Tecomat Foxtrot

CFox
RFox

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 designated 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. In the past, we have temporarily lend the CIB to system iNELS during our cooperation with company ELKO EP. In 2011 ELKO EP terminated the contract about using brand iNELS. That´s why you may find in this catalog only our own modules from CFox line.

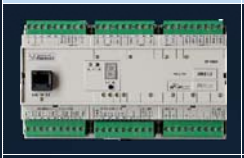
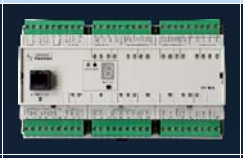
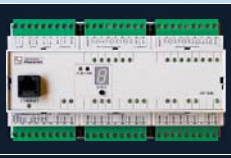
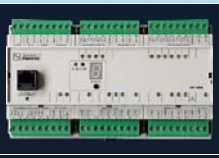
Next section is RFox line, what is a system extension of Tecomat Foxtrot with wireless input/output modules in frequency band 868 MHz.

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

Teco a.s.

CFox – Overview of central modules, modules and accessories

Central modules Foxtrot

CP-1000	CP-1003	CP-1004	CP-1005	CP-1006	CP-1008
					
TXN 110 00	TXN 110 03	TXN 110 04	TXN 110 05	TXN 110 06	TXN 110 08
4 AI/DI, 2 DI/230	8 DI/HSC, 8 AI/DI	4 DI/HSC, 4 DI/AI	6 AI/DI	13 AI/DI, 1 DI/HSC, 1 DI/230	10 AI/DI, 2 AI, 1 DI/230
2 RO	4 DO/PWWM, 8 RO	6 RO	6 RO, 2 AO	10 RO, 2 SSR, 2 AO	7 RO, 4 SSR, 4 RO
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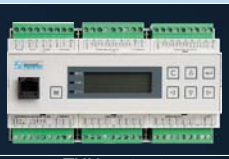
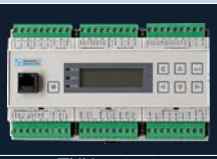
Central modules Foxtrot with LCD and keyboard

		CP-1014	CP-1015	CP-1016	CP-1018
					
		TXN 110 14	TXN 110 15	TXN 110 16	TXN 110 18
		4 DI/HSC, 4 DI/AI	6 AI/DI	13 AI/DI, 1 DI/HSC, 1 DI/230	10 AI/DI, 2 AI, 1 DI/230
		6 RO	6 RO, 2 AO	10 RO, 2 SSR, 2 AO	7 RO, 4 SSR, 4 RO
		Page 14	Page 16	Page 18	Page 20

Expansion I/O modules

Communication submodules

IB-1301	OS-1401	IR-1501	IT-1604	IT-1602	OT-1651	PX-7811	PX-7812
							
TXN 113 01	TXN 114 01	TXN 115 01	TXN 116 04	TXN 116 02	TXN 116 51	TXN 178 11	TXN 178 12
4DI/HSC, 8DI		4DI/HSC	8 AI	8 AI (TC)		7 DI	4 DI
	12 DO	8 RO	2 AO	2 AO	4AO		3DO
Page 24	Page 25	Page 26	Page 27	Page 27	Page 28	Page 31	Page 31

Communication modules on TCL2 bus

Modules connected via serial port

UC-1203	UC-1204	KB-0552	RF-1131	CF-1141	INSYS GSM Small	SX-1181	SMM-33
							
TXN 112 03	TXN 112 04	TXN 115 01	TXN 111 31	TXN 111 41	INSYS GSM Small	TXN 111 81	SMM-33
OpenTherm	MP-Bus	RS-485/ MM optic fiber	RFox master	Bus master 2× CIB	GSM gate for SMSM	RS-232 <-> MBus	3 phase network measurement /Modbus
Page 32	Page 32	Page 33	Page 76	Page 46	Page 36	Page 37	Page 38

Communication submodules

MR-0104	MR-0114	MR-0124	MR-0105	MR-0106	MR-0115	MR-0152	MR-0161	MR-0158	MX-0301
									
TXN 101 94	TXN 101 14	TXN 101 24	TXN 101 05	TXN 101 06	TXN 101 15	TXN 101 52	TXN 101 61	TXN 101 58	TXN 103 01
RS-232	RS-485	RS-422	2× RS-232	1× RS-232		Profibus DP	CAN	M bus	Wiegand
			1× RS-485	2× RS-485	3× RS-485	Slave			
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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 sensor, thermocouples connection
AO – analog outputs, DO – digital outputs, RO – relay outputs, SSR – Solid state relay, OC – open colector

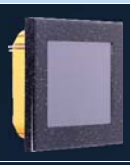
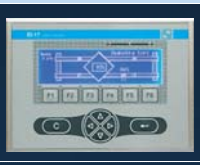
Power supply

DR-15-24	DR-60-24	DR-100-24	PS2-60/27		
					
DR-15-24	DR-60-24	DR-100-24	TXN 070		
24 VDC/0,63A	24 VDC/2,5A	24 VDC/4,2A	27 VDC/2,2A 12 VDC/0.3A		
Page 88	Page 88	Page 88	Page 89		

Communication Ethernet/GSM

SX-1162	105FX	306FX2	UR5i v2	ER75i v2	RWEPA	Easy Route
						
TXN 111 62	105FX	306FX2	UR5i v2	ER75i v2	RWEPA	Easy Route
Ethernet Switch	Ethernet switch	Ethernet switch	3G/UMTS router	GPRS/EDGE router	WiFi klient IP67	4 TX port,, WiFi 3G router
5 TX, 100Mbit	4 TX, 1 FX port	4 TX, 2 FX port				
Page 34	Page 35	Page 35				

Displays, HMI panels

ID-18	ID-28	ID-14	ID-17	
				
ID-18	ID-28	ID-14	ID-17	
Ethernet	Ethernet	on bus TCL2	on bus TCL2	
VGA touch panel	VGA touch panel	4×20 characters, 25 keys	240×60 pixels, 4 DI, 2 RO	
Page 40	Page 40	Page 42	Page 41	

System modules of bus CIB

CF-1141	C-BS-0001M	DTNVEM-1/CIB	DTNVE-1/CIB	
				
TXN 111 41	TXN 133 55	DTNVEM-1/CIB	DTNVEM-1/CIB	
Master	Bus separator	Overvoltage	Overvoltage	
bus 2× CIB	bus CIB	protection CIB	protection CIB	
Page 46	Page 46	Page 47	Page 47	

CIB bus modules on DIN rail

C-HM-0308M	C-HM -1113M	C-HM-1121M	C-OR-0008M	C-DM-0006M-ULED	C-DM-0006M-ILED	C-FC-0024X
						
TXN 133 24	TXN 133 10	TXN 133 11	TXN 133 02	TXN 133 45	TXN 133 46	TXN 133 39
3 AI/DI	3 AI, 8 DI	3 AI, 8 DI				3AI/DI
6 RO, 2 AO,	11 RO, 2 AO,	19 RO, 2 AO,	8 RO	6 LED outputs	6 LED outputs	2 RO, 1 AO
Page 49	Page 49	Page 49	Page 48	Page 51	Page 52	

CIB modules into installation box, under device cover

C-IT-0200S	C-IR-0202S	C-IT-0504S	C-IT-0908S	C-RI-0401S	C-DL-0012S	C-WG-0503S
						
TXN 133 29	TXN 133 25	TXN 133 26	TXN 133 52	TXN 133 47	TXN 133 23	TXN 133 53
2 AI/DI	2 AI/DI	5 AI/DI	6 DI, 2 AI/DI, 1 AI	2 AI/DI, 1 IR, 1 photodiod		3 DI, 2 AI/DI
	1 RO, 1 AO	4 AO	8 OC PNP	1 IR transmitter	DALI	3 OC NPN
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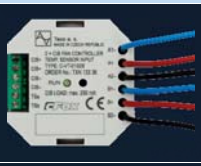
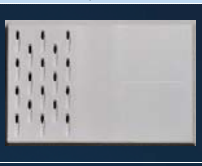
CIB modules into installation box, under device cover

C-OR-0202B	C-VT-0102B			
				
TXN 116 02	TXN 133 55			
2 AI/DI	1 AI/D			
2 RO	2 fan ±(7-15)V			
Page 59	Page 60			

CIB modules for interior

C-WS-0200R	C-WS-0400R	C-IT-0200R	C-RI-0401R	C-RC-0002R	RCM2-01
					
TXN 133 30	TXN 133 31	TXN 133 19	TXN 133	TXN 133 33	TXN 131 57
2 Butons 1× RTD external	4 Butons 1 RTD external	1 RTD internal 1 RTD external	2 AI/DI, 1 IR, 1 fotodiod 1 IR transmitter	3 Butons 1 RTD external LCD	1 rotational button 1 RTD external LCD
Page 65	Page 65	Page 66	Page 66	Page 69	Page 70

CIB modules for interior — on valve

C-AQ-0001R	C-AQ-0002R	C-AQ-0003R	C-AQ-0004R	C-HC-0201F-E
				
TXN 133 12	TXN 133 13	TXN 133 14	TXN 133 15	TXN 133 48
Concentration CO_2	Concentration VOC	Smoke concentration	Relative humidity	2 AI/DI Valve position
Page 71	Page 71	Page 71	Page 71	Page 73

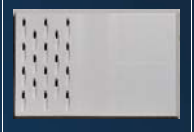
Modules on CIB bus with IP65 protection

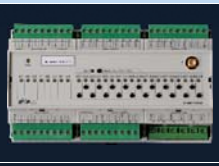
C-IT-0200I	C-AM-0600I	C-IT-0100H-P	C-IT-0100H-P	C-IT-0100H-P	C-IT-0100H-A
					
TXN 133 09	TXN 133 50	TXN 133 16.11	TXN 133 16.12	TXN 133 16.01	TXN 133 17.01
2 AI	6 AI/DI	1 AI	1 AI	1 AI	1 AI
Page 61	Page 62	Page 63	Page 63	Page 63	Page 63

Modules for wireless network RFox — Portable mobiles

RF-1131	R-RT-2305W	AN-06	AN-RFox/GSM	R-KF-0400T	R-KF-0500T
					
TXN 111 31	TXN 132 34	AN-06	31-01-01.001	TXN 132 25	TXN 132 08
Master for 64 RFox modules	Router into socket	Antenna RFox 868 MHz	Antenna RFox/GSM	4 buttons	5 buttons
Page 76				Page 80	Page 80

Interior modules for wireless network RFox

R-WS-0200R	R-WS-0400R	R-IT-0100R	R-RC-0001R	R-AQ-0001R	R-AQ-0002R	R-AQ-0003R	R-AQ-0004R
							
TXN 132 30	TXN 132 31	TXN 132 32	TXN 132 09	TXN 132 12	TXN 132 13	TXN 132 13	TXN 132 15
2 butons	4 butons	1 RTD	1 RTD, control buton	Concentration CO2	Concentration VOC	Smoke concentration	Relative humidity
Page 77	Page 77	Page 77	Page 78	Page 85	Page 85	Page 85	Page 85

RFox modules on DIN rail		on valve	into installation box	
R-HM-1113M	R-HM-1121M	R-HC-0101F	R-IB-0400B	R-OR-0001B
				
TXN 132 10	TXN 132 11	TXN 132 28	TXN 132 04	TXN 132 01
3 AI, 8 DI	3 AI, 8 DI	1 AI	4 DI	
11 RO, 2 AO	19 RO, 2 AO	Valve position		1 RO
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Accessories – for information (not involved in the catalog)

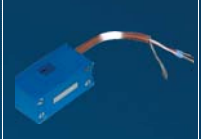
Electricity meters, flow meters, water quality sensors

ED11.M	ED 110.D0	ED 310.DR	Opto sensor	Water meter ¾"	AV23	pH	Redox
							
ED11.M	ED 110.D0. 14E302-00	ED 310.DR. 14E304-00	TXN 149 01	3/4" BONEGA-T-E/20	223.7704.000	SPH-1-S6	SRX-1-PT-S6
1f 230V/25A	1f 230V/32A	3f 230V/64A	EN 62056-21	2,5 m^3/hour	2,40m^3/min		
S0 pulse output	S0	S0, RS-485	RS-232	Pulse output	1 flow, 1 temperature	pH	

Meteostations, sensors of condensation, humidity, inundation and level

Meteostation	Condensation	Humidity at open space	Humidity in gutter	Inundation	Surface detector	Level meter
						
GIOM 3000	SHS A1	ESF 524 001	ESD 524 003	DS	CLS-23S-11	HLM-25S-I-1000
Wind direction and speed, air pressure, humidity, temperature	Condensation	Humidity at open space	Humidity in gutter	Conductivity	Capacitive	Hydrostatic
Ethernet	<150kΩ	RTD		contact	1 OC	4-20mA

Temperature sensors

NTC Cable	Pt1000 Cabel	Ni1000 Cabel	NTC S-TS-01R	Pt1000 Outside	Pt1000 Attached	Pt1000 for air-conditioning	Pt1000 into sump
							
SK8NTC 12k-2PS	SK2PA-2SS	SK8S-2PS	TXN 134 01.01	P11PA	P15PA	P11PA	P13PA

Temperature sensors for interior

Legrand	Eaton	Unica	Bticino	Logus	Decente	Gira	Merten
							
C-IT-0200R-Zak	C-IT-0200R-Zak	C-IT-0200R-Zak	C-IT-0200R-Zak	C-IT-0200R-Zak	C-IT-0200R-Zak	C-IT-0200R-Zak	C-IT-0200R-Zak
TXN 133 20	TXN 133 20	TXN 133 20	TXN 133 20	TXN 133 20	TXN 133 20	TXN 133 20	TXN 133 20

Heating accessories

Lighting accessories

Valve head 230V	Valve head 24V	Valve head 0 – 10V		Ballast DALI	Ballast 1 – 10V
					
Alpha AA 2004/230	Alpha AA 4004/24 V	Alpha AA 5004 0-10V		EL 1×XX si Fluorescent tubes T8, T5	EL 1×XX sc Fluorescent tubes T8, T5

Acessories – access system

RFID card reader	Card reader + fingerprint	RFID card reader	Card reader with keyboards		
					
AXR-100 Wiegand Page 58	AXR-500 Wiegand Page 58	SSA-R1100 Wiegand Page 58	SSA-R2000V Wiegand Page 58		

Accessories – security systems, electronic guard system detectors

Motion detector	Motion and glass fragmentation detector	Glass fragmentation	Door contact	Gate contact	Indoor sirene
					
JS-20 LARGO Page 94	JS-25 COMBO Page 94	GBS-210 VIVO Page 94	SA-200A Page 94	SA-204 Page 94	SA-913 Page 94

Accessories – security systems, electronic guard system detectors

Prestige QD	Prestige PW	Prestige DT	Prestige Orbit DT	Prestige External TD	Trired	Impaq Glass Break
						
031 30300	031 30700	034 30100	031 32101	031 32000	031 74600	032 00700
Quad PIR sensor 42 detection zones	24 detection zones	Dual MW+PIR 42 detection zones	Outdoor dual PIR+ MW	Outdoor dual PIR	Outdoor triple PIR motion detector	Acoustic glass break detection
2 contacts	2 contacts	2 contacts	2 contacts	2 contacts	2 contacts	2 contacts
	Page 58	Page 58	Page 58	Page 58		

Accessories – security systems, electronic fire system detectors

EXODUS OH/4W	EXODUS RR/4W	EXODUS FT64/4W	EXODUS FT9O/4W	GS-133	SD-282ST	
						
231 05100	231 05200	231 05300	231 05400	GS-133	SD-282ST	
Dual, smoke and temperature	Temperature increase	Max. temperature >64°C	Max. temperature >90°C	Flammable gases	Smoke and high temperature	
1 contact	1 contact	1 contact	1 contact	1 contact	1 contact	
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Foxtrot
PLC Basic modules

Foxtrot
PLC Expansion modules

Foxtrot
Communication modules

Displays
Operator panels

CIB
Sensors and actuators for electrical installation bus

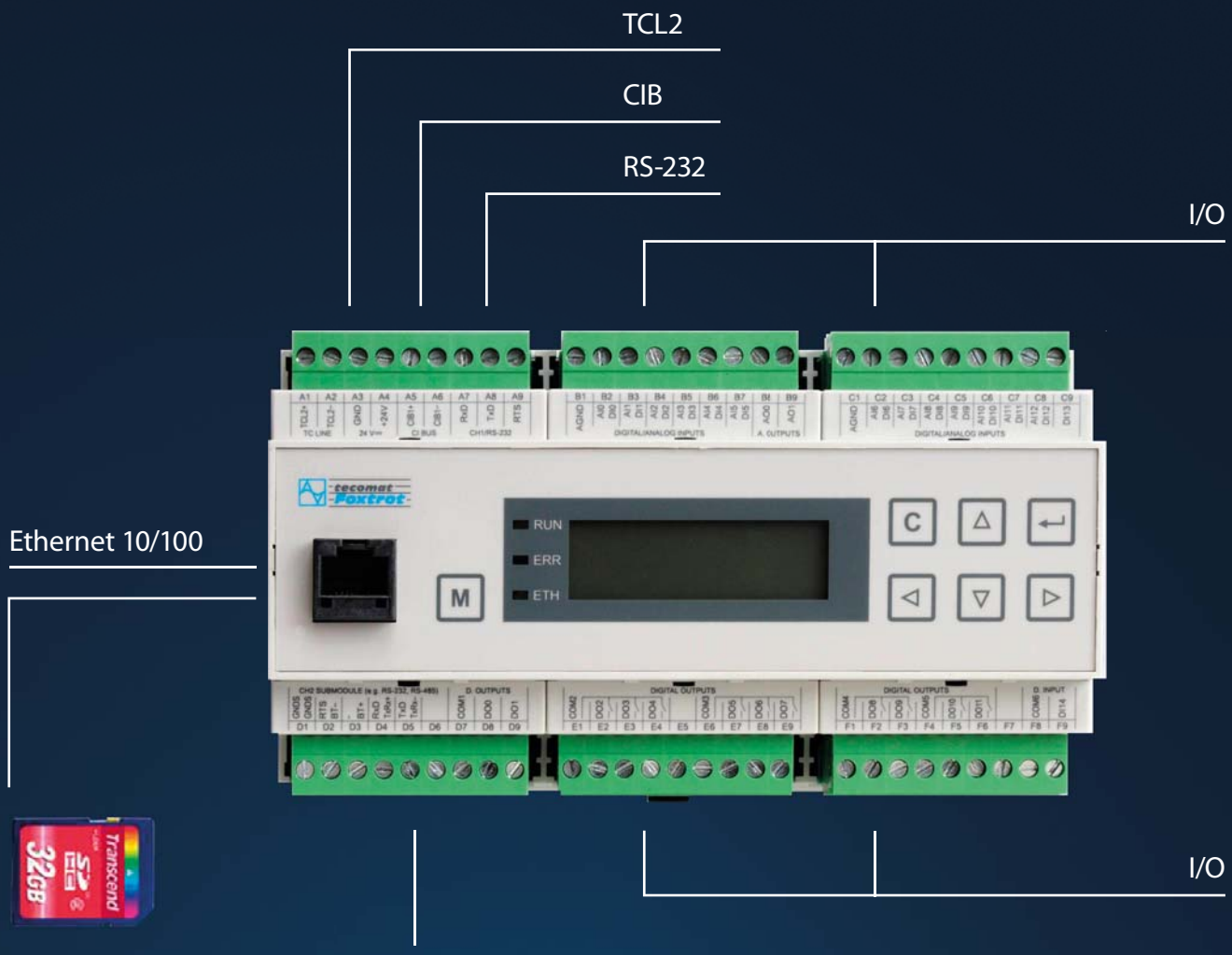
RFox
Wireless system for building control

Power supply

Accessories
Sensors, detectors etc.

PLC Foxtrot

Diagram of the basic lines of communication modules



Mass storage
SD/SDHC/MMC

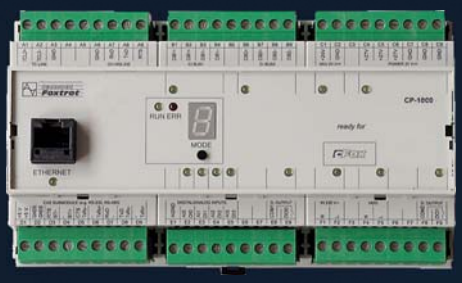
Optional interface

- RS-232
- RS-422
- RS-485
- RS-485/Profibus
- 2× DMX512
- M-bus
- CAN
- Paralelní I/O

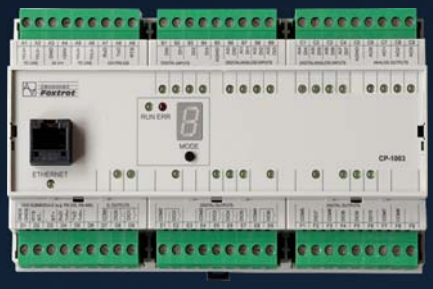
TECOMAT FOXTROT communication lines fundamental scheme.

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

PLC Foxtrot
Basic modules 6M



CP-1000



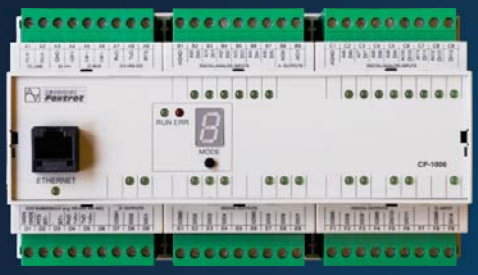
CP-1003

CP-1004

CP-1014

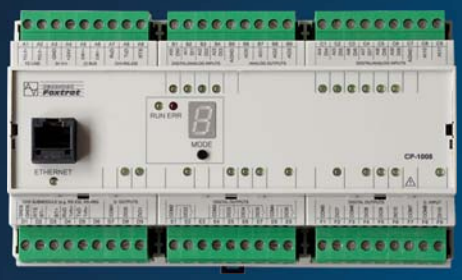
CP-1005

CP-1015

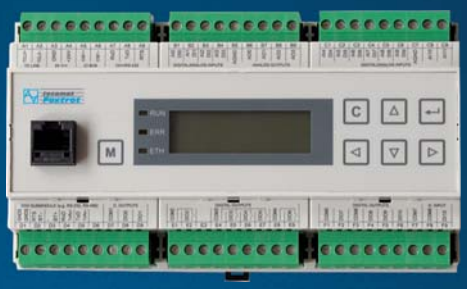


CP-1006

CP-1016



CP-1008



CP-1018

PLC Tecomat Foxtrot – basic modules

Central module for CFox and RFox

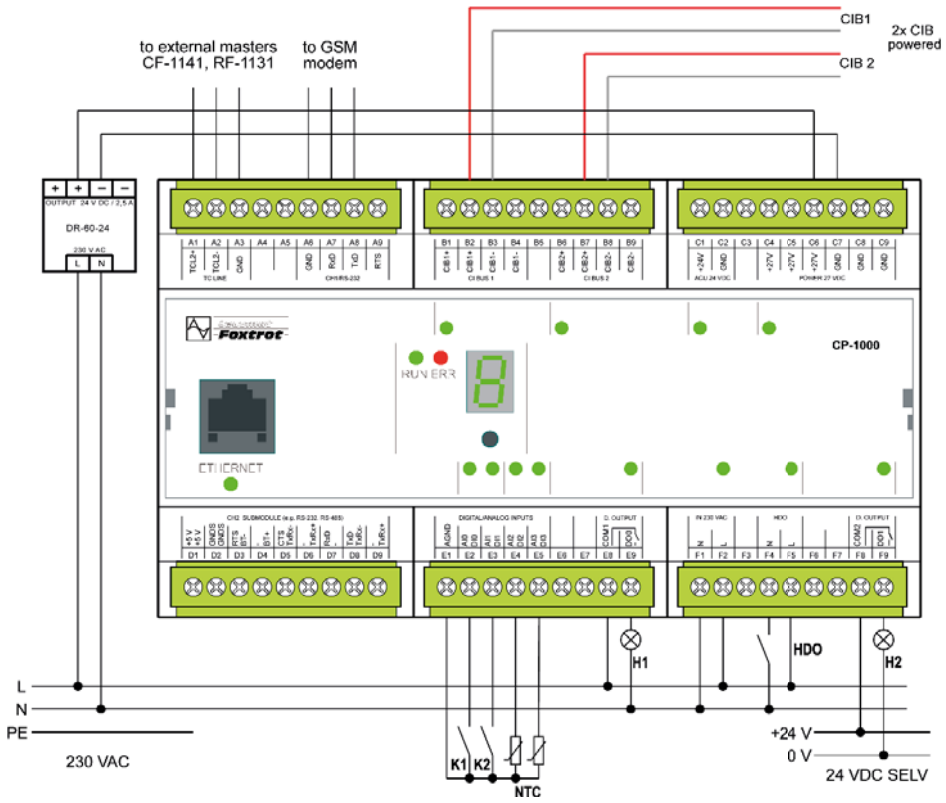
Type	DI	RO	AI	AO	Comm
CP-1000	2× DI/230 VAC	2× RO	4×AI/DI		2× CIB, 1× Ethernet 10/100, 1× RS-232, 1× optional, TCL2

CP-1000

Basic features

- Central module designed for lines CFox and RFox.
- Exceptional 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 kΩ or as floating digital inputs.
- Digital inputs 230 V AC for connecting HDO signal and 230 V AC network monitoring.
- Standard relay outputs 250 V AC/3 A.
- Extension of I/O connect up to 10 peripheral modules on serial bus TCL2 (345 kbit/s).
- 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 any mechanical design.
- On terminals CIB+ and CIB- there is a bus with power supply.
- Number of CIB branches is expandable up to 10 via masters CF-1141 connected on TCL2 bus, what means togehter 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.
- Next channel CH2 enables connection of optional communication interface submodule or inputs/outputs according to your needs.
- Programming and communications (LAN, WiFi, WAN, internet) via ethernet (100 Mbit/s), adjustable firm IP adress or assigned by DHCP.
- Support of standard protocols Modbus RTU/TCP (master and slave) and BACnet (slave).
- Built-in web server, free web pages designing on memory card (XML technologies).
- 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 sign.
- Compact dimensions suits to standard electroinstallation switchboards, assembly on DIN rail.
- Central module is powered from 24 V DC power supply. If use of 27,2 V power supply it is possible to connect Pb accumulators and hold the system in operation 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.

Connection example



CP-1000

Communication

Ethernet; supported protocols	1× 100/10 Mbit/s; TCP/IP, UDP, HTTP; SMTP ; MODBUS/TCP, BACnet, IEC 60870-5-104
Serial ports	1× RS232;1× optional slot, optional Interface (viz submodules MR-0xxx)
System I/O bus	1× TCL2 (RS485, 345 kbit/s)
Communication over expansion module	8× CIB, 4× RFox, MPbus, Opentherm, GSM/SMS, GPRS
Installation bus	2× CIB (19,2 kbit/s) (Common installation bus)

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 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

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 (AI0–AI13)

Resolution	12 bit
Conversion time	100 µs/1 vstup
Sample repetition period	5 ms
Protection type	integrated, overvoltage

Measurement ranges

Resistance Temperature Detectors (RTD)	
Input impedance	> 4 kΩ
Input range	Pt1000 1,385 (–90 up to +270°C) Pt1000 1,391 (–90 up to +2700°C) Ni1000 1,617 (–60 up to +155°C) Ni1000 1,500 (–60 up to +155°C) NTC 12k (-40 up to +125°C) resistance transmitter 0 up to 2000 Ω resistance transmitter 0 up to 200 kΩ
Max. error at 25 °C	±0,5 % of full range ±10 % for range 0 up to 200 kΩ
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 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 20
Overvoltage category	II
Pollution degree IEC EN 60664–1:2004	1
Working position	vertical
Installation	on DIN rail
Connections	Screw connectors
Conductors cross-section	max. 2,5 mm²

Function Digital inputs (DI0-DI3)

Input voltage for log. 0 (U_L)	min. 2,3 V, max. 12 V
Input voltage for log. 1 (U_H)	min. 0 V, max. 1 V
Input current for log. 1 (I_H)	typ. – 1,7 mA
Delay0 –> 1/ 1 –> 0	1 ms/1 ms

Digital inputs 230V 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):	min. 200 V AC
Input current for log.1 (I_H):	typ. 5 mA
Delay0 -> 1/1 -> 0:	10 ms/10 ms

Relay outputs (DO0–DO1)

No. of outputs × groups	2 (1+1)
Galvanic isolation	Yes (even outputs each other)
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
Current through joint terminal	
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 switching/ min.
Switching frequency with rated load	max. 20 switching/ min.
Mechanical/ Electrical lifetime at max. load	min. 5 mil./ 100 tis. cycles
Short-circuit protection	No
Spike suppressor of inductive load	External. (RC unit, varistor, diode)
Insulation voltage	3750 V AC (more details see documentation of TXV 004 11)

Dimensions and weight

Dimensionsy	90 × 158 × 58 mm
Weight	250 g

Power supply

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-Ion accumulator (500 hours) Holder for lithium battery (CR2032) CR2032 (20 000 hours)

Order number

TXN 110 00	CP-1000, CPU, ETH100/10, 2xCIB, 1xRS232, 1xSCH, 4xAI/DI, 2xDI 230 VAC, 2xRO, prg. MOSAIC/IDM

PLC Tecomat Foxtrot – basic modules

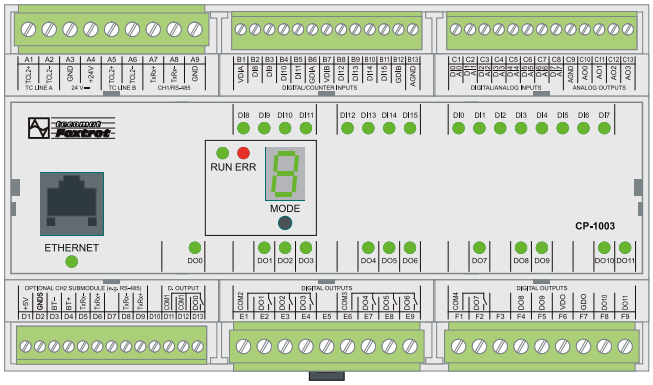
Type	DI	RO	AI	AO	Comm
CP-1003	8× DI/HSC	7× RO/3A 1× RO/10A 4× DO/PWM	8× DI/AI	4× AO	Ethernet 10/100, 2× TCL2, 1× RS485

CP-1003

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 28 integrated inputs and outputs.
- 2×4 digital inputs with optional voltage level with alternative function of fast counters up to 100 kHz.
- 8 universals inputs optional as analog or digital. Optional voltage, current and resistance range.
- 4 analog outputs with voltage range ±10V 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 zas 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 with more PLC Tecomat in ethernet network or bus RS-485.
- Free programmable according to IEC 61131-3 standards.
- On-line programming during operation.
- Programming and communication via ethernet (100 Mbit/s), adjustable firm IP address or DHCP.
- Up to 4 serial channels, one RS-485 in basic configuration, others with optional interface from range MR 01xx (up to 345 kbit/s), adjustable UART.
- 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 technologies).
- 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 dimension suits to standard electroinstallation switch boxes, assembly on DIN rail.

