Tecomat Foxtrot CFox RFox

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Product Catalog



Dear customers, dear designers!

You get into the hand the new issue of the catalog of programmable controllers produced by Teco a.s. company.

This catalog is dedicated to PLC system Tecomat Foxtrot designed for any application in industry, transport, measurement and energy control etc.

Foxtrot system is younger and smaller brother of time-proven big modular system Tecomat TC700. But smaller dimensions doesn't mean smaller range of functionality. On the other way, you may find in it all functions of big programmable controllers with IEC EN 61131 standard compatibility, even combined with latest technologies known better from IT, telecommunication and internet.

In next section you may find data sheets of CFox modules, these are a logical extension of Foxtrot system into field of intelligent building control and building management systems. They are based on connection via two-wires bus with free topology CIB. CIB – Common Installation Bus is a proprietary bus of Teco a.s. and is patented.

Next section is RFox line, what is a system extension of Tecomat Foxtrot with wireless input/output modules in frequency band 868 MHz.

We are sure that product range in this catalog may successfully cover each automation project.

Central modules, peripheral modules and accessories overview



AI – analog input, DI – digital input, AI/DI – combined analog/digital input, DI/230 – digital input 230 VAC, DI/HSC – digital input/fast counter, RTD – resistive temperature detector, thermocouples connection AO – analog outputs, DO – digital outputs, RO – relay outputs, SSR – Solid state relay, OC – open colector







RFox modules on DIN rail		for valve		into installation box
R-HM-1113M	R-HM-1121M	R-HC-0101F	R-IB-0400B	R-OR-0001B
		Ŵ		
TXN 132 10 3 AI, 8 DI 11 RO, 2 AO Page 93	TXN 132 11 3 Al, 8 Dl 19 RO, 2 AO Page 93	TXN 132 28 1 Al Valve drive Page 82	TXN 132 04 4 Dl Page 95	TXN 132 01 1 RO Page 96

Accessories (complementary products)







Advanced Automation



Foxtrot PLC Basic modules

Foxtrot PLC Expansion modules

Foxtrot Communication modules

Displays Operator panels

CFox Sensors and actuators for CIB Common Installation Bus

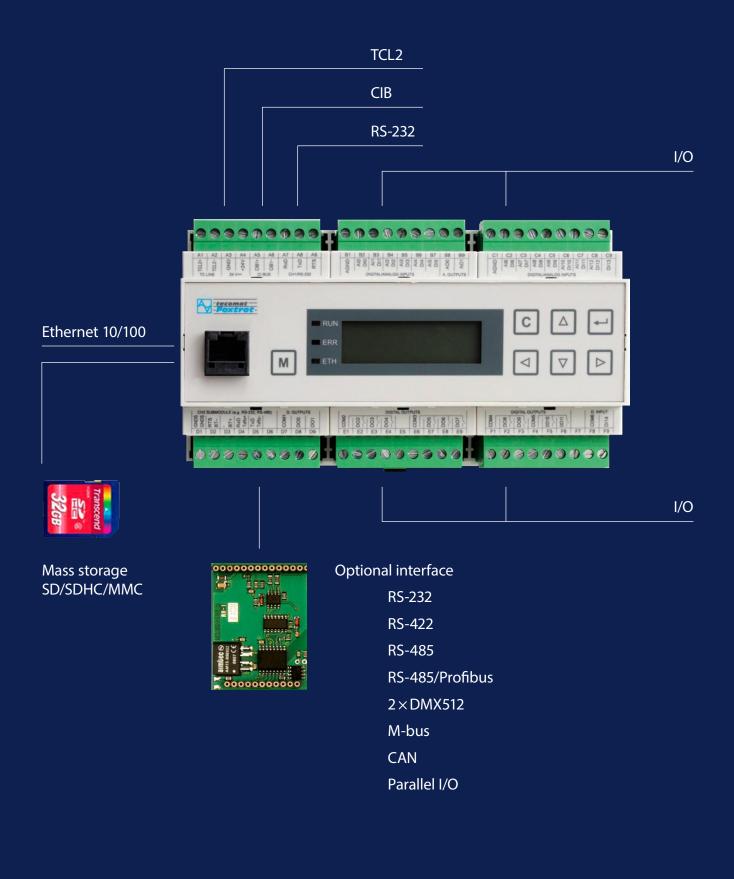
RFox Wireless sensors and actuators

Power supplies

Accessories Sensors, detectors etc.



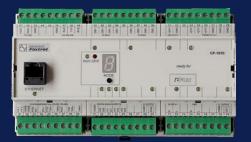
PLC Foxtrot Central module communication lines schema



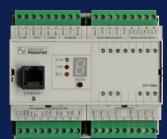
Modules connected to the system are mentioned in other parts of the catalog.



PLC Foxtrot Basic modules



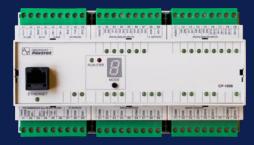
CP-1000



CP-1004



CP-1005



CP-1006



CP-1008



CP-1003



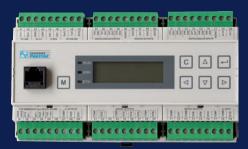
CP-1014



CP-1015



CP-1016



CP-1018



PLC Tecomat Foxtrot – basic modules

Central module for building automation projects with CFox and RFox modules

Туре	DI	RO	AI	AO	Comm
CP-1000	2×DI/230 VAC	2×RO	4×AI/DI		2×CIB, 1×TCL2 1×Ethernet 10/100, 1×RS-232, 1×optional

Basic features

- Outstanding integration of control system with latest IT technologies and telecommunication technologies.
- Central module with 4 universal inputs, 2 inputs 230 V AC and 2 relays outputs.
- Universal inputs may be configured as analog inputs for connecting temperature sensors Pt1000, Ni1000 or NTC termistor 12 k Ω or as potential-free digital inputs.
- Digital inputs 230 V AC for connecting MRC (Mass Remote Control) signal and 230 V AC network monitoring.
- Standard relay outputs 250 V AC/3 A.
- Extension of I/O up to 10 peripheral modules on serial bus TCL2 (345 kbit/s).
 Expandable memory with SD/SDHC/MMC cards, built-in file
- Expandable memory with SD/SDHC/MMC cards, built-in file system FAT32.
- Built-in clocks and calendar.
- Central module contains 2 CIB bus masters. It enables connect up to 64 inputs and outputs modules CFox in any combination and in any mechanical design.
- On terminals CIB+ and CIB- there is a powered bus.
- Number of CIB branches is expandable up to 10 via up to 4 optional masters CF-1141 connected on TCL2 bus, enabling up to 320 modules CFox.
- Optional connection up to 4 RFox masters RF-1131 via TCL2 on radio channel 868 MHz.
- External masters of CIB bus CF-1141 and wireless system RFox RF-1131 may be combined up to total number 4 masters on 1 central module.
- There is built-in serial channel RS-232 for connection GSM modems for direct communication with mobile phones, sending SMS messages etc or for general purpose.

- Next channel CH2 enables connection of optional communication interface submodule or inputs/outputs. Other 6 channels can be added using communication channels SC-1101 or SC-1102.
- Programming and communications (LAN, WiFi, WAN, internet) via ethernet (100 Mbit/s), adjustable fixed IP adress or assigned by DHCP.
- Support of standard protocols Modbus RTU/TCP (master and slave) and BACnet (slave).
- Built-in web server, free user programmable web pages stored on memory card (XML technology is used).
- Enables to create web page of any connected controlled object.
- Possibility to use as programmable converter of communication protocols.
- Possibility to use as independent programmable datalogger for any measured or internal values with time stamp.
- Compact dimensions and form factor fit for standard electroinstallation switchboards assembled on DIN rail.
- Central module is powered from 24 V DC power supply. If 27.2 V power supply is used, it is possible to connect Pb accumulators and keep the system in operation during power fail for time depending on capacity of used accumulators.
- For automation control in buildings and residential houses for common and complex tasks with needs to integrate with other systems mostly via communication interfaces.
- Central module may be free programmed in Mosaic software or parametrized in parametrization software FoxTool.



CP-1000

Related products

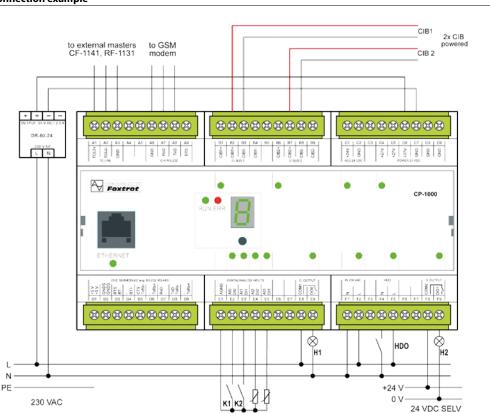




Submodules with inputs/ outputs



Communication submodules MR-01xx



Connection example



Features of CPU

1 × 100/10 Mbit/s; TCP/IP, UDP,
HTTP; SMTP ; MODBUS/TCP,
BACnet, IEC 60870-5-104
1×RS232;1×optional slot, optional
Interface (see submodules
MR-0xxx)
1×TCL2 (RS485, 345 kbit/s)
CIB, RFox, MPbus, Opentherm
2×CIB (19.2 kbit/s)
(Common installation bus)

Function Digital inputs (DI0-DI3) min. 2.3 V, max. 12 V

Input voltage for log. 0 (U _L)	min. 2.3 V, max. 12
Input voltage for log. 1 (U _H)	min. 0 V, max. 1 V
Input current for log. 1 (I _H)	typ. – 1.7 mA
Delay 0 -> 1/1 -> 0	1 ms/1 ms

Relay outputs

Galvanic isolation

Switched voltage

Switched current

load

at max. load Short-circuit protection

Insulation voltage

No. of outputs × groups

Type of contact/type of output

Short-term output overload

Time of close/open the contact Threshold limits of switched loads for resistive load

for inductive load DC13

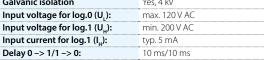
for inductive load AC15

Switching frequency with rated

Mechanical/Electrical lifetime

Switching frequency without load max. 300 switchings/min.

Digital inputs 230 V AC (HDO, IN 230 VAC) Galvanic isolation Yes, 4 kV Input voltage for log.0 (U_L): max. 120 V AC Input voltage for log.1 (U_H):



(DO0-DO1)

Yes (outputs each other)

min. 5 V; max. 250 V

max. 3 A at 30 V DC or 230 V AC

max. 1 A at 30 V DC

max. 3 A at 230 V AC

max. 20 switchings/min.

min. 5 mil./100 000 cycles

3750 V AC (more details see

documentation of TXV 004 11)

min. 10 mA; max. 3 A

NO relay, unprotected output

2 (1+1)

max. 4 A typ. 10 ms/4 ms

No Spike suppressor of inductive load External. (RC unit, varistor, diode)

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CP-1000

CPU	32 bit RISC processor
PLC Instruction cycle	0.2 ms/1k instructions
Real Time Clock (RTC)	Yes
Backup period of RAM and RTC	500 h without battery
	20 000 h with battery
User program memory	192+64 kB
Program memory backup	Yes
Internal data memory (DataBox)	0.5 MB
Archive memory for the project	2 MB
resource files	
Memory card slot	Yes, MMC/SD, SDHC
Memory for variables	64 kB/32 kB remanent

Universal inputs	(DI0/AI0-DI3/AI3)
Number inputs	4
Configurable inputs	Resistance measurement. Binary input (See separate table).
Common wire	minus (AGND)
Galvanic isolation	No

	Funkcion	Analog inputs	(AIO-AI3)
-	1		4.0.1.1

Resolution	12 bit
Conversion time	type 50 μs/1 input
Measurement repeating	type 650 μs
Protection type	integrated, overvoltage

Measurement ranges

esistance Temperature Detectors (RTD)		
Input impedance	> 4 kΩ	
Input range	Pt1000 1.385 (-90 up to +270°C) Pt1000 1.391 (-90 up to +270°C) Ni1000 1.617 (-60 up to +155°C) Ni1000 1.500 (-60 up to +155°C) NTC 12k (-40 up to +125°C) KTY81-121 (-55 up to +125°C) resistance transmitter 0 up to 2000 C	
Max. error at 25 °C	± 0.5 % of full range ± 10 % for range 0 up to 200 k Ω	
Allowed overload	-20 up to +35 V (between AI and AGND)	
Sensor disconnection detection	Yes, in status word	

Operating conditions

Operating temperature	−20 +55 °C
Storage temperature	–25 +70 ℃
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	11
Pollution degree	1
IEC EN 60664-1:2004	
Working position	vertical
Installation	on DIN rail
Connections	Screw connectors
Conductors cross-section	max. 2.5 mm ²

Dimensions and weight

Dimensions	158×92×63 mm
Weight	250 g

Power supply

Power suppry	
Power supply voltage (SELV)	+24 V DC
Allowed range	-15% + 25% (20.4 - 30 V DC)
Max. power consumption	75 W
Galvanic isolation	No, only relay outputs, HDO, IN 230 VAC and CH2
Memory backup	Built-in Li-lon accumulator (500 hours) Holder for lithium battery CR2032 (20 000 hours)

Order number TXN 110 00

CP-1000, CPU, ETH100/10, 2×CIB, 1×RS232, 1×SCH, 4×AI/DI, 2×DI 230 VAC, 2×RO, prg. Mosaic/FoxTool



11

Туре	DI	RO	AI	AO	Comm
CP-1003	8×DI/HSC	7×RO/3 A 1×RO/10 A 4×DO/PWM	8×DI/AI	4×AO	Ethernet 10/100, 2×TCL2, 1×RS485

Basic features

- Programmable controller (PLC) according to IEC 61131 standard with 32 I/O on basic module and with increased number of 20 extension modules up to 272 I/O in total.
- Built-in ethernet port 100 MBit and serial port RS-485 with option to expand with up to 3 other serial ports directly in basic module.
- Powerfull central module with practical configuration of 32 integrated inputs and outputs.
- 2×4 digital inputs with selectable voltage level and with alternative function of fast counters up to 100 kHz.
- 8 universal inputs selectable as analog or digital ones. Optional voltage, current and resistance range.
- 4 analog outputs with voltage range ± 10 V and resolution 12 bit.
- 4 extra fast semiconductor digital outputs with optional function frequency output, pulse wide modulation (PWM), direct control of DC motors or direct control of stepper motors up to frequency 100 kHz.
- 8 relay outputs. 1 of them has possibility to switch 10 A/230 V AC. 7 outputs switch up to 3 A.
- Expandable memory with SD/SDHC/MMC cards, built-in file system FAT32.

- Built-in clocks and calendar.
- Extension of I/O number with next up to 20 extension modules on 2 serial buses TCL2 (345 kbit/s).
- Option to create network of more PLC Tecomat in ethernet network on RS-485 bus.
- Free programmable according to IEC 61131-3 standard.
- On-line programming during operation.
- Programming and communication via ethernet (100 Mbit/s), adjustable fixed IP address or DHCP.
- Up to 4 serial channels, one RS-485 is in basic configuration, others with optional interface from range MR 01xx (up to 345 kbit/s), adjustable UART. Other 6 optional channels can be added using communication modules SC-1101 or SC-1102.
- Built-in PROFIBUS DP Master up to 180 kbit/s.
- Built-in WEB server, free web page designing, storing web pages at memory card (XML technology).
- Enables to create web page of any connected controlled object.
- May be used also as programmable converter of communication technologies.
- May be used as independent programmable datalogger for any measured or internal values with time sign.
- Compact dimensions fit for standard electroinstallation switch boxes, assembly on DIN rail.



CP-1003

Related products





Submodules with inputs/ outputs



Communication submodules MR-01xx

Connection	example

A1 A2 A3 A4 A5 A6 A7 A8 A9 A9<			
ETHERNET DOO	DO1 DO2 DO3 DO4 DO5 DO6	D07 D08 D09 D010 D011	
OPTIONUL CH2 SUBMODULE (N3, RS-485) D, OUTPUT 2 SOB L B 4 4 4 4 4 4 4 1 10 10 10 10 10 10 10 10 10 10 10 10 1		Bit Display Bit Display	
000000000000000000000000000000000000000	[] 0 0 0 0 0 0 0 0 0]	000000000	

CPU characteristics

CPU	32 bit RISC processor
PLC cycle time	0.2ms/1k instructions
Real Time Clock RTC	Yes
Back up RAM and RTC	500 h/20 000 h without/with battery
User program and table memory	384 + 64 kB
Back up memory program	Yes
Internal memory – DataBox	0.5 MB
Memory for program archiving	2 MB
Slot for memory cards	Yes, SDHC/SD/MMC
Memory for variables	192 kB/48 kB remanent
No. of IEC timers/counters	4096/8192

Binary/counter inputs DI8-DI11, DI12-DI15

Binary/Counter inputs	4×2
Optional input functions	4×counter or 2×IRC (encoder) up
	to 100 kHz
Common wire	minus (GNDA, GNDB)
Galvanic isolation	Yes, by groups
Treshold level at input	Yes, 5–24. Adjustable by ref. voltage
	at input VDIA, resp. VDIB
Input voltage for. 0	Max. 0,25 U _{DI}
Input voltage for. 1	Min. 0,6 U
Input resistance for. 1	Typ. 4.5 kΩ
Delay 0->1/1->0	2µs/2µs
	•

Communication

1×10/100Base T
TCP/IP, UDP, http, SMTP, Modbus TCP, BACnet
1×RS-485 (CH1) a 1×free slot CH2 for submodule (see MR-01xx)
2×TCL2 (RS-485, 345 kbit/s)
CIB, RFox, MP-BUS, OpenTherm
Only with external master CF-1141

Analog/digital inputs DI0/AI0-DI7/AI7

No. of inputs × groups	8×1
Optional input function	 Digital input Voltage range: 0 – 2 V, 0 – 10 V Current range: 0 – 20 mA, 4 – 20 mA Resistance range: 0 – 2 kΩ, 0 – 200 kΩ NTC, 12k, KTY81 – 121,
Common wire	Ni1000, Pt1000 Minus (AGND)
Galvanic isolation	Yes, from the rest of module, AI is connected only with AO
Resolution	12 bit
Time of transaction	80 μs/1 input
Measurement repeating	480 µs
Protection type	Integrated, overvoltage



Digital transistor outputs DO8-DO11

No. of inputs	4
Galvanic isolation	Yes, transistor output, isolated from the rest of module
Output type	Push-Pull – couple transistors switching into VCC and GND. May be grouped by two and create 2 × full bridge.
Optional output functions	Frequency output, PWM output, DC motor control. With connecting motor into bridge between 2 outputs the speed and direction can be controlled.
Common wire	minus (GND)
Switched voltage	10-32 V DC
Switched current permanent/pulse	Max. 2,7 A/4 A
Residual current at switching off	12 mA
Time of switch on/off	1.6µs/0.6µs
Switching speed	Max. 100 kHz

Analog outputs AO0-AO3

No. of outputs	4
Galvanic isolation	Yes, AO is connected only with AI
Common wire	Minus AGND
Resolution	12 bit
Output range/current	±10 V/max. 10 mA
Time of conversion	10µs



CP-1003

Relay outputs DO0-DO7

Number of outputs	7×3 A (DO0-DO6), 1×10 A (DO7) divided in 4
	groups
Galvanic isolation	Yes (also among groups)
Type of contact/output	NO relay, unprotected output
Switched voltage	Min. 5 V, max. 250 V AC
Switched current	Min. 10 mA; max. 3 A (DO7-10 A)
Short term output overload	Max. 4 A (DO7-10 A)
Common wire current	Max. 15 A
Time to close/open the contact	Typ. 10 ms/4 ms
Switching frequecy without the load	Max. 300 switchings/min, 60 switchings/min (DO7)
Switching frequecy with rated load	Max. 20 switchings/min, 6 switchings/min (DO7)
Mechanical/Electrical lifetime at max. load	Min. 5 mil/100 000 cycles
Short-circuit protection	No
Spike suppressor of inductive load	External. (RC unit, varistor, diode)
Isolation voltage	3750 V AC

Operating conditions CP-1003

Operating temperature	−20 +55 °C
Storing temperature	–25 +70 ℃
Electric strength	according EN 60950
Degree of protection IP (IEC 529)	IP20
Overvoltage category	11
Degree of pollution according ČSN EN60664-1;2004	1
Operation position	Vertical
Installation	into switching board on DIN rail
Connection	screw terminals
Wire diameter	DI, AI, AO, DO0, CH2 – 1.5 mm², Others max. 2.5 mm²

Dimensions and weight CP-1003

Dimensions	158×92×63 mm (9M)
Weight	250 g

Power supply CP-1003

i onei suppi) ei 1005	
Nominal voltage – (SELV)	+24 V DC
Tolerance	-15%+25%; 20.430 V DC,
Max. input power	10 W
Internal protection	Yes
Galvanic isolation	Inputs and outputs yes,
	communication no
Back up memory	Built-in Li-lon accumulator (500
	hours). Holder for lithium battery.

Foxtrot

CP-1003; CPU, ETH100/10, 1 × RS485, 1 × SCH, 8 × AI/DI, 8 × DI/HSC, 4 × AO, 8 × RO, 4 × DO, 2 × TCL2



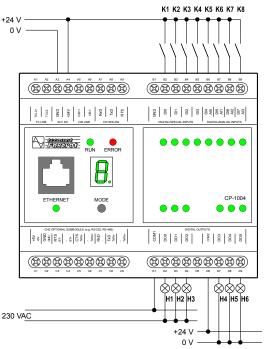
Basic module with 14 I/O (max. 21 I/O) with counter inputs

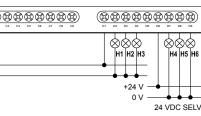
Туре	DI	RO	AI	AO	Comm
CP-1004	8×DI	6×RO			Ethernet 10/100, RS-232,
CD 1014	of which $4 \times DI/AI$,				1 × optional interface,
CP-1014	and 4 × DI/HSC				1×TCL2, 1×CIB, RFox
					optional

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Powerfull central module with integrated mostly binary inputs and relay outputs (I/O).
- Type CP-1014 with built-in display 4×20 characters and 6 user keys, other features the same with CP-1004. Available code pages: CP1250 (Central European), CP1251 (Cyrillic), CP1252 (Western European), CP1253 (Greek). CP 1255 (Hebrew).
- 4 inputs may be configured as High speed counters (HSC) and 4 as voltage analog inputs.
- Optional slot can be inserted by additional 7×DI or $4 \times DI/3 \times DO$ on submodules PX-781x.
- Memory expandable by SD/SDHC/MMC cards, built-in file system compatible with FAT32.
- Built-in clocks and calendar.
- No. of I/O is expandable up to 134 I/O, resp. up to 10 modules on high speed internal serial bus TCL2 (345 kbps).
- Other I/O can be expanded also by 2 wire installation bus CIB (19.2 kbps).
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.

Connection example





32 bit RISC procesor

0.2 ms/1 k instructions

Features of CPU CPU PLC Instruction cycle

Real Time Clock (RTC)	Yes
Backup period of RAM and RTC	500 h without battery, 20 000 h with battery
User program memory	192+64 kB
Program memory backup	Yes
Internal data memory (DataBox)	0.5 MB
Archive memory for the project resource files	2 MB
Memory card slot	Yes, MMC/SD, SDHC
Memory for variables	64 kB/32 kB Remanent
No. of IFC timers/counters	4096/8192

- Free programmable PLC according IEC EN 61131-3.
- On-line programming during operation.
- Programming and data communication (in LAN, WiFi, WAN, Internet) is available on Ethernet port (100 Mbps) with fixed IP address or DHCP.
- Up to 10 serial ports: one RS-232, other 3 with optional interface (up to 345 kbps), configurable UART. Other 6 with additional communication modules SC-1101 and SC-1102.
- Built-in PROFIBUS DP Master, Modbus RTU/TCP slave, IEC 60870-5-104 as payed application profile.
- Built-in BACnet slave on Ethernet port.
- Built-in web server, free creation of user internal web site stored on memory card (XML technology).
- Enables to create web page of any connected controlled object.
- May be used as programmable converter of communication protocols
- May be used as independent programmable datalogger for any measured or internal values.
- Compact form-factor for DIN rail mounting (6 modules width) for standard circuit breaker cabinets.
- Removable connectors instead of fixed terminals.

Digital inputs (DI0-DI7)

J	
No. of inputs × groups	8×1
Option: High speed counter	4 (DI0–DI3)
Option: Analog inputs	4 (DI4–DI7)
Common wire	minus (GND)
Galvanic isolation	No
Input voltage for log. 0 (U _L)	0 V DC; (-5 ÷ +5 V DC)
Input voltage for log. 1 (U _H)	+24 V DC; (+15 ÷ +30 V DC)
Input current for log. 1 (I _H)	typ. 5 mA
Delay 0 -> 1/1 -> 0:	5 μs/5 μs (DI0–DI3)
	5 ms/5 ms (DI4–DI7)

High speed counters (DI0-DI3)

J	
No. of counting inputs	4
Input Frequency/	5 kHz/20 000 edges/sec
Pulse width	min. 50 µs
Delay 0 -> 1/1 -> 0	5 μs
Range	max. 32 bit;
	0 ÷ 4 294 967 295
Modes	One, two way counter, encoder,
	pulse and period measuring
	•

Analog inputs	(DI4-DI7)
Number of inputs	4
Common wire	minus (GND)
Galvanic isolation	No
Resolution/Range	10 bit/0-10 V
Conversion time	350 μs/1 input
Max. error at 25 °C	± 3% of full range

Communication	
Ethernet;	1×10/100 BaseT;
supported protocols	TCP/IP, UDP, HTTP; SMTP; MODBUS TCP, BACnet, IEC 60870-5-104
Serial ports	1 × RS-232;1 × free slot for optional interface (see submodules MR-0xxx)
System I/O bus	1×TCL2 (RS-485, 345 kbit/s)
Communication over expansion module na TCL2	CIB, RFox, MP-Bus, OpenTherm
Installation bus	1 × CIB (Common installation bus

19.2 kbit/s)







Submodules with inputs/ outputs



Communication submodules MR-01xx

Relay outputs	(DO0-DO5)
No. of outputs × groups	3×2
Galvanic isolation	Yes (also among groups)
Type of contact/type of output	Electromechanical relay,
	non-protected output
Switched voltage	min. 5 V; max. 250 V AC
Switched current	min. 100 mA; max. 3 A
Short-term output overload	max. 4 A
Current through joint terminal	max. 10 A
Time of close/open the contact	typ. 10 ms/4 ms
Threshold limits of switched loads	
for resistive load	max. 3 A at 30 V DC or 230 V AC
for inductive load DC13	max. 3 A at 30 V DC
for inductive load AC15	max. 3 A at 230 V AC
Switching frequency without load	max. 300 switches/minute
Switching frequency with rated load	max. 20 switches/minute
Mechanical/Electrical lifetime at max. load	min. 5 mil./100 000 cycles
Short-circuit protection	None
Spike suppressor of inductive load	External RC, varistor or diode
	snubber
Insulation voltage	3750 V AC

Operating conditions

−20 ÷ +55 °C
-25 ÷ +70 ℃
According EN 60950
IP 20B
11
1
Vertical
On DIN rail
Screw terminals
max. 2.5 mm ²

Dimensions and weight

D'	105-02-02
Dimensions	105×92×63 mm
Weight	250 g
	Y

Power supply

- i onci suppiy	
Power supply voltage (SELV)	+24 V DC
Allowed range	-15% +25% (20.4 ÷ 30 V DC)
Max. power consumption	10 W
Galvanic isolation	No
Memory backup	Built in Li-lon accumulator (500 hours); Holder for CR2032 lithium battery (for 20 000 hours)

TXN 110 14

 CP-1004, CPU, ETH100/10, 1 × RS-232, 1 × SCH, 4 × DI/AI, 4 × DI/HSC, 6 × RO 230 V/3 A,1 × CIB, SW Mosaic

 CP-1014, CPU+LCD 4 × 20, ETH100/10, 1 × RS-232, 1 × SCH, 4 × DI/AI, 4 × DI/HSC, 6 × RO 230 V/3 A, 1 × CIB, SW Mosaic

CP-1004

CP-1014



Advanced Automation

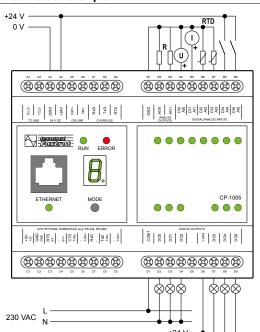
Basic module with 14 I/O (max. 21 I/O) for use in measurement and regulation

Туре	📕 DI	RO	AI	AO	Comm
CP-1005		6×RO	6×AI/DI		Ethernet 10/100, RS-232,
CP-1015					1×optional interface, 1×TCL2, 1×CIB

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Powerfull central module with integrated mostly analog inputs and analog outputs plus relay outputs (I/O).
- Type CP-1015 is expanded with built-in display 4 × 20 characters and 6 keys. Available code pages: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek), CP1255 (Hebrew). Other features are the same with CP-1005.
- Optional slot can be inserted by additional $7 \times DI$ or 4 × DI/3 × DO on submodules PX-781x.
- Each of 6 universal inputs may be alternatively used as analog or digital input.
- The type of analog input (U, I, RTD) and range of measurement are set in user configuration.
- Memory expandable by SD/SDHC/MMC cards, built-in file system compatible with FAT32.
- Built-in clocks and calendar.
- No. of I/O is expandable up to 134 I/O, resp. up to 10 modules on high speed internal serial bus TCL2 (345 kbps).

Connection example





Features of CPU

CPU	32 bit RISC procesor
PLC Instruction cycle	0.2 ms/1k instructions
Real Time Clock (RTC)	Yes
Backup period of RAM and RTC	500 hours without battery 20 000 hours with battery
User program memory	192+64 kB
Program memory backup	Yes
Internal data memory (DataBox)	0.5 MB
Archive memory for the project resource files	2 MB
Memory card slot	Yes, MMC/SD, SDHC
Memory for variables	64 kB/32 kB remanent
No. of IEC timers/counters	4096/8192

- Other I/O can be expanded also by 2 wire installation bus CIB (19.2 kbps).
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.
- Free programmable PLC according IEC EN 61131-3.
- On-line programming during operation.
- Programming and data communication (in LAN, WiFi, WAN, Internet) is available on Ethernet port (100 Mbps) with fixed IP address or DHCP.
- Up to 4 serial ports, one RS-232, the others with optional interface from line MR 01xx (up to 345 kbps), configurable UART. Other 6 with additional communication modules SC-1101 and SC-1102.
- Built-in PROFIBUS DP Master, Modbus RTU/TCP slave, BACnet slave on Ethernet port, IEC 60870-5-104 as payed application profile.
- Built-in web server, free creation of user internal web site stored on memory card (XML technology).
- Enables to create web page of any connected controlled object.
- May be used as programmable converter of communication protocols.
- May be used as independent programmable datalogger for any measured or internal values.
- Compact form-factor for DIN rail mounting (6 modules width) for standard circuit breaker cabinets.
- Removable connectors instead of fixed terminals.

Analog inputs	(AIO-AI5)
No. of inputs × groups	6×1
Configurable inputs	Voltage/Current/RTD
	measurement
	Binary input
	See other tables
Common wire	minus (GND)
Galvanic isolation	No
Resolution	12 bit
Conversion time	80 µs per input
Sample repetition period	480 μs
Protection type	Overvoltage, integrated

Digital inputs	(DIO-DI5) Alternative function
No. of inputs × groups	6×1
Option: Analog inputs	See Analog inputs
Common wire	minus (GND)
Galvanic isolation	No
Input voltage for log.0 (U ₁)	0 V DC; (-5÷ +5 V DC)
Input voltage for log.1 (U _H)	+24 V DC; (+15÷ +30 V DC)
Input current for log.1 (I _H)	typ. 5 mA
Delay 0 -> 1/1 -> 0:	1ms/1ms

Communication	
Ethernet;	1×10/100 BaseT;
supported protocols	TCP/IP, UDP, HTTP; SMTP; MODBUS/ TCP, BACnet, IEC 60870-5-104
Serial ports	1×RS-232;1×free slot for optional interface (see submodules MR-0xxx)
System I/O bus	1×TCL2 (RS-485, 345 kbit/s)
Communication over expansion module at TCL2	CIB, RFox, MP-Bus, OpenTherm
Installation bus	1 × CIB (Common installation bus





CP-1015

Related products





Submodules with inputs/outputs PX-7811, PX-7812



Communication submodules MR-01xx

Analog outputs	
----------------	--

No. of outputs × groups	2×1
Common wire	minus (GND)
Galvanic isolation	No
Resolution	12 bit
Conversion time	10 µs per output
Max. output current	10 mA
Output range	0 ÷ 10 V
Max. error at 25 °C	±2 % of full range
Protection type	Overvoltage, integrated
Permissible overvoltage	±20 V (between AI and GND)

Relay outputs	(DO0-DO5)
No. of outputs × groups	3×2=6
Galvanic isolation	Yes (also among groups)
Type of contact/type of output	Electromechanical relay,
	non-protected output
Switched voltage	min. 5 V; max. 250 V AC
Switched current	min. 10 mA; max. 3 A
Short-term output overload	max. 4 A
Current through joint terminal	max. 10 A
Time of close/open the contact	typ. 10 ms/4 ms
Threshold limits of switched loads	
for resistive load	max. 3 A at 30 V DC
	or at 230 V AC
for inductive load DC13	max. 3 A at 30 V DC
for inductive load AC15	max. 3 A at 230 V AC
Switching frequency without load	max. 300 switches/minute
Switching frequency with rated load	max. 20 switches/minute
Mechanical/Electrical lifetime at max. load	min. 5 mil./100 000 cycles
Short-circuit protection	None
Spike suppressor of inductive	External RC, varistor or diode
load	snubber
Insulation voltage	3750 V AC

oltage	
Input impedance	> 20 kΩ
Input range	$\begin{array}{c} 0 \div +10 V \\ 0 \div +5 V \\ 0 \div +2 V \\ 0 \div +1 V \\ 0 \div 0.5 V \end{array}$
Max. error at 25 °C	±0.3 % of full range
Allowed overload	–20 ÷ 30 V (between Al and AGND)
urrent	
Input impedance	100Ω
Input range	0 ÷ 20 mA 4 ÷ 20 mA
Max. error at 25 °C	± 0.4 % of full range
Allowed overload	\pm 5 V/ +50 mA (between AI and GND)
Detection of open input c	ircuit yes, in status word
esistance Temperature	Detectors (RTD)
Input impedance	> 50 kΩ
Input range	Pt100 1.385 (-90 ÷ +400 °C) Pt100 1.391 (-90 ÷ +400 °C) Pt1000 1.391 (-90 ÷ +400 °C) Pt1000 1.391 (-90 ÷ +400 °C) Ni1000 1.617 (-60 ÷ +200 °C) Ni1000 1.500 (-60 ÷ +200 °C) OV1000 (0 ÷ 1000 Ω)
Max. error at 25 °C	± 0.5 % of full range
Allowed overload	±35 V (between AI and GND)
Sensor disconnection detection	Yes, in status word

Operating conditions

-20÷+55 ℃
-25 ÷ +70 ℃
According EN 60950
IP 20
1
1
Vertical
On DIN rail
Screw terminals
max. 2.5 mm ²

Dimensions and weight

Dimensions	105×92×63 mm
Weight	250 g

Power supply

Power supply	
Power supply voltage (SELV)	+24 V DC
Allowed range	-15% ÷ +25% (20.4 ÷ 30 V DC)
Max. power consumption	10 W
Galvanic isolation	No
Memory backup	Built-in Li-lon accumulator
	(500 hours)
	Holder for CR2032 lithium battery
	(20 000 hours)

CP-1005, CPU, ETH100/10, 1 × RS-232, 1 × SCH, 6 × Al/DI, 2 × AO, 6 × RO 230 V/3 A, 1 × ClB, prg. Mosaic CP-1015, CPU+LCD4 × 20, ETH100/10, 1 × RS-232, 1 × SCH, 6 × Al/DI, 2 × AO, 6 × RO 230 V/3 A, 1 × ClB, prg. Mosaic CP-1015

CP-1005



Basic modules with 29 I/O for use in HVAC

Туре	DI	RO	AI	AO	Comm
CP-1006	1 × DI/HSC	2×SSR	13×AI/DI	2×AO	Ethernet 10/100,
CP-1016	1 × DI/230 VAC	10×RO			RS-232, 1 × optional interface, TCL2, CIB,
					optionally RFox

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Type CP-1016 is expanded with built-in display 4 × 20 characters and 6 keys. Available code pages: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek), CP 1255 (Hebrew).
- Powerfull central module with integrated universal inputs and with analog, triac and relay outputs.
- Each of 13 universal inputs may be alternatively used as an analog or digital input of potential free contact.
- Several inputs (AI6 AI12) may be used as current inputs 4(0)÷20 mA, the range is set by jumper. Other inputs may be configured for one of ranges Ni1000, Pt1000, OV1000. The range of measurement is set as user configuration.
- 2 SSR (Solid State Relay) outputs usable for PWM (Pulse Width Modulation).
- Memory expandable by SD/SDHC/MMC cards, built-in file system compatible with FAT32.
- Built-in clocks and calendar.

