relay
Supply voltage	230 V AC
Maximum current	2 A
Security	Locking of the possibility of simultaneous shifting of several gears
Connector	Safety Connector Wieland (5 pins)

Control of valve actuators

Number of outputs	2
Output type	Triac
Actuator supply voltage	230 V AC
Maximum/minimum current	500/50 mA
Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm2

Condensate pump supply

Supply voltage	230 V AC
Maximum current	0,2 A
Connector	Safety Connector Wieland (3 pins)

Wall module interface

Communication	Serial interface as **EIA-485** (RS-485) standard
Supply voltage	5 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Universal inputs

Number of inputs	2
Standard	Active with contact power supply
Supported signals	Passive contact (potential-free) **NO**/**NC** type Open collector(**OC**) time output - transistor **NPN**
Filtration of contact vibrations	Filtration time 50 ms
Separation	Partial
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2

Signalling and controle

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	30 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

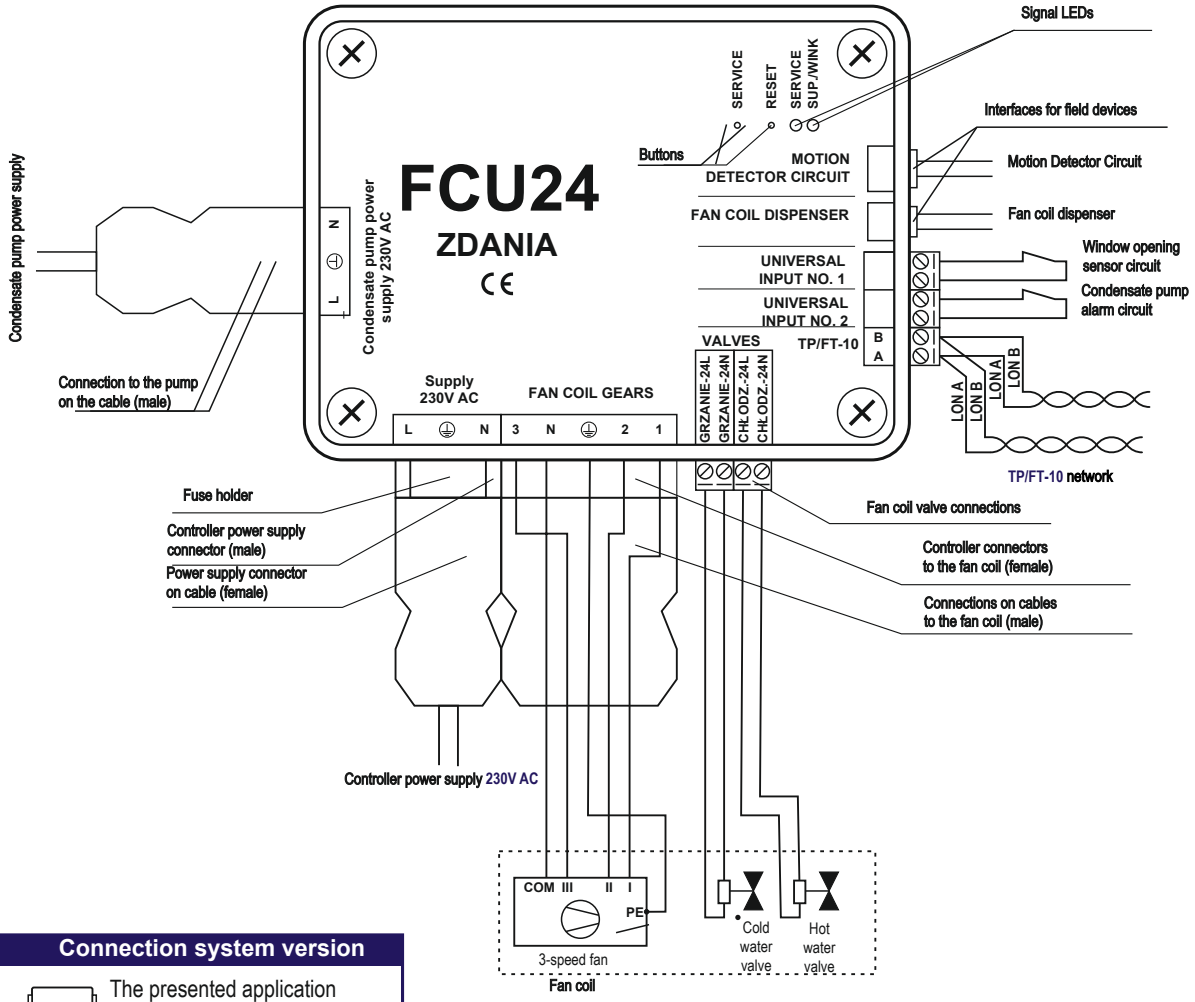
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • upper connection system, • lower connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

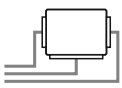
Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
FCU	3-speed fan, 230V AC valve actuators	FCU/LON-FT	FCU/BACnet MS/TP	FCU/Modbus RTU
FCU24	3-speed fan, 24V AC valve actuators	**FCU24/LON-FT**	**FCU24/BACnet MS/TP**	**FCU24/Modbus RTU**
FCU-A	Analogue controlled fan, 230V AC valve actuators	FCU-A/LON-FT	FCU-A/BACnet MS/TP	FCU-A/Modbus RTU
FCU-R	Three-speed fan, 230V AC chilled water valve actuators, electric heater	FCU-R/LON-FT	FCU-R/BACnet MS/TP	FCU-R/Modbus RTU

Controller aplication



Connection system version



The presented application concerns the controller model with the **lower** connection system

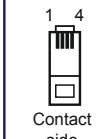
Tables for assigning signals to RJ-xx type connectors

W-m referencing-unit (4P4C)	
1	GND
2	Data line **DATA-**
3	Data line **DATA+**
4	+5 V

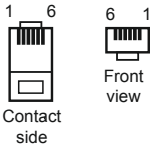
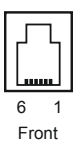
Motion detector (6P6C)	
1, 2	**Tamper** contact
3, 4	**Motion** contact
5	GND
6	+12 V

Connector contact numbers RJ-xx

CONNECTION 4P4C (RJ-10)

Plug	Slot
	

CONNECTION 6P6C (RJ-12)

Plug	Slot
	

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

FCU-A unit is used to control thermal comfort in the room by means of fan air-conditioning convectors, working in two or four-pipe system.

- **double-pipe system** - in this system there is a single heat exchanger working alternately as a heater or cooler depending on the season and the available medium,
- **four-pipe system** - in this system there are two heat exchangers working simultaneously one as a heater and the other as a cooler. The selection of the active device at a given moment is made automatically on the basis of the relation between the current temperature and the desired temperature. In this system it is necessary to have both heating and cooling media available.

On the basis of the current room temperature measurements, the internal control algorithm works out the fan coil control:

- The air velocity of the three-speed fan ensures the air circulation,
- valve(s) of the media.

The control algorithm also takes into account additional factors:

- presence in the room - automatic switching between economy and comfort modes,
- opening the window switch off the control system during ventilation,
- excessive condensation build-up deactivation of the control system to prevent flooding of the space.

Control system configuration and operating parameters are set remotely from the master system. The measurement of the current temperature is provided by a wall-mounted referencing-unit, which additionally allows for local adjustment of selected parameters according to individual requirements. If there is no referencing-unit, the parameters are sent to the controller via the communication network from the BMS system.

The **FCU-A** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space. Fan coil (fan, valve actuators and condensate pump) are supplied directly from the controller with **230V AC** voltage, while other devices are also supplied directly from the controller, but already with safe voltages in the **SELV** system, with double galvanic isolation from **230V AC** supply voltage. The **FCU-A** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

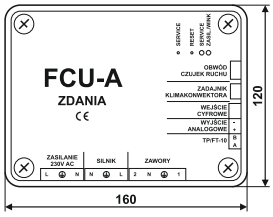
The execution of tasks is ensured by a set of functional elements of the controller

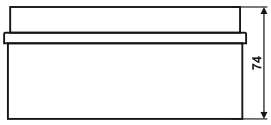
Fan control	Control of the fan coil fan with three speeds 230 V AC power supply
Actuator control	Control of heating and cooling medium valve actuators 24V AC power supply
Referral interface	Power supply and communication with the wall-mounted referencing-unit
Analogue output	Analogue voltage signal determining the fan speed
Dual state inputs	Reading passive contacts from additional object devices, e.g. window opening sensor or alarm from a condensate pump
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

The presented **FCU24** controller model is dedicated to work in **LON TP/FT-10** network. We also offer **FCU24** models to work in **BACnet MS/TP** or **Modbus RTU**.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Fan coil controller

Fan control

Output type	Relay
Supply voltage	230 V AC
Maximum current	2 A
Connector	Safety Connector Wieland (3 pins)

Control of valve actuators

Number of outputs	2
Output type	Triac
Actuator supply voltage	230 V AC
Maximum/minimum current	500/50 mA
Connector	Safety Connector Wieland (4 styki)

Fan speed control output

Output type	Analogue voltage
Output range	0-10 V DC
Resolution	8 bits
Minimum load	10 kΩ
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Wall module interface

Communication	Serial interface as **EIA-485** (RS-485) standard
Supply voltage	5 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Universal inputs

Number of inputs	2
Standard	Active with contact power supply
Supported signals	Passive contact (potential-free) **NO**/**NC** type Open collector(**OC**) time output - transistor **NPN**
Filtration of contact vibrations	Filtration time 50 ms
Separation	Partial
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2

Signalling and controle

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	7 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

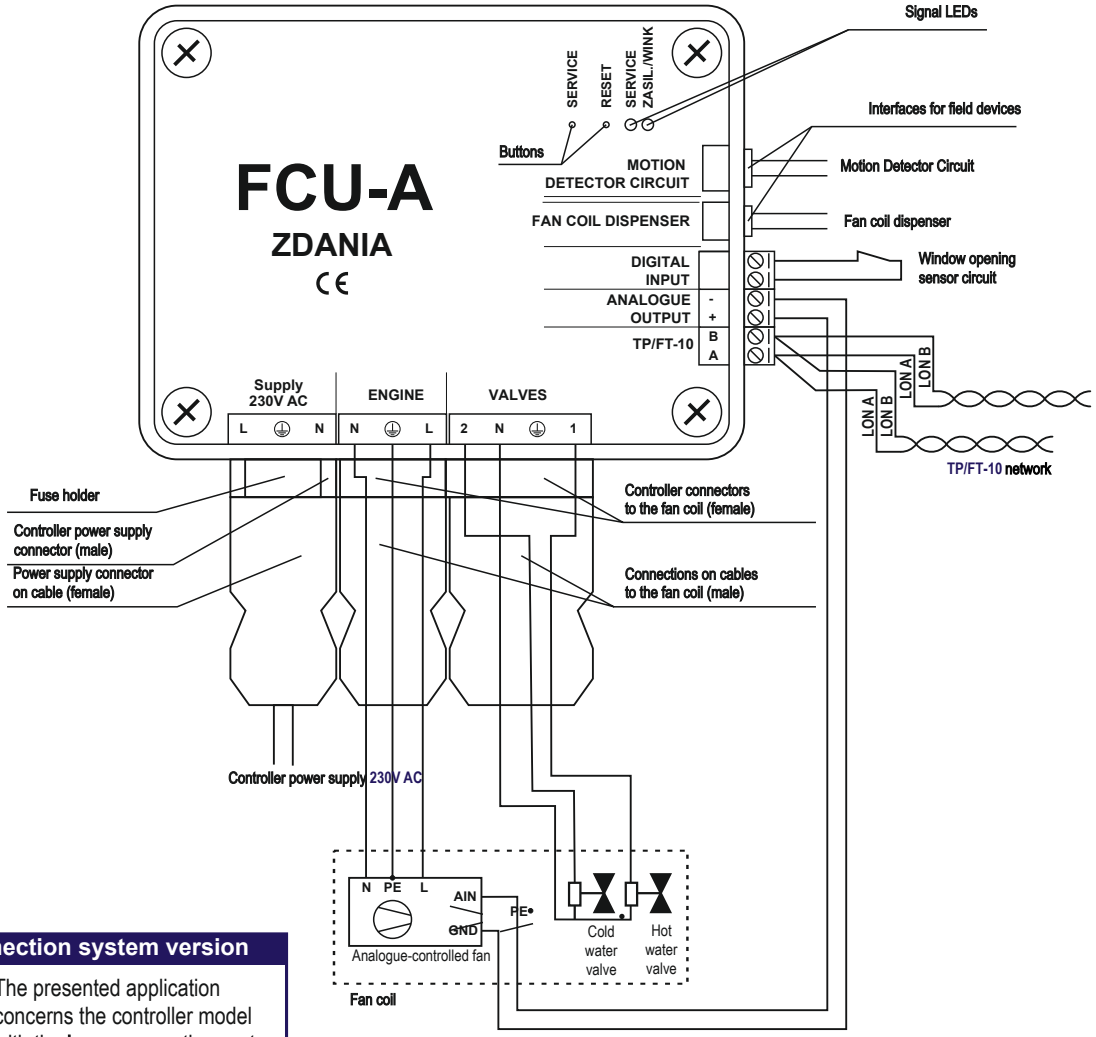
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • upper connection system, • lower connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

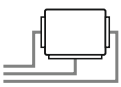
Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
FCU	3-speed fan, 230V AC valve actuators	FCU/LON-FT	FCU/BACnet MS/TP	FCU/Modbus RTU
FCU24	3-speed fan, 24V AC valve actuators	FCU24/LON-FT	FCU24/BACnet MS/TP	FCU24/Modbus RTU
FCU-A	Analogue controlled fan, 230V AC valve actuators	**FCU-A/LON-FT**	**FCU-A/BACnet MS/TP**	**FCU-A/Modbus RTU**
FCU-R	Three-speed fan, 230V AC chilled water valve actuators, electric heater	FCU-R/LON-FT	FCU-R/BACnet MS/TP	FCU-R/Modbus RTU

Controller aplication



Connection system version



The presented application concerns the controller model with the **lower** connection system

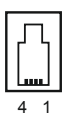
Tables for assigning signals to RJ-xx type connectors

W-m referencing-unit (4P4C)	
1	GND
2	Data line **DATA-**
3	Data line **DATA+**
4	+5 V

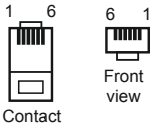
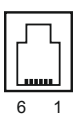
Motion detector (6P6C)	
1, 2	**Tamper** contact
3, 4	**Motion** contact
5	GND
6	+12 V

Connector contact numbers RJ-xx

CONNECTION 4P4C (RJ-10)

Plug	Slot
	

CONNECTION 6P6C (RJ-12)

Plug	Slot
	

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The FCU-R is used to control the thermal comfort in the room by means of fan air convectors working as a cooler in conjunction with an electric heater. The fan coil works in a two-pipe system with chilled water as a cooling medium.
On the basis of current room temperature measurements, the internal control algorithm works out the control of

- the air velocity of the three-speed fan for the air circulation,
- an ice water valve actuator,
- an electric heater located in the supply air duct.

The control algorithm also takes into account additional factors:

- presence in the room - automatic switching between economy and comfort modes,
- opening the window, switching off the control system during ventilation,
- excessive condensation build-up deactivation of the control system to prevent flooding of the space

Control system configuration and operating parameters are set remotely from the master system. The measurement of the current temperature is provided by a wall-mounted referencing-unit, which additionally allows for local adjustment of selected parameters according to individual requirements. If there is no referencing-unit, the parameters are sent to the controller via the communication network from the BMS system.

The **FCU-A** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space. Fan coil (fan, valve actuators and condensate pump) are supplied directly from the controller with **230V AC** voltage, while other devices are also supplied directly from the controller, but already with safe voltages in the **SELV** system, with double galvanic isolation from **230V AC** supply voltage. The **FCU-A** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

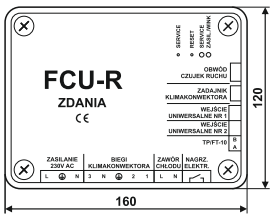
The execution of tasks is ensured by a set of functional elements of the controller

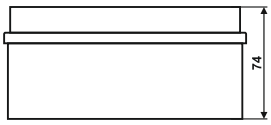
Fan control	Control of the fan coil fan with three speeds 230 V AC power supply
Actuator control	Control of heating and cooling medium valve actuators 24V AC power supply
Referral interface	Power supply and communication with the wall-mounted referencing-unit
Analogue output	Analogue voltage signal determining the fan speed
Dual state inputs	Reading passive contacts from additional object devices, e.g. window opening sensor or alarm from a condensate pump
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

The presented **FCU24** controller model is dedicated to work in **LON TP/FT-10** network. We also offer **FCU24** models to work in **BACnet MS/TP** or **Modbus RTU**.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Fan coil controller

Fan control

Number of outputs	3
Output type	Relay
Supply voltage	230 V AC
Maximum current	2 A
Security	Locking of the possibility of simultaneous shifting of several gears
Connector	Safety Connector Wieland (5 pins)

Control of the ice water valve actuator

Output type	Triac
Actuator supply voltage	230 V AC
Maximum/minimum current	500/50 mA
Connector	Wieland safety connector shared with electrical heater control output (4 pins)

Control of the contactor of the electric heater

Output type	Relay, normally open contact (**NO**)
Contact voltage	230 V AC
Maximum current	2 A
Connector	Wieland safety connector shared with ice water valve control output (4 pins)

Wall module interface

Communication	Serial interface as **EIA-485** (RS-485) standard
Supply voltage	5 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Universal inputs

Number of inputs	2
Standard	Active with contact power supply
Supported signals	Passive contact (potential-free) **NO**/**NC** type Open collector(**OC**) time output - transistor **NPN**
Filtration of contact vibrations	Filtration time 50 ms
Separation	Partial
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	7 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

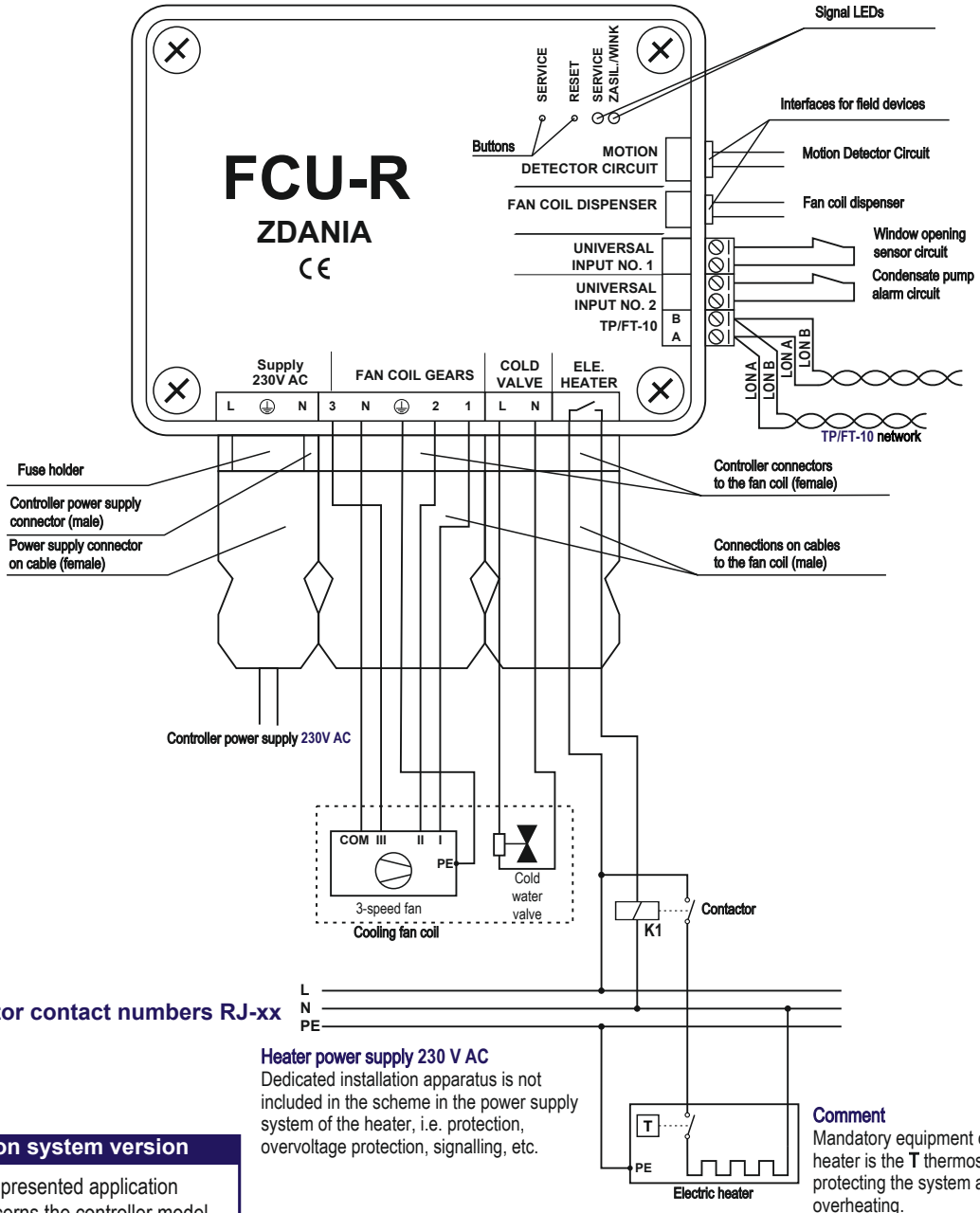
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • upper connection system, • lower connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
FCU	3-speed fan, 230V AC valve actuators	FCU/LON-FT	FCU/BACnet MS/TP	FCU/Modbus RTU
FCU24	3-speed fan, 24V AC valve actuators	FCU24/LON-FT	FCU24/BACnet MS/TP	FCU24/Modbus RTU
FCU-A	Analogue controlled fan, 230V AC valve actuators	FCU-A/LON-FT	FCU-A/BACnet MS/TP	FCU-A/Modbus RTU
FCU-R	Three-speed fan, 230V AC chilled water valve actuators, electric heater	**FCU-R/LON-FT**	**FCU-R/BACnet MS/TP**	**FCU-R/Modbus RTU**

Controller aplication



Connector contact numbers RJ-xx

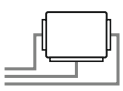
Heater power supply 230 V AC

Dedicated installation apparatus is not included in the scheme in the power supply system of the heater, i.e. protection, overvoltage protection, signalling, etc.

Comment

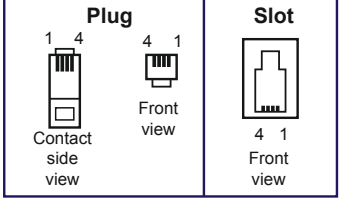
Mandatory equipment of the heater is the **T** thermostat protecting the system against overheating.

Connection system version

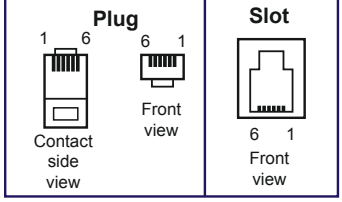


The presented application concerns the controller model with the **lower** connection system

CONNECTION 4P4C (RJ-10)



CONNECTION 6P6C (RJ-12)



Tables for assigning signals to RJ-xx type connectors

W-m referencing-unit (4P4C)	
1	GND
2	Data line **DATA-**
3	Data line **DATA+**
4	+5 V

Motion detector (6P6C)	
1, 2	**Tamper** contact
3, 4	**Motion** contact
5	GND
6	+12 V

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Heating or cooling plane controller

Characteristics

The **STC** unit is used to control surface heating or cooling systems, e.g. floor, wall or ceiling heating or cooling. Up to eight zones are controlled by the controller, each with independent zones shall be provided:

- temperature measurement with thermistor sensor,
- electrical control of the heating or cooling medium supply (on/off).

The flexible division of the space into zones allows for comfortable conditions in selected areas of the room, which ensures optimal use of energy and reduces costs. The controller is equipped with additional inputs and outputs for possible expansion of the system:

- input for thermistor sensor temperature measurement,
- analog inputs for additional sensors with voltage output,
- analog outputs for additional devices controlled analogically (voltage signal).

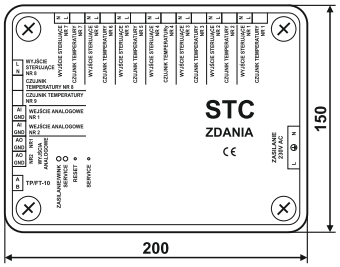
The **STC** controller is powered from **230V AC** mains via a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space. Devices
control of media are supplied from the controller with safe voltage in the **SELV** system, with double galvanic isolation from **230V AC** supply voltage.

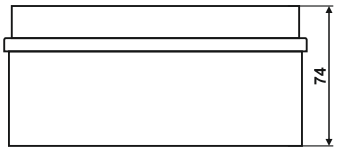
Cooling or heating devices powered from **230V AC** mains are equipped with their own separate power supply systems controlled by **STC**. The **STC** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

LonWorks®

Dimensions





The execution of tasks is ensured by a set of functional elements of the controller

Thermistor inputs	Temperature measurement in a zone or room NTC thermistor sensor
Control outputs	Zone coolant or heating control 24 V AC power supply
Analog inputs	Reading the analog voltage signal from the object sensor
Analogue outputs	Analogue voltage signal for controlling an additional device
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

The presented **STC** controller model is dedicated to work in **LON TP/FT-10** network.

We also offer **STC** models to work in **BACnet MS/TP** or **Modbus RTU** networks.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Heating or cooling plane controller

Temperature sensors for zones

Number of entries	8
Measuring element	Thermistor NTC 10 kΩ at 25°C
Measurement range	0-40°C
Accuracy	±0,5°C
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/outputs, maximum conductor cross section 2.5mm^2

Valve actuators for zones

Number of outputs	8
Output type	Triac
Actuator supply voltage	24 V AC
Maximum/minimum current	250 / 25 mA
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/outputs, maximum conductor cross section 2.5mm^2

General purpose temperature sensor

Number of inputs	1
Measuring element	Thermistor NTC 10 kΩ at 25°C
Measuring range	0-40°C
Accuracy	±0,5°C
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/outputs, maximum conductor cross section 2.5mm^2

Analog inputs

Number of inputs	2
Input type	Analogue, voltage
Input range	0-10 V DC
Resolution	8 bis
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/outputs, maximum conductor cross section 2.5mm^2

Analogue outputs

Number of outputs	2
Output type	Analogue, voltage
Output range	0-10 V DC
Resolution	8 bits
Minimum load	10 kΩ
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/outputs, maximum conductor cross section 2.5 mm^2

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	55 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

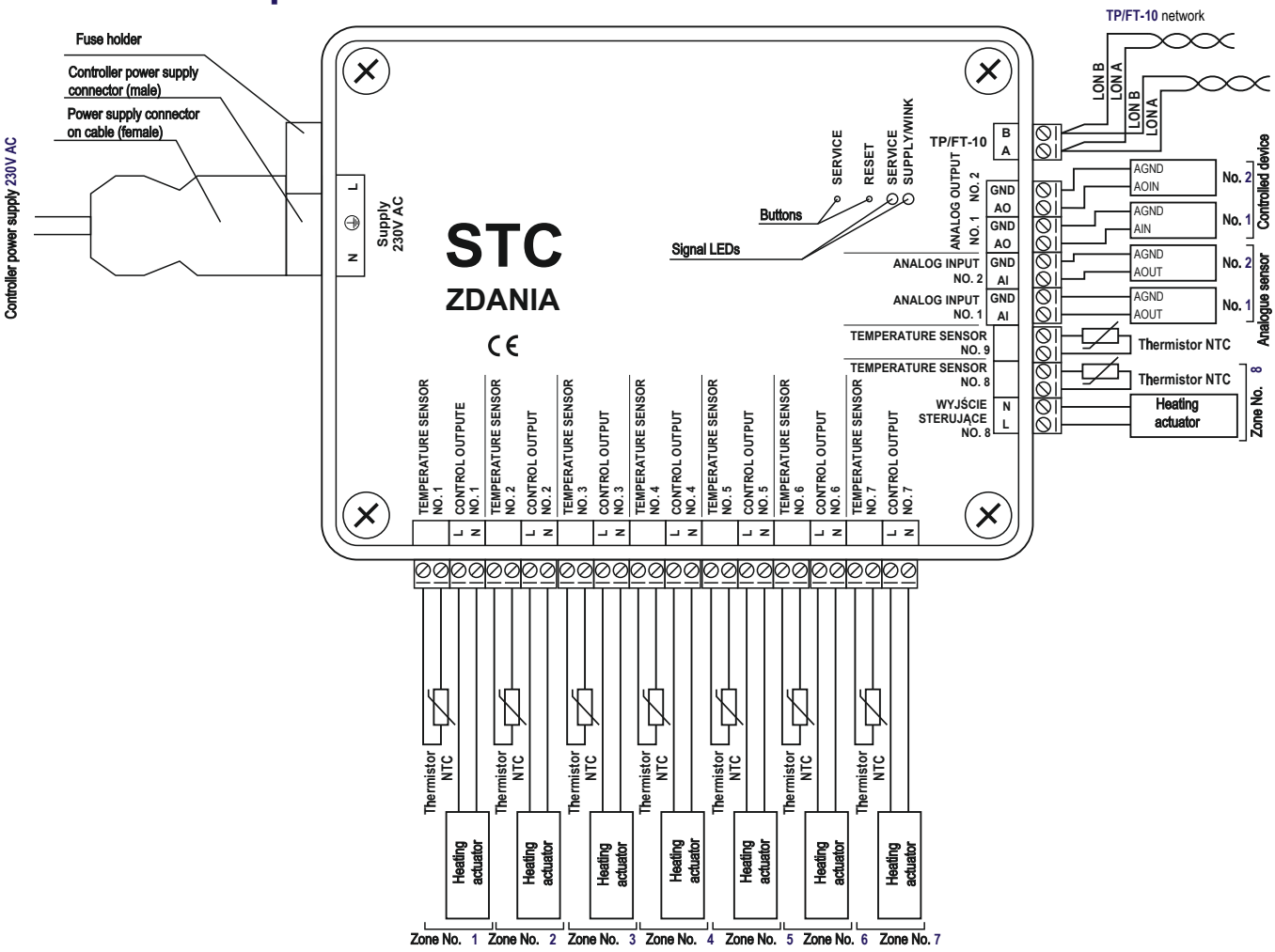
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	200 × 150 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • upper connection system, • lower connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

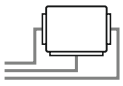
Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
STC	Heating plane controller	STC/LON-FT	STC/BACnet MS/TP	STC/Modbus RTU

Controller aplication



Connection system version



The presented application concerns the controller model with the lower connection system

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Humidifier controller

Characteristics

The **XIO** is used to control humidifiers in ventilation and air conditioning systems. Based on the measurement of the current humidity (humidity sensor connected to the **XIO** controller), the controller in the controller generates a setpoint value for the humidifier. An additional function of the **XIO** controller is to supervise the humidifier operation.