Connection example



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	192+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	64 kB/32 kB remanent
No. of IEC timers/counters	4096/8192

Communication

Ethernet	1× 10/100Base T
Supported protocols	TCP/IP, UDP, http, SMTP, Modbus TCP, BACnet
Serial channels	1× RS-485 (CH1) a 1× free slot CH2 for submodule (see MR-01xx)
System I/O bus	2× TCL2 (RS-485, 345kbit/s)
Communication via expansion module TCL2	CIB, RFox, MP-BUS, OpenTherm
Bus for electroinstallation	Only with external master CF-1141

Binární/Čítačové vstupy DI8-DI11, DI12-DI15

Binary/ Counter inputs	4× 2
Optional input functions	4× counter nebo 2× IRC (encoder) do 100 kHz
Common wire	minus (GDIA, GDIB)
Galvanic isolation	Yes, by groups
Decision-making level at input	Yes, 5/12/24V. Adjustable by ref. voltage at input VDIA resp. VDIB
Input voltage for. 0	Max. 0.2 V DIA (VDIB)
Input voltage for. 1	Min. 0.7 V DIA (VDIB)
Input resistance for. 1	Typ. 4.5 kΩ
Delay 0->1/1->0	2µs/1µs

Analog/digital inputs DI0/AI0-DI7/AI7

No. of inputs × groups	8× 1
Optional input function	• Digital input • Voltage range: 0-2,5V, 0-10V • Current range: 0-20mA • Resistance range: 0-2kΩ, 0-200kΩ NTC, Ni1000, Pt1000
Common wire	Minus (AGND)
Galvanic isolation	Yes, from the rest of module, connected only with AO
Resolution	12 bit
Time of transaction	80µs/1 input
Measurement repeating	480µs
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 we may control speed and direction of rotation.
Common terminal	minus (GDO)
Switched voltage	10 – 30 V DC (max. 34 V at VDO)
Switched current permanent/pulse	Max. 1A/5A
Residual current at switching off	150µA
Time of switch on/off	1,6µs/0,6µs
Switching speed	Max. 100 kHz

Binární reléové výstupy DO0-DO7

Počet výstupů	7× 3A (DO0-DO6), 1× 10A (DO7) rozděleně do 4 skupin
Galvanické oddělení	Ano (i skupiny navzájem)
Typ kontaktu/výstupu	Spínací relé, nechráněný výstup
Spínané napětí	Min. 5 V, max. 250 V AC
Spínaný proud	Min. 100 mA; max. 3A (DO7-10A)
Krátkodobá přetížitelnost výstupu	Max. 4A (DO7-16A)
Proud společnou svorkou	Max. 10 A
Doba sep.í/rozep. Kontaktu	Typ. 10 ms/4 ms
Frekvence spáníní bez zátěže	Max. 300 sepnutí/min
Frekvence spínání se jm. zátěží	Max. 20 sepnutí/min
Mech./Elektr. Životnost při max. zátěži	Min. 5 mil/100tis. Cyklů
Ochrana proti zkratu	Není
Ošetření induktivní zátěže	Vnější (RC člen, varistor, dioda)
Izolační napětí	3750 V AC

Analog outputs AO0-AO3

No. of outputs	4
Galvanic isolation	Yes, connected with AI
Common isolation	Minus AGND
Resolution	12bit
Range/current	±10 V/max. ±25 mA
Time of transaction	6µs

CP-1003

Operating conditions CP-1003

Operating temperature	-20 .. +55 °C
Storing temperature	-25 .. +70 °C
Electric strength	according EN 60950
Degree of protection IP (IEC 529)	IP20
Overvoltage category	II
Degree of pollution according ČSN EN60664-1;2000	1
Operation position	Vertical
Installation	into switching board on DIN rail
Connection	screw terminals
Wire diameter	DI, AI, AO, CH2 – 1,5mm², Others max. 2,5 mm²

Dimensions and weight CP-1003

Dimensionsy	90×160×65 mm (9M)
Weight	250 g

Power supply CP-1003

Nominal voltage – (SELV)	+24 V DC
Tolerance	-15% ..+25%; 20,4..30 V DC,
Max. input power	10 W
Internal protection	Yes
Galvanic isolation	Inputs and outputs yes, communication no
Back up memory	Built-in Li-Ion accumulator (500 hours). Holder for lithium battery.

Order number

TXN 110 03	CP-1003; CPU, ETH100/10, 1× RS485, 1× SCH, 8× AI/DI, 8× DI/HSC, 4× AO, 8× RO, 4× DO, 2× TCL2

PLC Tecomat Foxtrot – basic modules

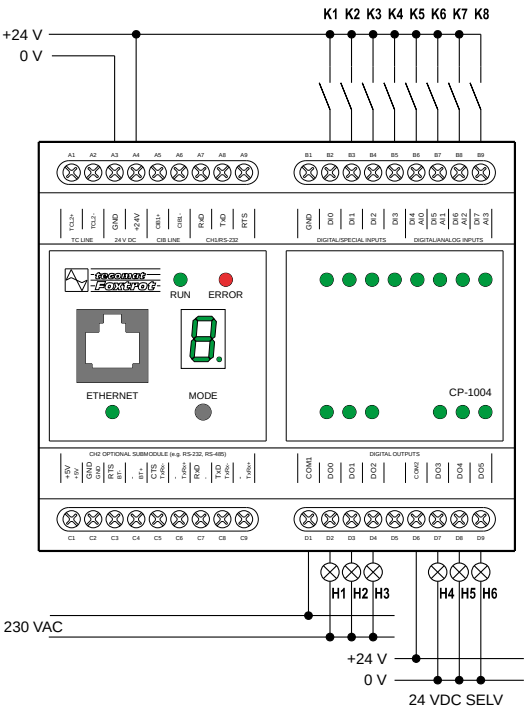
Basic module with 14 I/O (max. 21 I/O) with counter inputs

Type	DI	RO	AI	AO	Comm
CP-1004 **CP-1014**	8× DI of which 4× DI/AI, 4× DI/ HSC	6× RO			Ethernet 10/100, RS-232, 1× optional interface, TCL2, CIB, RFox optional

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Exceptional 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. ASCII, 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×DI/3×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 electrical installation bus CIB (19.2 kbps).
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.
- Free programmable 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 fi xed IP address or DHCP.
- 2 serial ports: one RS-232, the second one with optional interface (up to 345 kbps), configurable UART.
- 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.

Connection example



Digital inputs (DI0–DI7)

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)

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 ÷ 4 294 967 296
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/0–10V
Conversion time	350 µs/1 input
Max. error at 25 °C	± 3 % of full range

Features of CPU

CPU	32 bit RISC procesor
PLC Instruction cycle	0,2 ms / 1 k 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 resource files	2 MB
Memory card slot	Yes, MMC/SD, SDHC
Memory for variables	64 kB/32 kB remnant
No. of IEC timers/counters	4096/8192

Communication

Ethernet; supported protocols	1× 10/100BaseT; 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-1004

CP-1014

Related products

Submodules with inputs/ outputs

Communication submodules MR-01xx

CP-1004

CP-1014

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 při 30 V DC nebo 230 V AC
for inductive load DC13	max. 3 A při 30 V DC
for inductive load AC15	max. 3 A při 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 tis.cycles
Short-circuit protection	None
Spike suppressor of inductive load	External RC, varistor or diode snubber
Insulation voltage	3750 V AC

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–25 ÷ +70 °C
Electric strength	According EN 60950
IP Degree of protectionČSN EN 60529	IP 10B
Overvoltage category	II
Degree of pollution IEC EN 61131-2	2
Working position	Vertical
Installation	On DIN rail
Connections	Screw terminals
Conductors cross-section	max. 2.5 mm²

Dimensions and weight

Dimensions	90 × 105 × 65 mm
Weight	250 g

Power supply

Power supply voltage (SELV)	+24 V DC
Allowed range	–15% +25% (20,4 ÷ 30V DC)
Max. power consumption	8 W
Galvanic isolation	No
Memory backup	Built in Li-Ion accumulator (500 hours); Holder for CR2032 lithium battery (for 20 000 hours)

Order number

TXN 110 04	CP-1004, CPU, ETH100/10, 1×RS-232, 1×SCH, 4×DI/AI, 4×DI/HSC, 6×RO 230 V/ 3A,1×CIB, SW Mosaic
TXN 110 14	CP-1014, CPU+LCD 4×20, ETH100/10, 1×RS-232, 1×SCH, 4×DI/AI, 4×DI/HSC, 6×RO 230 V/ 3A, 1×CIB, SW Mosaic

PLC Tecomat Foxtrot – basic modules

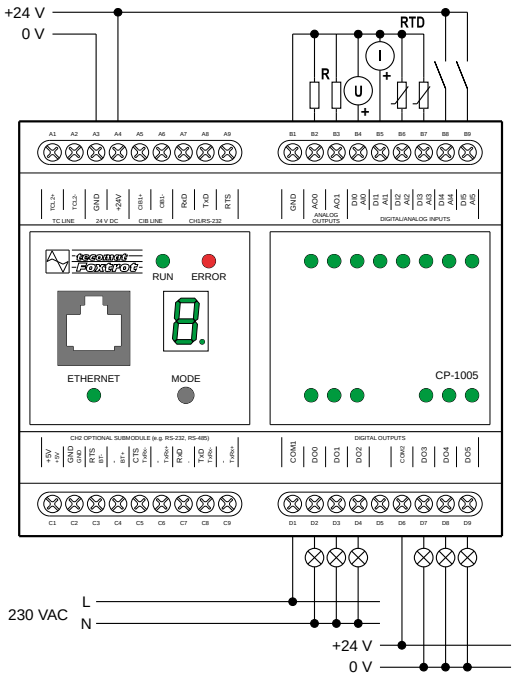
Basic module with 14 I/O (max. 21 I/O) for use in measurement and regulation

Type	DI	RO	AI	AO	Comm
CP-1005 **CP-1015**		6× RO	6× AI/DI	2× AO	Ethernet 10/100, RS-232, 1× optional interface, TCL2, CIB, RFox optional

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Exceptional integration of control system with latest IT and telecommunication technologies.
- Powerfull central module with integrated mostly analog inputs and analog and relay outputs (I/O).
- Type CP-1015 is expanded with built-in display 4x20 characters and 6 keys. Available coding: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek), IEC 60870 5 104. Other features are the same with CP-1005.
- Optional slot can be inserted by additional 7×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 measurement (U, I, RTD) is set on each input by jumper. Range of measurement is 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).
- Other I/O can be expanded also by 2 wire electrical installation bus CIB (19.2 kbps).
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.
- Free programmable 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 fi xed IP address or DHCP.
- Up to 4 serial ports, one RS-232, the othes ones with optional interface from line MR 01xx (up to 345 kbps), configurable UART.
- Built-in PROFIBUS DP Master, Modbus RTU/TCP spave, 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.

Connection example



Analog inputs (AI0-AI5)

No. of inputs × groups	6× 1
Configurable inputs	Voltage/ Current/ RTD measurement Binary input See other tables
Common wire	minus (GND)
Galvanic isolation	Ne
Resolution	14 bit
Conversion time	80 µs per input
Sample repetition period	480 µs
Protection type	Overvoltage, integrated

Digital inputs (DI0-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_L)	0 V DC; (–5÷ +5 V DC)
Input voltage for log.1 (U_H)	+24 V DC; (+12÷ +30 V DC)
Input current for log.1 (I_H)	typ. 5 mA
Delay 0 –> 1/1 –> 0:	1ms/ 1ms

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 retained
No. of IEC timers/counters	4096/8192

Communication

Ethernet; supported protocols	1× 10/100 BaseT; TCP/IP, UDP, HTTP; SMTP; MODBUS/ TCP, BACnet a CP1255 (Hebrew)
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 19,2 kbit/s)

CP-1005

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	10 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
Allowed overload	+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. 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 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 thous. cycles
Short-circuit protection	None
Spike suppressor of inductive load	External RC, varistor or diode snubber
Insulation voltage	3750 V AC

Measurement ranges

Voltage	
Input impedance	> 50 kΩ
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
Allowed overload	±35 V (between AI and AGND)
Current	
Input impedance	100Ω
Input range	0 ÷ 20 mA 4 ÷ 20 mA
Max. error at 25 °C	± 0.4 % of full range
Allowed overload	+50 mA (between AI and GND)
Detection of open input circuit	yes, in status word
Resistance Temperature Detectors (RTD)	
Input impedance	> 50 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)
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

CP-1005

CP-1015

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–25 ÷ +70 °C
Electric strength	According EN 60950
IP Degree of protectionIEC 529	IP 10B
Overvoltage category	II
Degree of pollution IEC EN 61131-2	2
Working position	Vertical
Installation	On DIN rail
Connections	Screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	90 × 105 × 65 mm
Weight	250 g

Power supply

Power supply voltage (SELV)	+24 V DC
Allowed range	–15 % ÷ +25 % (20,4 ÷ 30V DC)
Max. power consumption	8 W
Galvanic isolation	No
Memory backup	Built-in Li-Ion accumulator (500 hours) Holder for CR2032 lithium battery (20 000 hours)

Order number

TXN 110 05	CP-1005, CPU, ETH100/10, 1×RS-232, 1×SCH, 6×AI/DI, 2×AO, 6×RO 230 V/ 3A, 1×CIB, prg. MOSAIC
TXN 110 15	CP-1015, CPU+LCD4×20, ETH100/10, 1×RS-232, 1×SCH, 6×AI/DI, 2×AO, 6×RO 230 V/ 3A,1×CIB, prg. MOSAIC

PLC Tecomat Foxtrot– basic modules

Basic modules with 29 I/O for use in measurement and regulation

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

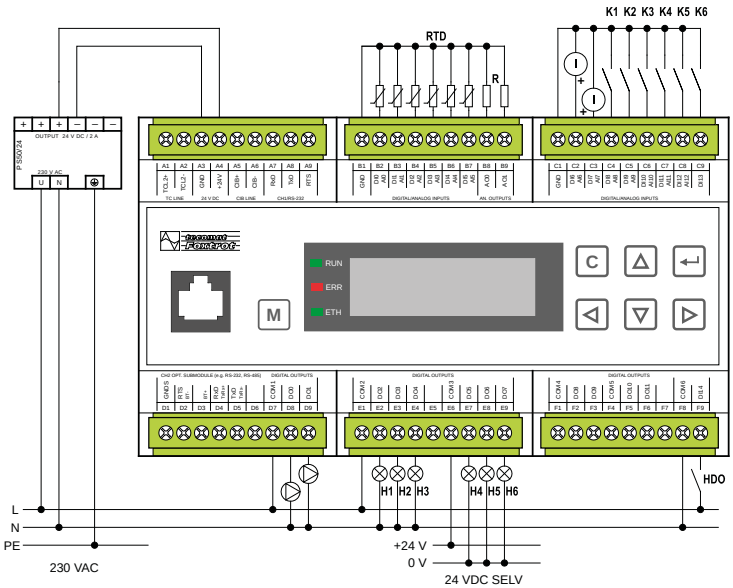
CP-1006

CP-1016

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Exceptional integration of control system with latest IT and telecommunication technologies.
- Type CP-1016 is expanded with built-in display 4x20 characters and 6 keys. Available coding: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek).
- Powerfull central module with integrated universal inputs and with analog, triac and relay outputs.
- Each of 13 universal inputs may be alternatively used as analog or digital input of potential free contact.
- Some inputs (AI6 – AI12) 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 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 149 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 electrical installation bus CIB (19.2 kbps). Maximum number of CIB branches is 9.
- On terminals CIB+ and CIB- is powered bus (with output performance max. 2 W).
- 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 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 f xed IP address.
- 2 serial ports, 1 RS-232, the other one with optional interface from line MR-01xx (up to 345 kbps), configurable UART.
- 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 programmable converter of communication protocols.
- Compact form-factor for DIN rail mounting (6 modules width) for standard circuit breaker cabinets.

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 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

Ethernet; supported protocols	1× 10/100BaseT; 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)

Universal inputs (DI0/AI0–DI12/AI12)

No. of inputs	13 (6+7)
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	100 Ω
Input range	0 ÷ 20 mA (AI6–AI12) 4 ÷ 20 mA (AI6–AI12)
Max. error at 25 °C	± 0,4 % of full range
Allowed overload	+50 mA (between AI and GND)
Detection of open input circuit	Yes, in status word
Resistance Temperature Detectors (RTD)	
Input impedance	Typ. 5 kΩ
Input range	Pt1000 1,385 (–90 ÷ +270 °C) Pt1000 1,391 (–90 ÷ +270 °C) Ni1000 1,617 (–60 ÷ +155 °C) Ni1000 1,500 (–60 ÷ +155 °C) KTY81-121 (-55 ÷ 155 °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

Digital input type (DI0–DI12)

Typ binárního vstupu	potential free contact (do not connect 24V DC!!!)
Input voltage for log. 0 (UL)	min. 2,3 V, max. 12 V
Vstupní Voltage pro log. 1 (UH)	min. 0 V, max. 1 V
Input current for log. 1 (IH)	typ. –1,7 mA
Delay0 –> 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
Delay0 –> 1 / 1 –> 0	10 µs/ 10 µs
Range	max. 32 bit; 0 ÷ 4 294 967 2956
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
Delay0 –> 1/ 1 –> 0	10 ms/ 10 ms

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–25 ÷ +70 °C
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
Installation	on DIN rail
Connections	Screw terminals
Conductors cross-section	max. 2,5 mm²

SSR outputs (Solid State Relay) (DO0–DO1)

No. of outputs	2
Galvanic isolation	Yes (even groups each other)
Type of output	Semiconductor switch, controlled, switch in 0
Switched voltage	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
Time switching on/off contact	typ. 1 µs
Threshold limits of switched loads	
Switching frequency without load	max. 400 switching/min.

Relay outputs (DO2–DO11)

No. of inputs	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. 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 switching/ min.
Switching frequency with rated load	max. 20 switching/ min.
Mechanical/ Electrical lifetime at max. load	min. 5 mil./ 100 tis. cycles
Short-circuit protection	No
Spike suppressor of inductive load	Outside. (RC člen, varistor, diode)
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
Allowed overload	±20 V (AI against GND)

Dimensions and weight

Dimensionsy	90 × 158 × 58 mm
Weight	250 g

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-Ion accumulator (500 hours) Lithium battery CR2032 holder (20 000 hours)

CP-1006

CP-1016

Order number

TXN 110 06	CP-1006, CPU, ETH100/10, 1×RS232, 1×SCH, 13×AI/DI, 1×DI/230V, 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/230V, 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 measurement and regulation

Type	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, optional RFox

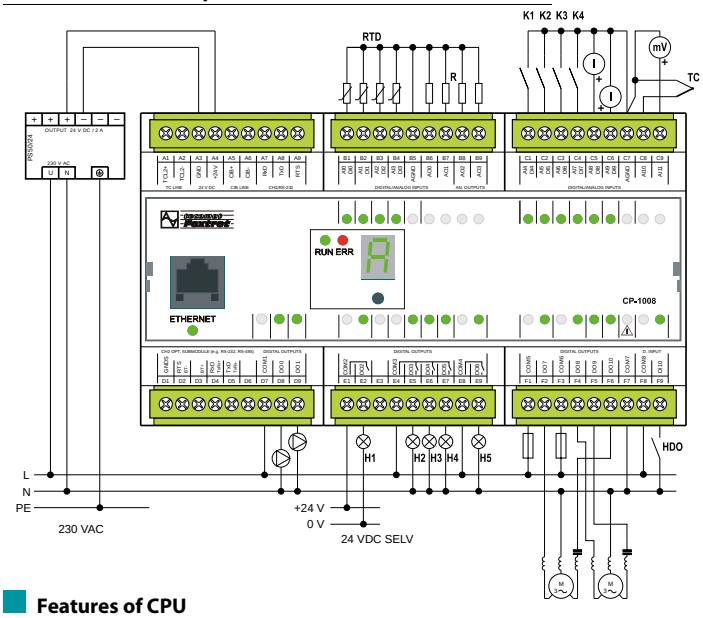
CP-1008

CP-1018

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Exceptional 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 coding: 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 in user configuration.
- Other 2 only 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 premium output 10 A.
- 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 electrical installation bus CIB (19.2 kbps). Maximum number of CIB branches is 9.
- On terminals CIB+ and CIB- is powered bus (with output performance max. 2 W, so in this case there is not need to use module C-BP-0001M).
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.
- Free programmable 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.
- 2 serial ports, 1 RS-232, the other one with optional interface from line MR-01xx (up to 345 kbps), configurable UART.
- Optional connection of RFox master RF-1131 via TCL2. Radio channel 868,35 MHz (max. 4x), may be combined with masters of CIB bus CF-1141.
- 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.

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; supported protocols	1× 100/10Mbit/s; TCP/IP, UDP, 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 module	8× CIB, 4× RFox, MPbus, Opentherm, GSM/SMS, GPRS
Installation bus	1× CIB (19,2 kbit/s) (Common installation bus)

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 (AI4-AI9) 4 to 20 mA (AI4-AI9)
Max. error at 25 °C	±0,4 % of full range
Allowed overload	+50 mA (between AI and AGND)
Detection of open input circuit	Yes in status word
Resistance Temperature Detectors (RTD)	
Input impedance	typ. 5 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 AI4-AI9) 0 to 2000 Ω 0 to 200 kΩ (only AI4-AI9)
Max. error at 25 °C	±0,5 % of full range
Allowed overload	–20 to +30 V (between AI and AGND)
Sensor disconnection detection	Yes, in status word

Funkce Analog inputs (AI10-AI11)

Resolution	12 bit
Conversion time	50 µs/1 vstup
Sample repetition period	650 µs
Protection type	integrovaná, přepěťová

Measurement ranges

Voltage	
Input impedance	> 1 GΩ
Input range	0 .. +2 V 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 °C 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 AI and AGND

Function Digital inputs (DI0-DI9)

Input voltage for log. 0 (U_L)	min. 2,3 V, max. 12 V
Input voltage for log. 1 (U_H)	min. 0 V, max. 1 V
Input current for log. 1 (I_H)	typ. –1,7 mA
Delay0 –> 1/ 1 –> 0	1 ms/1 ms

Digital input 230V 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
Allowed overload	±20 V (AI against AGND)

SSR outputs (Solid State Relay) (DO0–DO1)

No. of outputs	2
Galvanic isolation	Yes (even groups each other)
Type of output	Semiconductor switch, controlled, switching in 0
Switched voltage	max. 250 V AC
Switched current	min. 5 mA; max. 0,7 A
Short-term output overload	max. 1 A
Current through joint terminal	max. 2 A
Time of close/open the contact	typ. 1 us
Switching frequency without load	max. 400 switching/ min.

Relay outputs (DO2-DO5)

Počet výstupů/skupin	4/2 (1+3)
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
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 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 switching/ min.
Switching frequency with load	max. 20 switching/ min.
Mechanic/electric service life at maximum load	min. 5 mil./ 100 tis. cycles
Short-circuit protection	No
Spike suppressor of inductive load	Outside. (RC člen, varistor, diode)
Insulation voltage	3750 V AC (for details see documentation TXV 004 11)

Relay outputs (DO6)

Galvanic isolation	Yes
Type of contact/ type of output	Switching relay, protection free output
Switched voltage	min. 5 V; max. 250 V
Switched current	min. 10 mA; max. 10 A
Short-term output overload	max. 15 A
Time of close/open the contact	typ. 10 ms/ 4 ms
Switching frequency without load	max. 60 switching/ min.
Switching frequency with load	max. 6 switching/ min.
Mechanic / electric service life at maximum load	min. 5 mil./ 100 tis. cycles
Short-circuit protection	No
Spike suppressor of inductive load	Vnější. (RC člen, varistor, diode)
Insulation voltage	3750 V AC (for details see documentation TXV 004 11)

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
Short-term output overload	max. 4 A
Time of close/open the contact	typ. 1 µs

CP-1008

CP-1018

Relay outputs (DO9, DO10)

No. of inputs	1+1 switching
Galvanic isolation	Yes (for details see documentation of TXV 004 11)
Type of contact/ type of output	Switching relay, protection free 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 tis. cycles
Short-circuit protection	No
Spike suppressor of inductive load	Outside (RC člen, varistor, diode)

Operating conditions

Operating temperature:	–20 .. +55 °C
Storage temperature:	–25 .. +70 °C
Electric strength:	according EN 60950
IP Degree of protectionIEC 529:	IP 20
Overvoltage category:	II
Pollution degree IEC EN 60664-1:2004	1
Working position: vertical Installation:	on DIN rail
Connections	Screw connectors
Conductors cross-section:	max. 2,5 mm^2

Dimensions and weight

Dimensionsy:	90 × 158 × 58 mm
Weight:	250 g

Power supply

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

CP-1008

CP-1018

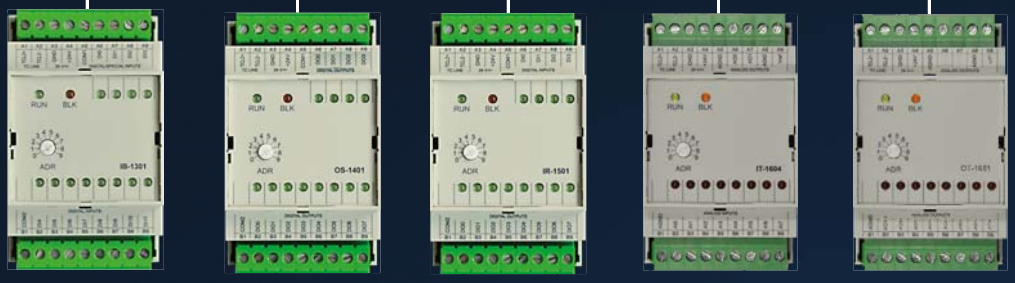
Order number

TXN 110 08	CP-1008, CPU, ETH100/10, 1xRS232, 1xSCH, 10×AI/DI, 2×AI, 1×DI, 4×AO, 7×RO, 4×SSR, 1xCIB, prg. Mosaic
TXN 110 18	CP-1018, CPU+LCD4×20, ETH100/10, 1xRS232, 1xSCH, 10×AI/DI, 2×AI, 1×DI, 4×AO, 7×RO, 4×SSR, 1xCIB, prg. Mosaic

PLC Foxtrot

Extension and communication modules, CFox, RFox masters, operator panels

TCL2 – system bus, RS-485, 345 kbit/s, max. 300 m



IB-1301

OS-1401

IR-1501

IT-1602

IT-1604

Max. 10× I/O module

Max. 4× communication module CFox, RFox

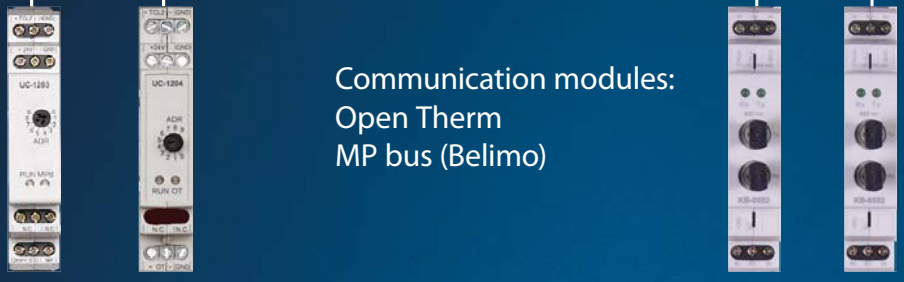
Extension with electrical installation bus CIB CF-1141

and with wireless network RFox RF-1131

Max. 4× HMI operator panel

Graphical panel ID-17

Character panel ID-14



Communication modules:
Open Therm
MP bus (Belimo)

TCL2

TCL2 bus extension with optical fibre (up to 1.700 m)

Expansion module with binary inputs

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

IB-1301

Basic features

- Expansion module with 12 binary inputs for enlarging I/O number of the PLC FOXTROT basic modules.
- Module is for connecting input signals at the 24 V DC level with the common wire minus.
- All inputs are individually configurable.
- 4 inputs (DI0–DI3) are quick 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 latch for short spikes min. 50 µs.
- Galvanic isolation of inputs.
- Status of the inputs is indicated by LED on the front panel.

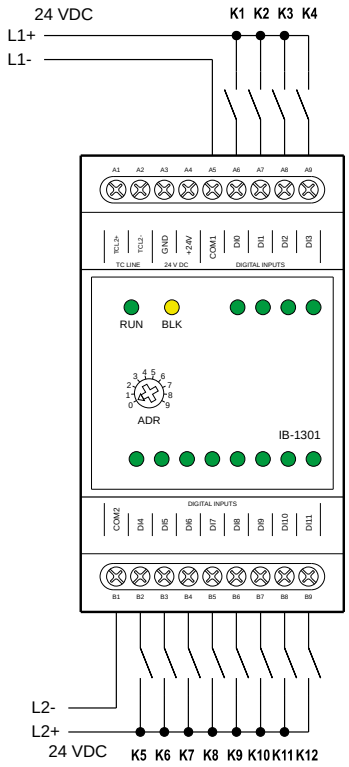
Connecting

- Compact form-factor for DIN rail mounting (6 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 screw terminals.

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 encoders.