Connection example

- No. of I/O is expandable up to 149 I/O, resp. up to 10 modules on high speed system serial bus TCL2 (345 kbps).
- Other I/O can be expanded also by 2 wire electrical installation bus CIB (19.2 kbps). Maximum total number of CIB branches is 9.

- On terminals CIB+ and CIB- is powered bus (max. current 100 mA).
- Optional connection of up to 4 RFox masters RF-1131 via TCL2. Radio channel 868.35 MHz.
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.
- Free programmable PLC according IEC EN 61131-3.
- On-line programming during operation.
- Programming and data communication (in LAN, WiFi, WAN, Internet) is available on Ethernet port (100 Mbps) with fixed IP address or DHCP.
- Up to 3 serial ports, 1 RS-232, other with optional interface from line MR-01xx (up to 345 kbps), configurable UART. Other 6 with additional communication modules SC-1101 and SC-1102.
- Built-in PROFIBUS DP Master, Modbus RTU/TCP slave, BACnet slave on Ethernet port.
- Built-in web server, free creation of user internal web site stored on memory card (XML technology).
- Enables to create web page of any connected controlled object.
- Enables to create web page of any connected controlled object.
- May be used as a programmable converter of communication protocols.
- Compact form-factor for DIN rail mounting (9 modules width) for standard circuit breaker cabinets.

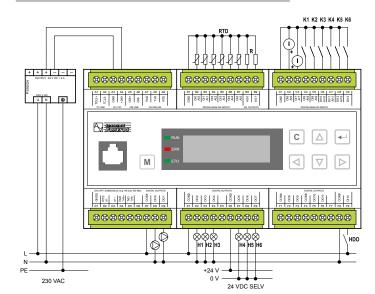


CP-1016

Related products



Communication submodules MR-01xx



Features of CPU

CPU	32 bit RISC processor
PLC Instruction cycle	0.2 ms/1k instructions
Real Time Clock (RTC)	Yes
Backup period of RAM and RTC	500 hours without battery 20 000 hours with battery
User program memory	192+64 kB
Program memory backup	Yes
Internal data memory (DataBox)	0.5 MB
Archive memory for the project resource files	2 MB
Memory card slot	Yes, MMC/SD, SDHC
Memory for variables	64 kB/32 kB remanent
No. of IEC timers/counters	4096/8192

Communication

Communication	
Ethernet;	1×10/100BaseT;
supported protocols	TCP/IP, UDP, HTTP; SMTP; MODBUS/ TCP, BACnet, IEC 60870-5-104
Serial ports	1 × RS-232; 1 × free slot for optional interface (see submodules MR-0xxx)
System I/O bus	1×TCL2 (RS-485, 345 kbit/s)
Communication over expansion module na TCL2	CIB, RFox, MP-Bus, OpenTherm
Installation bus	1×CIB (Common installation bus 19.2 kbit/s)



CP-1006

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CP-1016

Universal inputs	(DI0/AI0-DI12/AI12)
No. of inputs	13
Configurable inputs	Resistance measurement/Current measurement at digital input (see separate table)
Common wire	minus (GND)
Galvanic isolation	No

Function Analog inputs (AI0–AI12) Resolution 12 bit **Conversion time** 50 µs/1 input Sample repetition period 650 µs Protection type integrated, overvoltage Current Input impedance 100Ω Input range 0 ÷ 20 mA (Al6–Al12) 4 ÷ 20 mA (Al6–Al12) ± 0.4% of full range Max. error at 25 °C +50 mA (between AI and GND) Permissible overvoltage Detection of open input circuit Yes, in status word Resistance Temperature Detectors (RTD) Input impedance $> 4 \,\mathrm{k}\Omega$ Pt1000 1.385 (-90 ÷ +270 °C) Input range Pt1000 1.391 (-90 ÷ +270 °C) Ni1000 1.617 (-60 ÷ +155 °C) Ni1000 1.500 (-60 ÷ +155 °C)

	NITUUU 1.500 (-00 - +155 C)
	KTY81-121 (−55 ÷ 125 °C)
	OV1000 (0 ÷ 1000 Ω)
Max. error at 25 °C	± 0.5 % of full range
Allowed overload	–20 ÷ 30 (between Al and GND)
Sensor disconnection	Yes, in status word
detection	

Digital input type	(DI0-DI12)
Type of binary input	potential free contact
	(do not connect 24 V DC!!!)
Input voltage for log. 0 (UL)	min. 2.3 V, max. 12 V
Vstupní Voltage for log. 1 (UH)	min. 0 V, max. 1 V
Input current for log. 1 (IH)	typ. –1.7 mA
Delay 0 -> 1/1 -> 0	1 ms/1 ms

High speed counter	DI13
No. of counting inputs	1
Input Frequency/	5 kHz
Pulse width	min. 50 µs
Delay 0 -> 1/1 -> 0	10 µs/10 µs
Range	max. 32 bit;
	0 ÷ 4 294 967 295
Modes	counter, pulse lenght measurement

Digital input 230 V AC, (DI14)

Galvanic isolation	Yes, 4 kV
Input voltage for log.0 (UL)	max. 120 V AC
Input voltage for log.1 (UH)	min. 200 V AC;
Input current for log.1 (IH)	typ. 5 mA
Delay 0 -> 1/1 -> 0	10 ms/10 ms

Operating conditions

Operating temperature	-20 ÷ +55 ℃
Storage temperature	-25 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	
Degree of pollution IEC EN 60664–1:2004	1
Working position	vertical
Installation	on DIN rail
Connections	Screw terminals
Conductors cross-section	max. 2.5 mm ²

SSR outputs (S

Time switching on/off contact

(Solid State Relay)	(DO0-DO1)
No. of outputs	2
Galvanic isolation	Yes
Type of output	Semiconductor switch, controlled, switch in 0
Switched voltage	min. 20 V AC, max. 260 V AC
Switched current	min. 5 mA; max. 1 A
Short-term output overload	max. 1 A
Current through joint terminal	max. 2 A

Switching frequency without load max. 400 switching/min.

typ. 1 µs

Relay outputs (DO2-DO11) No. of outputs 3+3+2+ 2 = 10 Galvanic isolation Yes (even groups each other) Type of contact/type of output Switching relay, protection free output Switched voltage min. 5 V; max. 250 V AC Switched current min. 10 mA; max. 3 A Short-term output overload max. 4 A Current through common wire max. 10 A Time of close/open the contact typ. 10 ms/4 ms Threshold limits of switched loads for resistive load max. 3 A at 30 V DC or 230 V AC for inductive load DC13 max. 3 A at 30 V DC max. 3 A at 230 V AC for inductive load AC15 Switching frequency without load max. 300 switching/min. Switching frequency with rated max. 20 switching/min. load Mechanical/Electrical lifetime at min. 5 mil./100 000 cycles max. load Short-circuit protection No Spike suppressor of inductive External. (RC, varistor, diode) load Insulation voltage 3750 V AC

Analog outputs	(AO0-AO1)
No. of outputs	2
Type of output	Active voltage output
Common wire	minus (GND)
Galvanic isolation	No
Resolution	10 bit
Conversion time	10 μs/output
Max. output Current	10 mA
Output range	0 ÷ +10 V
Max. error at 25 °C	±2% of full range
Protection type	integrated overvoltage
Permissible overvoltage	±20 V (Al against GND)

Dimensions and weight

Dimensions and weight	
Dimensions	158×92×63 mm
Weight	250 g

Dowor cupply

Power supply	
Power supply voltage (SELV)	+24 V DC
Allowed range	-15% ÷ +25% (20.4 ÷ 30 V DC)
Max. power consumption	10 W
Galvanic isolation	No, only relay output and CH2
Memory backup	Built-in Li-lon accumulator
	(500 hours)
	Lithium battery CR2032 holder
	(20,000 hours)

Order number

TXN 110 06	CP-1006, CPU, ETH100/10, 1 × RS232, 1 × SCH, 13 × AI/DI, 1 × DI/230 V, 1 × HSC, 2 × AO, 10 × RO, 2 × SSR, 1 × CIB, prg. Mosaic
TXN 110 16	CP-1016, CPU+LCD4 × 20, ETH100/10, 1 × RS232, 1 × SCH, 13 × AI/DI, 1 × DI/230 V, 1 × HSC, 2 × AO, 10 × RO, 2 × SSR, 1 × CIB,
	prg. Mosaic



PLC Tecomat Foxtrot – basic modules

Basic module with 28 I/O for use in HVAC

Туре	DI	DO/RO	AI	AO	Comm
CP-1008 CP-1018	1 × DI/230 VAC	4×SSR 7×RO	10×AI/DI 2×AI	4×AO	Ethernet 10/100, RS232, 1 × optional interface, TCL2, CIB, optionally RFox

module C-BS-0001M).

RS-485 bus.

address or DHCP.

ters of CIB bus CF-1141.

SC-1102.

profile.

object.

protocols.

consumption is less than 100 mA, there is not need to use

More PLC Tecomat can be networked by Ethernet LAN or by

Programming and data communication (in LAN, WiFi, WAN,

Up to 3 serial ports, 1 RS-232, other with optional interface

6 with additional communication modules SC-1101 and

Optional connection of RFox master RF-1131 via TCL2. Radio

channel 868.35 MHz (max. $4 \times$), may be combined with mas-

Built-in PROFIBUS DP Master, Modbus RTU/TCP slave, BACnet

slave on Ethernet port, IEC 60870-5-104 as payed application

Built-in web server, free creation of user internal web site

Enables to create web page of any connected controlled

May be used as independent programmable datalogger

May be used as a programmable converter of communication

Compact form-factor for DIN rail mounting (9 modules width)

stored on memory card (XML technology).

for any measured or internal values.

for standard circuit breaker cabinets.

Internet) is available on Ethernet port (100 Mbps) with fixed IP

from line MR-01xx (up to 345 kbps), configurable UART. Other

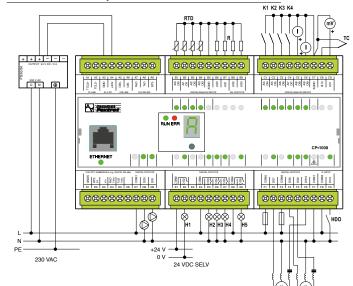
Free programmable PLC according IEC EN 61131-3.

On-line programming during operation.

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Powerfull central module with integrated mostly universal inputs (digital or analog) and with analog, relay and SSR outputs.
- Type CP-1018 is expanded with built-in display 4 × 20 characters and 6 keys. Available code pages: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek), CP 1255 (Hebrew)..
- Each of 10 universal inputs may be alternatively used as analog or digital input (potential free contact).
- 4 of 10 universal inputs may be used as current inputs 4(0)÷20 mA, the range is set by jumper. Other inputs may be configured on one of ranges Ni1000, Pt1000, OV1000. The range of measurement is set as user configuration.
- Other 2 analog inputs may be used for connecting of thermocouples, or for voltage measurement in range 0-2 V.
- 6 standard 3 A relay outputs and 1 10 A output.
- 4 SSR (Solid State Relay) outputs for use of pulse control (PWM).
- Memory expandable by SD/SDHC/MMC cards, built-in file system compatible with FAT32.
- Built-in clocks and calendar.
- No. of I/O is expandable up to 148 I/O, resp. up to 10 modules on high speed internal serial bus TCL2 (345 kbps).
- Other I/O can be expanded also by 2 wire installation bus CIB (19.2 kbps). Maximum number of CIB branches is 9.
- On terminals CIB+ and CIB- is powered bus when current

Connection example



Features of CPU

CPU	32 bit RISC processor
PLC Instruction cycle	0.2 ms/1k instructions
Real Time Clock (RTC)	Yes
Backup period of RAM and RTC	500 hours without batteries
	20 000 hours with batteries
User program memory	192+64 kB
Program memory backup	Yes
Internal data memory (DataBox)	0.5 MB
Archive memory for the project resource files	2 MB
Memory card slot	Yes, MMC/SD, SDHC
Memory for variables	64 kB/32 kB remanent

Communication	
Ethernet;	1 × 100/10 Mbit/s; TCP/IP, UDP,
supported protocols	HTTP; SMTP; MODBUS/TCP,
	BACnet, IEC 60870-5-104
Serial ports	1×RS232;1×free slot, optional
	interface (see submodules MR-0xxx).
System I/O bus	1 × TCL2 (RS485, 345 kbit/s)
Communication over expansion	8 × CIB, 4 × RFox, MPbus,
module	Opentherm, GSM/SMS, GPRS
Installation bus	1 × CIB (19.2 kbit/s)
	(Common installation bus)



Related products



Communication submodules MR-01xx



0
- C.
×.

Universal inputs	(DI0/AI0-DI9/AI9)
No. of inputs	4+6
Configurable inputs	Voltage measurement/
	resistance measurement/current
	measurement at digital input see
	separate table
Common wire	minus (AGND)
Galvanic isolation	No

Measurement ranges

Current	
Input impedance	100 Ω
Input range	0 to 20 mA (Al4-Al9)
	4 to 20 mA (Al4-Al9)
Max. error at 25 °C	±0.4% of full range
Permissible overload	+50 mA (between AI and AGND)
Detection of open input circuit	Yes in status word
Resistance Temperature Detectors	

RTD)	
Input impedance	> 4 kΩ
Input range	Pt1000 1.385 (-90 až +270°C) Pt1000 1.391 (-90 až +270°C) Ni1000 1.617 (-60 až +155°C) Ni1000 1.500 (-60 až +155°C)
	KTY81-121 (-55 až +125°C) NTC 12k (-40 to +125°C) (only Al4-Al9) 0 to 2000 Ω 0 to 200 kΩ (only Al4-Al9)
Max. error at 25 °C	±0.5% of full range
Permissible overvoltage	–20 to +30 V (between AI and AGND)
Sensor disconnection detection	Yes, in status word

Function analog inputs (AI10-AI11)

Resolution	12 bit
Conversion time	50 μs/1 input
Period of measurement	650 μs
Protection type	integrated, overvoltage

Measurement ranges

	-
Voltage	
Input impedance	> 1 GΩ
Input range	0+2V
	0 +1 V
	–20 +100 mV
	–20 +50 mV
Thermocouples	J −210 to +1200 °C
	K −200 to +1372 °C
	R - 50 to +1768 °C
	S − 50 to +1768 °C
	T -200 to + 400 °C
	B +250 to +1820 ℃
	N −200 to +1300 °C
	lambda sensor 2.85 to 21.21 %
Max. error at 25 °C	±0.4% of full range
Allowed overload	-20 to + 30 V (mezi Al and AGND)

Function Digital inputs (DI0-DI9)

1.0.1.1
max. 12 V
iax. 1 V
ιA

Digital input 230 V AC	(DI10)
Galvanic isolation	Yes, 4 kV
Input voltage for log.0 (U_L):	max. 120 V AC
Input voltage for log.1 (U _H):	min. 200 V AC
Input current for log.1 (I _H):	typ. 5 mA
Delay0 -> 1/1 -> 0:	10 ms/10 ms

Analog outputs (AO0-AO3)

No. of outputs	4
Common wire	minus (AGND)
Galvanic isolation	No
Resolution	8 bit
Conversion time	10 μs/output
Max. output current	10 mA
Output range	0 to +10 V
Max. error at 25 °C	±2% of full range
Protection type	integrated overvoltage
Permissible overvoltage	±20 V (AI against AGND)

SSR outputs

Relay outputs

Galvanic isolation

Switched voltage

Switched current

No. of outputs/groups

(Solid State Relay)	
No. of outputs	
Galvanic isolation	
Type of output	
Switched voltage	
Switched current	

Current through common wire Time of close/open the contact

Type of contact/type of output

Short-term output overload

for resistive load

at maximum load Short-circuit protection

Insulation voltage

load

Current through common wire

Time of close/open the contact

for inductive load DC13

for inductive load AC15

Switching frequency with load

Mechanic/electric service life

Spike suppressor of inductive

Threshold limits of switched loads

(DO0-DO1)

(DO2-DO5)

4/2 (1+3)

output

max. 4 A

max. 10 A

No

Switching frequency without load max. 300 switching/min.

typ. 10 ms/4 ms

max. 3 A at 30 V DC max. 3 A at 230 V AC

max. 20 switching/min.

min. 5 mil/100 000 cycles

3750 V AC (for details see

documentation TXV 004 11)

External. (RC unit, varistor, diode)

2
Yes (also among groups)
Semiconductor switch, controlled,
switching in 0
max. 260 V AC
min. 5 mA; max. 0.7 A
max. 2 A
typ. 1 μs

Yes (even groups each other)

min. 5 V; max. 250 V

min. 10 mA; max. 3 A

Switching relay, protection free

max. 3 A at 30 V DC or 230 V AC





CP-1018

F	Relay output	(DO6)
Galv	anic isolation	Yes
Туре	of contact/type of output	Switching relay, protection free output
Swite	ched voltage	min. 5 V; max. 250 V
Swite	ched current	min. 10 mA; max. 10 A
Shor	t-term output overload	max. 15 A
Time	of close/open the contact	typ. 10 ms/4 ms
Swite	ching frequency without load	max. 60 switching/min.
Swite	ching frequency with load	max. 6 switching/min.
	hanic/electric service life aximum load	min. 5 mil/100 000 cycles
Shor	t-circuit protection	No
Spike load	e suppressor of inductive	External. (RC unit, varistor, diode)
Insul	ation voltage	3750 V AC (for details see documentation TXV 004 11)

SSR outputs

- SSR Outputs	
(Solid State Relay)	(DO7, DO8)
No. of outputs	2
Galvanic isolation	Yes (for details see documentation of TXV 004 11)
Type of output	Semiconductor switch, controlled, switching in 0)
Switched voltage	max. 260 V AC
Switched current	min. 50 mA; max. 4 A
Time of close/open the contact	typ. 1 μs

Relay outputs	(DO9, DO10)
No. of outputs	1+1 (switching)
Galvanic isolation	Yes (for details see documentation of TXV 004 11)
Type of contact/type of output	Switching relay, unprotected output
Switched voltage	min. 5 V; max. 250 V
Switched current	min. 10 mA; max. 3 A
Short-term output overload	max. 4 A
Time of close/open the contact	typ. 10 ms/4 ms
Switching frequency without load	max. 300 switching/min.
Switching frequency with load	max. 20 switching/min.
Mechanic/Electric service life with maximum load	min. 5 mil/100 000 cycles
Short-circuit protection	No
Spike suppressor of inductive load	External (RC, varistor, diode)







CP-1018

Operating conditions

Operating temperature	−20 +55 °C
Storage temperature	–25 +70 ℃
Electric strength	according EN 60950
IP Degree of protectionIEC 529:	IP 20
Overvoltage category	1
Pollution degree IEC EN	1
60664-1:2004	
Working position	vertical
Installation	on DIN rail
Connections	Screw connectors
Conductors cross-section	max. 2.5 mm ²

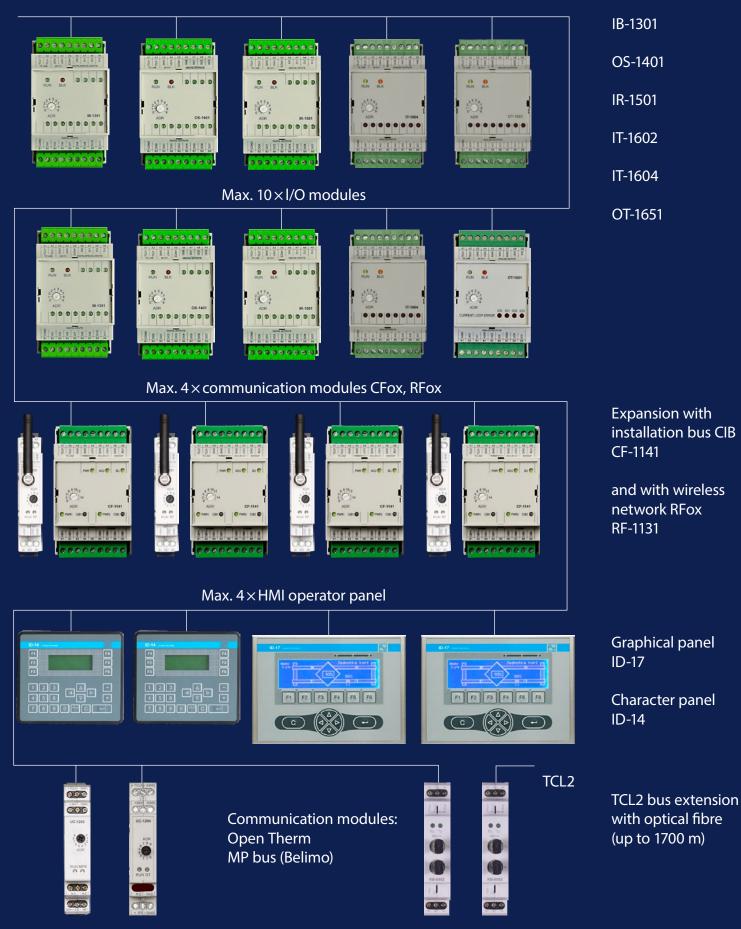
Dimensions	158×92×63 mm
Weight	250 g

Power supply voltage (SELV)	+24 V DC
Allowed range	-15% +25% (20.4 30 V DC)
Max. power consumption	10 W
Galvanic isolation	No, only relay outputs, DI10 and CH2
Memory backup	Built-in Li-lon accumulator (500 hours). Lithium battery CR2032 holder (20 000 hours)

Order number	
TXN 110 08	CP-1008, CPU, ETH100/10, 1 × RS232, 1 × SCH, 10 × Al/DI, 2 × Al, 1 × DI, 4 × AO, 7 × RO, 4 × SSR, 1 × CIB, prg. Mosaic
TXN 110 18	CP-1018, CPU+LCD4 × 20, ETH100/10, 1 × RS232, 1 × SCH, 10 × Al/Dl, 2 × Al, 1 × Dl, 4 × AO, 7 × RO, 4 × SSR, 1 × CIB, prg. Mosaic



TCL2 - system bus, RS-485, 345 kbit/s, max. 400 m



PLC Tecomat Foxtrot – expansion modules

Expansion module with binary inputs

Туре	DI	RO	AI	AO	Comm
IB-1301	12×DI (4×HSC)				TCL2

Basic features

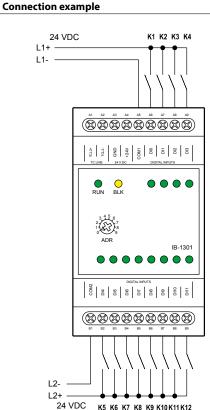
- Expansion module with 12 binary inputs for enlarging I/O number of the PLC Foxtrot basic modules.
- Module is for connecting up to 12 input signals at the 24 V DC level with the common wire.
- All inputs are individually configurable.
- 4 inputs (DI0–DI3) are high-speed with the low pass filter 5 µs and can be configured for special functions identical with high speed inputs on basic module CP-1004.
- Special functions are: one or two way counters, counters with control, position incremental encoder, period and phase shift measurement up to 5 kHz and the latch for short spikes min. 50 µs.
- Status of the inputs is indicated by LED on the front panel.

Connecting

- Compact form-factor for DIN rail mounting (3 modules width) for standard circuit breaker cabinets.
- Module can be connected to the central module directly on the distance up to 400 m by shielded twisted pair (TCL2). Using the converter KB-0552 the distance can be enlarged by fibre optic up to 1.7 km!
- Unique address of the module on TCL2 expansion bus must be set manually by the rotary switch on the front panel.
 Power supply, TCL2 and I/O are connected by removable
- screw connector.

Use

- As local I/O as well as remote I/O of Tecomat Foxtrot PLC for sensing discrete sensors and switches at the 24 V DC level.
- For sensing high speed impulses up to 5 kHz.
- For sensing position incremental encoder can be connected to the module.



Operating conditions

Operating temperature	−20 ÷ +55 °C
Storage temperature	–25÷70 ℃
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 10B
Overvoltage category	11
Degree of pollution IEC EN 60664-1:2004	1
Working position	vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	max. 2.5 mm ²

Digital inputs (DI0-DI11) No. of inputs in groups 8 and 4 **Option: High speed counter** 4 (DI0-DI3) minus and plus Common wire Galvanic isolation Yes Input voltage for log. 0 (UL) 0 V DC; (-5 ÷ +5 V DC) Input voltage for log. 1 (UH) +24 V DC; (+15 ÷ +30 V DC) Input current for log. 1 (IH) typ. 10 mA (DI0-DI3), typ. 5 mA Delay 0 -> 1/1 -> 0 5 µs/5 µs (DI0-DI3) 5 ms/5 ms (DI4–DI11)

High speed counters	(DI0-DI3)		
No. of counting inputs	4		
Input frequency/Pulse width	5 kHz/min. 50 μs		
Delay 0 -> 1/1 -> 0	5 μs/5 μs		
Range	max. 32 bit; 0 ÷ 4 294 967 295		
Modes	One, two way counter, encoder, pulse and period measuring		

Communication System I/O bus

1×TCL2 (RS-485, 345 kbit/s)

Dimensions and weight

Dimensions	52×92×63mm
Weight	105 g

Power supply

- i owci suppiy		
Power supply voltage (SELV)	+24 V DC	
Allowed range	-15 % ÷ +25 % (20.4 ÷ 30 V DC)	
Max. input power	2.5 W	
Galvanic isolation	No	



IB-1301, 12×DI 24 VAC/DC, galvanic isolation



.........

9099999999

IB-1301

PLC Tecomat Foxtrot – expansion modules

Expansion module with binary outputs

Туре	DI	DO	AI	AO	Comm
OS-1401		12×DO			TCL2

Basic features

- Expansion module with 12 semiconductor outputs for enlar-• ging I/O number of the PLC Foxtrot basic modules.
- Module is used for connecting loads at 24 V DC. Switching current is 4×2 A per output and 8×0.5 A per output.
- Galvanic isolation of outputs.

Connection example

24 VDC

(X

H5

L+

Ŀ

Status of the outputs is indicated by LED on the front panel. •

Connecting

- Compact form-factor for DIN rail mounting (3 modules width) for standard circuit breaker cabinets.
- Module can be connected to the basic module directly on the distance up to 400 m by shielded twisted pair (TCL2). Using the converter KB-0552 the distance can be enlarged by fibre optic up to 1.7 km!
- Unique address of module on TCL2 expansion bus must be set manually by the rotary switch on the front panel.
- Power supply, TCL2 and I/O are connected by removable screw connector.

Use

- As local I/O as well as remote I/O of Tecomat Foxtrot PLC.
- For switching loads by semiconductor at 24 V DC level.

(DO0-DO11) 12 Yes Transistor

9.6-28.8 V DC

max. 2 A ((DO0–DO3)) max. 0.5 A (DO4-DO11)

max. 9 A (DO0-DO11)

Plus

ble	Binary outputs
	No. of outputs
	Galvanic isolation
	Type of output
	Common wire
	Switched voltage
	Switched current
	Current through joint terminal
A1 A2 A3 A4 A5 A6 A7 A8 A9	Cut-off current
(888888888)	Time of close/open the contact
1α.3+ 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 100	Short-circuit protection/Short circuit current limitation
TC LINE 24 V DC DIGITAL OUTPUTS	Reversing of polarity protection
RUN BLK	Spike suppressor of inductive load
3 4 5 6 2 (5) 7 1 (5) 7 0 0 ADR	Communication
OS-1401	System I/O bus
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
888888888	

max. 4.4 A (DO0-DO3) <300 µA the contact 400 µs/400 µs tion/Short Yes/<4 A ntion y protection Yes inductive External RC, varistor or diode snubber

m I/O bus	1×TCL2 (RS-485, 345 kbit/s)
	•

Operating conditions

Operating temperature	-20 ÷ +55 ℃
Storage temperature	-25 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 10B
Overvoltage category	11
Degree of pollution IEC EN 60664-1:2004	1
Working position	vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	max. 2.5 mm ²

H7 H6

H9 H11 H8 H10 H12

Weight 100 g

Dimensions and weight

Dimensions

Power supply	
Power supply voltage (SELV)	+24 V DC
Allowed range	-15% ÷ +25% (20.4 ÷ 30 V DC)
Max. input power	2.5 W
Galvanic isolation	No

52×92×63 mm

Order number

TXN 114 01

OS-1401, 12×DO 24 VDC, 8×0.5 A, 4×2 A, galvanic isolation

OS-1401

-----1 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11) 2 (11)

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Expansion module with binary inputs and relay outputs

Туре	DI	RO	AI	AO	Comm
IR-1501	4×DI	8×RO			TCL2

Basic features

- Expansion module with 4 binary inputs and 8 relay outputs for enlarging I/O number of the PLC Foxtrot basic modules.
 Inputs are individually configurable.
- 4 inputs dr (Dl0-Dl3) are high-speed with the low pass filter 5 μs and can be configured for special functions identical with high speed inputs on the basic module CP-1004.
- Special functions are: one or two way counters, counters with control, position incremental encoders, period and phase shift measurement up to 5 kHz and latch for short spikes min. 50 µs.

К1 К2 К3 К4

IR-1501

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(DI0-DI03)

minus/plus

typ. 10 mA

-20 ÷ +55 ℃

-25 ÷ +70 ℃

IP 10B

vertical

on DIN rail

screw terminals

max. 2.5 mm²

Ш

2

according EN 60950

0 V DC; (-5 ÷ +5 V DC)

5 µs/5 µs (DI0–DI3)

+24 V DC; (+15÷ +30 V DC)

4×1 4 (DI0–DI3)

Yes

Galvanic isolation of inputs and outputs.

Connection example

24 VDC L+ _____

 Status of the inputs and outputs is indicated by LED on the front panel.

Connecting

- Compact form-factor for DIN rail mounting (3 modules width) for standard circuit breaker cabinets.
- Module can be connected to the central module directly on the distance up to 400 m by shielded twisted pair (TCL2). Using the converter KB-0552 the distance can be enlarged by fibre optic up to 1.7 km!
- Module address on TCL2 expansion bus must be set manually by the rotary switch on the front panel.
- Power supply, TCL2 and I/O are connected by removable screw connector.

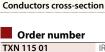
Use

- As local I/O as well as remote I/O of PLC Tecomat Foxtrot
- For switching loads by relay contacts for 24 V DC or 230 V AC level.
- For sensing discrete sensors and switches at the 24 V DC level.
- For sensing high speed impulses up to 5 kHz.
- For sensing position incremental encoders.

No. of counting inputs	4
Input Frequency/Pulse width	5 kHz/min. 50 μs
Delay 0 -> 1/1 -> 0	5 μs
Range	max. 32 bit; 0 ÷ 4 294 967 295
Modes	One, two way counter, encode pulse and period measuring
Relay outputs	(DO0-DO7)
No. of outputs × groups	8×1
Galvanic isolation	Yes
Type of contact/type of output	Electromechanical relay,
,	non-protected output
Switched voltage	min. 5 V; max. 250 V
Switched current	min. 100 mA; max. 3 A
Short-term output overload	max. 4 A
Current through joint terminal	max. 10 A
Time of close/open the contact	typ. 10 ms/4 ms
Threshold limits of switched loads	
for resistive load	max. 3 A /30 V DC nebo 230 V AC
for inductive load DC13	max. 3 A /30 V DC
for inductive load AC15	max. 3 A /230 V AC
Switching frequency without load	
Switching frequency with rated load	max. 20×/min.
Mechanical/Electrical lifetime at max. load	min. 5 mil/100 thous. cycles
Short-circuit protection	None
Spike suppressor of inductive	External RC, varistor or diode
load	snubber
Insulation voltage	3750 V AC/3750 V AC

Power supply

+24 V DC
-15% +25% (20.4 ÷ 30 V DC)
3 W
No



N PE

Digital inputs

Common wire

Galvanic isolation

Delay 0 -> 1/1 -> 0:

Storage temperature

Overvoltage category

Degree of pollution IEC EN

Electric strength

60664-1:2004

Installation

Connections

Working position

No. of inputs × groups

Option: High speed counter

Input voltage for log. 0 (UL)

Input voltage for log. 1 (UH)

Input current for log. 1 (IH)

Operating conditions Operating temperature

IP Degree of protectionIEC 529

230 VAC

IR-1501, 4 × DI 24 V AC/DC, 8 × RO, common wire, 230 V/2 A, galvanic isolation



IR-1501

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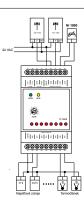
Expansion modules with analog inputs and outputs

Тур	DI DI	DO	AI	AO	Comm
IT-1604			0.2.41	2240	TCLO
IT-1602			8×AI	2×AO	TCL2

Basic features

- Modules with combination of analog galvanic isolated inputs and outputs (AI/AO).
- IT-1604 is designed for 16 bit current, voltage and resistance . /RTD measurement. Built-in reference voltage supply.
- IT-1602 is designed for 16 bit thermocouples measurement . and low voltage measurement.
- Inputs are independent configurable.
- Type and range of measurement is set in user configuration.
- Built-in temperature sensor linearisation and correction of .
- cold end thermocouple correction. Analog voltage outputs, 10 bit
- Output value provided in binary code, in % of range or direct-•

Connection example



Communication

System I/O bus

1 ×TCL2 (RS-485, 345 kbit/s)

Analog inputs	(AI0–AI7)
No. of inputs × groups	8×1
Configurable inputs	Voltage measurement/
	resistance measurement/current
	measurement at binary input see
	separate table
Common wire	minus (AGND)
Galvanic isolation	Yes
Resolution	16 bit
Conversion time	65 ms/(IT-1604), 100 ms (IT-1602)
Sample repetition period	500 ms
Protection type	integrated, overvoltage

Analog outputs

Common wire minus (AGND Galvanic isolation Yes Resolution 10 bit Conversion time 10 µs/output	_
Galvanic isolation Yes Resolution 10 bit Conversion time 10 µs/output)
Resolution10 bitConversion time10 μs/output	
Conversion time 10 µs/output	
Output range 0 ÷ +10 V (IT-1	604), +-10 V (IT-1602)
Max. error at 25 °C ±2% of full rate	nge
Protection type integrated, ov	ervoltage
Allowed overload ±20 V (Al agai	

Operating conditions

Operating temperature	-20 ÷ +55 ℃
Storage temperature	-25 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 10B
Overvoltage category	1
Degree of pollution IEC EN	1
60664-1:2004	
Working position	vertical
Installation	on DIN rail
Connections	connector/screw terminals
Conductors cross-section	max. 2.5 mm ²

ly in volts.

• Overload or disconnecting on input (only for 4 – 20 mA range) is indicated on front panel.

Connection

- Module designed for DIN rail mounting for standard circuit breaker cabinets.
- Module can be connected to the central module directly on the distance up to 400 m by shielded twisted pair (TCL2). Using the converter KB-0552 the distance can be enlarged by fibre optic up to 1.7 km!
- Unique module address on TCL2 expansion bus must be set manually by the rotary switch on the front panel.
- Power supply, TCL2 and I/O are connected by removable screw connector.

Use

For expand the number of Tecomat Foxtrot basic module I/O. For precise measurement of voltage and current signals and for direct measurement of resistance sensors and thermocouples.