A single **XIO** controller supports two independent humidifiers.

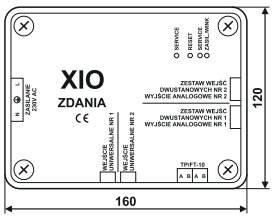
The **XIO** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is intended for surface mounting in the suspended ceiling space. Supervised humidifiers have their own separate **230V AC** power supply circuits. Other devices are supplied directly from the controller with safe voltages in the system.

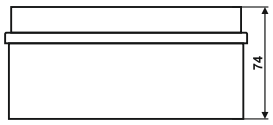
SELV, with double galvanic isolation from **230V AC** supply voltage. The **XIO** enclosure provides IP20 environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

LonWorks®

Dimensions





The execution of tasks is ensured by a set of functional elements of the controller

humidifier controller interface	Setting the humidity level to be maintained by the humidifier Monitoring of humidifier operation
Sensor inputs	Sensor power supply and reading of the current relative humidity in the form of an analog voltage signal.
Power Supply	Controller power supply Safe installation interface 230 V AC
Network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

The presented **XIO** controller model is dedicated to work in **LON TP/FT-10** network. We also offer **XIO** models to work in **BACnet MS/TP** or **Modbus RTU**.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Humidifier controller

Humidifier interface

Control signal - humidity setpoint

Output Type	Analog, voltage
Output range	0-10 V DC
Resolution	8 bits
Minimal load	10 kΩ

Digital inputs - humidifier status

Number of entries	3
Input type	Active with contact supply
Supported signals	Passive contact (potential-free) - type **NO** or **NC** Open collector output (**OC**) **NPN** transistor
Contact vibration filtration	Programmable, configurable filtration time (50 ms standard)
Separation	Partial

General

Number of interfaces	2
Connector	Telecommunications connector **8P8C** (RJ-45)

Universal inputs

Number of inputs	2
Input type	Analog, voltage
Input Range	0-10 V DC
Resolution	8 bis
Sensor supply voltage	12 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	30 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

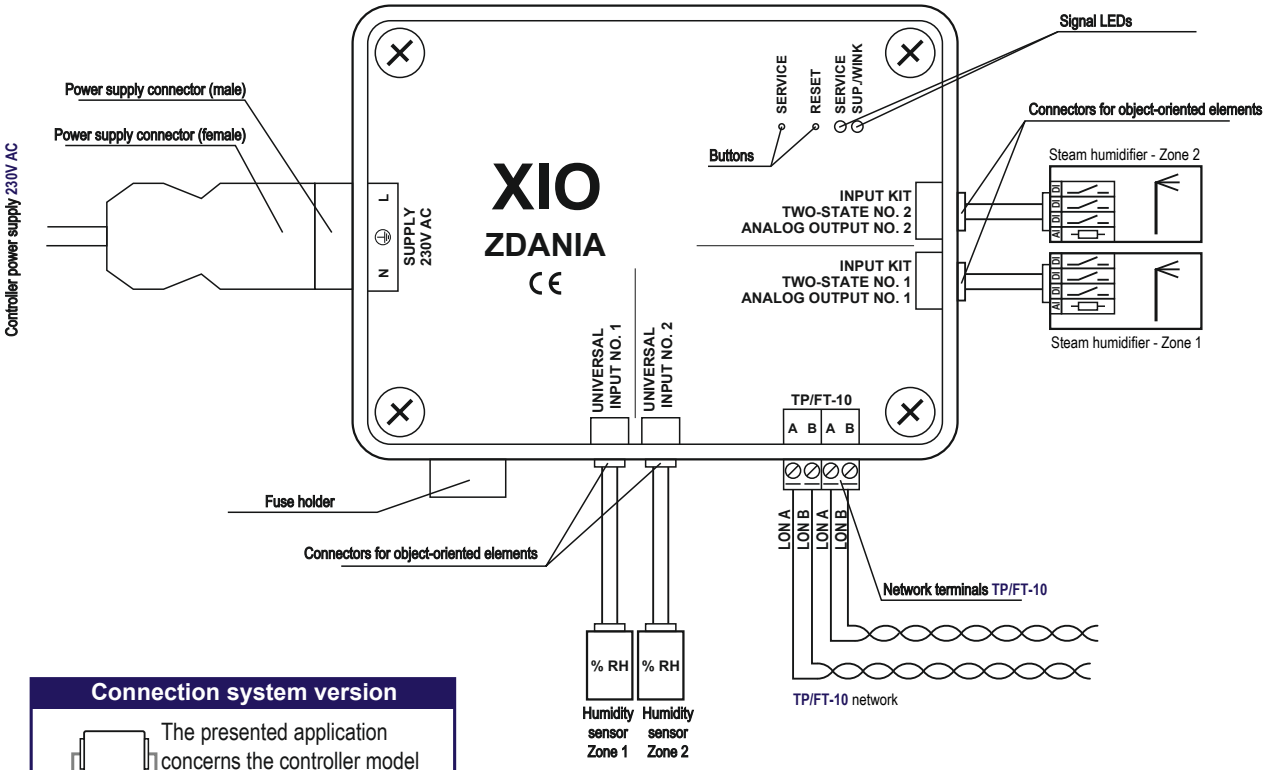
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	200 × 150 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: upper connection system, lower connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

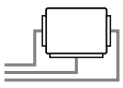
Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
XIO	Humidifier controller	XIO/LON-FT	XIO/BACnet MS/TP	XIO/Modbus RTU

Controller aplication



Connection system version



The presented application concerns the controller model with the **lower** connection system

Tables for assigning signals to RJ-xx type connectors

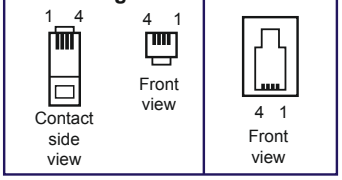
Sensor (4P4C)	
1	GND
2	Supply **+12 V**
3	GND
4	Signal **0-10 V**

Humidifier controller (8P8C)		
Cont.	**Type**	**Description**
1,2	contact	Steam production
3,4	contact	Cylinder's contamination
5,6	contact	Breakdown
7	GND	Humidity setpoint - **mass**
8	0-10 V	Humidity setpoint - **signal**

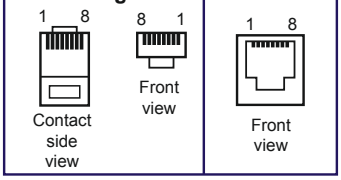
Attention
The set of signals and their assignment may vary depending on the type of humidifier

RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)



CONNECTION 8P8C (RJ-45)



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Wall-mounted fan coil control unit

Characteristics

The wall-mounted **FCWM** jtransmitter is designed to work with fan coil controllers, e.g. FCU, FCU24, FCUA, FCUR or IHC from the iBASe® family.

The **FCWM** referencing-unit has the following characteristics:

- measurement of the current room temperature,
- possibility of setting manual preset temperature correction,
- the fan fan coil operation mode can be selected (off, automatic operation, operation at the selected fan speed (I, II or III),
- possibility of simulating presence in the room.

The fan coil controllers can operate without a referencing-unit then all the data necessary for control and regulation are transmitted via the communication network from the BMS system.

Parameters

Temperature measurement	Digital semiconductor sensor
Temperature correction	Within ±2°C
Setpoint fan speed	Stopped (position **0**), geras **I** to **III** and **Auto** ((gear worked out by the controller controller)
Supply voltage	5 V DC (from the controller)
Communication with the controller	Serial interface **EIA-485** (RS-485)
Connector	Telecommunication connector **4P4C** (RJ-10)

Signalling and control

Temperature correction	Rotary knob
Fan speed	Rotary knob
Enforcement	Monostable button
State of enforced presence	LED integrated in the presence force button

Environmental conditions

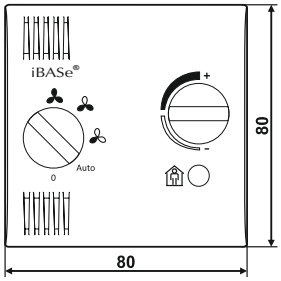
Operating temperature	form 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

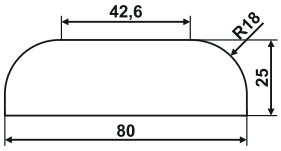
Housing and installation

Material	ABS, ight grey
Dimensions (D × S × W)	80 × 80 × 25 mm
Degree of protection	IP20
Assembly	Wall-mounted, inside the room

LonWorks®

Dimensions



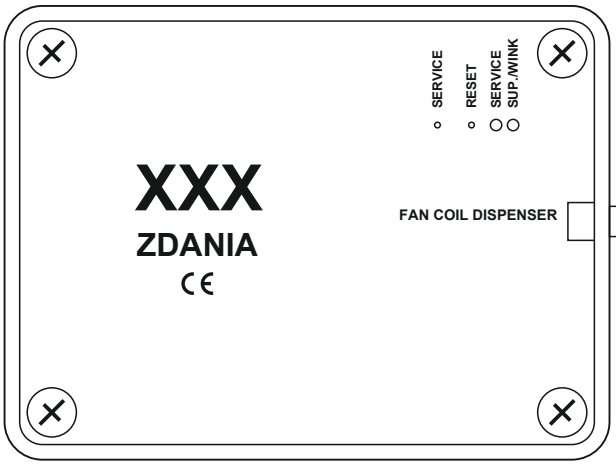


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

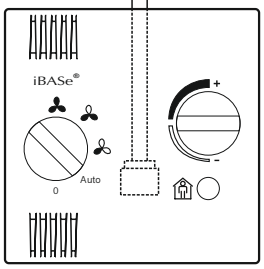
ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Controller aplication



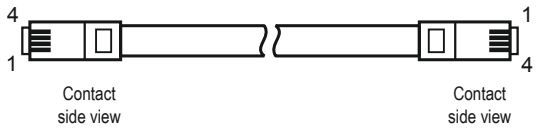
Maximum cable length **15** m



4P4C (**RJ-10**) connector of the referencing-unit accessible through a hole on the back of the housing

Attention
The diagram shows only the connection of a wall referencing-unit with a dedicated controller interface. Other connections of the controller are presented in the manual for a specific model.

Cable connections



Connection made with **YTLYp 4x0,12** telecommunication cable with **4P4C** (**RJ-10**), plugs on both sides, **1:1** conections (1-1, 2-2, 3-3, 4-4)

RJ10 connector pin numbers

CONNECTION 4P4C (RJ-10)	
Plug	**Slot**
1 4 Contact side view; 4 1 Front view	4 1 Front view

Signal assignment of the RJ10 connector

W.m referencing device 4P4C	
1	GND
2	Data line **DATA-**
3	Data line **DATA+**
4	+5 V

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **RK-2** unit distributes power to three-speed fans in two fan coil units controlled by a single controller. The use of the RK-2 module ensures the electrical separation of both fan power circuits, which reduces their undesired influence on each other.

In the system with **RK-2** distributor, the total power of controlled fan coil units may be greater than the maximum power switched on by the controller itself.

In the system with the **RK-2** divider, the fans have a separate installation supplying the output of the controller as standard, which is intended to supply the fan, becomes the control output, while the media control devices in both fan coil units are connected in parallel and jointly controlled.

Fan coil controller connector

3-speed fan control	Connection strip with screw terminals, grid 7.5 mm, maximum cable cross section 2.5 mm^2

Fan coil connectors

Separate power supply for 3-speed fans	Connection strip with screw terminals, grid 7.5 mm, maximum cable cross section 2.5 mm^2

Supply connectors

Power supply for the unit	Connection strip with screw terminals, grid 7.5 mm, maximum cable cross section 2.5 mm^2

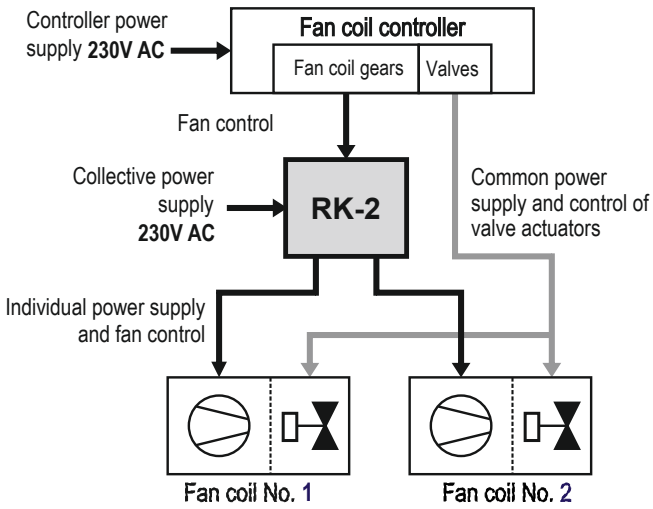
Environmental conditions

Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Obudowa i montaż

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	109 × 109 × 109 × 53 mm (does not include cable glands)
Degree of protection	IP20
Assembly	Wall-mounted, in the inter-ceiling space

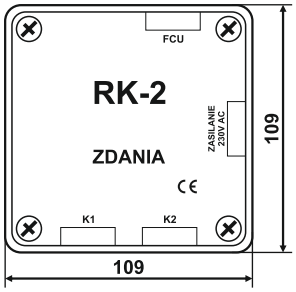
Block diagram of connections

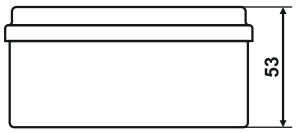


The presented **RK-2** splitter model is designed for a group of two fan coil units. We also offer **RK-4** model for groups of three or four fan coil units.

LONWORKS®

Dimensions



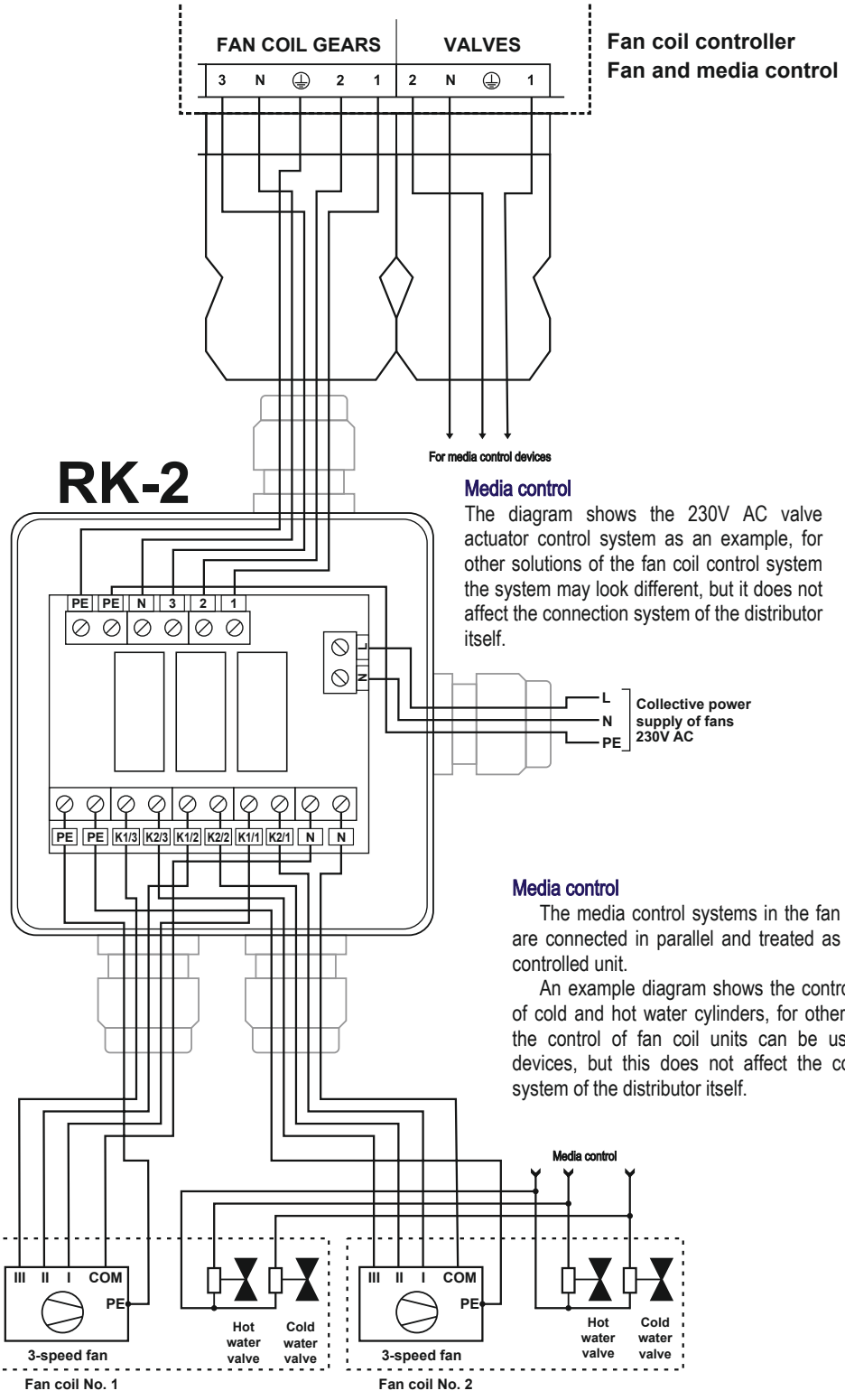


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Controller aplication



Media control

The diagram shows the 230V AC valve actuator control system as an example, for other solutions of the fan coil control system the system may look different, but it does not affect the connection system of the distributor itself.

Media control

The media control systems in the fan coil units are connected in parallel and treated as a single-controlled unit.

An example diagram shows the control system of cold and hot water cylinders, for other systems the control of fan coil units can be used other devices, but this does not affect the connection system of the distributor itself.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

VAV controllers

	VC	VC4	VC-D	IHC FCU+**VC**
VAV controller or analog controlled damper interface	2 interfaces	4 interfaces	1 interfaces	2 interfaces
	Supply 24 V DC	Supply 24 V AC	Supply 24 V DC	Supply 24 V AC
	Analogue signal control 0-10 V, analog signal feedback 0-10 V			
Sensor inputs (AI), voltage signal Application-dependent function assignment	2 inputs	2 inputs	1 input	2 inputs
	Analogue signal 010 V, resolution 8 bits, sensor supply 12 V DC			
	Typical connected sensors Differential pressure sensor, Linear air velocity sensor, Volumetric flow rate sensor, CO_2 level sensor			
Analogue inputs (AI), voltage signal Application-dependent function assignment			1 input Analogue signal 0-10 V Resolution 8 bits without sensor power supply	
Dual state inputs (DI), passive contact Application-dependent function assignment	2 inputs Device contacts, control buttons		7 inputs of fume cupboard contacts, control buttons	4 inputs Device contacts, control buttons
Temperature inputs		2 inputs Resistance sensors NTC: 10kΩ at 25ºC		
Detection of presence in a room	Motion Detector Circuit Contact lines of motion and sabotage	Two motion detector circuits Contact motion lines and sabotage		Motion detector circuit Contact motion and sabotage lines
Visual-acoustic alarm signaling			Audio-visual alarm device Common control 12 V DC power supply	
Wired alarm signaling to the master system			Potential-free contact (relay output)	
Additional installation notes			The controller supplies directly cooperating devices with the device. The table does not include a dedicated electrical installation for the fume cupboard itself.	

Comment

1. Unless otherwise stated, all field devices are powered from the controller.
2. The table only lists the characteristics of each controller model.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Charakterystyka

The **VC** controller is designed for use in ventilation systems with variable air flow, regulated by **VAV** (**V**ariable **A**ir **V**olume)devices. Depending on the software and connected sensors and actuators, the controller can perform many different functions in the ventilation system. The controller can operate in single and double duct systems with variable demand, multiple supply air sources and different exhaust routes (e.g. air-conditioned laboratory rooms with fume cupboards and local exhaust with specific vacuum and overpressure requirements, etc.).
The controller has a built-in **LON** network interface, which makes it possible:

- direct collaboration between controllers for complex automatic, dynamic, demand-driven flow and pressure control functions and/or work schedules,
- minimising the consumption of thermal energy contained in the supply and extract air,
- optimization of the scope of work of technological elements of the ventilation system, so that the balancing of the airflow takes place with minimal pressure drops on the control valves,
- Direct interaction with supply and extract fans powered by inverters and other technological devices (e.g. humidifiers, dehumidifiers) with local object controllers with LON interface,
- monitoring the operation of the controller and ventilation technology system from the BMS system with on-line recording of all parameters (flows, pressures, operating states, failures), with the possibility of direct interaction with the operator.

One of the standard applications of the module supports room air flow control by controlling the VAV units in the supply air and extract air, depending on the actual concentration. CO_2, pressure difference between the room and e.g. a corridor and the presence of the user in the room.

The **VC** controller is powered from **230V AC** AC mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space, in the immediate vicinity of controlled technological devices. Executive devices
(flaps, **VAV** regulators) and sensors (pressure, differential pressure, CO2 concentration, passive contacts) are supplied directly from the controller with safe voltages in the **SELV**, system, with double galvanic isolation from **230V AC** supply voltage. The **VC** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices of many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

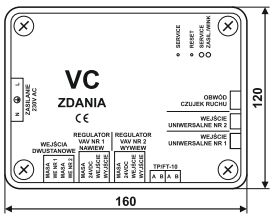
VAV controller interface	Power supply to the VAV controller or analog control valve, setting the flow level or opening level and reading the feedback signal
Sensor input interface	Power supply for the measuring sensor and reading of the measured valuein the form of an analog voltage signal. Supported object sensors pressure sensors (absolute, atmospheric or relative), differential pressure sensors, CO_2 or other gas sensors, temperature sensors, volume flow sensors (m^3/h), flow rate sensors (m/s), linear position sensors, filter dirt sensors and others.
Dual state inputs	Reading passive contacts of object devices. Supported contacts start/stop switches, equipment operation and failure signals, air flow signals, limit contacts of mechanical elements position, filter dirt pressure switches and others.
Motion detector interface	Interface provides power supply and motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

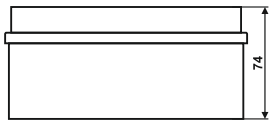
The presented **VC** controller model is dedicated to work in **LON TP/FT-10**.

We also offer **VC** models to work in **BACnet MS/TP** lub **Modbus RTU**.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

VAV controller interface

Number	2
Control output	Voltage, 010 V DC, 8 bits
Feedback input	Voltage, 010 V DC, 8 bits
Supply voltage of the controller	24 V DC
Connector	Connection strip with screw terminals, grid 5.08 mm, 4 terminals/connectors, maximum cable cross section 2,5 mm^2

Universal inputs

Number of inputs	2
Input type	Analogue voltage
Input range	0-10 V DC
Resolution	8 bits
Sensor supply voltage	12 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Universal inputs

Number of inputs	2
Standard	Active with contact power supply
Supported signals	Passive contact (potential-free) **NO**/**NC** type Open collector(**OC**) time output - transistor **NPN**
Filtration of contact vibrations	Filtration time 50 ms
Separation	Partial
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	30 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

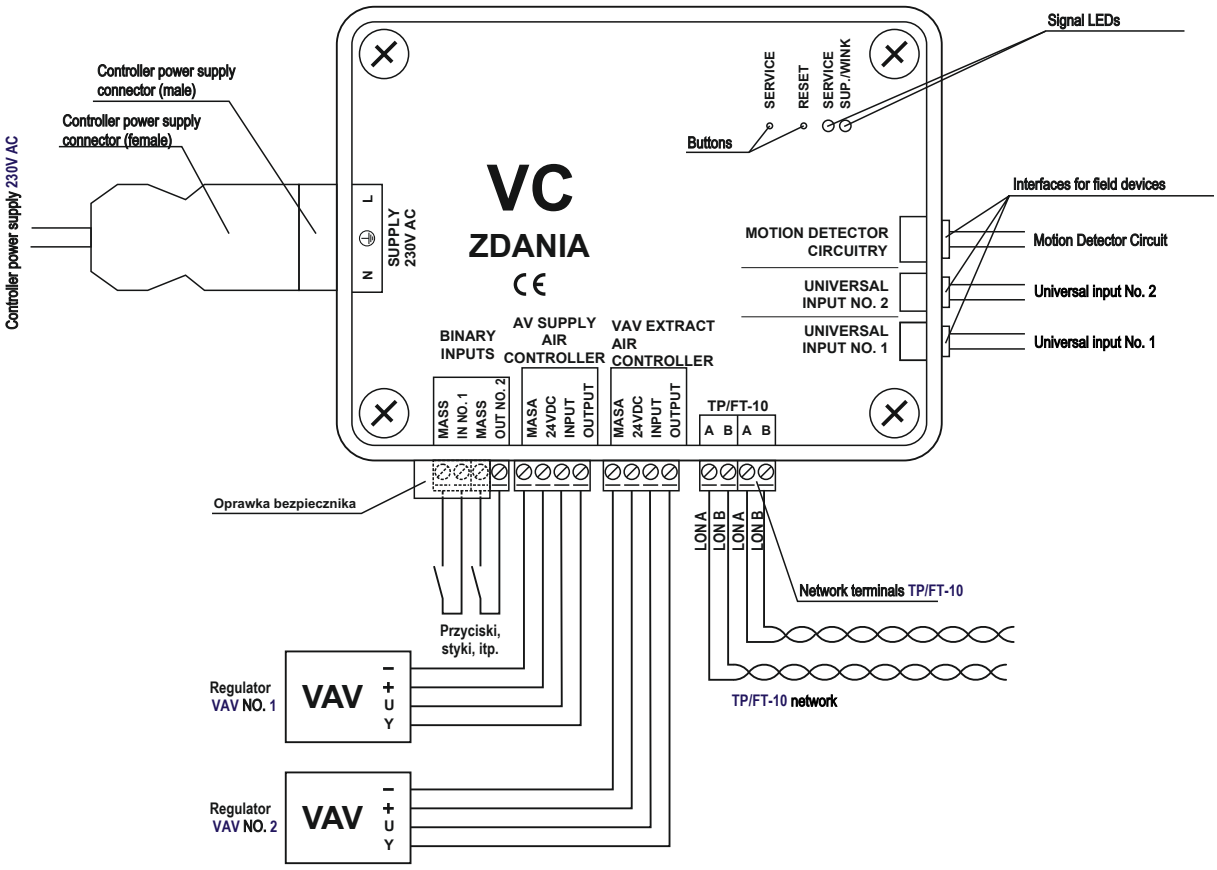
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • **upper** connection system, • **lower** connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

Commercial designations

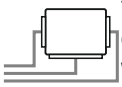
		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
VC	VAV controllers	VC/LON-FT	VC/BACnet MS/TP	VC/Modbus RTU

Controller aplication



VAV controller signals	
+,-	Supply **24 V DC**
Y	Control signal (VAV **input**)
U	Feedback signal (VAV **output**)

Connection system version



The presented application concerns the controller model with the **lower** connection system

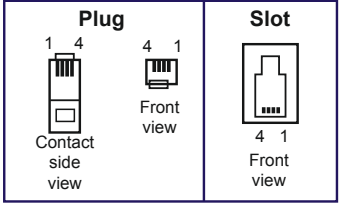
Tables for assigning signals to RJ-xx type connectors

Motion detector (6P6C)	
1, 2	**Sabotage** contact
3, 4	**Motion** contact
5	GND
6	Supply **+12 V**

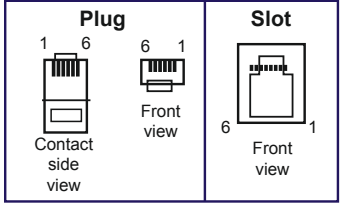
Sensor (4P4C)	
1	GND
2	Supply **+12 V**
3	GND
4	Signal **0-10 V**

RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)



CONNECTION 6P6C (RJ-12)



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
ZDANIA SINCE 1992
www.zdania.com.pl
biuro@zdania.com.pl

Charakterystyka

The **VC4** controller is designed for use in ventilation systems with variable air flow, regulated by **VAV** (**V**ariable **A**ir **V**olume)devices. Depending on the software and connected sensors and actuators, the controller can perform many different functions in the ventilation system. The controller can operate in single and double duct systems with variable demand, multiple supply air sources and different exhaust routes (e.g. air-conditioned laboratory rooms with fume cupboards and local exhaust with specific vacuum and overpressure requirements, etc.).
The controller has a built-in **LON** network interface, which makes it possible:

- direct collaboration between controllers for complex automatic, dynamic, demand-driven flow and pressure control functions and/or work schedules,
- minimising the consumption of thermal energy contained in the supply and extract air,
- optimization of the scope of work of technological elements of the ventilation system, so that the balancing of the airflow takes place with minimal pressure drops on the control valves,
- Direct interaction with supply and extract fans powered by inverters and other technological devices (e.g. humidifiers, dehumidifiers) with local object controllers with LON interface,
- monitoring the operation of the controller and ventilation technology system from the BMS system with on-line recording of all parameters (flows, pressures, operating states, failures), with the possibility of direct interaction with the operator.

One of the standard applications of the module supports room air flow control by controlling the VAV units in the supply air and extract air, depending on the actual concentration. CO2, pressure difference between the room and e.g. a corridor and the presence of the user in the room.

The **VC4** controller is functionally compatible with the **VC**, the difference is that a single controller operates in two areas (two zones in a large room or two smaller rooms next to each other) and provides the **VC4** with additional inputs and outputs. The internal control algorithms are the same.

The **VC4** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space, in the immediate vicinity of controlled technological devices. Executive devices (flaps, **VAV** regulators) and sensors (pressure, differential pressure, CO_2 concentration, passive contacts) are supplied directly from the controller with safe voltages in the **SELV** system, with double galvanic isolation from **230V AC** supply voltage. The **VC4** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices of many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

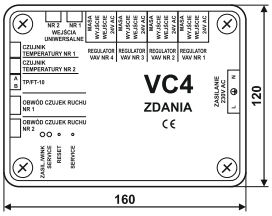
VAV controller interface	Power supply to the VAV controller or analog control valve, setting the flow level or opening level and reading the feedback signal
Sensor input interface	Power supply to the measuring sensor and reading of the measured value in the form of an analog voltage signal
Thermistor inputs	Temperature readout via NTC thermistor, temperature readout in ventilation-controlled zone
Motion detector interface	Interface provides power supply and motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

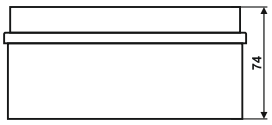
The presented **VC4** controller model is dedicated to work in **LON TP/FT-10**.

We also offer **VC4** models to work in **BACnet MS/TP** lub **Modbus RTU**.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

VAV controllers

VAV controller interface

Number	2
Control output	Voltage, 010 V DC, 8 bits
Feedback input	Voltage, 010 V DC, 8 bits
Supply voltage of the controller	24 V DC
Connector	Connection strip with screw terminals, grid 5.08 mm, 4 terminals/connectors, maximum cable cross section 2,5 mm^2

Temperature sensor

Number of inputs	2
Measuring element	NTC 10 kΩ at 25°C
Measuring range	0-40°C
Accuracy	±0,5°C
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/connectors, maximum cable cross section 2,5 mm^2

Universal inputs

Number of inputs	2
Input type	Analogue voltage
Input range	0-10 V DC
Resolution	8 bits
Sensor supply voltage	12 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	30 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

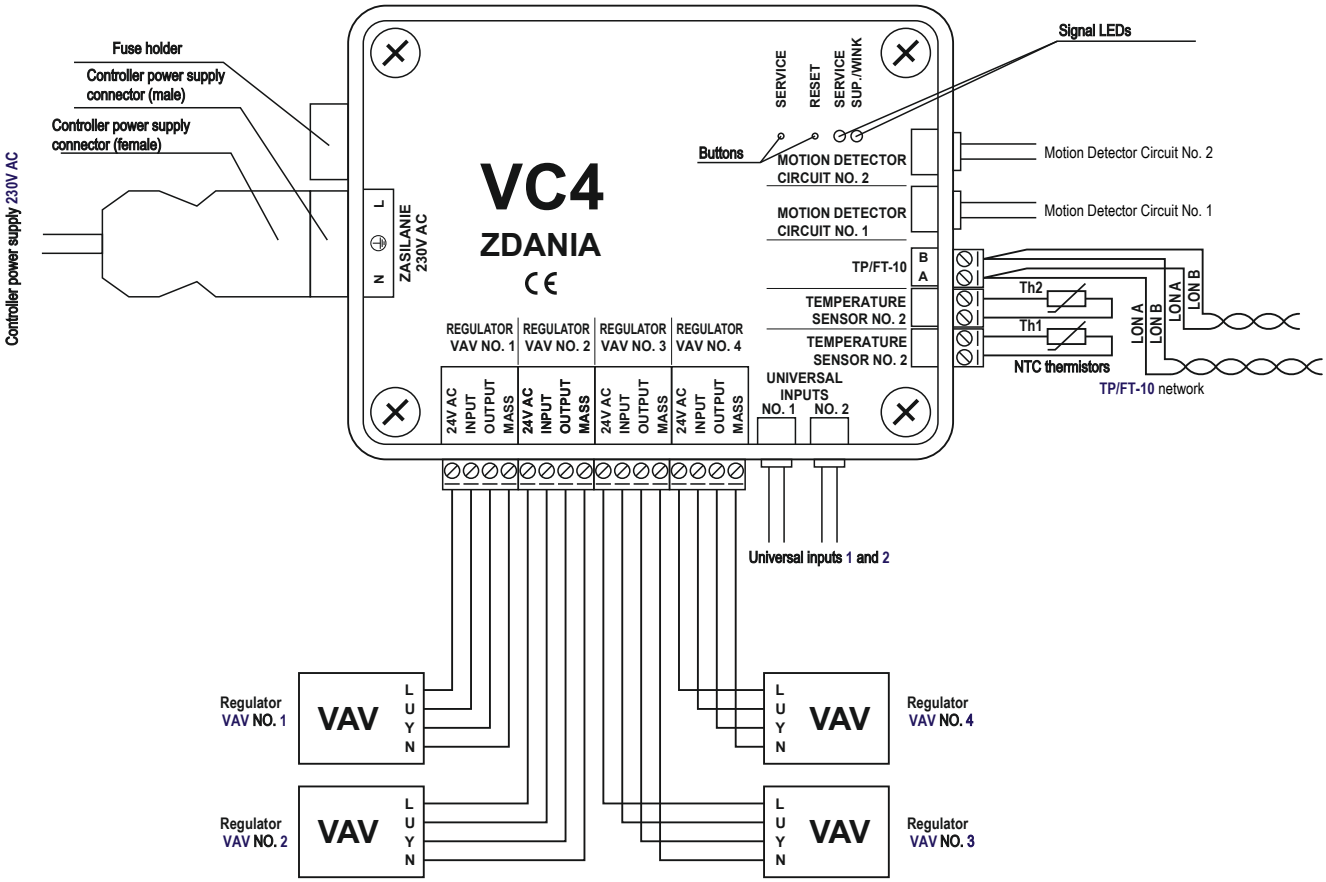
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • **upper** connection system, • **lower** connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
VC4	Two-zone ventilation controller	VC4/LON-FT	VC4/BACnet MS/TP	VC4/Modbus RTU

Controller aplication



VAV controller signals	
+,-	Supply **24 V DC**
Y	Control signal (VAV **input**)
U	Feedback signal (VAV **output**)

Connection system version

The presented application concerns the controller model with the **lower** connection system

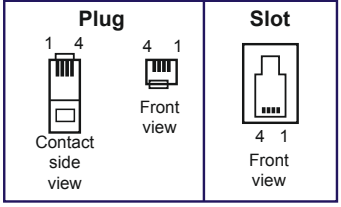
Tables for assigning signals to RJ-xx type connectors

Motion detector (6P6C)	
1, 2	**Sabotage** contact
3, 4	**Motion** contact
5	GND
6	Supply **+12 V**

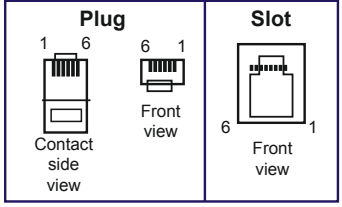
Sensor (4P4C)	
1	GND
2	Supply **+12 V**
3	GND
4	Signal **0-10 V**

RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)



CONNECTION 6P6C (RJ-12)



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
ZDANIA SINCE 1992
www.zdania.com.pl
biuro@zdania.com.pl

Fume cupboard extraction system controller

Characteristics

The **VC-D** controller is designed for rapid control of the extract air flow in laboratory fume cupboards, in particular to increase the volume flow rate when opening the fume cupboard window. Laboratories and hospitals are the main areas of application for the controller. The cooperation with ventilation controllers (**VC**, **VC4**) allows for the creation of complex air curtains. systems with air flow balancing. One example of such applications is the implementation of pressure control systems, e.g. in the medical sector, where it is necessary to separate septic and aseptic rooms.
A set of inputs and outputs of the controller, which consists of elements:

- VAV controller interface,
- Two-state inputs Fume cupboard window position, limit switches, input control buttons of
- the air line speed sensor,
- Differential pressure sensor input,
- control of the optical-acoustic alarm device,
- contact of the VAV system failure with the master system allows the implementation of various control scenarios. A single VC-D controller controls one fume cupboard, if more than one fume cupboard is used, each fume cupboard must be equipped with a separate controller.

The integration flexibility of the **VC-D** controller and the **VC**, **VC4** controllers allows for the creation of complex ventilation systems in case of large multi-workstation workplaces.

The **VC-D** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space, in the immediate vicinity of controlled technological devices. Executive devices (**VAV** regulator) and sensors (pressure, differential pressure, CO2 concentration, passive contacts) are supplied directly from the controller with safe voltages in the **SELV** system, with double galvanic isolation from **230V AC** supply voltage. The **VC-D** enclosure provides **IP20** environmental protection.
Thanks to the use of open communication standards, the controller can cooperate with devices of many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

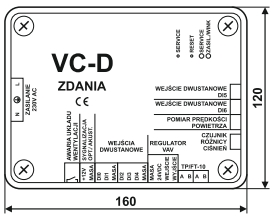
VAV controller interface	Power supply to the VAV controller or analog control valve, setting the flow level or opening level and reading the feedback signal
Sensor input interface	Power supply to the measuring sensor and reading of the measured value in the form of an analog voltage signal
Analog input	Reading the analog voltage signal from the object sensor
Dual state inputs	Reading of passive contacts that determine the fume cupboard's operating status Reading the control buttons
Dual state outputs	Optical-acoustic signaling control, transistor output
Contact output	Contact of the fume cupboard VAV failure signal to the master system
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

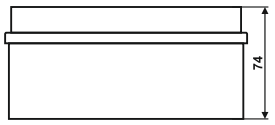
The presented **VC-D** controller model is dedicated to work in **LON TP/FT-10**.

We also offer **VC-D** models to work in **BACnet MS/TP** lub **Modbus RTU**.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

www.zdania.com.pl
biuro@zdania.com.pl

Fume cupboard extraction system controller

VAV controller interface

Number	1
Control output	Voltage, 0-10 V DC, 8 bits
Feedback input	Voltage, 0-10 V DC, 8 bits
Supply voltage of the controller	24 V DC
Connector	Connection strip with screw terminals, grid 5.08 mm, 4 terminals/ connectors, maximum cable cross section 2,5 mm^2

Differential pressure sensor (alternative to linear air velocity)

Number of inputs	1
Input type	Analogue, voltage
Input range	0-10 V DC
Resolution	8 bits
Sensor supply voltage	12 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Volume flow velocity sensor

Number of inputs	1
Input type	Analogue, voltage
Input range	0-10 V DC
Resolution	8 bitów
Connector	Connection strip with screw terminals, grid 5.08 mm, 4 terminals/connectors, maximum cable cross section 2,5 mm^2

Dual state inputs

Number of inputs	7
Standard	Active with contact power supply
Supported signals	Passive contact (potential-free) **NO**/**NC** type Open collector(**OC**) time output - transistor **NPN**
Filtration of contact vibrations	Filtration time 50 ms
Separation	Partial
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2

Output optical-acoustic signaling device

Output type	Transistor, **source** configuration (output emits current)
Supply voltage	12 V DC
Maximum current	300 mA
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/connectors, maximum cable cross section 2,5 mm^2

Output alarm contact

Output type	Relay, reactive contact, normally open (**NO**)
Maximum contact parameters	AC 125 V/0,5 A DC 24 V/1,0 A
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2,5 mm^2

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - greenLED
Network status LON TP/FT-10	Diode **SERVICE** - yellowLED

Communication interface

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	18 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

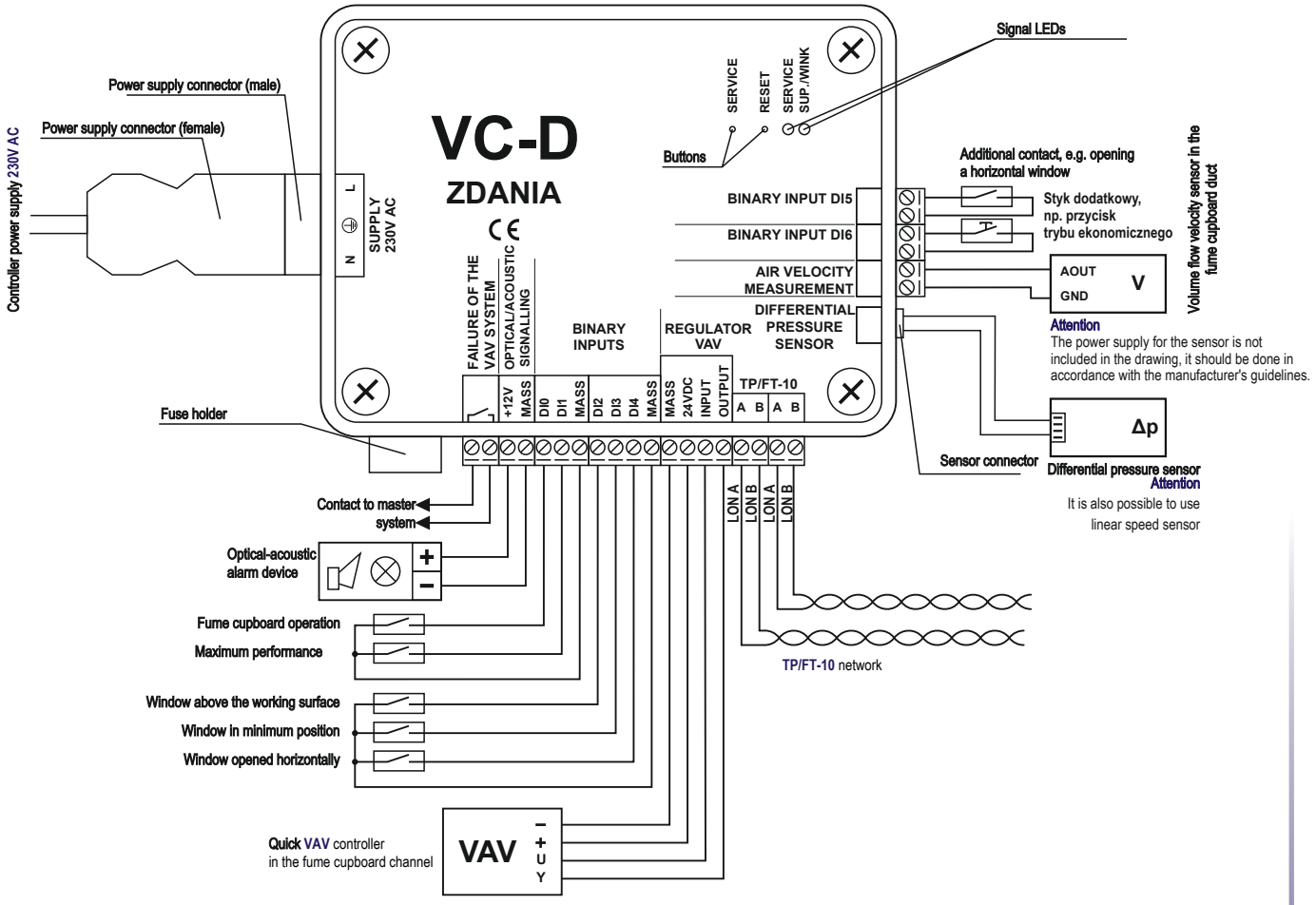
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • **upper** connection system, • **lower** connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

Commercial designations

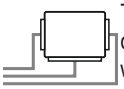
		Standardowa transmisja		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
VC-D	Controller for fume cupboard hood systems	VC-D/LON-FT	VC-D/BACnet MS/TP	VC-D/Modbus RTU

Controller aplication



VAV controller signals	
+,-	Supply **24 V DC**
Y	Control signal (VAV **input**)
U	Feedback signal (VAV **output**)

Connection system version



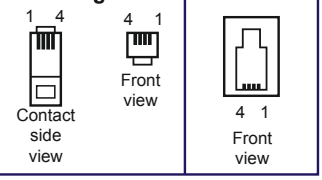
The presented application concerns the controller model with the **lower** connection system

Table for assigning signals to RJ10 type connector

Sensor (4P4C)	
1	GND
2	Supply **+12 V**
3	GND
4	Signal **0-10 V**

RJ-10 connector pin numbers

CONNECTION 4P4C (RJ-10)	
Plug	Slot



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **IHC** integrates the fan coil control and **two VAV units** (supply air and extract air) in a single unit. Since both of these functionalities are typical in modern office rooms, the use of a single controller allows for optimization of automation costs.

The use of information from presence sensors and window opening sensors in **IHC** control algorithms allows to reduce the energy consumption needed to ensure thermal comfort in the room.

Air conditioning control

Sterowanie klimatyzacją odbywa się z wykorzystaniem klimakonwektorów wentylatorowych w układzie dwu- lub czterorurowym, z wykorzystaniem jednego lub dwóch mediów. Na podstawie aktualnych warunków w pomieszczeniu sterownik **IHC** wypracowuje sposób sterowania urządzeniami obiektowymi - wentylatorem klimakonwektora i siłownikami zaworów medium lub mediów.

Dane niezbędne do sterowania odczytywane są z zadajnika naściennego lub przesyłane przez sieć w przypadku jego braku. Algorytm regulacji w sterowniku uwzględnia dodatkowo sytuację w pomieszczeniu (obecność, otwarcie okna, zbieranie się skroplin).

VAV control

The room VAV control is carried out with the use of **VAV** variable volume flow controllers, separately for the supply and extract air ducts. The control algorithm is based on guidelines related to the character of the room and on signals from the attached sensors of pressure difference between the room and the corridor, or CO_2 concentration. The algorithm also takes into account the presence in the room.

The **IHC** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space, in the immediate vicinity of controlled technological equipment. The fan coil (fan and condensate pump) are supplied directly from the controller with **230V AC**voltage, while other devices are also supplied directly from the controller, but already with safe voltages in the **SELV** system, with double galvanic isolation from the **230V AC** supply voltage. The **IHC** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices of many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

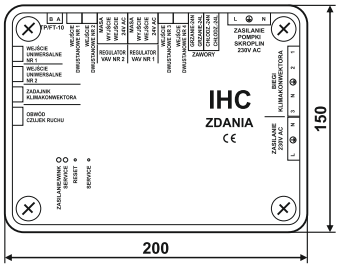
Fan control	Control of the fan coil fan with three speeds Power supply 230 V AC
Actuator control	Control of heating and cooling medium valve actuators 24 V AC power supply
Power supply for the condensate pump	Power supply for the drainage pump from the fan coil system 230 V AC power supply
Referral interface	Power supply and communication with the wall-mounted referencing-unit
VAV controller interface	Power supply to the VAV controller or analog control valve, setting the flow level or opening level and reading the feedback signal
Sensor input interface	Power supply to the measuring sensor and reading of the measured value in the form of an analog voltage signal.
Binary input	Reading passive contacts from additional object devices, e.g. window opening sensor, alarm from condensate pump, control buttons, etc.
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Switching network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

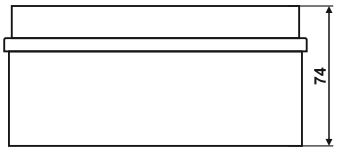
The presented **IHC** model is dedicated to work i**LON TP/FT-10** network.

We also offer **IHC** models to work in **BACnet MS/TP** or **Modbus RTU**.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Integrated air conditioning and ventilation

Fan coil contorlling

Number of outputs	3
Output type	Relay
Supply voltage	230 V AC
Maximum current	2 A
Security	Lock for simultaneous switching of several gears Safety
Connector	interface Wieland (5 contacts)

Control of valve actuators

Number of outputs	2
Output type	Triaceous
Actuator supply voltage	24 V AC
Maximum/minimum current	500/50 mA
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/outputs, maximum conductor cross section 2.5mm^2

Power supply for the condensate pump

Supply voltage	230 V AC
Maximum current	0,2 A
Connector	Safety Connector Wieland (3 pins)

Wall module interface

Communication	Serial interface in **EIA-485** (RS-485) standard
Supply voltage	5 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**)
Filtration of contact vibrations	**Tamper** - contact voltage-free, normally closed (**NC**)
Supply voltage	Filtration time 50 ms
Connector	12 V DC
	Telecommunication connector **6P6C** (RJ-12)

VAV controller interface

Number	2
Control output	Voltage, 0-10 V DC, 8 bits
Feedback input	Voltage, 0-10 V DC, 8 bits
Supply voltage	24 V AC
Connector	Connection strip with screw terminals, grid 5,08 mm, 4 terminals/ connectors, maximum conductor cross section 2,5 mm^2

Dual state inputs

Number of inputs	4
Standard	Active with contact power supply
Supported signals	Passive contact (potential-free) **NO**/**NC** type
	Open collector(**OC**) time output - transistor **NPN**
Filtration of contact vibrations	Programmable, configurable filter time (standard 50ms)
Separation	Partial
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2

Universal inputs

Number of inputs	2
Input type	Analogue voltage
Input range	0-10 V DC
Resolution	8 bits
Sensor supply voltage	12 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - green LED
Network status LON TP/FT-10	Diode **SERVICE** - yellow LED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	30 VA
Connector	Safety Connector Wieland (3 pins)
Device class	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

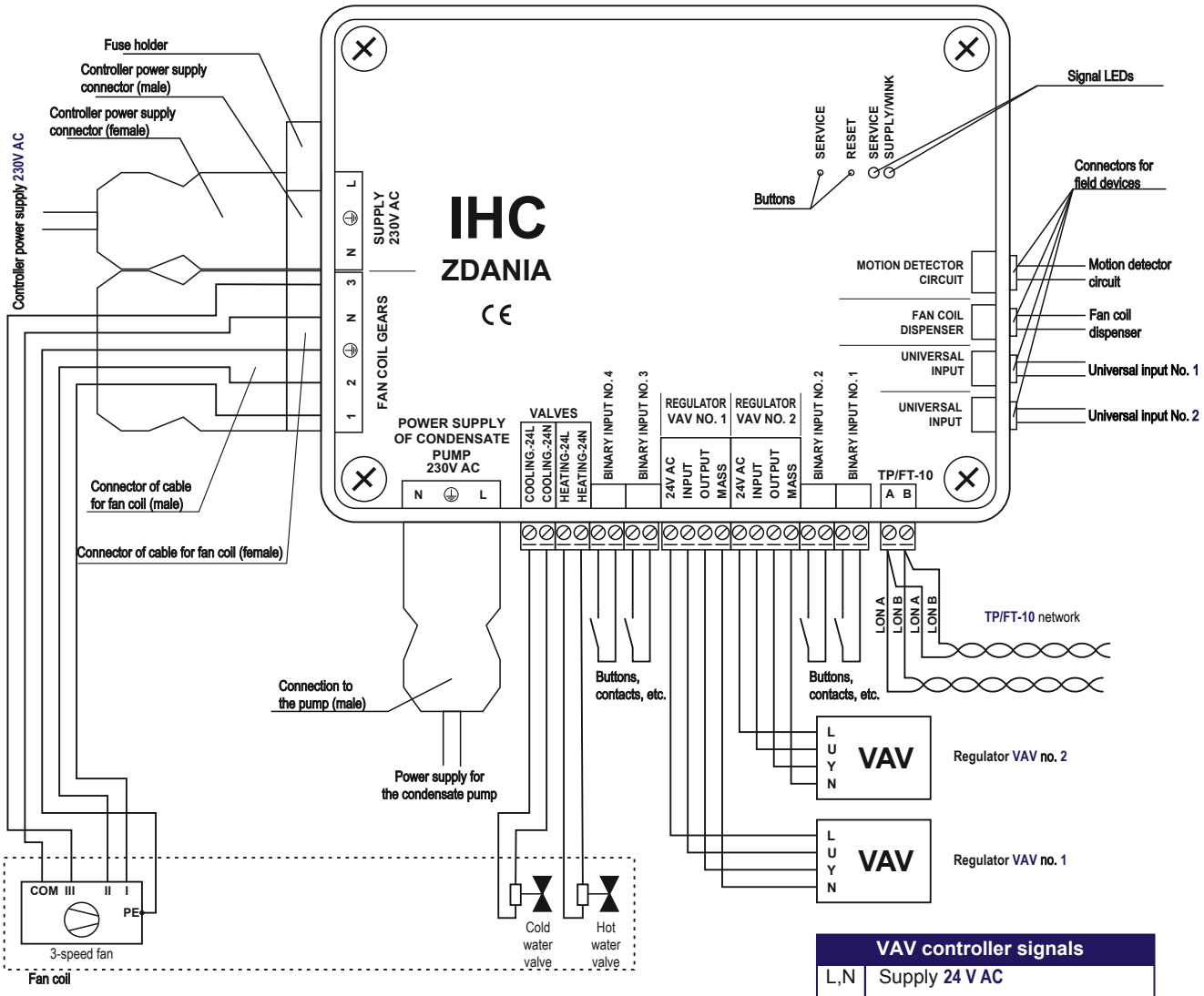
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	200 × 150 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • **upper** connection system, • **lower** connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

Commercial designations

		Standard transmission		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
IHC	Room control unit for air conditioning and ventilation	IHC/LON-FT	IHC/BACnet MS/TP	IHC/Modbus RTU

Controller aplication



VAV controller signals	
L,N	Supply **24 V AC**
Y	Control signal (VAV **input**)
	Feedback signal (VAV **output**)

Tables for assigning signals to RJ-xx type connectors

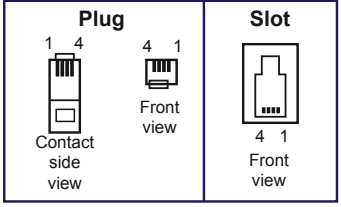
W. m. ref. device (4P4C)	
1	GND
2	Data line **DATA-**
3	Data line **DATA+**
4	+5 V

Motion detector (6P6C)	
1, 2	**Sabotage** contact
3, 4	**Motion** contact
5	GND
6	Supply **+12 V**

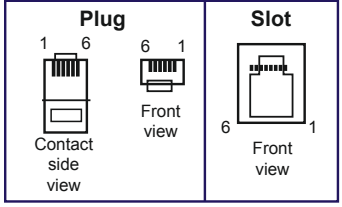
Sensor (4P4C)	
1	GND
2	Supply **+12 V**
3	GND
4	Signal **0-10 V**

RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)



CONNECTION 6P6C (RJ-12)



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
ZDANIA SINCE 1992
www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **IRC** controller is designed for the implementation of lighting automation systems and anti-burglary monitoring in typical utility rooms. The controller enables independent control of two regulated lighting circuits with a load up to 1200 VA each. Protection systems for lighting circuits should be connected externally.

The **IRC** software allows for the implementation of various lighting control scenarios:

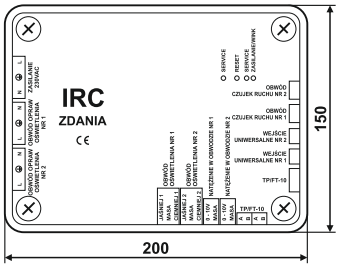
- control via on/off buttons, intensity change, presence-based
- control via motion detector signal,
- control of light intensity using a sensor connected locally or via a communication network,
- from the schedule.

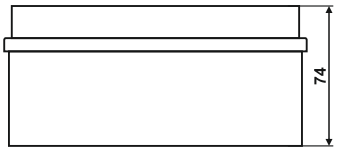
The **IRC** controller is powered from **230V AC** ontroller is powered from 230V AC mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space. Lighting circuits are powered from the controller, but should have their own externally connected protection systems. Other object devices (motion detectors, lighting sensors) are supplied directly from the controller with safe voltages in the **SELV**system, with double galvanic isolation from **230V AC** supply voltage. **IRC** enclosure provides **IP20** environmental protection.

Thanks to the use of open communication standards, the controller can cooperate with devices of many manufacturers.

LonWorks®

Dimensions





The execution of tasks is ensured by a set of functional elements of the controller

Lighting control	Power supply and control of ON/OFF lighting circuits Power supply 230 V AC, maximum current 5 A
Dual state inputs	Reading of manual lighting control buttons switch on, switch off, change of intensity
Analogue outputs	Illumination adjustment by voltage signal Signal for ballasts
Sensor input interface	Power supply to the measuring sensor and reading of the measured value in the form of an analogue voltage signal
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Switching network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

The presented **IRC** model is dedicated to work in **LON TP/FT-10** network.

We also offer **IRC** models to work in **BACnet MS/TP** or **Modbus RTU** networks.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Integrated lighting controller

Control of luminaires

Output type	Hybrid triaque-relay
Supply voltage	230 V AC
Maximum load	5 A / lighting circuit
Connector	Safety Connector Wieland (3 pins)

Lighting adjustment buttons

Number of sets	2
Type of button	Voltage free, monostable, normally open(**NO**)
Filtration of contact vibrations	Software, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 3 terminals/kits, maximum conductor cross section 2.5mm^2

Light intensity control output

Number of outputs	2
Output range	0-10 V DC
Resolution	8 bits
Minimum load	10 kΩ
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/kits, maximum conductor cross section 2.5 mm^2

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Universal inputs

Number of inputs	2
Input type	Analogue voltage
Input range	0-10 V DC
Resolution	8 bits
Sensor supply voltage	12 V DC
Connector	Telecommunication connector **4P4C** (RJ-10)

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - green LED
Network status LON TP/FT-10	Diode **SERVICE** - yellow LED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	18 VA
Connector	2300 VA (controlled luminaires)
Device class	Safety Connector Wieland (3 pins)
	II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

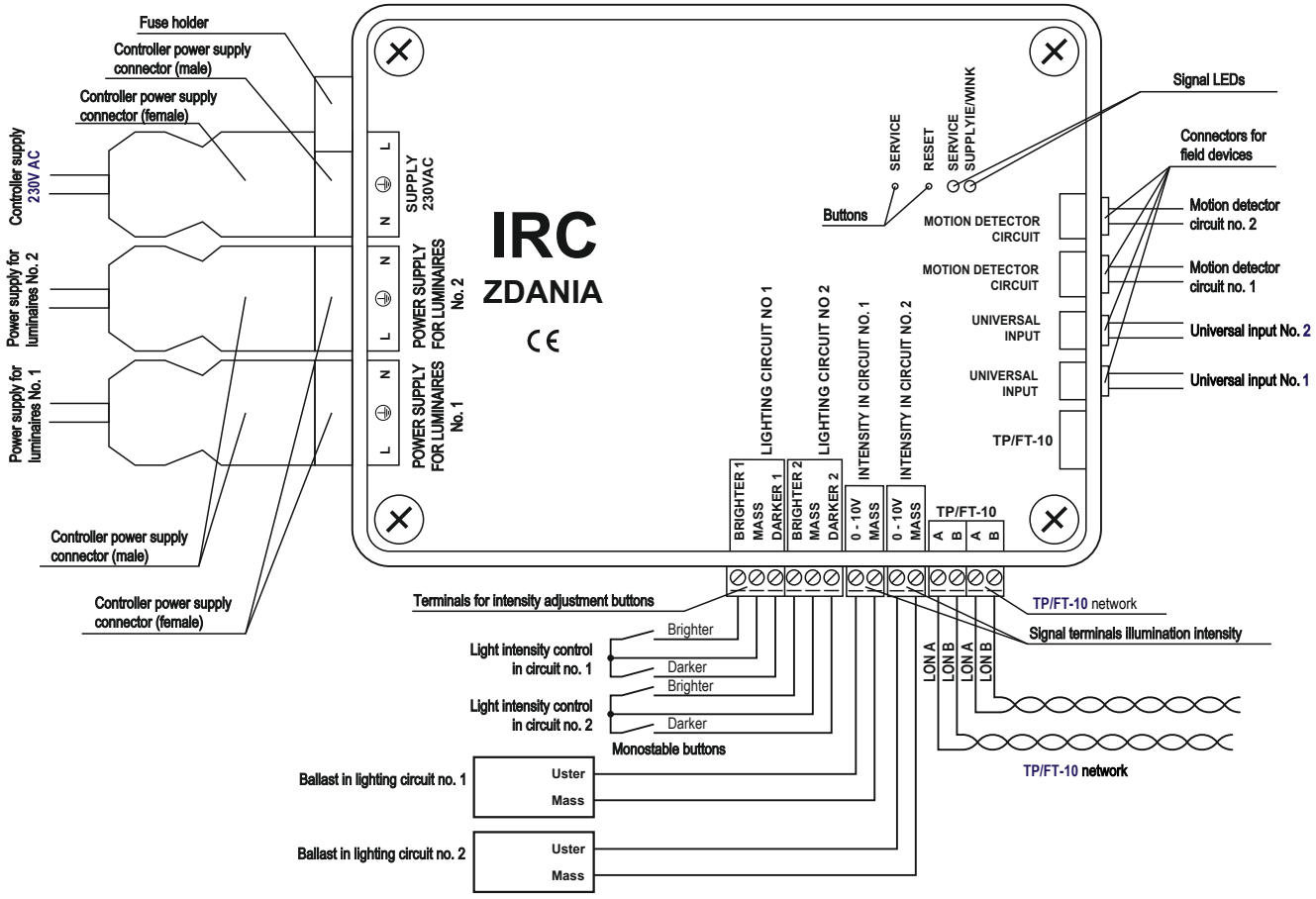
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • **upper** connection system, • **lower** connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

Commercial designations

		Standard transmission		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
IRC	Integrated room control (lighting control)	IRC/LON-FT	IRC/BACnet MS/TP	IRC/Modbus RTU

Controller aplication



Connection system version

The presented application concerns the controller model with the **lower** connection system

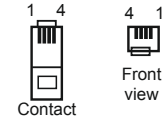
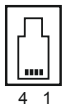
Tables for assigning signals to RJ-xx type connectors

Motion detector (6P6C)	
1, 2	Sabotage contact
3, 4	Motion contact
5	GND
6	Supply +12 V

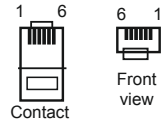
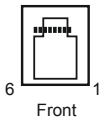
Sensor (4P4C)	
1	GND
2	Supply +12 V
3	GND
4	Signal 0-10 V

RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)

Plug	Slot
	
1 4 Contact side view; 4 1 Front view	4 1 Front view

CONNECTION 6P6C (RJ-12)

Plug	Slot
	
1 6 Contact side view; 6 1 Front view	6 1 Front view

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
ZDANIA SINCE 1992
www.zdania.com.pl
biuro@zdania.com.pl

Access control and BAS controllers

	SKD	SKD 2	SKD 3	iSKD-4
Controller design	 Plastic housing Surface-mounted installation in the suspended ceiling space	 Metal wall cabinet designed for internal assembly, equipped with individual components of the controller: • driver unencapsulated printed circuit board • buffer power supply with battery charging control • maintenance-free lead-acid battery • auxiliary elements connector, wiring, contact for detecting the opening of the cabinet door		
Basic controller power supply	230 V AC mains supply	230 V AC mains supply Buffer PSU with automatic power source switching and battery charging control		
Backup controller power supply	Recommended controller power supply from guaranteed voltage circuit 230 V AC	Maintenance-free lead-acid battery		
Power supply - additional functionality		Power mode monitoring (mains/battery)		
				Battery status monitoring
Contactless card reader	Standard Magstripe, clock and data, TTL voltage level, 12 V DC power supply			
Signalling	LEDs power supply, card acceptance and rejection, piezoelectric sounder			
BAS functions	Reader tamper detection (disassembly, cable cut-off) Contact guard line		Detection of reader tamper (disassembly, cable cut-off) parametric surveillance line Current consumption monitoring	
Locking element	Electric door opener, bolt or electromagnetic lock, standard or reversible operation (Locking element type and configurable operation)			
Control output	Transistor output with **source** circuit			Relay output
Protection and filtration	Monitorable short-circuit protection in the perimeter of the locking element			
Condition monitoring	Basic overvoltage protection		Overvoltage protection and line filtration	
				Transistor output with OC (NPN) circuit
Locking element supply	From the internal power supply of the controller	From the object-oriented power supply of the controller cabinet		Separate input with the possibility of supply from the object-oriented supply of the controller cabinet
Emergency door release button	Button with fast, hard-wired fastener in the lockout circuit, with monitoring of the lockout status			
			Overvoltage protection and line filtration	
Fire protection	Voltage-free contact from the fire protection system hard-wired into the perimeter of the locking element			
			Status monitoring Overvoltage protection and line filtration	
Door status monitoring	Door reed switch		Door reed switch Surge protection and line filtration	
BAS functions	Contact detection line		Parametric detection line	
Door open button Intercom	Separate monostable buttons		Separate monostable buttons Surge protection and line filtration	

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
ZDANIA SINCE 1992
www.zdania.com.pl
@ biuro@zdania.com.pl

Access control and BAS controllers

	SKD	SKD 2	SKD 3	iSKD-4
Assault button	Voltage free normally-closed (NC) button with mechanical memory		Voltage free normally-closed (NC) button with mechanical memory Overvoltage protection and line filtration	
I&HAS functions	Contact guard line		Parametric surveillance line	
Controller tamper detection	Controller cover photo detection contact, normally closed (NC)	Normally-closed (NC) contact for detection of opening of the controller cabinet door		
Alarm signaling - optical and acoustic	Common output for both signals		Independent outputs for both signals	
I&HAS functions			Independent parametric surveillance lines	
Presence detection I&HAS function)	Motion detector Contact lines of motion and sabotage		Motion detector Parametric lines of motion and sabotage	
Window opening detection (I&HAS function)				Window contact Overvoltage protection and line filtration Parametric monitoring line
Signalling and control	LEDs and buttons on the front panel of the controller	LEDs and buttons placed on the controller's processor board, accessible when the cabinet door is opened		

Structure of the access control system

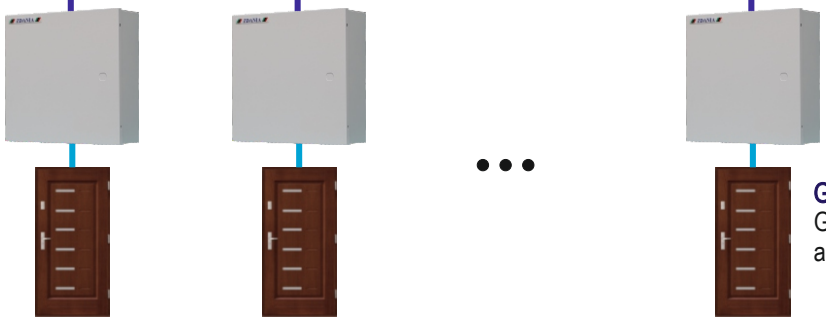
BMS operator station
Computer with access control system management software installed

xServer Configurator
The access control system after configuration works autonomously, xServer Configurator is used during operations on the authorization database, reading the log of events and generation of reports.

Structural **Ethernet** network

xServer
Authorisation database
Event log

TP/FT-10 network (LON)



SKD
Single door controller

Gangway
Gangway (door) with one or both sides access control, including door fittings

Up to **8** transitions (**8 SKDs**) supported by a single xServer **xServer** module

Characteristics

The **SKD** is a **gateway controller** in the **A**ccess **C**ontrol **S**ystem to support a single protected single or double-sided passage. The basic task of the controller is to identify the user and define his or her rights or lack thereof. Based on user data and administrative data, a decision to open a passage or refuse it is made.

The **SKD** controller is also an element of the **I&HAS** (**I**nterupt and **H**arasment **A**larm **S**ystem).

Passage handling elements:

- user identification device contactless card reader, numeric keypad, biometric reader or other,
- locking element for the door: lock, electric door opener or electromagnetic lock,
- a contact that monitors the opening of the door leaf,
- a button to open the door from the inside (and optionally an intercom),
- an emergency button for opening the door,
- assault button (for the I&HAS system),
- motion detector (for the I&HAS system),
- an optical-acoustic intrusion alarm device,
- The contact with the fire protection system ensures the possibility of safe exit from the danger zone in case of fire.

The **SKD** controller is powered from **230V AC** mains through a safe, dedicated Wieland connector and is designed for surface mounting in the suspended ceiling space. The purpose In order to maintain the safety of the system, the controller should be powered from a **guaranteed** voltage source. Object devices of the protected passageway are supplied directly from the controller safe voltages in the **SELV** system with double galvanic isolation from **230V AC** supply voltage.

SKD enclosure provides **IP20** environmental protection.

To achieve full functionality of the access control system, the controller must be integrated with the **authorization database server**, e.g. **xServer** module of the iBASe® system.

Thanks to the use of open communication standards, the controller can cooperate with devices of many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

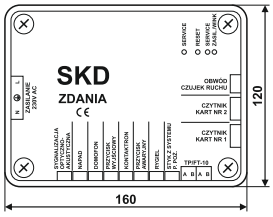
Contactless card reader interface	Power supply for the card reader, reading of an applied card number, signaling of card status (correct/unknown), signaling of card reader tampering (disassembly or cutting of cables)
Control output	Control of the locking element of the door by means of an electric door strike, a bolt or an electromagnetic actuator
Hardcore inputs	Hard-wire hard-wire inputs into the control circuit of a locking device for the emergency button to open the door and contact with the fire protection system
Dual state inputs	Reading the status of the door (reed contact), opening buttons (exit from inside, intercom), panic button (IHAS functionality)
Two-state output	Control of the optical-acoustic alarm signaling device Transistor output, 12 V DC power supply for the alarm device
Anti-sabotage device	Checking the removal of the control unit cover normally open contact internally operated
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	Controller power supply Safe installation interface 230 V AC
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

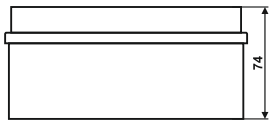
The presented **SKD LON TP/FT-10** network.

We also offer **SKD** models to work in **BACnet MS/TP** or **Modbus RTU** networks.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Card reader interface

Number	2
Standard	Magstripe Clock/Data, TTL level
Signalling	LED on the reader
Reader supply	12V DC / 80mA
Security	Removal contact Normally Closed contact (**NC**)
Connector	Telecommunication connector **8P8C** (RJ-45)

Output - locking element control

Type of element	Electric door opener, bolt or electromagnetic lock (configurable)
Mode of operation	Standard or reversible (configurable)
Output type	Transistor, **source** circuit (output emits current)
Supply voltage	12 V DC
Maximum current	0,8 A
Monitoring	Short circuit in the lock circuit
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Input - emergency button

Type of button	With mechanical use memory (replaceable fast), normally closed (**NC**)
Mode of incorporation	Hardcore in the lock power supply circuit
Security	Before overvoltages and impulse interferences
Monitoring	Contact state
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm2

Input - contact with fire protection system

Contact type	Voltage free, normally closed (**NC**)
Mode of incorporation	Hardcore in the lock power supply circuit
Security	Before overvoltages and impulse interferences
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm2

Input - door contact

Contact type	Voltage free, normally close (**NC**)
Filtration of contact vibrations	Software, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/kits, maximum conductor cross section 2.5 mm^2

Input - door release button

Type of button	Voltage free, monostable, normally open(**NO**)
Filtration of contact v.	Programmable, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/kits, maximum conductor cross section 2.5mm^2

Input - intercom button

Type of button	Voltage free, monostable, normally open(**NO**)
Filtration of contact v.	Programmable, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/kits, maximum conductor cross section 2.5mm^2

Input - assault button

Type of button	Assault button with mechanical memory, voltage free, normally closed (**NC**)
Filtration of contact v.	Programmable, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/kits, maximum conductor cross section 2,5 mm^2

Internal input - tamper detection

Monitoring	Removal of the controller cover Disassembly of the card reader (with internal control deactivation option)
Connection type	Serial, Normally Closed (**NC**) circuit
Filtration of contact v.	Programmable, filtration time 50 ms
Connector	Cover internal connection Card readers of **8P8C** card slot (RJ-45)

Output - optical-acoustic signaling device

Output type	Open collector (**OC**), **sink** configuration (output accepts current)
Supply voltage	12 V DC
Maximum current	300 mA
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5mm^2

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - green LED
Network status LON TP/FT-10	Diode **SERVICE** - yellow LED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	18 VA
Connector	2300 VA (controlled luminaires)
Device class	Safety Connector Wieland (3 pins) II

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

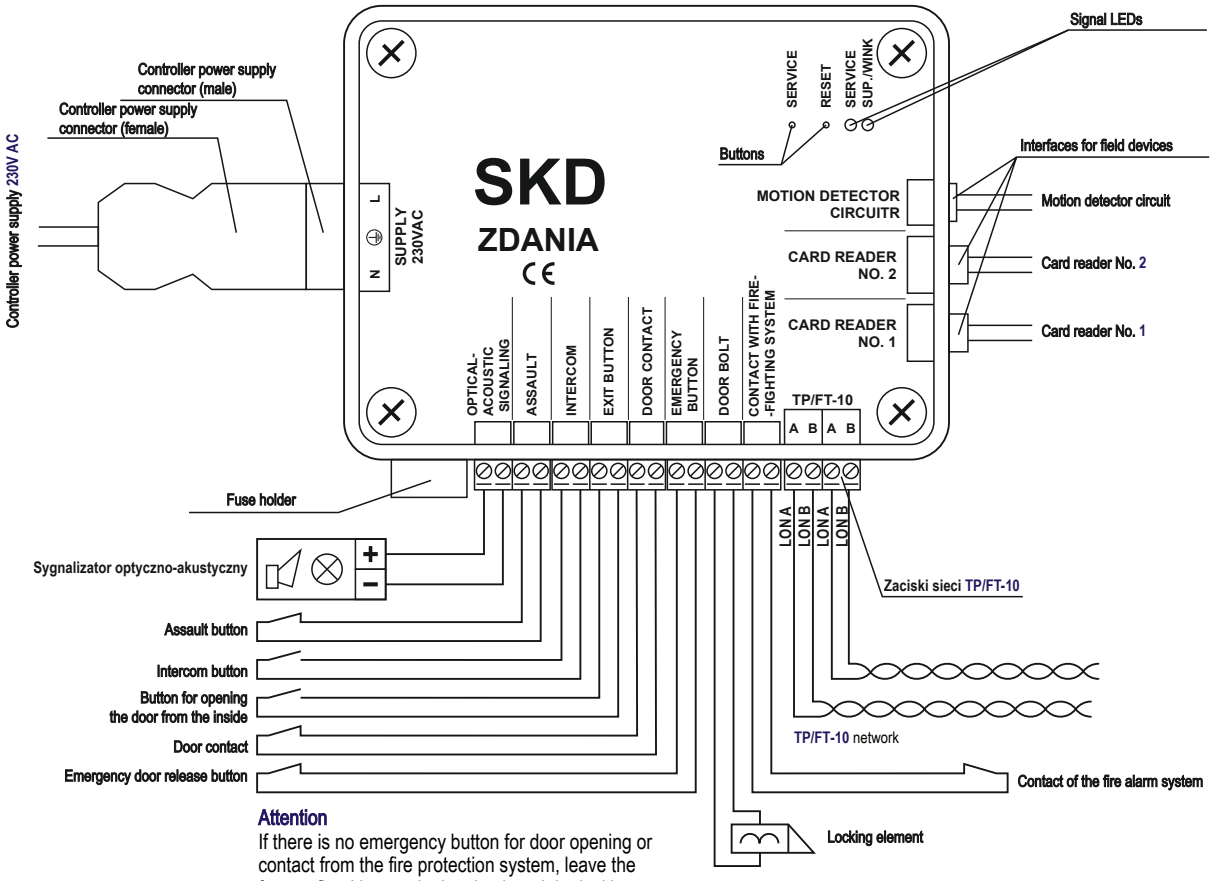
Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	160 × 120 × 74 mm (not including connectors)
Degree of protection	IP20
Controller models	Depends on how the connections are made: • **upper** connection system, • **lower** connection system.
Assembly	Wall-mounted, mounting plate, dedicated mounting brackets

Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
SKD	Access controller	SKD/LON-FT	SKD/BACnet MS/TP	SKD/Modbus RTU

Controller aplication



Attention
If there is no emergency button for door opening or contact from the fire protection system, leave the factory-fitted jumper in the circuit and the locking element is not powered (it remains open at all times).

Tables for assigning signals to RJ-xx type connectors

Motion detector (6P6C)	
1, 2	**Sabotage** contact
3, 4	**Motion** contact
5	GND
6	Supply **+12 V**

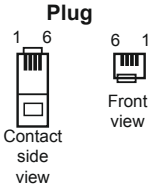
Contactless card reader	
1,2	**TMP** - reader tamper contact (disassembly)
3	**LED** - signaling diode on the reader
4	**N.C.** no connection
5	**DTA** - data line
6	**CLK** - clock line
7	**GND** - power supply mass
8	**+12 V** - reader power supply

Connection system version

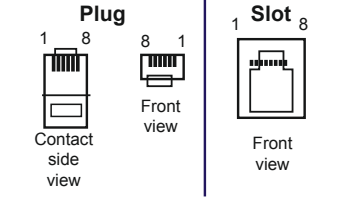
The presented application concerns the controller model with the **lower** connection system

RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)



CONNECTION 6P6C (RJ-12)



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
ZDANIA SINCE 1992
www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **SKD 2** is a **gateway controller** in the **A**ccess **C**ontrol **S**ystem to support a single protected single or double-sided passage. The basic task of the controller is to identify the user and define his or her rights or lack thereof. Based on user data and administrative data, a decision to open a passage or refuse it is made.

The **SKD 2** controller is also an element of the **I&HAS** (**I**nterupt and **H**arasment **A**larm **S**ystem).

Controller interfaces allow to connect basic elements of card reader passage (or other user identification device), door locking element, door contact, exit button, emergency door opening button, fire alarm system contact and alarm siren.

SKD 2 controller is made in the form of a cabinet equipped with a battery as a backup power source and a buffer power supply, so it is possible to maintain the system safety requirements without the need to supply a **guaranteed power supply**.

The cabinet is closed in a way that requires the use of tools to open it, and the opening of the door is monitored.

To achieve full functionality of the access control system, the controller **must be integrated with an authorization database server**, e.g. **xServer** module of the iBASe® system.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

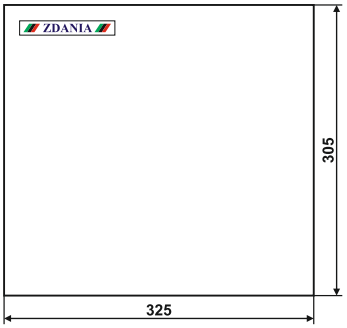
Contactless card reader interface	Power supply for the card reader, reading of an applied card number, signaling of card status (correct/unknown), signaling of card reader tampering (disassembly or cutting of cables)
Control output	Control of the locking element of the door by means of an electric door strike, a bolt or an electromagnetic actuator
Hardcore inputs	Hard-wire hard-wire inputs into the control circuit of a locking device for the emergency button to open the door and contact with the fire protection system
Dual state inputs	Reading the status of the door (reed contact), opening buttons (exit from inside, intercom), panic button (IHAS functionality)
Two-state threshold input	Power mode monitoring of the mains/battery controller
Two-state output	Control of the optical-acoustic alarm signaling device Transistor output, 12 V DC power supply for the alarm device
Anti-sabotage device	Checking the removal of the control unit cover normally open contact internally operated
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	The controller has a hybrid power supply system. As a standard it is powered from the object power supply 230V AC, and in the event of a power failure, it automatically switches to battery power. The power supply mode is monitored by the controller via the threshold input. The applied buffer PSU additionally provides battery monitoring (monitoring and charging).
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

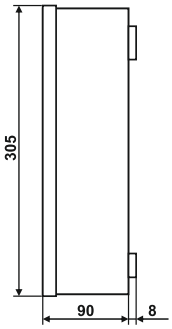
The presented **SKD 2 LON TP/FT-10** network.

We also offer **SKD 2** models to work in **BACnet MS/TP** or **Modbus RTU** networks.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Access controller

Card reader interface

Number	2
Standard	Magstripe Clock/Data, TTL level
Signalling	LED on the reader
Reader supply	12V DC / 80mA
Security	Removal contact Normally Closed contact (**NC**)
Connector	Telecommunication connector **8P8C** (RJ-45)

Output - locking element control

Type of element	Electric door opener, bolt or electromagnetic lock (configurable)
Mode of operation	Standard or reversible (configurable)
Output type	Transistor, **source** circuit (output emits current)
Supply voltage	12 V DC
Maximum current	0,8 A
Monitoring	Short circuit in the lock circuit
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Input - emergency button

Type of button	With mechanical use memory (replaceable fast), normally closed (**NC**)
Mode of incorporation	Hardcore in the lock power supply circuit
Security	Before overvoltages and impulse interferences
Monitoring	Contact state
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm2

Input - contact with fire protection system

Contact type	Voltage free, normally closed (**NC**)
Mode of incorporation	Hardcore in the lock power supply circuit
Security	Before overvoltages and impulse interferences
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm2

Input - door contact

Contact type	Voltage free, normally close (**NC**)
Filtration of contact vibrations	Programmable, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/kits, maximum conductor cross section 2.5 mm^2

Input - door release and intercom button

Type of button	Voltage free, monostable, normally open(**NO**)
Filtration of contact v.	Programmable, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/kits, maximum conductor cross section 2.5mm^2

Input - controller power mode

Type of input	Threshold voltage input
Input signal	Voltage 11-14 V DC from the controller's power
Signal filtration	supply Software, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm^2

Internal input - tamper detection

Monitoring	Removal of the controller cover Disassembly of the card reader (with internal control deactivation option)
Connection type	Serial, Normally Closed (**NC**) circuit
Filtration of contact v.	Programmable, filtration time 50 ms
Connector	Cover internal connection Card readers of **8P8C** card slot (RJ-45)

Output - optical-acoustic signaling device

Output type	Open collector (**OC**), **sink** configuration (output accepts current)
Supply voltage	12 V DC
Maximum current	300 mA
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5mm^2

Motion detector interface

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - contact voltage-free, normally closed (**NC**)
Filtration of contact vibrations	Filtration time 50 ms
Supply voltage	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Signalling and control

Networking	Button **SERVICE** - available through a hole in the faceplate
Manual initialization	Button **RESET** - available through a hole in the faceplate
Supply and identification	Diode **Power/Wink** - green LED
Network status LON TP/FT-10	Diode **SERVICE** - yellow LED

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	18 VA
Connector	2300 VA (controlled luminaires)
Device class	Safety Connector Wieland (3 pins) II

Battery power supply

Source	Maintenance-free lead-acid battery
Rated voltage	12 V DC
Rated capacity	7 Ah
Sustaining time	20 h, with fully charged battery

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

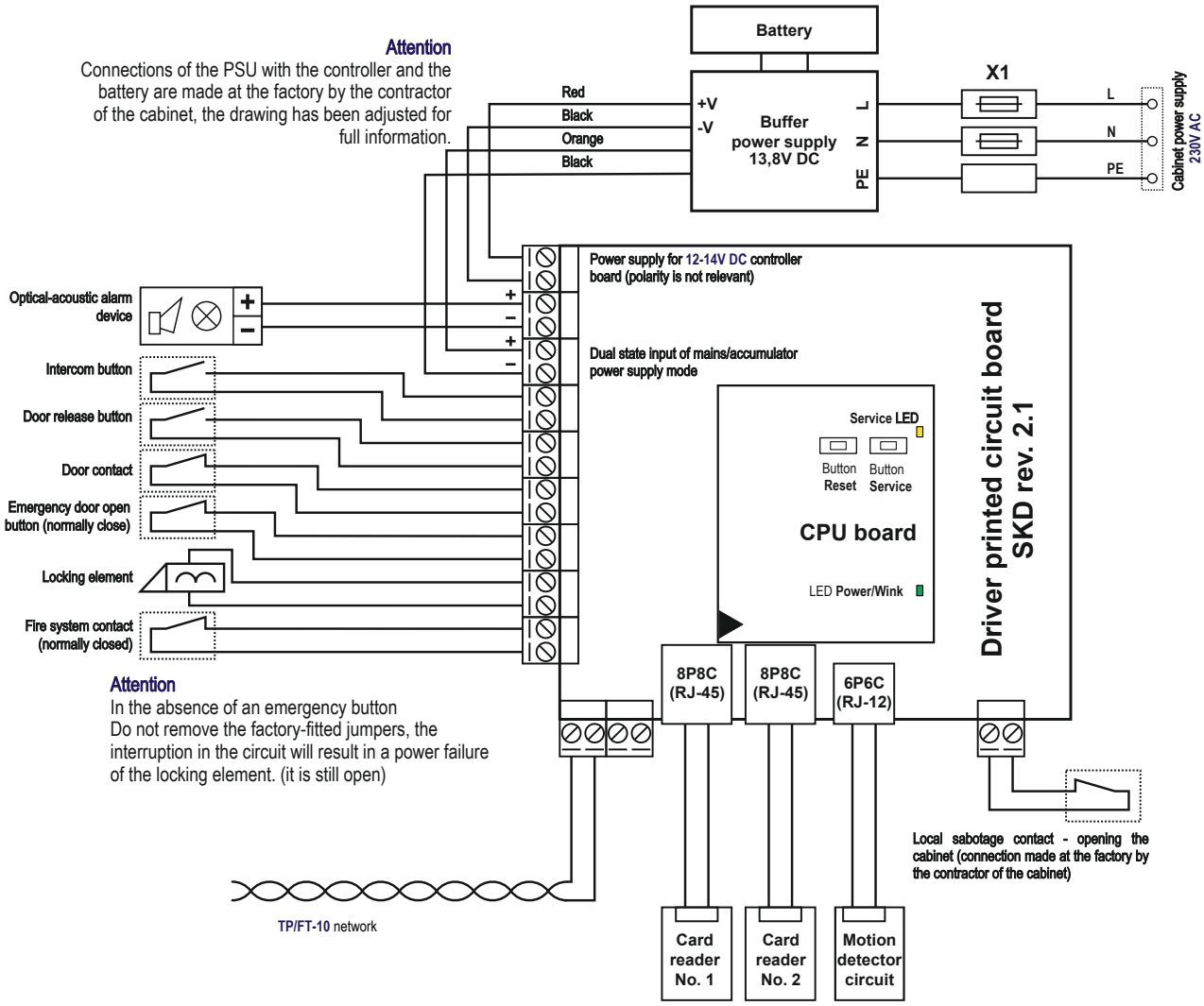
Housing and installation

Housing	Metal cabinet, for internal installation, RAL 9003
Dimensions (D × S × W	325× 305 × 98 mm
Total weight	Approx. 5 kg (incl. battery)
Degree of protection	IP20
Assembly	Surface-mounted

Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
SKD 2	Access controller	SKD2/LON-FT	SKD2/BACnet MS/TP	SKD2/Modbus RTU

Controller aplicationa



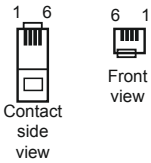
Tables for assigning signals to RJ-xx connectors

Motion detector (6P6C)	
1, 2	Sabotage contact
3, 4	Motion contact
5	GND
6	Supply +12 V

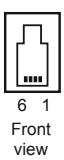
RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)

Plug

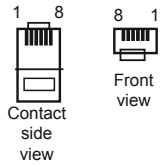


Slot

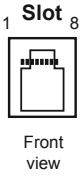


CONNECTION 6P6C (RJ-12)

Plug



Slot



Contactless card reader	
1,2	TMP - reader tamper contact (disassembly)
3	LED - signaling diode on the reader
4	N.C. no connection
5	DTA - data line
6	CLK - clock line
7	GND - power supply mass
8	+12 V - reader power supply

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **SKD 3** is a **gateway controller** in the **A**ccess **C**ontrol **S**ystem to support a single protected single or double-sided passage. The basic task of the controller is to identify the user and define his or her rights or lack thereof. Based on user data and administrative data, a decision to open a passage or refuse it is made.

The **SKD 3** controller is also an element of the **I&HAS** (**I**nterupt and **H**arasment **A**larm **S**ystem).

Controller interfaces allow to connect basic elements of card reader passage (or other user identification device), door locking element, door contact, exit button, emergency door opening button, fire alarm system contact and alarm siren.

SKD 3 controller is made in the form of a cabinet equipped with a battery as a backup power source and a buffer power supply, so it is possible to maintain the system safety requirements without the need to supply a **guaranteed power supply**.

The cabinet is closed in a way that requires the use of tools to open it, and the opening of the door is monitored.

To achieve full functionality of the access control system, the controller **must be integrated with an authorization database server**, e.g. **xServer** module of the iBASe® system.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

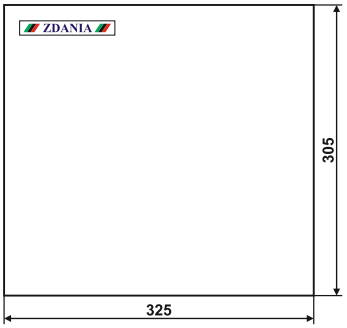
Contactless card reader interface	Power supply for the card reader, reading of an applied card number, signaling of card status (correct/unknown), signaling of card reader tampering (disassembly or cutting of cables)
Control output	Control of the locking element of the door by means of an electric door strike, a bolt or an electromagnetic actuator
Hardcore inputs	Hard-wire hard-wire inputs into the control circuit of a locking device for the emergency button to open the door and contact with the fire protection system
Two-state parametric input	Reading the status of the door (reed contact), opening buttons (exit from inside, intercom), panic button (IHAS functionality) Thanks to the parameterization of the inputs, it is possible to detect burglary and assault attempts.
Two-state threshold input	Controller power mode monitoring - mains/accumulator mode
Signalling interfaces	Niezależne zasilanie i sterowanie sygnalizatora optycznego i akustycznego, parametryczna linia dozorowa dla styku antysabotażowego (funkcjonalność IHAS) Wyjście tranzystorowe, zasilanie sygnalizatora 12V DC
Anti-sabotage device	Checking the removal of the control unit cover normally open contact internally operated
Motion detector interface	Power supply and readout of motion detector signals
Controller power supply	The controller has a hybrid power supply system. As a standard it is powered from the object power supply 230V AC, and in the event of a power failure, it automatically switches to battery power. The power supply mode is monitored by the controller via the threshold input. The applied buffer PSU additionally provides battery monitoring (monitoring and charging).
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

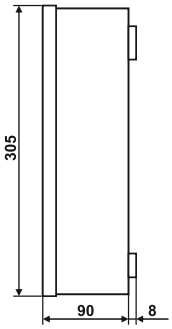
The presented **SKD 3 LON TP/FT-10** network.

We also offer **SKD 3** models to work in **BACnet MS/TP** or **Modbus RTU** networks.

LonWorks®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Card reader interface

Sekcja SKD

Standard	Magstripe Clock/Data, TTL level
Signalling	LED on the reader
Filtration	• low-pass interference filter on data lines and the clock • overvoltage protection

IHAS Section

Monitoring	• anti-sabotage parametric surveillance line • monitoring of current consumption
Tamper contact	Built-in reader contact, normally closed (**NC**), programmed contact vibration filtering (50 ms period)

General section

Number	2
Readre supply	12V DC / 80mA
Connector	Telecommunication connector **8P8C** (RJ-45)

Output - locking element control

Type of element	Electric door opener, bolt or electromagnetic lock (configurable)
Mode of operation	Standard or reversible (configurable)
Output type	Transistor, **source** circuit (output emits current)
Supply voltage	12 V DC
Maximum current	0,8 A
Monitoring	Short-circuit in the power supply circuit of the locking element
Filtration	• low-pass interference filter • overvoltage protection
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Input - emergency button

Type of button	With mechanical memory of use (exchangeable fast), normally closed (**NC**)
Mode of incorporation	**Hardcore** in the lock power supply circuit
Filtration	• low-pass interference filter • overvoltage protection
Monitoring	Contact state
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm2

Input - contact with fire protection system

Contact type	Voltage free, normally closed (**NC**)
Mode of incorporation	**Hardcore** in the lock power supply circuit
Filtration	• low-pass interference filter • overvoltage protection
Monitoring	Contact state
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Wejście - kontaktron drzwiowy

SKD Section

Contact type	Voltage free, normally closed (**NC**)
Filtration	• a low-pass interference filter, • overvoltage protection
Filtration of contact v.	Software, filtration time 50 ms

IHAS Section

Monitoring	Anti-tamper parametric surveillance line

General section

Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Input - door opener button

Type of button	Monostable, voltage free, normally open (**NO**)
Filtration	• low-pass interference filter
Filtration of contact v.	• overvoltage protection
Connector	Software, filtration period 50 ms Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Input - intercom button

Type of button	Monostable, voltage free, normally open (**NO**)
Filtration	• low-pass interference filter • overvoltage protection
Filtration of contact vibrations	Software, filtration period 50 ms
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Input - assault button

Type of button	Assault button with mechanical memory, voltage free, normally closed (**NC**)
Security	Parametric monitoring line
Filtration	• low-pass interference filter • overvoltage protection
Filtration of contact v.	Software, filtration period 50 ms
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Output - optical alarm device

Output type	Open collector (**OC**), **sink** configuration (output accepts current)
Supply voltage	12 V DC
Maximum current	500 mA
Monitoring	Built-in signaling contact, normally closed (**NC**)
Filtration of contact v.	Software, filtration period 50 ms
Security	Parametric monitoring line
Connector	Connection strip with screw terminals, grid 5,08 mm, 4 terminals, maximum cable cross section 2.5 mm2

Output - alarm siren

Output type	Open collector (**OC**), **sink** configuration (output accepts current)
Supply voltage	12 V DC
Maximum current	500 mA
Monitoring	Built-in signaling contact, normally closed (**NC**)
Filtration of contact v.	Software, filtration period 50 ms
Security	Parametric monitoring line
Connector	Connection strip with screw terminals, grid 5,08 mm, 4 terminals, maximum cable cross section 2.5 mm2

Motion detector interface

Motion detector

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - voltage free, normally closed contact (**NC**)
Filtration	• low-pass interference filter
Filtration of contact v.	• overvoltage protection - both lines Software, filtration time 50 ms

IHAS Section

Monitoring	Parametric monitoring line

General section

Supply	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Input - cabinet tamper input

Type of contact	Voltage-free, normally closed contact (**NC**) - opened when the cabinet is opened
Filtration of contact v.	Software, filtration time 50 ms
Exits	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Signalling and control

Networking	Button **SERVICE**
Manual initialization	Button **RESET**
Supply and identification	Diode **Power/Wink** - green LED
Network status LON TP/FT-10	Diode **SERVICE** - yellow LED

Signaling and control elements are placed directly on the controller's processor board.

Access controller

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	18 VA
Connector	2300 VA (controlled luminaires)
Device class	Safety Connector Wieland (3 pins)
	II

Battery power supply

Source	Maintenance-free lead-acid battery
Rated voltage	12 V DC
Rated capacity	7 Ah
Sustaining time	20 h, with fully charged battery

Input - controller power mode

Type of input	Threshold voltage input
Input signal	Voltage 11-14 V DC from the controller's power
Signal filtration	supply Software, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm^2

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

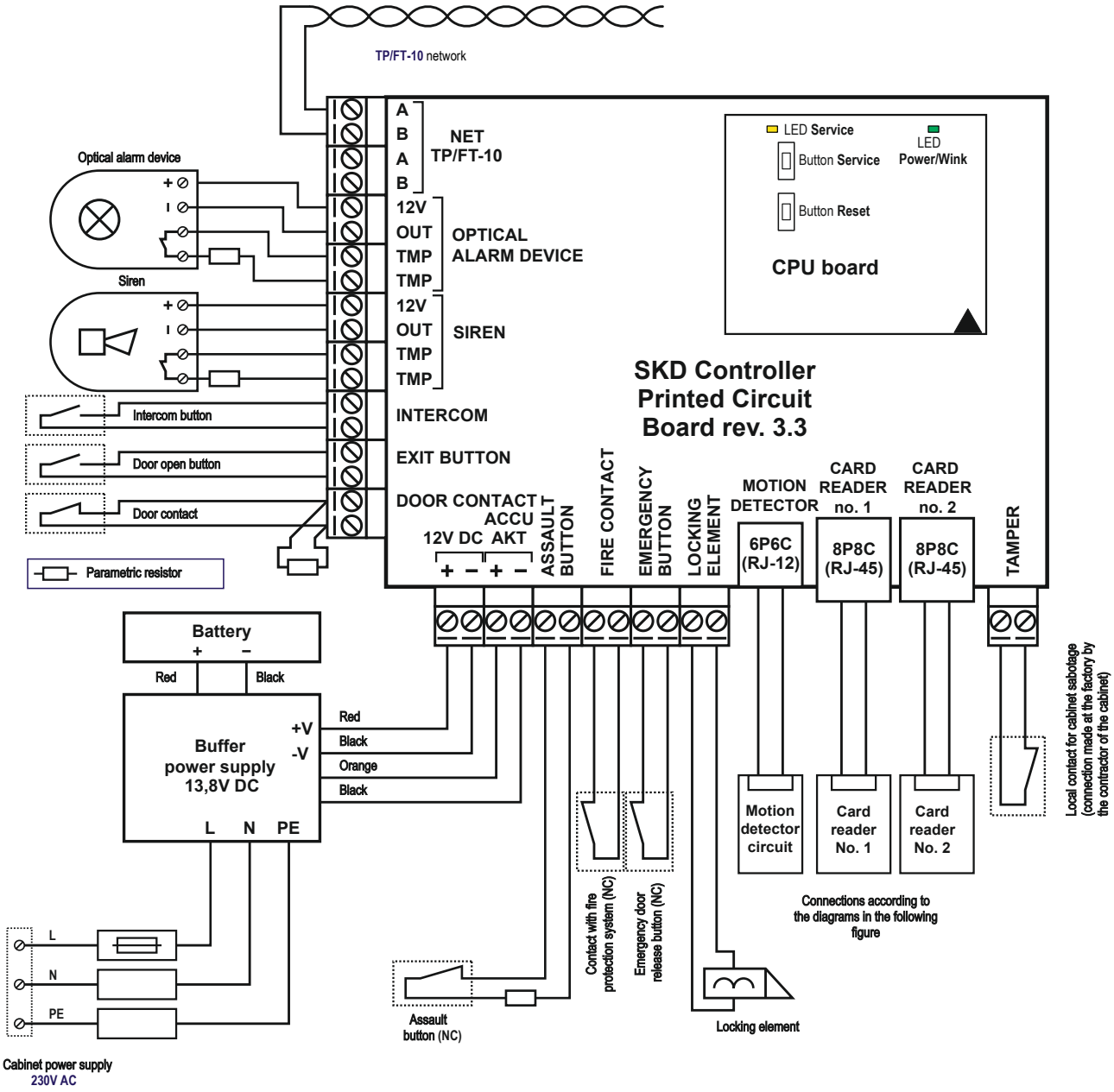
Housing and installation

Housing	Metal cabinet, for internal installation, RAL 9003
Dimensions (D × S × W	325× 305 × 98 mm
Total weight	Approx. 5 kg (incl. battery)
Degree of protection	IP20
Assembly	Surface-mounted

Commercial designations

		Transmission standard		
Type	**Characteristics**	**Lon® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
SKD 3	Access Controller	SKD3/LON-FT	SKD3/BACnet MS/TP	SKD3/Modbus RTU

Controller aplication



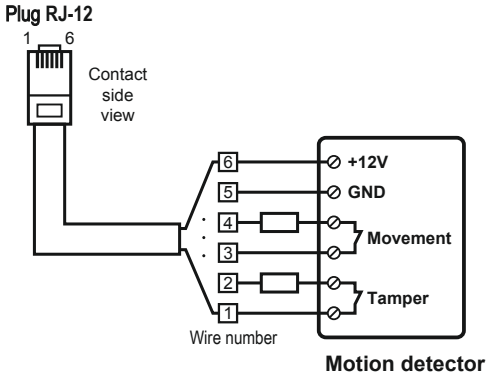
Factory connections
Power supply connections to the controller and battery are made at the factory by the contractor of the cabinet, in the figure are shown complete information

Attention
If there is no object device equipped with a tamper or assault line, the controller input for this line should be closed with a parametric resistor. Otherwise, the controller will signal a tamper alarm. This includes the lines for signaling devices, the panic button
card readers and motion detector(s).

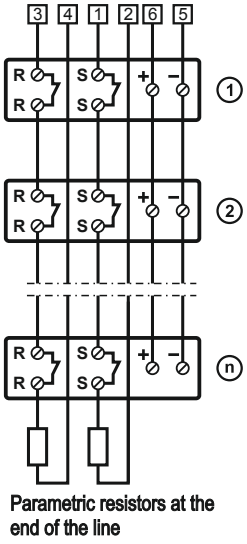
Attention
In the absence of an emergency button for opening the door or contact with the fire protection system, do not remove the factory-fitted jumpers. A break in the circuit results in the inability to control the locking element (it remains open at all times).

Controller aplication - cabling

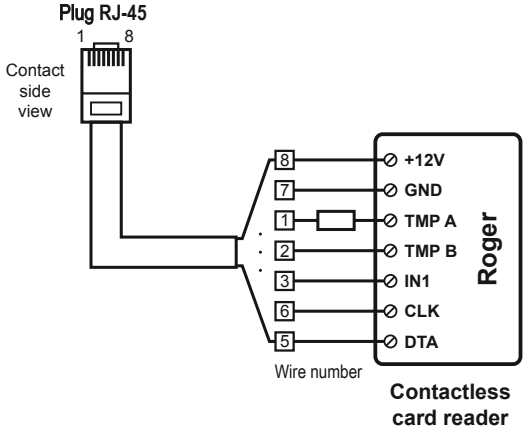
Motion detector connections



Motion detector assembly connections



Card reader connections



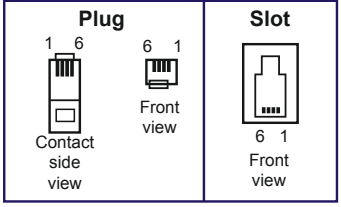
Tables for assigning signals to RJ-xx type connectors

Motion detector (6P6C)	
1, 2	**Sabotage** contact
3, 4	**Motion** contact
5	GND
6	Supply **+12 V**

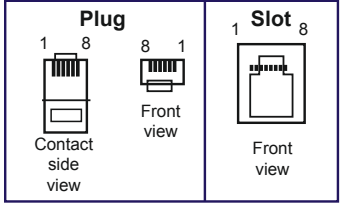
Contactless card reader	
1,2	**TMP** - reader tamper contact (disassembly)
3	**LED** - signaling diode on the reader
4	**N.C.** no connection
5	**DTA** - data line
6	**CLK** - clock line
7	**GND** - power supply mass
8	**+12 V** - reader power supply

RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)



CONNECTION 6P6C (RJ-12)



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **iSKD - 4** is a **gateway controller** in the **A**ccess **C**ontrol **S**ystem to support a single protected single or double-sided passage. The basic task of the controller is to identify the user and define his or her rights or lack thereof. Based on user data and administrative data, a decision to open a passage or refuse it is made.

The i**SKD - 4** controller is also an element of the **I&HAS** (**I**nterupt and **H**arasment **A**larm **S**ystem).

Controller interfaces allow to connect basic elements of card reader passage (or other user identification device), door locking element, door contact, exit button, emergency door opening button, fire alarm system contact and alarm siren.

iSKD - 4 controller is made in the form of a cabinet equipped with a battery as a backup power source and a buffer power supply, so it is possible to maintain the system safety requirements without the need to supply a **guaranteed power supply**.

The cabinet is closed in a way that requires the use of tools to open it, and the opening of the door is monitored.

To achieve full functionality of the access control system, the controller **must be integrated with an authorization database server**, e.g. **xServer** module of the iBASe® system.

Thanks to the use of open communication standards, the controller can cooperate with devices from many manufacturers.

The execution of tasks is ensured by a set of functional elements of the controller

Contactless card reader interface	Power supply for the card reader, reading of an applied card number, signaling of card status (correct/unknown), signaling of card reader tampering (disassembly or cutting of cables)
Locking member power supply system	Power supply of the locking element independent of the controller power supply In a standard controller application, connected to the internal power supply output (wiring on internal terminals of the controller)
Hardcore inputs	Hard-wire hard-wire inputs into the control circuit of a locking device for the emergency button to open the door and contact with the fire protection system
Two-state parametric input	Reading the status of the door (reed contact), opening buttons (exit from inside, intercom), panic button (IHAS functionality) Thanks to the parameterization of the inputs, it is possible to detect burglary and assault attempts.
Two-state threshold input	Controller power mode monitoring - mains/accumulator mode
Signalling interfaces	Independent power supply and control of the optical and acoustic alarm device, parametric monitoring line for tamper contact (IHAS functionality) Transistor output, 12V DC power supply for alarm device
Anti-sabotage device	Checking the removal of the control unit cover normally open contact internally operated
Motion detector interface	Power supply and readout of motion detector signals
Battery status monitoring	Battery status monitoring system Measured parameters voltage at terminals, value and direction of current
Controller power supply	The controller has a hybrid power supply system. As a standard it is powered from the object power supply 230V AC, and in the event of a power failure, it automatically switches to battery power. The power supply mode is monitored by the controller via the threshold input. The applied buffer PSU additionally provides battery monitoring (monitoring and charging).
Communication network	Cooperation with other devices, data exchange, parameter setting, work supervision, application update, diagnostics and other service activities

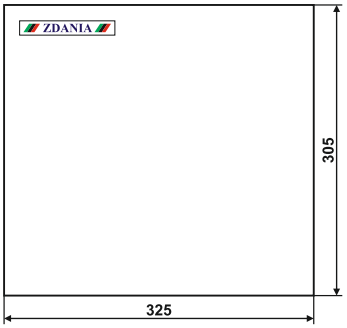
The presented i**SKD - 4 LON TP/FT-10** network.

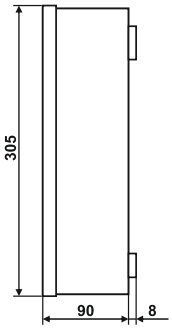
We also offer i**SKD - 4** models to work in **BACnet MS/TP** or **Modbus RTU** networks.

LonWorks®

LonMark®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Card reader interface

Section SKD

Standard	Magstripe Clock/Data, TTL level
Signalling	LED on the reader
Filtration	• low-pass interference filter on data lines and the clock • overvoltage protection

Sekcja SSWiN

Monitoring	• anti-tamper parametric surveillance line, • monitoring of current consumption
Tamper contact	Built-in reader contact, Normally closed (**NC**) Software filtration of contact vibrations (period 50 ms)

General section

Number	2
Readre supply	12V DC / 80mA
Connector	Telecommunication connector **8P8C** (RJ-45)

Output - locking element control

Type of element	Electric door opener, bolt or electromagnetic lock (configurable)
Mode of operation	Standard or reversible (configurable)
Output type	Transistor, **source** circuit (output emits current)
Supply voltage	12 V DC
Maximum current	0,8 A
Monitoring	Short-circuit in the power supply circuit of the locking element
Filtration	• low-pass interference filter • overvoltage protection
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Locking device control system - power input

Input voltage	524 V DC (matching the used blocking element, usually **12 V**)
Security	Resettable polymer fuse 2,5 A
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Internal controller power supply output

Output voltage	Controller supply voltage reduced by approx. 0.6 V
Maximum load	0,8 A
Security	Resetable polymer fuse 0.9 A
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm^2

Output - status of the locking element

Output type	Type open collector (OC), galvanically separated
Output parameters	24 V DC / 20 mA
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm^2

Input - emergency button

Type of button	With mechanical memory of use (exchangeable fast), normally closed (**NC**)
Mode of incorporation	**Hardcore** in the lock power supply circuit
Filtration	• low-pass interference filter • overvoltage protection
Monitoring	Contact state
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Input contact with fire protection system

Contact type	Voltage free, normally closed (**NC**)
Mode of incorporation	**Hardcore** in the lock power supply circuit
Filtration	• low-pass interference filter
Monitoring	• overvoltage protection
Connector	Contact state Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm^2

Wejście - przycisk otwarcia drzwi / domofonu

Input structure	Common control, separate connectors
Type of buttons	Monostable, voltage free, normally open(**NO**)
Filtration	• a low-pass interference filter, • overvoltage protection
Filtration of contact vibrations	Software, filtration period 50 ms
Connectors	Connection strip with screw terminals, grid 5.08 mm, 2 terminals each, maximum cable cross section 2.5 mm^2

Inputs - door contact and window contact

General section and SKD

Number of inputs	2 (for each reed contact independently)
Contact type	Voltage free, normally closed (**NC**)
Filtration	• a low-pass interference filter, • overvoltage protection
Filtration of contact v.	Software, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2

IHAS section

Monitoring	Parametric monitoring line

Input - assault button

Type of button	Assault button with mechanical memory, voltage free, normally closed (**NC**)
Security	Parametric monitoring line
Filtration of contact v.	Software, filtration period 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm^2

Output - optical alarm device

Output type	Open collector (**OC**), **sink** configuration (output accepts current)
Supply voltage	12 V DC
Maximum current	500 mA
Monitoring	Built-in signaling contact, normally closed (**NC**)
Filtration of contact v.	Software, filtration period 50 ms
Security	Parametric monitoring line
Connector	Connection strip with screw terminals, grid 5,08 mm, 4 terminals, maximum cable cross section 2.5 mm2

Output - alarm siren

Output type	Open collector (**OC**), **sink** configuration (output accepts current)
Supply voltage	12 V DC
Maximum current	500 mA
Monitoring	Built-in signaling contact, normally closed (**NC**)
Filtration of contact v.	Software, filtration period 50 ms
Security	Parametric monitoring line
Connector	Connection strip with screw terminals, grid 5,08 mm, 4 terminals, maximum cable cross section 2.5 mm2

Motion detector interface

Motion detector

Supported signals	**Movement** - voltage-free contact, normally closed (**NC**) **Tamper** - voltage free contact, normally closed contact (**NC**)
Filtration	• low-pass interference filter • overvoltage protection - both lines
Filtration of contact v.	Software, filtration time 50 ms

IHAS Section

Monitoring	Parametric monitoring line

General section

Supply	12 V DC
Connector	Telecommunication connector **6P6C** (RJ-12)

Input - cabinet tamper input

Type of contact	Voltage-free, normally closed contact (**NC**) - opened when the cabinet is opened
Filtration of contact v.	Software, filtration time 50 ms
Exits	Connection strip with screw terminals, grid 5,08 mm, 2 terminals, maximum cable cross section 2.5 mm^2

Signalling and control

Networking	Button **SERVICE**
Manual initialization	Button **RESET**
Supply and identification	Diode **Power/Wink** - green LED
Network status LON TP/FT-10	Diode **SERVICE** - yellow LED

Signaling and control elements are placed directly on the controller's processor board.

Access controller

Communication interface

Standard	LonWorks 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals/inputs, maximum conductor cross section 2.5 mm^2	

Controller power supply

Supply voltage	230 V AC (40-70 Hz)
Maximum power	18 VA
Connector	2300 VA (controlled luminaires)
Device class	Safety Connector Wieland (3 pins)
	II

Battery power supply

Source	Maintenance-free lead-acid battery
Rated voltage	12 V DC
Rated capacity	7 Ah
Sustaining time	20 h, with fully charged battery

Input - controller power mode

Type of input	Threshold voltage input
Input signal	Voltage 11-14 V DC from the controller's power
Signal filtration	supply Software, filtration time 50 ms
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm^2

Battery charging monitoring

Monitored voltage	At the battery terminals, maximum value 16.5 V
Monitored current	• flow direction loading/unloading • value indirect measurement at the external bypass
Connector	Connection strip with screw terminals, grid 5,08 mm, 2 voltage terminals, 2 current terminals, maximum conductor cross section 2.5 mm^2

Environmental conditions

Operating temperature	0 to 50°C
Storage temperature	20 to 70°C
Relative humidity	20-90% RH, non-condensing

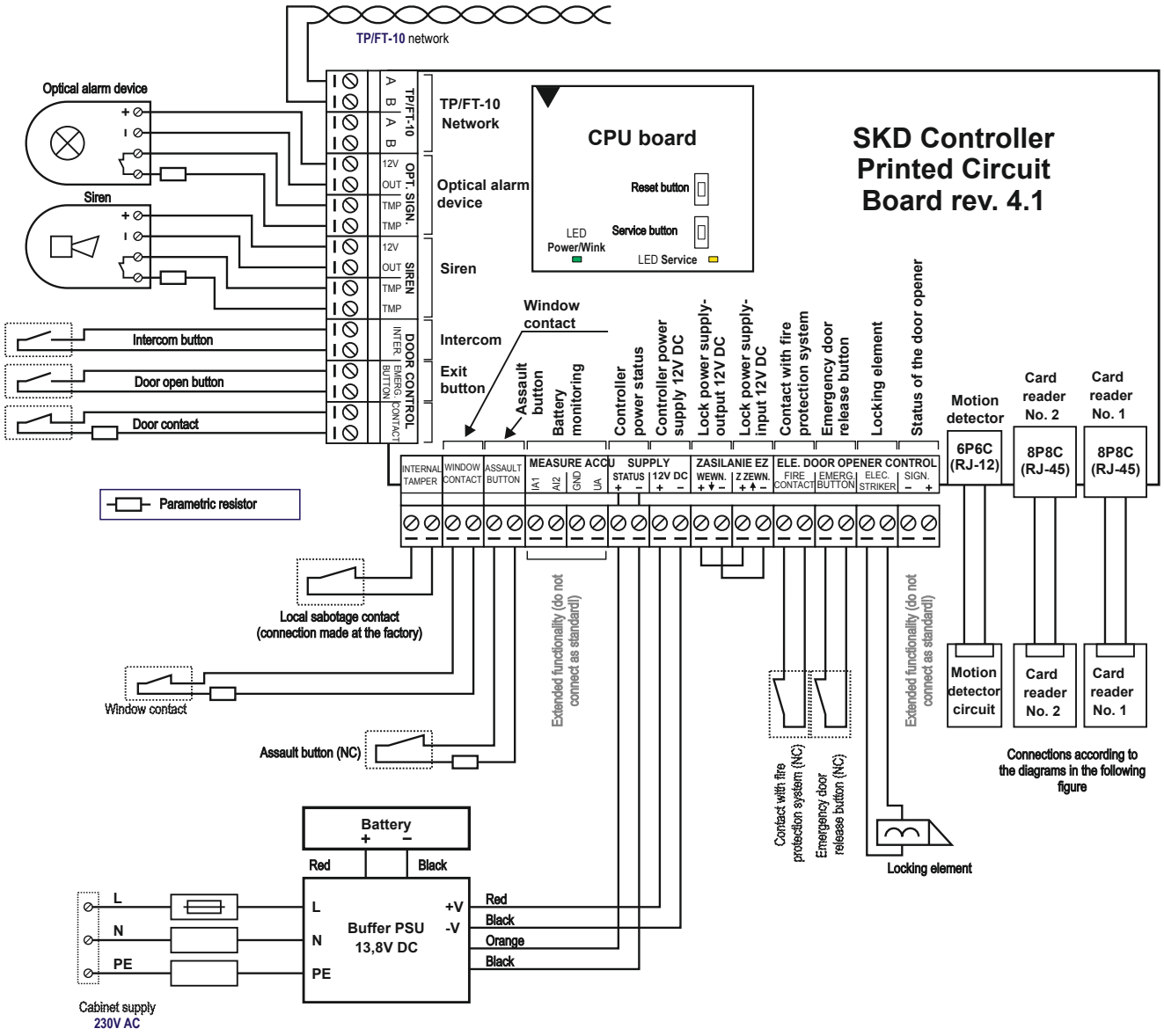
Housing and installation

Housing	Metal cabinet, for internal installation, RAL 9003
Dimensions (D × S × W	325× 305 × 98 mm
Total weight	Approx. 5 kg (incl. battery)
Degree of protection	IP20
Assembly	Surface-mounted

Commercial designations

		Transmission standard		
Type	**Characteristics**	**LON® TP/FT-10**	**BACnet® MS/TP**	**Modbus RTU**
iSKD-4	Access controller	iSKD-4/LON-FT	iSKD-4/BACnet MS/TP	iSKD-4/Modbus RTU

Controller aplication



Factory connections

Connections of the PSU with the controller and the battery are made at the factory by the contractor of the cabinet, the drawing has been adjusted for full information.

Attention

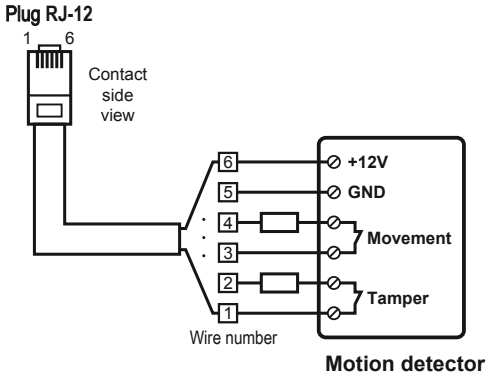
If there is no object device equipped with a tamper or assault line, the controller input for this line should be closed with a parametric resistor. Otherwise, the controller will signal a tamper alarm. This includes the lines for signaling devices, the panic button
card readers and motion detector(s).

Attention

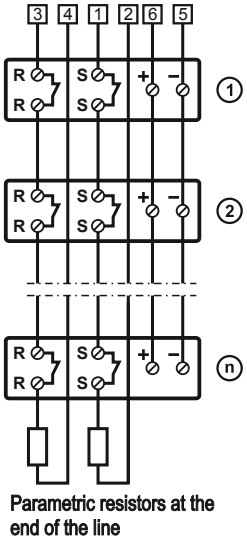
In the absence of an emergency button for door opening or contact with the fire protection system, do not remove the factory-fitted jumpers a break in the circuit results in the inability to control the blocking element (it remains open all the time).

Controller aplication - cabling

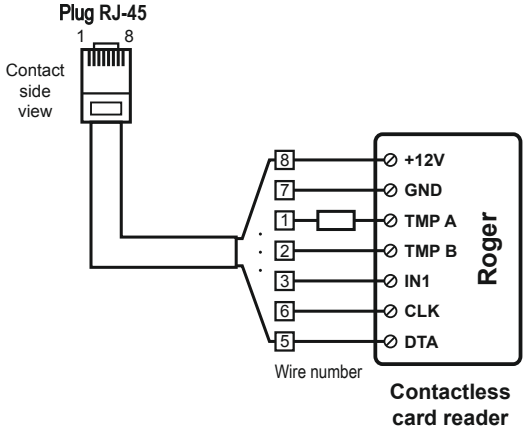
Motion detector connections



Motion detector assembly connections



Card reader connections



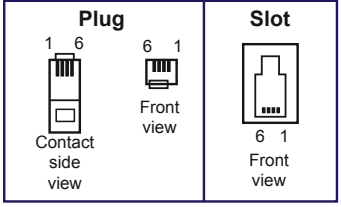
Tables for assigning signals to RJ-xx type connectors

Motion detector (6P6C)	
1, 2	**Sabotage** contact
3, 4	**Motion** contact
5	GND
6	Supply **+12 V**

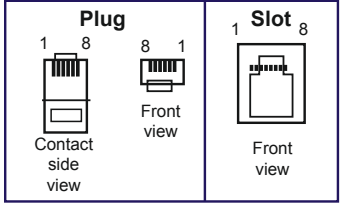
Contactless card reader	
1,2	**TMP** - reader tamper contact (disassembly)
3	**LED** - signaling diode on the reader
4	**N.C.** no connection
5	**DTA** - data line
6	**CLK** - clock line
7	**GND** - power supply mass
8	**+12 V** - reader power supply

RJ-xx connector pin numbers

CONNECTION 4P4C (RJ-10)



CONNECTION 6P6C (RJ-12)



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Database server in access control systems

Characteristics

LONWORKS®

The **xServer** module is an **authorization database server** for access control systems. The database contains a list of users and their rights assigned to entrances, time zones and other necessary administrative data.

After receiving a query with user data, the server analyzes the data in its database and makes a decision to open a passage or refuse it. The decision is sent to the controller of the transition who sent the query. Further actions are a matter of the door opener or refusal signalling.

All decisions related to authorization are recorded in the event log, from where they can be later read and used to generate reports in the BMS.

The full database is prepared at the operator station, while the server module stores only the part of the database necessary for autonomous operation.

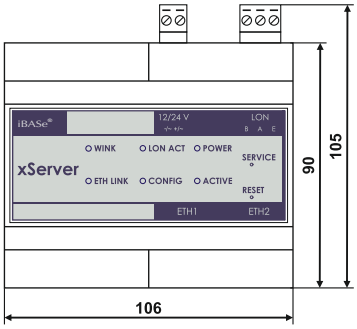
Communication with the operator station (sending the database, reading the event log) takes place via Ethernet, while communication with the controllers goes through the **LON TP/FT-10** control network.

One **xServer** module allows to support up to **eight KD** controllers, i.e. **eight** transitions.

General information

Main processor	32 bits, ARM
Data memory	Memory card SD/SDHC
Date and time	Battery-powered real-time clock

Dimensions

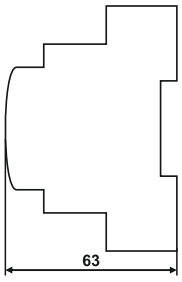


Ethernet network interface

Number	2
Standard	Fast Ethernet 100Base-T
Baud rate	100 Mb/s
Maximum length of the network segment	100 m
Transmission medium	Multi-pair UTP twisted pair cable, cat. 5
Additional	Built-in Ethernet switch L2
Connector	Telecommunication connector **8P8C** (RJ-45) with LEDs

Communication interface LON TP/FT-10

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	
Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2	



Signalling and control

Integration in LON TP/FT-10 network	**SERVICE button** - accessible through the front panel hole RESET
Manual initialization of the module	**RESET button** - accessible through the front panel hole
Module power supply	**POWER LED** - green LED
Identification of the module in the network	**WINK LED** - yellow LED
Module application status	**ACTIVE LED** - green LED
Activity in the LON TP/FT-10 network	**LON ACT LED** - red LED
Activity on the Ethernet network	**ETH LINK LED** - yellow LED
Card database configuration status	**CONFIG LED** - red LED

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Database server in access control systems

Supply

Supply voltage	12-24 V AC/DC
Maximum power	3 W
Connector	Connection strip with screw terminals, grid 5.08 mm, 2 terminals, maximum conductor cross section 2.5 mm^2

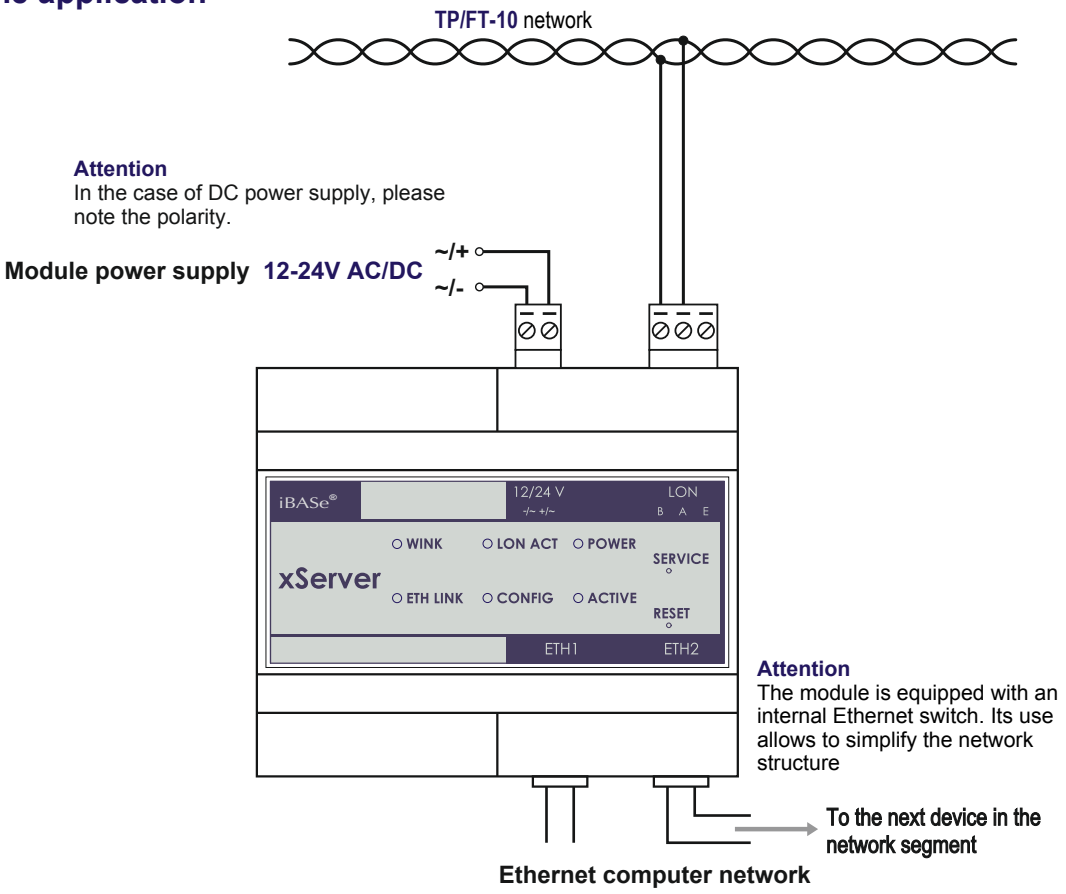
Environmental conditions

Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Housing	MODULEBOX 6M
Material	Self-extinguishing material PPO, RAL
Dimensions (D × S × W)	7035 106 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Module application



Module management

To manage the database in the **xServer** module is dedicated application

xServer Configurator

working on the BMS operator station or on a dedicated workstation.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

Repeater

RPT-TP/FT-10	**Signal repeater in TP/FT-10 network (LONWORKS®)** Signal regeneration, built-in terminators

Terminators

TERM-FT Bus	**Interface line terminator TP/FT-10** Bus topology (Bus)
TERM-FT Free	**Interface line terminator TP/FT-10** Free topology (Free)
TERM-XF Bus	**Interface line terminator TP/XF-78/1250** Bus topology (Bus)
TERM-485 Passive	**Interface line terminator EIA-485 (RS-485)** Passive bus termination
TERM-485 Active	**Interface line terminator EIA-485 (RS-485)** Active bus termination (with determination of voltage levels)

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Characteristics

RPT-TP/FT-10 repeater is a relay (amplifier and regenerator) circuit of signals in **LON TP/FT-10** network. It is used when the number of nodes in a single network segment exceeds **64** (but not more than **128**) or when the length exceeds the limit for the wiring used. Repeater improves electrical conditions, but does not affect network bandwidth.

Built-in configurable terminators for both network segments simplify network construction and reduce space requirements.

Communication interfaces

Transceiver	TP/FT-10 Free Topology Transceiver	
Baud rate	78 kb/s	
Maximum distance (sub-segment)	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Maximum distance (whole segment)	Bus topology	5400 m / 128 network nodes (devices)
	Free topology	100 m / 128 network nodes (devices)
Transmission medium	Steam twisted	
Termination of networks	Built-in with the possibility of adapting to the topology independently for each sub-segment	

Signalling

Supply	**POWER** LED - blue LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	2 W

Connectors

Terminators, power supply and LON TP/FT-10 network	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

Environmental conditions

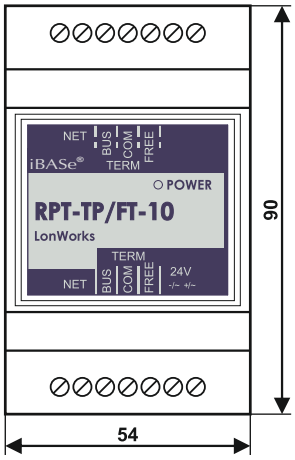
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, without condensation

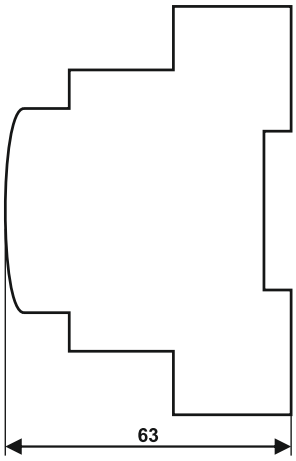
Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

LonWorks®

Dimensions



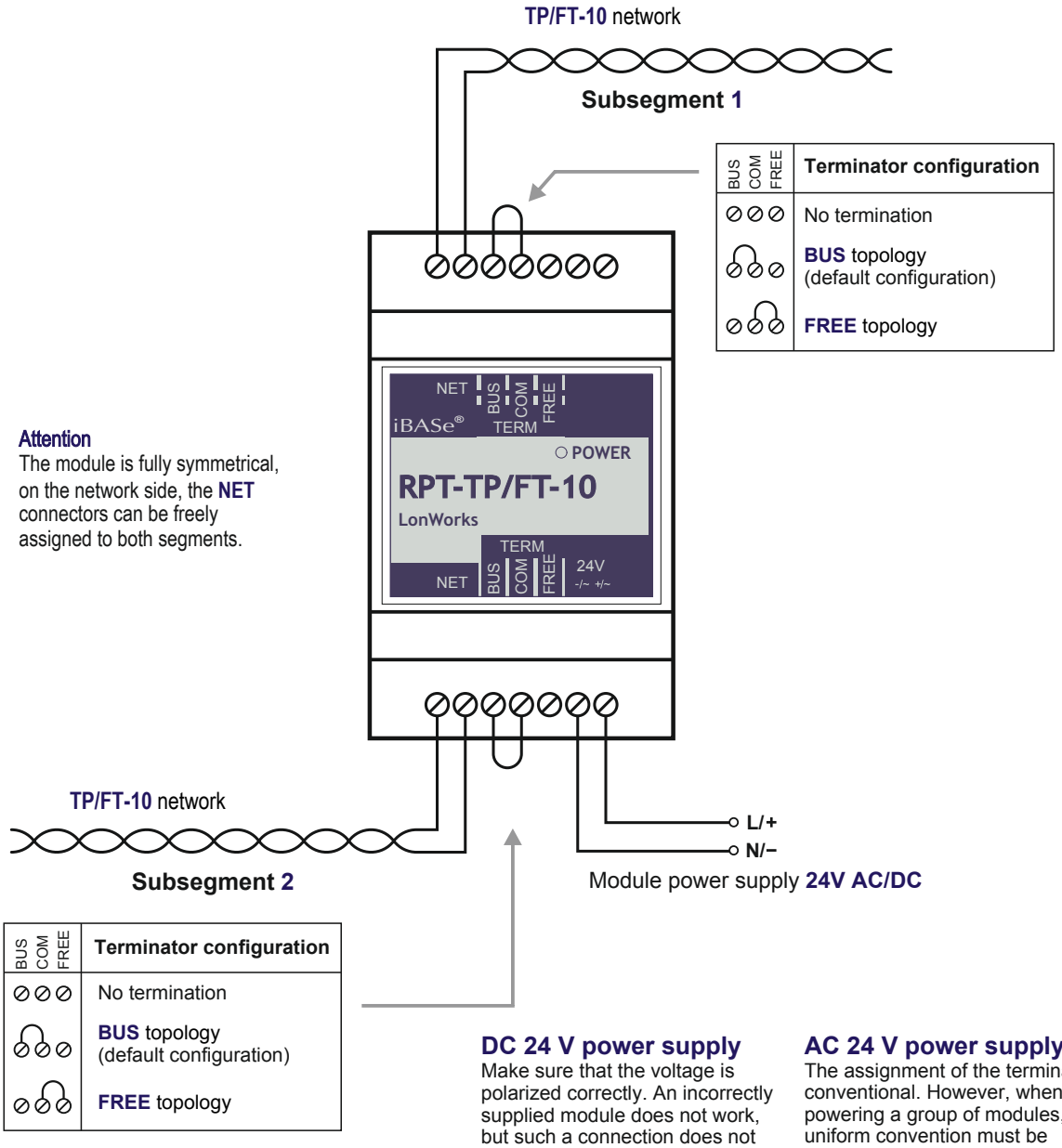


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application

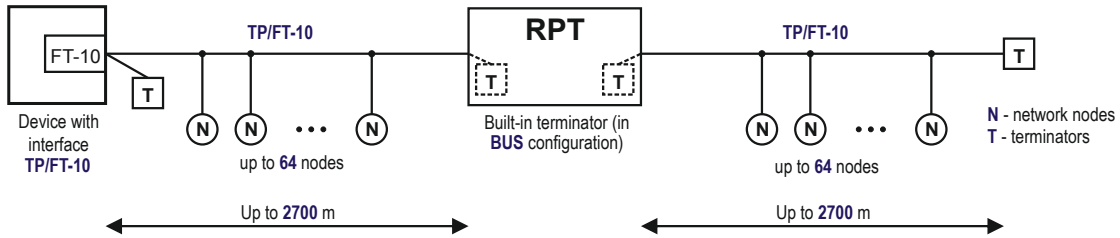


DC 24 V power supply

Make sure that the voltage is polarized correctly. An incorrectly supplied module does not work, but such a connection does not cause its damage.

AC 24 V power supply

The assignment of the terminals is conventional. However, when powering a group of modules, a uniform convention must be maintained for **each module**.



Example of implementation for two sub-segments in a bus topology

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

TP/FT10 network terminator, bus topology

Charakterystyka

TERM-FT Bus terminator is designed for electric termination of communication channels based on twisted pair TP/FT10 (LONWORKS®) in **BUS** (bus) topology. Proper termination requires the use of two terminators at both bus ends.

LONWORKS®

Communication channel

Transceiver	TP/FT10 Free Topology Transceiver
Baud rate	78 kbps
Maximum distance	2700 m / 64 network nodes (devices)
Transmission medium	Steam twisted

Power supply

Does not require power supply

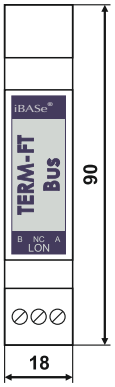
Environmental conditions

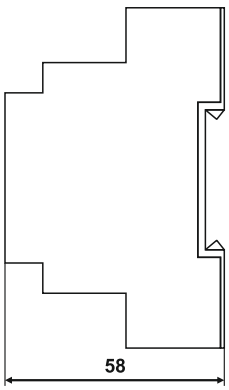
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2
Housing	MODULEBOX 1M H53
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	18 × 90 × 58 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Dimensions





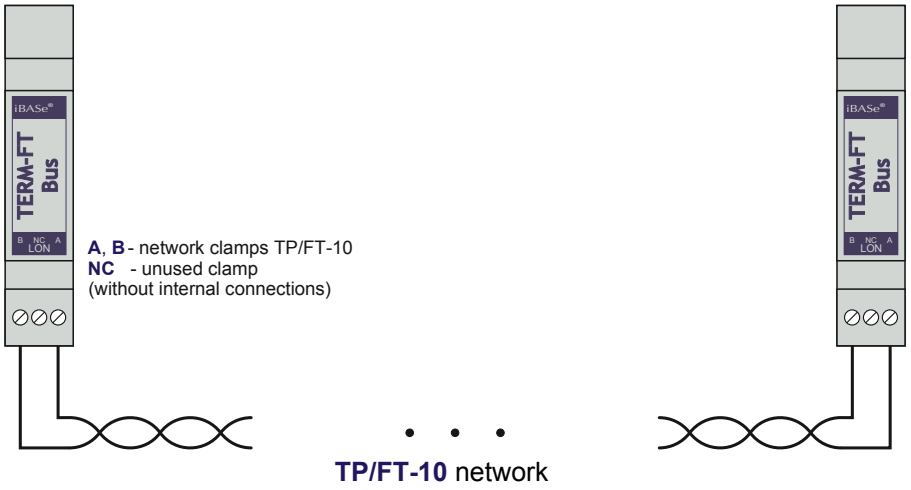
ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

TP/FT10 network terminator, bus topology

Application



Attention
The terminator is fully symmetrical, terminal designations A and B are purely conventional.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

TP/FT10 network terminator, Free topology

Characteristics

Terminator **TERM-FT Free** is designed for electric termination of communication channels based on twisted pair LON TP/FT10 in **FREE** topology. Proper termination is ensured by the use of one terminator in any point of the network.

LONWORKS®

Communication channel

Transceiver	TP/FT10 Free Topology Transceiver
Baud rate	78 kbps
Maximum distance	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted

Power supply

Does not require power supply

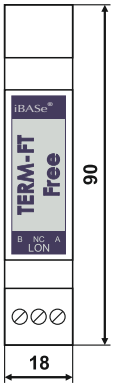
Environmental conditions

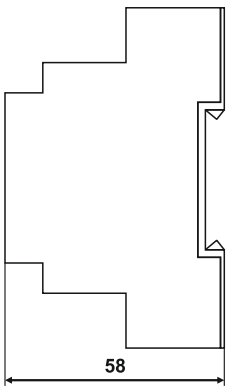
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2
Housing	MODULEBOX 1M H53
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	18 × 90 × 58 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Dimensions



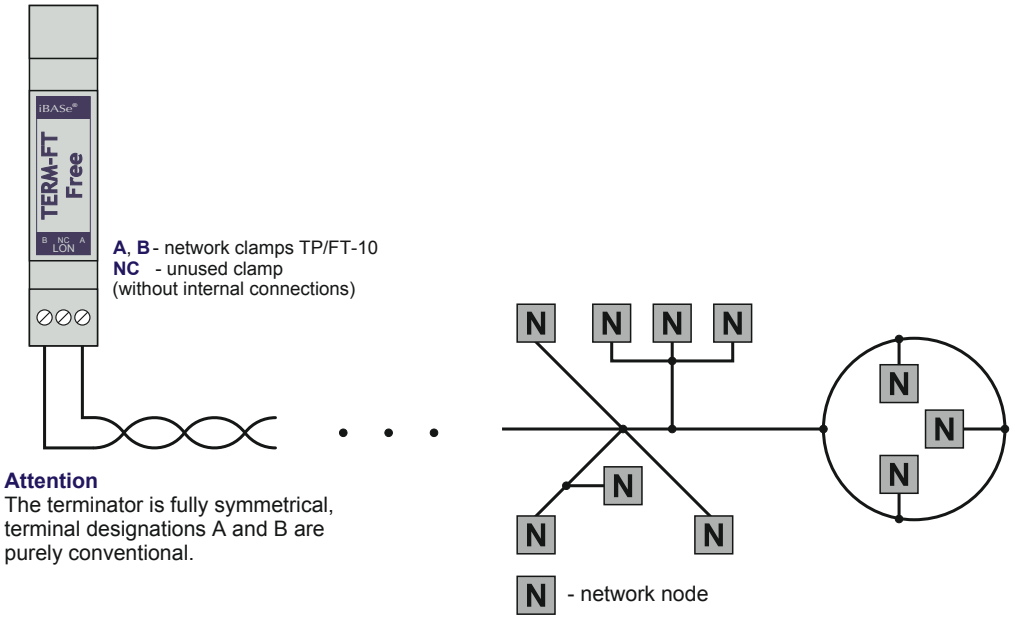


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Application



Attention
The terminator is fully symmetrical, terminal designations A and B are purely conventional.

TP/FT-10 network in **FREE** topology

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Network Terminator TP/XF78/1250, Bus Topology

Characteristics

LONWORKS®

TERM-XF Bus terminator is designed for electric termination of communication channels based on twisted pair TP/XF78 (former standard, now replaced by TP/FT10) or TP/XF1250 (LONWORKS®) in **BUS** topology. Proper termination requires the use of two terminators at both ends of the bus.

Communication channel TP/XF78

Transceiver	TP/XT-78
Baud rate	78 kb/s
Maximum distance	1400 m
Transmission medium	Steam twisted

Communication channel TP/XF1250

Transceiver	TP/XT-1250
Baud rate	1250 kb/s
Maximum distance	130 m
Transmission medium	Steam twisted

Power supply

Does not require power supply

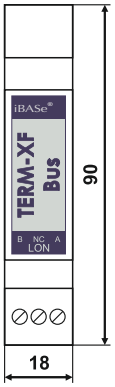
Environmental conditions

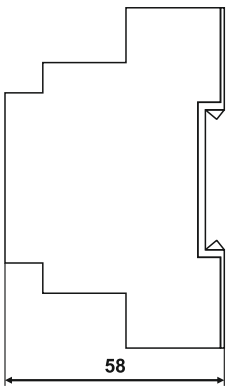
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2
Housing	MODULEBOX 1M H53
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	18 × 90 × 58 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Dimensions





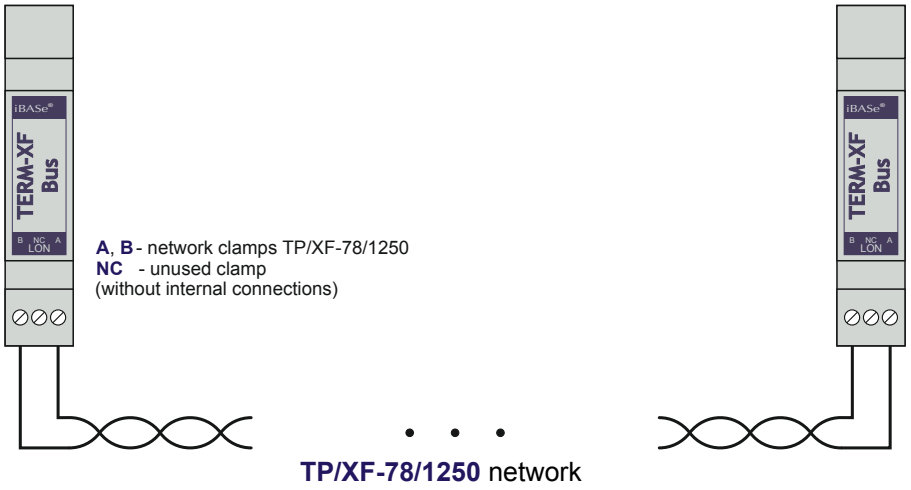
ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Network Terminator TP/XF78/1250, Bus Topology

Application



Attention
The terminator is fully symmetrical, terminal designations A and B are purely conventional.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

TERM-485 Passive

Passive EIA485 bus terminator

Characteristics

Terminator **TERM-485** is designed for electric termination of communication channels based on twisted pair in **EIA-485** (former RS485) standard. Proper termination requires the use of two terminators at both ends of the bus.

Communication channel EIA485

Maximum distance	1200 m (depending on the application)
Transmission medium	Steam twisted
Other parameters	**Determined by devices and their applications**

Power supply

Does not require power supply

Environmental conditions

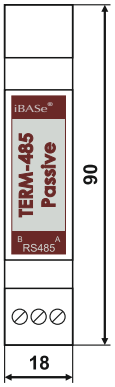
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

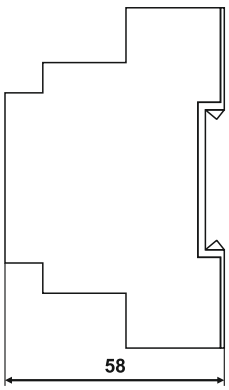
Housing and installation

Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2
Housing	MODULEBOX 1M H53
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	18 × 90 × 58 mm
Degree of protection	IP20
Assembly	On TS-35 rail

MODBUS

Dimensions





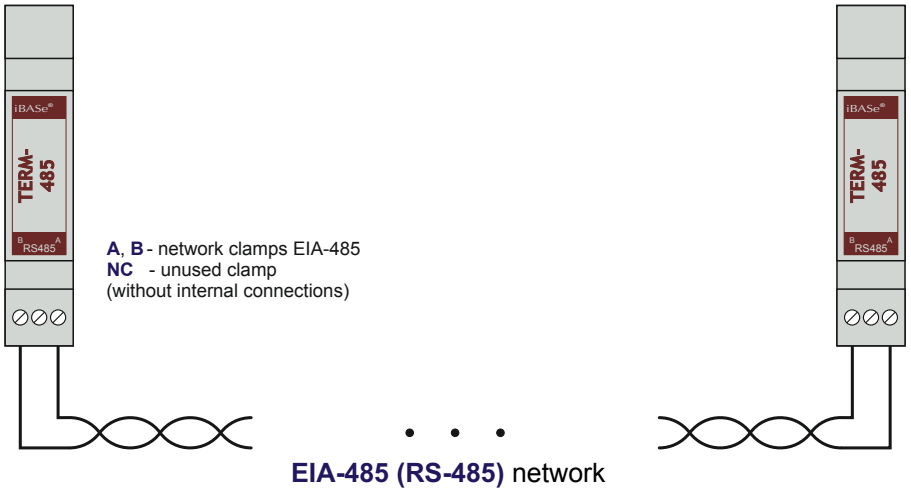
ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Passive EIA485 bus terminator

Application



Attention
The terminator is fully symmetrical, terminal designations A and B are purely conventional.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

TERM-485 Active

Active EIA485 bus terminator

Characteristics

Terminator **TERM-485 Active** is designed for active electric termination (voltage level determination) of communication channels based on twisted pair in **EIA-485** standard (former RS485). Proper termination requires the use of two terminators at both ends of the bus.

Communication channel EIA485

Maximum distance	1200 m (depending on the application)
Transmission medium	Steam twisted
Other parameters	**Determined by devices and their applications**

Power supply

Supply voltage	24 V AC/DC
Power consumption	0,3 W

Environmental conditions

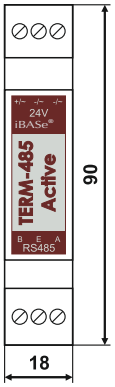
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

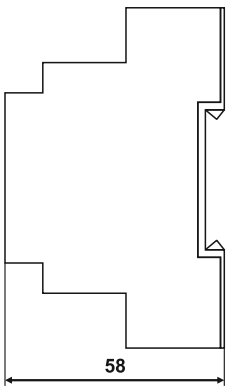
Housing and installation

Connector	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2
Housing	MODULEBOX 1M H53
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	18 × 90 × 58 mm
Degree of protection	IP20
Assembly	On TS-35 rail

MODBUS

Dimensions



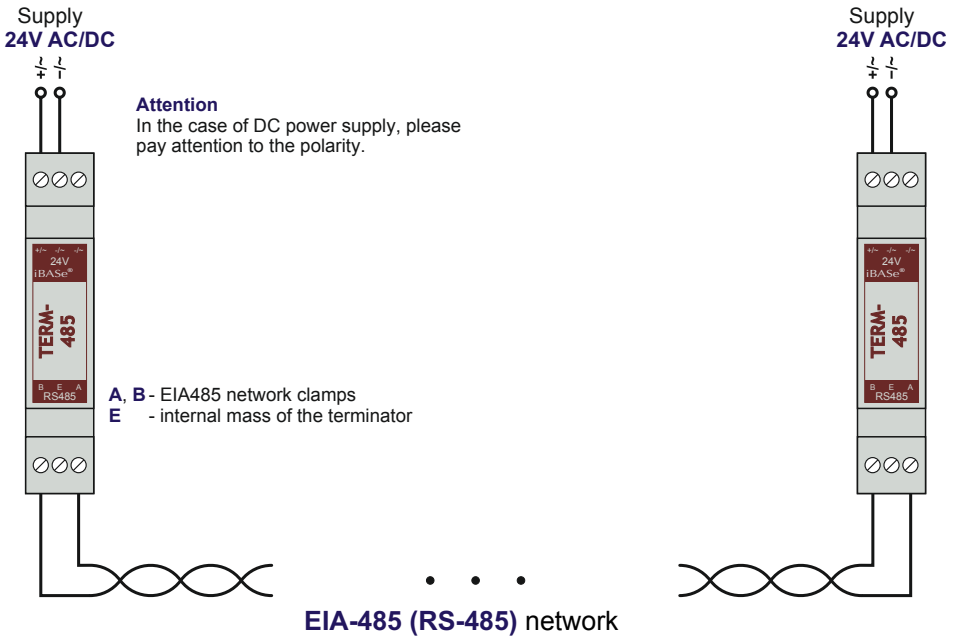


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Application



Attention
The assignment of clamps **A** and **B** is as follows:
A - non-reversing line (**DATA+**)
B - reversal line (**DATA-**)

Such an interpretation is accepted by many electronics manufacturers, whereas in **EIA-485** standard the assignment is reversed.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

MBusLON 121

Converter M-Bus - LON

Cooperation with a single media meter
Conversion of instantaneous and accumulated values of the media counter into network variables LONWORKS

MBusLON 521

Converter M-Bus - LON

Cooperation with a group of media counters
Conversion of momentary and accumulated values media counters for network variables LONWORKS

MODBUS-LON

Converter Modbus - LON

Two-way conversion between stack of Modbus registers and the set of network variables LONWORKS
EIA485 interface (RS485), dedicated application

RS-LON

Converter RS-232 - LON

Serial communication with the device using network variables LONWORKS
EIA232 interface (RS232), dedicated application

MMC-02

Counter module

For media counters with pulse output conversion of counter inputs into network variables LONWORKS

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

121 MBus/Lon

M-Bus/LonWorks® data converter

Characteristics

The **121 MBus/Lon 10** converter is a device that allows for local integration in the **LON TP/FT-10** network of a single media meter using the **M-Bus**, communication standard, assuming a short distance from the meter. The standard application supports the heat meter, but it is possible to adjust it to the electricity, water or gas meter. Due to the specificity of the bus.

M-Bus and the way the module is implemented by different manufacturers is adapted to any counter that has not been tested before.

Selected supported counters:

- ❑ Heat meter Landis & Gyr WSD2C-1.50
- ❑ Heat meter Siemens Ultraheat 2WR5
- ❑ Heat meter Danfoss Infocal 5
- ❑ Heat meter Itron CF ECHO, CF ECHO II, CF Max, CF50, CF51
- ❑ Heat meter Sensus PolluCom EX, PolluStat E X, PolluTherm
- ❑ Siemens RVD235 heat substation controller
- ❑ Heat meter Kamstrup Multical 401

MBus communication interface

Number of counters	1
Counter address	Any (communication takes place in **broadcast** mode)
Transmission protocol	M-Bus
Baud rate	300 baud
Frame format	8E1
Voltage at terminals	26 V DC ± 1V
Maximum load	20 mA
Security	Before shorting the line

Interfejs komunikacyjny LON TP/FT-10

Standard	LonWorks	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	3150	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Network integration	**Service** button - available through a hole in the front panel
Manual initialization	**Reset** button - available through a hole in the front panel
Supply and identification	**POWER** LED - green LED
Network status LON TP/FT-10	**SERVICE** LED - yellow LED
M-Bus communication	**TXD** LED (red) i **RXD** LED (green) - transmitting/receiving data on the M-Bus line

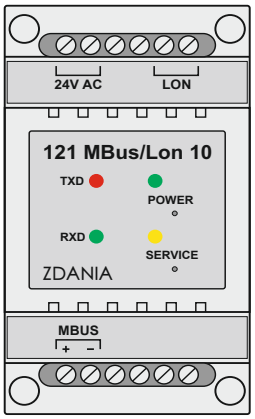
Power supply

Supply voltage	24 AC
Power consumption	3 W

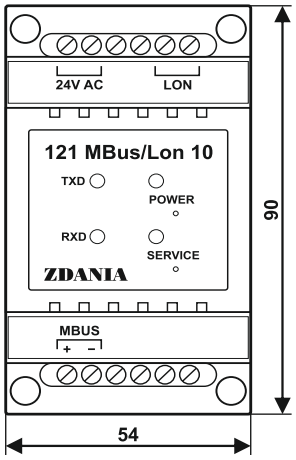
Connectors

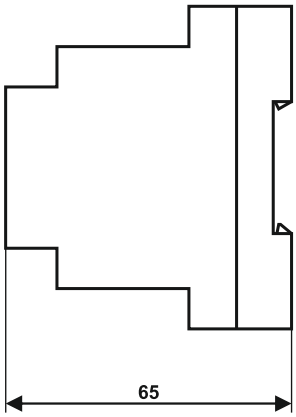
MBus network, power supply and LON TP/FT-10 network	Connection strip with screw terminals, grid 5,08 mm, maximum conductor cross section 1,5 mm^2

LonWorks®



Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

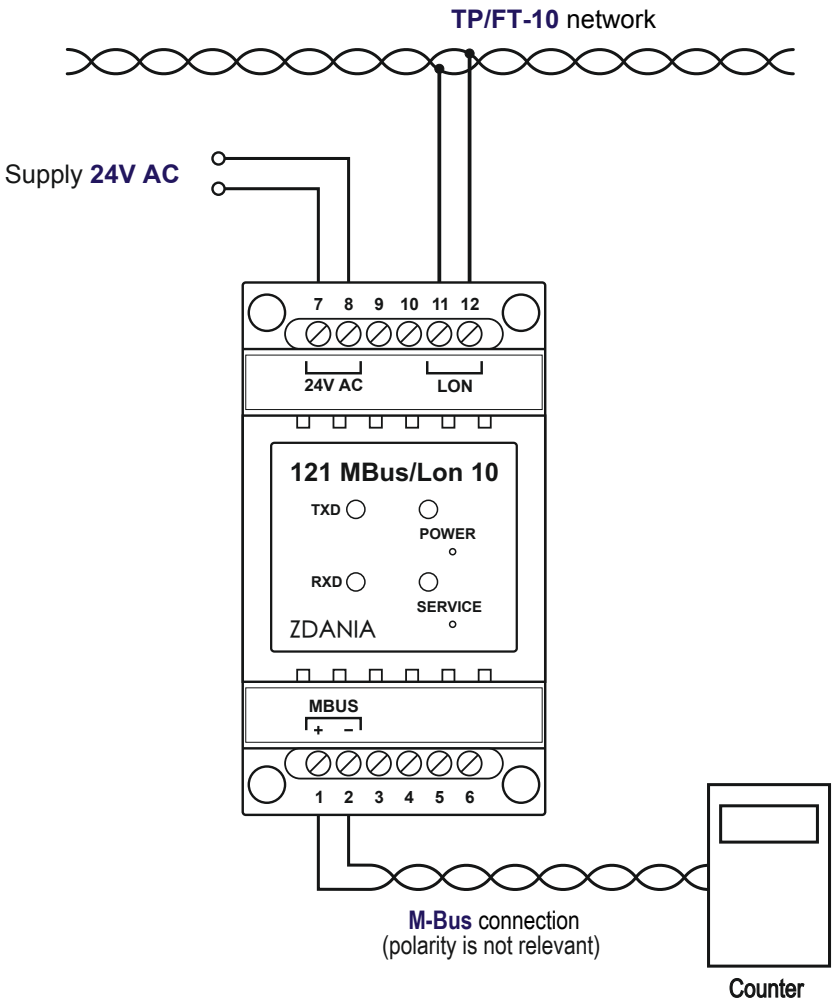
Environmental conditions

Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Housing	Z-102
Material	Polystyrene, light grey colour
Dimensions (D × S × W)	54 × 90 × 65 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Module application



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Characteristics

The **521 MBus/Lon** converter is a device that enables the integration into the LonWorks® network of utility meters networked in the M-Bus standard network. The standard application supports heat meters, but can be adapted to electricity, water or gas meters. Due to the specificity of the M-Bus protocol and the way of implementation by various manufacturers, the module's software is adapted to each meter that has not been tested before. Selected supported counters:

- Heat meter Landis & Gyr WSD2C-1.50
- Heat meter Siemens Ultraheat 2WR5
- Heat meter Danfoss Infocal 5
- Heat meter Itron CF ECHO, CF ECHO II, CF Max, CF50, CF51
- Heat meter Sensus PolluCom EX, PolluStat E X, PolluTherm
- Siemens RVD235 heat substation controller
- Heat meter Kamstrup Multical 401

There were also created dedicated versions of applications for such devices as:

- Heat meter Somesca Microclima, Multidata WR3, Z960
- Electric energy meter Schrack EIZ-GDWL739B, MGKIZ365

M-Bus communication interface

Addresses of counters	From 1 to 5
Transmission protocol	M-Bus
Baud rate	300 baud
Frame format	8E1
Voltage at terminals	40 V DC ± 2V
Number of supported counters	Up to 5 (standard application version)
Electrical load capacity of the bus	Up to 20 counters
Maximum load	30 mA
Security	Before shorting the line

Communication interface LON TP/FT-10

Standard	LONWORKS	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	3150	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

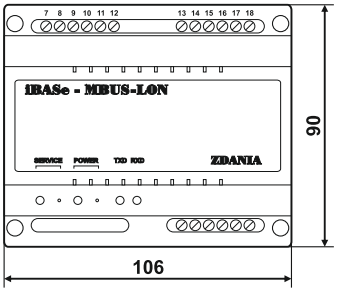
Network integration	**SERVICE** button - available through a hole in the front panel
Manual initialization	**RESET** button - available through a hole in the front panel
Power supply and identification	**POWER** LED - green LED
Network status LON TP/FT-10	**SERVICE** LED - yellow LED
M-Bus communication	**TXD** LED (red) i **RXD** LED (green) - transmitting/receiving data on the M-Bus line

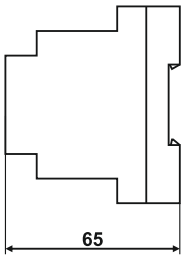
Power supply

Supply voltage	24 AC
Power consumption	3W

LONWORKS®

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

M-Bus/LonWorks® data converter

Connectors

MBus network, power supply and LON TP/FT-10 network	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 1.5 mm^2

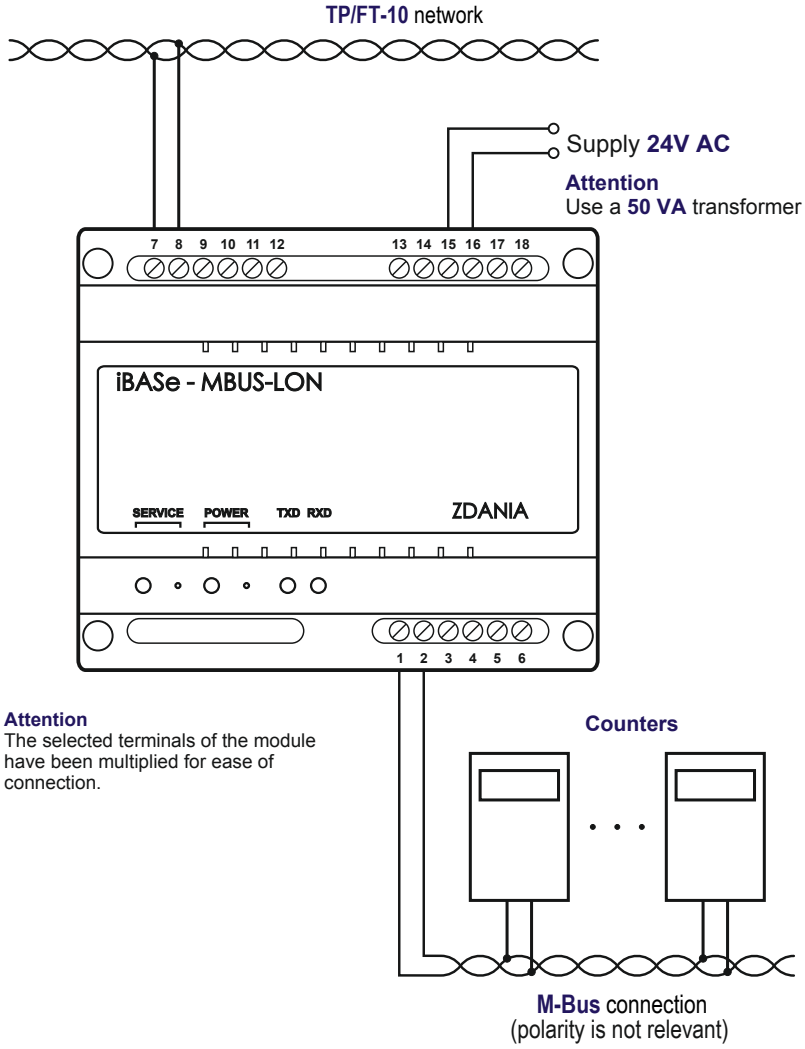
Environmental conditions

Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Housing	Z-101
Material	Polystyrene, light grey colour
Dimensions (D × S × W)	106 × 90 × 65 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Module application



ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Characteristics

The **MODBUS-LON** converter is a device for data exchange between devices integrated in two networks:

- Modbus network based on **EIA-485** interface as a physical layer (twisted pair).
- LonWorks network based on **TP/FT-10** interface (twisted pair).

In Modbus network data is represented mainly by 16-bit registers and bit flags, while in LonWorks network data is represented by so-called network variables.

The converter works by converting data from registers to network variables and vice versa from network variables to registers. Due to the different form of this data in both protocols, additional operations may be necessary, e.g. scaling, changing the structure and others.

The target functionality is always tailored to the user's needs and the requirements of the integrated devices.

Modbus communication interface

Interface standard	EIA485 (RS-485)
Transmission protocol	Modbus RTU
Mode of operation	Slave
Baud rate	From 9600 to 115 200 bps
Frame format	8N1 (others optional)
Module addressing	In accordance with Modbus standard (program addressing)
Maximum distance	1200 m (depending on wiring and termination)
Transmission medium	Steam twisted

Communication interface LON TP/FT-10

Standard	LonWorks 2.0 (bez opłat integracyjnych)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Network integration	**SERVICE** button - available through a hole in the front panel
Manual initialization	**RESET** button - available through a hole in the front panel
Power supply and identification	**POWER** LED - blue LED
Network status LON TP/FT-10	**SERVICE** LED - red LED

Power supply

Supply voltage/power consumption 24 V AC/DC; 3 W

Connectors

Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

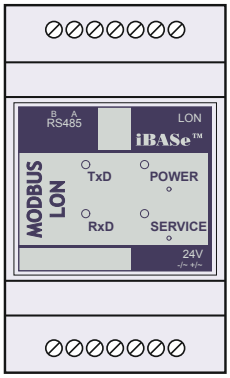
Environmental conditions

Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

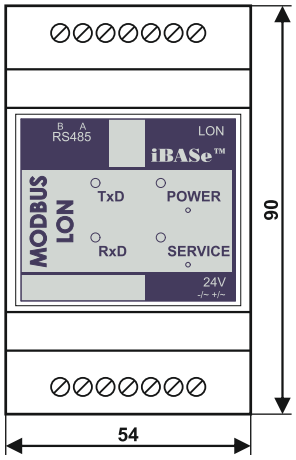
Housing and installation

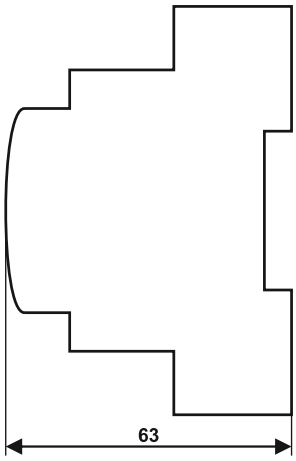
Housing	MODULEBOX 3M
Material	Self-extinguishing PPO
	RAL 7035 material
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On the rail TS-35

LonWorks®



Dimensions



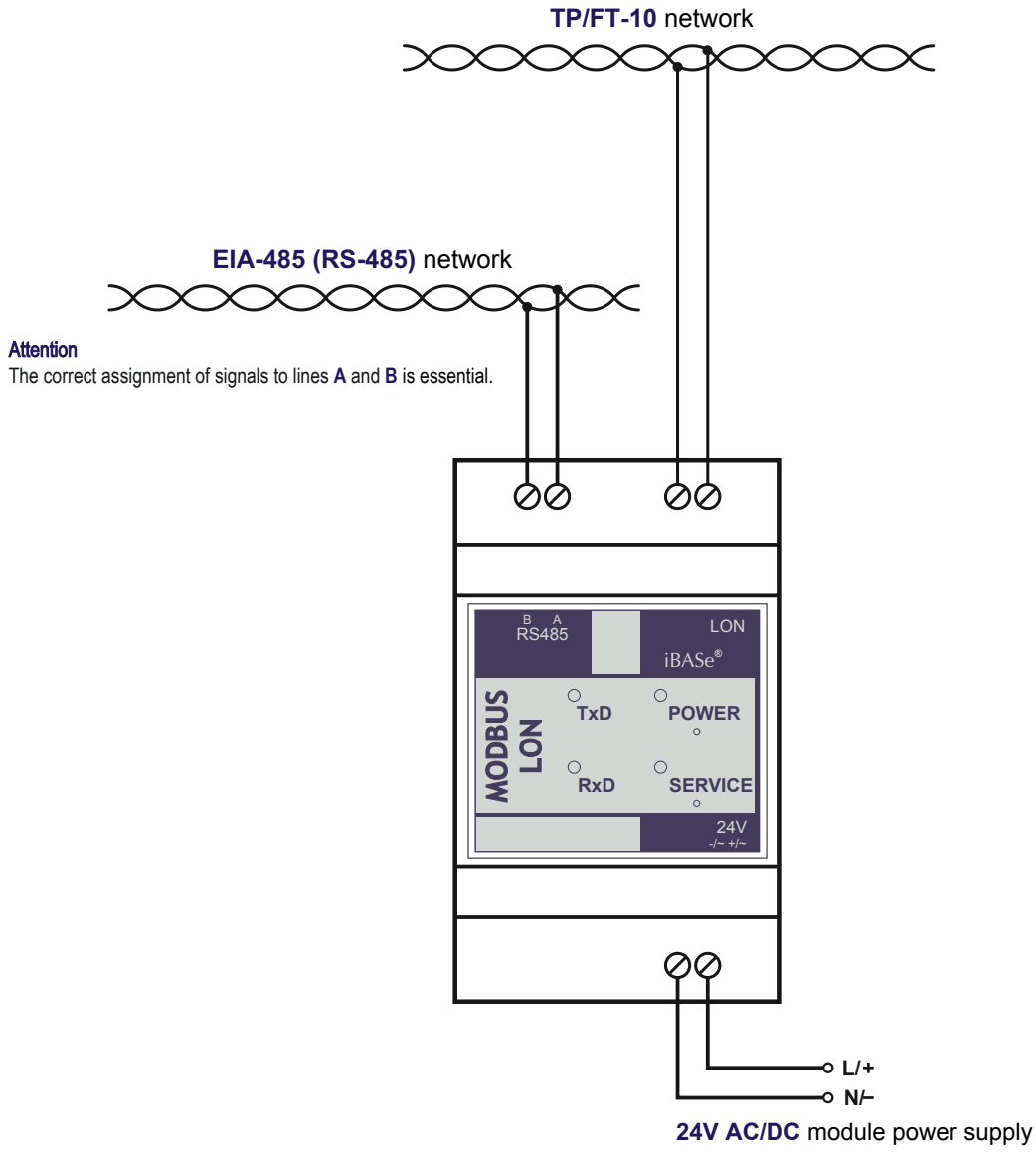


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Power supply

The module's internal power supply operates in a system **without galvanic separation**, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N** /-),unless otherwise stated.

Such a system should be taken into account designing the system.

DC 24 V power supply

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but is not damaged.

24 V AC power supply

The assignment of the **L** and **N** terminals is conventional, but there must be **consistency** when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

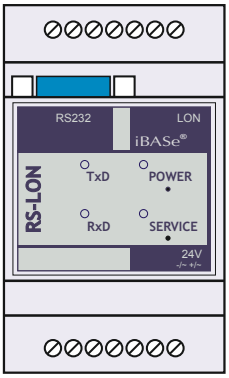
EIA232/LONWORKS data converter

Characteristics

RS-LON converter allows to integrate devices with **EIA-232** interface in **LON TP/FT-10** network , e.g. audio-visual systems, media counters or local controllers. The communication protocol in the serial channel can be a dedicated device protocol or one of the standard protocols (Modbus, MBus). The use of a converter also allows to avoid problems related to the **EIA-232** connection length limit.

Due to the specificity of **EIA-232** , the converter cooperates with only one integrated device (**point-to-point** connection).

LONWORKS®



EIA232 Communication Interface

Interface standard	EIA-232 (RS-232)
Transmission protocol	Modbus, MBus or dedicated
Mode of operation	**Master** or **Slave** (depending on application)
Baud rate	From 9600 to 115 200 bps
Frame format	8N1 (others optional)
Flow control	Hardware none
	Software **XON/XOFF** for **ASCII** protocols (option)
Maximum distance	Depending on wiring and baud rate, typically 20 m at 9600 bps, typically 20 m at 9600 bps.

Communication interface LON TP/FT-10

Standard	LONWORKS 2.0 (without integration fees)	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	5000	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Network integration	**SERVICE** button - available through a hole in the front panel
Manual initialization	**RESET** button - available through a hole in the front panel
Power supply and identification	**POWER** LED - blue LED
Network status LON TP/FT-10	**SERVICE** LED - red LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	3 W

Connectors

Signals, power supply and the LON TP/FT-10 network	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 2.5 mm^2

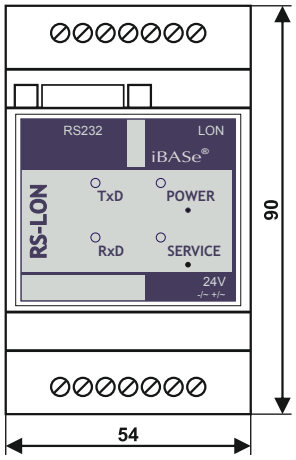
Environmental conditions

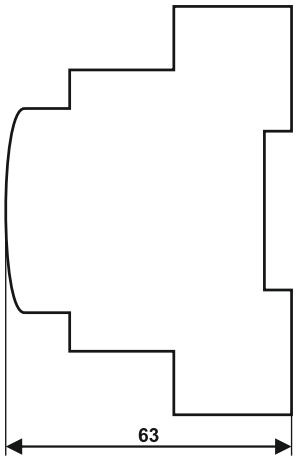
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Housing	MODULEBOX 3M
Material	Self-extinguishing plastic PPO, RAL 7035
Dimensions (D × S × W)	54 × 90 × 63 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Dimensions



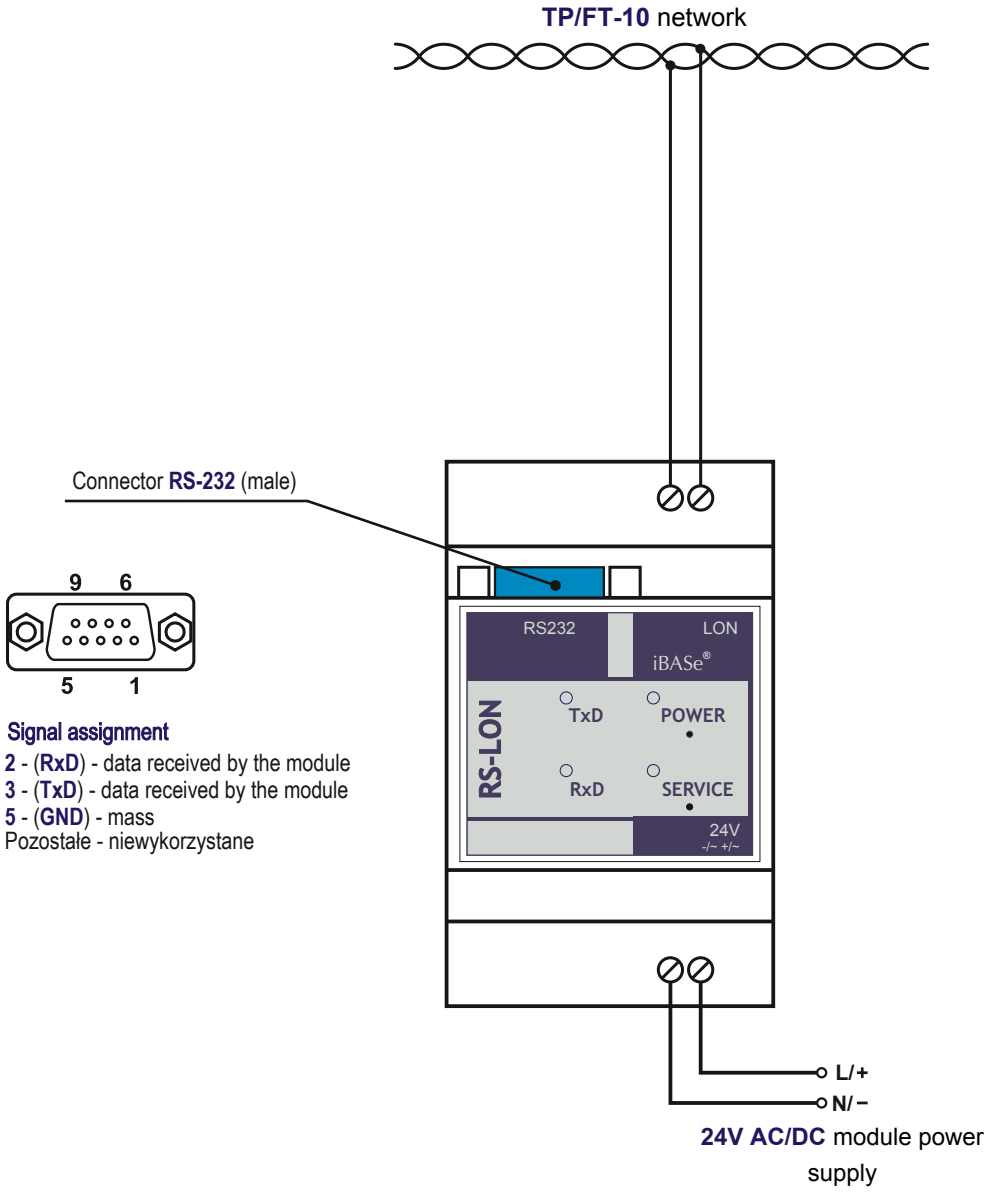


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Module application



Power supply

The module's internal power supply operates in a system **without galvanic separation**, the input stage of the power supply is based on a single half rectifier. The reference level for signal inputs and outputs of the module is the power supply ground (terminal **N** /-),unless otherwise stated.

Such a system should be taken into account designing the system.

DC 24 V power supply

Pay attention to right-head voltage polarity. In reverse connection, the module does not work (no reaction of LEDs is visible), but is not damaged.

24 V AC power supply

The assignment of the **L** and **N** terminals is conventional, but there must be **consistency** when connecting a group of modules, otherwise a short circuit will occur in the power supply.

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Characteristics

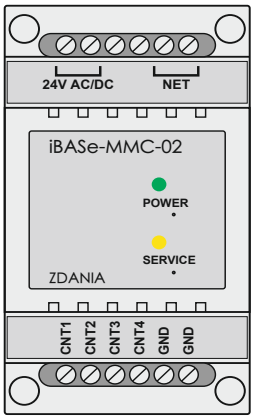
LONWORKS®

The **MMC-02** module is a device designed to monitor the consumption of various media measured by meters with pulse output. In typical applications these can be electricity, hot and cold water, gas, etc. meters. The set of inputs allows you to connect up to four meters with a pulse contact output or OC type (open collector). The module has built-in functions of counters with battery backup for counting pulses and the content of counters.

The individual meter status can be read out remotely via the LonWorks network, delivered to the network server and made available via the Internet/Intranet to the respective media distributors.

The size (number of digits), the number of decimals (after the decimal point), the constant of the counter (scaling method), the initial value and the unit can be specified for each counter.

Thanks to the built-in battery power supply, the module can count impulses for a specified period of time when there is no external power supply.



Counter inputs

Standard	Active
Number of inputs	4
Supported devices	passive contact **NO**/**NC** **OC** (**NPN**) type system
Filtration	Software filtration of contact vibrations, time 50 ms
Battery backup	**Impulse counting and maintenance of the counters for 8 hours is guaranteed.** **Note**: in case of storage or operation without power supply, the module must be periodically powered in order to charge the built-in battery.

Communication interface

Standard	LONWORKS	
Transceiver	TP/FT-10 Free Topology Transceiver	
Neuron Chip	3150	
Transmission protocol	LonTalk	
Data format	Standard Network Variables (SNVT)	
Baud rate	78 kb/s	
Maximum distance	Bus topology	2700 m / 64 network nodes (devices)
	Free topology	500 m / 64 network nodes (devices)
Transmission medium	Steam twisted	

Signalling and control

Network integration	**SERVICE** button - available through a hole in the front panel
Manual initialization	**RESET** button - available through a hole in the front panel
Power supply and identification	**POWER** LED- green LED
Network status LON TP/FT-10	**SERVICE** LED - yellow LED

Power supply

Supply voltage	24 V AC/DC
Power consumption	2 W

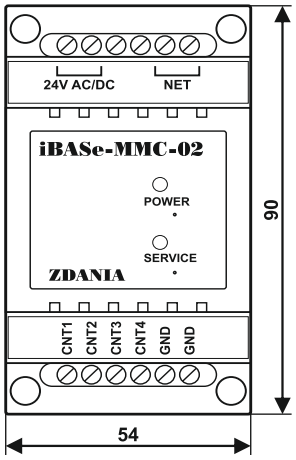
Connectors

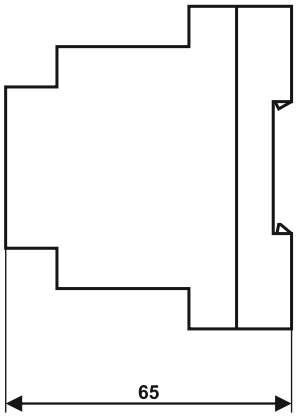
Signals, power supply and LON network TP/FT-10	Connection strip with screw terminals, grid 5.08 mm, maximum cable cross section 1.5 mm^2

Environmental conditions

Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Dimensions





ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

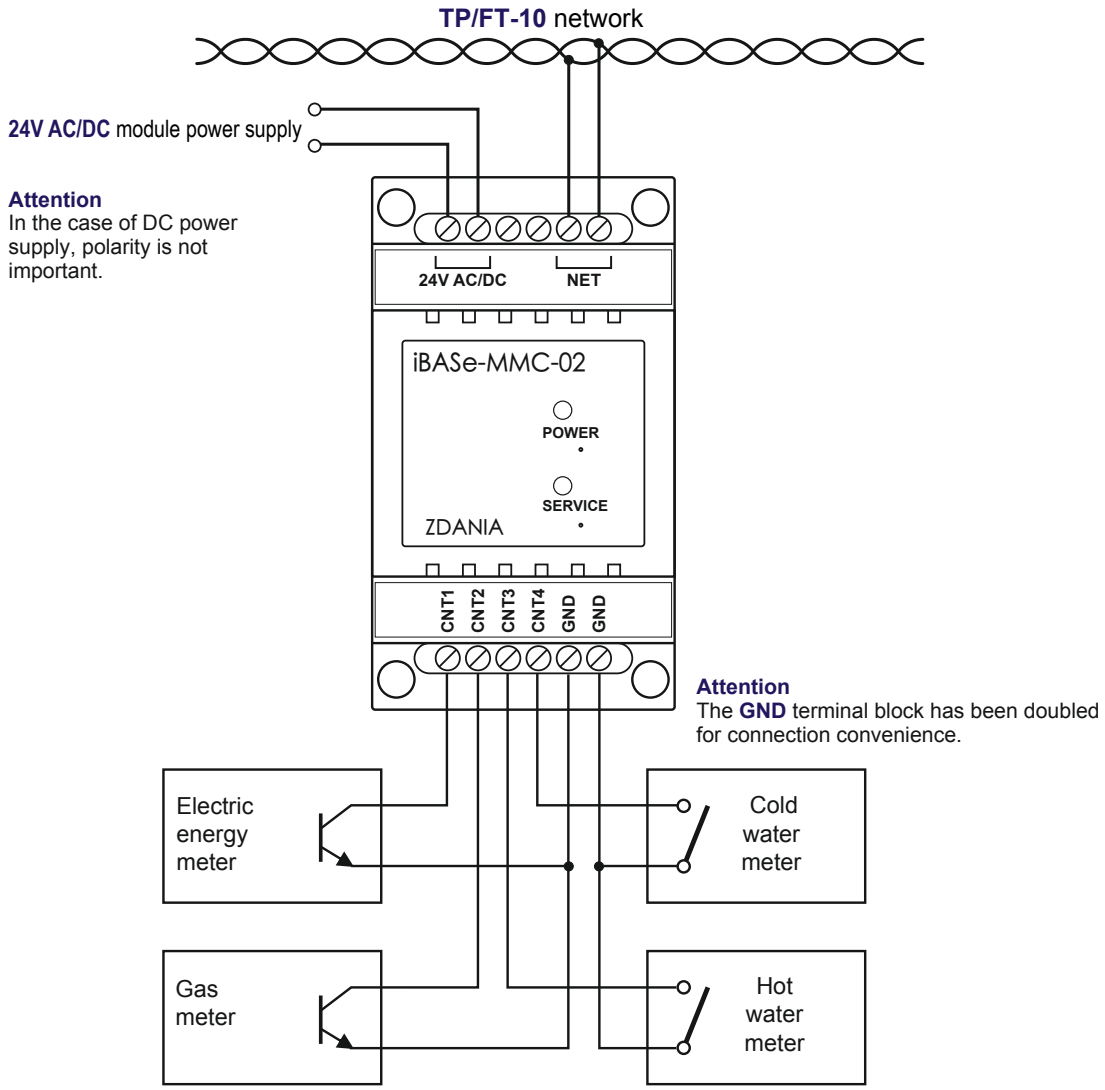
ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Housing and installation

Housing	Z-102
Material	Polystyrene, light grey colour
Dimensions (D × S × W)	54 × 90 × 65 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Module application



Assigning counters to inputs as well as the types of their outputs are exemplary

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

LDPS

Object power supply unit

Individual power supply for field devices
12/24V AC/DC versions

SPS-24/12

Low power object power supply

Power supply for low-current receivers (motion detectors, sensors)
using 24V AC object-oriented voltage

OSS

Motion detector separator

Simplify the wiring of motion detectors in large rooms

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
@ biuro@zdania.com.pl

Characteristic

The **LDPS** family is a group of power supplies with different voltages and output powers. Their basic purpose is to supply power to various field devices such as sensors, signal-to-head converters, I/O modules and others. It is also possible to power other devices, as long as the rated parameters are not exceeded.

Basic models

DC power supplies		
Model	**Voltage**	**Current**
LDPS/12DC/18	12 V DC	1,5 A
LDPS/12DC/30	12 V DC	2,4 A
LDPS/24DC/18	24 V DC	0,75 A
LDPS/24DC/30	24 V DC	1,2 A

AC power supplies		
Model	**Voltage**	**Current**
LDPS/12AC/18	12 V AC	1,5 A
LDPS/12AC/30	12 V AC	2,4 A
LDPS/24AC/18	24 V AC	0,75 A
LDPS/24AC/30	24 V AC	1,2 A

Power supply

Supply voltage	230 V AC (4070 Hz)
Connector	Safety Connector Wieland (3 pins)
Device class	II

Signalling and control

Supply	**POWER LED** - Green LED

Connectors

Power supply output	Power supply output multiplied by three connectors in the form of a connection strip with screw terminals, raster 5.08 mm, maximum cable cross section 2.5 mm^2

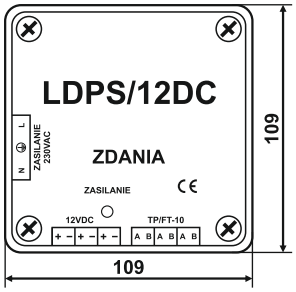
Environmental conditions

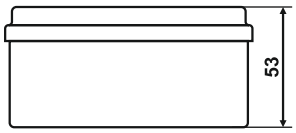
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Material	PP/PS/ABS plastic, RAL 7035
Dimensions (D × S × W)	109 × 109 × 53 mm (does not include connectors)
Degree of protection	IP20
Assembly	Wall-mounted, in the inter-ceiling space

Dimensions



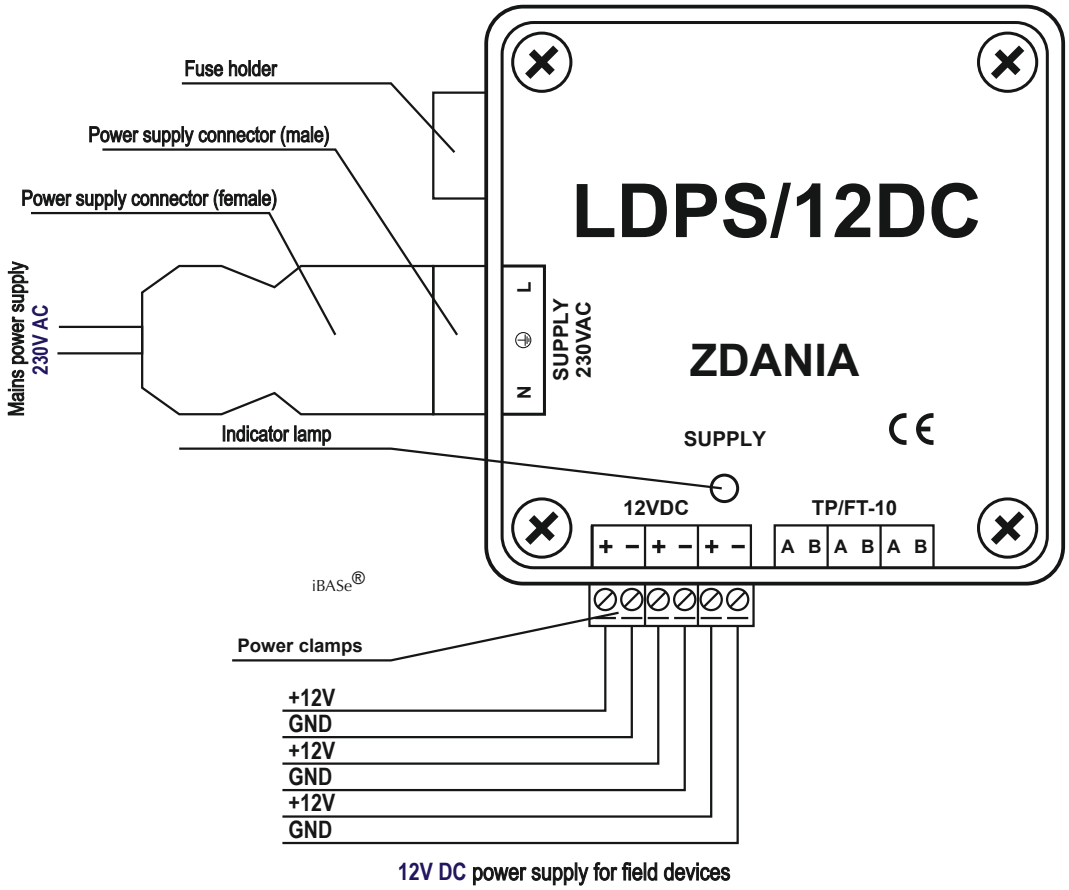


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Power supply application

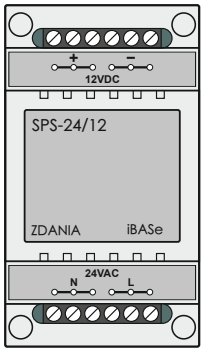


12V DC power supply for field devices

Attention
The diagram shows an example of a **LDPS/12DC** power supply.
For other models, the connection system looks identical, only the output voltages change

Characteristics

The **SPS-24/12** power supply unit is designed to power low-voltage low-power receivers such as sensors, signal converters, motion detectors, I/O modules and others. The basic range of applications includes building automation and industrial automation. An important feature of the PSU is the use of low voltage (**24 V AC**), usually found in such systems. This allows cost optimization, among other things, by eliminating the more expensive AC power supply.



Power supply

Supply voltage	24 V AC ±20%
Maximum power	6 VA (**standard** execution)
	10 VA (**extended** execution)

Output

Voltage	12 V DC ±5%
Maximum current	300 mA (**standard** execution)
	500 mA (**extended** execution)
Security	Short-circuit protection
	Thermal

Connectors

PSU input and output	Connection strip with screw terminals, grid 5 mm, maximum conductor cross section 1,5 mm^2

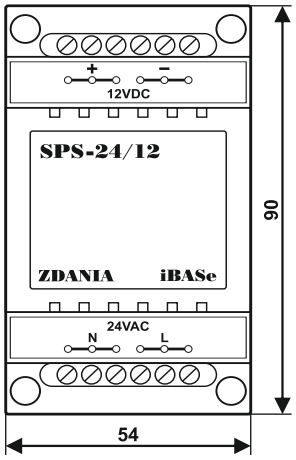
Environmental conditions

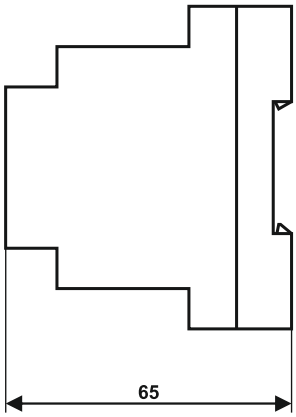
Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Housing	Z-102
Material	Polystyrene, light grey colour
Dimensions (D × S × W)	54 × 90 × 65 mm
Degree of protection	IP20
Assembly	On TS-35 rail

Dimensions



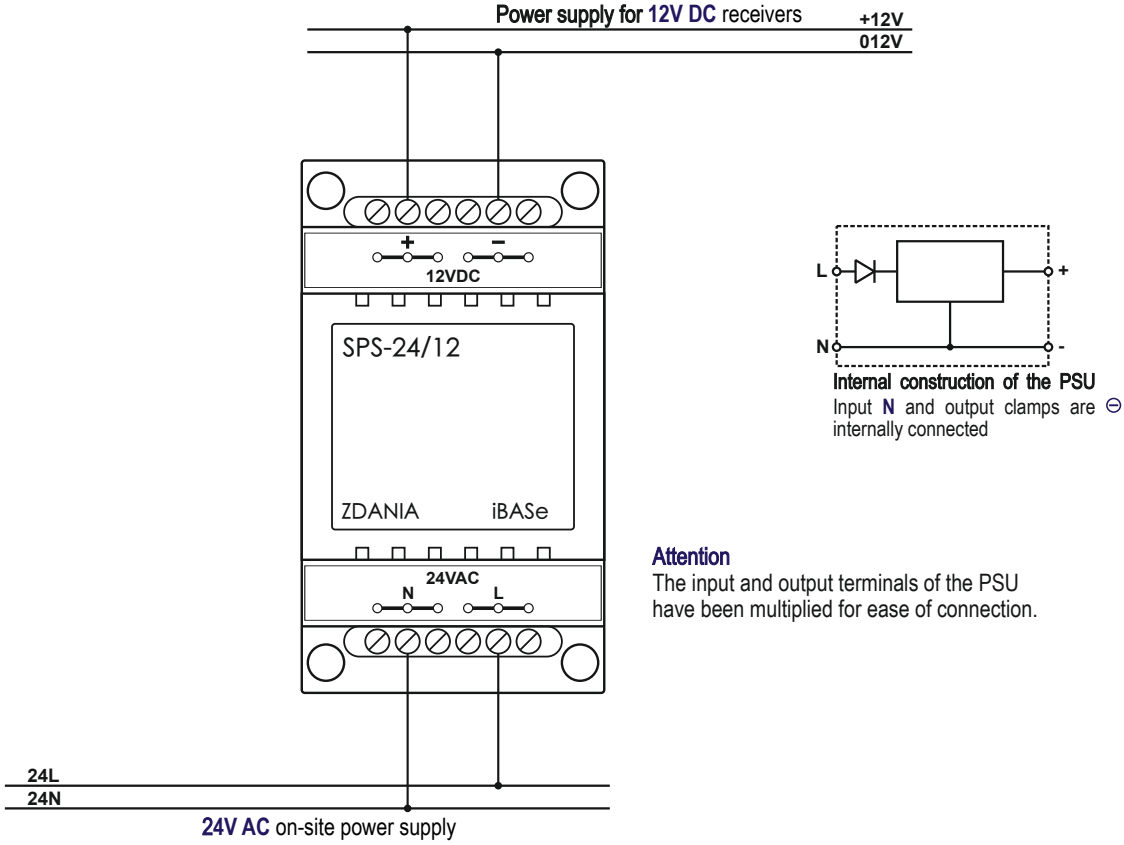


ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Power supply application



Attention
The input and output terminals of the PSU have been multiplied for ease of connection.

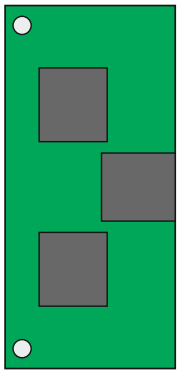
ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

Characteristics

The **OSS** motion detector splitter simplifies the installation of a group of motion detectors connected to a single controller. A suitably connected group of motion detectors is treated by the controller as a single group, but this usually requires installation work such as twisting or soldering the cables. The OSS splitter allows to replace these works with the execution of appropriate ready-made cable sections and connections directly between detectors, boxes with splitters and the controller. An additional feature of the **OSS** jdistributor is the simplification of installation work in the case of systems with parameterizable resistors in the motion detection and sabotage line circuits.



Motion detector connectors

Number	3
Split lines	**power supply** - **parallel** connection in the chain
	motion contact - **serial** connection in the chain
	tamper contact - **serial** connection in the chain
Connector	Telecommunication connector **6P6C** (RJ-12)

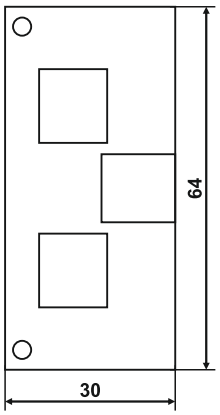
Environmental conditions

Operating temperature	from 0 to 50°C
Storage temperature	from -20 to 70°C
Relative humidity	20-90% RH, non-condensing

Housing and installation

Execution	In the form of a PCB with connectors
Dimensions (D × S × W)	64 × 30 × 17 mm
Assembly (options)	• in the installation box
	• on the mounting surface with screws or screws

Dimensions



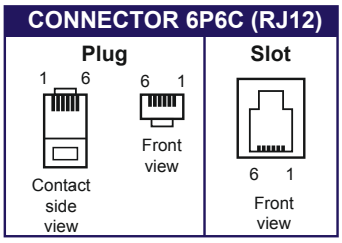
Assignment of signals to contacts

Signals

Motion detector (6P6C)	
1, 2	**Tamper** contact
3, 4	**Motion** contact
5	GND
6	+12 V

Contact numbers

CONNECTOR 6P6C (RJ12)



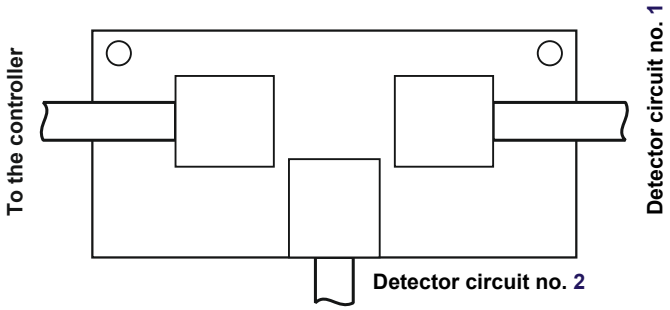
ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

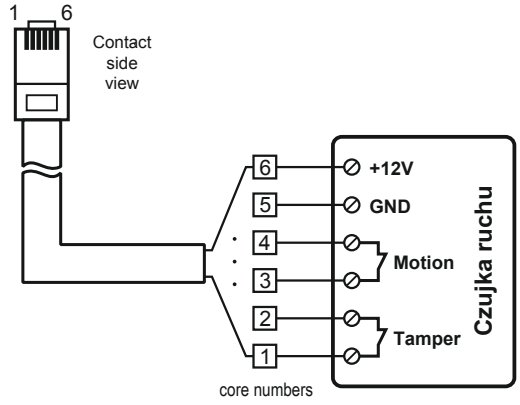
Motion detector separator

Basic application of the distributor

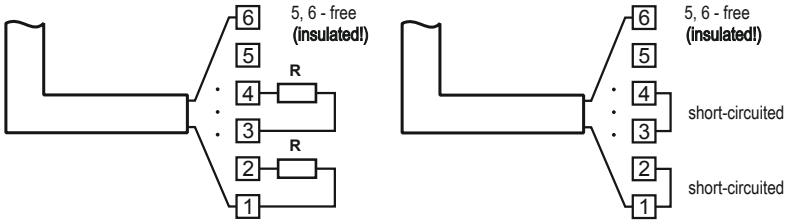


Attention
The distributor is fully symmetrical, the connectors can be freely assigned to the circuits in the system.

Connection of individual motion detectors



Parametric or contiguous section



R - parametric resistors

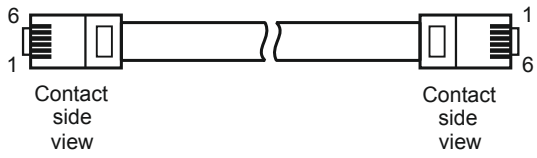
Attention
In the case of a motion detector system with parametric lines, a segment with parametric resistors can be placed in one of the distributors, provided that they are not placed inside one of the detectors.

W przypadku uruchamiania lub testowana systemu wolne złącza należy zamknąć odcinkiem ze zwartymi liniami wykrywania ruchu i sabotażu.

Żadne złącze nie może pozostawać nieobsadzone - wynikiem takie sytuacji jest przerwa w obwodach wykrywania ruchu i sabotażu.

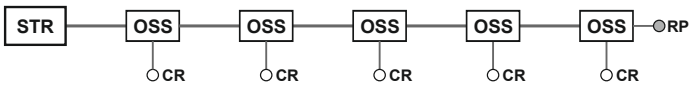
Przy wykonywaniu połączeń należy zwrócić uwagę, by nie zewrzeć linii zasilania!

Connections of the network segment

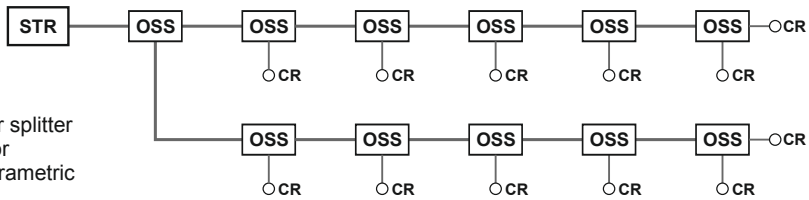


Connection between controller and distributor and between distributors

Example of connection topologies



Simple string with parameterizable resistors at the end



Extensive system of motion detectors without parameterizing resistors

STR - controller
OSS - motion detector splitter
CR - motion detector
RP - section with parametric resistors

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67
www.zdania.com.pl
biuro@zdania.com.pl

ZDANIA SINCE 1992

LonMark International

Certificate of Product Conformance Awarded to

ZDANiA Sp. z o.o. (Ltd.)

DIGI8

Certified January 27, 2016 to LonMark Guidelines v. 3.4

Ernst Eder
Technical Director

Barry Haaser
Executive Director

LonMark International

Certificate of Product Conformance Awarded to

ZDANiA Sp. z o.o. (Ltd.)

DIGIO/OC

Certified February 1, 2016 to LonMark Guidelines v. 3.4

Ernst Eder
Technical Director

Barry Haaser
Executive Director

LonMark International

Certificate of Product Conformance Awarded to

ZDANiA Sp. z o.o. (Ltd.)

DIGIO/T

Certified October 28, 2015 to LonMark Guidelines v. 3.4

Ernst Eder
Technical Director

Barry Haaser
Executive Director

LonMark International

Certificate of Product Conformance Awarded to

ZDANiA Sp. z o.o. (Ltd.)

AIO/10N, AIO/N, AIO/0-10, DIGIO/A

Certified February 8, 2016 to LonMark Guidelines v. 3.4

Ernst Eder
Technical Director

Ron Bernstein
CEO/Executive Director

LonMark International

Certificate of Product Conformance Awarded to

ZDANiA Sp. z o.o. (Ltd.)

iSKD-4 Access and Intrusion Controller

Certified March 19, 2015 to LonMark Guidelines v. 3.4

Mike Gibson
Technical Director

Barry Haaser
Executive Director

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

ZAKŁAD ROZWOJU TECHNICZNEJ OCHRONY MIENIA

00-545 Warszawa
ul. Marszałkowska 60/27

TECHOM Sp. z o.o.

Tel. 625-34-00
Fax 625-26-75

www.techom.com

Działamy od 1986 r. - KRS 0000164572

ŚWIADECTWO KWALIFIKACYJNE
Nr 01 / 15

Potwierdzające spełnienie wymagań jakościowych przez system.

Zaświadcza się, że produkowany seryjnie system, występujący pod nazwą:

System Kontroli Dostępu i Sygnalizacji Włamania i Napadu
X-SKD

Oparty na: zintegrowanych sterownikach automatyki i bezpieczeństwa iSKD-4, oprogramowaniu zarządzającym Serwer Konfigurator oraz osprzęcie przejść, sensorach i elementach wykonawczych sygnalizacji włamaniu i napadu, zgodnych z wymaganiami systemu X-SKD

produkowany i przedstawiony do oceny przez Firmę :

ZDANIA Sp. z o.o.
30-218 Kraków, ul. Królowej Jadwigi 268

po analizie dostarczonych:

1. Dokumentacji technicznej wyrobu
2. Dokumentacji z badań z Laboratoriów Badawczych

spełnia wymogi zawarte w Kryteriach Kwalifikacyjnych, opartych na wybranych wymaganiach z dokumentów normatywnych:

1. PN-93/E-08390-14: 1993 Systemy alarmowe-Wymagania ogólne-Zasady stosowania,
2. PN-EN 50133-1: 2007 Systemy alarmowe- Systemy kontroli dostępu w zastosowaniach dotyczących zabezpieczenia - Część 1: Wymagania systemowe
3. PN-EN 50133-2-1: 2002 Systemy alarmowe-Systemy kontroli dostępu stosowane w zabezpieczeniach – Część 2-1: Wymagania dla podzespołów.
4. PN-EN 50130-5:2012 Systemy alarmowe-Część 5: Próby środowiskowe.

W oparciu o Procedurę Nr 13 - "Wydawanie zaświadczeń kwalifikacyjnych",
system zakwalifikowano do: **KLASY „C”** *(wg PN-93/E-08390-14:1993)*,

KLASY DOSTĘPU „B”, KLASY ROZPOZNANIA „2” *(wg PN-EN 50133-1:2007)*

KLASY ŚRODOWISKOWEJ „II” *(wg PN-EN 50130-5:2012)*

Warunki dodatkowe i uwagi : brak

Zmiany parametrów, konstrukcji i materiałów użytych do produkcji systemu, powodują konieczność ponownej oceny i muszą być zgłoszone natychmiast do ZRTOM „TECHOM”.

Świadectwo jest ważne od dnia 24 lutego 2015 r. do dnia 23 lutego 2018 r.

Warszawa, 24 lutego 2015 r.

Dział Oceny i Kwalifikacji Urządzeń

mgr inż. Andrzej Starnawski

ZAKŁAD ROZWOJU TECHNICZNEJ OCHRONY MIENIA
TECHOM
00-545 Warszawa
ul. Marszałkowska 60/27
tel. 625-32-96 625-34-00
tel./fax 625-26-75

PREZES ZARZĄDU ZAKŁADU „TECHOM”

inż. Bogdan Tatarowski

1 PRODUCTION AND SUPPLY

- iBASe® building automation system devices
- control cabinets for building automation systems
- communication interfaces and converters LON TP/FT10, BACnet MS/TP, Modbus RTU (designed for incorporation into heat meters, counters and other devices)
- standard (Modbus RTU/EIA485) and proprietary (EIA232) converters of communication protocols to LON TP/FT-10

2 PRODUCT DISTRIBUTION

- **LOYTEC electronics GmbH**

LOYTEC
COMPETENCE CENTER IN POLAND

- **DELTA Electronics**
- **ZDANIA / iBASe**

3 SERVICES

- training on **LOYTEC** and iBASe® building automation systems equipment
- training in design and implementation of building automation systems
- design, completion of deliveries, installation and commissioning of integrated building automation systems design
- and implementation of software and visualization of BMS systems

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl

ZDANIA Sp. z o. o.
Ul. Mazowiecka 25
30-019 Kraków
+48 12 638 05 67

ZDANIA
SINCE 1992

www.zdania.com.pl
biuro@zdania.com.pl