Connection example



Digital inputs (DI0-DI11)

No. of inputs × groups	8 × 1, 4 × 1
Option: High speed counter	4 (DI0–DI3)
Common wire	minus/plus
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. 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
Delay0 –> 1 / 1 –> 0	5 µs/ 5 µs
Range	max. 32 bit; 0 ÷ 4 294 967 296
Modes	One, two way counter, encoder, pulse and period measuring

Communication

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

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–25÷70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 10B
Overvoltage category	II
Degree of pollution IEC EN 61131-2	2
Working position	vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	90 × 53 × 65 mm
Weight	80 g

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

Order number

TXN 113 01	IB-1301, 12×DI 24 VAC/DC, GO

Expansion module with binary outputs

Type	DI	DO	AI	AO	Comm
OS-1401		12			TCL2

OS-1401

Basic features

- Expansion module with 12 semiconductor outputs for enlarging 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.
- Status of the outputs is indicated by LED on the front panel.

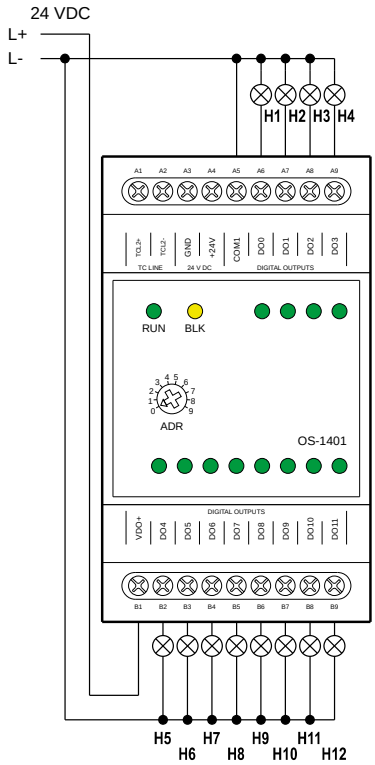
Connecting

- 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!
- 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 screw terminals.

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.

Connection example



Binary outputs (DO0–DO11)

No. of outputs × groups	12
Galvanic isolation	Yes
Type of output	Transistor
Common wire	Plus
Switched voltage	9,6–28,8 V DC
Switched current	max. 2 A (DI0–DI3) max. 0,5 A (DO4–DO11)
Current through joint terminal	max. 9 A (DO0–DO11) max. 4,4 A (DO0–DO3)
Cut-off current	<300 µA
Time of close/open the contact	400 µs/ 400 µs
Short-circuit protection/ Short circuit current limitation	Yes/ <4 A
Reversing of polarity protection	Yes
Spike suppressor of inductive load	External RC, varistor or diode snubber

Communication

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

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–25 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 10B
Overvoltage category	II
Degree of pollution IEC EN 61131-2	2
Working position	vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	90 × 53 × 65 mm
Weight	80 g

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

Order number

TXN 114 01	OS-1401, 12×DO 24 VDC, 8× 0,5 A, 4× 2 A, GO

Expansion module with binary inputs and relay outputs

Type	DI	RO	AI	AO	Comm
IR-1501	4	8			TCL2

IR-1501

Basic features

- Expansion module with 4 binary inputs and 8 relay outputs for enlarging I/O number of the PLC Foxtrot basic modules.
- Module is designated for connecting input signals at the 24 V DC level with the common wire minus and for loads at 24 V DC up to 230 V AC. Switching current is up to 3 A per output.
- Inputs are individually configurable.
- 4 inputs (DI0-DI3) are quick 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.
- Galvanic isolation of inputs and outputs.
- Status of the inputs and outputs is indicated by LED on the front panel.

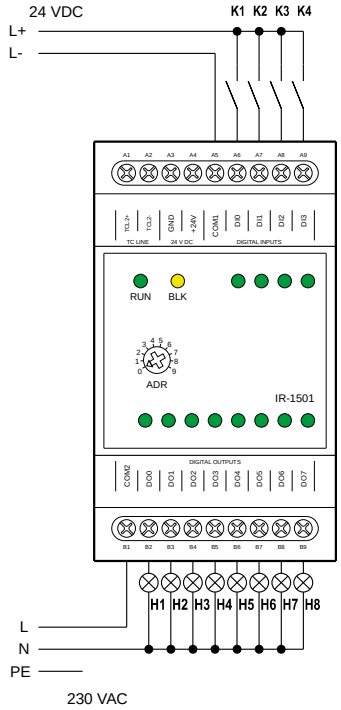
Connecting

- Compact form-factor for DIN rail mounting (6 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 1.7km!
- 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 screw terminals.

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.

Connection example



Digital inputs	(DI0–DI03)
No. of inputs × groups	4 × 1
Option: High speed counter	4 (DI0–DI3)
Common wire	minus/plus
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. 5 mA
Delay 0 –> 1/1 –> 0:	5 µs/ 5 µs (DI0–DI3)

High speed counters	(DI0–DI3)
No. of counting inputs	4
Input Frequency/Pulse width	5 kHz/ min. 50 µs
Delay0 –> 1 / 1 –> 0	5 µs
Range	max. 32 bit; 0 ÷ 4 294 967 296
Modes	One, two way counter, encoder, 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	max. 300×/min.
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 load	External RC, varistor or diode snubber
Insulation voltage	3750 V AC/ 3750 V AC

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–25 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 10B
Overvoltage category	II.
Degree of pollution IEC EN 61131-2	2
Working position	vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	max. 2,5 mm²

Communication

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

Dimensions and weight

Dimensionsy	90 × 53 × 65 mm
Weight	80 g

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

Order number

TXN 115 01	IR-1501, 4×DI 24 V AC/DC, 8×RO, spol. svorka, 230 V/2 A, GO

Expansion modules with analog inputs and outputs

Typ	DI	DO	AI	AO	Comm
IT-1604 **IT-1602**			8	2	TCL2

IT-1604

IT-1602

Basic features

- Modules with combination of analog galvanic isolated inputs and outputs (AI/AO).
- IT-1601 is designed for 16 bit current, voltage and resistance/ resistance temperature measurement. Built-in reference voltage supply.
- IT-1604 is designed for 16 bit thermocuples measurement and low voltage measurement.
- Inputs are independent configurable.
- Type and range of measurement is set in application program configuration.
- Built-in resistance temperature sensor linearisation and co-rrection of cold end thermocouple correction.
- Analog voltage outputs, 10bit
- Output value provided in binary, in % or directly in temperature units.
- Overload, ?????? or disconnecting on input indicated on front panel.

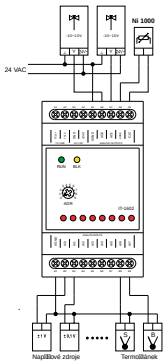
Connections

- 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 1.7km!
- 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 screw terminals (IT-1602), resp. removable connector (IT-1604)

Use

- For expand the number of Tecomat Foxtrot basic module I/O.
- For sharp measurement of analog signals of standard sensors with voltage and current outputs and for direct measurement of resistance sensors and thermocouples.

Connection example



Communication

System I/O bus	1× TCL2 (RS-485, 345kbit/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/ 1 vstup
Sample repetition period	500 ms
Protection type	integrated, overvoltage

Analog outputs

No. of outputs × groups	2 × 1
Common wire	minus (AGND)
Galvanic isolation	Yes
Resolution	10 bit
Conversion time	10 µs/output
Max. output Current	10 mA
Output range	0 ÷ +10 V (IT-1604), +-10V (IT-1602)
Max. error at 25 °C	±2 % of full range
Protection type	integrated, overvoltage
Allowed overload	±20 V (AI against AGND)

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–25 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 10B
Overvoltage category	II
Degree of pollution IEC EN 61131-2	2
Working position	vertical
Installation	on DIN rail
Connections	connector/screw terminals
Conductors cross-section	max. 2,5 mm²

Measurement ranges IT-1604

Voltage	
Input impedance	> 100 kΩ (1 V; 2 V) > 50 kΩ (5 V; 10 V)
Input range	0 ÷ +10 V; 0 ÷ +5 V 0 ÷ +2 V ; 0 ÷ +1 V
Max. error at 25 °C	±0,3 % of full range
Dovolené Allowed overload	±35 V (between AI and AGND)
Current	
Input impedance	100 Ω
Input range	0 ÷ 20 mA; 4 ÷ 20 mA
Max. error at 25 °C	±0,4 % of full range
Allowed overload	+50 mA (between AI and AGND)
Detection of open input circuit	Yes, ve stavovém slově
Resistance Temperature Detectors (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)
Max. error at 25 °C	± 0,5 % of full range
Allowed overload	± 35 V (between AI and AGND)
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
Dovolené Allowed overload	±35 V (between AI a AGND)
Thermocouples	
Input impedance	>1 MΩ
Input range	J, K, R, S, B
Max. error at 25 °C	±0,5 % of full range
Allowed overload	±35 V (between AI and AGND)
Sensor disconnection detection	Yes, in status word

Dimensions and weight

Dimensionsy	90 × 53 × 65 mm
Weight	80 g

Power supply

Power supply voltage (SELV)	+24 V DC
Allowed range	–15 % ÷ +25 % (20,4 ÷ 30 V DC)
Max. input power	IT-1604 2,5W; IT-1602 2,5 W
Galvanic isolation	No

Order number

TXN 116 04	IT-1604, 8×AI 16 bit,/20 mA/ 10 V/Ni1000, 2×AO 10 bit/0÷10 V, GO
TXN 116 02	IT-1602, 8×AI 16 bit,J,K,R,(S),B, ± 1 V 2×AO 10 bit/ ±10V, GO

Typ	DI	DO	AI	AO	Comm
OT-1651				4x AO (U/I)	TCL2

Basic features

- Module with 4 independent output analog channels, galvanic isolated.
- Each channel is both voltage and at neighboring terminal as current output.
- 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 application program configuration.
- Status and error/run is indicated by LED on module.

Connections

- 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).
- 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 screw terminals.

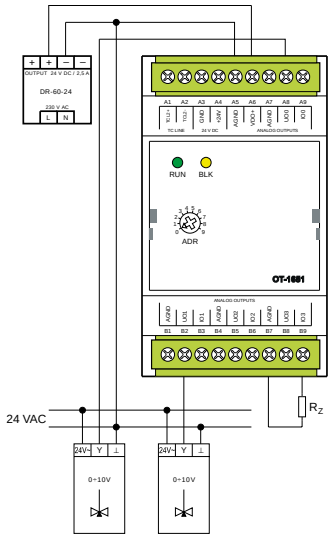
Use

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

OT-1651

Foxtrot

Connection example



Connection of 4 analog output channels

Analog outputs (AO0U-AO3U), (AO0I-AO3I)

No. of outputs	4
Common wire	Minus (AGND)
Galvanic isolation	Yes
Resolution	10bit
Conversion time	10 µs/output
Max. output Current	10 mA
Output voltage range	0-10 V
Output current range	0-20 mA (4-20 mA)
Max. error at 25°C	±2 % of full range
Protection type	± 20 V (AO against AGND)

Communication

System bus	1× TCL2 (RS-485, 345 kbit/s)

Operating conditions

Operating temperature	-20 .. +55 °C
Storage sand transport temperature	-25 .. +70 °C
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP10B
Overvoltage category	II
Pollution degree IEC EN 60664-1:2008	2
Working position	vertical
Installation	on DIN rail
Connections	screw terminals, max. 2,5mm²

Dimensions and weight

Dimensionsy (šxhxv)	53 × 90 × 58 mm
Weight	120 g

Power supply modulu

Power supply modulu	24 V DC
Allowed range	-15 % +25 % (20,4-30 V DC)
Max. input power	2.5 W
Galvanic isolation	Yes

Order number

TXN 116 51	OT-1651, 4×AO 10 bit, 0-10 V,0-20 mA, GO

PLC Foxtrot
Communication modules

Modules for empty slot in basic module

MR-0104
RS-232

MR-0114
RS-485
(Profibus DP
master)

MR-0124
RS-422

MR-0105
2×RS-232
1×RS-485

MR-0106
1×RS-232
2×RS-485
(2×DMX512)

MR-0115
3×RS-485
(2×DMX512)

MR-0152
profibus DP
slave

MR-0161
2×CAN bus

MR-0158
M-bus

MX-0301
Wiegand

Modules on system bus TCL2

CF-1141
2×CIB master

RF-1131
1×RFox
master

UC-1203
Open Them
master

UC-1204
1×MP bus
Belimo

KB-0552
TCL2/MM
optical fibre

SX-1162
5× port Tx

105FX
4× port TX
1× port FX

306FX2
4× port TX
2× port FX

Routers – connected via LAN

UR5 V2 Full
UMTS router

ER75i V2 Full
GPRS/EDGE router

Modules connected via RS-232/RS-485

INSYS
GSM Small

SX-1181
M-Bus

SMM-33
Multifunctional
measurement
of 3 phase network

Submodules with communication interface

Type	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					CAN
MR-0161					2× 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.
- As an alternative, inserting PX-781x with binary I/O will enlarge the number of I/O where no communication interface is required (not for CP-1016).
- 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 which is the midaccording.
- The module has to be placed on the free pins of slot in proper orientation.
- The signal layout of terminals C1–C9 is a part of documentation of each sub module.

Use

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

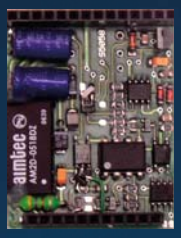
Specification	MR-0104	MR-0105	MR-0106	MR-0115	MR-0114	MR-0124
Interface	RS-232	2×RS-232, 1×RS-485	1×RS-232, 2×RS-485	3×RS-485	RS-485	RS-422
Galvanic isolation (GO)	Yes	Yes	Yes	Yes	Yes	Yes
Insulation voltage GO	1000 V DC	1000 V DC	1000 V DC	1000 V DC	1000 V DC	1000 V DC
Max. comm. rate	200 kBd	200 kBd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

Specification	MR-0152	MR-0158	MR160/161	MX-0301
Interface	Profibus DP Slave	M bus, Master interface pro Connections až 20 měřičů (tepla apod.)	CAN, 2×CAN	Wiegand
Galvanic isolation (GO)	Yes	Yes	Yes	Ne
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
Transceiver output level	Typ 3,7 V	Typ 24 V Power supply	Typ 5 V	24V(max.29V)/max. 100mA, open colector
Max. distance of wiring	1200 m (<187 kbit/s)	200 m	100 m	1m

Order number

TXN 101 04	MR-0104, RS-232 GO with power supply
TXN 101 14	MR-0114, RS-485 GO with power supply
TXN 101 24	MR-0124, RS-422 GO with power supply
TXN 101 05	MR-0105 2×RS-232, 1×RS-485 GO with power supply
TXN 101 06	MR-0106 1×RS-232, 2×RS-485 GO with power supply
TXN 101 15	MR-0115 3×RS-485 GO with power supply
TXN 101 52	MR-0152, PROFIBUS DP Slave GO with power supply
TXN 101 58	MR-0158, M-Bus Master pro až 20 stanic Slave GO with power supply
TXN 101 60	MR-0160, 2× CAN (SJA1000, Philips) GO with power supply
TXN 101 61	MR-0161, 1× CAN (SJA1000, Philips) GO 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

Submodules with binary inputs and outputs

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

PX-7811

PX-7812

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. (not for CP-1016).
- Inserting PX-781x in the slot excludes using the communication interface at the same time.
- PX-7811 enable to add 7 binary inputs. PX-7812 enable to add 4 binary inputs and 3 binary outputs on the terminals C1–C9

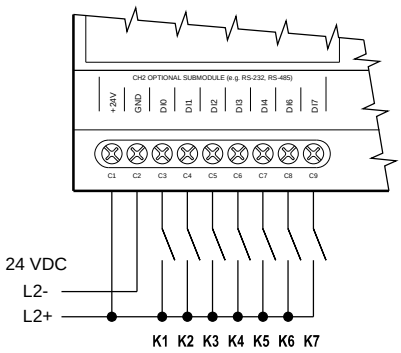
Connecting

- 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.

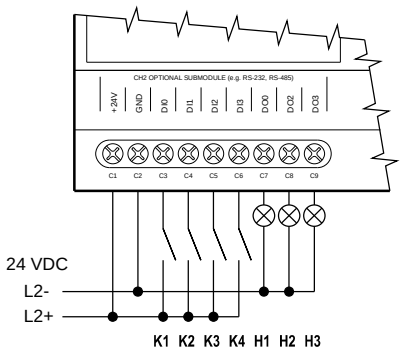
Use

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

Connection example PX-7811



Connection example PX-7812



Digital inputs	PX-7811	PX-7812
No. of inputs × groups	8[1])	4
Common wire	minus (GND)	minus (GND)
Galvanic isolation	Yes	Yes
Input voltage for log. 0 (UL)	0 V DC; (–15 ÷ +5 V DC)	0 V DC; (–15 ÷ +5 V DC)
Input voltage for log. 1 (UH)	+24 V DC; (+11 ÷ +30 V DC)	+24 V DC; (+11 ÷ +30 V DC)
Input current for log. 1 (IH)	typ. 3 mA	typ. 3 mA
Delay 0 –> 1/1 –> 0:	5ms/ 5ms (DI4–DI7)	5ms/ 5ms (DI4–DI7)

[1]) for Foxtrot may be used 7

Binary outputs		PX-7812
No. of outputs × groups		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 joint terminal		max. 2 A
Cut-off current		max. 300µA
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 may be used 3

Order number

TXN 178 11	PX-7811, 8×DI (7×DI for Foxtrot), 24 V DC, GO, autoidentification
TXN 178 12	PX-7812, 4×DI, 4× DO (3×DIpro FOXTROT) 24 V DC/0,5A, GO, autoidentification

MP-Bus and OpenTherm communication

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

Basic features

- The module **UC-1203** is designated for the Tecomat Foxtrot basic module 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 on one bus.
- Possibility to connect 1 temperature sensor (RTD Ni1000, Pt1000, resistance transmitter 1000 Ω) or contact 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 designated for the TECOMAT FOXTROT basic module communication channels expansion by OpenTherm protocol for bidirectional communication with boilers equipped with this protocol.
- **Supported protocol**
  OT/+ (OpenTherm/plus) and OT/– (OpenTherm/Lite).

Connection

- Mechanical construction is suitable 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 2×5 Ω, any polarity.

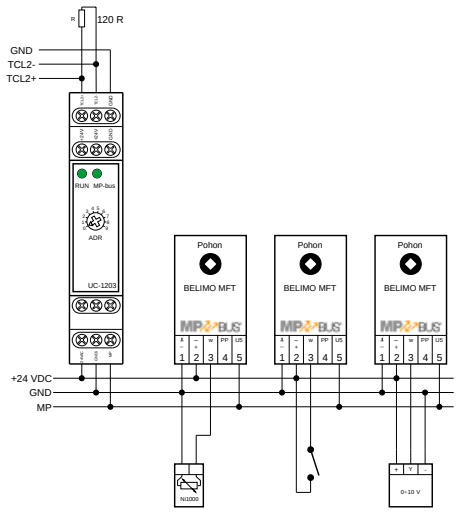
Use

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

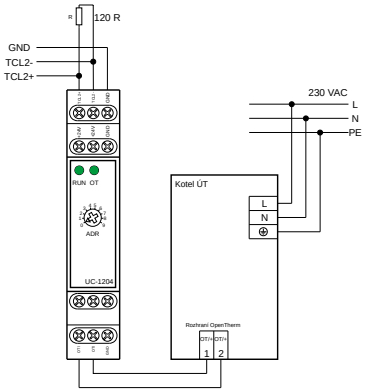
UC-1203

UC-1204

Connection example UC-1203 (MP-Bus)



Connection example UC-1204 (OpenTherm)



Communication	UC-1203	UC-1204
System I/O bus	1× TCL2 (RS-485, 345 kbit/s) up to distance 300 m, without branches, impedance ending	
Installation bus/protokol	MP Bus	OpenTherm

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 10B
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	On DIN rail
Connections	Screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	90 × 18 × 65 mm
Weight	75 g

Power supply

Power supply voltage (SELV)	+24 V DC /25 mA
Allowed range	–15 % ÷ +25 % (20,4 ÷ 30 V DC)
Max. input power	2,5 W
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

TCL2 bus optical interconnection module

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

KB-0552

Basic features

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

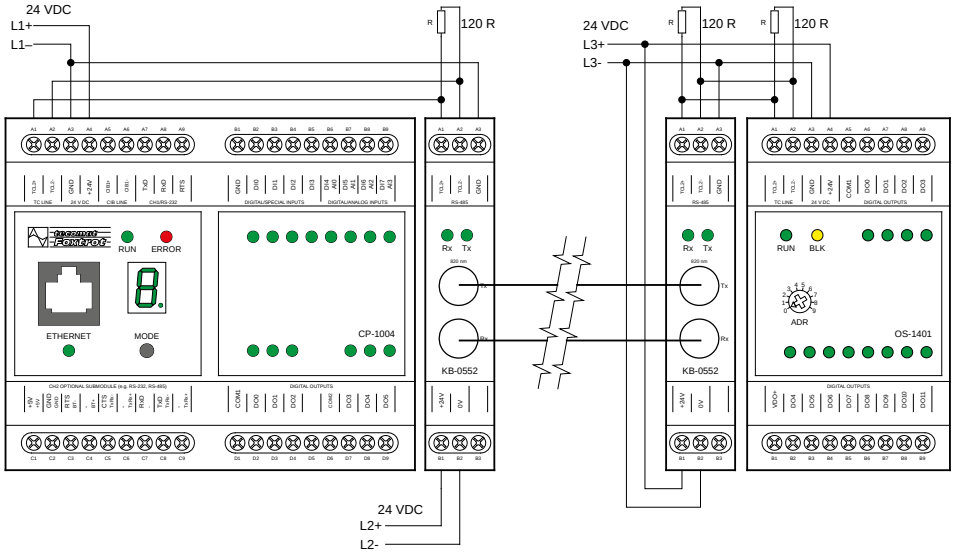
Connection

- 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 designated 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.

Connection example



Communication

System I/O bus	1× TCL2 (RS-485, 345 kbit/s)
Communication po optice	Multimode, glass fibre
Fibre optic installation	ST connector
Optical radiation wave length	820 nm
Ultimate operating range 62,5/125mm	15 dB, min. 8 dB
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 °C
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

Operating temperature	–20 ÷ +55 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	On DIN rail
Connections optiky	Duplex 2×ST
Connections ostatní	Screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	90 × 18 × 65 mm
Weight	75 g

Power supply

Power supply voltage (SELV)	+24 V DC
Allowed range	–15 % ÷ +25 % (20,4 ÷ 30 V DC)
Max. input power	0,25 W
Galvanic isolation	No

Order number

TXN 105 52	KB-0552, TCL2 converter to multimode glass optic fibre

Ethernet switch 10/100BaseTX

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

SX-1162

Basic features

- 5× UTP ports 10BaseT/100BaseTX according the standard IEEE 802.3.
- Housing designed for the DIN rail installation and into standard 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).

Connecting

- 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 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 10B
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	on DIN rail
Connections	5× RJ45 Power supply: screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	90 × 36 × 65 mm
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

Order number

TXN 111 62	SX-1162, ETH switch, 5× 10/100base TX, IEE802.3

Ethernet switch 10/100 with ports for optical network

Type	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.
- Resistant design in metallic box. Designated for extensioned range of operational temperatures.
  - – Supported functions.
  - – Full/Half Duplex Operations
  - – Auto Sensing Duplex,
  - – Speed and MDIX
- Store and Forward technologies..

Connections

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

Use

- Switches are designated 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. Available variants for SingleMode and MultiMode optical fibres.
- Switches are designated especially for connection of Foxtrot systems in redundant optical networks Ethernet.

105FX

306FX2

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

Operating conditions	105FX	306FX2
Operating temperature	–40 ÷ +70 °C	–20 ÷ +70 °C
Storage temperature	–40 ÷ +85 °C	–40 ÷ +85 °C
Working position	Any	Any
Installation	on DIN rail	on DIN rail
Connections 10BaseT	>Cat3 cable	>Cat3 cable
Connections 100BaseTX	>CAT5 cable	>CAT5 cable
Connections 100BaseFX	MM 50 ÷ 62,5/125 µm SM 7 ÷ 10/125 µm	MM 50 ÷ 62.5/125 µm SM 7 ÷ 10/125 µm
Connections Power supply	screw terminals	screw terminals
Conductors cross-section	max. 2,5 mm^2	max. 2,5 mm2

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

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

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

GSM gateway for SMS communication

Type	DI	DO	AI	AO	Comm
INSYS GSM Small					RS-232/ GSM(SMS)

INSYS GSM SMall

Basic features

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

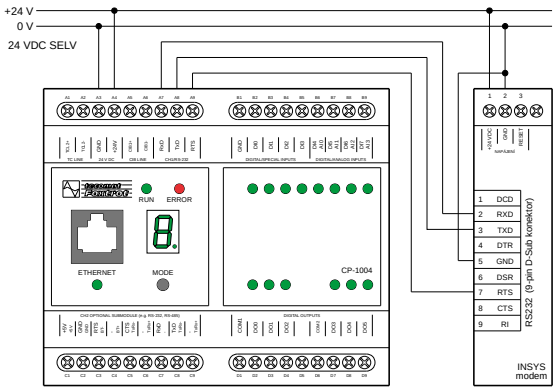
Connections

- Power supply connects with screw terminals.
- Serial channel RS-232 is connected with 9 pole DSub connector at front side.
- SIM card is put in connector 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 designated as bi-direction communication gateway into GSM network for central modules Foxtrot.
- Transmission of messages to Central Safety Guard.
- In 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.

Connection example



Communication

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

Operating conditions

Operating temperature	0 ÷ +55 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	Any
Installation	on DIN rail
Connections	Power supply, screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	120 × 23 × 75 mm
Weight	125 g

Power supply

Power supply voltage (SELV)	12 ÷ +24 V DC /80 ÷ 160 mA

Order number

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

Communication module M-bus

Type	DI	DO	AI	AO	Comm
SX-1181			1		RS-232, M-bus

SX-1181

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 section 24 V DC / 30 to 150 mA is galvanic isolated with isolation voltage 3 kV. Cunsumtion depends on number of connected devices.

Connections

- 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

- Installations where energy meters enter project of measurement and regulation or tasks of data collection and transition via M bus and ethernet/internet networks.
- Connection of heat meters with integrated interface M bus according to EN 1434 (EC EN 1434) standard.

Communication

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	Current bus < standby current +6 mA
Data detection – space	Current bus > standby current +9 mA

Operating conditions

Operating temperature:	–20 .. +55 °C
Storage temperature:	–30 .. +70 °C
Electric strength:	according EN 60950
IP Degree of protection IEC 529:	IP 10B
Overvoltage category:	IIÏ
Degree of pollution: IEC EN 61131-2:	2
Working position:	any
Installation:	on DIN rail
Connections:	screw terminals
Conductors cross-section:	max. 2,5 mm^2

Dimensions and weight

Dimensionsy:	**90 × 36 × 65 mm**
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

TXN 111 81	SX-1181, M-bus – Communication module for connection of M bus stations.

MULTIFUNCTIONAL MEASUREMENT MODULE OF 3 PHASE NETWORK

Type	DI	DO	AI	AO	Comm
SMM-33			3× U; 3× I (3 phase network)		RS-485

Basic features

- Module is designated for measurement and monitoring of basic values in 3 phase power supply network$_{ef}$
- Measured values:
  - Phase voltage and current
  - Line voltage and current
  - Active and reactive power
  - Power factor
  - Total harmonic distorsion (THD) of voltage and current.
  - Frequency
- Inputs are designated for direct connection of voltage 3x 230$_{ef}$ and separated current inputs into 5 Aef..

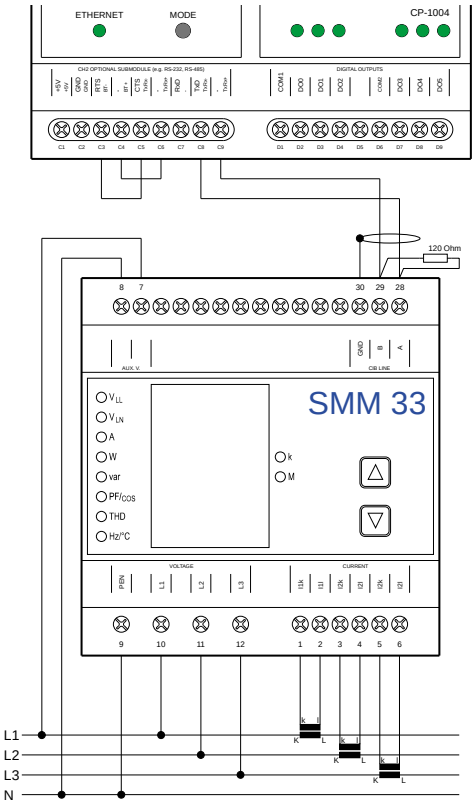
Connections

- Module power supply 230 V AC.
- Voltage is connected via fuse direct to inputs L1, L2, L3.
- Signals from current transformers connect to pair of t, I2 (l,k) and l3 (l,k).erminals I1 (l,k)
- Je třeba dodržet orientaci transformátorů a pořadí fází.
- Communication line has interface RS-485 and connection into basic module Foxtrot is via serial channel CH2 staffed with submodule MR-0114.

Use

- Designated for monitoring of 1 and 3 phase power supply network 230 V AC.
- Except voltage and current we may get value of actual active and reactive power in all phases and this information we may use 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 bad connection of devices, may cause the rectification in time.
- In residential buildings we may use measured information for controlling consumption in time, so we do not exceed maximum current set by house circuit breaker..