Measurement ranges IT-1604

Voltage	
Input impedance	> 100 kΩ (0,5 V, 1 V; 2 V)
	> 50 kΩ (5 V; 10 V)
Input range	0 ÷ +10 V; 0 ÷ +5 V
	0 ÷ +2 V ; 0 ÷ +1 V, 0÷0,5 V
Max. error at 25 °C	±0.3% of full range
Permissible overvoltage	±30 V (between AI and AGND)
Current	
Input impedance	100 Ω
Input range	0 ÷ 20 mA; 4 ÷ 20 mA; 0 ÷ 5 mA
Max. error at 25 °C	±0.4% of full range
Allowed overload	+30 mA (between AI and AGND)
Detection of open input circuit	Yes, in status word and by LED
Resistance Temperature Detect	ors (RTD) (RTD)
Input impedance	7.5 kΩ
Input range	Pt100 1.385 (-90 ÷ +400 °C)
	Pt100 1.391 (-90 ÷ +400 °C)
	Pt1000 1.385 (-90 ÷ +400 °C)
	Pt1000 1.391 (-90 ÷ +400 °C)
	Ni1000 1.617 (-60 ÷ +200 °C)
	Ni1000 1.500 (-60 ÷ +200 °C)
	OV1000 (0 ÷ 1000 Ω), OV100
	$(0 \div 100 \Omega), 0 \div 2 k\Omega, 0 \div 200 k\Omega,$
	NTC 12k, KTY81-121
Max. error at 25 °C	± 0.5% of full range
Sensor disconnection detection	Yes, in status word

Measurement ranges IT-1602

Voltage	
Input impedance	> 1 MΩ
Input range	-1 ÷ +1 V; -0.1 ÷ +0.1 V
Max. error at 25 °C	±0.3% of full range
Permissible overvoltage	±35 V (between AI a AGND)
Thermocouples	-
Input impedance	>1 MΩ
Input range	J, K, R, S, B, N, T
Max. error at 25 °C	±0.5% of full range
Sensor disconnection detection	n No

Dimensions and weight

Dimensions	52×92×63 mm
Weight	120 g

Power supply Pov

Power supply voltage (SELV)	+24 V DC
Allowed range	-15% ÷ +25% (20.4 ÷ 30 V DC)
Max. input power	IT-1604 2.5 W; IT-1602 2.5 W
Galvanic isolation	No
	•



IT-1604



IT-1602

Order number TXN 116 04

TXN 116 02

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IT-1604, 8×AI 16 bit,/20 mA/10 V/RTD, 2×AO 10 bit/0÷10 V, galvanic isolation

IT-1602, 8×AI 16 bit,J,K,R,S,B,N,T, ± 1 V 2×AO 10 bit/±10 V, galvanic isolation



27

Expansion module with analog outputs

Тур	DI DI	DO DO	AI	AO	Comm
OT-1651				4×AO (U/I)	TCL2

Basic features

- Module with 4 independent output analog channels, galvanic isolated.
- . Each channel has an outlet both for voltage and at neighboring terminal for current output too.
- Output voltage resolution is 10 bit. .
- Each channel is independently addressed and controlled • in range 0-100% of current range.
- Type and output range is set in user configuration.
- Status is indicated by LED on module. .

Connection

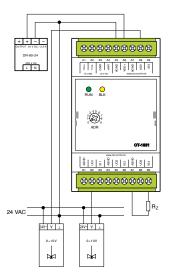
- Module is designed for DIN rail mounting for standard circuit breaker cabinets.
- Module can be connected to the central module directly

- on the distance up to 400 m by shielded twisted pair (TCL2). · Unique module address on TCL2 expansion bus must be set manually by the rotary switch on the front panel.
- Module is power supplied like other modules from 24 V DC power supply, connected to removable screw connector.

Use

• Module is designed for connecting devices controlled by DC voltage or current like frequency drives, proportional valves or light dimmers.

Connection example



Analog outputs (AO0U-AO3U), (AO0I-AO3I)		
No. of outputs	4	
Active voltage/current output		
Common wire	Minus (AGND)	
Galvanic isolation	Yes	
Resolution	12 bit	
Conversion time	10 μs/output	
Napájecí napětí	+V _{AO} 24 V DC	
Max. output current	10 mA	
Output voltage range	0-10V	
Output current range	0–20 mA	
Max. error at 25°C	± 0,3 % of full range	
Protection type	-1 V to (V _{AO} + 1) V	

Operating conditions

Operating temperature	−20 +55 °C
Storage and transport temperature	−25 +70 °C
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP10B
Overvoltage category	П
Pollution degree IEC EN 60664-1:2004	2
Working position	vertical
Installation	on DIN rail
Connections	removable screw type connector, max. 2.5 mm ²

System bus

Communication

1 × TCL2 (RS-485, 345 kbit/s)

Dimensions and weight

Dimensions	52×92×63 mm
Weight	120 g
	•

Power supply modulu

24 V DC
-15 % +25 % (20.4 - 30 V DC)
0.3 W
4.4 W
Yes

Order number TXN 116 51

OT-1651, 4 × AO 12 bit, 0 – 10 V,0 – 20 mA, galvanic isolation



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OT-1651

PLC Foxtrot Communication modules

MR-0115

3×RS-485

(2×DMX512)

Modules for empty slot in basic module



MR-0104 **RS-232**

MR-0152

Profibus DP

slave



MR-0114 **RS-485** (Profibus DP



master)



MR-0161 1×CAN bus

UC-1203

Open

Therm

master



0000000

RS-422

MR-0158

M-bus



MR-0105 2×RS-232 1×RS-485



MR-0106 1×RS-232 2×RS-485 (2×DMX512)



MX-0301 Wiegand

....

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...

1

KB-0552

TCL2/mm

optické





RF-1131

1×RFox

master

Routers - connected via LAN

CF-1141

2×CIB master

UC-1204 1×MP bus Belimo



SX-1162

5× port Tx



105FX

4× port TX

1× port FX



306FX2 4× port TX 2× port FX

vlákno Modules connected via RS-232/RS-485



ER75i V2 Full **GPRS/EDGE** router

UC-1205 GSM gateway

INSYS GSM Small

SX-1181 M-Bus

SMM-33 Multifunctional measurement of 3 phase network

PLC Tecomat Foxtrot

Submodules with communication interface

Туре	DI	DO	AI	AO	Comm
MR-0104					RS-232
MR-0114					RS-485
MR-0124					RS-422
MR-0105					2×RS-232, 1×RS-485
MR-0106					1×RS-232, 2×RS-485
MR-0115					3×RS-485
MR-0152					Profibus DP Slave
MR-0158					M-Bus
MR-0160					2× CAN
MR-0161					1×CAN
MX-0301					Wiegand

Basic features

- Submodules (piggybacks) MR-01xx are designed to be inserted in slot CH2. These submodules can enlarge communication flexibility of the Foxtrot basic modules.
- Selection of interface module is a selection of the physical layer of communication. The higher layers as protocols and communication modes can be set in configuration tool of Mosaic.

Connecting

- Submodules are inserted in the slot which is inside the basic module.
- The basic module has to be opened. The slot is placed on the CPU PCB.
- The module has to be placed on the free pins of slot in proper orientation.
- The signal layout of terminals is a part of documentation of each submodule.

Use

• In all cases where Foxtrot has to be adapted to communicate with other device or with other Foxtrot.

Specification	MR-0104	MR-0105	MR-0106	MR-0115	MR-0114	MR-0124
Interface	RS-232	2×RS-232, 1×RS-485	1×RS-232, 2×RS-485	3×RS-485	RS-485	RS-422
Galvanic isolation (GO)	Yes	Yes	Yes	Yes	Yes	Yes
Insulation voltage GO	1000 V DC	1000 V DC	1000 V DC	1000 V DC	1000 V DC	1000 V DC
Max. comm. rate	200 kBd	200 kBd	200 kBd	2 MBd	2 MBd	2 MBd
Receiver input impedance	Min. 7 kΩ	Min. 7 kΩ	Min. 7 kΩ	Sensitivity ±200 mV	Sensitivity ±200 mV	Sensitivity ±200 mV
Transmitter output level	±8 V	±8 V	±8 V	Typ 3.7 V	Тур 3.7 V	Тур 3.7 V
Max. distance of wiring	15 m	15 m	15 m	1200 m	1200 m	1200 m

Specification	MR-0152	MR-0158	MR-0160/0161	MX-0301
Interface	Profibus DP Slave	M-Bus, Master interface for connection of up to 20 meters (heat etc.)	2×CAN/ 1×CAN	Wiegand
Galvanic isolation (GO)	Yes	Yes	Yes	No
Insulation voltage GO	1000 V DC	1000 V DC	1000 V DC	_
Max. comm. rate	12 MBit/s	9.6 kbit/s	0.5 Mbit/s	-
Receiver input impedance	Sensitivity ±200 mV		+200 mV	TTL
Transmitter output level	Тур 3.7 V	Converter output voltage 36 V/55 mA	Typ 5 V	24 V(max.29 V)/max. 100 mA, open colector
Max. distance of wiring	1200 m (<187 kbit/s)	350 m	100 m	1m

Order numb	ber de la constant de
TXN 101 04	MR-0104, RS-232 with galvanic isolation and with power supply
TXN 101 14	MR-0114, RS-485 with galvanic isolation and with power supply
TXN 101 24	MR-0124, RS-422 with galvanic isolation and with power supply
TXN 101 05	MR-0105 2 × RS-232, 1 × RS-485 with galvanic isolation and with power supply
TXN 101 06	MR-0106 1 × RS-232, 2 × RS-485 with galvanic isolation and with power supply
TXN 101 15	MR-0115 3 × RS-485 with galvanic isolation and with power supply
TXN 101 52	MR-0152, PROFIBUS DP Slave with galvanic isolation and with power supply
TXN 101 58	MR-0158, M-Bus Master pro až 20 stanic Slave with galvanic isolation and with power supply
TXN 101 60	MR-0160, 2 × CAN (SJA1000, Philips) with galvanic isolation and with power supply
TXN 101 61	MR-0161, 1 × CAN (SJA1000, Philips) with galvanic isolation and with power supply
TXN 103 01	MX-0301, connection of Wiegand card reader







MR-0104, RS-232 MR-0114, RS-485 MR-0124, RS-422





MR-0158 M-Bus MR-0161, 2× CAN



MR-0152, Profibus



PLC Tecomat Foxtrot

Submodules with binary inputs and outputs

Туре	DI	DO	AI	AO	Comm
PX-7811	7×DI				
PX-7812	4×DI	3×DO			

Basic features

- Submodules PX-781x are designed to be inserted in slot CH2. These submodules can enlarge number of I/O on the Foxtrot basic module.
- Inserting PX-781x in the slot excludes using the communication interface at the same time.
- For Foxtrot (excluding CP-10×6 and CP-10×8) PX-7811 enables to add 7 binary inputs. PX-7812 enables to add 4 binary inputs and 3 binary outputs.

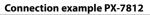
Connecting

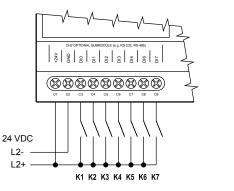
- The basic module must be opened. The slot is placed on the CPU PCB which is at the midaccording inside PCB.
- The module has to be placed on the free pins of slot in proper orientation.

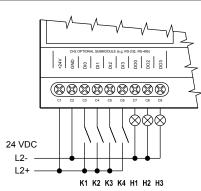
Use

• In case of applications where more I/O are needed and no other serial communication is required.

Connection example PX-7811







PX-7811	PX-7812
81)	4
minus (GND)	minus (GND)
Yes	Yes
0 V DC; (-15 ÷ +5 V DC)	0 V DC; (-15 ÷ +5 V DC)
+24 V DC; (+11 ÷ +30 V DC)	+24 V DC; (+11 ÷ +30 V DC)
typ. 3 mA	typ. 3 mA
5ms/5ms	5ms/5ms
	8') minus (GND) Yes 0 V DC; (-15 ÷ +5 V DC) +24 V DC; (+11 ÷ +30 V DC) typ. 3 mA

1) for Foxtrot can be used 7

Binary outputs	PX-7812
No. of outputs	4 ²)
Galvanic isolation	Yes
Type of output	Transistor, protected output
Common wire	Minus (GND)
Switched voltage	11-30 V DC
Switched current	max. 0.5 A
Current through common wire	max. 2 A
Cut-off current	max. 300 μA
Time of close/open the contact	400 μs/400 μs
Short-circuit protection/ /Short circuit current limitation	Yes, internal/<1.1 A
Reversing of polarity protection	Yes
Spike suppressor of inductive load	External
	(RC circuit, varistor, diode)

²) for Foxtrot can be used 3

Order number	
TXN 178 11	PX-7811, 8 × DI (7 × DI for Foxtrot), 24 V DC, galvanic isolation, autoidentification
TXN 178 12	PX-7812, $4 \times$ DI, $4 \times$ DO ($3 \times$ DO for Foxtrot) 24 V DC/0.5 A, galvanic isolation, autoidentification





MP-Bus and OpenTherm communication

Туре	DI DI	DO DO	AI	AO	Comm
UC-1203					TCL2, MP-Bus
UC-1204					TCL2, OpenTherm

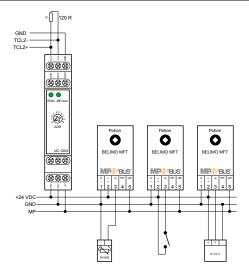
Basic features

- The module UC-1203 is designed for the Tecomat Foxtrot basic module as communication channels expansion by Belimo's company MP-Bus that is used for valve drives and air--condition shutters control.
- MP-Bus is supplied from 24 V DC/AC.
- Up to 8 Belimo MFT drives can be driven by one bus.
- UC-1203 can read 1 temperature sensor (RTD Ni1000, Pt1000, resistance transmitter 1000 Ω) or contact connected to each drive.
- Measured temperature (or contact status) is transferred to the system and it is available as standard analog (binary) input.
- The module **UC-1204** is designed for the Tecomat Foxtrot basic module for bidirectional communication with boilers equipped with OpenTherm interface/protocol.

Supported protocol

both OT/+ (OpenTherm/plus) and OT/- (OpenTherm/Lite).

Connection example UC-1203 (MP-Bus)



Connection

- · Designed for the installation on DIN rail.
- Modules are realized as TCL2 bus communication expansion modules.
- UC-1203 MP-Bus module installation: for recommended cables and lengths see MP-Bus specification (Belimo company manuals)
- UC-1204 OpenTherm module installation: 2-wire cable, not twisted, 50 m at max., cable resistance $2 \times 5 \Omega$, any polarity.

Use

• It can be used in measuring and control tasks and in building management systems (HVAC).

Connection example UC-1204 (OpenTherm)

888

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888

888



UC-1203



UC-1204

Communication	UC-1203	UC-1204
System I/O bus	1×TCL2 (RS-4	185, 345 kbit/s) up to distance
	400 m, witho	ut branches, impedance
	termination	
Installation bus/protocol	MP Bus	OpenTherm

Operating conditions

Operating temperature	−20÷+55 °C
Storage temperature	–25 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	
Degree of pollution IEC EN 60664-1:2004	1
Working position	any
Installation	On DIN rail
Connections	Screw terminals
Conductors cross-section	max. 2.5 mm ²

Dimensions and weight

Dimensions	90×18×65 mm
Weight	75g

Power supply

Power supply voltage	+24 V DC
(SELV)	
Allowed range	-15% ÷ +25% (20.4 ÷ 30 V DC)
Max. input power	2.5 W, (UC-1203), 0.4 W (UC-1204)
Galvanic isolation	Yes

Order number

 TXN 112 03
 UC-1203, MP-Bus – Communication module for Belimo's servodrive connection

 TXN 112 04
 UC-1204, OpenTherm – Communication module for boilers connection



GSM gateway for SMS communication

Тур	DI DI	RO	AI	AO	Comm
UC-1205					RS232/ GSM(SMS)

Basic features

- GSM gateway Quad-band operates in bands 800/900
 and 1800/1900MHz
- Designated for monitoring and commanding of system Tecomat Foxtrot via SMS messages from a mobile phone.
- Fixing on DIN rail with permanent connection by screw terminals.

Connection

- Power supply is connected by screw terminals.
- Serial channel RS-232 is connected by screw terminals.
- SIM card has to be inserted to a slot placed at the front side.
- External antenna can be connected via SMA connector either to directly module or via cable to an optimal place, e.g. outside the switching cabinet.
- Antenna is not a part of the module and has to be ordered separately.

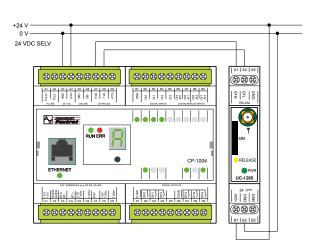
Use

- Module is designated as both direction communication gateway of system Tecomat Foxtrot to GSM networks.
- In parametrization software FoxTool can be set up to 48/32 incoming/outgoing SMS messages, 32 different phone numbers (where to send SMS messages), maximum number of outgoing SMS messages for a chosen time period, etc.
- There is available library function for sending and receiving SMS messages that can be used in programming software Mosaic.
- In Mosaic software we may use module as data modem controlled by AT commands.



UC-1205

Connection example



Communication

Connection to basic module serial	1× RS232
channel	
GSM network	Quad Band
	EGSM 800/900 MHz,
	GSM 1800/1900 MHz

Operating conditions

Operating temperature	−20 +55 °C
Storage temperature	–25 +70 ℃
Electric strength	according EN 60730
IP Degree of protection IEC 529	IP20
Overvoltage category	
Degree of pollution ČSN EN60664-1:2008	1
Working position	Vertical
Installation	On DIN rail
Power supply and RS-232 connection	Screw terminals, diameter of wire max. 4mm ² .

Dimensions and weight

Dimensions	95×65×17,7mm
Weight	70g

Power supply

Power supply and communication	24 V DC
Input power during transmitting	6 W
Internal protection	No

Order number

UC-1205, GSM gateway – bands 800/900, 1800/1900 MHz (quad-band)



PLC Tecomat Foxtrot

TCL2 bus optical interconnection module

Туре	DI	DO	AI	AO	Comm
KB-0552					TCL2 MM Optic Fibre

Basic features

Connection example

- The module is designed for TCL2 bus protocol conversion from metallic wires - RS-485 to the multimode optical fibre and it is conform with the bus transfer speed 345 kbps.
- Using more converters on one TCL2 bus allows to create star . topology which lines are created by optical fibres.

Connection

- The module is connected to the power supply and TCL2 bus by screw-type terminals.
- A pair of optical fibres MM (multimode) is connected by ST connectors. The length of the optical cable is up to 1750 m.

Use

- A pair of KB-0552 modules allows to connect Foxtrot system bus by optical fibres with ST connectors.
- The module is designed for installations where it is necessary to use galvanically separated connection that eliminates electromagnetic disturbance influence, it means mainly for outside installations, industrial plants etc.

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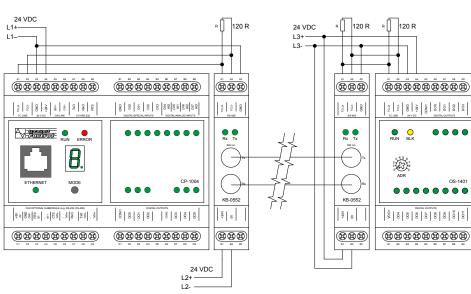
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KB-0552



Communication

System I/O bus	1 ×TCL2 (RS-485, 345 kbit/s)
Communication medium	multimode glass fibre
Optic fibre connection	ST connector
Optical radiation wave length	820 nm
Ultimate operating range of	15 dB, min. 8 dB
62.5/125 mm fibre	
Transmitter optical output	–12 dBm, min. –15 dBm
Total optical output	0.355 mW
Optical power input, log 0" (0 – 70 °C)	−24.0 ÷ −10.0 dBm
Optical power input, log 0" (25 °C)	–25.4 ÷ –9.2 dBm
Optical power input, log 1"	Max. –40 dBm

Optical cables – other parameters

Operating temperature	-40 ÷ 80 ℃
Temperature during installation	0 ÷ 70 °C
Cable attenuation per 1 km of the length	3.5 dBm
Delay given by propagation velocity	5 ns/m
Cable extrinsic diameter (2 fibres)	3 ÷ 6 mm

Operating conditions

-20 ÷ +55 ℃
-30 ÷ +70 ℃
according EN 60950
IP 20
2
any
On DIN rail
Duplex 2 × ST
Screw terminals
max. 2.5 mm ²

Dimensions and weight

Dimensions	90×18×65mm
Weight	75 g
	75 g

+24 V DC
-15% ÷ +25% (20.4 ÷ 30 V DC)
0.25 W
No

Order number TXN 105 52

KB-0552, TCL2 converter to multimode glass optic fibre

Ethernet switch 10/100BaseTX

Туре	DI	RO	AI	AO	Comm
SX-1162					5×10/100BaseTX

Basic features

- 5×UTP ports 10BaseT/100BaseTX according the standard IEEE 802.3.
- Housing designed for the DIN rail installation and into stan-. dard switchboards.
- Can be connected together to create bigger LAN.
- Protocol/functions supported. - All protocols based on Ethernet.
 - Auto-MDIX.
 - Internal table for 2000 MAC addresses.
 - Filter for non-valid packets.
 - Security functions according 802.1x.
 - Protection against broadcast and multicast storm (Port overflow).

Connection

- RJ45 connector for standard UTP CAT5 cables.
- Screw terminals for 24 V DC power supply.

Use

• Switch is designed to create small LAN of devices compatible with 10/100baseTX just centralized in electrical switch board, together with Foxtrot basic modules

Communication

Standard	10/100base TX,
	IEEE 802.3
Number of ports	5×TX

Operating conditions	
Operating temperature	0 ÷ +55 ℃
Storage temperature	-25 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	11
Degree of pollution IEC EN 60664-1:2004	1
Working position	any
Installation	on DIN rail
Connections	5×RJ45
	Power supply: screw terminals
Conductors cross-section	max. 2.5 mm ²

Dimensions and weight

Dimensions and weight		
Dimensions	90×35×58mm	
Weight	75 g	

Power supply

Power supply voltage (SELV)	+24 V DC/40 mA
Allowed range	-15% ÷ +25% (20.4 ÷ 30 V DC)
Max. input power	1 W
Galvanic isolation	Yes, each port



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Ethernet switch 10/100 with ports for optical network

Туре	DI	DO	AI	AO	Comm
105FX					4×10/100BaseTX RJ-45 1×100BaseFX (SC)
306FX2					4×10/100BaseTX RJ-45 2×100BaseFX (SC)

Basic features

- 4×UTP port 10/100BaseTX according IEEE 802.3. standard.
- 1×100BaseFX at type 105FX, optical network.
- 2×100BaseFX u modelu 306FX2, optická síť.
- Robust design in metallic box. Designed for extended range
 of operational temperatures.
- Supported functions.
 - Full/Half Duplex Operations
 - Auto Sensing Duplex,
 - Speed and MDIX
- · Store and Forward technologies.

Connection

- WithRJ45 connector and standard ETH cables UTP CAT5.
- Optical fibre port connection with SC connector.
- Redundant inputs for power supply.
- Power supply 24 V DC input with screw terminals.
- Mechanic design for installation on DIN rail.

Use

- Switches are designed to create LAN network, resp. to connect more devices compatible with 100base TX IEEE 802.3 and also for connection into optical fibre network for 100baseFX. Variants for SingleMode and MultiMode optical fibres are available.
- Switches are designed especially for connection of Foxtrot systems in redundant optical networks Ethernet.

	Communication	105FX	306FX2
T)	(ports (metallic)	4×10/100BaseTX RJ-45,	4×10/100BaseTX RJ-45,
		IEEE 802.3	IEEE 802.3
Fک	(ports (optical)	1 × 100BaseFX (SC)	2×100BaseFX (SC)

Operating conditions	105FX	306FX2
Operating temperature	-40 ÷ +70 ℃	−20÷+70 °C
Storage temperature	-40 ÷ +85 ℃	-40÷+85 ℃
Working position	Any	Any
Installation	on DIN rail	on DIN rail
10BaseT connection	>Cat3 cable	>Cat3 cable
100BaseTX connection	>CAT5 cable	>CAT5 cable
100BaseFX connection	MM 50 ÷ 62.5/125 μm	MM 50 ÷ 62.5/125 μm
	SM 7 ÷ 10/125 μm	SM 7 ÷ 10/125 μm
Power supply connection	screw terminals	screw terminals
Conductors cross-section	max. 2.5 mm ²	max. 2.5 mm ²

Dimensions and weight	105FX	306FX2
Dimensionsy	97×38×120mm	88×51×86mm
Weight	270g	340g

Power supply	105FX	306FX2
Power supply voltage (SELV)	+24 V DC/270 mA	+24 V DC/250 mA
Allowed range	10 ÷ 30 V DC	10 ÷ 30 V DC
Galvanic isolation	Yes, each port	Yes, each port

105FX



306FX2



 Order number

 105FX
 105FX ETH switch, 4×10/100base TX, IEE802.3, 1×100BaseFX, SC, unmanaged

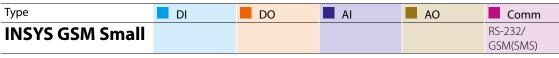
 306FX2
 306FX2 ETH switch, 4×10/100base TX, IEE802.3, 2×100BaseFX, SC, unmanaged

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Communication Modules

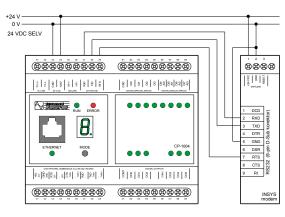
GSM gateway for SMS communication



Basic features

- GSM gateway Dual Band operate in networks 800 and 1800 MHz.
- Designed for monitoring and commanding Foxtrot systems via mobile phone.
- Module is ready for assembly on DIN rail with permanent connection with screw terminals.

Connection example



Connection

- Power supply is connected with screw terminals.
- Serial channel RS-232 is connected with 9 pole DSub connector at front side.
- SIM card is put in slot placed at bottom side.
 External antenna may be connected with FME connector both directly to module or with cable to optimal place, for example outside the installation cabinet.

Use

- Module is designed as bidirectional communication gateway into GSM network for central modules Foxtrot.
- Transmission of messages to Central Safety Guard.
- For Foxtrot system there is available library of functions for receiving and transmitting SMS messages and into program you may enter them in software Mosaic.
 - In Mosaic software the module may be used as data modem controlled by AT commands.

Communication

Connection to central module	1 × RS-232 DSub connector at front side
GSM network	Dual Band EGSM800, GSM1800

Operating conditions

0 ÷ +55 ℃	
−30 ÷ +70 °C	
according EN 60950	
IP 20	
2	
Any	
on DIN rail	
Power supply, screw terminals	
max. 2.5 mm ²	

Dimensions and weight

Dimensions	120×23×75mm
Weight	125 g

Power supply

Power supply voltage (SELV) 12

12 ÷ +24 V DC/80 ÷ 160 mA

INSYS GSM SMall

Order number

INSYS GSM Small, GSM gateway – band 900, 1800 Mhz (dual-band)





PLC Tecomat Foxtrot

M-Bus communication module

Туре	DI DI	DO DO	AI	AO	Comm
SX-1181			1		RS-232, M-Bus

Basic features

- SX-1181 is module for connection of up to 64 devices equipped with interface M-Bus (IEC EN 1434) usually heat measurement etc.
- Power supply RS-232 is 24 V DC/10 mA.
- Power supply of M-Bus part 24 V DC/30 to 150 mA is galvanic isolated with isolation voltage 3 kV. Consumption depends on number of connected devices.

Connection

- Mechanic design suitable for DIN rail assembly.
- Modules are designed for connection to serial channel RS-232 on basic module.
- Interface M-Bus is taken out on screw terminals, see connection example.

Use

- For installations where energy meters with M-Bus interface are becoming part of the project and for collecting and transmitting data over networks M-Bus and Ethernet/Internet.
- Connection of heat meters with integrated interface M-Bus according to EN 1434 (IEC EN 1434) standard.



SX-1181

Communication

IEC EN 60664-1:2004 Working position

Conductors cross-section

Installation

Connections

Connection to central module	RS-232, Tx,Rx
Installation bus/protocol	M-Bus
Transmittion speed	Max 9.6 kBd
Transmitter:	
Output Voltage UMark	typ. 36 V (min.24 V max.40 V)
Output Voltage USpace	typ. 24 V (max. UMark –10 V)
Receiver:	
Data detection – sign	bus current < standby current +6 mA
Data detection – space	bus current > standby current +9 mA

any

on DIN rail

screw terminals

max. 2.5 mm²

Operating conditions	
Operating temperature	-20 ÷ +55 ℃
Storage temperature	-30 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 10B
Overvoltage category	I
Degree of pollution	1

Dimensions and weight

Dimensions	90×36×65mm
Weight	75 g

Power supply

Power supply voltage (SELV)	+24 V DC
Allowed range	18 ÷ 30 V DC
Max. input power	4 W
Galvanic isolation	Yes

Order number



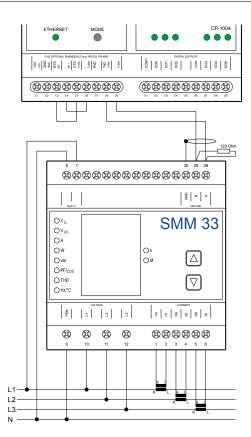
MULTIFUNCTIONAL MEASUREMENT MODULE OF 3 PHASE POWER LINE

Туре	DI	DO	AI	AO	Comm
SMM-33			3×U; 3×I (3 phase power		RS-485
			line)		

Basic features

- Module is designed for measuring and monitoring of basic values in 3 phase power line $3 \times 230 V_{ef}$
- Measured values:
- Phase voltage and current
- Line voltage and current
 Active and reactive power
- Active and reacti
- Power factor
- Total harmonic distorsion (THD) of voltage and current.
 Frequency
- Inputs are designed for direct connection of voltage $3 \times 230 \, V_{ef}$ and separated current inputs up to $5 \, A_{ef}$

Connection example



Connection

- Module is powered from 230V AC.
- Voltage is connected via fuse directly to inputs L1, L2, L3.
 Signals from current transformers are connected to pair of 11 (l, k) 12 (l, k) a 13 (l, k) terminals.
- It is necessary to take care about the orientation of transformers and phase order.
- SMM-33 module is to be connected to the Foxtrot basic module by CH2 equipped with RS-485 inteface submodule.

Use

- For monitoring of 1 and 3 phase power supply network 230 V AC.
- Besides voltage and current you can get value of actual active and reactive power in all phases and this information can be used for automation of connected object. For example for monitoring 1/4 hour maximum.
- For permanent monitoring of power factor and harmonic distortion, whose change may indicate wrong connection of devices.
- In residential buildings measured data can be used for the consumption control to avoid exceeding of maximum current set by house main circuit breaker.

Communication

Serial channel RS-485, protocol MODBUS or KMB protocol Analog inputs Measured voltage 3×5-500 V AC Voltage measurement accuracy $\pm 1\% \pm 1$ diait Connection star Allowed overload/top overload $2 \times / 4 \times < 1s$ Frequency 45–65 Hz 0.02-7 A_A Measured current Current measurement accuracy ±1% ±1 digit Power consumption < 0.25 VA Galvanic isolation Yes Allowed overload 14 A Active power (P_{nom}=230×5 W) Range is limited by range of measured voltage and current ±2%, ±1 digit Active power measurement accuracy Range is limited by range Reactive power (P_{nom}=230×5 VA) of measured voltage and current ±2%, ±1 digit **Reactive power measurement** accuracy Power factor (accuracy) 0.00-1.00 (±2%, ±1 digit) THD (accuracy) Up to 25th harmonic order: 0-200%; (±2%, ±1 digit)

Dimensions and weight

Dimensions	90×53×89mm
Weight	300 g

Power supply

Power supply voltage (SELV)	230 V AC
Allowed range	-15% +25% (20.4 ÷ 30 V DC)
Max. input power	3 W
Galvanic isolation	Yes
	105



Conductors cross-section

Operating conditions

Operating temperature Storage temperature

IP Degree of protection

Overvoltage category

Degree of pollution

IEC EN 61010-1 Working position

Installation

Connection

SMM-33

IEC 529

SMM-33, multifunctional module to measure 3 phase network

-20 ÷ +55 ℃

-40 ÷ +85 °C

IP 20

Ш

2

Vertical

on DIN rail

screw terminals

max. 2.5 mm²

..

SMM-33

Related products

MR-0114 – communica-

tion submodule RS-485

into Foxtrot

SMM 33

www.tecomat.cz | Teco a.s., Havlíčkova 260, 280 02, Kolín 4, Czech Republic | teco@tecomat.cz | www.tecomat.com



Displays

Displays connected via Ethernet/LAN



ID-18

ID-18 Design



Displays connected via system bus TCL2

ID-17 OPERATOR PANEL
F1 F2 F3 F4 F5 F6

ID-17



ID-14

Displays connected via serial channel







Displays, operator panels

Туре	DI DI	RO	AI	AO	Comm
ID-18 (in to wall)					Ethernet
ID-28 (in to panel)					Ethernet

Basic features

- Graphic panel with touch screen
- Low power consumption, without cooling, without heating even in closed spaces, wide range of operation temperatures.
- Installed microbrowser, interprets directly built-in web pages
 of Foxtrot, TC700.
- ID-18 is designed for installation in the wall, where is no access from other side. KO110/L installation box is the part of delivery.
- **ID-28** is designed for installation at the doors of control cabinets or in any place where it is the access from other side.
- Other features are the same for both panels.
- It is equipped with TFT display 5.7" with resolution 640 × 480 pixels (VGA).
- Front frame design plastic with dimension 180×150 mm, white color. Other colors according to sampler after the order.

Connection

- Can be connected directly to the Foxtrot or over the LAN by UTP/RJ45 cable
- Power supply 24 V DC, power consumption up to 5 W with full backlight.

Use

- All places where we need graphics with high resolution, save space and low consumption.
- Designed especially for local displaying web pages stored in control systems Foxtrot, TC700, created in WebMaker.
- Designed for interiors as comfortable Room/House manager, both for administrative and residential buildings..



ID-18

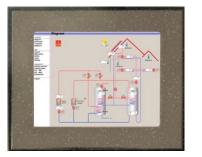


ID-28

ID-28

Examples of screens created in WebMaker







Communication

System I/O bus	Ethernet 10/100baseTX, IEEE 802.3
Galvanic isolation Communication	Yes

Screen

Display type	Full color TFT LCD
Display size	5.7" (180×150 mm),
Resolution	VGA (640×480)
Keyboard	Touch screen

Operating conditions

Operating temperature	-20÷+55 ℃	
Storage temperature	-30 ÷ +70 ℃	
Electric strength	according EN 60950	
IP Degree of protection IEC 529	IP 10B	
Overvoltage category		
Degree of pollution IEC EN 60664-1:2004	2	
Working position	any	
Installation	Into installation box	
Connection	Ethernet RJ45;	
	Power supply with screw terminals	
Conductors cross-section	max. 2.5 mm ²	

Dimensions and weight

Dimensions	180×150×55 mm
Weight	1015g

Power supply

- I onei suppiy	
Power supply voltage (SELV)	+24 V DC/200 mA
Allowed range	-15% +25% (20.4 ÷ 30 V DC)
Max. input power	5 W
Galvanic isolation of power supply	No

ID-18 Design

according to RAL sampler

Order number

TXN 054 39	ID-18; 5.7" TFT 640 × 480; touch panel; 100/10 Ethernet; built-in into the wall	
TXN 054 40	ID-28; 5.7" TFT 640×480; touch panel; 100/10 Ethernet; into electrical installation cabinet	
TXN 054 42	TXN 054 42 D-18 Design; 5.7" TFT 640×480; touch panel; 100/10 Ethernet; built-in into the wall. It is necessary to complete with metallic	
	front frame that has to be ordered separately according to RAL sampler.	