Connection example



Communication

Serial channel	RS-485, protocol MODBUS or KMB

Analog inputs

Measured voltage	3× 5–500 V AC
Voltage measurement accuracy	±1 % ±1 digit
Connection	Hvězda
Allowed overload/top overload	2× / 4× <1s
Frequency	45–65 Hz
Measured current	0,02 – 7A$_{AC}$
Current measurement accuracy	±1 % ±1 digit
Power	< 0,25 VA
Galvanic isolation	Yes
Allowed overload	14A$_{AC}$
Active power (P$_{nom}$=230×5 W)	Range is limited by range of measured voltage and current
Active power measurement accuracy	±2 %, ±1 digit
Reactive power (P$_{nom}$=230×5 VA)	Range is limited by range of measured voltage and current
Reactive power measurement accuracy	±2 %, ±1 digit
Power factor (accuracy)	0,00–1,00 (±2 %, ±1 digit)
THD (accuracy)	Up to 25th order; 0–200 %; (±2 %, ±1 digit)

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–40 ÷ +85 °C
IP Degree of protection IEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61010-1	2
Working position	Vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	max. 2,5 mm^2

Dimensions and weight

Dimensionsy	90 × 53 × 89 mm
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

Order number

SMM-33	SMM-33, multifunctional measured module of 3 phase network

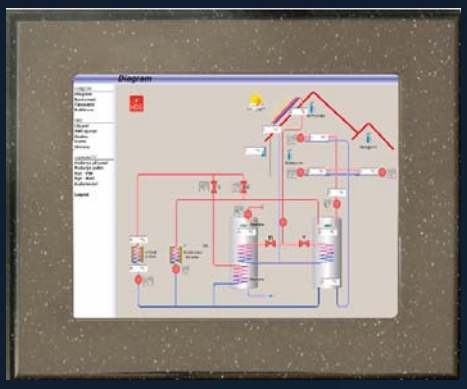
SMM-33

Related products

MR-0114 – communication submodule RS-485 into Foxtrot

Displays

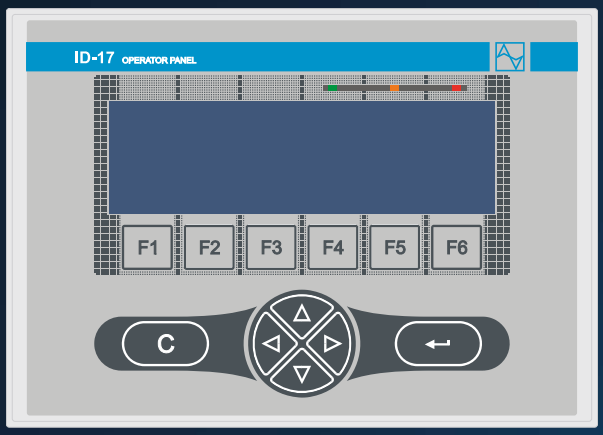
Displays connected via ethernet/internet



ID-18

ID-28

Displays connected via system bus TCL2



ID-17

ID-14

Displays connected via serial channel

ID-08

ID-07

Displays, operator panels

Type	DI	RO	AI	AO	Comm
ID-18 (in wall)					ETHERNET
ID-28 (in pannel)					ETHERNET

Basic features

- Graphical panel with touch screen
- Low power consumption, without cooling, without heating even in closed spaces, wide range of operation temperatures.
- Installed microbrowser, interpret directly buil-in web pages in Foxtrot, TC700.
- **ID-18** is designated to built-in the wall, where is not access from other side. Electroinstallation box KO 110/L for empty panels is included, the KO100E under plaster is an option.
- **ID-28** is designated for fixing in doors of electrical installation cabinet or in place where is access from other side.
- Other features are the same for both panels.
- It is stuffed with TFT display 5,7" with resolution 640×480 pixels (VGA).
- Front frame design - plastic with dimension 180×150 mm, black and white color. Other colors according to sampler after order.

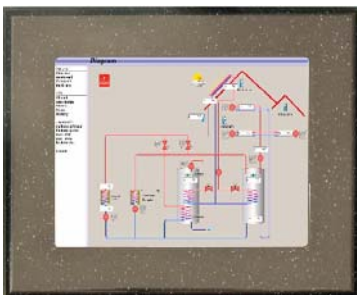
Connection

- Connection with central modules Tecomat Foxtrot or TC700 directly via ethernet 100/10 into RJ45 or via LAN via standard cable UTP/RJ45.
- Power supply 24 V DC, power consumption up to 5 W with full lighting.

Use

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

Examples of screens created in WebMaker



ID-18

ID-18

ID-28

ID-28

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 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 10B
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	Into installation box
Connections	Ethernet RJ45; Power supply with screw terminals
Conductors cross-section	max. 2,5 mm^2

Dimensions and weight

Dimensionsy	180 × 150 × 55 mm
Weight	1015 g

Power supply

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 Power supply	No

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

Graphic panel with keyboard

Typ	DI	RO	AI	AO	Comm
ID-17	4	2			TCL2

ID-17

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

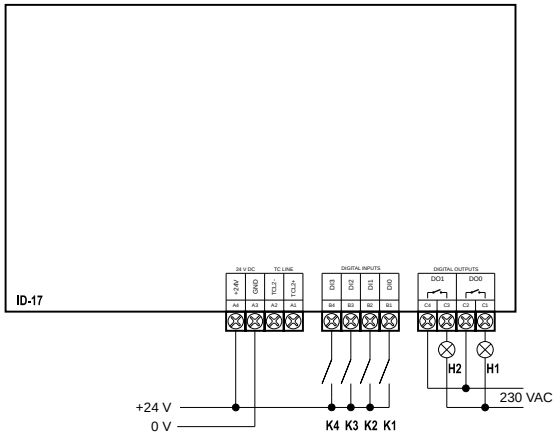
Connection

- 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!
- Unique address on TCL2 bus can be set in the service mode using keyboard and display.
- It is possible to connect 1 graphical display ID-17 to the internal bus TCL2 that does not increase number of peripheral I/O modules.

Use

- The operator panel is used for entering commands and parameters, displaying a system status and textual 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
- Foreign-language texts

Connection example



Relay outputs

No. of outputs × groups	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 joint terminal	max. 10 A
Time of close/open the contact	typ. 10 ms/ 4 ms

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)

Display

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

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 10B
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	In the control panel
Connections	Screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	143 × 202 × 36 mm
Weight	1100 g

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

Alphanumeric panel with LCD and keyboard

Type	DI	DO	AI	AO	Comm
ID-14					TCL2

ID-14

ID-14 + CP-1004

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 and Kamenicky.
- Programming is done directly in Mosaic in Panel Maker. PLC Tecomat communicates with the panel using the TER (Terminal) functional block.

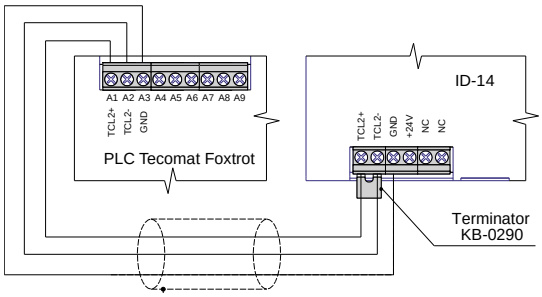
Connection

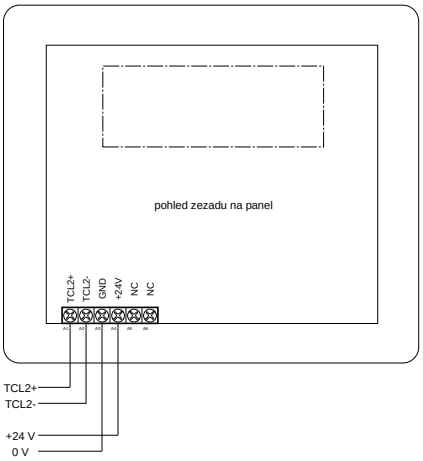
- It can be connected to central module by TCL2 bus up to 300 m via metallic cable.
- Using the fibre optic convertor, it can be connected up to 1.7 km!
- Panel ID-14 can be mechanically fixed with Foxtrot central module in one ensemble and can be placed in the door of control panel.
- The panel is connected to Foxtrot PLC directly through screw-type 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.

Connection example



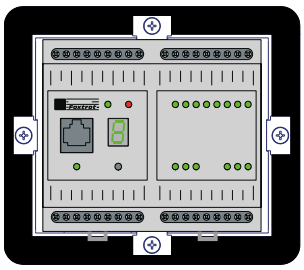


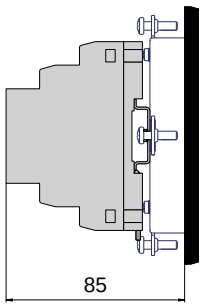
Communication

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

Display and Keyboard

Character size in mm	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 °C
IP Degree of protection IEC 529	IP 54 – front panel IP 20 – whole product
Overvoltage category	II
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	In control panel doors On DIN rail with SM-9024
Connections	Screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	123 × 141 × 25 mm
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 Power supply	No

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×)
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

Alphanumeric panel with keyboard

Type	DI	RO	AI	AO	Comm
ID-07		8			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 high 8 mm. Keyboard contains 8 buttons.
- ID-08 has also backlit monochromatic display with 2 × 20 characters, but character high 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 PLC Tecomat communicates with the panel using the TER (Terminal) functional block.

Connections

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

Use

- Pannel for enterring commands and system status indication and user text messages.

ID-07

ID-08

Operating conditions

Operating temperature	–10 .. +55 °C
Storage temperature	–25 .. +70 °C
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP10B
Overvoltage category	II
Degree of pollution according IEC EN60664-1:2008	1
Working position	vertical
Installation	on DIN rail
Connections CIB	Screw terminals max. 4mm²
Conductors cross-section relay outputs	Screw terminals max. 4mm²

Power supply

Power Voltage	24 V DC

Dimensions and weight

Dimensionsy	105 × 90 × 58 mm
Weight	310 g

Order number

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

CFox

Intelligent electroinstallation – CIB bus masters

PS2-60/70

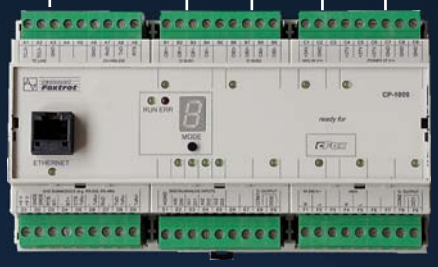
230V AV

12V DC

AKU 24V

Power supply of whole installation back-up by accumulators

TCL2



CP-1000, 2× CIB/1A

CIB-1 (1A/32 modules)

CIB-2 (1A/32 modules)

CF-1141

CIB-3 (1A/32 modules)

CIB-4 (1A/32 modules)

CF-1141

CIB-5 (1A/32 modules)

CIB-6 (1A/32 modules)

CF-1141

CIB-7 (1A/32 modules)

CIB-8 (1A/32 modules)

CF-1141

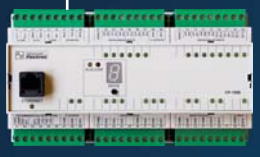
CIB-9 (1A/32 modules)

CIB-10 (1A/32 modules)

Power supply of internal CIB masters of other basic modules Foxtrot

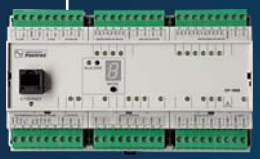
1× CIB/100mA

CP-1004



1× CIB/100mA

CP-1006



1× CIB/100mA

CP-1008

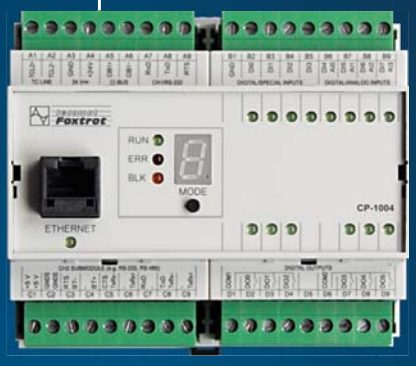
1× CIB/100mA

CP-1016

1× CIB/100mA

CP-1018

CIB-1 (1A/32 modules)



Last Power supply CIB master on other basic modules Foxtrot

C-BS-0001M

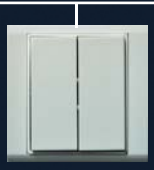
24-27,2V DC

CFox

Intelligent electroinstallation - slave modules on CIB bus

CIB - bus with free topology, max. 400 m

C-WS-0200R
Wall switch
2 buttons

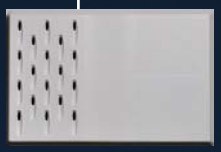


C-WS-0400R
Wall switch
4 buttons

C-IT-0100R
Wall temperature
sensor

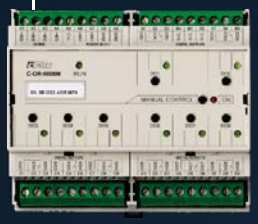
C-RC-0002R
Wall controller
universal

C-RI-0401R
Combined IR sensor/
transmitter



C-AQ-000xR
Air quality
sensor

Modules for interior



C-OR-0008M 8×
Relay

C-DM-0006M ULED
6× LED belt

C-DM-0006M ILED
6× Power LED

C-AM-0400M
Analog inputs

Modules for electrical installation cabinet

C-HM-0308M 3× DI/AI
6× Relay, 2× AO

C-HM-1113M 3x AI, 8× DI
11× Relay, 2× AO

C-HM-1121M 3× AI, 8× DI
19× Relay, 2× AO

DTNVEM-1/CIB
overvoltage
protection

Modules into installation box, under device cover

C-IT-0200S
2× DI/AI

C-IR-0202S
2× DI/AI
1× Relay,
1× AO

C-IT-0504S
5× DI/AI
4× AO

C-IT-0908S
6× DI,
2× DI/AI,
1×AI,
8× DO/LED

C-RI-0401S
Combined IR
sensor/transmitter

C-DL-0012S
Converter
CIB/DALI

C-WG-0503S
Converter
CIB/Wiegand

C-OR-0202B
2× Relay

C-VT-0102B
inVENTer
control

DTNVE-1/CIB
overvoltage
protection

C-AM-0600I
Analog inputs

C-IT-0200I
Analog inputs

C-IT-0100H-P
Temperature sensor

C-IT-0200H-A
Temperature sensor

Modules with IP65 protection

External CIB bus master, Separation module CIB bus

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

CF-1141

C-BS-0001M

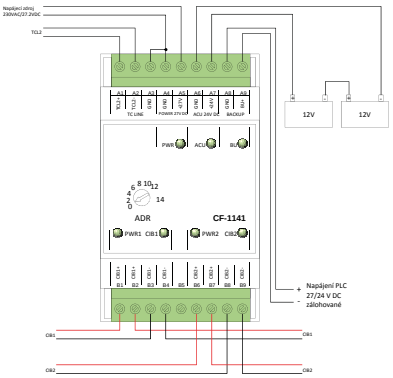
Basic features CF-1141

- Module is designated to expand the number of CIB bus branches connected under one central module Foxtrot.
- Contains 2×CIB bus master and enables to expand number of connected modules with next 2×32 = 64 modules.
- Module provides power supply of both bus branches via built-in separators of connected power supply 24/27 V DC.
- Basic module Foxtrot may be expanded with up to 4 external masters, what means up to 4×2×32 = 288 CIB modules.
- Status operation/error is indicated on front panel.
- Module may be connected with 2×12 V accumulators in serial connection as back-up power supply for both CIB buses and for one output of voltage e.g. for central module.
- Capacity of accumulator have to be choosen according to demand time of back-up, module is charging accumulators permanently with current 3A.

Connections

- 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 rotational button at front panel.
- Modules CF-1141 are not counted into maximal limit 10 modules at TCL2 bus.

Connection example CF-1141



Basic features C-BS-0001M

- Module is designated for separation of CIB bus from power supply. It is impedance adaptation, what allows modulate CIB communication on power supply.
- Module contains separation of one CIB bus branch.
- Status operation/error is indicated at front panel.

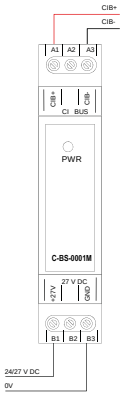
Connections

- Module connect with 2 terminals in power supply 24 or 27.2 V DC.
- Terminals marked CIB+ and CIB- connect at CIB bus into central module Foxtrot CP-10xx.

Use

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

Connection example C-BS-0001M



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

Dimensions and weight CF-1141

Dimensionsy	52 × 100 × 56 mm (3M)
Weight	120 g

Dimensions and weight C-BS-0001M

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

Operating conditions

Operating temperature	–0 ÷ +70 °C
Storage temperature	–25 ÷ +85 °C
Electric strength	according EN 61131
IP Degree of protection IEC 529	IP ×× B
Overvoltage category	II
Degree of pollution IEC EN60664-1:2008	1
Working position	vertical
Installation	do rozvaděče na DIN lištu
Connections	screw terminals

Power supply	C-BS-0001M
Input Voltage – range	24 ÷ 27,2 V DC
Output Voltage CIB	2× 24 ÷ 27 V DC, 1 A
Output Power supply back-up	1× 24 V DC e.g. for basic module
Connected accumulators	2× 12 V in serial
Maximal permanent charging current	3 A. Do not connect uncharged 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 112 03	UC-1203, MP-Bus – Communication module for connection of servodrives Belimo
TXN 112 04	UC-1204, OpenTherm – Communication module for connection of boilers with protocols

Overvoltage protection for CIB bus

Typ	DI	DO	AI	AO	Comm
DTNVEM-1/CIB **DTNVE-1/CIB**					

Basic features

- Overvoltage protection device designated for protection of CIB bus against flash current and overvoltage.
- Each CIB branch have to be assess individually against overvoltage.
- Contains base and exchange module. Base is permanently connected with CIB installation. Manipulation with exchange module do not interrupt bus and its function.

Connections

- In serial into each CIB bus branch.
- Each CIB branch have to be assess individually against overvoltage.
- In project it is necessary to calculate with voltage decrease at overvoltage protections, what depends on consumption of modules behind the overvoltage protection.

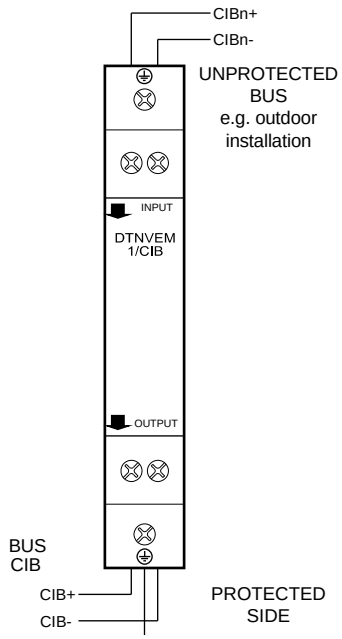
Use

- To protect CIB bus and devices connected on CIB bus against flash overvoltage and current.
- Place as close to supposed source of overvoltage as possible.
- Recomended to place at input from outside into the building and in place of concurrence with lighting rod.

DTNVEM-1/CIB

DTNVE-1/CIB

Connection example



Technical features

No. of unprotected pairs	1
Category of protection device according to IEC EN 61643-21	A2, B2, C2, C3, D1
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

Operating temperature	–40 ÷ +80 °C
Storage temperature	–40 ÷ +80 °C
IP Degree of protection IEC 529	IP 20
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	on DIN rail
Connections	screw terminal
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy	90 × 13 × 65 mm
Weight	75 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 – Relay outputs module

Type	DI	DO	AI	AO	Comm
C-OR-0008M		8			CIB

C-OR-0008M

Basic features

- Module is an actuator with 8 undependent relays 16A each with embarrassed switching contacts.
- Each relay has embarrassed all 3 contacts, they are galvanic isolated and may be connected on different potential levels.
- It is designated for switching of 8 independent power device load.
- Each relay is independently addressed and controlled.
- Module may be switched by button to manual mode, where we may each relay control independently manually by appropriate button.
- Status and error/operation is indicated by LED on module.

Connections

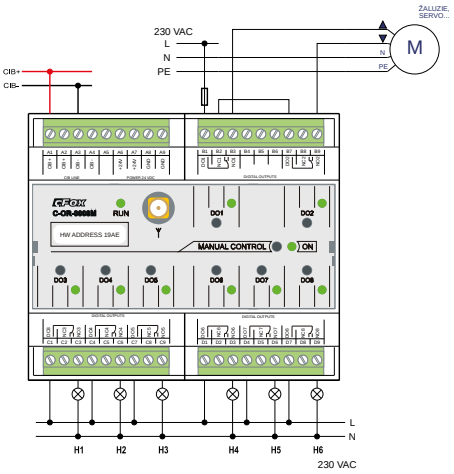
- Module is connected by two-wires bus CIB, that holds communication and power supply of the module.
- To safe consumption of CIB bus, we may power supply the CIN module directly from external power supply module 24V DC.
- Module is designated especially for DIN rail assembly.
- Relay outputs are embarrassed on removable screw terminals.
- CIB bus is embarrassed on screw terminals.

Use

- Module is designated for switching independent power loads and devices via relay output.
- With suitable connection of output contacts the module may be used for control of up to 4 drives 230 V, e.g. jalousies or blinds with electrical blocking of present voltage connection at both control winding.
- With suitable connection of independent contacts we may use the module for control up to 4 DC drives with reversing.
- During projection we have to think about loads of contacts and their protection at different types of load.

Connection example

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



Relay outputs

No. of outputs	8× switch contact
Galvanic isolation	Yes even (outputs each other)
Switched voltage	min. 5 V DC; max. 300 V AC
Switched power	4000 VA/AC1, 384 W/DC
Switched current	max. 16A, min. 100 mA,
Peak Current	80 A/ <20 ms (switch contact)
Time to switch on/off	typ. 15 ms/ 5 ms
Mechanic service life	2 × 107 switching
Electrical service life	5 × 104 (1 × 104 at 80A peak)

Relay outputs

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

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	II
Degree of pollution according IEC EN60664-1:2008	1
Working position	vertical
Installation	on DIN rail
Connections CIB	Screw terminals max. 4 mm²
Conductors cross-section relay outputs	Screw terminals max. 4 mm²

Dimensions and weight

Dimensionsy	105 × 90 × 58 mm
Weight	310 g

Power supply

Power supply and communication	24 V (27 V) ze sběrnice CIB
Power supply from external power supply	24 V DC
Nominal /maximal load	160 mA (switched all relays)
Typical /maximal load	3.4 W
Internal protection	No

Order number

TXN 133 03	C-OR-0008M, CIB, 8x RO, switch contact, 230 V/16 A

CIB – Combines inputs/outputs modules

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

C-HM-0308M

C-HM-1113M

C-HM-1121M

Basic features

- Modules on DIN rail with combination of analog and digital inputs and outputs.
- Each module has on CIB bus only one address. On each CIB bus branch we may connect up tu 32×32 = 1024 analog and digital inputs and outputs in combination.
- 3 analog inputs for Resistance Temperature Detectors (RTD) and 2 analog outputs 0 – 10V are designated for 1 – 2 regulation loop, e.g. heating, air-conditioning or for general use.
- Analog inputs of C-HM-0308M module may be configurated 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 24V DC or 230V AC.
- C-HM-1113M contains 4 galvanic insulated groups of relays for 5A and 1 power relay for 16A with separately embarrassed switching contact. Each group may be used independently for switching 24V DC or 20V AC in different phases.
- C-HM-1121M contains 6 galvanic insulated groups of relays for 5A and 3 power relays for 16A with separately embarrassed switching contact. Each group may be used independently for switching 24V DC or 230V AC in different phases.
- Power relays for 16A have contacts with combination of wolfram/$AgSnO_2$ for reliable switching of high loads.
- Each relay is separately addressed and controlled from program.
- After push button MANUAL CONTROL we may each relay control by appropriate button.
- Status of digital inputs, relay outputs, mode MANUAL CONTROL and error/operation RUN is indicated by LEDs at front side of module.

Connections

- Modules C-HM-0308M, C-HM-1113M, C-HM-1122M are connected at two-wires bus CIB, that holds 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 230V AC.
- Modules are connected with removable connectors and power connectors of C-HM-1121M module via firm terminal.

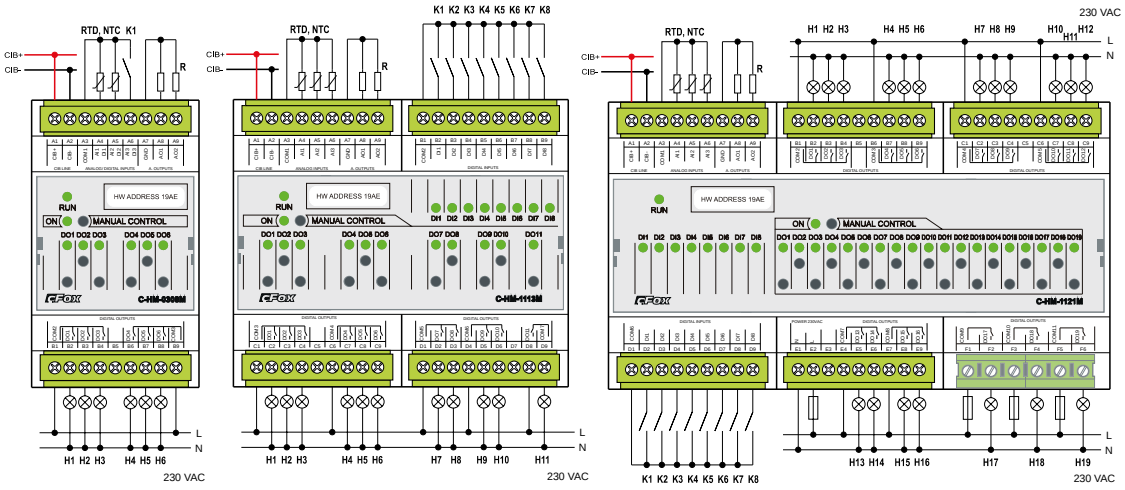
Use

- Modules are used for large installations centralised into installation cabinet. Typically for one hotel room, one house room or floor of residential house.
- Switching loads R.L or C, independent outputs used for switching power loads, especially inductive or capacity loads.
- Control of circuits in rooms: sockets circuits, lighting, jalousies, heating and air-conditioning.
- Regulation of photovoltaic 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.

Communication

Installation bus	CIB

Connection example



C-HM-0308M C-HM-1113M C-HM-1121M

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

Analog inputs	C-HM-0308M	C-HM-1113M	C-HM-1121M
No. of inputs	3	3	3
Common wire	REF	REF	REF
Galvanic isolation	no	no	no
Resolution	12bit	12bit	12bit
Measurement ranges			
RTD	Pt1000, Ni1000	Pt1000, Ni1000	Pt1000, Ni1000
NTC (termistor)	12 kΩ, optionaly 5 up to 20 kΩ	12 kΩ, optionaly 5 up to 20 kΩ	12 kΩ, optionaly 5 up to 20 kΩ
Resistance – sensor of condensation	2 MΩ,	–	–
Voltage free contact	Yes, on each contact	–	–

Digital inputs	C-HM-0308M	C-HM-1113M	C-HM-1121M
Input type	3 × voltage free contact See Analog inputs	8 × voltage free contact	8 × voltage free contact

Relay outputs	C-HM-0308M	C-HM-1113M	C-HM-1121M
No. of inputs/groups	Total 6 2 × 3 relay 5A	Total 11 2 × 3 relay 5A 2 × 2 relay 5A 1 × relay 16A	Total 19 4 × 3 relay 5A 2 × 2 relay 5A 3 × 1 relay 16A
Galvanic isolation	Yes (even groups each other)	Yes (even groups each other)	Yes (even groups each other)
Switched voltage		min. 5 V DC; 24V DC; max. 250 V AC	
Relay outputs groups	DO1 ÷ DO3, DO4 ÷ DO6	DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ DO8, DO09 ÷ DO10	DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ DO9, DO10 ÷ DO12, DO13 ÷ DO14, DO15 ÷ DO16
Switched current	Min. 100 mA; max. 5A	Min. 100 mA; max. 5A	Min. 100 mA; max. 5 A
Peak current	5 A/ <3s	5 A/ <3s	5 A/ <3s
Time of close/open the contact	typ. 10 ms/ 4 ms	typ. 10 ms/ 4 ms	typ. 10 ms/ 4 ms
Current through joint terminal	10 A	10 A	10 A
Switching frequency without load	max. 300 min^{-1}	max. 300 min^{-1}	max. 300 min^{-1}
Switching frequency with nominal load	max. 20 min^{-1}	max. 20 min^{-1}	max. 20 min^{-1}
Mechanical /Electrical lifetime at maximal load	5×10^6/ 1×10^5	5×10^6/ 1×10^5	5×10^6/ 1×10^5
Short-circuit protection	No	No	No
Spike suppressor of inductive load	External (RC člen, varistor, diode)	External (RC člen, varistor, diode)	External (RC člen, varistor, diode)
Insulation voltage between each relay outputs	3750V AC	3750V AC	3750V AC
Connections/ Conductors cross-section	Removable conector/ max. 2,5 mm^2	Removable conector/ max. 2,5 mm^2	Removable conector/ max. 2,5 mm^2
Relay outputs		DO11	DO17, DO18, DO19
Switched current		16 A	16 A
Peak current		160 A/ <10ms	160 A/ <10ms
Time of close/open the contact		max. 10 ms/ 4 ms	max. 10 ms/ 4 ms
Minimal switched current		100 mA	100 mA
Switching frequency without load		max. 60 min^{-1}	max. 60 min^{-1}
Frequency of switching with nominal load		max. 6 min^{-1}	max. 6 min^{-1}
Mechanical/Electrical lifetime at maximal load		3×10^6/ 1×10^5	3×10^6/ 1×10^5
Short-circuit protection		No	No
Spike suppressor of inductive load		External	External
Insulation voltage between each relay outputs		3750 V AC	3750 V AC
Connections/ Conductors cross-section			Firm terminals/ max. 4 mm^2

Operating conditions	
Operating temperature	–20 .. +55 °C
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	IIÏ
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	on DIN rail

Dimensions and weight	C-HM-0308M	C-HM-1113M	C-HM-1121M
Dimensionsy	90 × 52 × 65 mm	90 × 105 × 65 mm	90 × 156 × 65 mm
Weight	82 g	160 mA	35 mA

Power supply	C-HM-0308M	C-HM-1113M	C-HM-1121M
Input nominal voltage (SELV)/	+24 – 27,2 V DC / from bus CIB	+24 – 27,2 V DC / from bus CIB	230V AC
Nominal load	80 mA	160 mA	35 mA

Modules to be delivered from Teco a.s. under name CFox

Order number	
TXN 133 24	C-HM-0308M – CIB – combined module 3× AI/DI, 2× AO, 6× RO 230 V 5A
TXN 133 10	C-HM-1113M– CIB – combined module 3× AI, 8× DI (kontakt), 2× AO, 10× RO 230 V 5A, 1x RO 230V 16A
TXN 133 11	C-HM-1121M– CIB – combined module 3× AI, 8× DI (kontakt), 2× AO, 16× RO 230 V 5A, 3x RO 230V 16A

C-HM-0308M

C-HM-1113M

C-HM-1121M

CIB

CIB – Module for LED belts control

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

Basic features

- Module is actuator with 6 independent inputs (channels) for proportional control of LED belts 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 or 24 V.
- All LED belts must be for the same power supply voltage.
- Outputs have internal protection against short-circuit.
- Module may be switched by button into manual mode, where each output may be independently switched on and off by button.
- Status and error/operation is indicated by LED on module.

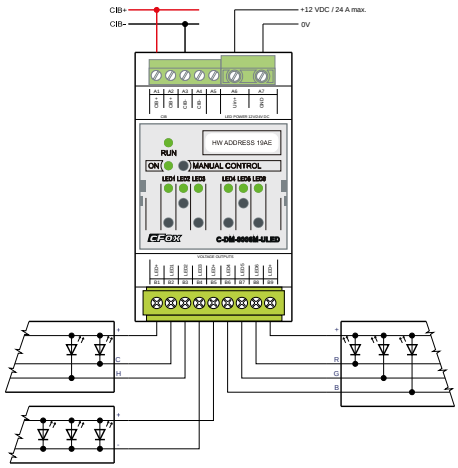
Connections

- Module connect to two-wires bus CIB, that holds communication and power supply of module.
- CIB bus is embarrassed at screw terminals.
- Outputs are embarrassed at removable screw connectors.
- Power voltage 12V or 24V DC for LED belts connect at screw terminals with large dimension.
- During projection we have to calculate load of each terminals.
- Module is used for assembly on DIN rail in switchboards.

Use

- Control of up to 6 single-color LED belts with max. current 6A on channel.
- Control of up to 2 RGB LED belts up to 6A on each color.
- Use for save direction lights in buildings etc.
- May be used for decoration and effect lighting in interiors and exteriors.

C-DM-0006M ULED



Outputs for continuous control of LED belts

No. and type of outputs	6×, semiconductive, PWM voltage output (0–100%)
Load type	LED belt, RGB/monochrom
Power voltage for LED belts	12 V DC/24 V DC
Output current	max. 6A/current
Maximal total current	24 A
Max. length of LED belt (13 W/m)	10 m
Max. length of LED belt (6.5 W/m)	20 m
Max. length of LED belt (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 temperature	–25 .. +70 °C
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP10B
Overvoltage category	II
Degree of pollution IEC EN 60664-1:2008	1
Working position	vertical
Installation	on DIN rail
Connections CIB	Screw terminals max. 2.5mm2
Connections Power supply	Screw terminals max. 4mm2
Connections LED belts	Screw connector, max. 2.5mm2

Dimensions and weight

Dimensionsy	53 × 90 × 58 mm
Weight	120 g

Power supply

External power supply for LED belts	12/24 V DC +–10%
Max. load current of LED	24 A total, 6 A on channel
Power supply of module and communication	24 V (27 V) from bus CIB
Typický /max. odběr z CIB	15 mA
Typical/Max. power from CIB	0.4 W
Internal protection	Yes, return fuse

Order number

TXN 133 45	C-DM-0006M ULED, 6 channel dimming module for LED belts 12-24VDC, max. 4A/channel

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

Type	DI	DO	AI	AO	Comm
C-DM-0006M ILED				6× LED (0-100%)	CIB

Basic features

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

Connections

- Module connect to two-wires bus CIB, that holds communication and power supply of module.
- CIB bus is embarrassed at screw terminals.
- Outputs are embarrassed at removable screw terminals. During projection we have to calculate load of each terminals.
- Module is used for assembly on DIN rail in switchboards.

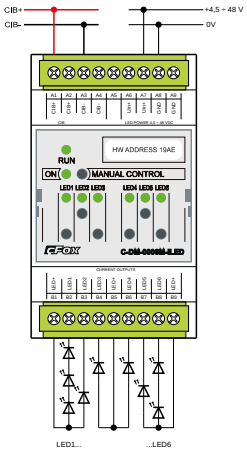
Use

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

C-DM-0006M ILED

Connection example

Connection of 6 LEDs independently controlled



Continuous outputs for LED chips control

No. and type of outputs	6×, semiconductive current output, controlled PWM (0–100%)
Load type	LED chip, RGB/monochromatic
Power volatage for LED	4.5-48 V
Output current	150, 350, 500, 750 mA/channel
Max. No. of LED white (48 V)	13 (3.5 V/1 diode)
Max. No. of LED red (48 V)	22 (2.1 V/1 diode)
Max. No. of LED green (48 V)	19 (2.6 V/1 diode)
Max. No. of LED blue (48 V)	13 (3.5 V/1 diode)
Short-circuit protection on output	Yes
Galvanic isolation of output	No

Power supply LED

Power supply voltage for LED in serial	4,5-48 V DC
Max. load current LED	4.2 A total, 700 mA on channel

Operating conditions

Operating temperature	0 .. +55 °C
Storage and transport temperature	–25 .. +70 °C
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP10
Overvoltage category	II
Degree of pollution	1
Working position	vertical
Installation	on DIN rail
Connections CIB	screw connector, max. 2.5mm²
Connections Power supply	screw connector, max. 2.5mm²
Connections LED belts	screw connector, max. 2.5mm²

Dimensions and weight

Dimensionsy	53 × 90 × 58 mm
Weight	120 g

Power supply of module

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

Order number

TXN 133 46	C-DM-0006M ILED, 6 channel dimming module for LED 150, 350, 500, 700 mA/ max. 48 V DC

CIB – built-in modules of combined inputs, outputs

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

Basic features

- Module is designated for connection of two temperature sensors or voltage-free contacts.
- For control 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 designated in economical built-in design into installation box or into measured /controlled device.

Connections

- Units connect by embarrassed stranded wires at two wires CIB bus, that hold communication and power supply.
- Inputs and outputs connect by embarrassed stranded wires too.

Use

- Module C-IR-0202S with relay and analog output for: Temperature measurement and control of heating valve 230 V AC, ballast tubes control (1-10V, relay output)
- During projection we have to calculate load of each terminals and their protection at different load types.
- Module C-IT-0202S is used for measurement of 2 temperatures, e.g. room temperature and floor temperature or for sensing contact outputs from different light controllers, detectors or safety system sensors.

C-IR-0202S

C-IT-0200S

Relay outputs	C-IR-0202S	C-IT-0200S
No. of outputs/groups	1	–
Galvanic isolation	Yes	
Switched voltage	max. 230 V AC	
Switched current	min. 100 mA; max. 5 A	
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/ 1×10^5	
Short-circuit protection	No	
Spike suppressor of inductive load	External (RC člen, varistor, diode)	
Insulation voltage against surrounded circuits	4000 V AC	

Analog inputs	C-IR-0202S	C-IT-0200S
No. of inputs	2	2
Galvanic isolation	no	no
Resolution	12 bit	12 bit
Measurement ranges		
RTD	Pt1000, Ni1000., –20 ÷ 250 °C (according sensor type)	Pt1000, Ni1000., -20 ÷ 250 °C (according sensor type)
NTC (termistor)	12 kΩ, KTY81-121	12 kΩ, KTY81-121
Resistance	160 kΩ	160 kΩ
Voltage-free contact	Yes, on each input	Yes, on each input
Balanced inputs for safety systems sensors	Yes, on each input	Yes, on each input
Measured temperature accuracy	0,6 °C	0,6 °C

Operating conditions	
Operating temperature	–20 .. +55 °C
Storage temperature	–30 .. +70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	Into installation box or any space or device
Connections	Wire of length 15 cm, isolated wire ended by sleeves
Conductors cross-section	0,5 mm^2
Power output	relay output 1,0 mm^2

Analog outputs	C-IR-0202S	C-IT-0200S
No. of inputs	1	
Galvanic isolation	no	
Resolution	8 bit	
Output rangey	0 ÷ 10 V, 1 ÷ 10 V	

Dimensions and weight	C-IR-0202S	C-IT-0200S
Dimensionsy	55 × 26 × 16 mm	55 × 26 × 16 mm
Weight	40 g	35 g

Power supply	C-IR-0202S	C-IT-0200S
Power supply and communication	24V (27V) from CIB bus	24V (27V) from CIB bus
Nominal load	60 mA	16 mA

Order number	
TXN 133 25	C-IR-0202S, CIB, 2 × AI/DI, 1 × AO (0–10 V), 1 × RO 230 V AC/5 A, Temperature/contact sensing
TXN 133 29	C-IT-0200S, CIB, 2 × AI/DI; Temperature, voltage or voltage-free contact sensing

CIB – Module of combined inputs/outputs, built-in

Type	DI	DO	AI	AO	Comm
C-IT-0504S			5× AI/DI	4× 0	CIB

Basic features

- Module is designated for direct connection of resistance sensors, voltage-free contacts and analog outputs 0-10V on CIB bus.
- Universal inputs may be configured as analog or digital in two groups. First one contains 4 inputs, another one 1 input.
- Firmware of module linearizes characteristics of resistance sensor, optimizes accuracy of metering and calculates it to temperature, what is further transmitted into central unit.
- Digital input may operate in mode with signaling - 0/1 (on/off) or in mode balance with signaling - interrupted wire/on/off/sabotage (tamper).
- Status and error/operation is indicated by LED at module (RUN).

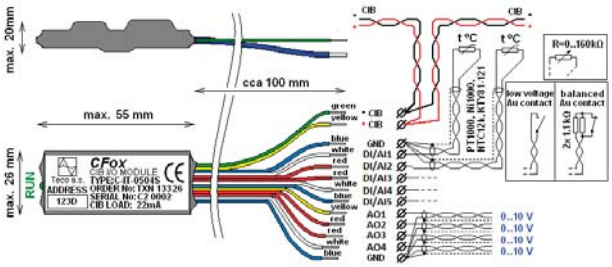
Connections

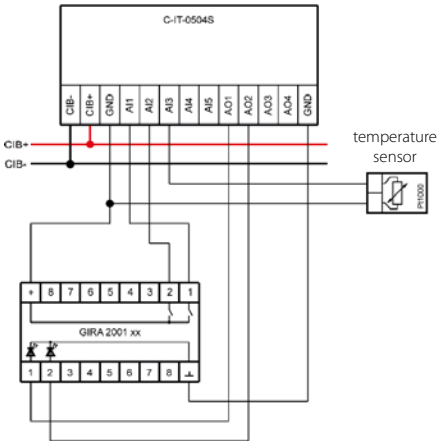
- Module is connected with two wires CIB bus with flat wire.
- With flat wire finished by pressed tubes we connect also contact inputs, Resistance Temperature Detectors (RTD) and analog outputs.

Use

- Module is designated for connecting of combination wall switches and controllers equipped by different combinations of contact and resistance sensors and LED indicators with common cathode, resp. devices with analog inputs 0-10V (dimmers etc.).
- Module may be connected directly with for example short--push low-voltage controllers of brand JUNG:
  A2224, CD2224, LS2224, AL2224
  Flat design with modules 3212TSM and 3224TSM,
  and GIRA: 2001xx
- Module may be used as integrated sensors of up to 5 temperatures.
- Module may be used as integrated controller of up tu 4 dimmers controlled by 0-10V, resp. 1-10V with connection of 4 control buttons and 1 measurement of temperature.

Connection example





Analog/combined inputs

No. of inputs / No. in group	5×/4+1
Galvanic isolation	No

Sensor type	Range	Basic accuracy
Voltage-free contact	0/1	0 if<1.5 kΩ 1 if >1.5 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 %
KTZ81-121	–55 .. 125 °C	0,5 %
Resistor	0-160 kΩ	0,5 %

Analog outputs

No. of inputs	4×
Galvanic isolation	Ne
Nominal output voltage	10V
Adjustable range of inputs	0..130%
Min. resolution	1%
Max. output current	3 mA
Max. capacity load	240 nF

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 EN60664-1:2008	1
Working position	any
Installation	into installation box, under cover
Connections CIB	Flat wire with pressed tubes 0.5 mm²

Dimensions and weight

Dimensionsy	55 × 26 × 20 mm
Weight	7 g

Power supply

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

Order number

TXN 133 26	C-IT-0504S, CIB, 5x AI/DI Temperature, contact, 4 × AO (0-10 V/10 mA)

C-IT-0504S

Controllers JUNG

Ovladače GIRA

CIB – Module of combined inputs/outputs, built-in

Type	DI	DO	AI	AO	Comm
C-IT-0908S		8x LED driver	9x AI/DI		CIB

Basic features

- Module is designated for direct connection of voltage-free contacts, resistance sensors and LED driver indicators on CIB bus.
- Inputs IN1-IN6 are only digital, two inputs IN7-IN8 may be configured as analog or digital and input IN9 is only analog.
- Firmware of module linearizes characteristics of selected types resistance sensors, optimizes accuracy of measurement and recalculates resistance into temperature in Celsius degree, what is further transmitted via CIB bus into central module.
- Digital inputs may operate in normal mode with signaling 0/1 (on/off) or in balance mode with signaling: 1. Interrupted wire, 2. On, 3. Off, 4. Sabotage (tamper).
- Status and error/operation is indicated by LED on module (RUN).

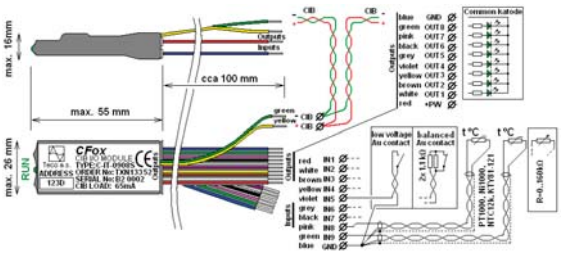
Connections

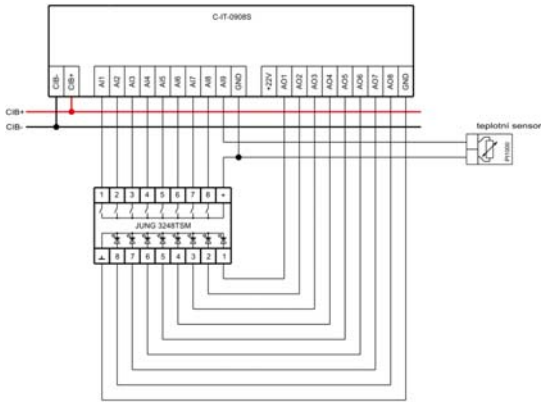
- Module is connected at CIB bus by wires grouped at two connectors, that are inserted into module.
- CIB bus, contact inputs, Resistance Temperature Detectors (RTD) and LED indicators connect with wires with pressured tubes. These wires are grouped at two connectors, inserted into module.

Use

- Module is used for connecting a combinations of wall controllers with different combinations of contact and resistance sensors and LED indicators with common cathode.
- Module may connect directly at short-push low-voltage controllers:
  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 may be used as integrated temperature sensor of up to 3 temperatures.
- Module may be used like integrated controller of up to 8 LED indicators or other loads with maximal input current 3mA.

Connection example





Connection of 8times controller with indicator JUNG.

Analog inputs

No. of digital outputs	6× DI (IN1-IN6)
No. of universal inputs	2× AI/DI (IN7-IN8)
No. of analog inputs	1× AI (IN9)
Galvanic isolation	No

Sensor type	Range	Basic accuracy
Voltage-free contact	0/1	0 if <1.5 kΩ 1 if >1.5 kΩ
Balanced input	Interrupted wire /0/1/tamper	for 2× 1k1 balanced 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	0-160kOhm	0,5%

Binary outputs for LED control

No. of outputs	8× PNP open connector
Galvanic isolation	No
No. of universal inputs	Common cathode
Max voltage	27V
Max. output current	3mA

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 EN60664-1:2008	1
Working position	any
Installation	into installation box, under cover
Connection of inputs, outputs and CIB	Wires 0.5mm2. grouped on 2 connenctors inserted into module

Dimensions and weight

Dimensionsy	55× 26 × 20 mm
Weight	8g

Power supply

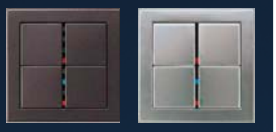
Power supply and communication	24V (27V) from CIB bus
Nominal /max. load	30mA/65mA
Typical /max. input power	0.8W/1.6W
Internal protection	No

Order number

TXN 133 52	C-IT-0908S, CIB, 6DI, 2DI/AI, 1AI (contact or resistance), 8x LED driver 3mA

C-IT-0908S

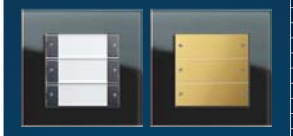
Example of use for controllers connection

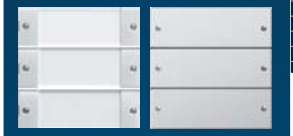


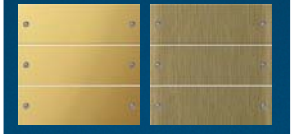
JUNG Flat Design (3248TSM)

JUNG design: LS, A

JUNG design: AL, CD







GIRA System55 a E22, (Transparent, stainless steel, Aluminium, Brass, Bronze)

CIB

CIB – Module of IR Interface, light sensor

Type	DI	DO	AI	AO	Comm
C-RI-0401S	See AI		2 AI/DI, 1x light sensor		CIB, IR

Basic features

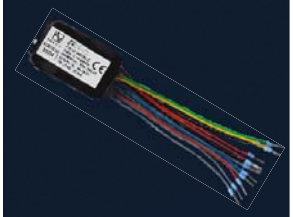
- Module is combined module with primary function of receiver and transmitter of IR commands.
- Module may learn IR commands of remote controllers of different devices - air-conditioning unit, audio/video devices etc. and store in module memory.
- This may replace manual control by Foxtrot system.
- Module contains also input for connection of light sensor.
- Module further contains 2 universal AI/DI inputs for temperature sensors or voltage-free contacts.
- These inputs may operate also as balanced inputs for connection of security sensors.
- Status and error/operation is indicated by LED on module.

Connections

- Module connect into two wires bus CIB, that holds communication and power supply of module.
- Module is designated mostly for assembly into standard installation boxes under plaster or under device cover odule.
- Inputs, outputs and CIB bus are embarrassed with flat wire. Each wire has pressed tube.
- Module may be completed on require with cover in interior designs. Standard delivery is design ABB Time.

Use

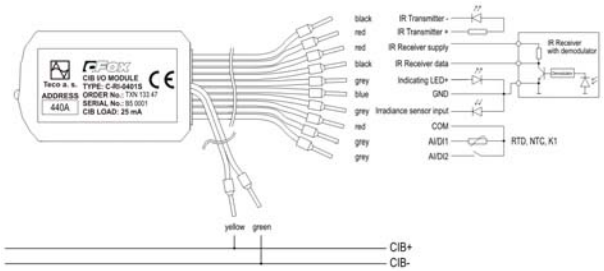
- Module to be delivered in together with cover of wall switch controller in different manufacturers designs like C-RI-0401R--Design. Integration of remote controlled devices via infra-red control. For example:
  - Interior air-condition units
  - audio, video
  - consumer electronics with IR control
- Measurement of light in interiors, resp. after installation into suitable cover.
- Light intensity control in interiors.
- In the system we may define own actions and sequences, whose we may assign to commands of remote controller and expand possibilities of present remote controller to any IR controlled device.



C-RI-0401S

Variant:
C-RI-0401R-Design

Connection example



IR receiver

Počet vstupů	1
Galvanic isolation	No
Power supply of receiver-demodulator	3.3 V
Bearing frequency of demodulator	36 kHz

IR transmitter

No. of outputs	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 Input for light sensor

Input for light sensor	1
Galvanic isolation	Ne
Sensor type/range/accuracy	Sensor type/range/ accuracy, 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	II
Degree of pollution IEC EN60664-1:2008	1
Working position	any
Installation	into installation box, under cover
Connections CIB, AI/DI,	Flat wire 0.5 mm²

Analog /combined inputs

No. of inputs	2
Galvanic isolation	No
Resolution	12 bit

Measurement ranges

Sensor type	Range	Accuracy
Voltage-free contact	switched on /off	
Balanced input (security system)	tamper/0/1/ tamper	
Pt1000	–90 .. 320 °C	12 bit/<2 %
Ni1000	–60 .. 200 °C	0,6 °C
NTC 12k	–40 .. 125 °C	0,6 °C
KTZ81-121	–55 .. 125 °C	0,6 °C
Resistance	0-160 kΩ	

Dimensions and weight

Dimensionsy	55 × 32 × 13 mm
Weight	8 g

Power supply

Power supply and communication	24 V (27 V) from CIB bus
Nominal 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, output for IR transmitter

CIB – converter on DALI bus

Type	DI	DO	AI	AO	Comm
C-DL-0012S					CIB, DALI

C-DL-0012S

Basic features

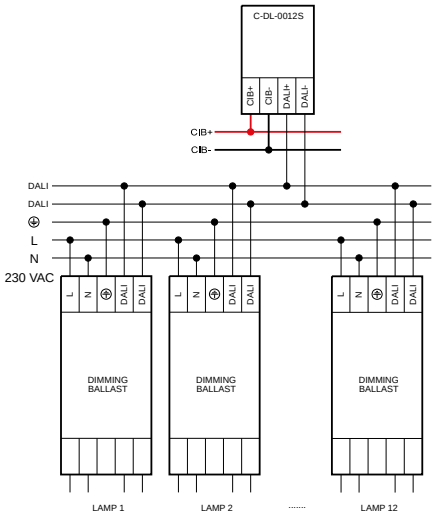
- Module is designated to control electronic tube ballasts, LED lights and other dimmers on DALI bus according specification NEMA Standards 243-2004 Digital Addressable Lighting Interface (DALI). Control devices protocol PART 2-2004.
- Module may control independently up to 12 ballasts.
- Module is in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

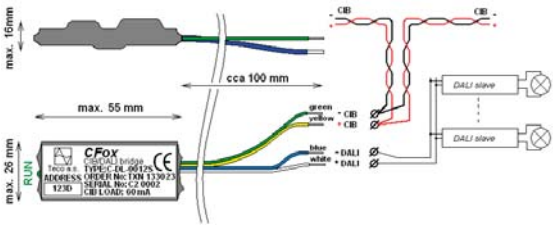
Use

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

Connections

- Module connect with two embarrassed wires at CIB bus, what holds communication and power supply of module.
- Module connect into DALI bus via output embarrassed as well via two wires.





Communication

Electroinstallation bus	CIB
Bus for ballast control	DALI, function MASTER for max. 12 controlled ballasts, output for DALI power supplied from module, 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	II
Degree of pollution IEC EN60664-1:2008	1
Working position	any
Installation	into installation box
Connections CIB, DALI,	flat wire 0.5 mm^2

Dimensions and weight

Dimensionsy	50 × 26 × 20 mm
Weight	7 g

Power supply

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

Order number

TXN 133 23	C-DL-0012S; CIB-DALI converter, for 12 ballasts

CIB – for connection of security and access detectors

Type	DI	DO	AI	AO	Comm
C-WG-0503S	3 DI (TTL)	3x DO	2 AI/DI		Wiegand, CIB

Basic features

- Universal module with combination of inputs, outputs, communication line Wiegand and integrated power supply 12V DC. The combination is suitable for connection of security, fire and access detectors on CIB bus in places where we do not require device with homologation.
- Inputs IN1-IN3 on level TTL allows connection of device communicating via Wiegand protocol and so to connect into system via CIB bus keyboard, contact-free card readers or biometric sensors used for identification of authorised persons.
- Alternatively we may use inputs IN1-IN3 as digital inputs on TTL level.
- Module is equipped by two universal inputs IN4, IN5, that allow to connect common detectors with relay outputs via simply or double balanced loops.
- Module has integrated power supply 12V DC, which use power supply of CIB bus and is able to supply detector or keyboard, delivered just for this power supply 12V DC.
- Module is further equipped by semiconductor outputs (NPN with open collector), which may be used as programmable actuators according your opinion. For example for LED signaling, switch on the buzzer or opening external relay.
- Module contains low-voltage power supply 12V DC, which power supply detectors, usually constructed on 12V DC.
- Module is in miniature built-in design. In extreme cases may be built-in into detectors of safety security systems.
- Operation of module is indicated by LED diode.

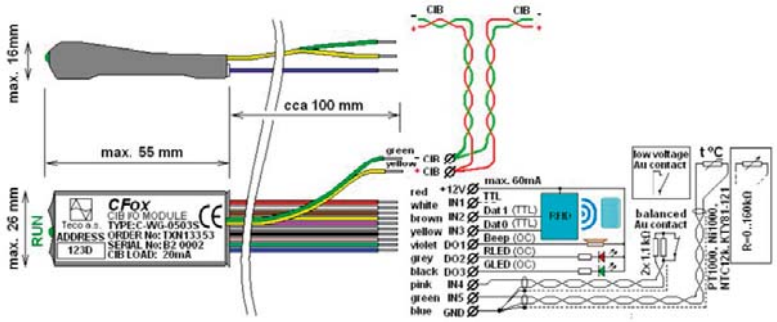
Connections

- Module connect by two embarrassed stranded wires into two wires CIB bus, which holds communication and power supply of the module.
- Module is connected into detectors or readers with Wiegand interface by further wires on common connector, which is inserted into module.

Use

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

Connection example



Analog/combined inputs

No. of digital inputs	3× DI (IN1-IN3), TTL 5V 3.9kOhm pull-out resistance
No. of universal outputs	2× AI/DI (IN4-IN5)
Galvanic isolation	No

Sensor type	Range	Basic accuracy
Voltage-free contact	0/1	0 if<1.5kΩ 1 if >1.5kΩ
Interrupted wire	Interrupted wire /0/1/tamper	for 2× 1k1 balanced 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	0-160kOhm	0,5%

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 IEC EN60664-1:2008	1
Working position	any
Installation	into installation box, under cover
Connections of CIB, inputs, outputs	wires 0,5mm^2

Binary outputs

No. of inputs	3× NPN, otevřený kolektor
Galvanic isolation	No
Polarity of LED connection	Common cathode
Max voltage:	27 V
Max. output switched current	30mA

Communication

Electroinstallation bus	CIB
Bus for communication with reader, protocol	Wiegand 26, 34, 42 bitů, 40 bites transparent / 5,4,3, 5 byte (IN2-IN3 TTL)

Power supply output 12VDC

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

Dimensions and weight

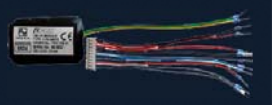
Dimensionsy	55 × 26 × 16 mm
Weight	7 g

Power supply

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

Order number

TXN 133 53	C-WG-0503S, CIB, 2x AI/DI/EZS, 3x DO (NPN), 1x Wiegand/3xDI(TTL); inputs, outputs 12VDC ;connection of security system sensors



C-WG-0503S

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

Readers RFID SAMSUNG SSA R1000V, SSA R1100V and reader with keyboard SSA R2000V

Readers RFID Aktion: AXR-100, AXR-200, AXR-300

PIR čidla Texecom (EZS)

Fire sensors Texecom (EPS)

CIB – Module of relay outputs

Type	DI	DO	AI	AO	Comm
C-OR-0202B	See AI	2	2 AI/DI		CIB

Basic features

- Module is an actuator with two independent relays 16 A with embarrassed switching on and switching off contacts.
- It is designated for switching 2 independent power load/ devices.
- Each relay is independently addressed and controlled.
- Module has 2 more universal inputs, which may be connected with 2 Resistance Temperature Detector (RTD) of temperature or voltage-free contacts.
- They may operate also as balanced inputs for connection of safety detectors. They may be used for connection of other resistance load up to 160 kΩ.
- Status of outputs and error/operation is indicated by LED on module.
- Module connect on two wires CIB bus, which holds communication and power supply of module.
- Module is designated for assembly into standard installation box under plaster or under device cover.
- Relay outputs are embarrassed with isolated wires of length 70 mm finished by pressed tube.
- CIB bus and universal inputs are embarrassed at screw terminals.

Use

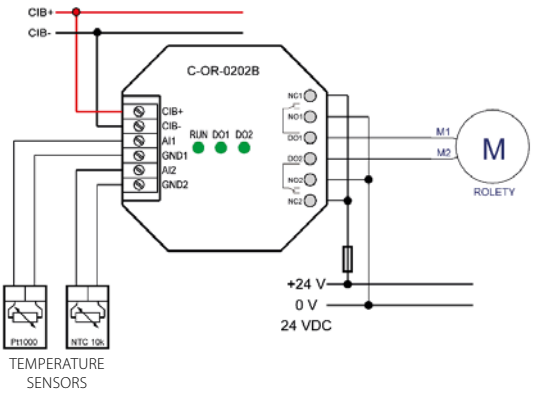
- Module is designated for switching independent power loads and devices with relay outputs.
- With suitable connection of inputs it may be used for control of drives for example jalousies or shutters with electric blocked present voltage connection at both controlled winding.
- During projection we have to calculate load of contacts and their protection at different load types.

C-OR-0202B

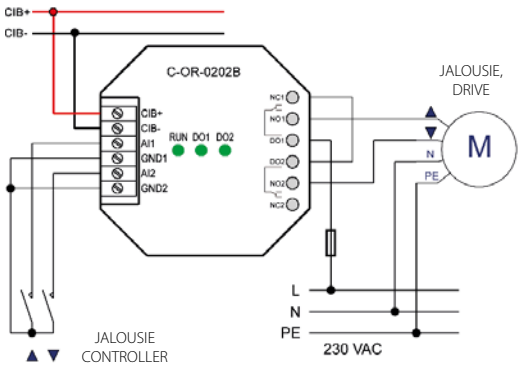
Connections

Connection example

Connection of DC motor and 2 temperature sensors



Connection of 230V drives of jalousies etc. and 2 contact inputs.