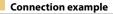


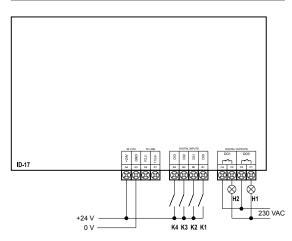
Graphic panel with keyboard

Тур	DI	RO	AI	AO	Comm
ID-17	4	2			TCL2

Basic features

- Graphic operator panel used for programmable controllers Tecomat Foxtrot and Tecomat TC700.
- It is equipped with monochromatic (blue) backlit LCD with 240 × 64 pixels.
- Keyboard with 12 keys, 6 of them (F1-F6) can be used as user defined keys.
- Equipped with 4 binary inputs 24 V DC for example for external buttons.
- Equipped with 2 relay outputs (up to 230 V AC) for example . for siren.
- Internal memory for control files 2 MB. •
- Support for multilanguage objects/texts up to 15
- Available code pages/fonts
- CP1250, Central European
- CP1251, Cyrillic
- CP1252, Western European
- CP1253, Greek
- User fonts defined by the user big digits, own symbols





Digital inputs

No. of inputs	4
Common wire	minus (GND)
Galvanic isolation	No
Input voltage for log. 0 (U _L)	0 V DC; (-5 ÷ +5 V DC)
Input voltage for log. 1 (U _H)	+24 V DC; (+15 ÷ +30 V DC)
Input current for log. 1 (I _H)	typ. 5 mA
Delay 0 -> 1/1 -> 0:	5 ms/5 ms (DI4–DI7)

Operating conditions

Operating temperature	−20 ÷ +55 °C
Storage temperature	-30 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 10B
Overvoltage category	
Degree of pollution IEC EN 60664-1:2004	2
Working position	any
Installation	In the control panel
Connection	Screw terminals
Conductors cross-section	max. 2.5 mm ²

Connection

- It can be connected to central module by TCL2 bus up to 300 m via metallic cable.
- Using the fibre optic converter, it can be connected up to 1.7 km!
- Unique address on TCL2 bus can be set in the service mode using keyboard and display.
- It is possible to connect up to 4 graphical display ID-17 to the • internal bus TCL2 that does not increase number of peripheral I/O modules.

Use

- · For operation of measurement and control devices, machines and technologies.
- The operator panel is used for entering commands and parameters, displaying a system status and user messages.
- Graphics is created with GPMaker an integrated part of Mosaic
- Available objects:
- Static/dynamic text
- Static/dynamic/animated image
- Container multipage image
- Display value viewing
- Password
- · Managers:
 - Images – Fonts
- Multi-language texts

Relay outputs	
No. of outputs	2
Galvanic isolation	Yes
Type of contact/type of output	Electromechanical relay,
	non-protected output
Switched voltage	min. 5 V; max. 250 V
Switched current	min. 100 mA; max. 3 A
Short-term output overload	max. 4 A
Current through common wire	max. 10 A
Time of close/open the contact	typ. 10 ms/4 ms

Display

Display size	127×33mm
Resolution, color	240×64, white on blue
	background
Keyboard	Membrane
Keys number	12×:4×cursor, 1×Clear, 1×Enter,
	6×for user defined functions

Dimensions and weight

Dimensions	143×202×36mm
Weight	1100g

Power supply

Power supply voltage (SELV)	+24 V DC/70 mA
Allowed range	-15% ÷ +25% (20.4 ÷ 30 V DC)
Max. input power	2 W
Galvanic isolation Power supply	No

Order number TXN 054 37

ID-17, Graphic operator panel, monochrom LCD, 240×64 px, 12 keys

🔜 I 💿 🗷 🖻 F1 F2 F3 F4 F5 F6

ID-17

PLC Tecomat – Displays, operator panels

Alphanumeric panel with LCD and keyboard

Туре	DI	DO	AI	AO	Comm
ID-14					TCL2

Basic features

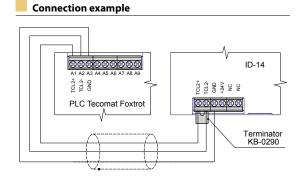
- Alphanumeric operator panel for programmable controllers Tecomat Foxtrot and Tecomat TC700.
- It has monochromatic backlit LCD with 4×20 characters.
- Keyboard with 25 keys, 6 of them (F1 F6) can be used as user defined keys.
- There can be up to 4 panels ID-14 connected on the one TCL2 bus.
- Panel enables to display characters in following code pages: CP852, CP1250, CP1251 (Cyrillic), CP1252.
- Programming is done directly in Mosaic in Panel Maker.

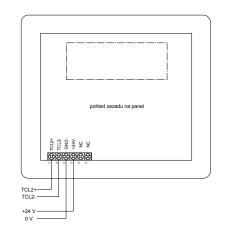
Connection

- It can be connected to central module by TCL2 bus up to 300 m via metallic cable.
- Using the fibre optic convertor, it can be connected up to 1.7 km!
- Panel ID-14 can be mechanically fixed with Foxtrot central module in one ensemble and can be placed in the door of control panel.
- The panel is connected to Foxtrot PLC directly through screwtype terminals and to the TC700 series PLC via terminal board KB-0220.
- Unique address on TCL2 bus must be set in the service mode using keyboard and display.

Use

 The operator panel is used for entering commands and parameters, displaying a system status and textual user messages.





Communication

System I/O bus	1×TCL2 (RS-485, 345 kbps) up to
	300 m
Galvanic isolation	No
of communication	

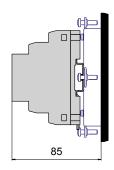
|--|

Character size	3.5 mm
No. of characters	4×20 characters
Keyboard	Membrane
Keys	25 keys
	10×numeric
	4×cursor
	6×functional
	5×other

Operating conditions

Operating temperature	−20 ÷ +55 °C
Storage temperature	-20 ÷ +60 ℃
IP Degree of protection	IP 54 – front panel
IEC 529	IP 20 – whole product
Overvoltage category	II
Degree of pollution IEC EN	2
60664-1:2004	
Working position	any
Installation	In control panel doors
	On DIN rail with SM-9024
Connection	Screw terminals
Conductors cross-section	max. 2.5 mm ²

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Dimensions and weight

Dimensionsy	123×141×25mm
Weight	560 g

Power supply

Power supply voltage (SELV)	+24 V DC/125 mA
Allowed range	-15% ÷ +25% (20.4 ÷ 30 V DC)
Max. input power	3 W
Galvanic isolation of power	No
supply	

Order number

TXN 054 33	ID-14 display 4×20 characters, 25 keys, set for installation in the control panel doors
TXF 790 25	SM-9025 set for DIN rail installation on the ID-14 panel (for compact installation together with CP-100 \times)
TXF 790 24	SM-9024 set for ID-14 installation on the DIN rail (for installation inside the control panel)
TXN 102 20 KB-0220, terminal board for TCL2 bus connection to TC700	

D







ID-14 + CP-1004

PLC Tecomat – Displays, operator panels

Alphanumeric panel with keyboard

Туре	DI	RO	AI	AO	Comm
ID-07					RS-232/RS-485
ID-08					RS-232/RS-485

Basic features

- Alphanumeric operator panel for programmable controllers Tecomat Foxtrot and Tecomat TC700.
- ID-07 is smaller and is equipped with monochromatic backlit LCD with 4 × 20 characters with characters height 8 mm. Keyboard contains 8 buttons.
- ID-08 has also backlit monochromatic display with 2×20 characters, but character height is 12 mm. Keyboard has 26 buttons of which 6 buttons (F1 – F6) is dedicated for user defined functions.
- Panel enables to display characters in following code pages: CP852, CP1250, CP1251 (Cyrillic), CP1252 and Kamenicky.
- Programming is done directly in Mosaic in Panel Maker.

Connection

• Connection via serial channel of programmable controller. Interface is optional: RS-232, RS-422 or RS-485.

Use

• Panel for entering commands and system status indication and user text messages.





ID-08

Operating conditions

Operating temperature	0 +50 ℃
Storage temperature	−20 +60 °C
Electric strength	according EN 60664-1:2004
IP Degree of protection(IEC 529)	IP54 front panel, IP20 whole device
Overvoltage category	1
Degree of pollution according IEC EN60664-1:2008	2
Working position	vertical
Installation	into the panel
Connection of power supply	Screw terminals
and communication	max. 4 mm ²

Power supply

Power Voltage	ì	

24 V DC +- 20%, 24V AC -+ 20%, 50 - 60Hz

Dimensions and weight ID-07

Dimensions	141×123×42 mm
Weight	400 g

Dimensions and weight ID-08

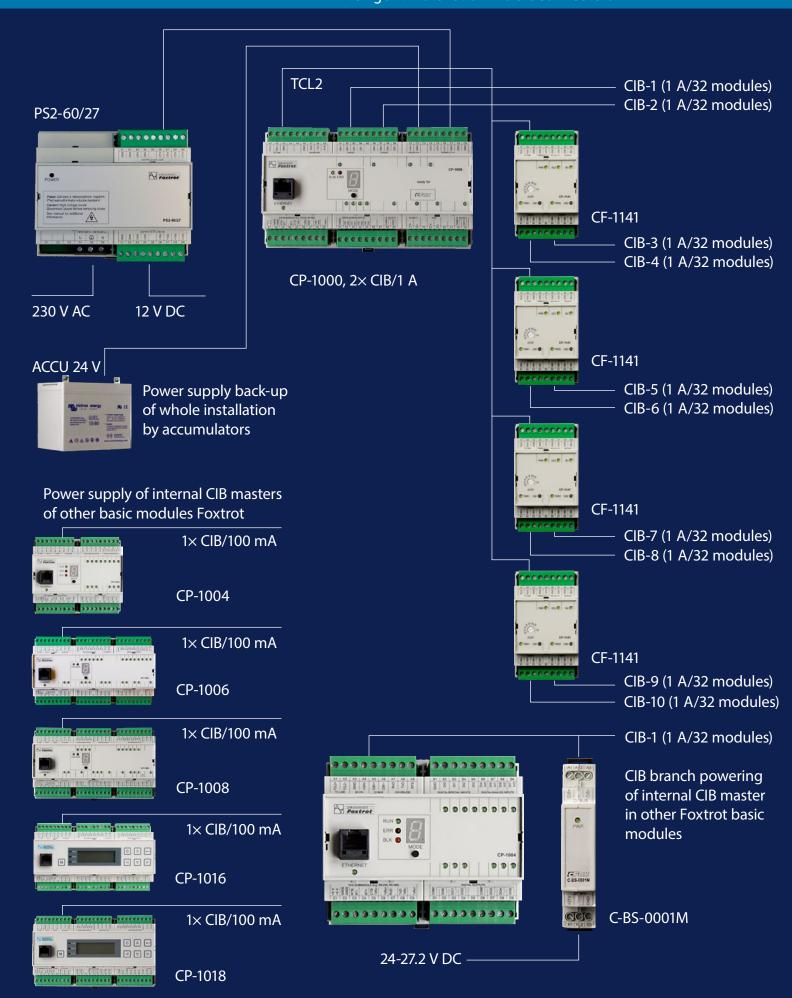
Dimensions	177×205×42 mm
Weight	750 g

Order number

TXN 054 25.11	ID-07 panel LCD 2 × 16 characters, 8 buttons, optional interface
TXN 054 26.11	ID-08 panel LCD 2 × 16 characters, 26 buttons, optional interface
TXN 054 26.12	ID-08 panel LCD 4 x 20 characters, 26 buttons, optional interface

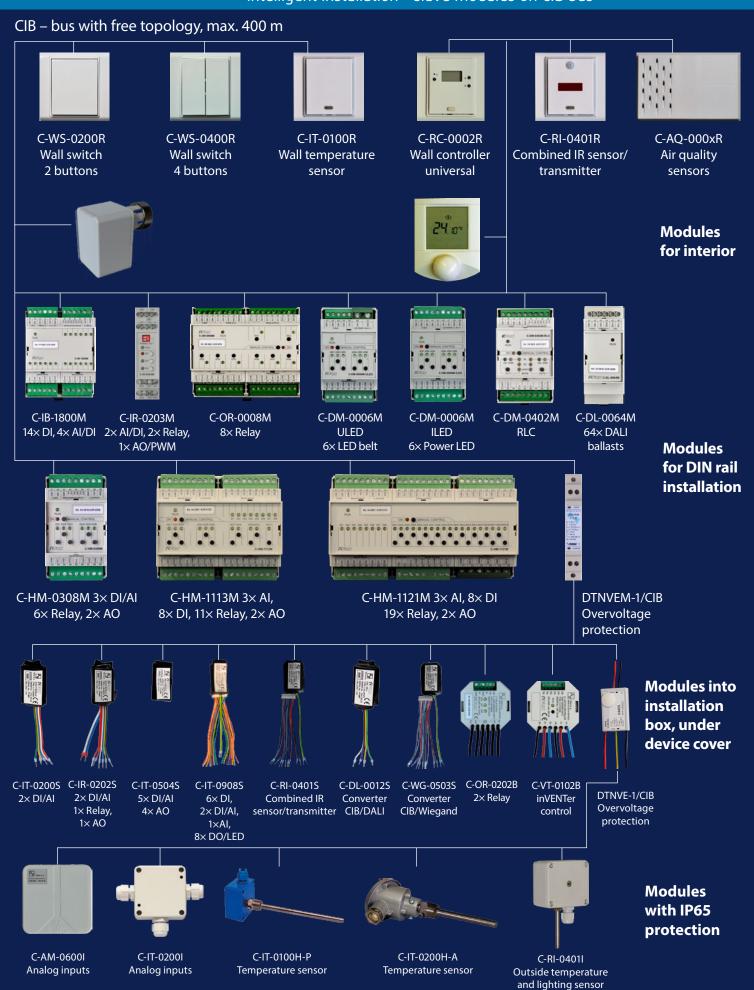


CFox Intelligent installation – CIB bus masters



www.tecomat.cz | Teco a.s., Havlíčkova 260, 280 58, Kolín 4, Česká republika | teco@tecomat.cz | www.tecomat.com

CFox Intelligent installation – slave module<u>s on CIB bus</u>



External CIB bus master, Separation module CIB bus

Туре	DI DI	RO	AI	AO	Comm
CF-1141					TCL2, 2×CIB
C-BS-0001M					

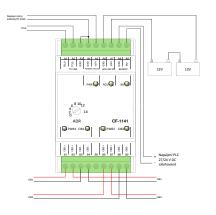
Basic features CF-1141

- Module is designed to expand the number of CIB bus branches connected to one Foxtrot basic module.
- Contains 2×CIB bus master and enables to expand number of connected modules with next $2 \times 32 = 64$ modules. Module provides power supply of both bus branches via
- built-in separators of connected power supply 24/27 V DC. Foxtrot basic module can be expanded with up to 4 external
- CF-1141, what means expansion up to $4 \times 2 \times 32 = 288$ CIB modules.
- Status operation/error is indicated on front panel.
- . Module can be connected with 2 × 12 V accumulators in serial connection as back-up power supply for both CIB buses and for one another load e.g. for central module.
- Capacity of accumulator has to be chosen according to demand time of back-up, module can charge accumulators with continuous current max. 3 A.

Connection

- Connection with central module Foxtrot should be via cable into TCL2 bus, maximum lenght 400 m. The unique address on TLC2 bus is set manually with rotary switch at front panel.
- Modules CF-1141 are not counted into maximal limit of 10 modules at TCL2 bus.

Connection example CF-1141



Communication	C-BS-0001M	CF-1141
TCL2	-	1 × ;max. 4 modules at TCL 2
CIB	1 × passive separator	2×master with
	of power supply	integrated separator

Operating conditions		
Operating temperature	-0÷+70 ℃	
Storage temperature	−25 ÷ +85 °C	
Electric strength	according EN 61131	
IP Degree of protection IEC 529	IP10B	
Overvoltage category	II	
Degree of pollution IEC EN60664-1:2008	1	
Working position	vertical	
Installation	on DIN rail	
Connections	CF-1141 screw-type removable connector, C-BS-0001M Screw-type terminals	

Basic features C-BS-0001M

- Module is designed for separation of CIB bus from power supply. Its impedance allows to modulate CIB communication on the power supply voltage.
- Module contains separation of one CIB bus branch.
- · Power status is indicated at front panel.

Connection

- Power supply 24 or 27.2 V DC is connected to the module by 2 screw type terminals.
- Terminals marked CIB+ and CIB- has to be connected to CIB bus terminals of central module Foxtrot CP-10xx.

Use

- Module is designed especially for basic modules Foxtrot types CP-10xx with one internal CIB master without internal separator.
- Module can be used for separation of complementary power supply, if there is on CIB bus higher load (>1 A) then is allowed by separator integrated in master of basic module CP-1000 or external master CF-1141.

Connection example C-BS-0001M



CF-1141



C-BS-0001M



	B B CI BUS
	O PWR
	C-BS-0001M
	B1 B2 B3
24/27 V DC	:

Dimensions and weight CF-1141

Dimensions	52×100×60 mm (3M)
Weight	120g

Dimensions and weight C-BS-0001M

	5
Dimensions	18×100×56mm (1M)
Weight	75g

Power supply CF-1141

Input voltage – range	24 ÷ 27.2 V DC
Output voltage for CIB	2×24 ÷ 27 V DC, 1 A
Output back-up voltage	1×24 V DC e.g. for the basic module
Connected accumulators	2×12V in serial
Maximal continuous	3 A. Do not connect uncharged
charging current	accumulators!
Max. input power	85 W
Internal protection	Yes

Power supply	C-BS-0001M
Input voltage – range	24 ÷ 27.2 V DC
Output voltage CIB	1×24 ÷ 27 V DC, 1 A

Order number

TXN 111 41 CF-1141; CIB 2× master CIB powered, totaly for 64 slaves C-BS-0001M, CIB bus separator, 1A TXN 133 55

Overvoltage protection for CIB bus

TypDIDOAIAOCommDTNVEM-1/CIBCommCommCommCommComm

Basic features

Connection example

- Overvoltage protection device is designed for protection of CIB bus against flash current and overvoltage.
- Combined overvoltage protection of power supply and data communication – corresponds to the CIB.
- It contains the base and the exchange module. The base is permanently connected with CIB installation. Manipulation with exchange module does not interrupt the bus and its function.

Connection

- Module is connected in serial into each protected CIB bus branch.
- The necessity of protection has to be evaluated for each CIB branch separately.
- In project it is necessary to calculate the voltage drops on overvoltage protections, which depend on consumption of modules behind the overvoltage protection.

Use

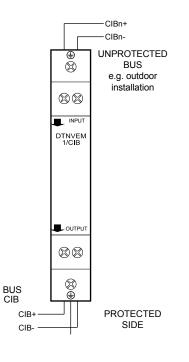
- To protect CIB bus and devices connected on CIB bus against the flash current and overvoltage.
- Place as close to supposed source of overvoltage as possible.
 It is recommended to place the protection at input from outdoor to indoor of the building and in place of parallel way of CIB with lightning rod.



DTNVEM-1/CIB



DTNVE-1/CIB



Technical features

reclinical realures	
No. of protected buses	1
Category of protection device	A2, B2, C2, C3, D1
according to IEC EN 61643-21	
Nominal operation voltage	24 V DC
Maximal operation voltage	36 V DC
Maximal permanent current	0.5 A
Impulse current 10/350	2.5 kA/cable
Nominal discharge current 8/20	1 kA/cable
Maximal discharge current 8/20	10 kA/cable
Voltage protection level	<75 V (between A/PE, B/PE, A/B)
Response time	<30 ns

Operating conditions

-40 ÷ +80 ℃
-40 ÷ +80 ℃
IP 20
2
any
on DIN rail
screw terminal
max. 2.5 mm ²

Dimensions and weight D	INVEM 1/CIB
Dimensions	90×13×65mm
Weight	75 g

Dimensions and weight DTNVE 1/CIB

Dimensions	45×30×7mm
Weight	35 g

Order number

DTNVEM 1/CIB	DTNVEM 1/CIB Overvoltage protection for CIB bus
DTNVE 1/CIB	DTNVE 1/CIB Overvoltage protection for CIB bus

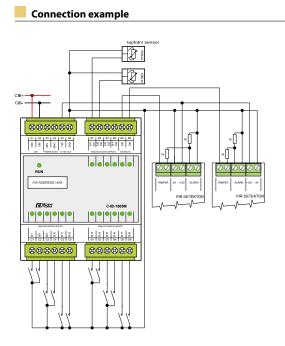


CIB – Module of digital and combined inputs on DIN rail

Туре	DI	RO	AI	AO	Comm
C-IB-1800M	14× DI		4× AI/DI		CIB

Basic feature

- Module is designated for direct connection of voltage-free contacts and resistance sensors (RTD) on CIB bus.
- Inputs AI1/DI1 to AI4/DI4 may be set as:
 - analog
 - digital
 - security system inputs (single or double balanced) counter for reading of pulses from energy meters (S0)
- Inputs DI5 to DI18 may be set as:
 digital
 - Security system inputs (single or double balanced).
- Module firmware linearizes characteristic of selected types of RTD, optimizes accuracy of measurement and recalculates resistance to temperature in Celsius degrees, which is transferred via CIB bus into central module.



Digital inputs

J 1	
Number of digital inputs	14× DI (DI5-DI18)
Number of inputs with security	14× DI (DI5-DI18)
system function	
Galvanic isolation	No
	-

Universal inputs (analog/digital)

Number of the branch in state	
Number of universal inputs	4× AI/DI (AI1/DI1-AI4/DI4)
Number of counter inputs	4× (AI1/DI1-AI4/DI4)
Counter range	16 bit
Galvanic separation	No

Operating conditions

Operating temperature	0 +70 °C
Storage temperature	−25 +85 °C
Electrical strength	according EN 60730
IP Degree of protection IEC 529	IP10B
Overvoltage category	II
Degree of pollution according EN60664-1:2008	1
Operating position	Vertical
Installation	On DIN rail
Connection of inputs and CIB bus	4× screw terminals, wire diameter max. 2,5 mm ²

- Digital inputs may operate in normal mode with signalling 0/1 (on/off) or in balance mode with signalling of: 1. interrupted wire 2. On 3. Off 4. Sabotage (tamper)
- Status error/run is indicated by LED on module (RUN).

Connection

- Module is connected to CIB bus via screw terminals.
- Contact inputs and resistance sensors are connected via screw terminals.

Use

- The module is universal input module and is designated for connection of any contact and resistance inputs combination.
- Module may be used as integrated reader of up to 4 temperatures.
- Module may be used for connection of security detectors via balanced loops.
- For connection of PIR (motion detectors) and other security detectors, the module is equipped by power supply 12V DC derived from CIB bus.

Sensor type	Range	Basic accuracy
Potential-free contact	0/1	0 if >1.5 kΩ 1 if < 0.5 kΩ
Balanced input	Interrupted wire /0/1/tamper	for 2× 1k1 bal. resistance
Pt1000	–90 320°C	0,5%
Ni1000	−60 200°C	0,5%
NTC 12k	–40 125°C	0,5%
KTY81-121	−55 125°C	0,5%
Resistance	0-160 kΩ	0,5%

Dimensions and weight

· · · · · · · · · · · · · · · · · · ·	
Dimensions	$70 \times 93 \times 59 \text{mm}$
Weight	155 g

Power supply

Power supply	
Power supply and communication	24 V (27V) from CIB bus
Nominal/max. load	50 mA/190 mA
Typical/Max. input power	1.2 W/3.8W
Internal protection	Yes, current circuit board reversible

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C-IB-1800M

Order number

C-IB-1800M, CIB, 14DI, 4DI/AI, 4M



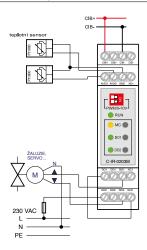
CIB - Module of combined inputs/outputs on DIN rail

Туре	DI	RO	AI	AO	Comm
C-IR-0203M	2× DI/AI	2× RO		1× AO/PWM	CIB

Basic features

- Module is an actuator on CIB bus with two independent relays 16A with NO/NC contacts.
- Each relay is independently addressed and controlled. Status of each relay is signalled at front panel.
- Module may be switched into manual mode by MC button. Then, outputs are controlled independently manually by buttons DO1 and DO2.
- Module is an actuator with one analog input 0-10V.
- Analog output may be switched by button at front panel to PWM mode (pulse width modulation). The amplitude and frequency of switching may be set in the program.
- Module is also a sensor on CIB bus and has two universal inputs.

Connection example



Relay outputs

- new outputs	
Number of outputs	2x NO/NC 16 A/AC1
Galvanic isolation	yes (even outputs each other)
Switching voltage	min. 5 V DC; max. 300 V AC/DC
Switching power	4000 VA/AC1, 384 W/DC
Switching current	max.16 A (NO) max.10 A (NC), min. 100 mA
Peak current	80 A/ <20ms (switching contact)
Time of switching on/off	typ. 15 ms/ 5 ms
Frequency of switching without load	max. 1200 min ⁻¹
Frequency of switching with load	max. 6 min ⁻¹
Mechanical life cycle	2×10 ⁷
Electrical life cycle	0,5×10⁵
Protection against short circuit	No
nductive load treatment	Outside. (RC element, varistor, diode)
solation voltage between contacts each other/groups/	1000V AC/ 4000V AC/ 4000V AC

Operating temperature	-10 +70 °C
	10e
Storage temperature	−25 +85 °C
Electric strength	according EN 60730
Class of electric device protection according EN 61140:2003	
IP Degree of protection IEC 529	IP10B
Overvoltage category	
Degree of pollution acording EN60664-1:2008	1
Operating position	Vertical
Installation	On DIN rail
Connection input, output, CIB	Terminals, wire diameter max. 4mm².

- Each input may be set as digital for reading voltage-free contact or as balanced input for security sensors.
- Each input may be set as analog for resistance sensors metering, e.g. temperature.
- Module firmware linearizes characteristics of selected types of resistance sensors, optimizes accuracy of metering and recalculates the resistance to temperature in Celsius degrees, which is transferred via CIB to central module.
- Status is indicated by LED on module (RUN).

Connection

Inputs, outputs and CIB bus are connected via screw terminals.

Use

- Module is universal and is designated for connection of various types and combinations of inputs and loads.
- By relay contacts features, the module is designated for switching of power loads, where we may expect transients with high current surge up to 80A.
- Module is by its PWM output designated for control of revolutions of modern circulation pumps.

Universal inputs

Number of universal inputs	2× DI/AI (DI/AI1, DI/AI2)
Galvanic isolation of CIB bus	No

Measured ranges

Sensor type	Range	Basic accuracy
Voltage-free contact	0/1	0 if>1.5 kΩ
voltage nee contact	0/ 1	1 if <.0.5 kΩ
Balanced input (security	Interrupted wire	for 2× 1k1 balanced
system)	/0/1/tamper	resistance
Pt1000	−90 320°C	0,5%
Ni1000	−60 200°C	0,5%
NTC 12 k	-40 125℃	0,5%
KTZ81-121	−55 125°C	0,5%
Resistance	0-160 kΩ	0,5%

Analog outputs

- Analog Catputs		
Number of outputs	1x	
Galvanic isolation	No	
Output mode	Analog	PWM
Nominal input voltage/amplitude	10 V	10-24 V
Frequency of switching		100-2 000 Hz
Adjustable range of outputs	0130% U _n	0100%
Min. resolution/load resistance	Min. 1% / > 1kΩ	
Output current/load capacity	Max. 3 mA/ Max	. 50 nF

Dimensions and weight

5	
Dimensions	105 × 90 × 22 mm
Weight	93g

Power supply

Power supply and communication	24 V (27 V) from CIB bus
Nominal/max. load	30 mA/60 mA
Typ./Max. input power	0.8 W/1.5 W
Internal protection	No



C-IR-0203R

Order number

C-IR-0203M, CIB, 2DI/AI, 2RO NO/NC contacts 230 V AC, 1AO/PWM

CIB – Relay outputs module

Туре	DI	DO	AI	AO	Comm
C-OR-0008M		8× RO			CIB

Basic features

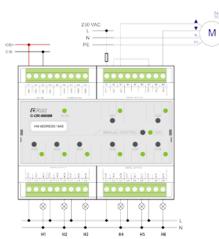
- Module is an actuator with 8 independent relays 16 A each with both NO and NC contacts.
- Each relay has accessible all 3 contacts, they are galvanic isolated and can be connected on different potential levels.
- It is designed for switching of 8 independent devices/loads.
- Each relay is independently addressed and controlled.
- Module can be switched by button to manual mode, where each relay can be controlled manually by appropriate button.
- Status is indicated by LED on module.

Connection

- Module is connected on two-wire bus CIB, that is responsible for communication and supplying of the module.
- To prevent the consumption from the CIB bus the C-OR--0008M module can be powered directly from an external source of 24 VDC
- Module is designed for DIN rail installation.

Connection example

Connection of motor 230 V AC and 6 bulbs (general load).



Relay outputs

8×NO/NC contact
Yes (even outputs each other)
min. 5 V DC; max. 300 V AC
4000 VA/AC1, 384 W/DC
max. 16 A, min. 100 mA,
80 A/<20 ms (NO contact)
typ. 15 ms/5 ms
2×10 ⁷ switching
5×10 ⁴ (1×10 ⁴ at 80 A peak)

Operating conditions

Operating temperature	−10 +55 °C
Storage temperature	−25 +70 °C
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP 10B
Overvoltage category	H
Degree of pollution according IEC EN60664-1:2004	1
Working position	vertical
Installation	on DIN rail
Connections CIB	Screw terminals max. 4 mm ²
Conductors cross-section relay outputs	Screw terminals max. 4 mm ²

- · Relay outputs are available on removable screw terminals.
- CIB bus is available on screw terminals.

Use

- Module is designed for switching independent loads and devices by relay contacts.
- By suitable interconnection of output contacts the module can be used to control up to four 230 V drives - such as blinds or shutters with electric blocking of the concurrent connections of voltage on both control winding.
- With suitable connection of independent contacts the module can be used for control up to 4 DC drives with reversing.
- During planning the current of contacts and their protection with various types of loads should be rated.

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C-OR-0008M

Relay outputs

Short-circuit protection	No
Spike suppressor of inductive	External. (RC, varistor, diode)
load	
Insulation voltage between outputs and internal circuits and between DO1 and DO2	4000 V AC
Insulation voltage among DO2-DO4-DO5 and among DO6-DO7-DO8	1000 V AC

Dimensions and weight

Dimensions	105×90×58 mm
Weight	310g

Power supply

Power supply and communication	24 V (27 V) from the CIB
Power supply from external power	24 V DC
supply	
Nominal/current consumption	160 mA (switched all relays)
Typical/consumption	3.4 W
Internal protection	No

Order number

C-OR-0008M, CIB, 8×RO, NO/NC contacts, 230 V/16 A

CIB



CIB – Combined inputs/outputs modules

Туре	DI	RO	AI	AO	Comm
C-HM-0308M	see Al	6	3 AI/DI	2	CIB
C-HM-1113M	8	11	3	2	CIB
C-HM-1121M	8	19	3	2	CIB

Basic features

- Modules on DIN rail with combination of analog and digital inputs and outputs.
- Each module has on CIB bus only one address. That means on each CIB bus branch we may connect up to $32 \times 32 = 1024$ analog and digital inputs and outputs in combination.
- 3 analog inputs for Resistance Temperature Detectors (RTD) and 2 analog outputs 0-10 V are designed for 1-2 regulation loop, e.g. heating, air-conditioning or for general use.
- Analog inputs of C-HM-0308M module may be configured for high resistance measurement, e.g. condensation sensor or as voltage free contact digital inputs.
- Modules C-HM-1113M and C-HM-1121M are equipped with 8 independent inputs for voltage free contacts.
- C-HM-0308M contains two galvanic insulated groups with 3 relays. Each group may be used independently for switching 24 V DC or 230 V AC.
- C-HM-1113M contains 4 galvanic insulated groups of relays for 3 A and 1 power relay for 16 A with separate NO contact. Each group may be used independently for switching 24 V DC or 230 V AC in different phases.
- C-HM-1121M contains 6 galvanic insulated groups of relays with normally open (NO) contacts and with common wire for 3A load and 3 independent relays for 16 A each with NO contacts available on the terminal. Each group can be used independently for switching 24 V DC or 230 V AC in different phases.
- Power relays for 16 A have contacts with combination of wolfram/AgSnO, for reliable switching of high loads.
- Each relay is separately addressed and controlled from program.

Connection example

- · After push button MANUAL CONTROL we may each relay control by appropriate button.
- Status of digital inputs, relay outputs, mode MANUAL CONT-ROL RUN are indicated by LEDs at front side of module.

Connection

- Modules C-HM-0308M, C-HM-1113M, C-HM-1122M are connected at two-wire bus CIB, providing power supply and communication. HW address (4 hexadecimal digits) is shown at front panel.
- Modules C-HM-0308M, C-HM-1113M are powered from CIB bus, module C-HM-1121M is powered from power supply 230 V AC.
- Modules are connected with removable connectors and power connectors of C-HM-1121M module via fixed screw type terminal.

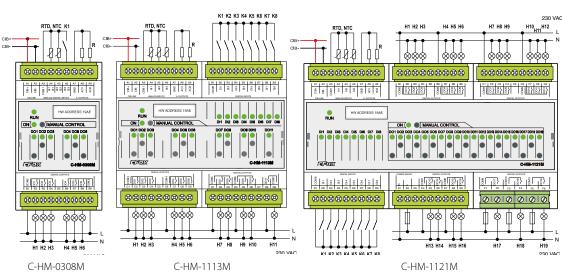
Use

- · Modules are used for large installations centralised into installation cabinet. Typically for one hotel room, one room or floor of residential house.
- Switching of R, L or C loads, independent outputs are used for switching of power loads, especially inductive or capacity loads.
- · Control of circuits in rooms: sockets circuits, lighting, jalousies, heating and air-conditioning.
- Regulation of solar and combined systems. Module C-HM-0308M is suitable for input/output module for regulation nodes - regulation of heating circuits, FanCoil control, air heating, ventilation, air quality, recuperation, etc.

CIB



Communication



Analog outputs	C-HM-0308M	C-HM-1113M	C-HM-1121M
No. of outputs	2	2	2
Common wire	Minus (GND)	Minus (GND)	Minus (GND)
Galvanic isolation	No	No	No
Resolution	8 bit	8 bit	8 bit
Output range	0 ÷ 10 V, 1 ÷ 10 V	0 ÷ 10 V, 1 ÷ 10 V	0 ÷ 10 V, 1 ÷ 10 V





C-HM-1113M



C-HM-1121M



Analog inputs No. of inputs	C-HM-0308M	C-HM-1113M	C-HM-1121M	
No. of inputs Common wire	3 Plus	3 Plus		
Galvanic isolation	no	no	no	
Resolution	12 bit	12 bit		
Measurement ranges				i fatta i f
RTD	Pt1000, Ni1000	Pt1000, Ni1000	Pt1000, Ni1000	
NTC (termistor)	12 kΩ	12 kΩ	12 kΩ	0 0 0 0
Resistive – sensor of condensation	OV 600 k, OV 6MΩ	ΟV 600 k, ΟV 6ΜΩ	ΟV 600 k, OV 6MΩ	
Potential free contact	Yes, on each contact	_	_	THUN
Napěťové rozsahy	50 mV, 100 mV, 1 V, 2 V	50 mV, 100 mV, 1 V, 2 V	50 mV, 100 mV, 1 V, 2 V	
Digital inputs	C-HM-0308M	C-HM-1113M	C-HM-1121M	
Input type	3×potential free contact See Analog inputs	8×potential free contact	8×potential free contact	0308N
Relay outputs	C-HM-0308M	C-HM-1113M	C-HM-1121M	
lo. of outputs/groups	Total 6	Total 11	Total 19	
	2 × 3 relay 3 A	2×3 relay 3 A 2×2 relay 3 A	4×3 relay 3 A 2×2 relay 3 A 3×1 relay 16 A	
Galvanic isolation	Yes (even groups each other)	1 × relay 16 A Yes (even groups each other)	Yes (even groups each other)	
witching voltage	(even groups even other)	min. 5 V DC; 24 V DC; max. 30 V DC,		and land
Relay outputs groups	D01 ÷ D03, D04 ÷ D06	DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ DO8, DO09 ÷ DO10	D01 ÷ D03, D04 ÷ D06, D07 ÷ D09, D010 ÷ D012, D013 ÷	1112
witching current	Min 100 mArmar 2 A	Min 100 m 4 m 2 *	D014, D015 ÷ D016 C-HM-	1131
Switching current	Min. 100 mA; max. 3 A 5 A/< 3s	Min. 100 mA; max. 3 A 5 A/<3s	Min. 100 mA; max. 3 A 5 A/<3s	
nrush current Time of close/open the contact	5 A/<3s typ. 10 ms/4 ms			
Surrent through common wire	10 A	typ. 10 ms/4 ms 10 A	typ. 10 ms/4 ms 10 A	
Switching frequency without load	max. 120 min ⁻¹	max. 120 min ⁻¹		eccación -
witching frequency with nominal oad		max. 30 min ⁻¹	max. 30 min ⁻¹	uunu
Aechanical/Electrical lifetime It maximal load	5×10 ⁶ /1×10 ⁵	5×10 ⁶ /1×10 ⁵	5×10 ⁶ /1×10 ⁵	
hort-circuit protection	No	No Future al (DC surviver al ada)	No	
pike suppressor of inductive load nsulation voltage between each elay outputs	External (RC, varistor, diode) 3750 V AC	External (RC, varistor, diode) 4000 V AC	External (RC, varistor, diode) 4000 V AC C-HM-	1121N
Connections/Conductors ross-section	Removable conector/max. 2.5 mm ²	Removable conector/max. 2.5 mm ²	Removable conector/max. 2.5 mm ²	
Relay outputs		D011	D017, D018, D019	
witching current		16 A	16 A	
nrush current "ime of close/open the contact		160 A/<10ms max. 10 ms/4 ms	160 A/<10ms max, 10 ms/4 ms	
Ainimal switched current		100 mA	100 mA	
Switching frequency without load		max. 60 min ⁻¹	max. 60 min ⁻¹	
requency of switching with nominal load		max. 6 min ⁻¹	max. 6 min ⁻¹	
Mechanical/Electrical lifetime		5×10 ⁶ /4×10 ⁴	5×10 ⁶ /4×10 ⁴	
at maximal load		-		
Short-circuit protection Spike suppressor of inductive load nsulation voltage between each		No External 3750 V AC	No External 3750 V AC	
elay outputs Connections/Conductors		-	Fixed screw type terminals/max.	
cross-section			4 mm ²	
Dimensions and weight	C-HM-0308M	C-HM-1113M	C-HM-1121M	
Dimensions	90×58×53 mm	90×105×58 mm	157×90×58mm	
Veight	125 g	270 mA	450 mA	
Power supply nput nominal voltage	C-HM-0308M +24-27.2 V DC/from bus CIB	C-HM-1113M +24-27.2 V DC/from bus CIB	C-HM-1121M 230 V AC	
SELV)/ Nominal load	90 mA	160 mA	35 mA	
Operating conditions				
Operating temperature	−10 +55 °C			
Storage temperature:	−25 +70 °C			
lectric strength P Degree of protection(IEC 529)	according EN 60950 IP 20, IP40 with cover in switchboard			
Overvoltage category Degree of pollution IEC EN	 1			
60664-1:2004 Working position	any			
Installation	on DIN rail			
_				
Order number				
Order number TXN 133 24 C-HM-0308	M – CIB – combined module 3 × AI/DI,	2 × AO, 6 × RO 230 V 3 A		

Advanced Automation

CIB – Module for LED strip control

Туре	DI	DO	AI	AO	Comm
C-DM-0006M ULED				6 × Voltage control (0 – 100%)	CIB

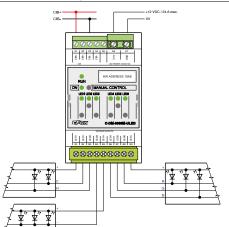
Basic features

- Module is actuator with 6 independent outputs (channels) for proportional control of LED strip lighting with common anode. They are controled by voltage.
- Each channel is independently addressed and controlled in range 0 up to 100% of power supply voltage 12 V or 24 VDC.
- All LED strips must be for the same power supply voltage.
- Outputs have internal protection against short-circuit. •
- Module can be turned to manual mode by the front button, so each channel can be switched on/off by the channel button.
- Status is indicated by LED on module. •

Connection

Modul has to be connected to 2-wire bus CIB which provides • both communication and power supply.