Analog inputs

Sensor type	Sensor type	Basic accuracy
Voltage-free contact	0/1	
Balanced outputs	tamper/0/1/tamper	
Pt1000	-90 .. +320 °C	0,6°C
Ni1000	-60 .. +200 °C	0,6°C
NTC 12k	-40 .. +125 °C	0,6°C
KTZ81-121	-55 .. +125 °C	0,6°C
Resistance	0-160 kΩ	

Operating conditions

Operating temperature	–20 .. +55 °C
Storage temperature	–30 .. +70 °C
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP 30
Overvoltage category	I
Degree of pollution IEC EN60664-1:2008	1
Working position	any
Installation	into installation box
Connections CIB, AI/DI,	screw terminals max. 1,5mm²
Conductors cross-section relay outputs:	max. 1,5mm²
Power outputs	6× wire H05VK, 0,5 mm²

Relay outputs

No. of outputs	2× switching 16 A/AC1
Galvanic isolation	Yes (even outputs each other)
Switched voltage	min. 5 V DC; max. 300 V AC
Switched power	4000 VA/AC1, 384 W/DC
Switched current	max.16 A (NO), max.10 A (NC), min. 100 mA
Peak current	80 A/ <20 ms (switching contact)
Switch on/of time	typ. 15 ms/ 5 ms
Min. switched current	100 mA
Switching frequency without load	max. 1200 min-1
Frequency of switching with load	max. 6 min-1
Mechanical lifetime	3 × 107/ 0.7 × 105
Electrical lifetime	$0,7 \times 10^5$
Short-circuit protection	No
Spike suppressor of inductive load	External (RC člen, varistor, diode)
Insulation voltage among each relay outputs	1000 V AC

Dimensions and weight

Dimensionsy	48 × 48 × 26 mm
Weight	50 g

Power supply

Power supply and communication	24 V (27 V) from CIB bus
Nominal load	45 mA (switched on both relays)
Internal protection	Return fuse

Order number

TXN 133 02	C-OR-0202B; CIB relay module 2× RO 230 V AC/16 A; 2× AI/DI

CIB – Module of control fans inVENTer ®

Type	DI	DO	AI	AO	Comm
C-VT-0102B			1× temperature	2x fan	CIB

Basic features

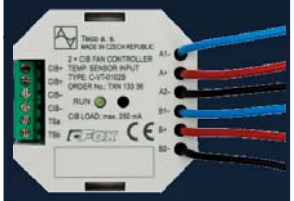
- Module is designated for proportional control of speed and direction of two fans in recuperation system inVENTer®
- Power supply of both fans if direct from CIB bus.
- Module on CIB bus acts as two analog outputs 0 – 100% and one analog output for interior temperature measurement.
- Error/operation is indicated by LED on module.

Connections

- Module connect on two wires CIB bus, which holds communication and power supply of module and both fans.
- Fans connect via 2 triads of wires finished with tube.
- Two terminals are used for connection of temperature sensors

Use

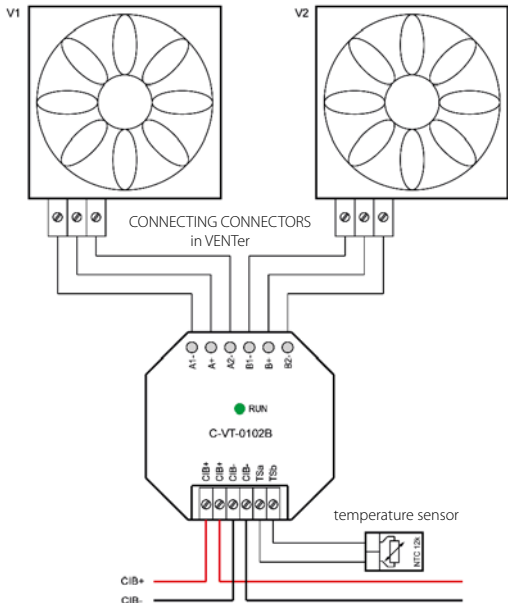
- Module is designated specifically to control recuperation fans inVENTer. Together with these two fans module creates recuperation unit powered and controlled only from CIB bus.
- Logic of both fans control in modes recuperation, dehumidification or charging is given by application program.

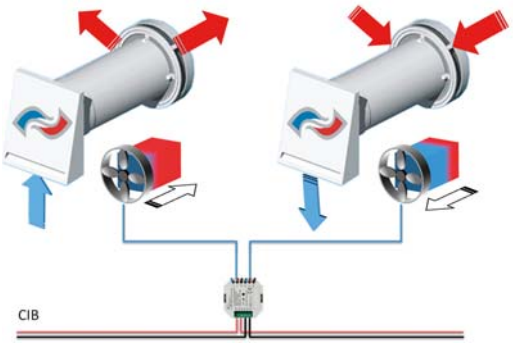


C-VT-0102B

Connection example

Connection of two fans and one temperature sensor





Outputs for fans

No. of outputs	2×
Output voltage	+–7..15 V DC, +–5 %
Output current	Max. 200 mA
Start of voltage 10V/s	

Analog output

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	2
Working position	any
Installation	into installation box, under cover
Connections CIB, AI/DI,	screw terminals, max. 1,5 mm²
Outputs for fans	6× wire H05VK, 0,5 mm²

Dimensions and weight

Dimensionsy	48 × 48 × 26 mm
Weight	38 g

Power supply

Power supply and communication	24 V (27 V) from CIB bus
Typical/max. load from CIB	13 mA/250 mA
Typical/max. input power form CIB	0.3 W/6 W
Internal protection	Return fuse

Order number

TXN 133 36	C-VT-0102B, CIB, 2× fan drive inVENTer (+-15V DC); 1× AI for temperature sensor

CIB – Module of universal analog inputs with cover IP65

Type	DI	DO	AI	AO	Comm
C-IT-0200I			2× AI		CIB

C-IT-0200I

Basic features

- Module is designated as universal analog input on CIB bus with high protection for general use.
- Module allows measure voltage, current, resistance, resistance temperature sensors and thermocouples, probes pH, Redox.
- Selection of type and measured range is by jumper.
- Firmware of module linearizes characteristics of temperature sensor, optimizes accuracy of measurement and recalculates it on temperature, which is then transferred into central unit.

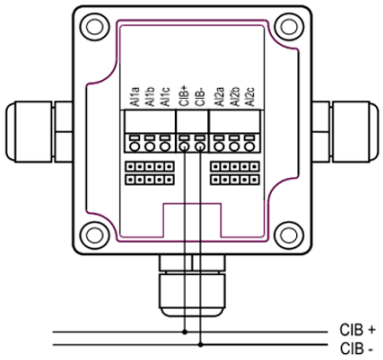
Connections

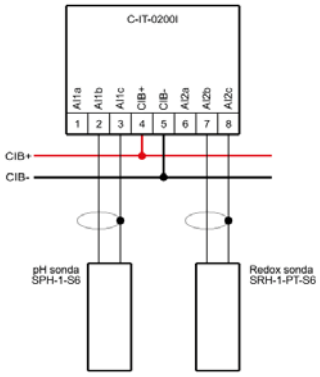
- Module connect on two wires CIB bus, which holds communication and power supply of module through gland.
- Wires connect via screw-less terminals accessible after opening.
- Module may be screwed on flat or on the wall.

Use

- Module may be used as remote converter of analog signal in place of metering and further 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 is from CIB bus.
- High protection enables to install module very close to measured value.
- Module may be used for measurement of very low voltage, which are supplied from pH and Redox probes, whose we use for example in pool technologies. The probe has to be calibrated before use.

Connection example





Example of connection pH and Redox probes

Analog inputs

No. of inputs	2×
Galvanic isolation	No
Converter type/Resolution	SigmaDelta/16bit
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÷10V; 0÷5V; -2÷2V;-1÷1V	54.6kΩ
Voltage U (HI)	HI: -1÷1V, HI: -100+ 100mV	4MΩ
Current I	0÷20mA 4÷20mA	50 Ω

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

Sensor type	Range	Input impedance
Pt1000 (W100= 1,365)	-90 .. 320°C	4,7kΩ
Pt 1000 (W100= 1,391)	-90 .. 320°C	4,7kΩ
Ni1000 (W100= 1,500)	-60 .. 200°C	4,7kΩ
Ni1000 (W100= 1,617)	-60 .. 200°C	4,7kΩ
NTC 12k	-40 .. 125°C	4,7kΩ
KTY81-121	-55 .. 125°C	4,7kΩ
Resistance	0-200kOhm	4,7kΩ

Operating conditions

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

Dimensions and weight

Dimensionsy	125× 100 × 38 mm
Weight	120g

Power supply

Power supply and communication	24V (27V) from CIB bus
Nominal /max. load	15mA/60mA(at power supply of current loops)
Typical /Maximal input power	0.4W/1.5W
Internal protection	No

Order number

TXN 133 09	C-IT-0200I; CIB, 2x AI, 0-10V, 4-20mA, RTD, TC, IP65

CIB – Modules for reading of energy meters and analog inputs

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

Basic features

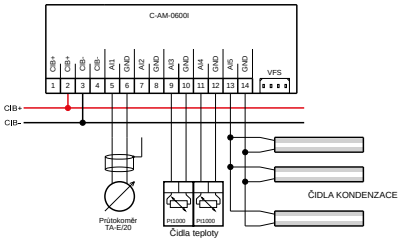
- Modules on CIB bus.
- Input AV23 of module C-AM-0600I is designated for internal connection of flow meter Tacomnova AV23.
- Universal inputs may be configured for measurement of voltage, current and resistance temperatures sensors.
- Universal inputs may be also configured as impulse readers from energy meters - from electricity meters, gas meters and water meters.
- Taconova AV23 flow meter interface contains 2 inputs, one is used for sensing of proportional flow signal and the second for temperature sensing of integrated sensor of flowing media.
- Module firmware linearizes characteristics of resistance sensors, optimizes accuracy of measurement and recalculates it into temperature, what is further transmitted into central unit.

Connection

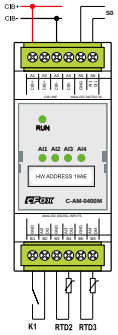
- Modules connect at two wires bus CIB.
- Module C-AM-0400M connect with screw connectors.
- Module C-AM-0600M in IP65 protection with push in terminals under cover.

Use

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



Connection example



Analog inputs	C-AM-0400M	C-AM-0600I
No. of inputs	4× AI/DI	5× AI/DI
Input 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 (AI1-AI5)
No. 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 (AI1-AI5)
No. of inputs	4× AI/DI	5×
Galvanic isolation	No	
External power supply	No	
Referenční napětí	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

Sensor type	Range	Základní přesnost
Beznapěťový kontakt	0/1	0 když<1.5kΩ 1 když >1.5kΩ
Vyvážený vstup	tamper/0/1/tamper	pro 2× 1 k1 vyv.odpor
Pt1000 W100=1,385/1,391	–90 .. 320°C	0,5%
Ni1000 W100=1,500/1,617	–60 .. 200°C	0,5%
NTC 12k	–40 .. 125°C	1%
KTZ81-121	–55 .. 125°C	0,5%
Odpor OV 200k	0-200 kOhm	10%
Odpor OV 400k jen pro AI5	0-400 kOhm	10%
Napětí	0÷10 V, 0÷2 V, 0÷1 V	0,5%
Proud	0-20 mA, 4-20 mA	

Interface features of flow meter AV23	C-AM-0400M	C-AM-0600I (AI1-AI5)
Power supply voltage		5 V DC
Integrated power supply		Yes
Typical load from CIB		3 mA
Measured range of flow meter/Internal converter		0,5-3,5 V /1-12 l/min 12-40l/min
Input error		0,5%
Measured range of thermo meter/Internal converter		0,5-3,5 V/0-100 °C
Input error		0,5%

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	II
Degree of pollution according ČSN EN60664-1:2008	1
Operation position	Any
Installation	On wall
Connection CIB	Push-in terminals 0,14÷1,5 mm²

Dimensions and weight

Dimensions without holders	85 × 85 × 37 mm
Weight	65 g

Power supply

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× AI/DI, module of analog inputs and reading energy meters
TXN 133 50	C-AM-0600I; CIB, 5× AI/DI, 1× AI, module of analog inputs and reading energy meters, IP65 protection

C-AM-0400M

C-AM-0600I

CIB – Temperature sensors with protection IP64/65

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

Basic features

- C-IT-0100H-A Temperature sensor in aluminium head with stalk.
- C-IT-0100H-P Temperature sensor in plastic head with stalk.
- All units have high protection IP54.
- Resistance, voltage or current is converted in sensor direct on numerical value and transmitted into central module via CIB bus.
- All units have built-in sensor of internal temperature.
- The principle of processing the signal eliminates distortion resp. error of measurement by connection at long distance.

Connections

- Sensors and converters are designated as standard units at two wires CIB bus, what holds communication and power supply of all sensor.
- Save wires: Free topology and branching up to distance 500 m, up to 32 units on 1 branch CIB.
- Master of CIB bus is basic module Foxtrot or extension module CF-1141.

Use

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

C-IT-0100H-A

C-IT-0100H-P

C-IT-0100H-P

C-IT-0100H-P

Analog inputs	C-IT-0100H-A	C-IT-0100H-P
Main input/measured value	1× Sensor temperature at stem	1× Sensor temperature at stem
Supplement input	Temperature in converter head	Temperature in converter head
Measured temperature range	–20 °C ÷ + 80 °C	–20 °C ÷ + 80 °C
Resolution	0,1 °C	0,1 °C
Basic measurement acuracy	0,6 °C	0,6 °C
Calibration	From manufacturing	From manufacturing

Operating conditions	C-IT-0100H-A	C-IT-0100H-P
Operation temperature	–20 ÷ + 70 °C	–20 ÷ + 70 °C
Temperature of storage and transportation	–20 ÷ + 70 °C	–20 ÷ + 70 °C
Relative humidity	< 80 %	< 80 %
IP Degree of protectionaccording IEC 529	IP54	IP54
Installation	Into the pipe, sump, on the wall (see optional accessories)	Into the pipe, sump, on the wall (see optional accessories)
Input wire assembly	1× gland	1× gland
Connections (CIB)	Firm terminals	Firm terminals
Conductors cross-section	1,5 mm^2	1,5 mm^2
Recommended dimension of wire	5 ÷ 7 mm	4 ÷ 8 mm

Dimensions and weight	C-IT-0100H-A	C-IT-0100H-P
Dimensions	86 × 80 × 72 mm	65 × 65 × 35 mm (without gland)
Standard length of stem	120 mm (other lengths see other variants)	120 mm (other lengths see other variants)
Weight	350 g	200 g

Power supply	C-IT-0100H-A	C-IT-0100H-P
Power supply/Voltage	From bus CIB/24 (27) V DC	From bus CIB/24 (27) V DC
Load from CIB bus	20 mA	20 mA

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, IP54, plastic head

CFox
Interior controllers

basic

C-WS-0200-R
Time

C-WS-0200-R
Time

C-IT-0200-R
Time

C-RC-0002-R
Time

C-RI-0401R
Time

RCM2

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tailor-made

Bticino

MERTEN

Legrand

Schneider
Unica

GIRA

EATON

JUNG

Berker

ABB

Logus90

CIB – Group wall swithces Time (ABB)

Type	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

C-WS-0200R Time

C-WS-0400R Time

Basic features

- Wall switches with short press control. Each control element has button up and down.
- Each button push may be in project software configured any action. We may for example evaluate the length of push.
- For each switch we may assign the sequence of actions, commands, e.g. draw the blinds, lights on, set the intensity of lighting, switch on the TV etc.
- Controllers have terminals for connection of up two external temperature sensors, for example temperature of interior and floor temperature.

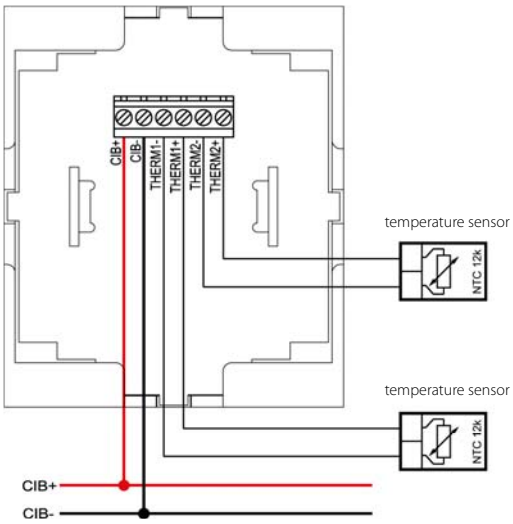
Connections

- Wall switches connect directly at two wires bus CIB, what holds communication and power supply of controller.

Use

- In interiors into standard installation boxes under plaster.
- Wall switches are design compatible with frames and sockets Time and Element (ABB) and may be freely combined with them.
- Combination of frames and covers in other colors then standard (white/white) is necessary to order as tailor-made.

Connection example



Analog inputs	C-WS-0200R	C-WS-0400R
Input type	2× NTC12K/ resistance 0-100 kOhm, NTC 12k/ odpor 0-100 kΩ	2× NTC12K/ resistance 0-100 kOhm
Range of measurement	0..90 °C/ 0-100 kΩ	0..90 °C/ 0-100 kΩ
Basic accuracy	±1 °C	±1 °C

Digital inputs	C-WS-0200R	C-WS-0400R
Input type	2× built-in button	4× built-in button

Operating conditions

Operating temperature	–20 .. +55 °C
Storage temperature	–30 .. +70 °C
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP20
Overvoltage category	III
Degree of pollution IEC EN60664-1:2008	2
Working position	vertical
Installation	On installation box
Connections, conductors cross-section	screw terminals, 1,5 mm²

Dimensions and weight	C-WS-0200R	C-WS-0400R
Dimensionsy	88 × 81 × 17 mm	88 × 81 × 17 mm
Weight	60 g	60 g

Power supply	C-WS-0200R	C-WS-0400R
Power supply and communication	24 V (27 V) from bus CIB	24 V (27 V) from bus CIB
Typical/max. odběr	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

Requirements for other design of wall switches you may solve out with use of combined modules C-IT-05%4S 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 tailor-made
TXN 133 31	C-WS-0400R-ABB-Zak, CIB, Controller with short-press control, 4 buttons, frame and cover tailor-made

CIB – Module of temperature measurement

Type	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 designated for interior temperature measurement.
- 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 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 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 may be used for measurement of general resistance up to 100 kOhm.
- Status and error/operation is indicated by LED diode at bottom part of module.

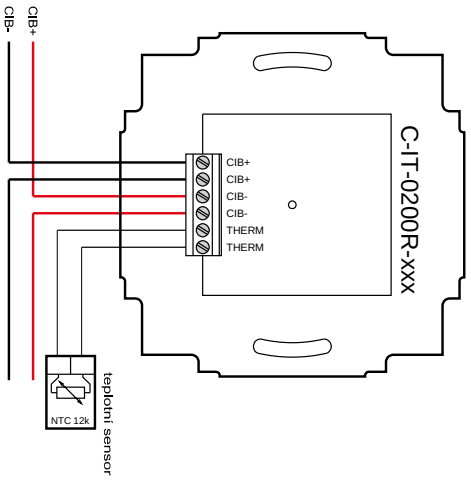
Connections

- 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.
- CIB bus and input for external sensor are embarrassed by isolated wires of length 70 mm finished by pressed tubes.
- Upper and bottom part connect each other with cable with connector.

Use

- Module may 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



Analog inputs

Sensor type	Range	Basic accuracy
Internal	0..50°C	0.5°C
External NTC 12k	0..90°C	0.5°C

Operating conditions

Operating temperature	0 .. +55 °C
Storage temperature	–25 .. +70 °C
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP 10B
Overvoltage category	II
Degree of pollution IEC EN60664-1:2008	1
Working position	vertical
Installation	into installation box
Connections CIB, AI,	screw terminals

Dimensions and weight

Dimensionsy	89 × 87 × 25 mm or according used design	47 × 75 × 65 mm
Weight	80 g	350 g

Power supply

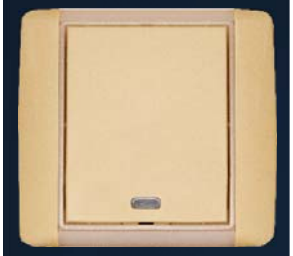
Power supply and communication	24 V (27 V) from bus CIB
Nominal/max. load	14,5 mA/17 mA
Nominal/max. input power	0.3 W/0.4 W
Internal protection	No

Order number

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 tailor-made on order

C-IT-0200R-Time

Other designs tailor-made on order



C-IT-0200R-Element

C-IT-0200R-ALpha

C-IT-0200R-Swing

C-IT-0200R-Tango

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

CIB – Module of temperature measurement

Type	DI	DO	AI	AO	Comm
C-IT-0200R-Design			2× Temperature internal, external	Valve position 0-100%	CIB

Basic features

- Module is on CIB bus connectable module designated for measurement of temperature in interiors. Temperature is measured by sensor placed in cover.
- It is possible to connect second, external sensor for measurement of floor temperature, outside temperature etc.
- Modules of temperature measurement are available in designs of different manufacturers. Availability check at manufacturer.
- 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 bus is placed in bottom built-in 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 may be used also for measurement of general resistance up to 100 kOhm.
- Status and error/operation is indicated by LED diode on bottom part of module.

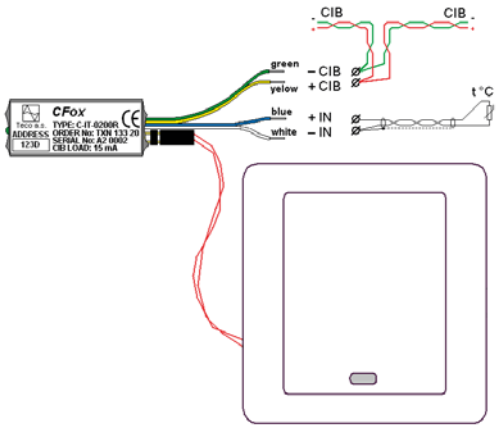
Connections

- Module is used for assembly on the wall into standard installation box.
- Module has two parts: upper with sensor in interior design and bottom with electronics of connection into CIB bus and connection of external sensor.
- CIB bus and input for external sensor are embarrassed by isolated wires of length 70 mm finished by pressed tubes.
- Upper and bottom part connect each other with cable with connector.

Use

- Module may 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



Analog inputs

Sensor type	Range	Basic accuracy
Internal	0..50°C	0.5°C
External NTC 5k	0..90°C	0.5°C
External NTC 10k	0..90°C	0.5°C
External NTC 12k	0..90°C	0.5°C
External NTC 15k	0..90°C	0.5°C
External NTC 20k	0..90°C	0.5°C

Analog inputs

Sensor type	Range	Basic accuracy
External resistance	0-25kOhm	0.5kOhm
External resistance	25-50kOhm	0.5kOhm
External resistance	50-100kOhm	1kOhm

Operating conditions

Operating temperature	0 .. +55 °C
Storage temperature	–25 .. +70 °C
Electric strength	according EN 60950
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
Connections CIB, AI,	isolated wire with pressed tube 1.5 mm²

Dimensions and weight

Dimensionsy	83 × 81 × 25 mm or according used design
Weight	80 g

Power supply

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

Order number

TXN 133 20	C-IT-0200R-Zak; CIB, 2x temperature (1x internal, 1x external); cover and frame separately tailor-made on order

Příklad:
C-IT-0200R- Legrand Galena

Další designy na zakázku:

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 ask producer

CIB

CIB – IR interface module, light sensor

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

Basic features

- Interior design of infrared interface module for use with common remote controllers added with sensor of light intensity, temperature sensor and with input for external temperature sensor or contact.
- This input may be used also as balanced input for connection of safety detectors.
- Standard design is design Time (ABB) white/white.
- Other designs may be delivered tailor-made after agreement with manufacturer.
- Module may learn IR commands of remote controllers of different devices - air-conditioning units, audio/video etc. - and store in module memory. Subsequently may be these commands transmitted on transmission side of module by command from system via CIB bus.
- By this we may replace manual control of device by automated control of Foxtrot system.

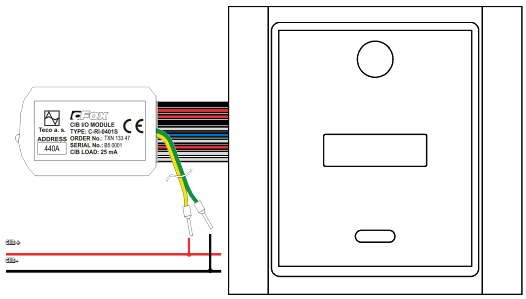
Connections

- Module connect to two wires CIB bus, what holds communication and power supply of module.
- CIB bus is embarrassed with 2 belt cables. Each wire is finished by pressed tube.
- 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 may define own actions and sequences, that may 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.

Connection example



IR receiver

No. of inputs	1x demodulator
Galvanic isolation	No
Power supply of receiver - demodulator	3.3 V
Basic frequency of demodulator	36 kHz

IR transmitter

No. 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	Ne

Input for light sensor

No. of inputs	1
Galvanic isolation	No
Sensor type/range/accuracy	Sensor type/range/ accuracy, 0-50 000 lx/<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 20
Overvoltage category	II
Degree of pollution IEC EN60664-1:2008	1
Working position	any
Installation	on installation box, in interior
Connections CIB, AI/DI,	belt wire 0.5 mm^2

Analog/combined inputs

No. of inputs	2× AI/DI
Galvanic isolation	No
Resolution	12 bit

Measurement ranges

Sensor type	Range	Accuracy
Voltage free contact	switched on/ switched of	
Balanced input (security systems)	tamper/0/1/ tamper	
Pt1000	–90 .. 320°C	12 bit/<2%
Ni1000	–60 .. 200°C	0,6°C
NTC 12k	–40 .. 125°C	0,6°C
KTZ81-121	–55 .. 125°	0,6°C
Resistance	0-160 kOhm	

Dimensions and weight

Dimensionsy	88 × 81 × 17mm
Weight	60 g

Power supply C-OR-0202B

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, tailor-made manufacture: design, frame and cover on order, 1× IR transmitter, 1× IR receiver-demodulator, 1× light, 1× temperature, 1× external universal input. Other combination of sensors on order.

C-RI-0401R-Time

Tailor-made variants

CIB – Module of controller with LCD for measurement and set temperature

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

Basic features

- Module is designated into interiors as the most simple variant of measurement and numeric visualization of present temperature and as well setting new required temperature.
- Function of module is set up in user program, it may be used also for other uses, if the combination of inputs and outputs is suitable.
- 3 digits LCD display with 6 segment digits.
- 2 buttons with a symbol of arrows enable to set the correction of required temperature - increase, decrease.
- 1 button and LED indicator - designated to set and indicate attenuation or comfortable mode.
- Built-in sensor of temperature placed in bottom part of front panel. Placement maximizes accuracy of measurement and eliminates influence of module heating to measurement.
- Input for external temperature sensors and connection of CIB bus is placed in bottom built-in part of module.
- Interior part of controller is in standard in ABB Time design. It is available even in other designs, that are manufactured and delivered on order.
- 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 may be used for measurement of general resistance up to 100 kOhm.
- Status and error/operation is indicated by LED diode on bottom part of module.

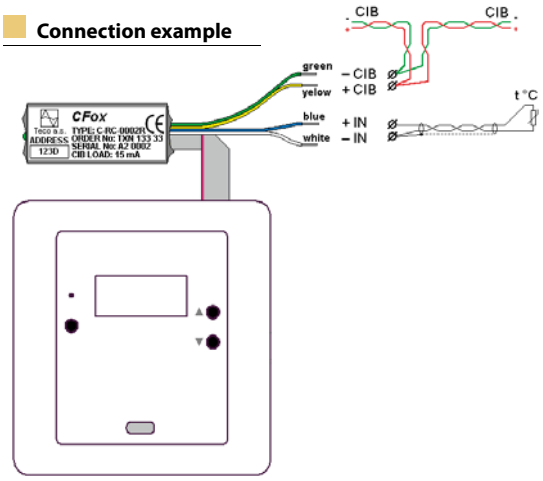
Connections

- Module is used for assembly on the wall into standard installation box.
- Module has two parts: upper in interior design with control elements and temperature sensor and bottom with electronics of connection into CIB bus and connection of external sensor.
- CIB bus and input for external sensor are embarrassed by isolated wires of length 70 mm finished by pressed tubes.
- Upper and bottom part connect with flat cable with connector.

Use

- Module may be used for setting required temperature or other values with present visualization of value at 3 digits LCD display.
- Module may be used for measurement up to 2 temperatures. One internal and one 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



Analog inputs

Sensor type	Range	Basic accuracy
Internal	0..50 °C	0.5 °C
External NTC 5k	0..90 °C	0.5 °C
External NTC 10k	0..90 °C	0.5 °C
External NTC 12k	0..90 °C	0.5 °C
External NTC 15k	0..90 °C	0.5 °C
External NTC 20k	0..90 °C	0.5 °C

Analog inputs

Sensor type	Range	Basic accuracy
Resistance	0-25 kΩ	0.5 kΩ
Resistance	25-50 kΩ	0.5 kΩ
Resistance	50-100 kΩ	1 kΩ

Operating conditions

Operating temperature	0 .. +55 °C
Storage temperature	–25 .. +70 °C
Electric strength	according EN 60950
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
Connections CIB, AI,	isolated wires with pressed tube 1.5 mm²

Dimensions and weight

Dimensionsy	83 × 81 × 25 mm
Weight	80 g

Power supply

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

Order number

TXN 133 33.01	C-RC-0002R-Time, white/white, CIB, Controller with LCD, measurement and setting of temperature
TXN 133 33	C-RC-0002R-Zak , CIB, Controller with LCD, measurement and setting of temperature (design, color tailor-made on order)

C-RC-0002R-Time

Tailor-made designs:

C-RC-0002R-Berker

C-RC-0002R-Bticino

C-RC-0002R-Legrand

C-RC-0002R-Unica

C-RC-0002R-Niko

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

CIB interior control module

Room Control Manager

Type	DI	RO	AI	AO	Comm
RCM2-01			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, 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/ Foxtrot. 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.

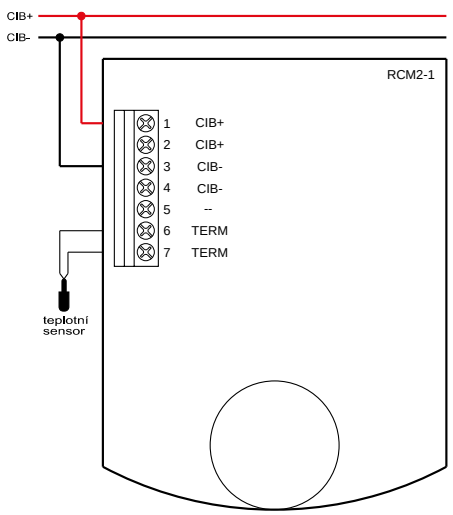
Connecting

- The device is to be wired 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.

Connection example



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	0 ÷ + 45 °C
Measurement accuracy	±0,6 °C
Communication/Power supply	Bus CIB/ 24 V (27 V)
Load from CIB	17 mA
Mechanical construction	Plastic module on wall
Dimensions of module (š × v × h)	90 × 115 × 39 mm
Weight	130 g
Operational temperature	0 ÷ +55 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	Any
Installation	On wall, on installation box
Connections	screw terminals
Conductors cross-section	max. 1,5 mm²

RCM2-01

RCM2-01

Order number

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

CIB – Sensors of air quality into interiors

Type	DI	DO	AI	AO	Comm
C-AQ-0001R			1× CO2, 1× 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

C-AQ-0001R

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

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 CO_2.
- Measurement CO_2 uses dependence of infrared radiation attenuation on CO_2 concentration in the air. The change of attenuation in measure closet 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.
- Easy installation on the wall.

Connections

- Sensor is designated as standard unit on CIB bus, what holds communication and power supply of the sensor.

Use

- Content of CO2 in the air has very good predicative ability about stale air in the room. It corresponds very good with number of people in enclosure room. That´s why it is suitable for:
  - Systems of air-quality check.
  - Controlled ventilation in offices, cinemas, hotels, hospitals, gym halls, schools etc.
  - Control of 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.

Specification

Measuring range	0 ÷ 5000 ppm
Start of sensor after switch on	2 min
Resolution	1 ppm
Accuracy	50 ppm ± 5% from value
Repeatability	10 ppm ± 1% from value
Long time stability	± 50 ppm/year
Air pressure influence	1,6 % / kPa
Operation humidity	Max. 95 % noncondensing
Calibration	From manufacturing
Lifetime	Typically 10 years
Power supply and communication	24 V (27 V) from CIB bus
Load from CIB	Typ. 90 mA

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

C-AQ-0002R

Basic features

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

Connections

- Standard unit on two wires CIB bus, what holds communication and power supply of sensor.

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..

Specification

Measuring range	0 ÷ 5 ppm
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

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.

Connections

- Standard unit on two wires CIB bus, what holds communication and power supply of sensor.

Use

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

C-AQ-0003R

Specification

Measuring range	0 ÷ 5 ppm
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

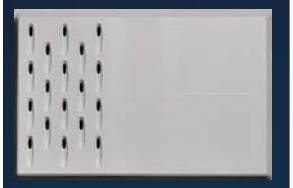
C-AQ-0004R Room sensor of relative humidity, temperature and dew point

Basic features

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

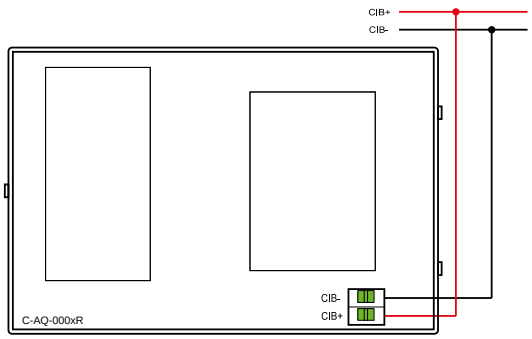
Use

- Ventilation systems in interiors.
- Measurement and regulation of relative humidity in industry, storage, monuments.
- Air-condition and recuperation units.



C-AQ-0004R

Connection example



Specification

Measuring range	0 ÷ 100 % RH
Resolution	0,1 % RH
Accuracy	±3,5 % RH (in range 20 ÷ 80 %) ±5 % RH (in range 0 ÷ 100 %)

Operating conditions

Operating temperature	0 ÷ +40 °C
Storage temperature	–20 ÷ +60 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	on wall
Connections	screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

Dimensionsy (š × v × h)	125 × 83 × 36 mm
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

CIB – Proportional drive of thermostatic actuator

Type	DI	DO	AI	AO	Comm
C-HC-0201F-E			2× AI/DI	Poloha ventilu 0-100%	CIB
C-HC-0101F			1× AI	Poloha ventilu 0-100%	CIB

Basic features

- Motor controlled valves on radiator actuator.
- Universal input/output for external sensors may be configured as analog or digital. So we may connect both temperature sensor or window contact.
- 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.

Connections

- Valve connect by cable directly with two wires CIB bus, what also power supplies it.
- External sensors connect via screw terminals.

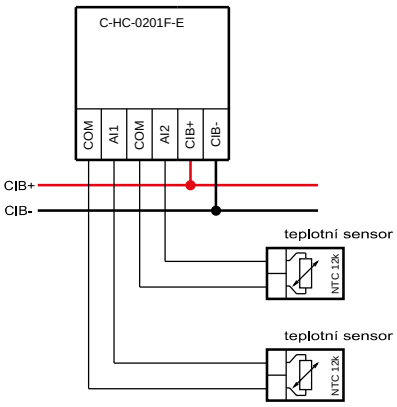
Use

- Continuous zone regulation of hot water heating in each room.
- Radiator or floor heating.
- Direct fixing at radiator actuator or floor distributor with thread M30× 1,5 or reduction.

C-HC-0201F-E

C-HC-0101F

Connection example



Analog/combined inputs	C-HC-0201F-E	C-HC-0101F
No. of inputs	2	1
Input type	NTC 12k/Pt1000/Ni1000/ 0-100 kΩ	NTC 12k/resistance 0-100 kΩ
Measuring range	0..90 °C/ 0-100 kΩ	0..90°C/0-100 kΩ

Operating conditions

Operating temperature	0 .. +55 °C
Storage temperature	–20 .. +70 °C
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP20
Overvoltage category	II
Degree of pollution according IEC EN60664-1:2008	2
Working position	Any
Installation	Fixing on radiator actuator M30 ×1,5 mm, or with reduction
Connections CIB	Cable of length 0,5 m finished by isolated wire with pressed tubes with dimension 0.8 m²

Dimensions and weight

	C-HC-0201F-E	C-HC-0101F
Dimensionsy	68 × 70 × 48 mm	47 × 75 × 65 mm
Weight	300 g	350 g

Power supply

	C-HC-0201F-E	C-HC-0101F
Power supply a Communication	24 V (27 V) from bus CIB	24 V (27 V) from bus CIB
Typical/max. odběr	15 mA/90 mA	15 mA/17 mA
Typical/max. input power	0.3 W/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× AI/DI Temperature/contact, 1× 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 order

RFox

Wireless communication for houses and buildings

Wireless communication RFox is:

- **Both directions**
- **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.

- Foxtrot becomes even more universal, because it may combine classic PLC peripherals, installation via two wires CIB bus and now even wireless installation RFox in any ratio.

- There is a possibility to create only wireless solution of project with central control.

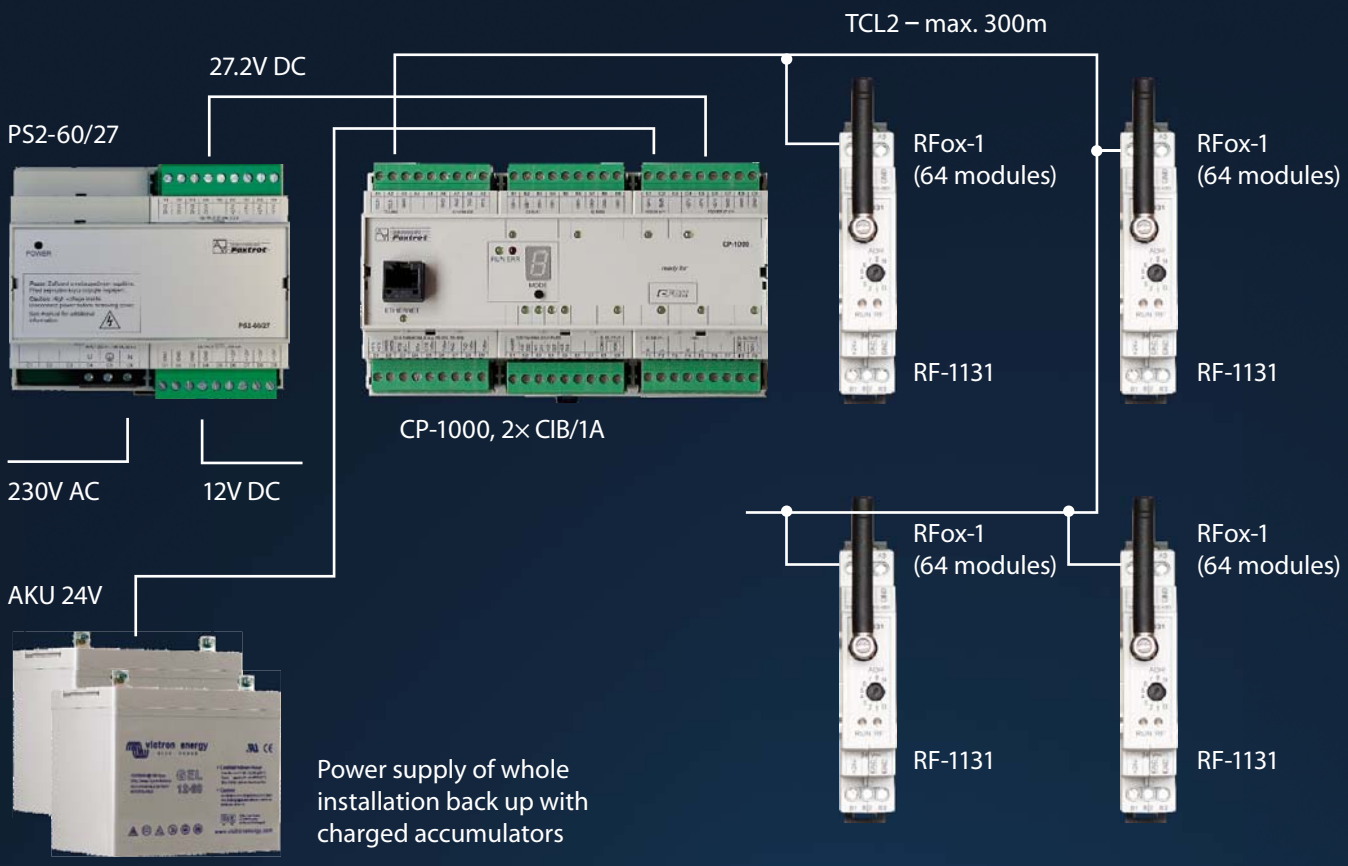
- Configuration of the wireless network is integrated in development software Mosaic.

- Extension of Foxtrot system with wireless network may be done with connection of communication module RF-1131 at I/O bus TCL2 and placing I/O modules RFox in room.

- In first group of wireless modules are key ring, interior wall controller (Room Control Manager), module with 4 voltage-free inputs, module with 1 relay, a set of air quality sensors and valve of heat valve drive.

RFox

Intelligent wireless electroinstallation and measurement at band 868MHz



Interior modules

R-WS-0200R
Wall switch
2 buttons

R-WS-0400R
Wall switch
4 buttons

R-IT-0100R
Wall temperature
sensor

R-RC-0002R
Universal wall
sensor

R-HC-0101F
Radiator
actuator drive

Portable modules

R-KF-0100X,
RKF_0500X
Key rings
R-RT-2305W Router

Modules into switchboards

R-HM-1113M
Combined module
on DIN rail

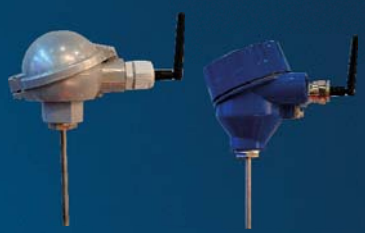
R-HM-1121M
Combined module
on DIN rail

Built-in modules

R-OR-0001B
1× Relay 230 V AC

R-IB-0400B
4× contact sensor

Modules with IP65 protection IP65



R-IT-0100I-A
Temperature sensor

Communication module RFox

Type	DI	DO	AI	AO	Comm
RF-1131					TCL2, RFox

RF-1131

Basic features

- Communication gateway of Foxtrot system into wireless data network RFox. Module is master of both direction communication with confirmation operating in band 868 MHz.
- As coordinator/master of data network RFox module enables to connect up to 64 wireless modules with inputs and outputs.
- Module RF-1131 is not included in limitation max. 10 modules of inputs/outputs on TCL2 bus.
- Module is operated on low power up to 10mW.
- In case of signal unavailability between 2 points system directly searches connection through the closest node/nodes (technology mesh).
- For basic unit of the system the module creates present view of all elements statuses in wireless network.

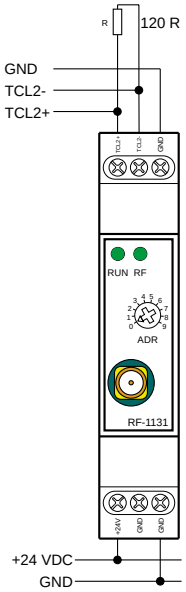
Connections

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

Use

- Creation of wireless control system only 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 electroinstalaltion bus.
- For any application, where we need to transfer wireless in range of RFox network digital or analog values.

Connection example



Communication

System I/O bus	1× TCL2 (RS-485, 345kbit/s) up to distance 300 m, without branches, impedance terminating 120 Ohm
Wireless communication	RFox
Frequency	868,35 MHz
Signal transfer	Both directions, with confirmation, with retranslation (mesh)
Range	About 30 m in building, 100 m in free space [1)]

Operating conditions

Operating temperature	–20 ÷ +55 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 10B
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	Any
Installation	on DIN rail
Connections	screw terminals, Antenna – SMA connector
Conductors cross-section	max. 2,5 mm^2

Dimensions and weight

Dimensionsy	90 × 18 × 65 mm
Weight	75 g

Power supply

Power supply voltage (SELV)	+24 V DC /30 mA
Allowed range	–15% +25% (20.4 ÷ 30 V DC)
Max. input power	2,5 W
Galvanic isolation	No

Order number

TXN 111 31	RF-1131, RFox – Communication module, Master of wireless netowork

RFox – wireless group controllers Time, Element (ABB)

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

Basic features

- Wall group switches with short-press control. Each control element has button in upper and bottom part.
- Each button push may be in project software configured any action. We may for example evaluate the length of push. For each switch we may assign the sequence of actions, commands, e.g. draw the blinds, lights on, set the intensity of lighting, switch on the TV etc.
- Power supply from built-in, exchangeable battery.

Connections

- Controller has no external connection.
- Into RFox network it is connecting by process of pairing.

Use

- In interiors into standard installation boxes under plaster, stick on flat surface or free use as portable device.
- Controllers are design compatible with frames and devices Time and Element (ABB) and may be freely combined. Basic color design of frames and button covers is white/white.
- Frames and covers in other colors are tailor-made on order.

R-WS-0200R Time

R-WS-0200R Time

R-IT-0100R-Time

Analog inputs	R-IT-0200R
Input type	2× temperature (

Binární vstupy	R-WS-0200R	R-WS-0400R
Input type	2 × Button	4 × Button

Komunikace	R-WS-0200R	R-WS-0400R	R-IT-0200R
Wireless bus	RFox	RFox	RFox
Antenna	Integrated	Integrated	Integrated
Frequency	868 MHz	868 MHz	868 MHz
Signal transfer	Both directions with confirmation	Both directions with confirmation	Both directions with confirmation
Range	About 30m in building, 300 m in empty space	About 30m in building, 300 m in empty space	About 30m in building, 300 m in empty space
Broadcast interval	9 min (without input activation), ever during activation	9 min (without input activation), ever during activation	9 min (without input activation), ever during activation

R-WS-0400R Time-Arbo

Dimensions and weight	R-WS-0200R	R-WS-0400R	R-IT-0200R
Dimensionsy	80 × 80 × 35 mm	80 × 80 × 35 mm	80 × 80 × 35 mm
Weight	68 g	68 g	68 g

Power supply	R-WS-0200R	R-WS-0400R	R-IT-0200R
Power supply a communication	CR2032 lithium battery	CR2032 lithium battery	CR2032 lithium battery
Lifetime of battery	ever during activation	ever during activation	ever during activation

R-WS-0400R-Time-Champagne

Operating conditions	
Operating temperature	–20 .. +55 °C
Storage temperature	–30 .. +70 °C
IP Degree of protectionIEC 529	IP 20
Overvoltage category	III
Degree of pollution according IEC EN 61131-2	2
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, Ovladač s krátkocestným ovládáním, 2 tlačítka
TXN 132 31	R-WS-0400R-Time, Element, RFox, Ovladač s krátkocestným ovládáním, 4 tlačítka
TXN 132 32	R-IT-0100R-Time, Element, RFox, Čidlo teploty v interiérovém provedení

Imporatant notice! To controllers it is necessary to order cover and frame in required color according to product line ABB Time/Element! See capture Covers and frames in Price list or at web page.

Room Control Manager

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

R-RC-0001R

Basic features

- Wireless module in interior design for offices and residential facilities. Module is designated for visualization and setting required values (Room Control Manager).
- LCD display with displaying the values (temperature, time, humidity, speed, heating, cooling, ... see image) and a lot of graphic icons is used on field of heating, ventilation and air-condition.
- Movement in menu and entering / setting with rotational element with confirmation (push).
- Built-in temperature sensor. Possibility to connect external NTC sensor to choose suitable place of measuring , independent on placement.
- Module is free user programmable. From program we may control independently any icons or numbers as digital outputs and may read information about rotation and button push.

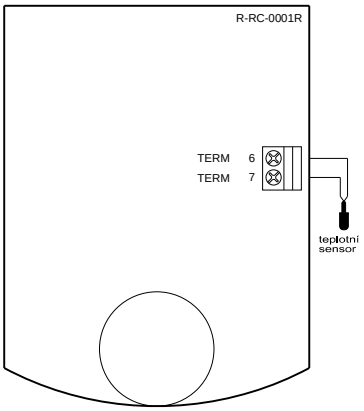
Connections

- Unit is designated as standard device of data radio network RFox. Power supply from battery.

Use

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

Connection example



Ovládání

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

Analog inputs

Inputs	2× temperature measuring (internal sensor) and external sensor NTC 12k)
Range of measured temperature	0 ÷ + 45 °C
Measurement accuracy	±0,6 °C
Interval of measured temperature	10 min

Communication RFox

Frequency	868 MHz
Signal transmission	Both directions with confirmation
Range	About 30 m in building, 100 m in empty space [1])
Interval of transmition	10 min

Operating conditions

Operation temperature	0 ÷ +55 °C
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	Vertical
Installation	On wall, on installation box

Dimensions and weight

Mechanical construction	Plastic box on wall
Dimensions of module (w x h x d)	90 × 115 × 39 mm
Weight	130 g

Power supply

Power supply	AA lithium battery
Battery lifetime	About 1 year (according to frequency of using)

Order number

TXN 132 09	R-RC-0001R, RFox, interior room unit

RFox – proportional head of radiator valve

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

C-HC-0101F

Basic features

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

Connections

- Head mount on radiator valve only.
- It has no wire connection.
- Into RFox network connect by pairing process.

Use

- Regulation of hot water heating in rooms – radiator or floor.
- Direct fixing on radiator valve M30x1,5 or via reduction.

Connection example

Communication

Wireless bus	RFox
Antenna	Integrated
Frequency	868 MHz
Signal transmition	Both directions with confirmation
Range	About 30 m in building, 300 m in empty space
Range of temperature and position measuring and transmitting	9 min

Vstup

Input/measured value	1 × temperature sensor
Range of measured temperature	0 °C ÷ +50 °C
Basic measuring accuracy	+–0,5 °C
Calibration	From manufacturing

Output

Output value	Opening valve 0–100%

Operating conditions

Operation temperature	0 až +55 °C
Temperature of storage and transport	–20 až +70 °C
Relative humidity	< 80 %
IP Degree of protectionaccording IEC 529	IP 20
Degree of pollution	2
Installation	Plastic head, fixing to radiator valve M30 × 1,5 mm or with reduction

Dimensions and weight

Dimensionsy	47 × 75 × 65 mm
Weight	350 g

Power supply

Power supply	1 × or 2 × AA lithium battery
Battery lifetime	About 4 years

Order number

TXN 133 28	R-HC-0101F, RF, Proportional drive of radiator valve (0–100%), 1 × AI, Reduction on valve on order

Type	DI	DO	AI	AO	Comm
R-KF-0500T	5				RFox
R-KF-0400T	4				RFox

R-KF-0500T

R-KF-0400T

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 adjustable.
- Battery status monitoring.

Connections

- 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 RFof network.

Communication	R-KF-0500T R-KF-0400T
Frequency	868 MHz
Signal transmission	Both directions with confirmation
Range	About 30m in building, 300m 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 mesh technology is available.

Digital inputs	R-KF-0500T R-KF-0400T
No. of inputs	5× button 4× button

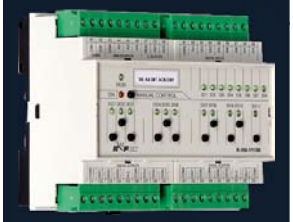
Operating conditions	R-KF-0500T R-KF-0400T
Operation temperature	0 up to +55 °C
Storage temperature	–30 up to +70 °C
Electric strength	Any

Power supply	R-KF-0500T R-KF-0400T
Power supply	CR2032 lithium battery
Životnost baterie	about 2 to 4 years (according to 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

RFox – Wireless modules of combined inputs/output

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



R-HM-1113M

R-HM-1121M

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 0-10V 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 5A and 1 power relay for 16A with independently embarrassed switching contact. Each group may be used independently for switching 24V DC or 230V AC in different phases.
- R-HM-1121M contains 6 galvanic isolated groups for 5A and 3 power relay for 16A with independently embarrassed switching contact. Each group may be used independently for switching 24V DC or 230V AC in different phases.
- Power relays for 16A 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 may each relay control independently with appropriate button.
- Status of digital inputs, relay outputs, mode „MANUAL CONTROL" and error/run is indicated by LED diode at front part of module.

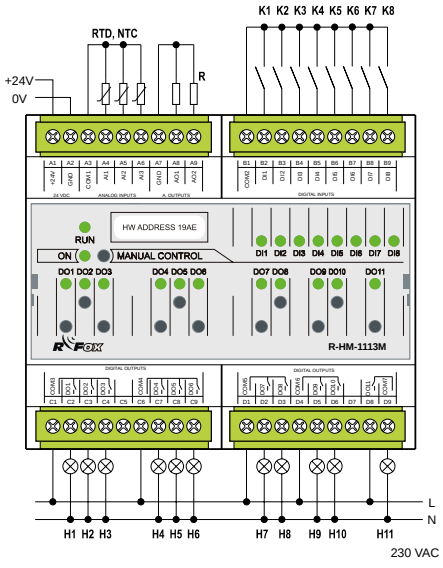
Connections

- Modules communicate in wireless network RFox. HW address (4 hexadecimal digits) is stated at front panel.
- Modules into master of RFox network connect 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 conditi-ons for radio signal transmitting.
- Module R-HM-1113M is power supplied from 24V DC, module R-HM-1121M is power supplied from power supply 230V AC.
- Modules connect via removable connectors, power outputs R-HM-1121M via firm terminals.

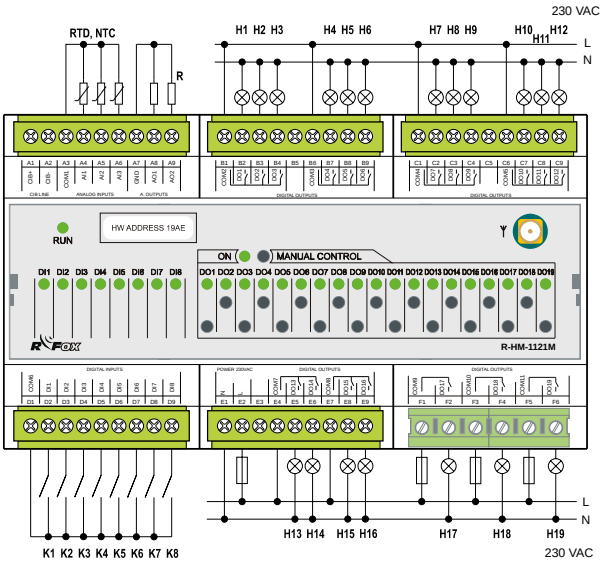
Use

- Modules are used for large installation centralized into swit-chboard. Typically for one hotel room, one room or residential house floor.
- Switching loads of type R, L or C, independent outputs specially designated 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

Connection example



R-HM-1113M



R-HM-1121M

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		

Analog inputs	R-HM-1113M	R-HM-1121M
No. of inputs	3	3
Common wire	REF	REF
Galvanic isolation	no	no
Resolution	12bit	12bit
Measurement ranges		
RTD	Pt1000, Ni1000	Pt1000, Ni1000
NTC (termistor)	12 kΩ, optionally 5 up to 20 kΩ	12 kΩ, optionally 5 up to 20 kΩ

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

Digital inputs	R-HM-1113M	R-HM-1121M
Input type	8× voltage-free contact	8× voltage-free contact

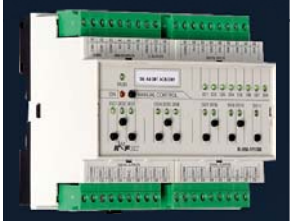
Relay outputs	R-HM-1113M	R-HM-1121M
No. of outputs × groups	Total 11 2×3 relay 5 A 2×2 relay 5 A 1× relay 16 A	Total 19 4×3 relay 5 A 2×2 relay 5 A 3×1 relay 16 A
Galvanic isolation	Yes (even groups each other)	Yes (even groups each other)
Switched voltage	min. 5 V DC; 24 V DC; max. 250 V AC	min. 5 V DC; 24 V DC; max. 250 V AC
Group relay outputs	DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ DO8, DO09 ÷ DO10	DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ DO9, DO10 ÷ DO12, DO13 ÷ DO14, DO15 ÷ DO16
Switched current	min. 100 mA; max. 5 A	min. 100 mA; max. 5 A
Peak current	5 A/ <3 s	5 A/ <3 s
Time of switching on/off contact	typ. 10 ms/ 4 ms	typ. 10 ms/ 4 ms
Current through joint terminal	10 A	10 A
Switching frequency without load	max. 300 min^{-1}	max. 300 min^{-1}
Switching frequency with nominal load	max. 20 min^{-1}	max. 20 min^{-1}
Mechanical/Electrical lifetime at maximal load	5×10^6/ 1×10^5	5×10^6/ 1×10^5
Short-circuit protection	no	no
Spike suppressor of inductive load	External (RC member, varistor, diode)	External (RC member, varistor, diode)
Insulation voltage between each relay outputs	3750V AC	3750V AC
Connections/ Conductors cross-section	Removable connector/ max. 2,5 mm^2	Removable connector/ max. 2,5 mm^2
Relay outputs independent	DO11	DO17, DO18, DO19
Switched current	16 A	16 A
Peak current	160 A/ <10 ms	160 A/ <10 ms
Time of switch on/off contact	max. 10 ms/ 4 ms	max. 10 ms/ 4 ms
Minimal switched current	100 mA	100 mA
Switching frequency without load	max. 60 min^{-1}	max. 60 min^{-1}
Switching frequency with nominal load	max. 6 min^{-1}	max. 6 min^{-1}
Mechanical/Electrical lifetime at maximal load	3×10^6/ 1×10^5	3×10^6/ 1×10^5
Short-circuit protection	No	No
Spike suppressor of inductive load	External. (RC member, varistor, diode)	External. (RC member, varistor, diode)
Insulation voltage between each relay outputs	3750 V AC	3750 V AC
Connections/ Conductors cross-section	Firm terminals / max. 4 mm^2	Firm terminals / max. 4 mm^2

Operating conditions	
Operating temperature	0 .. +55 °C
Storage temperature	–30 .. +70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 20, IP40 with cover in switchboard
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	on DIN rail

Dimensions and weight	R-HM-1113M	R-HM-1121M
Dimensionsy	90 × 105 × 65 mm	90 × 156 × 65 mm
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
TXN 132 11	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



R-HM-1113M

R-HM-1121M

RFox – wireless input module

Type	DI	DO	AI	AO	Comm
R-IB-0400B					RFox

R-IB-0400B

Basic features

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

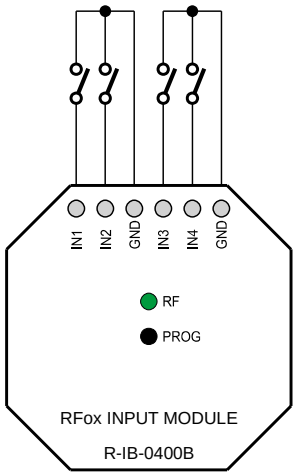
Connections

- Module is designated 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.

Connection example



Digital inputs

No. of inputs	4× voltage-free contact, with common terminal
Input resistance for switching on	Max. 100 Ω
Input resistance for switching off	Min. 20 kΩ

Communication RFox

Frequency	868,35 MHz
Signal transmittion	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
Storage temperature	–30 ÷ +70 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	vertical, according to sign on the cover
Installation	into installation box under plaster

Dimensions and weight

Dimensionsy modulu (š × v × h)	49 × 49 × 25 mm
Weight	30 g

Power supply

Power supply	½AA lithium battery
Battery lifetime	about 2 years (according to frequency of switching)

Order number

TXN 132 04	R-IB-0400B, RF, 4× DI, voltage-free contact, box, battery

RFox – wireless output module

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

R-OR-0001B

Basic features

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

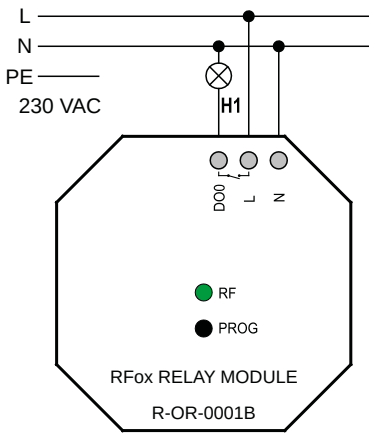
Connections

- Module is designated 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 230V 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.