Connection example



Outputs for continuous control of LED strips

No. and type of outputs	6 ×, semiconductive, PWM
	voltage output (0–100%)
Load type	LED strip, RGB/monochrom
Power voltage for LED strips	12 V DC/24 V DC
Output current	max. 6 A/channel
Maximal total current	24 A
Max. length of LED strip (13 W/m)	10 m
Max. length of LED strip (6.5 W/m)	20 m
Max. length of LED strip (4.3 W/m)	30 m
Short-circuit protection on output	Yes
Galvanic isolation of output	No

Operating conditions

Operating temperature	0 +45 °C
Storage and transport	–25 +85 ℃
temperature	
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP10B
Overvoltage category	I
Degree of pollution	1
IEC EN 60664-1:2008	1
Working position	vertical
Installation	on DIN rail
CIB connection	Screw terminals max. 2.5 mm ²
Power supply connection	Screw terminals max. 4 mm ²
LED strip connection	Screw connector, max. 2.5 mm ²

- CIB bus is connected at removable screw terminals.
- Outputs are available at removable screw connectors. • Power voltage 12 V or 24 V DC for LED strips is connected at
- screw terminals with large cross-section. • During designing the wiring, load of each terminal has to be taken into account.
- · Module is used for assembly on DIN rail in switchboard.

Use

- Control of up to 6 single-color LED strips with max. current 6 A per channel.
- Control of up to 2 RGB LED strips with up to 6 A per each color.
- Use for low power orientation lighting in buildings etc.
- · May be used for decoration and effect lighting in interiors and exteriors.



C-DM-0006M ULED

Power supply External power supply for LED 12/24 V DC ± 10% strip Max Pow

Dimensions and weight

Dimensions Weight

Max. load current of LED	24 A total, 6 A per channel
Power supply of module	24 V (27 V) from CIB bus
and communication	
Typ. /max. load current from CIB	max. 15 mA
Typical/Max. power from CIB	0.4 W
Internal protection	Yes, recovering fuse

53×90×58mm

120 a

Order number

TXN 133 45

C-DM-0006M ULED, 6 channel dimming module for LED strips 12 – 24 VDC, max. 4 A/channel

www.tecomat.cz | Teco a.s., Havlíčkova 260, 280 02, Kolín 4, Czech Republic | teco@tecomat.cz | www.tecomat.com 54

CIB – Module for direct control of LED chips 150/350/500/700 mA

Туре	DI	DO	AI	AO	Comm
C-DM-0006M ILED				6 × controlled current supply (0 – 100%)	CIB

Basic features

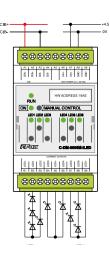
- Module is actuator with 6 independent outputs (channels) for proportional control of power LED lights or lights with LED chips connected in serial. They are controlled by control of the current.
- Each channel is independently addressed and controlled in range 0 up to 100% of the current range.
- Module can be switched by button into manual mode, so each output can be independently switched on and off by button.
- Status and error/operation is indicated by LED on module.

Connection

• Module has to be connected by two-wire bus CIB, that provides communication and power supply of module.

Connection example

Connection of 6 LEDs individually controlled



Proportional outputs for LED chip control

Number and type of outputs	6 ×, semiconductive current
	output, controlled PWM
	(0-100%)
Load type	LED chip, RGB/monochromatic
Power voltage for LED	4.5-48 V
Output current	150, 350, 500, 700 mA/channel
Max. number of white LEDs (48 V)	13 (3.5 V/1 diode)
Max. number of red LEDs (48 V)	22 (2.1 V/1 diode)
Max. number of green LEDs (48 V)	19 (2.6 V/1 diode)
Max. number of blue LEDs (48 V)	13 (3.5 V/1 diode)
Short-circuit protection on output	Yes
Galvanic isolation of output	No

Operating conditions

Operating temperature	0 +55 °C
Storage and transport	–25 +70 ℃
temperature	
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP10
Overvoltage category	I
Degree of pollution	1
Working position	vertical
Installation	on DIN rail
Connections CIB	screw connector, max. 2.5 mm ²
Connections Power supply	screw connector, max. 2.5 mm ²
Connections LED belts	screw connector, max. 2.5 mm ²

• CIB bus is connected at screw terminals.

- Outputs are connected at removable screw connector. During designing the wiring, allowed load of each terminal has to be taken into account
- · Module is used for assembly on DIN rail in switchboards.

Use

- Direct control of LED lights equipped by LED chips.
- · Channels may be associated by triplets for fully independent control of two RGB light sources.
- May be used for decoration and effect lighting in interiors and exteriors.



C-DM-0006M ILED

Power supply LED

Power supply voltage for LED	4.5-48 V DC
in serial	
Max. load current LED	4.2 A total, 700 mA per channel

Dimensions and weight

Dimensions

Weight	120 g
•••••••••••••••••••••••••••••••••••••••	-

53×90×58mm

Power supply of module

Power supply of module	24 V (27 V) from CIB
Typical/max. load from CIB	15 mA
Typical/max. input power from CIB	0.4 W
Internal protection	Yes, recovering fuse

Order number TXN 133 46

C-DM-0006M ILED, 6 channel dimming module for LED chip 150, 350, 500, 700 mA/max. 48 V DC

CIB

CIB – Universal dimming module RLC load on CIB bus 230 V/AC

Туре	DI	DO	AI	AO	Comm
C-DM-0402M			4× AI/DI	2× phase controlled voltage 230 V AC	CIB
RLC			4X AI/ DI	(0-100%)	CID

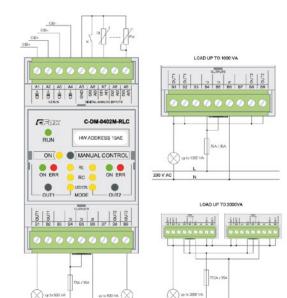
Basic features

- The module is an actuator with 2 independent outputs (channels) for proportional control of light sources powered by 230 V AC.
- Dimmer is well designed for high reliability and immune to interferences in the main and interference of ripple control. Each channel is individually addressable and controlled via
- CIB bus in range 0-100%. Module may be switched to manual mode, where each
- inputs may be switched on/off by button. The right function for loads of various characters RL, LC or LED/
- CFL is to be chosen in SW configuration of module via CIB. Each channel may control load up to 500 VA.
- Channels enable parallel arrangement of both output cha-
- nnels for increasing of controlled load up to 1 000 VA. To increase controlled load, we may parallely arrange up to 4

outputs of independent modules. In such case both modules have to be on one branch CIB.

- In the case of parallel arrangement, all channels have to be control synchronal by the same commands via CIB bus. In the case of manual control, other active outputs may be overloaded.
- Outputs have internal protection against overload and overheating.

Connection example



Operating conditions

Operating temperature for load	0 +40 °C;
below 400 VA	without forced circulation of air
Operating temperature for load	0 +40 °C,
above 400 VA	with forced circulation of air
Storage and transport	−25 +85 °C
temperature	
Electric strength	according EN 60730
IP Degree of protection IP (IEC 529)	IP20
Overvoltage category	
Degree of pollution	1
Working position	vertical
Installation	on DIN rail
Connection	Screw connector
Connections loads, inputs, CIB	Screw connector max. 2,5 mm ²

- · Module contains 4 universal inputs for general purpose.
- To universal inputs we may connect voltage-free contacts, RTD temperature sensors or double-balanced circuits with security detectors.
- · Status is indicated by LED on module.

Connection

- The module is connected on two wires CIB bus, which holds communication, power supplying and control of module.
- CIB bus, inputs and outputs are connected to screw terminals. · While designing the project, we have to calculate allowed load capacity of each connector.
- The module is designated for assembly into distribution box on DIN rail.

Use

- Resistance load control up to 500 VA (resp. 1 000 up to 2 000 VA with parallel arrangement).
- · Inductive load (RL) control up to 500 VA on channel. Typically standard transformers, motor loads, bulbs.
- Capacity load (RC) control up to 500 VA. Typically electronic transformers, Compact Fluorescent Lamp and LEDs on 230 V AC.

Number and type of outputs	2× 0-100%, phase control,	
	2× NMOS power transistor	
Load type	R, L, C, dimmable LED and CFL	
Operation voltage	230 V AC	
Output current	max. 2,2 A/channel	
Switched load on channel	500 VA (1000 VA, 2000 VA at parallel arranging)	
Galvanic separation of outputs from CIB bus	Yes – 3,75 kV	

Measured ranges

Sensor type	Range	Basic accuracy
Voltage-free contact	0/1	0 if > 1.5 kΩ 1 if < 0.5 kΩ
Balanced output (security detectors)		
Pt1000	−90 320°C	0,5%
Ni1000	-60 200°C	0,5%
NTC 12 k	-40 125℃	0,5%
KTY81-121	−55 125°C	0,5%
Resistor	0-160 kΩ	0,5%

Dimensions and weight

Dimensions	90 × 58 × 53 mm
Weight	120 g

Power supply of module

Power supply for load	230 V AC
Max. output current of load	2× 2,2 A in total
Module power supply	24 V (27 V) from CIB bus
Typical load from CIB	20 mA
Typical/max. input power from CIB	0.46 W
Internal protection	Yes, recovering fuse



C-DM-0402M-RLC, CIB - 2× dimmer RLC, 230 V AC, 2× 500 VA

3003030

099999999

C-DM-0402M RLC

CIB – Converter	to DALI bus	s on DIN ra	il		
Тур	DI	RO	AI	AO	Comm
C-DL-0064M					CIB, DALI

Basic features

- Module is designated for control of electronic ballasts for fluorescent lamps, LED lights and other dimmers on DALI bus according to specification NEMA Standards Publication 243-2004 Digital Addressable Lighting Interface (DALI) Control Devices Protocols PART 2-2004.
- Module may control independently up to 64 ballasts, what is . max. number on one branch according to DALI.
- Module is in design to fit in switching cabinet on DIN rail. • •
- Run of the module is indicated by LED diode.

Connection

• Both DALI and CIB buses are connected to the module via screw terminals.

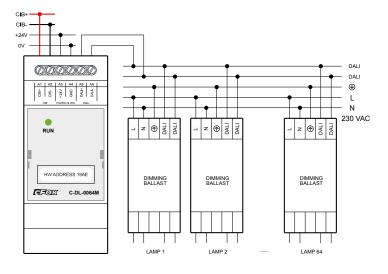
Use

- · Control of fluorescent lamps with DALI ballasts.
- Control of bulb dimmers equipped by DALI protocol.
- Control of LED dimmers equipped by DALI protocol. •
- Independent switching on/off, smooth lights dimming, light scenes creation.
- Control of the module is supported by function blocks from library DaliLib.mlb.

Connection example



C-DL-0064M



Communication

Installation bus	CIB, Power supply is provided by
	an external source.
Bus for ballasts control	DALI, master function for one
	DALI branch. Module enables to
	address all 64 control ballasts.
	DALI output is powered directly
	from module.

Operating conditions

Operating temperature	0 +70 °C
Storage temperature	–25 +85 ℃
Electric strength	according EN 60730
IP degree of protection IEC 529	IP10B
Overvoltage category	II
Degree of pollution according EN60664-1:2008	1
Operating position	Any
Installation	On DIN rail into switching
	cabinet
Connection DALI, CIB	Screw terminals, 4mm ²

Dimensions and weight

Dimensions	106 × 92 × 35 mm
Weight	65 g

Power supply

Power supply and communication	24 V (27 V)
	from external power source
Nominal /max. load	30 mA/320 mA
Typical /max. input power	0.75 W/7.6 W
Internal protection	Yes
Load from CIB bus	0 mA

Order number TXN 133 54

C-DL-0064M; CIB-DALI ballast, for 64 DALI ballasts



CIB – built-in modules with combined inputs, outputs

Туре	DI	RO	AI	AO	Comm
C-IR-0202S		1	2	1	CIB
C-IT-0200S			2		CIB

Basic features

- Modules C-IT-0202S and C-IT-0200S are both designed for connection of two temperature sensors or voltage-free contacts.
- C-IR-0202S is used for control tasks and therefore it is equipped by power contact of switching relay and analog output voltage.
- For temperature metering it is possible to connect directly resistance temperature detectors (RTD) Pt1000 or Ni1000, sensors with thermistor NTC 12k or NTC 160 k or semiconductor sensor KTY81 121.
- Module is designed in effective small built-in design into the installation box or into the measured/controlled device.

Connection

· Modules are connected to CIB that ensures the communication and power supply by stranded wires finished with sleeves. · Inputs and outputs are connected by stranded wires finished with sleeves too.

Use

- Module C-IR-0202S with relay and analog output for: Temperature measurement and control of heating valve 230 V AC.
- Designing the application the maximum load of each terminal must be taken into acount. • Module C-IT-0202S is used for measurement of 2 temperatu-
- res, e.g. room temperature and floor temperature or for sensing contact outputs from different light controllers, detectors or security system sensors.



C-IR-0202S



C-IT-0200S

Relay outputs	C-IR-0202S	C-IT-0200S
Number of outputs	1	-
Galvanic isolation	Yes	
Switching voltage	max. 230 V AC	
Switching current	min. 100 mA; typ. 3 A; max. 5	A (beware the peak current of electronic loads)
Time of close/open the contact	typ. 10 ms/4 ms	
Switching frequency without load	max. 300 min ⁻¹	
Switching frequency with nominal load	max. 20 min ⁻¹	
Mechanical/Electrical lifetime at maximal load	5×10 ⁶ /2×10 ⁵	
Short-circuit protection	No	
Spike suppressor of inductive load	External (RC unit, varistor, dic	de)
Insulation voltage against surrounded circuits	4000 V AC	

Analog inputs	C-IR-0202S	C-IT-0200S
Number of inputs	2	2
Galvanic isolation	no	no
Resolution	12 bit	12 bit
Measurement ranges		
RTD	Pt1000, Ni1000, (temperature range according to	Pt1000, Ni1000, (temperature range according to
	sensor type)	sensor type)
NTC (thermistor)	12 kΩ, KTY81-121	12 kΩ, KTY81-121
Resistance	160 kΩ	160 kΩ
Potential-free contact	Yes, on each input	Yes, on each input
Balanced inputs for security systems sensors	Yes, on each input	Yes, on each input
Measured temperature accuracy	0.1 ℃	0.1 °C

Operating conditi	ions	Analog outputs	C-IR-0202S	C-IT-0200S
Operating temperature	0 +55 ℃	Number of outputs	1	
Storage temperature	−25 +70 °C	Galvanic isolation	no	-
Electric strength	according EN 60950	Resolution	8 bit	-
IP Degree of protection IEC 529	IP 10B	Output ranges	0 ÷ 10 V, 1 ÷ 10 V	
Overvoltage category				
Degree of pollution IEC EN 60664-1:2004	1	Dimensions and weight	C-IR-02025	C-IT-0200S
Working position	any	Dimensions	55×26×20mm	55×26×16mn
Installation	Into installation box or into the device	Weight	7g	3 g
Connections	Flat ribbon cable, the wires	Power supply	C-IR-0202S	C-IT-0200S
	terminated with sleeves	Power supply	24 V (27 V) from CIB bus	24 V (27 V)
Conductors cross-section	n 0.15 mm ^{2,}	and communication		from CIB bus
Power output	relay output 0.5 mm ²	Typical load	18 mA	10 mA
		Max. consumption	25 mA	12 mA

Order number	
TXN 133 25	C-IR-02025, CIB, 2 × AI/DI, 1 × AO (0 – 10 V), 1 × RO 230 V AC/3 A, Temperature/contact sensing
TXN 133 29	C-IT-0200S, CIB, 2 × AI/DI; Temperature, voltage or voltage-free contact sensing



CIB – Fan Coil controller with continuous regulation of fan revolutions

Туре	DI	DO	AI	AO	Comm
C-FC-0024X			1× room temperature 1× exchanger temperature 1× window contact	1x	CIB

Basic features

- Module C-FC-0024X is designated for control of few convectors equipped by 24V DC motors, controlled by signal 0-10V or PWM.
- Contains 3 AI/DI combined inputs for connection of contacts, e.g. windows contacts or temperature sensors.
- Module has two output relays and one output configurable by jumper as analog 0-10V or as PWM output.

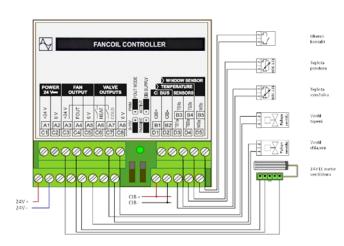
Connection

- Module is connected to two-wire CIB bus, which ensures communication and power supply of the module.
- Jumper allows to set, whether module is powered from independent power source or from CIB bus. In position ACTIVE module provides powering of CIB bus.

Use

- Module is designated as built-in model to floor convectors and fan coils.
- Module and its inputs and outputs may be used via bus as universal I/O module.

Example connection



Analog/digital inputs TS1, TS2, WS			
Number of inputs	3		
Galvanic isolation	No		
Resolution	12bit, approximation		
	converter		
Common wire	plus		
External power supply	No		
Input resistance	4.7 kΩ		
Interrupted input detection	No		
	•		

Measured ranges:		
Sensor type	Range	Basic accuracy
Voltage-free contact	Switch on/off	
NTC 12k	-40 125°C	<3% of range
Resistance transmitter OV	0-600kΩ	

Operating conditions

Operating temperature	0 +55 °C
Storage temperature	-25 +70 ℃
Electric strength	according EN 60730-1 ed2:2001
IP Degree of protection IEC 529	IP 10
Overvoltage category	I
Degree of pollution according EN60664-1:2008	1
Operating position	vertical
Installation	Module is designated as built-in
	module to device
Connection CIB, AI/DI	Screw terminals, wire max 2.5 mm ²

Dimensions and weight

Dimensions	55×26×20mm
Weight	7g

Power supply

Power supply and communication	24 V(27 V) from bus CIB
Nominal/max. load	22 mA/80 mA
Typ./Max. input power	0.5 W/1.9 W
Internal protection	Yes

Order number

TXN 133 39.01 C-FC-0024X CIB, Fan Coil controller with 0-100% regulation of fan revolutions 24 V, 3× Al/Dl, 2× RO



CIB



CIB – Built in module with combined inputs/outputs

Туре	DI	DO	AI	AO	Comm
C-IT-0504S			5×AI/DI	4×AO	CIB

Ź

N11000

1000, C12k,

ΕĒ

CIB •

gnd Di/Ali Di/Ali Di/Ali

A04 A03 A02 A01 GND

4 + 1

No

Basic accuracy

Basic features

- Module is designed for direct connection of resistive sensors, potential-free contacts and analog outputs 0–10 V on CIB bus.
- Universal inputs can be configured as analog or digital in two groups. First group contains 4 inputs, other one 1 input.
- Firmware of module linearizes characteristics of resistance sensor, optimizes accuracy of metering and calculates it to temperature, than it is transmitted into central unit.
- Inputs in digital mode can give the binary status 0/1 on/off or they can work as double ballanced inputs evaluating 4 statuses broken wire/off/alarm/tamper of security detectors.
- Status is indicated by LED at module (RUN).

Connection

E

27

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Inputs, outputs and bus are connected via the spring terminals.

Connection example

max. 55 mm

Œ

CFox

Použij pro otevření pružinových s Use for opening the spring termin

Number of inputs

Galvanic isolation

Sensor type

Analog/universal inputs



- Module is designed for connecting of wall switches equipped by different combinations of contact, resistance sensors and LED indicators with common cathode or other devices with analog inputs 0 – 10 V (dimmers etc.).
- Module can be used to connect low stroke wall switches of JUNG company:
- A2224, CD2224, LS2224, AL2224
- Flat design with modules 3212TSM and 3224TSM, and of GIRA company: 2001xx
- Module can be used as integrated sensors of up to 5 temperatures.
- Module can be used as integrated controller of up tu 4 dimmers/ballasts controlled by 0-10 V, resp. 1-10 V with connection of 4 control buttons and 1 measurement of temperature.

C-IT-05048

7 6 5 4 3 2 1

3456784



C-IT-0504S new version with screwless terminals



Examples of connected drivers

Drivers JUNG

8



Drivers GIRA





Potential free contact	0/1	1 if <0.5 kΩ
Balanced input	interrupted wire 0/1/tamper	for 2×1k1 balanced resistor
Pt1000	−90 320 °C	0.5%
Ni1000	–60 200 °C	0.5%
NTC 12k	−40 125 °C	0.5 %
KTY81-121	−55 125 °C	0.5 %
Resistor	0–160 kΩ	0.5 %

Range

Operating conditions

Operating temperature	0 +70 °C
Storage temperature	−25 +85 °C
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP10B
Overvoltage category	II
Degree of pollution according IEC EN60664-1:2004	1
Working position	any
Installation	into installation box, under cover
Connections CIB and inputs/outputs	Spring-loaded terminals 0.15 to 0.5 mm ²

Analog outputs			
No. of outputs 4×			
Galvanic isolation	No		
Nominal output voltage	10 V		
Adjustable range of outputs	0130%		
Min. resolution	1%		
Max. output current	3 mA		
Max. capacity load	250 nF		

Dimensions and weight

Dimensions and weight		
Dimensions	55×26×20mm	
Weight	7g	

Power supply

24 V (27 V) from CIB bus
22 mA/80 mA
0.5 W/1.9 W
Yes

Order number

TXN 133 26

60

C-IT-0504S, CIB, 5 × AI/DI Temperature, contact, 4 × AO (0 – 10 V/3 mA)



CIB – Buil-in module of combined inputs/outputs, built-in

Туре	DI	DO	AI	AO	Comm
C-IT-0908S	6×DI	8×LED driver	2×AI/DI, 1×AI		CIB

Basic features

- Module is designed for direct connection of potential-free contacts, resistance sensors and LED indicators to the CIB bus.
- Inputs IN1-IN6 are only digital, two inputs IN7-IN8 can be configured as analog or digital and input IN9 is only analog input.
- Firmware of module linearizes characteristics of several types resistance sensors, optimizes accuracy of measurement and recalculates resistance into temperature in Celsius degree, which is communicated via CIB bus into central module.
- Inputs in digital mode can give the binary status 0/1 on/ off or it can work as double ballanced inputs evaluating 4 statuses broken wire/off/alarm/tamper of security detectors.
 Status is indicated by LED on module (RUN).

Connection

Module is connected at CIB bus by wires grouped at two

Connection example

£(6

Analog/universal inputs
Number of digital inputs

Operating conditions Operating temperature

Storage temperature

Overvoltage category

Degree of pollution according to IEC

EN60664-1:2004 Working position

Installation

and CIB

IP Degree of protection(IEC

Connection of inputs, outputs

Electric strength

Number of universal inputs

Number of analog inputs

Galvanic isolation

Potential-free contact

Sensor type

Balanced input

Pt1000

Ni1000

NTC 12k

KTY81-121

Resistance

529)

connectors, that are inserted into module.CIB bus, contact inputs, Resistance Temperature Detectors

6 × DI (IN1-IN6)

1 × AI (IN9)

No

Range

Interrupted wire

/0/1/tamper

-90 .. 320°C

–60 .. 200°C

–40 .. 125°C

–55 .. 125℃

0..+70°C

IP10B

II

1

any

−25 .. +85 °C

according EN 60730

0-160 kΩ

0/1

2×AI/DI (IN7–IN8)

Basic accuracy 0 for >1.5 kΩ

1 for <0.5 kΩ

resistance

0.5%

0.5%

0.5%

0.5%

0.5%

into installation box, under cover

connectors inserted into module

Wires 0.5 mm² grouped on 2

for 2 × 1k1 balanced

(RTD) and LED indicators are connected by stranded wires with sleeves. These wires are grouped at two connectors, inserted into module.

Use

- Module can be used for connecting a combinations of wall switches with different combinations of contact and resistance sensors and LED indicators with common cathode (PNP outputs) or common anode (NPN outputs).
- Module can be used to connect low stroke wall switches. JUNG: A2224/48, CD2224/48, LS2224/48, AL2224/48 and Flat Design with modules 3212TSM and 3224TSM, 3236TSM, 3248TSM
- GIRA: line 2001xx or 2003xx for designs System55 and E22 Module can be used as integrated temperature sensor of up
- to 3 temperatures.
 Module can be used as integrated driver of up to 8 LED indicators or other loads with maximal current 3 mA



Examples of wall-switches connectable via C-IT-0908S



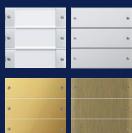




JUNG design: LS, A



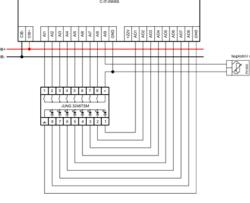
JUNG design: AL, CD



GIRA System55 and E22, (Transparent, Stainless steel, Aluminium, Brass, Bronze)

Order number

TXN 133 52	C-IT-0908S-PNP; CIB, 6× DI, 2× AI/DI, 1 × AI (contact or resistance), 8 × LED driver 3 mA, open collector PNP
TXN 133 52.01	C-IT-0908S-NPN; CIB, 6× DI, 2× AI/DI, 1 × AI (contact or resistance), 8 × NPN LED driver 3 mA



Connection of JUNG wall switch with 8 push-buttons and 8 LED indicators

Binary outputs for LED indicators

Number of outputs	8×PNP open colector,
	8× NPN (with suffix.01)
Galvanic isolation	No
Polarity of LED connection	TXN 133 52: Common cathode
	TXN 133 52.01: Common anodee
Max. voltage applicable	27 V
Max. output current	3 mA

Dimensions and weight

Dimensions	55×26×20mm	
Weight	7g	
	, A	

Power supply

Power supply and communication	24 V (27 V) from CIB bus
Nominal/max. load	30 mA/65 mA
Typical/max. input power	0.8 W/1.6 W
Internal protection	No

CIB

Туре	DI	DO	AI	AO	Comm
C-RI-0401S	See Al		2 Al/Dl, 1 × light sensor		CIB, IR

Basic features

- Module is combined module with primary function of receiver and transmitter of IR commands.
- Module can learn IR commands of remote controllers of different devices - air-conditioning unit, audio/video devices etc. and store them in module memory. Subsequently, these commands can be reproduced by module transmitter on the base of signal from system.
- This is the way how to replace manual control by Foxtrot system.
- Module contains input for the light sensor.
- Module contains 2 universal AI/DI inputs for temperature .
- sensors or potential-free contacts. These inputs can operate also as double balanced inputs for connection of security sensors.
- Status is indicated by LED on module.

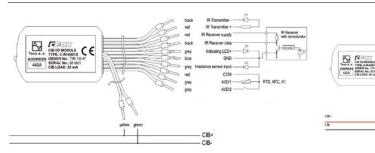
Connection

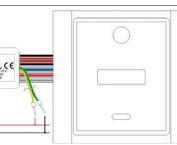
- Module is connected to two-wire CIB bus that provides both communication and power supply of module.
- Module is designed mostly for assembly into standard installation boxes in the wall or under device cover.
- Inputs, outputs and CIB bus are connected by stranded wires . with sleeves.
- Module can be individually customized and built-in into the covers of wall switch design under the code C-RI-0401R-Design. Standard design is Time by ABB.

Use

- · Integration of infra red remote controlled devices. For example:
 - Interior air-condition units . .
 - audio, video
 - consumer electronics with IR control
- · Measurement of light in interiors.
- · Light intensity control in interiors.
- . Specific sequence of actions can be defined in the system to expand the basic features of the original IR remote controller.

Connection example





No

12 bit



C-RI-0401S

Variant: C-RI-0401R-Design

IR receiver

1
No
33V
5.5 1
36 kHz

IR transmitter

Number of transmitters	1
Galvanic isolation	No
IR transmitter type	IR LED (I _F max =100 mA) + resistor according I _F
Power supply of transmitter	3.3 V
Short-circuit protection	No

Input for light sensor

Number of inputs	1
Galvanic isolation	No
Sensor type/range/input error	photodiode,
	0-50 000lx/<5%

Operating conditions

Operating temperature	−20 +55 °C
Storage temperature	−25 +70 °C
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP 10B
Overvoltage category	I
Degree of pollution IEC EN60664-1:2008	1
Working position	any
Installation	into installation box, under cover
Connection of CIB, AI/DI	Wires 0.5 mm ² . grouped on 2 connenctors inserted into module

Analog/digital inputs

Measurement ranges

No. of inputs Galvanic isolation

Resolution

Sensor type

Balanced input

Pt1000

Ni1000

NTC 12k

KTY81-121

Resistance

Analog input error

(security system)

Potential-free contact

Dimensions and weight

Dimensionsy	55×32×13mm
Weight	8g

Range

on/off

tamper

–90 .. 320 °C

-60 .. 200 °C

-40 .. 125 ℃

−55 .. 125 °C

0–160 kΩ < 2 %

broken link/0/1/

Power supply

- I onei suppiy	
Power supply and communication	24 V (27 V) from CIB bus
Typical load	25 mA
Maximal input power	0.5 W
Internal protection	No

Order number

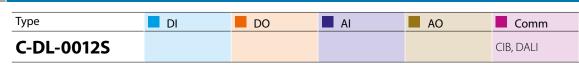
TXN 133 47

C-RI-0401S; CIB input module for sensors 1×IR, 1×lighting, 2×temperature, 1× output for IR transmitter



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Basic features

- Module is designed to control electronic ballasts, for fluorescent tubes, LED lights and other dimmers via DALI bus according specification of NEMA Standards 243-2004: Digital Addressable Lighting Interface (DALI). Control devices protocol PART 2-2004.
- Module can control independently up to 12 ballasts.
- Module is in minimal built-in design.
- Operation of module is indicated by LED diode.

Connection

- Module is connected with two wires at CIB bus, that ensures communication and power supply of module.
- Module is connected into DALI bus via output that is led as well via two wires.

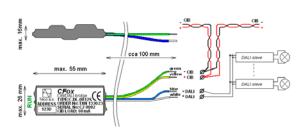
Use

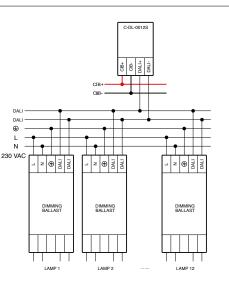
- · Control of fluorescent tubes with DALI ballasts.
- · Control of lamp dimmers equipped with DALI protocol.
- Control of LED dimmers equipped with DALI protocol.
- Independent switching on/off, smooth dimming of lights, scene creating.
- Control of module is supported by function blocks from library DaliLib in Mosaic.



C-DL-0012S

Connection example





Communication

Installation bus	CIB
Bus for ballast control	DALI, with MASTER function for max. 12 controlled ballasts, output for
	output for DALI supplied from CIB bus

Operating conditions

Operating temperature	0 +70 °C
Storage temperature	−25 +85 °C
Electric strength	according EN 60730
IP Degree of protection (IEC 529)	IP10B
Overvoltage category	11
Degree of pollution IEC EN60664-1:2008	1
Working position	any
Installation	into installation box
Connection of CIB, DALI	stranded wires 0.5mm ² with sleeves

Dimensions and weight

Dimensions	50×26×20mm
Weight	7g

Power supply

Power supply and Communication	24 V (27 V) from CIB voltage
Typical load	60 mA
Typ./Max. input power	0.5 W/2 W
Internal protection	Yes

Order number

C-DL-0012S; CIB-DALI converter, for 12 ballasts

CIB – for connection of security and access detectors

Туре	DI	DO	AI	AO	Comm
C-WG-0503S	3 DI (TTL)	3×DO (NPN)	2 AI/DI		Wiegand, CIB

Basic features

- Universal module with combination of inputs, outputs, Wiegand communication line and integrated 12V DC power supply. This combination is suitable for connection of security, fire and access detectors on CIB bus in projects where security system does not need be certified.
- Inputs IN1-IN3 on TTL level allows to connect connection external device via Wiegand interface to enable integrate the RFID card readers, security keyboard and similar devices via CIB
- Inputs IN1-IN3 can be used as digital inputs on TTL level as alternative
- Module is equipped by two universal inputs IN4, IN5, that allow to connect standard security detectors with relay outputs via simply or double balanced loops.
- Module has integrated power supply 12V DC to supply detectors and other devices usually designed for that voltage.
- Module is further equipped by semiconductor outputs (NPN with open collector), which may be used as free programmable actuators according your opinion. For example for LED signaling, switch on the buzzer or opening door by external relay.

max. 55 m

cca 100 m

3×DI (IN1–IN3), TTL 5 V 3.9 kΩ pull up resistor

> **Basic accuracy** 0 for >1.5 kΩ

balancing resistance

1 if <0.5 kΩ

for $2 \times 1k1$

0.5%

0.5%

0.5%

0.5%

0.5%

into installation box, under device cover

connenctor inserted into module

Wires 0.5mm², grouped on

2×AI/DI (IN4–IN5)

No

Range

broken wire

/0/1/tamper

-90 .. 320℃

-60 200°C

-40 .. 125°C

-55 ...125℃

0-160 kΩ

0 .. +70 ℃

IP10B

Ш

1

any

–25 .. +85 ℃

according EN 60730

0/1

Connection example

16mr max.

Analog/combined inputs

Operating conditions Operating temperature

Storage temperature

Overvoltage category

Degree of pollution

IEC EN60664-1:2008 Working position

Installation

outputs

IP Degree of protection (IEC

Electric strength

Number of digital inputs

Galvanic isolation

Potential-free contact

Sensor type

Balanced input

Pt1000

Ni1000

NTC 12k

KTY81-121

Resistance

529)

Number of universal inputs

• Module is in miniature built-in design. In extreme cases may be built-in into detectors of security systems.

Operation of module is indicated by LED diode.

Connection

- Module is connected by two stranded wires to CIB, which provides both communication and power supply of the module.
- Detectors, readers with Wiegand interface and other devices are connected by wires available on connector, which is inserted into module.

Use

- Sensing of standard or special detectors like PIR motion detectors, detectors of smoke, glass break etc.
- Connection of device communicating via Wiegand protocol.



Example of devices connectable to module C-WG-0503S



RFID readers SAMSUNG SSA R1000, SSA R1100 and reader with keyboard SSA R2000



RFID readers Aktion AXR-100, AXR-200, AXR-300



PIR detectors Texecom Security systems



Fire detectors Texecom Fire alam systems

Order number

Connection of CIB, inputs,

C-WG-0503S, CIB, 2×AI/DI balanced, 3×DO (NPN), 1×Wiegand/3×DI(TTL); output 12 V DC, connection of security system TXN 133 53 sensors

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Binary outputs

Number of outputs	3×NPN, open collector	
Galvanic isolation	No	
Polarity of LED connection	Common anode	
Max voltage:	30 V	
Max. output switched current	30 mA	

Communication In

Installation bus	CIB
Communication with reader,	Type of protocol: Wiegand
keyboard	Format: 26 bits, 34 bits, 42 bits,
	40 bits transparent
	Number of bytes: 5, 4, 3, 5

Power supply output 12 VDC

Output voltage	12 V DC
Output current (max.)	60 mA

Dimensions and weight

Dimensions $55 \times 26 \times 16 \,\text{mm}$ Weight 7g

. **.** .

Power supply	
Power supply	24 V (27 V) from CIB
Max. load	85 mA
Typ./Max. input power	0.5 W/2.3 W
Internal protection	No

CIB – Module of relay outputs

Туре	DI	RO	AI	AO	Comm
C-OR-0202B	See Al	2	2 AI/DI		CIB

Basic features

- Module is an actuator with two independent relays 16 A with NO and NC contacts available.
- It is designed for switching of 2 independent power loads.
- Each relay is independently addressed and controlled. •
- Module has 2 universal inputs for potential free contacts or resistive temperature sensors.
- Inputs can operate also as double balanced inputs for safety detectors. Inputs can be used to connect other resistive sensors up to 160 k Ω .
- Status of outputs and error/operation is indicated by LED on module.

Connections

CIB+

CIB-

- Module is connected on two wire CIB bus, providing both communication and power supply of module.
- Module is designed for assembly into standard installation box in the wall or under device cover.
 - **Connection example**

Connection of DC motor and 2 temperature sensors

- All relay contacts are led by isolated wires of 70 mm length.
- CIB bus and universal inputs are available on screw-type terminals.

Use

- Module is designed for switching independent power loads and other devices by relay contacts.
 - With appropriate connections of contacts of both relays which avoid the simultaneous presence of voltage on both output contacts, module can be used to control drives od jalousies, shutters and blinds.
- During designing the wiring, load and protection of each output has to be taken into account.



C-OR-0202B

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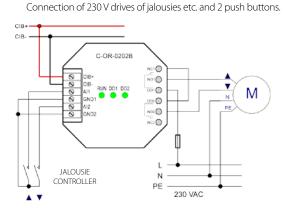
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+24 V-0 V

24 VDC

Μ



Analog/combined inputs

Number of universal inputs	2×AI/DI
Galvanic isolation	No

Sensor type	Sensor type	Basic accuracy
Potential-free contact	0/1	0 if >1,5 kΩ 1 if <0,5 kΩ
Balanced outputs	broken wire/0/1/ tamper	for 2 × 1k1 balancing resistance
Pt1000	−90 +320 °C	0.6°C
Ni1000	−60 +200 °C	0.6°C
NTC 12k	-40 +125 ℃	0.6°C
KTY81-121	−55 +125 °C	0.6°C
Resistance	0–160 kΩ	•

Operating conditions Operating temperature _10 .. +55 ℃ Storage temperature -25 .. +70 °C Electric strength according EN 60950 IP Degree of protection(IEC 529) IP 20B Overvoltage category Degree of pollution IEC 1 EN60664-1:2004 Working position anv Installation into installation box Connection of CIB, AI/DI screw terminals max. 1.5 mm² Relay outputs wire cross-section 6 x stranded wire H05 VK, 2.5 mm²

Relay outputs

Number of outputs	2 x both NO, NC contacts 16 A/AC1
Galvanic isolation	Yes (even among outputs)
Switching voltage	min. 5 V DC; max. 300 V AC
Switching power	4000 VA/AC1, 384 W/DC
Switching current	max.16 A (NO), max.10 A (NC), min. 100 mA
Inrush current	80 A/<20 ms (NO contact)
Switch on/off time	typ. 15 ms/5 ms
Switching frequency without load	max. 1200 min ⁻¹
Frequency of switching with load	max. 6 min ⁻¹
Mechanical lifetime	3×10 ⁷
Electrical lifetime	0.7×10 ⁵
Short-circuit protection	No
Spike suppressor of inductive load	External (RC unit, varistor, diode)
Insulation voltage among each relay outputs	1000 V AC

Dimensions and weight

Dimensions	50×50×30mm
Weight	70 g

Power supply

Power supply and communication	24 V (27 V) from CIB bus
Nominal load	50 mA (both relays closed)
Internal protection	Recovering fuse

Order number TXN 133 02

C-OR-0202B; CIB relay module 2×RO 230 V AC/16 A; 2×AI/DI



65

CIB – Module of control inVENTer [®] fans					
Туре	DI	DO	AI	AO	Comm
C-VT-0102B			1 × temperature	2×fan	CIB

Basic features

- Module is designed for proportional control of speed and rotation direction of two fans in heat recovery system inVENTer® •
- Both fans are powered from the CIB bus. • Module on CIB bus acts as two analog outputs 0-100% and one analog input for interior temperature measurement.
- Status is indicated by LED on module.

Connection

- Module is connected to CIB bus by two wires. CIB provides both communication and power supply.
- Each fan is connected by 3 wires. •
- Two screw type terminals are used for connection of tempe-• rature sensor.

Use

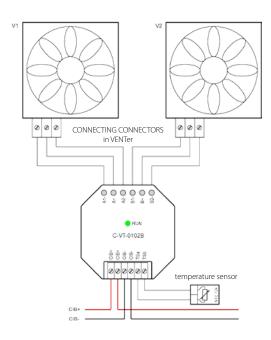
- · Module is designed specifically to control fans of patented heat recovery system inVENTer. Together with these two fans, module is de facto heat recovery unit controlled and powered by CIB bus.
- · Logic of both fans control in modes of heat recovery, dehumidification or charging is given by application program.



C-VT-0102B

Connection example

Connection of two fans and one temperature sensor



Outputs for fans

No. of outputs	2×
Output voltage	± 715 V DC, ± %
Output current	Max. 200 mA

Analog input

СІВ

Sensor type	Range	Basic accuracy
NTC 12k	−40 90 °C	0.6 °C
Resistance	0–100 kΩ	-

Operating conditions

Operating temperature	0 +70 °C	
Storage temperature	–25 °C+85 °C	
Electric strength	according EN 60730	
IP Degree of protection (IEC 529)	IP 10B	
Overvoltage category	II	
Degree of pollution IEC EN60664-1:2008	1	
Working position	any	
Installation	into installation box, under cover	
Connection of CIB, AI	screw terminals, max. 1.5 mm ²	
Outputs for fans	6×wire H05 VK, 0.5 mm ²	

Dimensions and weight

Dimensions	50×50×27mm
Weight	38g

Power supply

Power supply and communication	24 V (27 V) from CIB bus
Typical/max. load from CIB	250 mA
Typical/max. input power form CIB	4 W/6 W
Internal protection	Recovering fuse

Order number

TXN 133 36

C-VT-0102B, CIB, 2 x fan drive for inVENTer (± 15 V DC); 1 x AI for temperature sensor

www.tecomat.cz | Teco a.s., Havlíčkova 260, 280 02, Kolín 4, Czech Republic | teco@tecomat.cz | www.tecomat.com



CIB – Module of universal analog inputs with protection IP65

Туре	DI	DO	AI	AO	Comm
C-IT-02001			2×AI		CIB

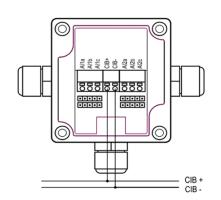
Basic features

- Module is designed as universal analog input on CIB bus with high IP protection for general use.
- Module allows to measure voltage, current, resistance, RTD and thermocouples, pH and Redox probes.
- The type of sensor and measured range is selectable by jumpers.
- Firmware of module linearizes characteristics of temperature sensor, optimizes accuracy of measurement and converts it on temperature in degrees, which is then transferred into central unit.

Connection

 Module is connected to CIB bus providing both communication and power supply of module by cable through glands.

Connection example



Analog inputs		
No. of inputs	2×	
Galvanic isolation	No	
Converter type/Resolution	SigmaDelta/16 bit	
Analog input error	<2% (according to used range)	
Compensation of cold end of thermocouple	Yes	
Input range of internal thermometer	–20 80°C	

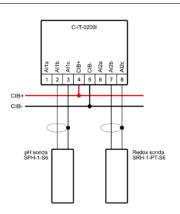
Sensor type	Range	Input impedance
Voltage U	0÷10 V; 0÷5 V; -2÷2 V;-1÷1 V	54.6 kΩ
Voltage U (HI)	HI: –1÷1 V, HI: –100+ 100mV	4 ΜΩ
Current I	0÷20 mA 4÷20 mA	50 Ω

Operating conditions Operating temperature -10 .. +55 ℃ −25 .. +70 °C Storage temperature Electric strength according EN 60730 IP Degree of protection (IEC IP65 529) **Overvoltage category** Ш Degree of pollution according IEC EN60664-1:2008 Working position any Installation On wall, on surface, holder, etc. Connection of CIB Screw-less free Push-in terminals 1.5 mm²

- Wires are connected via screw-less terminals accessible after opening.
- Module can be fixed on the device surface or on the wall.

Use

- Module can be used as remote converter of analog signal in place of measurement and long distance transmission in digital form via installation bus CIB with use of all its advantages, e.g. transmission up to 500 m, any branches and as well power supply via CIB bus.
- For power supply of current loops there is no need of separate wires, power supply comes from CIB bus.
- High protection enables to install module very close to measured value in any environment.
- Module can be used for measurement of very low voltage, from pH and Redox probes, whose we use for example in pool technologies. The probe has to be calibrated before use.



Example of connection pH and Redox probes

Sensor type	Range	Input impedance
Thermocouple type J	-210+1200°C	4 MΩ
Thermocouple type K	-200+1372°C	4 MΩ
Thermocouple type R	−50+1768°C	4 MΩ
Thermocouple type S	−50+1768°C	4 MΩ
Thermocouple type T	200+400°C	4 MΩ
Thermocouple type B	250+1820℃	4 MΩ
Thermocouple type N	-200+1300°C	4 MΩ

Sensor type	Range	Input impedance
Pt1000 (W100= 1.365)	−90 320°C	4.7 kΩ
Pt 1000 (W100= 1.391)	−90 320°C	4.7 kΩ
Ni1000 (W100= 1.500)	−60 200°C	4.7 kΩ
Ni1000 (W100= 1.617)	−60 200°C	4.7 kΩ
NTC 12k	-40 125℃	4.7 kΩ
KTY81-121	−55 125°C	4.7 kΩ
Resistance	0-200 Ω	4.7 kΩ

Dimensions and weight

Dimensions	125×100×38mm
Weight	120g

Power supply Power supply and communication 24 V (27 V) from CIB bus Typical/max. load 15 mA/60 mA(at power supply af autor to apply)

	of current loops)
Typical/Maximal input power	0.4 W/1.5 W
Internal protection	No



C-IT-0200I

Order number

C-IT-0200I; CIB, 2 × AI, 0 - 10 V, 4 - 20 mA, RTD, TC, IP65



CIB – Modules for reading of energy meters and analog inputs

Туре	DI	DO	AI	AO	Comm
C-AM-0400M			4×AI/DI		CIB
C-AM-0600I			5 × AI/DI 2 × AI for flow meter AV23		CIB

Basic features

- · Modules for CIB bus.
- Input AV23 of module C-AM-0600I is designed for direct connection of flow meter Taconova AV23.
- Universal inputs can be configured for measurement of voltage, current and resistance temperature sensors.
- Universal inputs can be also configured as impulse counters of energy meters - electricity meters, gas meters and water meters.
- Taconova AV23 flow meter interface has 2 inputs, one is used for sensing of proportional flow and the second for sensing the temperature of flowing liquid.

Connection example



	C-AM-0400M	C-AM-0600I
Number of inputs	4×AI/DI	5×AI/DI
Inputs for flow meter AV23	No	1×(AV23)
External power supply	No	No
Reference voltage	7.4 V	7.4 V

Binary inputs	C-AM-0400M	C-AM-0600I
Number of inputs	4×AI/DI	5×AI/DI
Input type	Active/pasive	Active/pasive
Delay 0->1	10 ms	10 ms
Delay 1->0	500 ms	500 ms

Impulse counter	C-AM-0400M	C-AM-0600I
No. of inputs	4×AI/DI	5×
Galvanic isolation	No	-
External power supply	No	-
Reference voltage	24 V DC	AI1-AI4: 24 V DC AI5: 7.4 V
Max. input current	14 mA	14 mA
Max. frequency	20 Hz	20 Hz
Minimal length of counted pulse	>30 ms	>30 ms
Measured range of thermo meter/Internal converter	800Ω	800Ω

Operation and installation conditions

Operation temperature	−10 +55 °C
Storage temperature	−25 +80 °C
Electrical strength	according EN 60730
Degree of protection IP (IEC 529)	IP55
Overvoltage category	
Degree of pollution according ČSN EN60664-1:2008	1
Operation position	Any
Installation	On wall
Connection of CIB and sensors	Screwless push-in terminals 0.14÷1.5 mm ²

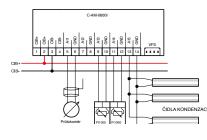
· Module firmware linearizes characteristics of resistance sensors, optimizes accuracy of measurement and recalculates it into temperature, which is further transmitted into central unit.

Connection

- Modules are connected to the CIB bus.
- Module C-AM-0400M is connected over 2 screw-type connectors.
- Module C-AM-0600M with IP65 protection is connected over screwless push-in terminals under the cover

Use

- As universal analog inputs on CIB bus.
- As universal counter inputs on CIB bus.
- · As specialised module for connection flow meter Taconova AV23..



Range	Basic accuracy
0/1	0 for >1.5 kΩ 1 for <0.5 kΩ
broken wire /0/1/tamper	pro 2×1k1 balancing rezistor
−90 320°C	0.5%
−60 200°C	0.5%
-40 125℃	1%
−55 125°C	0.5%
0–200 kΩ	10%
0-400 kΩ	10%
0÷10 V, 0÷2 V, 0÷1 V	0.5%
0-20 mA, 4-20 mA	
	0/1 broken wire /0/1/tamper -90 320°C -60 200°C -40 125°C -55 125°C 0 - 200 kΩ

Interface features

of flow meter AV23	C-AM-0400M	C-AM-0600I
Power supply voltage		5 V DC
Integrated power supply		Yes
Typical load from CIB		3 mA
Measured range		0.5 – 3.5 V
of flow meter/Internal		1 – 12 l/min or
converter		2-401/min
Input error		0.5%
Measured range of thermo	D	0.5 – 3.5 V/0 – 100 °C
meter/Internal converter		
Input error		0.5%

Dimensions and weight	C-AM-0400M	C-AM-0600I
Dimensions	90×36×65	85×85×37 mm
Weight	75 g	65 g

Power supply

i ower suppry	
Power supply and comunication	24 V (27 V) from CIB bus
Nominal/max. load	40 mA/80 mA
Typical/Maximal input power	1 W/2 W
Internal protection	No
•	•

Order number

TXN 133 51	C-AM-0400M; CIB, $4 \times$ AI/DI, module of analog inputs and reading energy meters
TXN 133 50	C-AM-06001; CIB, $5 \times$ Al/DI, $1 \times$ AV23 flowmeter, module of analog inputs and reading energy meters, IP65 protection



UNDER CONSTRUCTION

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3 3

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C-AM-0400M

C-AM-0600I

Туре	DI DI	DO	AI	AO	Comm
C-IT-0100H-A			1 × temperature		CIB
C-IT-0100H-P			1 × temperature		CIB

Basic features

Analog inputs

Supplement input

Resolution

Calibration

Main input/measured value

Measured temperature range

Basic measurement acuracy

Operating conditions

IP Degree of protection according IEC 529

Temperature of storage and transportation $-25 \div + 70 \degree C$

Operation temperature

Relative humidity

Input wire assembly

Conductors cross-section

Standard length of stem

Power supply Power supply/Voltage

Load from CIB bus

Recommended diameter of wire

Dimensions and weight

Connection (CIB)

Installation

Dimensions

Weight

- C-IT-0100H-A Temperature sensor in aluminium head with stem, IP54
- C-IT-0100H-P Temperature sensor in plastic head with stem IP65.
- Available also as an outdoor temperature sensor, or surface contact sensor.
- Temperature is converted in sensor directly on numerical value and transmitted into central module via CIB bus.
- All units have built-in sensor of internal temperature in the head.
- The principle of processing the signal eliminates distortion resp. error of measurement by connection at long distance.

C-IT-0100H-A

-50 ℃ ÷ + 250 ℃

From manufacturing

0.1 °C

0.5 °C

1 × temperature sensor at stem

Temperature in converter head

C-IT-0100H-A

-25 ÷ + 70 °C

Into the pipe, thermowell, on the

wall (see optional accessories)

< 80%

1×gland

5 ÷ 7 mm

1 mm²

C-IT-0100H-A

variants)

220 g

8 mA

90×71×200 mm

C-IT-0100H-A

From bus CIB/24 (27) V DC

Firm terminals

120 mm (other lengths see other

IP54

Connection

- Sensors and converters are designed as standard units at two wires CIB bus, providing both communication and power supply of all sensor.
- Save wires: Free topology and branching up to distance 400 m, up to 32 units on 1 branch CIB.
- Master of CIB bus is basic module Foxtrot or extension module CF-1141.

Use

C-IT-0100H-P

-20 °C ÷ + 200 °C

From manufacturing

C-IT-0100H-P

-25 ÷ + 70 ℃

-25 ÷ + 70 ℃

Into the pipe, thermowell, on the wall (see optional accessories)

< 80%

1 × gland

4 ÷ 8 mm

C-IT-0100H-P

C-IT-0100H-P

From bus CIB/24 (27) V DC

variants)

130 g

8 mA

Firm terminals 1 mm²

90×66×155 mm (without gland)

115 mm (other lengths see other

IP65

0.1 °C

0.5 °C

1 × temperature sensor at stem

Temperature in converter head

- In applications of measurement and regulation.
- In air-conditioning, ventilation, local or centralised heating or cooling.
- · Can be placed in exteriors or interiors.



C-IT-0100H-A



C-IT-0100H-P



C-IT-0100H-P Surface contact

CIB



C-IT-0100H-P outdoor temperature

Order	number

TXN 133 17 C-IT-0100H-A, CIB, temperature sensor with stem, IP54, aluminium head TXN 133 16 C-IT-0100H-P, CIB, temperature sensor with stem, IP65, plastic head

CIB – Outside temperature and lighting sensor module

Туре	DI	RO	AI	AO	Comm
C-RI-04011			1× lighting sensor 1× temperature sensor		CIB

Basic features

- Combined sensor of temperature and lighting on CIB bus.
- Module is designated with IP54 protection for installation on the wall in exteriors.

Connection

- Module is connected to two wires CIB bus, that ensures communication and power supply of module.
- CIB bus comes to module through gland by two wires cable up to diameter 7mm.

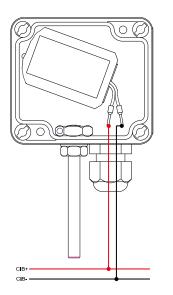
Use

- Module is designated primarily for outside lighting metering.
 Module also measure outside temperature, because it is equipped by own temperature sensor.
- Module may be used in exterior and interior, where a high protection is needed.



Connection example

C-RI-04011



Temperature sensor				
Number	1			
Galvanic isolation	No			
Resolution	12 bit			
	•			

Measured ranges

Sensor type	Ranges	Accuracy
Pt1000 - W100=1.385	−90 320°C	12 bit/< 2%

Operating conditions

Operating temperature	−20 +55 °C
Storage temperature	−25 +70 °C
Electric strength	according EN 60730
IP Degree of protection IEC 529	IP54
Overvoltage category	
Degree of pollution according EN60664-1:2008	1
Operating position	Vertical, gland down
Installation	In exterior by fixing on the wall by screws in installation holes
Connection	2 wires cable 4,5-7 mm via gland PG9

Lighting sensor

Number	1
Galvanic isolation	No
Resolution	12 bit

Measured ranges

Sensor type	Ranges	Accuracy
Photodiode	0-50 000 lx	12 bit/< 5%

Dimensions and weight

Dimensions	74×125×39mm
Weight	150g

Power supply

Power supply and communication	24 V (27V) from bus CIB
Nominal load	25 mA
Max. input power	0.5 W
Internal protection	No

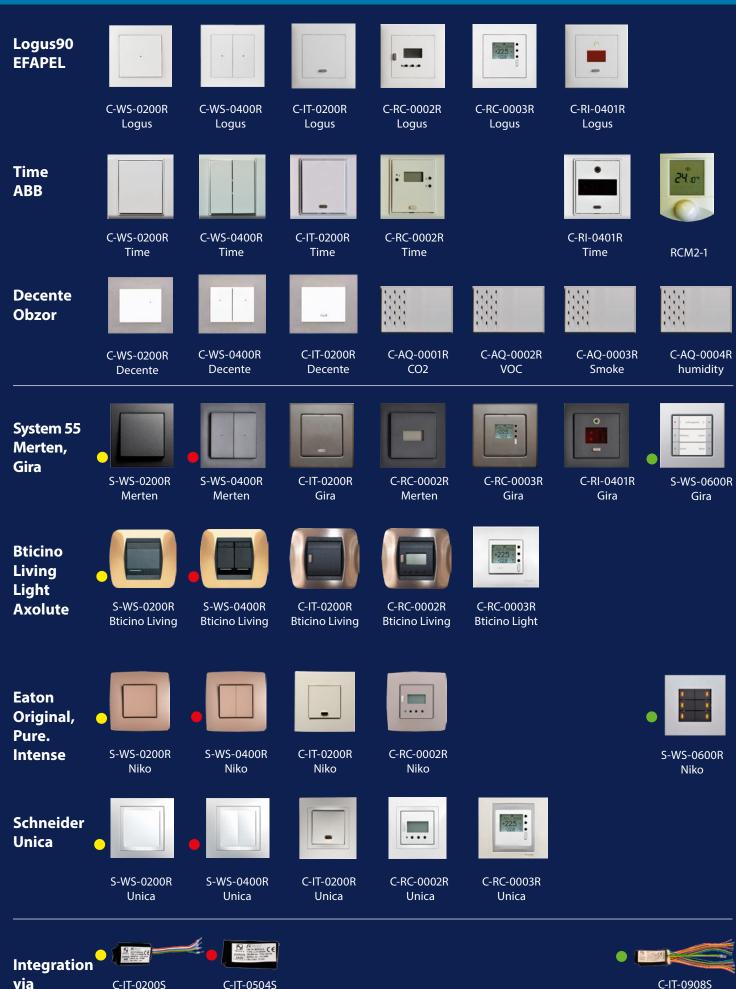
Order number

TXN 133 47.92

C-RI-0401I, CIB combined module for outside lighting and temperature metering



CFox Interior controllers



C-IT-0908S

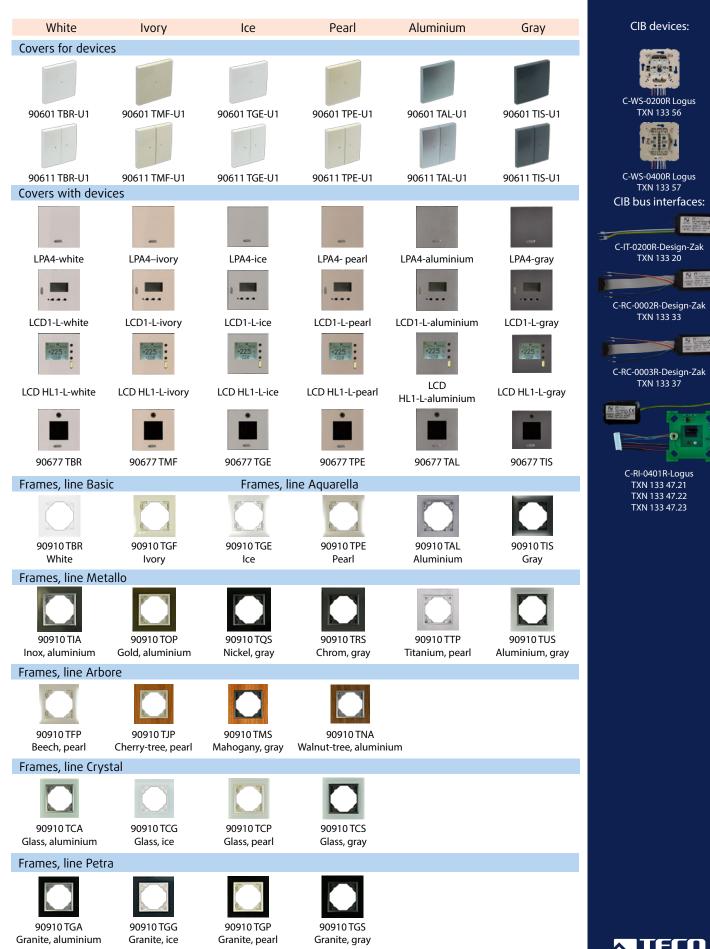
CIB - Wall switch controllers LOGUS90 (EFAPEL) Devices, covers, frames

Basic features

 Because of wide range of color and material combinations of covers and frames from LOGUS90 line, the cover and frame are ordered separately.

Order codes

Order numbers are mentioned below images.



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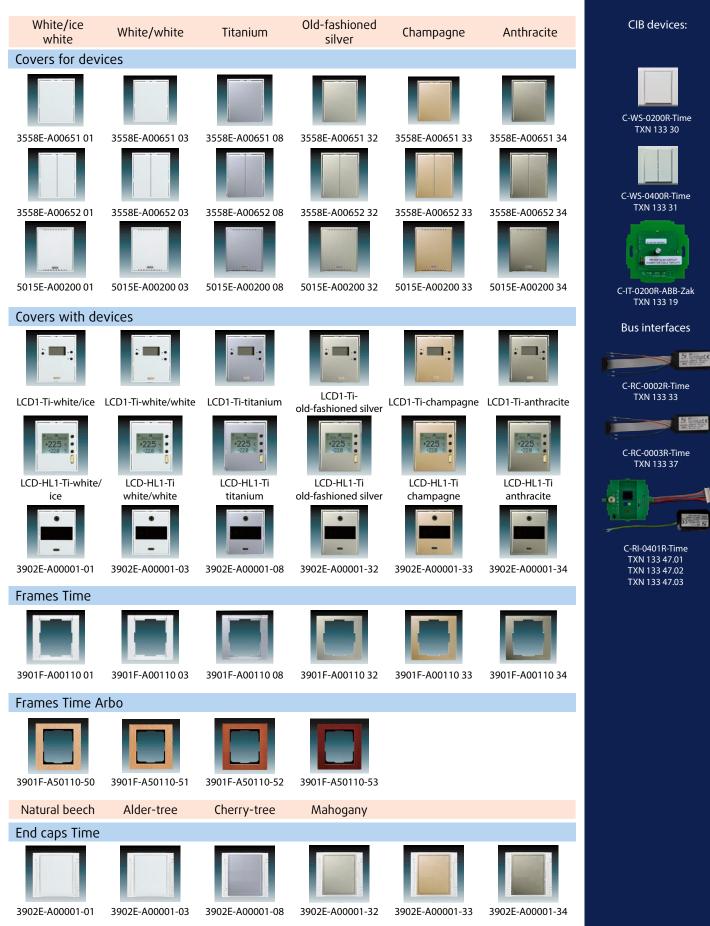
CIB - Wall switch controllers Time (ABB) Devices, covers and frames

Basic features

Because of wide range of color and material combinations of covers and frames from Time line, the cover and frame are ordered separately.

Order number

· Order numbers are mentioned below images.



CIB

CIB – Wall switches controllers Element (ABB) Covers and frames





CIB – Wall switches in Time design (ABB)

Туре	DI	DO	AI	AO	Comm
C-WS-0200R-Time	2 buttons		2×temperature external		CIB
C-WS-0400R-Time	4 buttons		2×temperature external		CIB

Basic features

- Wall switches with short press control. Each rocker has two • buttons, one. In upper and one in lower half.
- Each button can be configured for any action. Number of presses or length of the press can be evaluated to distinguish different statements.
- Additionally for each switch the sequence of actions/commands can be assigned, e.g. simultaneously to close the blinds, switch lights on with the specific intensity level, switch on the TV etc.
- Wall switches have terminals for connection of up two exter-

Connection example

nal temperature sensors, for example temperature of interior and floor temperature.

Connection

Digital inputs

Input type

· Wall switches have to be connected to CIB bus, which provides both communication and power supply of module.

Use

- In interiors into standard installation boxes under plaster. · Wall switches are compatible with frames and sockets of Time and Element designs by ABB and can be combined with them.
- Combination of frames and covers in other colors then standard (white/white) is necessary to order on request for special price.



C-WS-0200R-ABB-Zak







C-WS-0200R Time



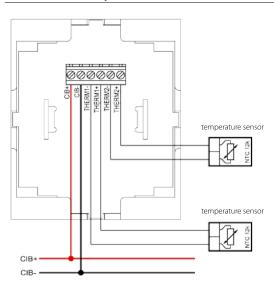
C-WS-0400R Time

Requirements for other design of wall switches you can solve out with use of combined modules C-IT-0504S or C-IT-0908S.

Order number

TXN 133 30.01	C-WS-0200R-Time; white/white, CIB, Controller with short-press control, 2 buttons
TXN 133 31.01	C-WS-0400R-Time; white/white, CIB, Controller with short-press control, 4 buttons
TXN 133 30	C-WS-0200R-ABB-Zak, CIB, Controller with short-press control, 2 buttons, frame and cover on request
TXN 133 31	C-WS-0400R-ABB-Zak, CIB, Controller with short-press control, 4 buttons, frame and cover on request





Analog inputs	C-WS-0200R	C-WS-0400R
Input type	2×NTC12k/	2×NTC12k/
	resistance 0 – 100 kΩ	resistance 0 – 100 k Ω
Range of measurement	090 °C/0 – 100 kΩ	090 °C/0 – 100 kΩ
Basic accuracy	±1 ℃	±1 °C
-		

Operating	conditions

−10 +55 °C
–25 +70 ℃
according EN 60950
IP20
2
vertical
On installation box
screw terminals, 1.5 mm ²

Dimensions and weightC-WS-0200R		C-WS-0400R
Dimensions	83×81×21 mm	83×81×21 mm
Weight	60 g	60 g

C-WS-0200R

2×built-in button

C-WS-0400R

4×built-in button

Power supply	C-WS-0200R	C-WS-0400R
Power supply	24 V (27 V)	24 V (27 V)
and communication	from bus CIB	from bus CIB
Typical/max. load	13 mA/17 mA	13 mA/17 mA
Typical/max. input power	0.3 W/0.4 W	0.3 W/0.4 W
Internal protection	No	No

CIB - Group wall switch controllers Logus90 (EFAPEL)

Туре	DI	RO	AI	AO	Comm
C-WS-0200R-Logus	2× button	1× LED green 1× LED red	1× internal temperature 2× external temperature		CIB
C-WS-0400R-Logus	4× button	2	1× internal temperature 2× external temperature		CIB

Basic features

- Wall switches with short press button control. Each control element has up and down button.
- Each button may be configured in project SW for any meaning. E.g. we may evaluate length of press.
- Each button may be matched with sequence of commands, e.g. pull jalousies, switch on the lights and set intensity of lights, switch on TV etc.
- Switches have led wires for connection of up to two external temperature sensors. E.g. interior temperature and floor temperature.

Binary outputs LED indication C-WS-0200R-Logus

2× AI/DI

No

Ranges

Interrupted wire

/0/1/tamper

–90 .. 320°C

-60 .. 200°C

-40 .. 125℃

–55 .. 125°C

0-160 kΩ

0/1

Switches have built-in temperature sensors.

Connection example

Button inputs

Universal inputs

Measured ranges

Voltage-free contact

Balanced input (security

Number of universal inputs

Galvanic isolation from CIB bus

Operating conditions

Electric device protection degree

IP Degree of protection IEC 529

Degree of pollution according

Connection, wire dimension

Operating temperature

according EN 61140:2003

Overvoltage category

Storage temperature

Electric strength

EN60664-1:2008 **Operating position**

Installation

Input type

Output type

Sensor type

systems)

Pt1000

Ni1000

NTC 12 k

Resistor

KTY81-121

Connection

C-WS-0400R-Logus

C-WS-0400R-Logus

4x built-in button

2× green LED

2x red | FD

• Wall switches are connected directly to CIB bus, which ensures communication and power supply of switches.

Use

巴

C-WS-0200R-Logus

Základní Accuracy

0 if >1.5 kΩ

1 if < 0.5 kΩ for 2× 1k1 balanced

resistor

0,5%

0,5%

0.5%

0,5%

0,5%

-10 .. +55 °C

-30 .. +70 °C

Ш

1

IPxxB

Vertical

according EN 60950

On the wall, into installation box

Independent wires, 0.5 mm2

 $2 \mathbf{x}$ built-in button

1× green LED

1× red LED

- For interiors into standard installation boxes under plaster. Switches are designed compatible with frames, devices and sockets LOGUS90 (Efapel) and may be free combined with them.
- Below mentioned order numbers mean only device, which need to be completed on order with switch cover and frame.



C-WS-0200R Logus



C-WS-0400R Logus



Bottom view

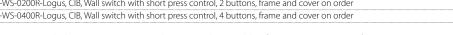




Switches must be completed with box and cover

Order number

TXN 133 56 C-WS-0200R-Logus, CIB, Wall switch with short press control, 2 buttons, frame and cover on order TXN 133 57 C-WS-0400R-Logus, CIB, Wall switch with short press control, 4 buttons, frame and cover on order



Dimensions and weight

Dimensions Weight

Power supply

Power supply

Nominal/max. load

Internal protection

Typ./Max. input power

88×86×38mm

13 mA/17 mA

0.3 W/0.4 W

24 V (27 V) from CIB bus

79 g

No

CIB – Group wall switch controllers LOGUS90 Logus90 (EFAPEL) Covers and frames

Basic features Order numbers Because of wide range of color and material combinations · Order numbers are mentioned bellow each image. of covers and frames in design line LOGUS90, it is necessary to order separately covers and frames as independent items. Covers for C-WS-0200R-Logus 90601 TBR-U1 90601 TMF-U1 90601 TGE-U1 90601 TPE-U1 90601 TAL-U1 90601 TIS-U1 White lvory lce Pearl Aluminium Gray Covers for C-WS-0400R-Logus 90611 TBR-U1 90611 TMF-U1 90611 TGE-U1 90611 TPE-U1 90611 TAL-U1 90611 TIS-U1 White Pearl Aluminium lvory Ice Gray Frames, line Basic Frames, line AQUA 90910 TBR 90910 TGE 90910 TPE 90910 TMF 90910 TAI 90910 TIS White lvory lce Pearl Aluminium Gray Frames, line Metallo 90910 TIA 90910 TOP 90910 TQS 90910 TRS 90910 TTP 90910 TUS Nickel, gray Inox, aluminium Gold, aluminium Chrome, gray Titanium, pearl Aluminium, gray Frames, line Arbore Frames, line Crystal 90910 TNA 90910 TFP 90910 TJP 90910 TMS 90910 TCA 90910 TCG Walnut-tree, Beech, Pearl Glass, aluminium Cherry-tree, pearl Mahogany, gray Glass, ice aluminium Frames, line Petra Frames, line Crystal 90910 TGG 90910 TGP 90910 TGS 90910 TCP

90910 TGA Granite, aluminium

Granite, ice

Granite, pearl

Granite, gray

Glass, pearl

90910 TCS Glass, gray

CIB

www.tecomat.cz | Teco a.s., Havlíčkova 260, 280 58, Kolín 4, Česká republika | teco@tecomat.cz | www.tecomat.com

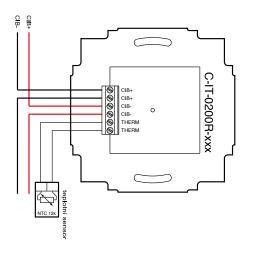
CIB – Module of temperature measurement

Туре	DI	DO	AI	AO	Comm
C-IT-0200R-Time			2×AI/DI		CIB
C-IT-0200R-ABB Zak			2×AI/DI		CIB

Basic features

- · Module is on CIB bus connectable module designed for interior temperature measurement. The temperature is measured by sensor placed in the cover
- It is possible to connect second, external sensor, for example for floor temperature measurement, outside temperature etc.
- Modules of temperature measurement are available in different manufacturer designs. Availability of design please check at producer.
- Built in temperature sensor is placed in lower part of cover. This placement maximizes accuracy of measurement and eliminates influence of module heating to measurement.
- Input for external temperature sensor and connection CIB bus is placed in bottom part of module.
- Firmware supports linearization and direct reading of temperature from external NTC 5k, 10k, 12k, 15k and 20k. For these types of sensors it eliminates even distortion, resp. error of measurement for long distance.
- Input for external sensor can be used for measurement of general resistance up to 100 k Ω .
- Status and error/operation is indicated by LED diode at bottom part of module.

Connection example



Operating conditions

Operating conditions	
Operating temperature	0 +55 °C
Storage temperature	–25 +70 ℃
Electric strength	according EN 60950
IP Degree of protection (IEC 529)	IP 10B
Overvoltage category	II
Degree of pollution IEC EN60664-1:2004	1
Working position	Vertical
Installation	Into installation box
Connection of CIB, AI	Screw terminals

Connection

- Module is used for assembly on the wall into standard installation box.
- Module has two parts: top part with sensor in interior design and bottom with electronics of connection into CIB bus and connection of external sensor.
- · Upper and bottom part are connected each other with cable with connector.

Use

- · Module can be used for measurement of up to two temperatures. One interior and another external - for example outside temperature, floor temperature, etc.
- As external sensor we can connect also other resistance, for example photo resistance or potentiometer to set the value.

Analog inputs

Sensor type	Range	Basic accuracy
Internal temperature	055 ℃	0.5 ℃
External temperature (NTC 12k)	−20 +80 °C	0.5 ℃

Dimensions and weight

Dimensions	89×87×25mm
	or according used
	design + 13 mm
	height of bottom
	part imbedded in
	a box
Weight	80 g
	-

Power supply

Power supply and communication	24 V (27 V) from bus CIB
Nominal/max. load	14.5 mA/17 mA
Nominal/max. input power	0.3 W/0.4 W
Internal protection	No

Order number

Order number	
TXN 133 19.01	C-IT-0200R-Time; white/white, CIB, 2×temperature (1×internal, 1×external)
TXN 133 19	C-IT-0200R-ABB Zak; CIB, 2 × temperature (1 × internal, 1 × external); cover and frame separately on request
	S .



C-IT-0200R-Time

Other designs on request





C-IT-0200R-Alpha



C-IT-0200R-Swing



C-IT-0200R-Tango

Designs ABB Solo, Future Linear, Impulse resp. others ask producer



78

Module is on CIB bus connectable module designed for measurement of temperature in interiors. Temperature is measu-

It is possible to connect second, external sensor for measure-

Built-in temperature sensor is placed in bottom part of cover.

This placement maximizes accuracy of measurement and eliminates influence of module heating to measurement.

Input for external temperature sensor and connection of CIB

Firmware supports linearization and direct reading of tempe-

rature from external NTC 5k, 10k, 12k, 15k and 20k. For these

Input for external sensor may be used also for measurement

Status is indicated by LED diode on bottom part of module.

types of sensors it eliminates even distortion, resp. error

ment of floor temperature, outside temperature etc.

Modules of temperature measurement are available

bus is placed in bottom built-in part of module.

in designs of different manufacturers. Availability check

DI

DO

C-IT-0200R-Design

red by sensor placed in cover.

Type

Basic features

at manufacturer.

Connection

AI

2 x Temperature

internal, external

• Module is used for assembly on the wall into standard installation box.

AO

· Module has two parts: upper with sensor in interior design and bottom with electronics of connection into CIB bus and connection of external sensor.

Comm

CIB

- · CIB bus and inputs for external sensor connectable by isolated wires of length 70 mm with sleeves.
- Upper and bottom part are connected each other with cable with connector.

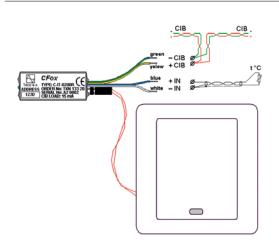
Use

- Module can be used for measurement of up to two temperatures. One interior and another external - for example outside temperature, floor temperature, etc.
- · As external sensor we may connect also other resistance, for example photo resistance or potentiometer to set the value.

Connection example

of measurement for long distance.

of general resistance up to 100 k Ω .



Analog inputs

Sensor type	Range	Basic accuracy
Internal	055℃	0.5°C
External NTC 5k	090°C	0.5°C
External NTC 10k	090°C	0.5°C
External NTC 12k	090°C	0.5°C
External NTC 15k	090°C	0.5°C
External NTC 20k	090°C	0.5°C

Operating conditions

Operating temperature	0 +55 °C
Storage temperature	–25 +70 ℃
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP 10B
Overvoltage category	II
Degree of pollution IEC EN60664–1:2004	1
Working position	any
Installation	Into installation box
Connection of CIB, AI	Tape wires with sleeves 1.15 mm ²

Analog inputs

Sensor type	Range	Basic accuracy
External resistance	0–25 kΩ	0.5 kΩ
External resistance	25–50 kΩ	0.5 kΩ
External resistance	50–100 kΩ	1 kΩ

Dimensions and weight

Dimensions	$56 \times 26 \times 16$ mm (bottom part),
	upper part according used
	design
Weight	80g

Power supply

- I onei suppiy	
Power supply and communication	24 V (27 V) from CIB bus
Nominal load	45 mA
Nominal/max. input power	0.3 W/0.4 W
Internal protection	Return fuse

Example: C-IT-0200R– Legrand Galena



Other designs for individual order:



C-IT-0200R-Legrand Valena



C-IT-0200R-Legrand Cariva



C-IT-0200R-Niko Pure

C-IT-0200R-Schneider Unica

Designs LOGUS, DECENTE, ELEGANT, Jung, Berker, Gira, Merten and others please, ask producer

Order number TXN 133 20

C-IT-0200R-Zak; CIB, 2×temperature (1×internal, 1×external); cover and frame separately on request

CIB

Туре	DI DI	DO	AI	AO	Comm
			1×internal tempe-		
			rature		CIB,
C-RI-0401R-Time			1×external tempe-		IR both
			rature/contact		directions
			1 × light sensor		

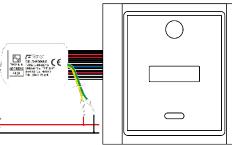
Basic features

Module with bidirectional infrared interface with interior design for use with majority of remote controllers. Module has also inputs for light intensity sensor, temperature sensor and external temperature sensor or contact.

CIB – IR interface module, light sensor

- This input can be used also as balanced input for connection of security detectors.
- Standard design is Time (ABB) white/white.
- Other designs may be delivered on request after agreement • with manufacturer.
- Module may learn IR commands of remote controllers of different devices: air-conditioning units, audio/video etc. - and store them in module memory. Subsequently, these commands can be transmitted by a command from the system over CIB bus.
- By this the manual control can be replaced by automatic control of central module.

Connection example



IR receiver

Number of inputs	1×demodulator
Galvanic isolation	No
Power supply of receiver – demodulator	3.3 V
Pilot frequency of demodulator	36 kHz

IR transmitter

Number of outputs	1
Galvanic isolation	No
Type of IR transmitter	IR LED (I _F max =100 mA) + resistor according IF
Power supply of transmitter	3.3 V
Short-circuit protection	No

Input for light sensor

Number of inputs	1
Galvanic isolation	No
Sensor type/range/input error	Photodiode 0 – 50 000 lx/<5%

Operating conditions

Operating temperature	−10+55 °C
Storage temperature	–25 +70 ℃
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP 10B
Overvoltage category	II
Degree of pollution IEC EN60664-1:2008	1
Working position	any
Installation	on installation box, in interior
Connection of CIB, AI/DI,	flat cable 0.5 mm ²

Connection

- Module has to be connected to CIB bus, which provides both communication and power supply of module.
- CIB bus is available on 2 wires. Other signals are available on belt cable fixed on connector. Each wire is finished by pressed sleeve.
- . Module is used for assembly to standard installation box under plaster similar like other wall switches or sockets.

Use

· Integration of devices remotely controlled via infrared controllers, e.g.:

- · Interior air-condition units,
- Audio, video
- Consumer electronics with IR controller
- In system we can define own actions and sequences, that can be assigned to commands from remote controller and expand the possibilities of present remote control to any IR controlled device.
- Measurement and subsequently control of lights in interior.

Analog/combined inputs

Number of inputs	1× Al/Dl, 1× temperature
Galvanic isolation	No
Resolution	12 bit

Measurement ranges

Sensor type	Range
Potential free contact	switched on/ switched off
Balanced input	broken line/0/1/
(security systems)	tamper
Pt1000	−90 320°C
Ni1000	−60 200°C
NTC 12k	_40 125℃
KTY81-121	–55 125°
Resistance	0-160 kΩ
Analog input error	< 2 %

Dimensions and weight

Dimensions	83×81×17 mm
Weight	70g

Power supply

Power supply and communication	24 V (27 V) from bus CIB
Nominal load	25 mA
Maximal input power	0.5 W
Internal protection	No

Order number	
TXN 133 47.01	C-RI-0401R-Time, white/white, CIB combined module for 1 × IR transmitter, 1 × IR receiver-demodulator,
	1 ×light, 1 × temperature, 1 × external input
TXN 133 47.xx	C-RI-0401R-Zak, on request manufacture: design, frame and cover on order, 1 × IR transmitter, 1 × IR receiver-demodulator,
	$1 \times$ light, $1 \times$ temperature, $1 \times$ external universal input. Other combination of sensors on order.



C-RI-0401R-Time

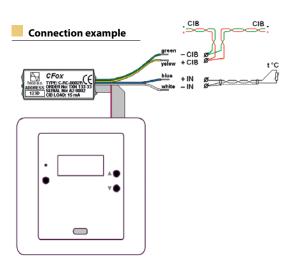


CIB – wall device with LCD for measurement and temperature setting

Туре	DI	DO	AI	AO	Comm
C-RC-0002R-Time	2 v hutton		2×temperature		CIB
C-RC-0002R-Design	3×button		internal, external		LCD display

Basic features

- Module is designated into interiors as the most simple variant fo measuring and vizualisation of current temperature as well as for setting the new temperature set-point.
- Function of module is given by the user program. Module can be used also for other tasks, if the combination of inputs and outputs is usefull.
- 3 digits LCD display with 7 segment digits.
- 2 buttons with a symbol of arrows enable to set the correction of required temperature increase, decrease.
- 1 button and LED indicator designed to set and indicate standard or comfortable mode.
- Built-in temperature sensor placed in lower part of front panel. This position maximizes accuracy of measurement and eliminates influence of module heating to measurement.
- Input for external temperature sensor and connection of CIB bus are available on stranded wires of the rear part of module.



- Module is available in ABB Time design as standard. The other designs are available on request after confirmation of the manufacturer.
- Firmware of the module supports linearization and direct reading of temperature from external NTC 5k, 10k, 12k, 15k and 20k. For these types of sensors it eliminates also distortion, resp. error of measurement for long distance.
- Input for external sensor can be used for measurement of any resistance up to 100 k Ω
- Status is indicated by LED diode on the rear part of module.

Connection

- Module is used for assembly on the wall into standard installation box.
- Module has two parts: upper one with interior design with control elements and temperature sensor and rear one with electronics of CIB bus and with inputs of external sensor.
- CIB bus and input for external sensor are available on isolated wires of length 70 mm finished by pressed sleeves.
- Upper and rear part are connected with flat cable with connector.

Use

- Module can be used for setting of required temperature or other values with present visualization of value at 3 digits LCD display.
- Module can be used for measurement up to 2 temperatures. One internal and one external – for example outside temperature, floor temperature etc.
- As external sensor also other resistance, for example photo resistance or potentiometer to set the value can be used.

Range

0–25 kΩ

25 – 50 kO

50-100 kΩ

Basic accuracy

0.5 kΩ

0.5 kO

1 kΩ

Analog inputs

Sensor type	Range	Basic accuracy
Internal temperature	050 ℃	0.5 °C
External NTC 5k	090 °C	0.5 ℃
External NTC 10k	090 °C	0.5 ℃
External NTC 12k	090 °C	0.5 ℃
External NTC 15k	090 °C	0.5 ℃
External NTC 20k	090 °C	0.5 ℃

Operating conditions

Operating temperature	0 +55 °C
Storage temperature	–25 +70 ℃
Electric strength	according EN 60950
IP Degree of protection (IEC 529)	IP 10B
Overvoltage category	I
Degree of pollution IEC EN60664-1:2008	1
Working position	any
Installation	into installation box
Connection of CIB, AI	isolated wires with pressed sleeves 0.15/0.5 mm ²

Dimensions and weight

Dimensions	83 x 81 x 25 mm
Weight	80 g
-	-

Power supply

Analog inputs Sensor type

Resistance

Resistance

Resistance

Power supply and communication	24 V (27 V) from bus CIB
Typical load	45 mA
Typical input power	0.3 W, /0,4 W
Internal protection	Return fuse

Order number

TXN 133 33.01

TXN 133 33

C-RC-0002R-Time, white/white, CIB, Controller with LCD, measurement and setting of temperature C-RC-0002R-Zak , CIB, Controller with LCD, measurement and setting of temperature (design, color on request)





C-RC-0002R-Time

Designs on request:



C-RC-0002R-Berker



C-RC-0002R-Bticino



C-RC-0002R-Legrand



C-RC-0002R-Unica





Designs LOGUS, DECENTE, ELEGANT, Jung, Berker, Gira, Merten and others ask producer CIB

Туре	DI	RO	AI	AO	Comm
RCM2-01		1	2		CIB

Basic features

- Device is designed as an interior device for monitoring and setting the required temperature and other values as a Room Control Manager.
- It has the LCD to display one value temperature, (or time, humidity, velocity etc.) and the amount of graphic icons frequently used for heating, ventilation and air-conditioning (HVAC).
- Moving through the menu and settings are performed by rotary element with the pushbutton for acknowledgement.
- Built-in temperature sensor. The additional temperature sensor can be connected. It can be placed on most suitable place in the room.
- The device is fully free programmable through the Mosaic. Programmer can control any icon as a binary output and the displayed number as numerical value. The unit will give the information about the rotation and click on pushbutton.

Connecting

Charification

- The device is connected by two wires of CIB, which provide both power supply and communication channel.
- The device is for mounting on the wall on the flush box.

Use

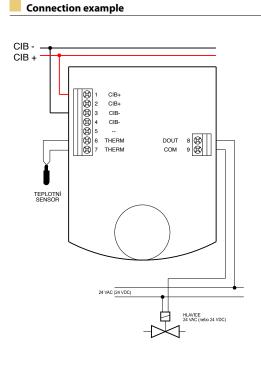
 As a Room Control Manager to each room or space where individual control of temperature and air ventilation is required.



RCM2-01



RCM2-01



Specification				
Display	LCD, value (temperature, time) + graphical symbols (heating, ventilation, etc.)			
Control element	Knob with button (choice of mode, correction of temperature etc.)			
Inputs	2×measurement of temperature (internal and external sensor)			
Measured temperature range	-20 ÷ +100 ℃			
Measurement accuracy	±0.8 ℃			
Output	1×SSR			
Туре	Independent contact			
Galvanic isolation	yes, 1500 V			
Nominal voltage 24 V AC/DC				
Max. voltage	60 V AC/DC			
Max. current	600 mA			
Communication/Power supply	Bus CIB/24 V (27 V)			
Load from CIB	17 mA			
Mechanical construction	Plastic module on wall			
Dimensions of module ($\dot{s} \times v \times h$)	90×115×39mm			
Weight	130g			
Operational temperature 0 ÷ +55 °C				
Storage temperature	-30 ÷ +70 ℃			
Electric strength	according EN 60950			
IP Degree of protection IEC 529	IP 20			
Overvoltage category	II			
Degree of pollution IEC EN 60664-1:2004	1			
Working position	Vertical (button down)			
Installation	On wall, on installation box			
Connection	screw terminals			
Conductors cross-section	max. 1.5 mm ²			

Order number

TXN 131 57 RCM2-1, CIB, interior room control unit



CIB – Sensors of interior air quality

Туре	DI	DO	AI	AO	Comm
C-AQ-0001R			$1 \times CO_{2}$, $1 \times temperature$		CIB
C-AQ-0002R			1 × gas, 1 × temperature		CIB
C-AQ-0003R			1 × smoke, 1 × temperature		CIB
C-AQ-0004R			1 × humidity, 1 × temperature		CIB

Interior room sensors of air quality are used for control of ventilation, recuperation, air-condition. In case the air exchange in room is controlled according to sensors only for necessary time, it is possible to reach significant energy savings, especially with connection of recuperation.

C-AQ-0001R – Room sensor of carbon dioxide (CO2)

Basic features

- Two channel measuring optical system on principle NDIR.High selectivity on carbon dioxide in concentration range
- 0 ÷ 5000 ppm CO₂.
 Measurement CO₂ uses dependence of infrared radiation attenuation on CO₂ concentration in the air. The change of attenuation is converted to value transmitted into system via CIB.
- Auto diagnostic of correct function.
- Long service life and stability, typically 10 years.
- Built-in dust filter.

Specification

Measuring range

Resolution

Repeatability

Calibration

Load from CIB

Lifetime

Long time stability

Air pressure influence Operation humidity

Accuracy

Easy installation on the wall.

Start of sensor after switch on

Connection	Со	nn	ec	ti	on
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• The device is connected by two wires of CIB, which provide both power supply and communication channel.

Use

- Concentration of CO2 is very good relevant to the stale air in closed space. It corresponds very good with number of people in enclosure room. That's why it is suitable for:
 Systems of air-quality check.
 - Systems of all quality check.
 Controlled ventilation in offices, cinemas, hotels, hospitals,
 - gym halls, schools etc.
 - Control the recuperation in low-energy buildings.
 - Greenhouses, mushroom growing facilities, storage of fruit.Breeding companies, where is a high concentration of
 - animals. - Monitoring and control of food processes – fermentation,
- maturation.

C-AQ-0002R – Room sensor of gaseous and volatile pollutants (VOC – Volatile Organic Compounds)

0 ÷ 5000 ppm

± 50 ppm/year 1.6 %/kPa

Typ. 90 mA

50 ppm ± 5% from value

10 ppm \pm 1% from value

Max. 95% noncondensing

From manufacturer Tvoically 10 years

2 min

1 ppm

Basic features

• High sensitivity on gaseous pollutants in the air – volatile organic compounds, especially toluene, hydrogen sulfide, ethanol, hydrogen, ammonia

Power supply and communication 24 V (27 V) from CIB bus

- Other detectable pollutants alcohol vapors, methane, propane-butane, natural gas leakage, pollutants evaporating from inside equipment of buildings.
- Measurement is based on electrochemical principle of measuring selective semiconductor sensor conductivity of air pollution.
- Conductivity is converted into numeric value and transferred further into system via CIB bus.
- Good long time stability.
- Easy mounting on the wall.

Specification

Measuring range	0 ÷ 5 ppm, 0 ÷ 50 ppm optional		
Start of sensor after switch on	10 min		
Operating temperature	0 ÷ 40 °C		
Power supply and communication	24 V (27 V) from bus CIB		
Load from CIB bus	Typ. 80 mA		

Connection

• The device is connected by two wires of CIB, which provide both power supply and communication channel.

Use

- For control of ventilation systems on demand (DCV demand controlled ventilation).
- Control of ventilation for restaurants, hotels, offices, kitchens, households, etc.
- Systems of air quality monitoring.



C-AQ-0002R



CIB



C-AQ-0001R

C-AQ-0003R Room sensor of tobacco smoke and other gaseous air pollutants

Basic features

- High sensitivity on gaseous pollutants in the air, especially on cigarette smoke (carbon monoxide CO and hydrogen H).
- Orientation detection of leakage: methane gas, propane, natural gas.
- Measurement of pollutants is based on electrochemical principle of measuring the conductivity of the semiconductor sensor of air contamination. The conductivity is directly converted to a numerical value transmitted further into the system through the CIB.
- Good long time stability.
- Easy mounting on the wall.

Specification

Measuring range	0 ÷ 5 ppm, 0 ÷ 50 ppm optional
Start of sensor after switch on	10 min
Operating temperature	0 ÷ 40 °C
Power supply and communication	24 V (27 V) from CIB bus
Load from CIB bus	Typ. 80 mA

Connection

• The device is connected by two wires of CIB, which provide both power supply and communication channel.

Use

Use

- For control of ventilation systems (DCV demand controlled ventilation)
- Control of ventilation for restaurants, hotels, offices, kitchens, households, etc.

Measurement and regulation of relative humidity in industry,

0 ÷ 100 % RH

0.1 % RH

±3.5 % RH (in range 20 ÷ 80 %)

±5 % RH (in range 0 ÷ 100 %)

Systems of air quality monitoring.

• Ventilation systems in interiors.

Specification Measuring range

Resolution

Accuracy

storage, historic buildings, archives.

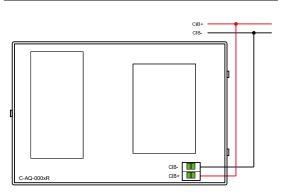
Air-condition and recuperation units.

C-AQ-0004R Room sensor of relative humidity, temperature and dew point

Basic features

- C-AQ-0004R is an electronic sensor of relative humidity with capacitive polymer sensor. The sensor is designed as standard system peripheral of Foxtrot system with connection into CIB bus, which provides both communication and power supply of sensor.
- · Long time stability.
- Fully calibrated.
- Transfer values of relative humidity, room temperature and dew point.

Connection example



Operating conditions

- operating containions	
Operating temperature	0 ÷ +40 ℃
Storage temperature	−20 ÷ +60 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	2
Degree of pollution IEC EN 60664-1:2004	1
Working position	any
Installation	on wall
Connection	screw terminals
Conductors cross-section	max. 2.5 mm ²

Dimensions and weight					
Dimensions	125×83×36mm				
Weight	300 g				

Power supply

Power supply and communication	24 V (27 V) from bus CIB
Load from CIB bus	Typ. 25 mA

Order number

TXN 133 12	C-AQ-0001R, Room sensor of concentration CO ₂
TXN 133 13	C-AQ-0002R, Room sensor of gaseous pollutants (VOC)
TXN 133 14	C-AQ-0003R, Room sensor of air pollutants (smoke detector)
TXN 133 15	C-AQ-0004R, Room sensor of relative humidity in air



C-AQ-0003R

C-AQ-0004R

CIB – Proportional drive of radiator valve

Туре	DI	DO	AI	AO	Comm
C-HC-0201F-E			2×AI/DI	valve position 0 – 100%	CIB
C-HC-0101F			1×AI	valve position 0 – 100%	CIB

Basic features

Connection example

C-HC-0201F-E

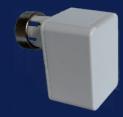
- Motor drive actuator for the radiator valve.
- Universal input/output for external sensors can be configured as analog or digital. So both temperature sensor or window contact can be connected to C-HC-0201F-E.
- Firmware of the module linearizes characteristics of temperature sensor, optimizes accuracy of measuring and recalculates it to temperature, which is further transferred into central module. Module C-HC-0101F has very low consumption!

Connection

- Drive is connected to the CIB bus which provides both
 communication and power supply for the drive, including the
 motor.
- External sensors are connected via screw terminals.

Use

- For individual zone heating control.
- To control radiator valves or valve for floor heating.
- Direct fixing at radiator actuator or floor distributor with thread $M30 \times 1.5$ or reduction.



C-HC-0201F-E



C-HC-0101F preliminary

	5		5		+	-	
	COM	AI1	COM	AI2	CIB+	CIB-	
CIB+	Т				T		
CIB					_	┢	
							temperature sensor
							NTC 12k
							temperature sensor
	<u> </u>						

C-HC-0201F-E	C-HC-0101F
2	1
NTC 12k/Pt1000/Ni1000/0-100 kΩ	NTC 12k/resistance 0–100 kΩ
090 °C/0 – 100 kΩ	090°C/0 – 100 kΩ
	2 NTC 12k/Pt1000/Ni1000/0 – 100 kΩ

Valve drive	2
-------------	---

tional (0-100 %)
mm (max. 2.7 mm)
S
atic + manual
days period
)

Operating conditions

On exeting temperature	-10 +55 °C
Operating temperature	-10+55 C
Storage temperature	−25 +70 °C
Electric strength	according EN 60730
IP Degree of protection (IEC 529)	IP20
Overvoltage category	II
Degree of pollution	1
according IEC EN60664-1:2008	
Working position	Any
Installation	Fixing on radiator actuator
	M30×1.5 mm, or with reduction
Connection CIB	Push-in terminals 0.14 ÷ 1.5 mm ²

Dimensions and weight

	С-НС-0201F-Е	C-HC-0101F
Dimensions	69 × 48 × 73 mm	75 × 85 × 50 mm
Weight	125 g	125 g

Power supply	C-HC-0201F-E	C-HC-0101F
Power supply and	24 V (27 V)	24 V (27 V)
communication	from bus CIB	from bus CIB
Typical/max. load	5 mA/80 mA	15 mA/17 mA
Typical/max. input power	2.4 W	0.3 W/0.4 W
Internal protection	No	No

Order number

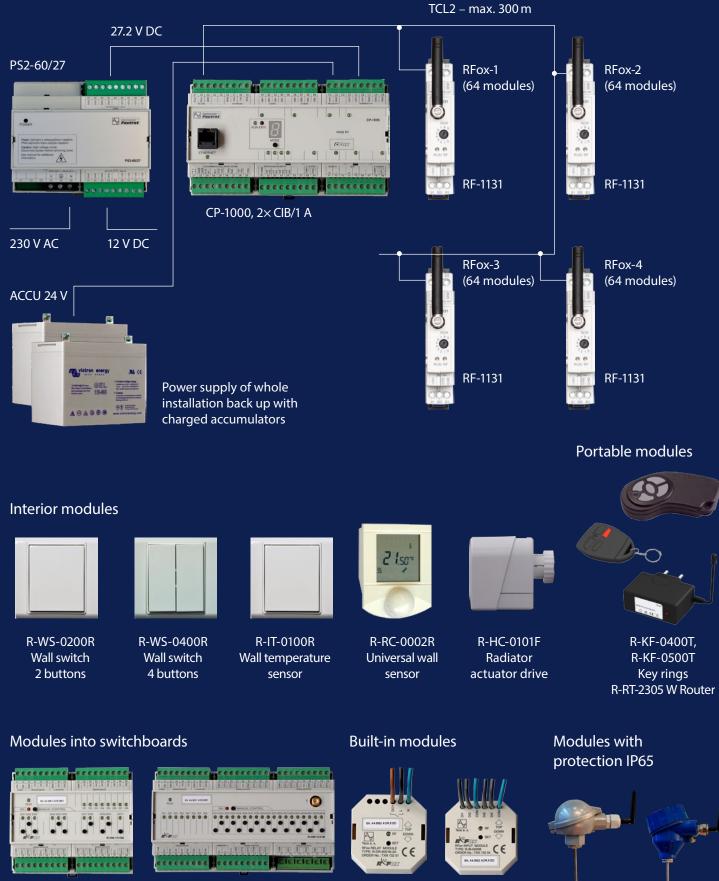
TXN 133 48	C-HC-0201F-E, CIB, Valve $2 \times AI/DI$ Temperature/contact, $1 \times proportional$ (0 – 100%) drive of thermostatic actuator
TXN 133 28	C-HC-0101F, CIB, Valve 1 × AI Temperature/contact, 1 × proportional (0 – 100%) drive of thermostatic actuator
	Reduction of the valve on order

Wireless communication RFox is:

- Both directional
- With confirmation
- With mesh technology
- With low input power
- Company Teco comes with extension of peripherals line of Foxtrot system with wireless communication with inputs/outputs modules.
- In such way Foxtrot becomes even more universal, because it can combine classic PLC peripherals, installation via two wires CIB bus and now also wireless installation RFox in any ratio.
- There is the possibility to create only wireless network with central control.
- Configuration of the wireless network is integrated in development software Mosaic.
- To extend the Foxtrot system by the wireless network, RFox master RF-1131 module has to be placed on TCL2 system bus. Each wireless module has to be bonded to its master and then placed at its final operation place.
- In first group of wireless modules are key ring, wall switches, interior wall controller (Room Control Manager), module with 4 voltage-free inputs, module with 1 relay and drive of the radiator valve.

RFox

Intelligent wireless electroinstallation and measurement at 868MHz frequency band



R-HM-1113M Combined module on DIN rail

R-OR-0001B 1×Relay 230 V AC

R-HM-1121M

Combined module

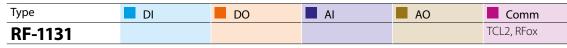
on DIN rail

R-IB-0400B 4×contact sensor



R-IT-0100I-A Temperature sensor

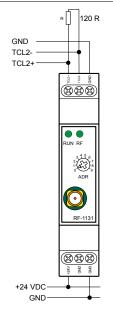
RFox master



Basic features

- Module is the gateway of Foxtrot system into the wireless data network RFox. Module is the master of bidirectional communication with the slaves with confirmation of each data transmission. It operates in the licence free frequency band 868 MHz.
- As coordinator/master of data network RFox module enables • to connect up to 64 wireless modules with inputs and outputs to Foxtrot system.
- Module RF-1131 is not included in the limit of max. 10 modules on TCL2 bus.
- Module is operated on low power up to 10mW. .
- Master module continuously monitors the network to keep . the actual status of all slaves. This status image is available for central module anytime. Vice versa the master module fullfils commands of central module and writes new statuses into slave modules.

Connection example



Operating conditions

Operating temperature	-20 ÷ +55 ℃
Storage temperature	-30 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 10B
Overvoltage category	
Degree of pollution IEC EN 60664-1:2004	2
Working position	Any
Installation	on DIN rail
Connection	screw terminals,
	Antenna – SMA connector
Conductors cross-section	max. 2.5 mm ²

Connection

- Module is designed as standard communication module at TCL2 bus.
- Mechanical design is suitable for installation on DIN rail.
- · Antenna or cable can be connected on module directly with SMA connector.

Use

- · Creation of wireless control system with centralised processing of signals and commands.
- Creation of wireless and wire system combination.
- Suitable for reconstruction of buildings in places, where we cannot install the electrical installation bus.
- For any application, where digital or analog values needs to be wireless transferred.

Communication	
System I/O bus	1 ×TCL2 (RS-485, 345 kbit/s) up to distance 300 m, without branches, impedance terminating 120 Ω
Wireless communication	RFox
Frequency	868.35 MHz
Signal transfer	Both directions, with
	confirmation, with routing
Range	About 25 m in building, 100 m
	in free space

Dimensions and weight

5	
Dimensions	90×18×65mm
Weight	75 g

Power supply

+24 V DC/30 mA
-15% +25% (20.4 ÷ 30 V DC)
2.5 W
No

Order number

TXN 111 31

RF-1131, RFox – Communication module, Master of wireless network



RF-1131

RFox – wireless wall switches and sensors Time, Element (ABB)

Туре	DI	DO	AI	AO	Comm
R-WS-0200R-Time	2				RFox
R-WS-0400R-Time	4				RFox
R-IT-0100R-Time			1 temperature		RFox

Basic features

Digital inputs

Communication R-WS-0200R

Input type

Wireless bus

Antenna

Range

Frequency

Interval of

Signal transfer

- Wall group switches with short-press control. Each control element has button in upper and lower part.
- Each pushbutton can be configured for any action during project realization. The length of pressing of each button can be evaluated as single command to multiply functionality of the device. Under one command can be configured more simultanous actions - scenarios like closing the blinds, lights on for preset intensity, the TV on etc.
- Power supply comes from built-in, exchangeable battery.

Connection

- Controller has no external connection.
- · Into RFox network it is connected by process of bonding.

Use

- · In interiors into standard installation boxes under plaster, stick on flat surface or free use as portable device.
- · Controllers are designed to be compatible with frames and devices of ABB design Time and Element. Basic color design of frames and button covers is white/white.
- Frames and covers in other colors can be ordered/delivered onrequest.



R-WS-0400R Time





R-WS-0200R R-WS-04	00R Analog inputs	R-IT-0100R	
2×Button 4×Butto	Input type	1×temperature	
R-WS-0200R	R-WS-0400R	R-IT-0100R	
RFox	RFox	RFox	
Integrated	Integrated	Integrated	
868 MHz	868 MHz	868 MHz	
Both directions with confirmation	Both directions with confirmation	Both directions with confirmation	
About 25 m in building, 100 m in em	oty About 25 m in building, 100 m in empty	About 25 m in building, 100 m in empty	R-IT-0100R-Time
space	space	space	
7 min (without input activation),	7 min (without input activation),	7 min (without input activation),	

Dimonsions		02 × 01 × 10 mm	02 v 01 v 10 mm	02 V 01 V 10 mm	_
Dimensions and	d weight	R-WS-0200R	R-WS-0400R	R-IT-0100R	
transmitting	always during	activation	always during activation	always during activation	

Power supply	R-WS-0200R	R-WS-0400R	R-IT-0100R
Weight	70 g	70 g	70 g
Dimensions	03 X 01 X 1911111	02 X 01 X 1911111	03 × 01 × 1911111

Power supply	R-W3-0200R	R-WS-0400R	R-11-0100K
Power supply and communication	CR2032 lithium battery	CR2032 lithium battery	CR2032 lithium battery
Lifetime of battery	Min.t 1 year according frequency of usage.	Min. 1 year according frequency of usage.	Min. 1 year according frequency of usage.

Operating conditions

Operating temperature	–20 +55 °C
Storage temperature	–30 +70 ℃
IP Degree of protection IEC 529	IP 20
Working position	Any. According position may
	change communication abilities.
Installation	On installation box or flat
	surface

Order number	
TXN 132 30	R-WS-0200R-Time, Element, RFox, wall switch with 2 short press buttons
TXN 132 31	R-WS-0400R-Time, Element, RFox, wall switch with 4 short press buttons
TXN 132 32	R-IT-0100R-Time, Element, RFox, Temperature sensor in interior design.

Important notice! To complete wall switches it is necessary to order separately the cover and the frame in required color according to product line ABB Time/Element! See chapter Covers and frames in Price list or at web page.





R-WS-0400R-Time-Champagne

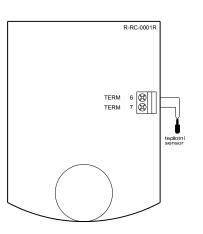
Room Control Manager

Туре	DI	DO	AI	AO	Comm
R-RC-0001R			2		RFox

Basic features

- Wireless module in interior design for offices and residential facilities. Module is designed for visualization of status and setting required values (Room Control Manager).
- LCD display displays the values (temperature, time, hu-• midity, speed, heating, cooling, ... see image) and a lot of graphic icons often used on field of heating, ventilation and air-condition.
- Rotational element with pushbutton for confirmation is available to program individual needs of movement over the menu.
- Built-in temperature sensor. Also possibility to connect • external NTC sensor to choose suitable place of measuring , independent on device position.
- Module is free programmable by user. Any icon or number can be controlled as digital output. The operations of rotational element and its pushbutton are accessible to programmer.

Connection example



Connection

Module is designed as standard device of data radio network RFox. Power supply comes from battery.

Use

• Use as Room Control Manager in each room or space, where we require individual control of temperature and ventilation.



R-RC-0001R

Display and control elements Di

Display	LCD, value (temperature, time) + graphic symbols (heating, ventilation,) Fach icon is controlled from
	program in central module
Control element	Knob with push button (mode selection, temperature correction, etc.) Rotation and push can be processed in user program
	•

Analog inputs

2×temperature measuring
(internal sensor and external
sensor NTC 12k)
−20 ÷ 100 °C
±0.8 ℃
10 min

Communication RFox

Frequency	868 MHz
Signal transmission	Both directions with confirmation
Range	About 25 m in building, 100 m in
	empty space
Interval of transmition	10 min

Operating conditions

Operation temperature	0 ÷ +55 ℃
Storage temperature	-30 ÷ +70 ℃
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	
Degree of pollution IEC EN 60664-1:2004	1
Working position	Vertical
Installation	On wall, on installation box

Dimensions and weight

Mechanical construction	Plastic box on wall
Dimensions	90×115×39mm
Weight	130 g

Power supply

Power supply	AA lithium battery, 3,6 V /2,2Ah, ER14505M
Battery lifetime	About 2 years (according to frequency of using)

Order number TXN 132 09

R-RC-0001R, RFox, interior room unit



Туре	DI	DO DO	AI	AO	Comm
R-HC-0101F			1	0 – 100% valve position	RFox
				•	

R-HC-0101F

Basic features

- Motor control of head on radiator valve.
- Contains internal sensor of room temperature..

RFox – proportional head of radiator valve

Connection

- Head mount on radiator valve only.
- It has no wire connection.
- Into RFox network module is coonnected by bonding process.

Use

- Regulation of hot water heating in rooms radiator or floor.
- Direct fixing on radiator valve M30×1.5 or via reduction.

Connection example

Communication

RFox		
Integrated		
868 MHz		
Both directions with confirmation		
About 25 m in building, 100 m in empty space		
7 min		
1×temperature sensor		
−5 °C ÷ +50 °C		
+–0.8 ℃		
From manufacturing		

Outputs Output value

Opening valve 0 – 100%

Operating conditions

Operation temperature	0 ÷ +55 ℃
Temperature of storage and transport	–25 ÷ +70 ℃
Relative humidity	< 80 %
IP Degree of protection according IEC 529	IP 20
Degree of pollution	1
Installation	Plastic head, fixing to radiator valve M30 × 1.5 mm or with reduction

Dimensions and weightDimensions

Dimensions	75×85×50mm
Weight	120 g

Power supply

Power supply	$1 \times \text{or} 2 \times \text{AA}$ lithium battery
Battery lifetime	Min. 1 year
Diagnosis battery	Yes

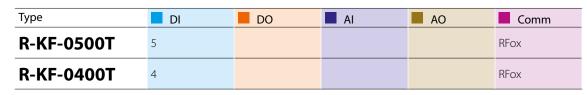
RFox

R-HC-0101F, RF, Proportional drive of radiator valve (0 – 100%), 1 × AI, Reduction on valve on order

www.tecomat.cz | Teco a.s., Havlíčkova 260, 280 02, Kolín 4, Czech Republic | teco@tecomat.cz | www.tecomat.com



RFox – Portable controllers



R-KF-0500T, R-KF-0400T - key rings

Basic features

- Portable personal controller in shape of key rings. Equipped with 5 resp. 4 buttons, its functions or commands •
- sequence is free programmable from the system.
- Battery status monitoring. •

Connection

• Key ring is portable, wireless connectable into data radio network RFox.

Use

• Personal controller for entering 5 or 4 different user pre-programmed commands into RFox network.

R-KF-0500T	

R-KF-0400T

Communication	R-KF-0500T R-KF-0400T
Frequency	868 MHz
Signal transmission	Both directions with confirmation
Range	About 30m in building, 100m in empty space ¹⁾
	¹⁾ range very depends at kind of building construction materials and way of installation. To extend the range of communication the routing technology is available.

Operating conditions	R-KF-0500T R-KF-0400T
Operation temperature	−20 ÷ +55 °C
Storage temperature	-30 ÷ +70 ℃

R-KF-0400T
5×button
4×button

Dimensions and weight	
Dimensions	70 × 42 × 15 mm
Weight	8 g

	R-KF-0500T
Power supply	R-KF-0400T
Power supply	CR2032 lithium battery
Battery lifetime about 2 to 4 years (accordin	
	frequency of using)

Order number TXN 132 08 R-KF-0500T, RF, key rings, 5 buttons TXN 132 35 R-KF-0400T, RF, key rings, 4 buttons

Туре	DI	RO	AI	AO	Comm
R-HM-1113M	8	11	3	2	RFox
R-HM-1121M	8	19	3	2	RFox

Basic features

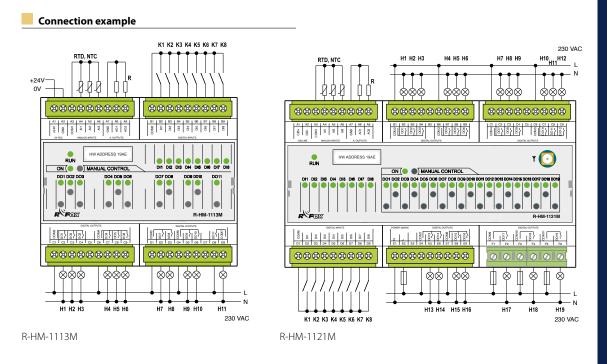
- Modules on DIN rail with combination of analog and digital inputs and outputs.
- Each module has at wireless bus RFox only one address.3 analog inputs for Resistance Temperature Detectors (RTD)
- and 2 analog outputs 10 resistance temperature betectors (rTD) and 2 analog outputs 0 – 10 V use for 1 – 2 regulation loops for example heating, cooling or for general use.
- 8 independent inputs for voltage free contacts.
- R-HM-1113M contains 4 galvanic isolated groups for 5 A and 1 power relay for 16 A with independent NO contact. Each group may be used independently for switching 24 V DC or 230 V AC in different phases.
- R-HM-1121M contains 6 galvanic isolated groups for 5 A and 3 power relays for 16 A with independent switching contact. Each group may be used independently for switching 24 V DC or 230 V AC in different phases.
- Power relays for 16 A have contacts with combination wolfram/AgSnO2 for reliable switching of high loads.
- Each relay is independently addressed and controlled from program.
- After pushing button MANUAL CONTROL we can each relay independently with appropriate button.
- Status of digital inputs, relay outputs, mode "MANUAL CON-TROL" and operation is indicated by LED diode at front part of module.

Connection

- Modules communicate in wireless network RFox. HW address (4 hexadecimal digits) is stated at front panel.
 - Modules are connected into master of RFox network by pairing process.
- Module R-HM-1113M has internal antenna, module R-HM-1121M has connector for connection of external antenna. During installation we have to take into account local conditions for radio signal transmitting.
- Module R-HM-1113M is supplied from 24 V DC, module R--HM-1121M is supplied from power supply 230 V AC.
- Inputs and outputs are connected via removable connectors, power outputs of R-HM-1121M via firm terminals.

Use

- Modules are used for large installation centralized into switchboard. Typically for one hotel room, one room or residential house floor.
- Switching loads of R, L or C type, independent outputs specially designed for switching power circuits especially inductive and capacitive loads.
- Control of circuits in rooms: sockets circuits, lighting, jalousies, heating and ventilation.
- · Regulation of solar and combined systems of heating



Communication	R-HM-1113M	R-HM-1121M
Wireless bus	RFox	RFox
Antenna	Integrated	External, optional
Frequency	868 MHz	868 MHz
Signal transmition	Both directions with confirmation	Both directions with confirmation
Range	About 30m in buildings, 300m in empty space	About 30m in buildings, 300m in empty space
Interval of transmitting		



R-HM-1113M

R-HM-1121M



R-HM-1113M	R-HM-1121M
3	3
REF	REF
no	no
12 bit	12 bit
Pt1000, Ni1000	Pt1000, Ni1000
12 k Ω , optionally 5 up to 20 k Ω	12 k Ω , optionally 5 up to 20 k Ω
-	R-HM-1121M
-	2
Minus (GND)	Minus (GND)
no	no
8 bit	8 bit
0÷10 V, 1÷10 V	0÷10V, 1÷10V
D 1114 444014	D 1114 440414
	R-HM-1121M
8 × voltage-free contact	8×voltage-free contact
R-HM-1113M	R-HM-1121M
-	Total 19
	4×3 relay 5 A
,	2×2 relay 5 A
,	3×1 relay 16 A
Yes (even groups each other)	Yes (even groups each other)
min. 5 V DC; 24 V DC; max. 250 V AC	min. 5 V DC; 24 V DC; max. 250 V AC
	DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ DO9, DO10 ÷
DO10	D012, D013 ÷ D014, D015 ÷ D016
min. 100 mA; max. 5 A	min. 100 mA; max. 5 A
5 A/<3 s	5 A/<3 s
typ. 10 ms/4 ms	typ. 10 ms/4 ms
10 A	10 A
	max. 300 min ⁻¹
	max. 20 min ⁻¹
	5×10 ⁶ /1×10 ⁵
	no
	External (RC member, varistor, diode)
	3750 V AC
	Removable connector/max. 2.5 mm ²
	D017, D018, D019
	16 A
	160 A/<10 ms
	max. 10 ms/4 ms
	100 mA
	max. 60 min ⁻¹
	max. 6 min ⁻¹
	3×10 ⁶ /1×10 ⁵
	No
	External (RC member, varistor, diode)
	3750 V AC
Firm terminals/max. 4 mm ²	Firm terminals/max. 4 mm ²
	3 REF no 12 bit Pt1000, Ni1000 12 kΩ, optionally 5 up to 20 kΩ R-HM-1113M 2 Minus (GND) no 8 bit 0÷10 V, 1÷10 V R-HM-1113M 8× voltage-free contact R-HM-1113M Total 11 2×3 relay 5 A 2×2 relay 5 A 2×2 relay 5 A 1× relay 16 A Yes (even groups each other) min. 5 V DC; 24 V DC; max. 250 V AC DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ D08, DO09 ÷ DO10 min. 100 mA; max. 5 A 5 A/<3 s typ. 10 ms/4 ms

Operating conditions	
Operating temperature	0 +55 ℃
Storage temperature	−30 +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20, IP40 with cover in switchboard
Overvoltage category	111
Degree of pollution	2
IEC EN 60664-1:2004	
Working position	any
Installation	on DIN rail

Dimensions and weight	R-HM-1113M	R-HM-1121M
Dimensions	90×105×65 mm	90×156×65mm
Weight	161 g	440 g
• • •		

Power supply	R-HM-1113M	R-HM-1121M
Input nominal voltage (SELV)	+24-27.2 V DC	230 V AC
Nominal load	160 mA	35 mA

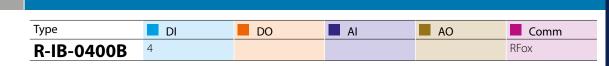
Order number TXN 132 10 R-HM-1113M – RFox – combined module 3×AI, 8×DI (contact), 2×AO, 10×RO 230 V 5 A, 1×RO 230 V 16 A R-HM-1121M – RFox – combined module 3×AI, 8×DI (contact), 2×AO, 16×RO 230 V 5 A, 3×RO 230 V 16 A TXN 132 11



R-HM-1113M

.....

R-HM-1121M



Basic features

Module with 4 inputs for sensing device with output voltage--free contact.

RFox – wireless input module

Connection

- Module is designed as standard device of data radio network RFox.
- · Mechanical design suitable for built-in into standard installation box.
- Recommended installation position vertical, according to sign . on the cover.

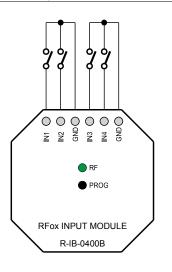
Use

 Connection of contact switches in any design, any sensors, signalling their status by voltage-free contact, especially security and safety sensors etc.

CE TXN 132 04 SN. A4 0002 ADR.012D

R-IB-0400B

Connection example



Digital inputs

4×voltage-free contact, with
common terminal
Max. 100 Ω
Min. 20 kΩ

Communication RFox

Frequency	868.35 MHz
Signal transmition	Both directions with confirmation
Range	About 30m in building, 100m in empty space 1)
Range of transmitting	10 min without input activation, immediately with input activation

¹) range depends on type of building construction materials and type of installation. To extend the range of communication there is mesh technology available

Operating conditions Operation temperature 0 ÷ +70 °C -30 ÷ +70 ℃ Storage temperature Electric strength according EN 60950 IP Degree of protection IEC 529 IP 20 Degree of pollution IEC EN 60664-1:2004 2 Working position vertical, according to sign on the cover Installation into installation box under plaster

Dimensions and weight

Dimensions	49×49×25mm
Weight	30g

Power supply

- I OWCI Supply	
Power supply	1/2AA lithium battery ER14250N
Battery lifetime	about 2 years (according to
	frequency of switching)
Battery diagnostics	Yes

RFox

Order number TXN 132 04

R-IB-0400B, RFox, 4×DI, voltage-free contact, box, battery



Туре	DI DI	DO/RO	AI	AO	Comm
R-0R-0001B		1×RO			RFox

Basic features

- Module with one switching relay contact for power loads at 230 V AC.
- Power supply from 230 V AC. Wireless communication.
- Modules are designed for switching independent loads/devices by relay output.
- Relay is independently addressed and wireless controlled by central module via sending commands with confirmation.

Connection

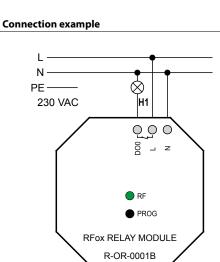
- Module is designed as standard device of data radio network RFox.
- Mechanical design suitable into standard installation box.
- Recommended installation position vertical, according to sign
 on the cover.

Use

- Used for switching the loads at 230 V AC, where we need to replace wire bus communication by wireless connection.
- During projection we have to calculate load of contact and their protection at different type of load.



R-OR-0001B



Relay outputs	R-OR-0001R	
Number of inputs	1×relay	
Load	230 V AC, 50 Hz, 16 A resistance load, Relay contact switches phase L on module output	

Communication RFox

Frequency	868.35 MHz	
Signal transmition	Obousměrný s potvrzením	
Range	About 30m in building, 100m in	
	empty space 1)	

¹) range depends on type of building construction materials and type of installation. To extend the range of communication there is mesh technology available.

Operating conditions

Operation temperature	0 ÷ +70 °C	
Storage temperature	-30 ÷ +70 ℃	
Electric strength	according EN 60950	
IP Degree of protectionIEC 529	IP 20	
Overvoltage category	I	
Degree of pollution IEC EN 60664-1:2004	1	
Working position	vertical, according sign at the	
	cover	
Installation	into installation box	

Dimensions and weight

Mechanical construction	Plastic modul on installation box
Dimensions	49×49×25mm
Weight	45 g

Power supply

Power supply voltage	230 V AC, 50 Hz	
Power cable	full Cu cable, length 120 mm,	
	connecting diameter 2.5 mm ²	
Power supply protection	Circuit breaker 16 A, specification B	
Typ. power	2.8 W	
Max. power	4.6 W	

Order number

TXN 132 01

R-OR-0001B, RFox, 1 × Relay 16 A, NO contact, box





PS2-60/27



DR-15-24 24 V DC



PS-25/24 24 V DC



PS-100/24 24 V DC



DR-60-24 24 V DC



24 V DC DR-100-24



PS-50/24 24 V DC



PS-50/27 27.2 V DC



PS-100/27 27.2 V DC

Power supply with two level outputs

Туре	Input voltage	Output voltage	Output current	
PS2-60/27	230 V AC	27.2 V DC 12 V DC	2.3 A 0.3 A	

Basic features

- PS2-60/27 module is switching power supply with 2 levels of fixed output voltage 27.2 V DC and 12 V DC.
- It is designed for supplying control system Foxtrot with bac-• kup accumulators.
- The design of output circuits enables to connect the pair of backup accumulators which are charged directly from the power supply.
- The other level 12 V DC is for supplying security sensors.
- The high efficiency eliminates the need of active cooling. •

Connection

- Compact form-factor for DIN rail mounting (6 modules width) for standard circuit breaker cabinets.
- · All circuits are connected by screw terminals.

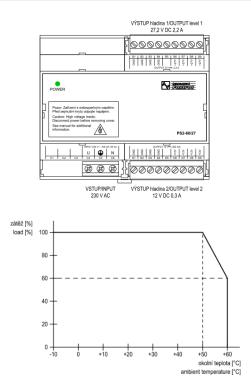
Use

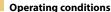
- Power supply for basic and expansion modules of Foxtrot system.
- Together with modules C-BS-0001M and pair of backup accumulators can supply all CIB based installations.



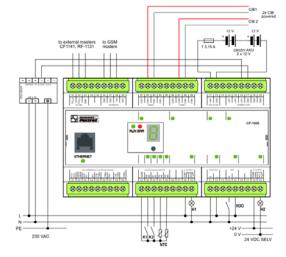
PS2-60/27

Connection example





Operating temperature	−10+60 °C
Storage temperature	-40 +85 ℃
Electric strength	according EN 60950
Class of electrical device protection	I according IEC EN 61140
IP Degree of protection(IEC 529)	IP 20, IP40 covered in switchboard
Overvoltage category IEC EN 60664-1	11
Degree of pollution IEC EN60664-1:2008	2
Working position	vertical
Installation	on DIN rail
Connection	screw terminals
Conductors cross-section	Max. 2 m,5 mm ²
	•



Dimensions and weight

Dimensions	90×105×65 mm (6M)
Weight	340 g

Power supply

Power supply	
Input voltage	230 V AC, – 15 up to 25% ,
Min. input voltage	110 V AC/output voltage less 45 W
Input voltage frequence	47-63Hz
Max. input power	106 VA
Input fuse	T2.5/250 V
Output	
Current output – range	0.48 A/230 VAC
Level 1; Output voltage/current	27.2 V DC/0-2.2 A
Level 2; Output voltage/current	12 V DC/0-0.3 A
Max.total output power	60 W
Efficiency	87 %
Short-circuit protection	Electronic
Electrical resistance of isolation	3000 V AC
Galvanic isolation input/output	Yes

Order number

TXN 070 40

PS2-60/27 power supply 230 VAC/27.2 V DC, 2.2 A; 12 V DC, 0.3 A



Power supply 24 V DC single-level

Туре	Input voltage	Input voltage	Input current	
DR-60-15	230 V AC	24 V DC	0.63 A	
DR-60-24	230 V AC	24 V DC	2.5 A	
DR-60-100	230 V AC	24 V DC	4.2 A	

Basic features

- Family of power supplies 24 V DC on DIN rail.
- Input voltage in wide range 100 240 V AC •
- Output voltage may be tuned by trimmer \pm 10% •

Å.

TT

LN

DR-60-24

• Electronic short-circuit protection, overload and overvoltage

+24V DC GND

⊔ +V

DC OK

⊔ -∨

ADJ

TT

LN

DR-100-24

- Cooling by nature circulation of air. •
- Certifikace UL, CUL, TUV, CB, CE •

Connection example

+24V DC GND

+V @ @ -V

OLED

⊖Vadj

DR-15-24

L @ @ N

L N

Connection

+24V DC GND

⊥ +V ⊔ -∨

ADJ

ОСОК

• Primary and secondary voltage is connected with screw terminals.

Use

•

- Basic (non back-up) power supply of Foxtrot system
 - Power supply of basic and expansion modules
- Basic power supply of CIB bus in coordination with module of impedance adaptation C-BS-0001M



DR-15-24



DR-60-24



DR-100-24

Operating conditions			
Operating temperature	−20 +45 °C		
Storage temperature	−40 +84 °C		
Electric strength	according EN 60950		
IP Degree of protection (IEC 529)	IP20 with cover in the cabinet		
Overvoltage category	11		
Degree of pollution	2		
IEC EN60664-1:2008	2		
Working position	any		
Installation	into switchboard on DIN rail		
Connection	screw terminals		

Dimensions and weight	DR-15-24	DR-60-24	DR-100-24
Dimensions	25×93×56 mm (1.5M)	78×93×56 mm (4M)	100×93×56 mm (5.7M)
Weight	100g	300 g	350 g

Power supply	DR-15-24	DR-60-24	DR-100-24
Input voltage – range	100-240 V AC, 47-63 Hz	100–230 V AC, 47–63 Hz	100-230 V AC, 47-63 Hz
Input current – range	0.48 A/230 VAC	1.2 A/115 VAC0.8 A/230 VAC	3 A/115 VAC1.6 A/230 VAC
Output voltage	24 VDC	24 VDC	24 VDC
Tuning of output voltage	± 10%	± 10%	± 10%
Output current	0.63 A	2.5 A	4.2 A
Max. permanent output power	15.2 W	60 W	100 W
Short-circuit protection	Electronic	Electronic	Electronic
Electrical resistance of isolation	3000 VAC	3000 VAC	3000 VAC
Galvanic isolation input/output	Yes	Yes	Yes

Order number

DR-15-24	DR-15-24 Power supply 230 VAC/24 VDC, 0.63 A
DR-60-24	DR-60-24 Power supply 230 VAC/24 VDC, 2.5 A
DR-100-24	DR-100-24 Power supply 230 VAC/24 VDC, 4.2 A



www.tecomat.cz | Teco a.s., Havlíčkova 260, 280 02, Kolín 4, Czech Republic | teco@tecomat.cz | www.tecomat.com

Power supply 24 and 27.2 V DC, single-level

Туре	Input voltage	Output voltage	Output current	
PS-25/24	230 V AC	24 V DC	1 A	
PS-50/24	230 V AC	24 V DC	2 A	
PS-100/24	230 V AC	24 V DC	4 A	
PS-50/27	230 V AC	27.2 V DC	1.75 A	
PS-100/27	230 V AC	27.2 V DC	3.5 A	

Basic features

- Family of power supplies 24 V DC on DIN rail. ٠
- Input voltage in 230 V AC/50Hz .
- Indication of operation by LED diode
- Electronic protection of outputs against short circuit. •
- Cooling by nature circulation of the air.

Connection

Primary and secondary voltage is connected with screw . terminals.

Connection example

Operating conditions

Use

- Version 24 V DC basic (non back up) power supply of system Foxtrot.
- Version 27.2 V DC back up power supply with charging the batteries.
- Power supply of basic and expansion modules.
- Basic power supply of CIB bus in coordination with module of impedance adaptation C-BS-0001M.



PS25/24







PS50/27



PS100/24



PS100/27



TXN 070 16	PS-100/27 Power supply 230 VAC/27.2 VDC, 3.5 A

100 www.tecomat.cz | Teco a.s., Havlíčkova 260, 280 02, Kolín 4, Czech Republic | teco@tecomat.cz | www.tecomat.com

Operating temperature −10 .. +55 °C Storage temperature -40 .. +85 °C Electric strength according EN 60950 IP Degree of protection (IEC 529) IP20 Overvoltage category Ш Degree of interference Class B according IEC EN 550 11 Degree of pollution 2 IEC EN60664-1:2008

Working position	Any
Installation:	into switchboard on DIN rail
Connections	screw terminals
	-

	Dimensions and weight	PS-25/24	PS-50/24	PS-100/24	PS-50/27	PS-100/27
[Dimensionsy	148×85×57 mm	148×85×57 mm	148×85×57 mm	177×105×54 mm	177×105×54 mm
١	Weight	510 g	510 g	510 g	700 g	700 g

Power supply	PS-25/24	PS-50/24	PS-100/24	PS-50/27	PS-100/27
Nominal input voltage	230 V AC, 50Hz	230 V, 50Hz	230 V AC, 50Hz	230 V AC,50Hz	230 V AC, 50Hz
Input power	0.48 A/230 VAC	92 VA	185 VA	92 VA	185 VA
Efficiency	-	80%	85%	80%	85%
Output voltage	24 V DC ±3%	24 V DC ±3%	24 V DC ±1%	27.2 V DC ±1%	27.2 V DC ±1%
Output current	1 A	2 A	4 A	1.75 A	3.5 A
Maximal permanent output power	25 W	50 W	100 W	50 W	100 W
Protection against short circuit	Electronic	Electronic	Electronic	Electronic	Electronic
Electrical resistance of isolation	3700 V AC/50Hz				
Galvanic isolation input/output	Yes	Yes	Yes	Yes	Yes

Order number

TXN 070 22	PS-25/24 Power supply 230 VAC/24 VDC, 1 A
TXN 070 10	PS-50/24 Power supply 230 VAC/24 VDC, 2 A
TXN 070 15	PS-100/24 Power supply 230 VAC/24 VDC, 4 A
TXN 070 21	PS-50/27 Power supply 230 VAC/27.2 VDC, 1.75 A
TXN 070 16	PS-100/27 Power supply 230 VAC/27.2 VDC, 3.5 A

Foxtrot

Mosaic – development software for PLC Tecomat

Туре	TC700	Foxtrot	Foxtrot basic module	SoftPLC
Mosaic Lite+			CP-100× without communica- tion module	Yes
Mosaic Compact+		Yes	Yes	Yes
Mosaic Profi+	Yes	Yes	Yes	Yes

Basic features

- Mosaic is development software for creating and debugging programs for programmable systems Tecomat. Software is developed according to international standards IEC EN 61131-3, what defines structure of programs and programming languages for PLC. All in one package.
- Language mutations czech, english, deutsch, russian, polish. For Windows XP, Vista, Windows 7 and

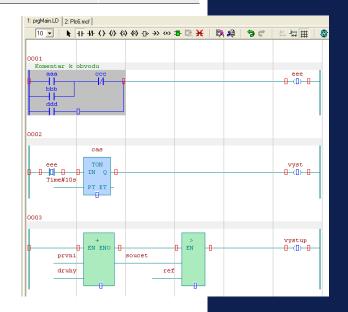
· Lite version for testing and training.

Full version protected by HW key

portable licence.

Regular update.

Windows 8-32 bit and 64 bit.



Programming

- Mosaic enables to program all PLC delivered by company Teco.
- Programming according to standard IEC EN 61131-3 – graphic languages LD (relay logic) and FBD (function blocks), CFC(continuous function chart) and text languages ST (structured text) and IL (instruction language).
- Basic element of program is POU (program unit) - function, function block or program.
- Graphic languages offer easy and intuitive program creation.
- IEC assistant tool for program support in text languages.
- Possibility to combine different types • of languages.
- Common declaration part for all types of languages.
- Standard and user data types including structures and fields.
- Standard and user function libraries and function blocks are available.

SimPLC – simulator PLC

- Built-in simulator PLC debugging without connection of real hardware.
- Possibility to simulate all PLC Tecomat.
- Mosaic can work as data server for visualization programs - support for visualization debugging.

IEC project manager

- Declaration of all program elements for PLC.
- Standard and user libraries . management.
- Well-arranged visualization in structures.

Inspector POU

- Tool for all parts PLC program debugging.
- Visualization of input and output variables POU statuses and running of program.
- Visual differentiation of logic variables in graphic languages.
- Dynamic (on-line) or static program monitoring (calculation of POU is captured in buffer).

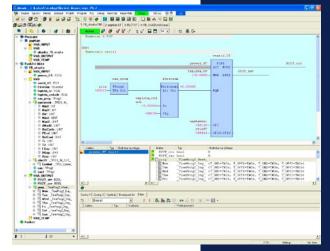
Debugging points, setting conditions

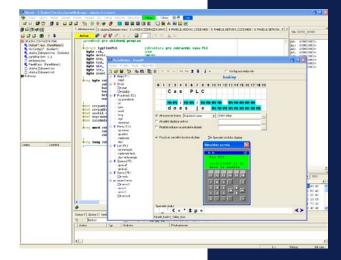
PanelMaker - tool for opera-

tor panels

for run tracing.

- Tool for creation of dialogs for operator panels from Teco production line.
- Program for panel is created directly in Mosaic and becomes a part of program for PLC.
- Visualize and edit is possible for all global variables.





GPMaker – tool for graphic operator panels

- Screen editor of graphic panel ID-17.
- Programming of panel without exports and imports into other programs.
- Access to any variable of any type.Static and dynamic texts and
- static and dynami images.
- Text manager enables to use multi language texts and choose language for display.
- Font manager possibility to import own fonts and symbol sets.
- User defined buttons for each screen.

PanelSim – operator panel simulator

- Dialog debugging created by PanelMaker without connection of operator panel. We may simulate alphanumeric panels from Teco production line.
- All functions of panel are simulated on PC.
- It can be used with real PLC or with simulated PLC.

On-line change of PLC program

- PLC program change without stopping the controlled technology.
- Enables to do any change in program without loss of present operated data.
- Very fast switching between old and new program.
- Minimization of data losses caused by shutdown of control system because of maintenance SW and HW of PLC.

WebMaker – tool for web pages designing for web server of PLC Tecomat

- Graphic tool for creation of web pages for systems Tecomat Foxtrot and TC700.
- Generated code in XML language is connected directly on variables in PLC.
- Web pages enables not only visualize, but also to control technology.
- We can input texts, static and dynamic images, bar graphs, images from IP cameras into web pages.
- Image manager enables to add
 own images
- Different levels of administrative accesses.

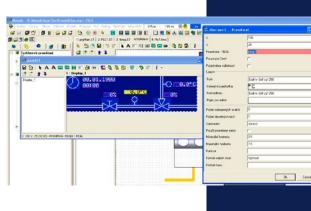
GraphMaker – tool for monitoring of process variables

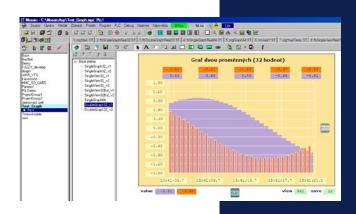
- Monitoring of process up to 16 variables of all types in real time.
- Measured data we can store at hard disc, print, export to other programs (Excel etc.) or directly analyze.
- Two cursors for reading data, zoom, different visualization of read data, setting sample period.
- Function of logic analyzer read data are stored into buffer in CPU and after loading transferred into GraphMaker tool.
- Data storing may be conditioned by fulfilling of logic condition (function TRIG).
- Data may be stored in each calculation cycle.

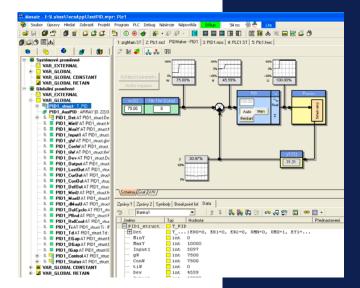
PIDMaker – tool for defining and monitoring of regulati-

on loops

- Visualization superstructure of regulation instructions PID implemented in PLC.
- Easy implementation, debugging and managing of regulation algorithms.
- Interactive view of regulation process, facilitating correct setting of regulator parameters.
- Setting and correcting of regulation parameters in real time, during the regulation. Simulation of simple technology processes on PC part (linear system of complexity up to 3rd order with possibility to simulate traffic delay). Simulation do not change user program implemented into real technology.









Datalogger – tool for storing data into file

- Data are stored into csv files at memory card.
- One datalogger can contain up to 4 collections per 16 signals.
- Values are stored periodically (periodical collection) or on the basis of any event (event collection).
- Third type is signal collection, where signals are stored independently on others.
- Values are stored with time sign.
- Data storing can be controlled from user program, for example from interface in web pages.
- Values from csv files can be read and visualized by GraphMaker tool.

SelectPLC – hardware configuration

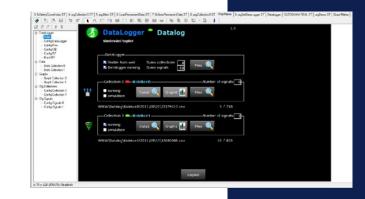
- Choosing of PLC type and easy defining of PLC configuration.
- Manual configuration by filling in easy table or automated reading from connected PLC.
- Each module has own form for configuration.
- Browser of present status of all variables of each modules including communication channels.
- Possibility to fix firm value of inputs and outputs independent on user program and neighborhood – simulation of inputs excitation at user program debugging and easy control of connection actuators with outpus.

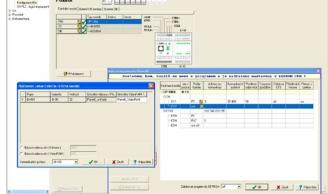
NetPLC – PLC network definition

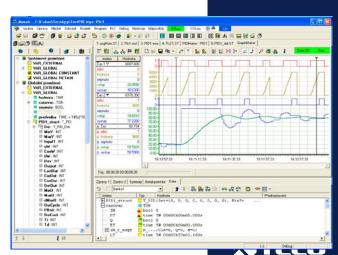
 Easy defining of communication in PLC network, connection of operator panel at serial line or connection of external devices with standard protocols (PROFIBUS DP, Modbus, CAN).

Function blocks libraries

- FileLib library for work with files at memory card.
- DataboxLib work with internal memory Databox.
- FlashLib data storing into internal flash memory.
- GSMLib library for receiving and transmitting SMS messages.
- ComLib receiving and transmitting of messages via ethernet and serial line.
- InternetLib library of internet network services – SMTP, SNTP, http
- ModbusRTULib communication by protocols Modbus RTU and Modbus TCP master
- BACnetLib communication by protocol BACnet
- BuildingLib library of functions for BMS
- RegoLib library for regulation regulators, time programs, errors history, signalling errors history.
- RexLib library for advanced regulation.
- ModelLib library for modelling.
- MotionControl library for positioning.
- ToStringLib converting of data to strings.
- CRCLib calculation of checksum.
- SysLib system functions.







Units for security and safe systems

Motion sensors

Туре	DI	DO	AI	AO	Comm
Detectors of security					
systems, sirenas					

Basic features

- · Detectors are designed as specialised sensors of these values or events, whose are directly related with disruption or threat of secured space.
- Units give binary information about monitored value/event status and it can be used for making alarm in case of monitoring the space.
- In space controlled by system Foxtrot we may use these signals in situation where the space is unlocked and these detectors give us useful information for further automated actions.
- Mostly we use motion sensors and sensors of open windows/ doors.

Connection

- Detectors are power supplied from 12 V DC.
- On CIB bus we connect them to connect detectors with balanced input.
- Siren may be connected at selected output relay in the . system, which is assigned in software with functions of alarm output.

Use

· Complete building automation system with specialised detectors of events related with space security, which may be used for further actions for heating and lighting.

Specification

JS-20 LARGO	Motion detector
Detection distance	12m
Power supply	12 V DC/35 mA
Operating temperature	-10 ÷ +55 ℃
Installation	On flat area
Diameter of connecting wires	1 mm ²
Dimensions	110×60×55 mm
Weight	120g

Specification

SA-200	Doors magnetic detector
Detection distance	15 mm
Installation	On flat area
Diameter of connecting wires	1 mm ²
Dimensions	35×15×9mm
Weight	30g

Specification

Order number JS-20 LARGO

GBS-210 VIVO

GS-133

SD-212SP

SA-200A

SA-201A

SA-203

SA-220

SA-913

OS-365

GS-133	Detector of flammable gasses
Power supply	12 V DC/150 mA
Operating temperature	−10 ÷ +55 °C
Installation	On flat area
Diameter of connecting wires	1.5 mm ²
Dimensions	100×120×40mm
Weight	112g

Specification

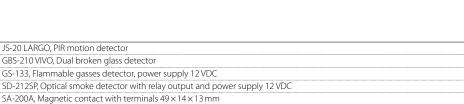
SA-220	Crossing magnetic detector
Detection distance	75 mm
Dimensions	106×38×10mm
Weight	230 g

_ openingenen	
GBS-210 VIVO	Broken glass detector
Detection distance	< 9 m
Power supply	12 V DC/35 mA
Operating temperature	-10 ÷ +55 ℃
Installation	On flat area
Diameter of connecting wires	1 mm ²
Dimensions	100×40×23 mm
Weight	120 g

Specification

SD-212SP	Optical smoke detector
Power supply	12 V DC/3 mA
Operating temperature	-10 ÷ +55 ℃
Installation	On flat area
Diameter of connecting wires	1 mm ²
Dimensions	120×120×40mm
Weight	150g

Specification	
SA-913	SA-913 Interior piezzo-siren
Sound intensity	110 dB/m
Power supply	12 V DC/250 mA
Operating temperature	-10 ÷ +55 ℃
Installation	On flat area
Diameter of connecting wires	1.5 mm ²
Dimensions	120×72×40mm
Weight	140 g











GBS-210 VIVO









GS-133

11111111



SA-913