Connection example



Relay outputs

Relay outputs	R-OR-0001R
No. 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 transmittion	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 °C
Electric strength	according EN 60950
IP Degree of protectionIEC 529	IP 20B
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	vertical, according sign at the cover
Installation	into installation box

Dimensions and weight

Mechanical construction	Plastic modul on installation box
Dimensionsy modulu (š × v × h)	49 × 49 × 25 mm
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 mm²
Power supply protection	Circuit breaker 16A, specification B

Order number

TXN 132 01	R-OR-0001B, RF, 1× Relay 2A, switching contact, box

RFox – wireless air quality sensors for interior

Typ	DI	DO	AI	AO	Comm
R-AQ-0001R			1× CO2		RFox
R-AQ-0002R			1× gas – VOC		RFox
R-AQ-0003R			1× smoke, CO		RFox
R-AQ-0004R			2× humidity, temperature		RFox

Common features

Interior, room air quality sensors are used for control of ventilation, recuperation and air-condition. In case there is an air exchange in the room controlled according to necessary time only, we may reach significant energy savings, especially with recuperation in low-energy buildings and houses. Sensors communicate measured values wireless in both directions addresses data network RFox. Sensors may be power supplied from 230V AC via adapter 230V AC/24V DC. They are suitable for interior installations, where the 230V AC is available, but we cannot install the two wires communication bus. Sensors are available also in variant for CIB bus.

Radio data network RFox characteristics

Frequency	868,35 MHz
Signal transmittion	Both directions with confirmation
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.

R-AQ-0001R – room sensor of carbon dioxide concentration (CO_2)

Basic features

- Two channel measuring optical system on principle NDIR.
- High selectivity on dioxide concentration in range 0–5000 ppm CO_2.
- CO_2 measurement uses dependency of infra-red radiation decreasing on concentration CO2 in the air. The change of radiation decreasing in measuring closet is converted on value further wireless transmitted into central module.
- Automatic diagnostic of correct function.
- Long lifetime and stability, typically 10 years.
- Built-in dust filter.
- Easy fixing on the wall.

Specification

Measuring range	0 ÷ 5000 ppm
Start of sensor after switching on	2 min
Resolution	1 ppm
Accuracy	50 ppm ± 5 % from value
Repeatability	10 ppm ± 1 % from value
Long-term stability	±50 ppm/year
Pressure influence	1,6 % / kPa
Opersation humidity	Max. 95 % non-condensing
Calibration	From manufacturing
Lifetime	Typically 10 years
Power supply / load	24 V / 90 mA

Connections

- Sensor is designated as standard device of data radio network RFox.

Use

- Concentration of CO_2 in the air has very significant explanatory ability about stale air in the room. It very good depends at number of people in closed room. That is why it´s suitable for:
  - Public, office and residential facilities.
  - Air quality control and monitoring systems.
  - Controlled ventilation in offices, cinemas, hotels, hospitals, gym halls, schools etc.
  - Recuperation in low-energy buildings.
  - Skleníky, pěstírny hub, sklady ovoce.
  - Breeding companies, where is high concentration of animals.
  - Monitoring and control of food processes - fermentation, maturation

R-AQ-0001R

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

Basic features

- High sensitivity on gaseous pollutants in the air, volatile organic pollutants (VOC), especially toluene, ethanol, hydrogen sulfide, ammonia, hydrogen.
- Other detectable compounds - alcohol vapor, methane, propane and natural gas release, a substance released from materials of interior design of buildings.
- Measurement is based on electrochemical principle measuring of semiconductor sensor conductivity of air pollution.
- Conductivity is directly converted to numerical value further wireless transmitted into central module.
- Good long-term stability.
- Easy fixing on the wall.

Specification

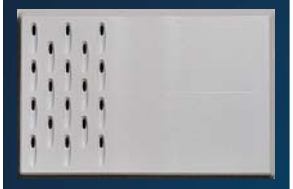
Measuring range	0 ÷ 5 ppm
Start of sensor after switching on	10 min
Operating temperature	0 ÷ 40 °C
Power supply / load	24 V / 80 mA

Connections

- Sensor is designated as standard device of data radio network RFox.

Use

- For public, office and residential facilities.
- For control of ventilation systems on demand (DCV - demand controlled ventilation).
- Control of ventilation for restaurants, hotels, offices, kitchens, households etc.
- Systems controlling and monitoring the air quality.



R-AQ-0002R

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

Basic features

- High sensitivity on gaseous pollutant compounds in the air, especially cigarette smoke (carbon monoxide CO and hydrogen H).
- Orientation detection of methane gas, propane and natural gas leakage.
- Measurement is based on electrochemical principle measuring of semiconductor sensor conductivity of air pollution. Conductivity is directly converted to numerical value further wireless transmitted into central module.
- Good long-term stability.
- Easy fixing on the wall.

Connections

- Sensor is designated as standard device of data radio network RFox.

Use

- In public, office and residential facilities.
- For control of ventilation systems (DCV – demand controlled ventilation).
- Control of ventilation for restaurants, hotels, offices, kitchens, households etc.
- Systems controlling and monitoring the air quality.

R-AQ-0003R

Specification

Measuring range	0 ÷ 5 ppm
Start of sensor after switching on	10 min
Operating temperature	0 ÷ 40 °C
Power supply / load	24 V / 80 mA

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

Basic features

- Measurement is operated by capacitive polymer sensor.
- Long-term stability.
- Fully calibrated.
- Transfer the values of relative humidity, outside temperature and dew point temperature.

Connections

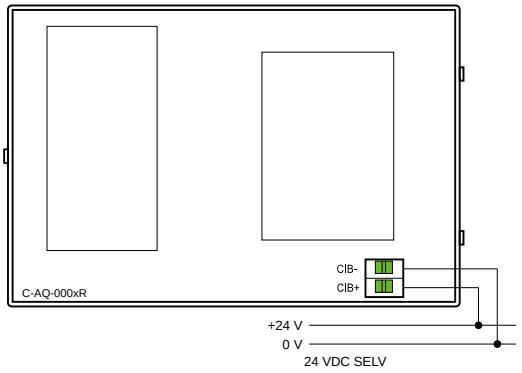
- Sensor is designated as standard device of data radio network RFox.

Use

- In public, office and residential facilities.
- Ventilation systems in interior.
- Measuring and regulation of relative humidity in industry, storages and heritage places.
- Air-condition and recuperation units..

R-AQ-0004R

Connection example



Specification

Measuring range	0 ÷ 100 % RH
Resolution	0,1 % RH
Accuracy	±3,5 % RH (in range 20 ÷ 80 %) ±5 % RH (in range 0 ÷ 100 %)
Power supply / load	24 V / 80 mA

Operating conditions

Operating temperature	0 ÷ +40 °C
Storage temperature	–20 ÷ +60 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	Vertical
Installation	On the wall, on installation box
Connections	Screw terminals
Conductors cross-section	max. 2,5 mm²

Dimensions and weight

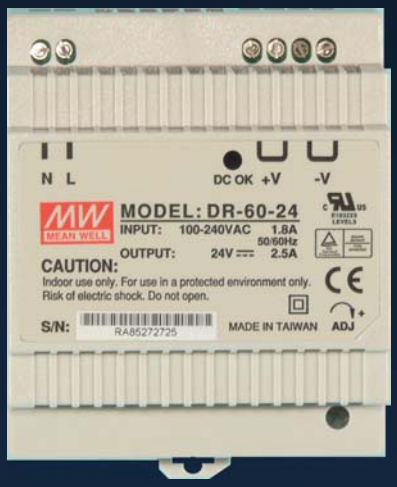
Dimensions (š × v × h)	125 × 83 × 36 mm
Weight	300 g

Order number

TXN 132 12	R-AQ-0001R, RFox, Room sensor of CO_2
TXN 132 13	R-AQ-0002R, RFox, Room sensor of gaseous pollutants (VOC)
TXN 132 14	R-AQ-0003R, RFox, Room sensor of air pollutants (cigarette smoke)
TXN 132 15	R-AQ-0004R, RFox, Room sensor of relative air humidity, temperature and dew point.

Power supply
230 V AC/24 V DC or 27,2 V DC

DR-15-24
24 V DC



DR-60-24
24 V DC

24 V DC
DR-100-24

PS-25/24
24 V DC

PS-50/24
24 V DC

PS-50/27
27,2 V DC

PS-100/24
24 V DC

PS-100/27
27,2 V DC

Power supply 24V DC single-level

Type	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		

DR-15-24

DR-60-24

DR-100-24

Basic features

- Family of power supply 24V DC on DIN rail.
- Input voltage in wide range 100-240V AC
- Output voltage may be tuned by trimer +- 10%
- Electronic short-circuit protection, overload and overvoltage
- Cooling by nature circulation of air.
- Certifikace UL, CUL, TUV, CB, CE

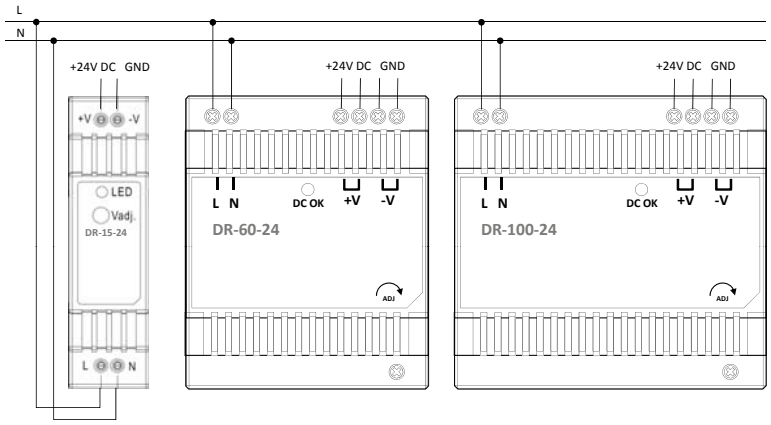
Connections

- Primary and secondary voltage connect with screw terminals.

Use

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

Connection example



Operating conditions

Operating temperature	–20 .. +45 °C
Storage temperature	–40 .. +84 °C
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP20 se zákrytem v rozvaděči
Overvoltage category	II
Degree of pollution IEC EN60664-1:2008	2
Working position	any
Installation	into switchboard on DIN rail
Connections	screw terminals

Dimensions and weight	**DR-15-24**	**DR-60-24**	**DR-100-24**
Dimensionsy	25 × 93 × 56mm (1.5M)	78 × 93 × 56mm (4M)	100 × 93 × 56mm (5.7M)
Weight	100 g	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 VAC..0.8A/230 VAC	3 A/115 VAC..1.6 A/230 VAC
Output voltage	24 VDC	24VDC	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	3000VAC
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

Power supply with wo level outputs

Type	Input voltage	Output voltage	Output current		
PS2-60/27	230 V AC	27,2 V DC 12 V DC	2,3 A 0,3A		

PS2-60/27

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 designated for supplying control systems FOXTROT and INELS with backup 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 12V DC is for supplying security sensors.
- The high efficiency eliminates the need of active cooling.

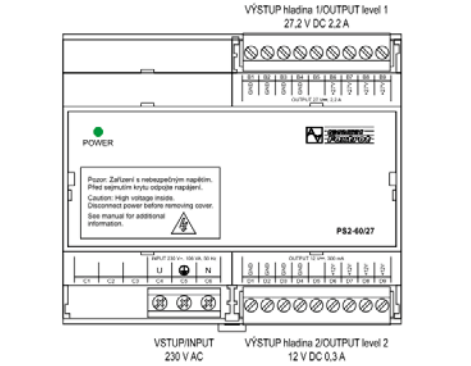
Connecting

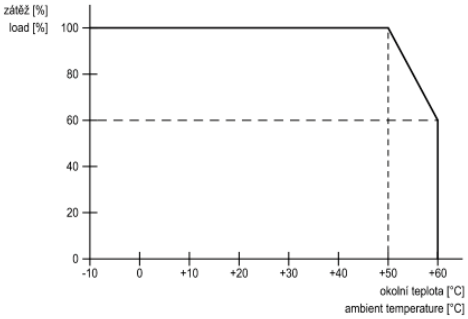
- Compact form-factor for DIN rail mounting (6 modules width) for standard circuit breaker cabinets.
- All circuits are connected by screw terminals.

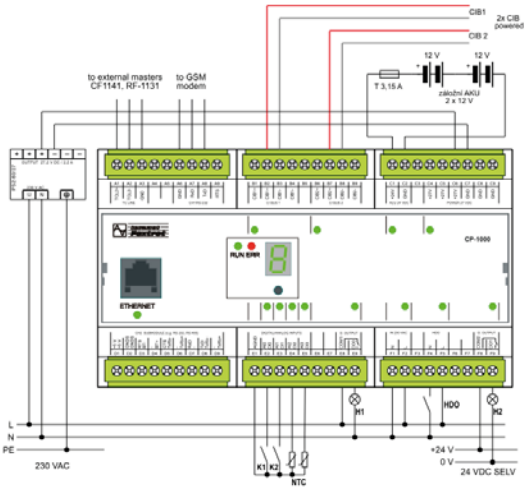
Use

- Power supply for basic and expansion modules of FOXTROT system and for basic module of INELS.
- Together with modules BPS2-01M or BPS2-02M and pair of backup accumulators can supply all CIB based installation.

Connection example







Operating conditions

Operating temperature	–10 .. +60 °C
Storage temperature	–40 .. +85 °C
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	II
Degree of pollution IEC EN60664-1:2008	2
Working position	vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	Max. 2 m,5 mm2

Dimensions and weight

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

Power supply

Input voltage	230V 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	T2,5/250V
Output	
Current output – range	0.48A/230VAC
Level 1; Output voltage/ current	27,2 V DC/ 0-2,2 A
Level 2; Output voltage/ currentt	12 V DC/ 0-0,3 A
	60W
Max.total output power	87%
Short circuit protection	Electronic
Short-circuit protection	3000 V AC
Electrical resistance of isolation	Yes
Galvanic isolation input/output	

Order number

TXN 070 40	PS2-60/27 power supply 230VAC/27,2 V DC, 2.2A; 12 V DC, 0.3A

Power supply 24 and 27,2 V DC, single-level

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

Connections

- Primary and secondary voltage connect with screw terminals.

Use

- Version 24V DC - basic (non back up) power supply of system Foxtrot.
- Version 27,2V DC - back up power supply with charging the batteries.
- Power supply of basic and expand modules.
- Basic power supply of CIB bus in coordination with module of impedance adaptation C-BS-0001M.

Connection example

Operating conditions

Operating temperature	–10 .. +55 °C
Storage temperature	–40 .. +84 °C
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP20
Overvoltage category	III
Degree of interference	Class B according IEC EN 550 11
Degree of pollution IEC EN60664-1:2008	2
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 × 57mm	148 × 85 × 57mm	148 × 85 × 57mm	177 × 105 × 54mm	177 × 105 × 54mm
Weight	510 g	510 g	510 g	700 g	700 g

Power supply modulu	**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	0.48A/230VAC	92 VA	185 VA	92 VA	185 VA
Efficiency	48 VA	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	3700 V AC/50Hz	3700 V AC/50Hz	3700 V AC/50Hz	3700 V AC/50Hz
Galvanic isolation input/output	Yes	Yes	Yes	Yes	Yes

Order number

TXN 070 22	PS-25/24 Power supply 230VAC/24VDC, 1A
TXN 070 10	PS-50/24 Power supply 230VAC/24VDC, 2A
TXN 070 15	PS-100/24 Power supply 230VAC/24VDC, 4A
TXN 070 21	PS-50/27 Power supply 230VAC/27,2VDC, 1,75A
TXN 070 16	PS-100/27 Power supply 230VAC/27,2VDC, 3,5A

PS25/24

PS50/24

PS50/27

PS100/24

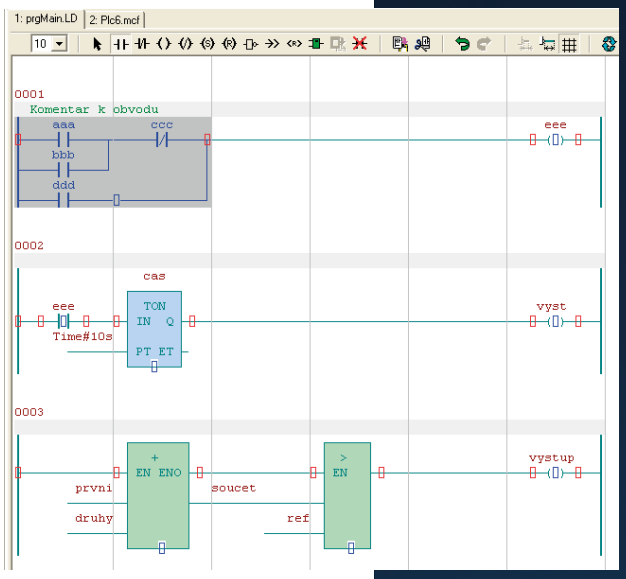
PS100/27

Mosaic – development software for PLC Tecomat

Type	TC700	Foxtrot	Foxtrot basic module	SoftPLC
Mosaic Lite+			CP-100× without communication 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 define structure of programs and programming languages for PLC.
- All in one package.
- Lite version for testing and training.
- Full version protected by HW key - portable licence.
- Regular actualization.
- Language mutation - czech, english, deutch, russian, polish.
- For Windows XP, Vista and Windows 6 - 32 bit and 64 bit.



Programming

- Mosaic enables to program all PLC delivered from company Teco.
- Programming according 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

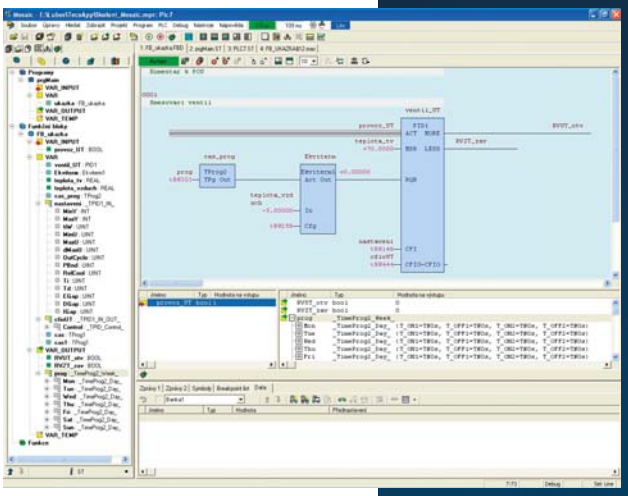
- Built-in simulator PLC - debugging without connection of real hardware.
- Possibility to simulate all PLC Tecomat.
- Mosaic may work as data server for visualization programs - support for visualization debugging.

IEC project manager

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

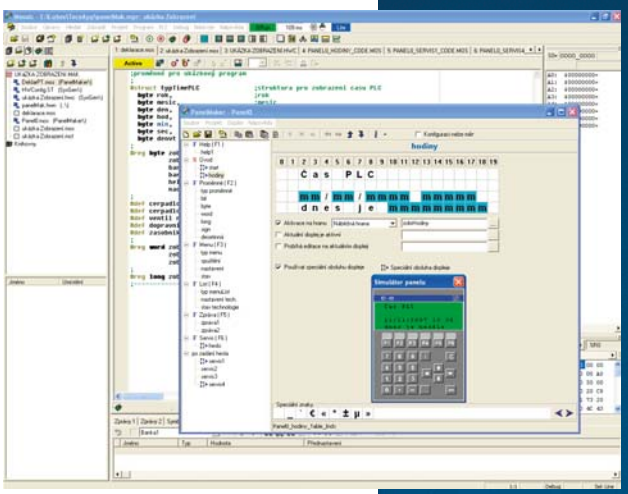
Inspektor POU

- 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 for run tracing.



PanelMaker – tool for operator panels

- 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 images.
- Text manager - enables to use multi languages 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.
- May 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 PLC Tecomat

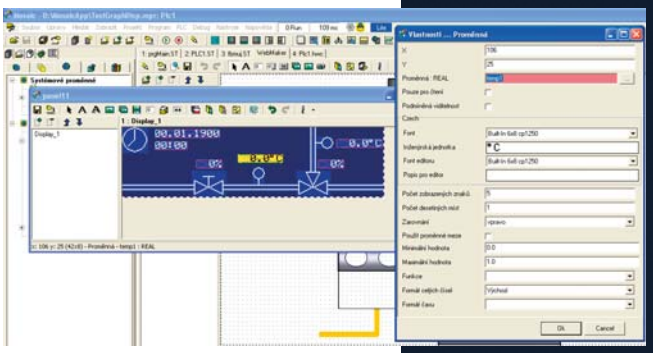
- Graphic tool for creation of web pages for systems Tecomat Foxtrot and TC700.
- Generated code in XML language is connected direct on variables in PLC.
- Web pages enables not only visualize, but also to control technology.
- Into pages we may input texts, static and dynamic images, bar graphs, images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

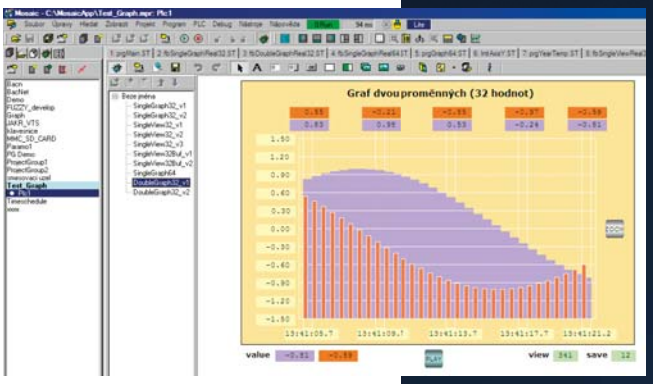
GraphMaker – tool for monitoring of process variables.

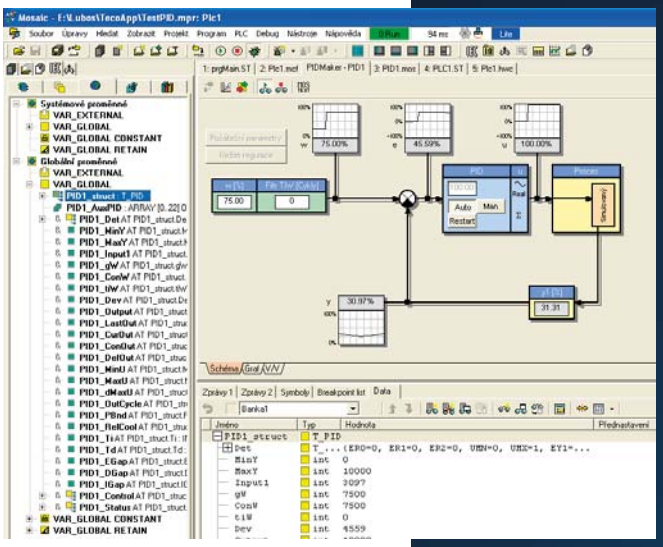
- Monitoring of process up to 16 variables of all types in real time.
- Read processes we may store at hard disc, print, export to other programs (Excel, etc.) or directly analyze.
- Two measured cursors, magnifier, different visualization of read data, setting sample period.
- Function of logic analyzer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

PIDMaker – tool for defining and monitoring of regulation 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.





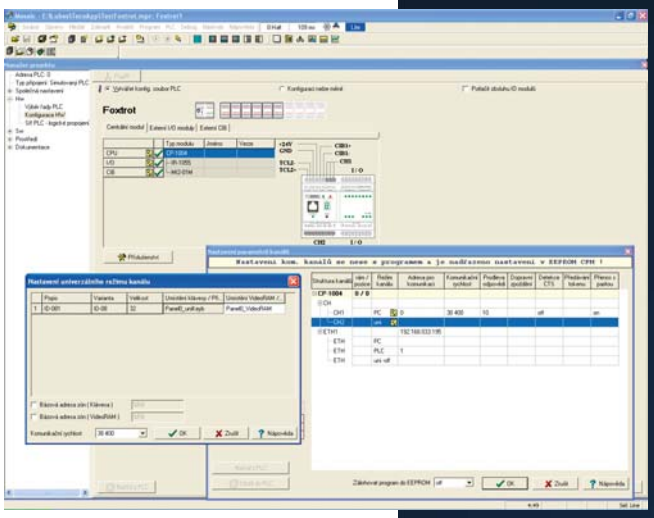


Datalogger – tool for storing data into file

- Data are stored into csv files at memory card.
- One datalogger may 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 may be controlled from user program, for example from interface in web pages.
- Values from csv files may be read and visualized by GraphMaker tool.

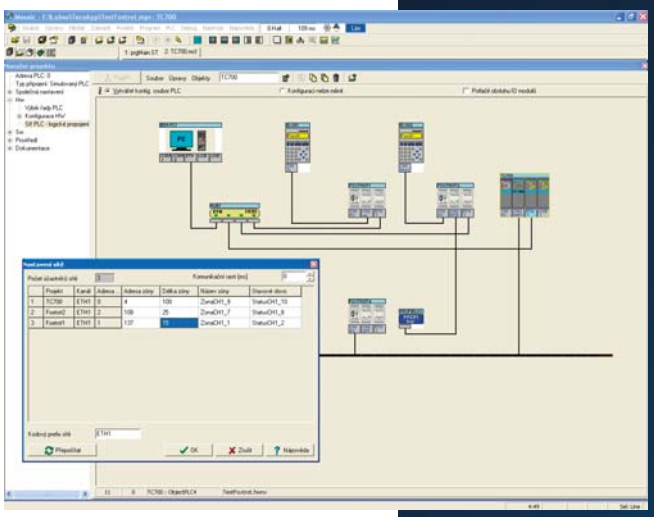
SelectPLC – defining of PLC hardware system

- 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.



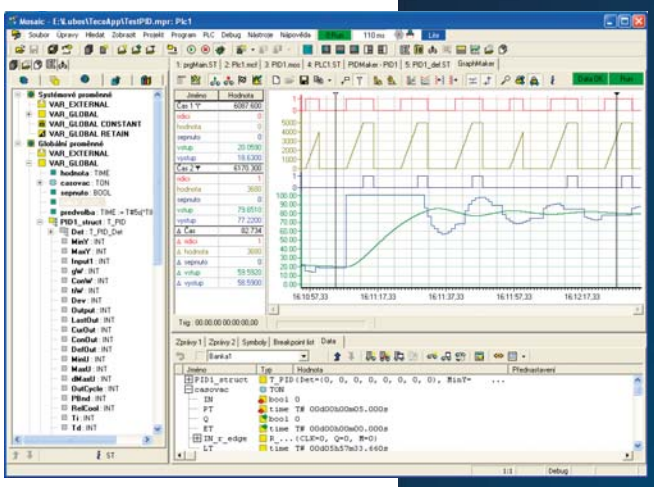
NetPLC – PLC network definition

- 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.



Motion sensors

Type	DI	DO	AI	AO	Comm
Detectors of security and safety systems, sirenas					

Basic features

- Detectors are designated 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 may 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.

Connections

- Detectors are power supplied from 12V DC.
- On CIB bus we connect them with units IM2-20B, IM2-40B, IM2-80B or IM2-140M. These units enable to connect sensors with balanced input.
- Siren may be connected at selected output relay in the system, which is assigned in software with functions of alarm output.

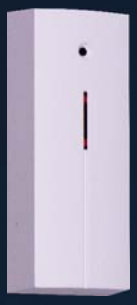
Use

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

JS-20 LARGO

Specification

JS-20 LARGO	Motion detector
Detection distance	12 m
Power supply	12 V DC/35 mA
Operating temperature	–10 ÷ +55 °C
Installation	On flat area
Diameter of connecting wires	1 mm²
Dimensions	110 × 60 × 55 mm
Weight	120 g



GBS-210 VIVO

Specification

GBS-210 VIVO	Broken glass detector
Detection distance	< 9 m
Power supply	12 V DC/35 mA
Operating temperature	–10 ÷ +55 °C
Installation	On flat area
Diameter of connecting wires	1 mm²
Dimensions	100 × 40 × 23 mm
Weight	120 g

SA-200, SA-220

Specification

SA-200	Doors magnetic detector
Detection distance	15 mm
Installation	On flat area
Diameter of connecting wires	1 mm²
Dimensions	35 × 15 × 9 mm
Weight	30 g

Specification

SD-212SP	Optical smoke detector
Power supply	12 V DC/3 mA
Operating temperature	–10 ÷ +55 °C
Installation	On flat area
Diameter of connecting wires	1 mm²
Dimensions	120 × 120 × 40 mm
Weight	150 g

SD-212SP

Specification

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 mm²
Dimensions	100 × 120 × 40 mm
Weight	112 g

Specification

SA-913	SA-913 Interior piezzo-siren
Sound intensity	110 dB/m
Power supply	12 V DC/250 mA
Operating temperature	–10 ÷ +55 °C
Installation	On flat area
Diameter of connecting wires	1,5 mm²
Dimensions	120 × 72 × 40 mm
Weight	140 g

GS-133

Specification

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

SA-913

Order number

JS-20 LARGO	JS-20 LARGO, PIR motion detector
GBS-210 VIVO	GBS-210 VIVO, Dual broken glass detector
GS-133	GS-133, Flammable gasses detector, power supply 12 Vss
SD-212SP	SD-212SP, Optical smoke detector with relay output and power supply 12 Vss
SA-200A	SA-200A, Magnetic contact with terminals 49 × 14 × 13 mm
SA-201A	SA-201A, Magnetic contact mini with embarrassed wire
SA-203	SA-203, Magnetic contact mini self-adhesive with embarrassed wires 33 × 8 × 9 mm
SA-220	SA-220, Magnetic metal crossing contact and on metal gates with inputs in armored tube , 106 × 38 × 10 mm, working distance max. 75 mm
SA-913	SA-913 Interior piezo-siren, white plastic
OS-365	OS-365, Outdoor back up magneto-dynamic siren including NiCd accumulator 4,8 V 1,8 Ah , LED blinker

Notes:

Notes: