

Tecomat Foxtrot

CFox

RFox



Product Catalog

Dear customers, dear designers!

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

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

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

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






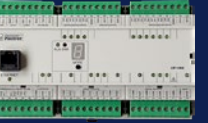
Noxt section is RFox line, what is a system extension of Tecomat Foxtrot with wireless input/output modules in frequency band 868 MHz.

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




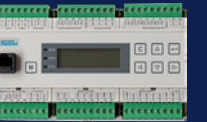
Teco a.s.

Central modules, peripheral modules and accessories overview

Central modules Foxtrot









CP-1000	CP-1003	CP-1004	CP-1005	CP-1006	CP-1008
					
TXN 110 00 4 AI/DI, 2 DI/230 2 RO Page 10	TXN 110 03 8 DI/HSC, 8 AI/DI 4 DO/PWWM, 8 RO Page 12	TXN 110 04 4 DI/HSC, 4 DI/AI 6 RO Page 14	TXN 110 05 6 AI/DI 6 RO, 2 AO Page 16	TXN 110 06 13 AI/DI, 1 DI/HSC, 1 DI/230 10 RO, 2 SSR, 2 AO Page 18	TXN 110 08 10 AI/DI, 2 AI, 1 DI/230 7 RO, 4 SSR, 4 RO Page 20

Central modules Foxtrot with LCD and keyboard

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









Expansion I/O modules

Input/output submodules











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

Communication modules on TCL2 bus

Modules connected via serial port





UC-1203	UC-1204	KB-0552	RF-1131	CF-1141	UC-1205	SX-1181	SMM-33
							
TXN 112 03 OpenTherm Page 32	TXN 112 04 MP-Bus Page 32	TXN 115 01 RS-485/ MM optic fiber Page 33	TXN 111 31 RFox master Page 83	TXN 111 41 Bus master 2x CIB Page 47	TXN 112 05 GSM gate for SMSM Page 33	TXN 111 81 RS-232 <=> Mbus Page 38	SMM-33 3 phase network measurement/Modbus Page 39

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 RS-232 Page 30	TXN 101 14 RS-485 Page 30	TXN 101 24 RS-422 Page 30	TXN 101 05 2x RS-232 1x RS-485 Page 30	TXN 101 06 1x RS-232 2x RS-485 Page 30	TXN 101 15 3x RS-485 Page 30	TXN 101 52 Profibus DP Slave Page 30	TXN 101 61 CAN Page 30	TXN 101 58 M bus Page 30	TXN 103 01 Wiegand Page 30

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





Power supplies

DR-15-24	DR-60-24	DR-100-24	PS2-60/27		
					
DR-15-24 24 VDC/0,63 A Page 97	DR-60-24 24 VDC/2,5 A Page 97	DR-100-24 24 VDC/4,2 A Page 97	TXN 070 27 VDC/2,2 A 12 VDC/0,3 A Page 96		

Communication Ethernet/GSM









SX-1162	105FX	306FX2	UR5i v2	ER75i v2	RWEPA	Easy Route
						
TXN 111 62 Ethernet Switch 5 TX, 100Mbit Page 35	105FX Ethernet switch 4 TX, 1 FX port Page 36	306FX2 Ethernet switch 4 TX, 2 FX port Page 36	UR5i v2 3G/UMTS router	ER75i v2 GPRS/EDGE router	RWEPA WiFi klient IP67	Easy Route 4 TX port,, WiFi 3G router

Displays, HMI panels




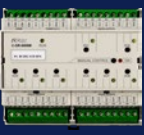



ID-18	ID-18 - Design	ID-28	ID-14	ID-17
				
TXN 054 39 Ethernet VGA touch panel Page 41	TXN 054 42 Ethernet VGA touch panel Page 40	TXN 054 40 Ethernet VGA touch panel Page 41	TXN 054 33 bus TCL2 4x20 characters, 25 keys Page 43	TXN 054 37 bus TCL2 240x60 pixels, 4 DI, 2 RO Page 42

Systémové moduly sběrnice CIB





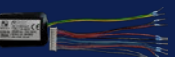

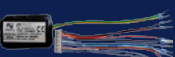
Moduly CIB na DIN lištu

CF-1141	C-BS-0001M	DTNVEM-1/CIB	DTNVE-1/CIB	C-IB-1800M	C-IR-0203M	C-DL-0064M	C-FC-0024X
							
TXN 111 41 Master bus 2x CIB Page . 47	TXN 133 55 Bus separator bus CIB Page . 47	DTNVEM-1/CIB Overvoltage protection CIB Page 48	DTNVE-1/CIB Overvoltage protection CIB Page 48	TXN 133 06 4 AI/DI, 14 DI Page . 49	TXN 133 59 2x DI/AI, 2x RO 1x AO/PWM Page . 50	TXN 133 54 64x DALI Page . 57	TXN 133 39 3 AI/DI 2 RO, 1 AO Page 58

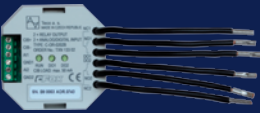
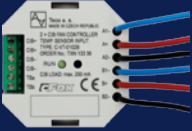
CIB bus modules on DIN rail

C-HM-0308M	C-HM -1113M	C-HM-1121M	C-OR-0008M	C-DM-0006M-ULED	C-DM-0006M-ILED	C-DM-0402M
						
TXN 133 24 3 AI/DI 6 RO, 2 AO, Page 52	TXN 133 10 3 AI, 8 DI 11 RO, 2 AO, Page 52	TXN 133 11 3 AI, 8 DI 19 RO, 2 AO, Page 52	TXN 133 02 8 RO Page 51	TXN 133 45 6 LED outputs Page 54	TXN 133 46 6 LED outputs Page 55	TXN 133 58 2x 230 V/AC dimmer Page 56








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 2 AI/DI Page 59	TXN 133 25 2 AI/DI 1 RO, 1 AO Page 59	TXN 133 26 5 AI/DI 4 AO Page 60	TXN 133 52 6 DI, 2 AI/DI, 1 AI 8 OC PNP Page 61	TXN 133 47 2 AI/DI, 1 IR, 1 photodiode 1 IR transmitter Page 62	TXN 133 23 DALI Page 63	TXN 133 53 3 DI, 2 AI/DI 3 OC NPN Page 64

CIB modules into installation box, under device cover






C-OR-0202B	C-VT-0102B			
				
TXN 133 02 2 AI/DI 2 RO Page 65	TXN 133 55 1 AI/D 2 fans $\pm(7-15)V$ Page 66			

CIB modules for interior








C-WS-0200R	C-WS-0400R	C-IT-0200R	C-RI-0401R	C-RC-0002R	C-RC-0003R Logos	RCM2-01
						
TXN 133 30 2 Buttons 2 \times RTD external Page 75	TXN 133 31 4 Buttons 2 RTD external Page 75	TXN 133 19 1 RTD internal 1 RTD external Page 79	TXN 133 2 AI/DI, 1 IR, 1 fotodiod 1 IR transmitter Page 80	TXN 133 33 3 Butons 1 RTD external LCD Page 81	TXN 133 37 3 Buttons, 1 \times temperature 1 \times humidity backlit LCD Page	TXN 131 57 1 rotational button 1 RTD external LCD Page 82

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 Concentration CO ₂ Page 83	TXN 133 13 Concentration VOC Page 83	TXN 133 14 Smoke concentration Page 83	TXN 133 15 Relative humidity Page 83	TXN 133 48 2 AI/DI Valve drive Page 85

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	C-RI-0401I
						
TXN 133 09 2 AI Page 67	TXN 133 50 6 AI/DI Page 68	TXN 133 16.11 1 AI Page 69	TXN 133 16.12 1 AI Page 69	TXN 133 16.01 1 AI Page 69	TXN 133 17.01 1 AI Page 69	TXN 133 47.92 1 temperature 1 lighting Page 70

Modules for wireless network RFox

Portable mobiles







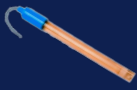
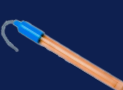
RF-1131	R-RT-2305W	AN-06	AN-RFox/GSM	R-KF-0400T	R-KF-0500T
					
TXN 111 31 Master for 64 RFox modules Page 88	TXN 132 34 Router do zásuvky	AN-06 Antenna RFox 868 MHz	31-01-01.001 Antenna RFox/GSM	TXN 132 25 4 buttons Page 92	TXN 132 08 5 buttons Page 92






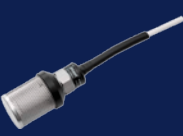

Interior modules for wireless network RFox






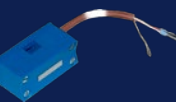
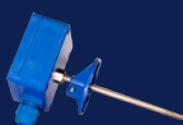

R-WS-0200R	R-WS-0400R	R-IT-0100R	R-RC-0001R	R-AQ-0001R	R-AQ-0002R	R-AQ-0003R	R-AQ-0004R
							
TXN 132 30 2 buttons Page 89	TXN 132 31 4 buttons Page 89	TXN 132 32 1 RTD Page 89	TXN 132 09 1 RTD, Control button Page 90	TXN 132 12 Concentration CO ₂ Page 97	TXN 132 13 Concentration VOC Page 97	TXN 132 13 Smoke concentration Page 97	TXN 132 15 Relative humidity Page 97







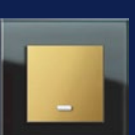

RFox modules on DIN rail		for valve		into installation box
R-HM-1113M	R-HM-1121M	R-HC-0101F	R-IB-0400B	R-OR-0001B
				
TXN 132 10 3 AI, 8 DI 11 RO, 2 AO Page 93	TXN 132 11 3 AI, 8 DI 19 RO, 2 AO Page 93	TXN 132 28 1 AI Valve position Page 82	TXN 132 04 4 DI Page 95	TXN 132 01 1 RO Page 96

Accessories (complementary products)

Electricity meters, flow meters, water quality sensors							
ED11.M	ED 110.D0	ED 310.DR	Opto probe	Water meter 3/4"	AV23	pH	Redox
							
ED11.M 1f 230 V/25 A S0 pulse output	ED 110.D0. 14E302-00 1f 230 V/32 A S0	ED 310.DR. 14E304-00 3f 230 V/64 A S0, RS-485	TXN 149 01 EN 62056-21 RS-232	3/4" BONEGA-T-E/20 2.5 m³/hour Pulse output	223.7704.000 2.40m³/min 1 flow, 1 temperature	SPH-1-S6 pH	SRX-1-PT-S6 Redox




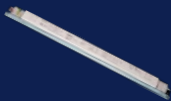
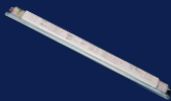
Meteostations, sensors of condensation, humidity, inundation and level						
Meteostation	Orosení	Vlhkost na volné ploše	Vlhkost v okapu	Zaplavení	Detektor hladiny	Hladinoměr
						
GIOM 3000 Direction and speed of wind, air pressure, humidity, temperature Ethernet	SHS A1 condensation <150 kΩ	ESF 524 001 Humidity at flat space RTD	ESD 524 003 Humidity at gutter	DS conductivity contact	CLS-23S-11 capacitive 1 OC	HLM-25S-I-1000 hydrostatic 4–20 mA

Temperature RTD sensors							
NTC Cable	Pt1000 Cable	Ni1000 Cable	NTC S-TS-01R	Pt1000 Outside	Pt1000 Strap	Pt1000 for HVAC	Pt1000 for 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 TXN 133 20	C-IT-0200R-Zak TXN 133 20	C-IT-0200R-Zak TXN 133 20	C-IT-0200R-Zak TXN 133 20	C-IT-0200R-Zak TXN 133 20	C-IT-0200R-Zak TXN 133 20	C-IT-0200R-Zak TXN 133 20	C-IT-0200R-Zak TXN 133 20

Accessories – heating




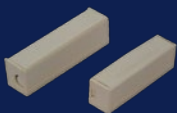
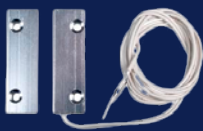

Accessories - Lighting

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








Accessories – access system

RFID card reader	RFID card reader	Card reader with keyboards	
			
AXR-100 Wiegand Page 63	SSA-R1100 Wiegand Page 63	SSA-R2000 V Wiegand Page 63	







Accessories – security systems, electronic guard system detectors

Motion detector	Motion and glass break detector	Glass break detector	Door contact	Gate contact	Indoor sirene
					
JS-20 LARGO Page 106	JS-25 COMBO Page 106	GBS-210 VIVO Page 106	SA-200A Page 106	SA-204 Page 106	SA-913 Page 106

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 Quad PIR sensor 42 detection zones 2 contacts Page 64	031 30700 24 detection zones 2 contacts Page 64	034 30100 Dual MW+PIR 42 detection zones 2 contacts Page 64	031 32101 Outdoor dual PIR+ MW 2 contacts Page 64	031 32000 Outdoor dual PIR 2 contacts Page 64	031 74600 Outdoor triple PIR motion detector 2 contacts	032 00700 Acoustic glass break detection 2 contacts

Accessories – security systems, electronic fire system detectors

EXODUS OH/4W	EXODUS RR/4W	EXODUS FT64/4W	EXODUS FT90/4W	GS-133	SD-282ST	
						
231 05100 Dual, smoke and temperature 1 contact Page 64	231 05200 Temperature increase 1 contact Page 64	231 05300 Max. temperature >64°C 1 contact Page 64	231 05400 Max. temperature >90°C 1 contact Page 64	GS-133 Flammable gases 1 contact Page 106	SD-282ST Smoke and high temperature 1 contact	

Foxtrot
PLC Basic modules

Foxtrot
PLC Expansion modules

Foxtrot
Communication modules

Displays
Operator panels

CFox
Sensors and actuators for CIB
Common Installation Bus

RFox
Wireless sensors and actuators

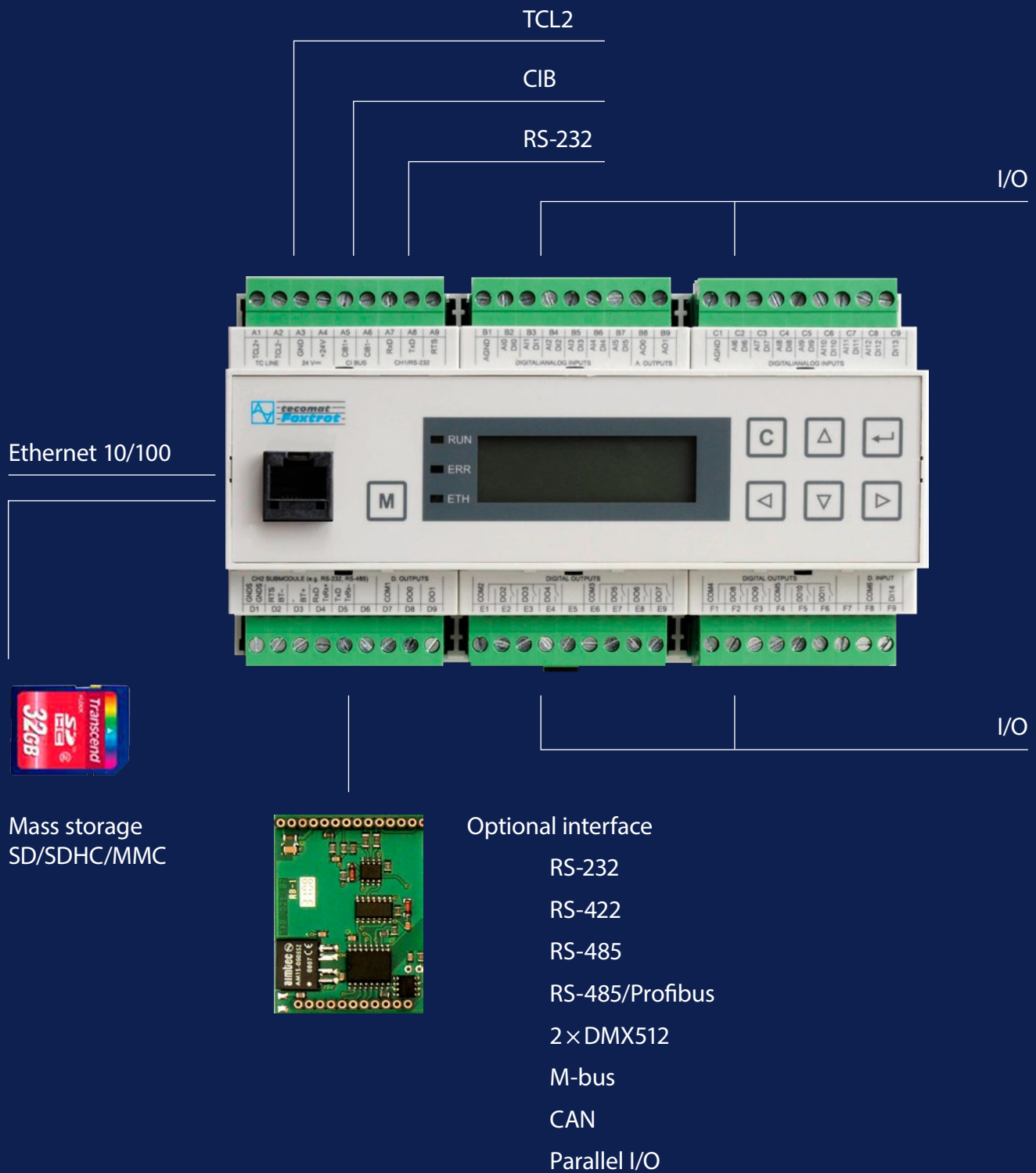
Power supplies

Accessories
Sensors, detectors etc.



PLC Foxtrot

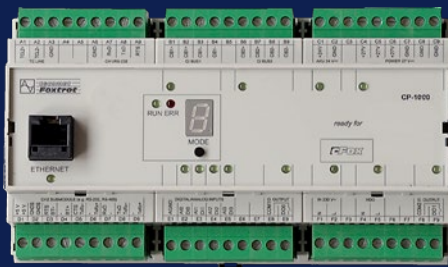
Central module communication lines schema



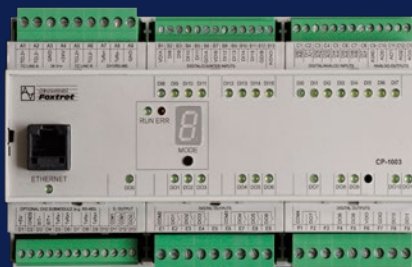
Modules connected to the system are mentioned in other parts of the catalog.

PLC Foxtrot

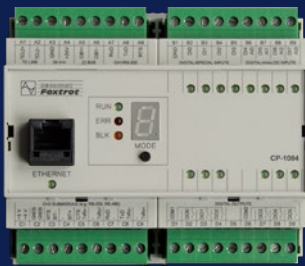
Basic modules 6M



CP-1000



CP-1003



CP-1004



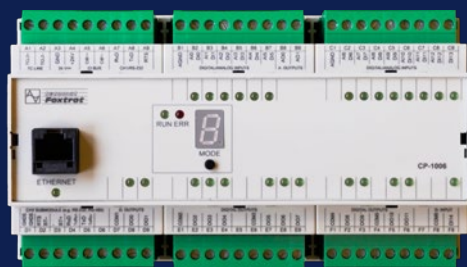
CP-1014



CP-1005



CP-1015



CP-1006



CP-1016



CP-1008



CP-1018

Central module for buildin automation project with CFox and RFox modules

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

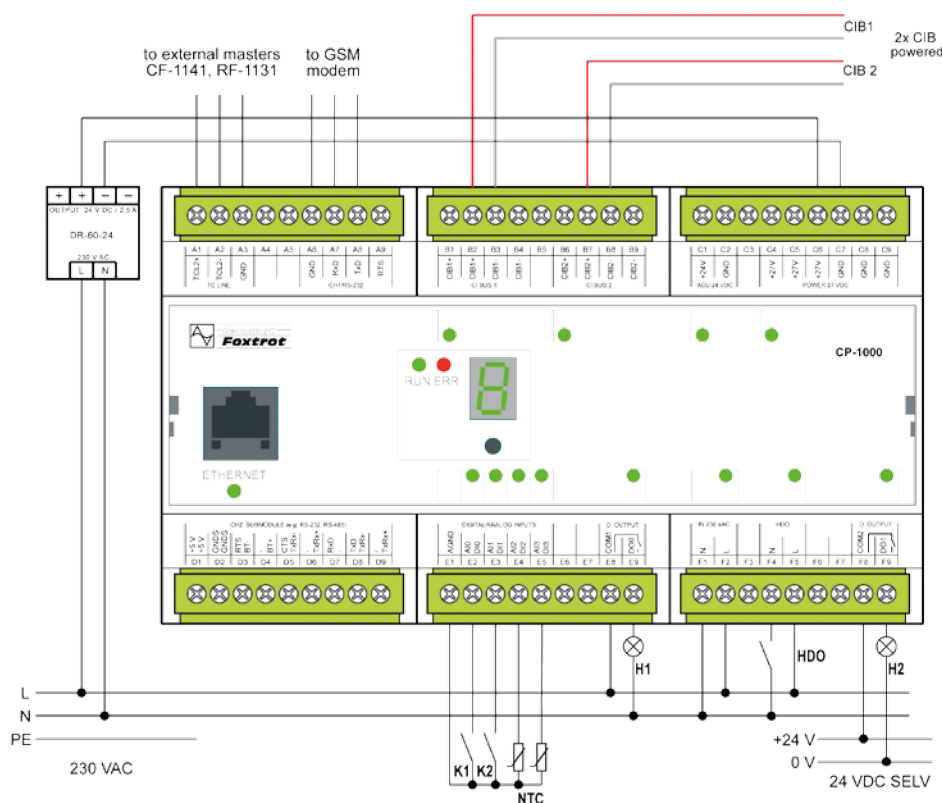


CP-1000

Basic features

- Outstanding integration of control system with latest IT technologies and telecommunication technologies.
- Central module with 4 universal inputs, 2 inputs 230 V AC and 2 relays outputs.
- Universal inputs may be configured as analog inputs for connecting temperature sensors Pt1000, Ni1000 or NTC thermistor 12 kΩ or as potential-free digital inputs.
- Digital inputs 230 V AC for connecting MRC (Mass Remote Control) signal and 230 V AC network monitoring.
- Standard relay outputs 250 V AC/3 A.
- Extension of I/O up to 10 peripheral modules on serial bus TCL2 (345 kbit/s).
- Expandable memory with SD/SDHC/MMC cards, built-in file system FAT32.
- Built-in clocks and calendar.
- Central module contains 2 CIB bus masters. It enables connect up to 64 inputs and outputs modules CFox in any combination and in any mechanical design.
- On terminals CIB+ and CIB- there is a powered bus.
- Number of CIB branches is expandable up to 10 via up to 4 optional masters CF-1141 connected on TCL2 bus, enabling up to 320 modules CFox.
- Optional connection up to 4 RFox masters RF-1131 via TCL2 on radio channel 868 MHz.
- External masters of CIB bus CF-1141 and wireless system RFox RF-1131 may be combined up to total number 4 masters on 1 central module.
- There is built-in serial channel RS-232 for connection GSM modems for direct communication with mobile phones, sending SMS messages etc or for general purpose.
- Noxt channel CH2 enables connection of optional communication interface submodule or inputs/outputs.
- Programming and communications (LAN, WiFi, WAN, internet) via ethernet (100 Mbit/s), adjustable fixed IP address or assigned by DHCP.
- Support of standard protocols Modbus RTU/TCP (master and slave) and BACnet (slave).
- Built-in web server, free user programmable web pages stored on memory card (XML technology is used).
- Enables to create web page of any connected controlled object.
- Possibility to use as programmable converter of communication protocols.
- Possibility to use as independent programmable datalogger for any measured or internal values with time stamp.
- Compact dimensions and form factor fit for standard electro-installation switchboards assembled on DIN rail.
- Central module is powered from 24 V DC power supply. If 27.2 V power supply is used, it is possible to connect Pb accumulators and keep the system in operation during power fail for time depending on capacity of used accumulators.
- For automation control in buildings and residential houses for common and complex tasks with needs to integrate with other systems mostly via communication interfaces.
- Central module may be free programmed in Mosaic software or parametrized in parametrization software FoxTool.

Connection example



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 (see submodules MR-0xxx)
System I/O bus	1 × T2L2 (RS485, 345 kbit/s)
Communication over expansion module on T2L2 bus	CIB, RFox, MPbus, Opentherm
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 input
Measurement repeating	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 +270°C) Ni1000 1.617 (-60 up to +155°C) Ni1000 1.500 (-60 up to +155°C) NTC 12k (-40 up to +125°C) 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 protection IEC 529	IP 20
Overvoltage category	II
Pollution degree	1
IEC EN 60664-1:2004	
Working position	vertical
Installation	on DIN rail
Connections	Screw connectors
Conductors cross-section	max. 2.5 mm²

Order number

TXN 110 00	CP-1000, CPU, ETH100/10, 2 × CIB, 1 × RS232, 1 × SCH, 4 × AI/DI, 2 × DI 230 VAC, 2 × RO, prg. Mosaic/FoxTool
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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
Delay 0 → 1/1 → 0	1 ms/1 ms

Digital inputs 230 V AC (HDO, IN 230 VAC)

Galvanic isolation	Yes, 4 kV
Input voltage for log.0 (U_L):	max. 120 V AC
Input voltage for log.1 (U_H):	min. 200 V AC
Input current for log.1 (I_H):	typ. 5 mA
Delay 0 → 1/1 → 0:	10 ms/10 ms

Relay outputs (DO0-DO1)

No. of outputs × groups	2 (1+1)
Galvanic isolation	Yes (outputs each other)
Type of contact/type of output	NO relay, unprotected output
Switched voltage	min. 5 V; max. 250 V
Switched current	min. 10 mA; max. 3 A
Short-term output overload	max. 4 A
Time of close/open the contact	typ. 10 ms/4 ms
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 switchings/min.
Switching frequency with rated load	max. 20 switchings/min.
Mechanical/Electrical lifetime at max. load	min. 5 mil./100 000 cycles
Short-circuit protection	No
Spike suppressor of inductive load	External. (RC unit, varistor, diode)
Insulation voltage	3750 V AC (more details see documentation of TXV 004 11)

Dimensions and weight

Dimensions	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	7.5 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 (20 000 hours)



CP-1000

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

Basic features

- Programmable controller (PLC) according to IEC 61131 standard with 32 I/O on basic module and with increased number of 20 extension modules up to 272 I/O in total.
- Built-in ethernet port 100 Mbit and serial port RS-485 with option to expand with up to 3 other serial ports directly in basic module.
- Powerful central module with practical configuration of 32 integrated inputs and outputs.
- 2×4 digital inputs with selectable voltage level and with alternative function of fast counters up to 100 kHz.
- 8 universal inputs selectable as analog or digital ones. Optional voltage, current and resistance range.
- 4 analog outputs with voltage range ± 10 V and resolution 12 bit.
- 4 extra fast semiconductor digital outputs with optional function frequency output, pulse wide modulation (PWM), direct control of DC motors or direct control of stepper motors up to frequency 100 kHz.
- 8 relay outputs. 1 of them has possibility to switch 10 A/230 V AC. 7 outputs switch up to 3 A.
- Expandable memory with SD/SDHC/MMC cards, built-in file system FAT32.
- Built-in clocks and calendar.
- Extension of I/O number with next up to 20 extension modules on 2 serial buses TCL2 (345 kbit/s).
- Option to create network of more PLC Tecomat in ethernet network on RS-485 bus.
- Free programmable according to IEC 61131-3 standard.
- On-line programming during operation.
- Programming and communication via ethernet (100 Mbit/s), adjustable fixed IP address or DHCP.
- Up to 4 serial channels, one RS-485 is in basic configuration, others with optional interface from range MR 01xx (up to 345 kbit/s), adjustable UART.
- Built-in PROFIBUS DP Master up to 180 kbit/s.
- Built-in WEB server, free web page designing, storing web pages at memory card (XML technology).
- Enables to create web page of any connected controlled object.
- May be used also as programmable converter of communication technologies.
- May be used as independent programmable datalogger for any measured or internal values with time sign.
- Compact dimensions fit for standard electroinstallation switch boxes, assembly on DIN rail.



CP-1003

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

Binary/counter inputs DI8-DI11, DI12-DI15

Binary/Counter inputs	4×2
Optional input functions	4×counter or 2×IRC (encoder) up to 100 kHz
Common wire	minus (GDIA, GDIB)
Galvanic isolation	Yes, by groups
Threshold level at input	Yes, 5/12/24 V. 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

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, 345 kbit/s)
Communication via expansion module on TCL2 bus	CIB, RFox, MP-BUS, OpenTherm
Bus for electroinstallation	Only with external master CF-1141

Analog/digital inputs DI0/AI0-DI7/AI7

No. of inputs × groups	8×1
Optional input function	• Digital input • Voltage range: 0–2.5 V, 0–10 V • Current range: 0–20 mA • Resistance range: 0–2 kΩ, 0–200 kΩ NTC, Ni1000, Pt1000
Common wire	Minus (AGND)
Galvanic isolation	Yes, from the rest of module, AI is connected only with AO
Resolution	12 bit
Time of transaction	80 μs/1 input
Measurement repeating	480 μs
Protection type	Integrated, overvoltage

Digital transistor outputs D08-D011

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 x full bridge.
Optional output functions	Frequency output, PWM output, DC motor control. With connecting motor into bridge between 2 outputs the speed and direction can be controlled.
Common wire	minus (GDO)
Switched voltage	10 – 30 V DC (max. 34 V at VDO)
Switched current permanent/pulse	Max. 1 A/5 A
Residual current at switching off	150 µA
Time of switch on/off	1.6µs/0.6µs
Switching speed	Max. 100 kHz

Relay outputs D00-D07

Number of outputs	7 x 3 A (D00-D06), 1 x 10 A (D07) divided in 4 groups
Galvanic isolation	Yes (also among groups)
Type of contact/output	NO relay, unprotected output
Switched voltage	Min. 5 V, max. 250 V AC
Switched current	Min. 100 mA; max. 3 A (D07-10 A)
Short term output overload	Max. 4 A (D07-16 A)
Common wire current	Max. 10 A
Time to close/open the contact	Typ. 10 ms/4 ms
Switching frequency without the load	Max. 300 switchings/min
Switching frequency with rated load	Max. 20 switchings/min
Mechanical/Electrical lifetime at max. load	Min. 5 mil/100 000 cycles
Short-circuit protection	No
Spike suppressor of inductive load	External. (RC unit, varistor, diode)
Isolation voltage	3750 V AC

Operating conditions CP-1003

Operating temperature	-20 .. +55 °C
Storing temperature	-25 .. +70 °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 – 1.5 mm², Others max. 2.5 mm²

Order number

TXN 110 03	CP-1003; CPU, ETH100/10, 1 x RS485, 1 x SCH, 8 x AI/DI, 8 x DI/HSC, 4 x AO, 8 x RO, 4 x DO, 2 x TCL2
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Analog outputs A00-A03

No. of outputs	4
Galvanic isolation	Yes, AO is connected only with AI
Common wire	Minus AGND
Resolution	12 bit
Output range/current	±10 V/max. ±25 mA
Time of conversion	6µs



CP-1003

Dimensions and weight CP-1003

Dimensions	90 x 160 x 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.

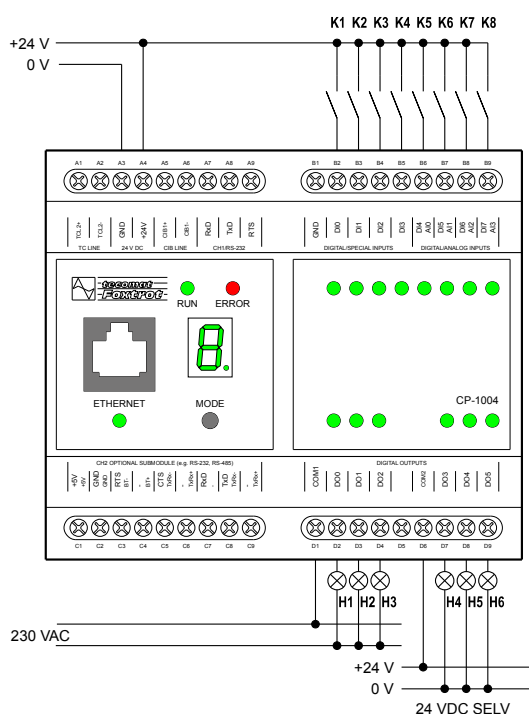
Basic module with 14 I/O (max. 21 I/O) with counter inputs

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

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Powerful central module with integrated mostly binary inputs and relay outputs (I/O).
- Type CP-1014 with built-in display 4×20 characters and 6 user keys, other features the same with CP-1004. Available code pages: CP1250 (Central European), CP1251 (Cyrillic), CP1252 (Western European), CP1253 (Greek), CP 1255 (Hebrew).
- 4 inputs may be configured as High speed counters (HSC) and 4 as voltage analog inputs.
- Optional slot can be inserted by additional 7×DI or 4×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 installation bus CIB (19.2 kbps).
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.

Connection example



Features of CPU

CPU	32 bit RISC processor
PLC Instruction cycle	0.2 ms/1 k instructions
Real Time Clock (RTC)	Yes
Backup period of RAM and RTC	500h without battery, 20 000h 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

- Free programmable PLC according IEC EN 61131-3.
- On-line programming during operation.
- Programming and data communication (in LAN, WiFi, WAN, Internet) is available on Ethernet port (100 Mbps) with fixed IP address or DHCP.
- 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.

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/ Pulse width	5 kHz/20 000 edges/sec 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 – 10 V
Conversion time	350 µs/1 input
Max. error at 25 °C	± 3 % of full range

Communication

Ethernet; supported protocols	1 × 10/100 BaseT; 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

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

Operating conditions	
Operating temperature	–20 ÷ +55 °C
Storage temperature	–25 ÷ +70 °C
Electric strength	According EN 60950
IP Degree of protection ČSN 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 mm ²

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 ÷ 30 V 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)



CP-1004



CP-1014

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/3 A, 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/3 A, 1 × CIB, SW Mosaic

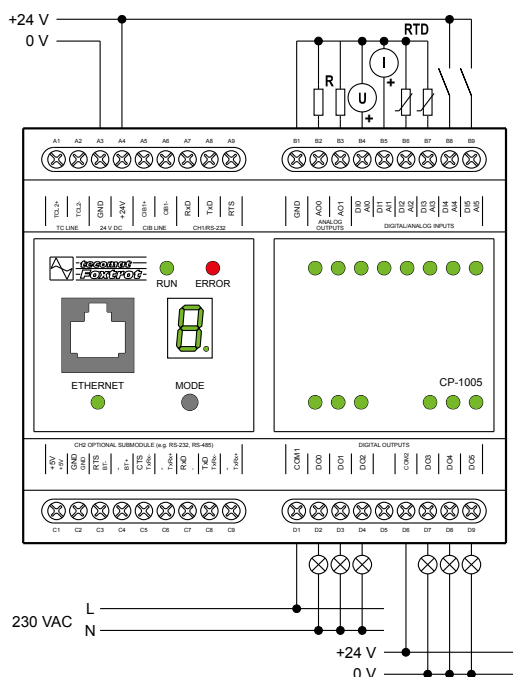
Basic module with 14 I/O (max. 21 I/O) for use in measurement and regulation

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, 1×TCL2, 1×CIB

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Powerful central module with integrated mostly analog inputs and analog outputs plus relay outputs (I/O).
- Type CP-1015 is expanded with built-in display 4×20 characters and 6 keys. Available code pages: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek), 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 installation bus CIB (19.2 kbps).
- More PLC Tecomat can be networked by Ethernet LAN or by RS-485 bus.
- Free programmable PLC according IEC EN 61131-3.
- On-line programming during operation.
- Programming and data communication (in LAN, WiFi, WAN, Internet) is available on Ethernet port (100 Mbps) with fixed IP address or DHCP.
- Up to 4 serial ports, one RS-232, the others with optional interface from line MR 01xx (up to 345 kbps), configurable UART.
- 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 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

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	No
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

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
Permissible overvoltage	+20 V (between AI and GND)

Relay outputs (DO0-DO5)

No. of outputs × groups	3 × 2 = 6
Galvanic isolation	Yes (also among groups)
Type of contact/type of output	Electromechanical relay, non-protected output
Switched voltage	min. 5 V; max. 250 V AC
Switched current	min. 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./100 000 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 protection IEC 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 mm ²

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	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 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

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 ÷ 30 V 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)



CP-1005



CP-1015

Order number

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

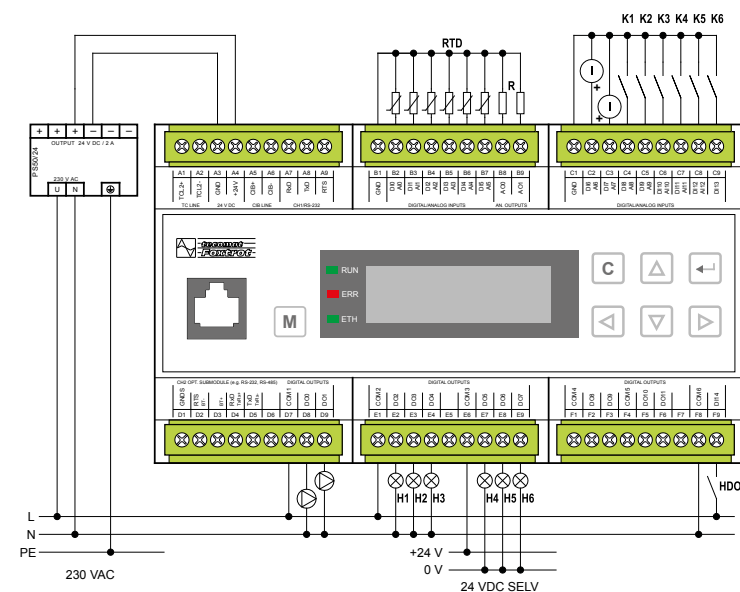
Basic modules with 29 I/O for use in HVAC

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

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Type CP-1016 is expanded with built-in display 4×20 characters and 6 keys. Available code pages: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek), CP 1255 (Hebrew).
- Powerfull central module with integrated universal inputs and with analog, triac and relay outputs.
- Each of 13 universal inputs may be alternatively used as analog or digital input of potential free contact.
- Several inputs (AI6 – AI12) may be used as current inputs 4(0)÷20 mA, the range is set by jumper. Other inputs may be configured for one of ranges Ni1000, Pt1000, OV1000. The range of measurement is set as user configuration.
- 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 system serial bus TCL2 (345 kbps).
- Other I/O can be expanded also by 2 wire electrical installation bus CIB (19.2 kbps). Maximum total number of CIB branches is 9.
- On terminals CIB+ and CIB– is powered bus (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 PLC according IEC EN 61131-3.
- On-line programming during operation.
- Programming and data communication (in LAN, WiFi, WAN, Internet) is available on Ethernet port (100 Mbps) with fixed IP address.
- 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 (9 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-0xx)
System I/O bus	1×TCL2 (RS-485, 345 kbit/s)
Communication over expansion module na TCL2	CIB, RFox, MP-Bus, OpenTherm
Installation bus	1×CIB (Common installation bus 19.2 kbit/s)



CP-1006



CP-1016

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

High speed counter DI13	
No. of counting inputs	1
Input Frequency/	5 kHz
Pulse width	min. 50 µs
Delay 0 → 1/1 → 0	10 µs/10 µs
Range	max. 32 bit; 0 ÷ 4 294 967 2956
Modes	counter, pulse length measurement

Digital input 230 V AC, (DI14)	
Galvanic isolation	Yes, 4 kV
Input voltage for log.0 (UL)	max. 120 V AC
Input voltage for log.1 (UH)	min. 200 V AC;
Input current for log.1 (IH)	typ. 5 mA
Delay 0 → 1/1 → 0	10 ms/10 ms

Operating conditions	
Operating temperature	–20 ÷ +55 °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 mm ²

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

SSR outputs (Solid State Relay) (DO0–DO1)	
No. of outputs	2
Galvanic isolation	Yes (also among groups)
Type of output	Semiconductor switch, controlled, switch in V
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
Switching frequency without load	max. 400 switching/min.

Relay outputs (DO2–DO11)	
No. of outputs	3+3+2+2 = 10
Galvanic isolation	Yes (even groups each other)
Type of contact/type of output	Switching relay, protection free output
Switched voltage	min. 5 V; max. 250 V AC
Switched current	min. 100 mA; max. 3 A
Short-term output overload	max. 4 A
Current through common wire	max. 10 A
Time of close/open the contact	typ. 10 ms/4 ms
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./100 000 cycles
Short-circuit protection	No
Spike suppressor of inductive load	External. (RC, 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
Permissible overvoltage	±20 V (AI against GND)

Dimensions and weight	
Dimensions	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

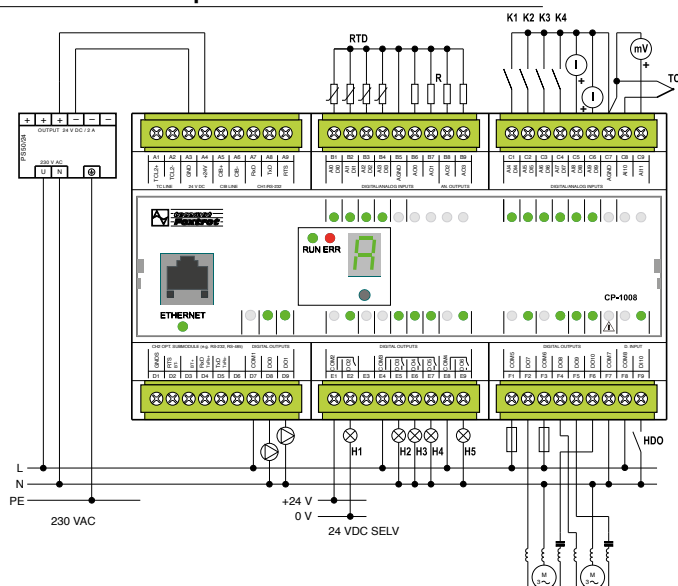
Basic module with 28 I/O for use in HVAC

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, 1 × TCL2, 1 × CIB

Basic features

- Programmable controller (PLC) according to IEC EN 61131 standard.
- Outstanding integration of control system with latest IT and telecommunication technologies.
- Powerfull central module with integrated mostly universal inputs (digital or analog) and with analog, relay and SSR outputs.
- Type CP-1018 is expanded with built-in display 4 × 20 characters and 6 keys. Available code pages: ASCII, CP 1250 (Central European), CP 1251 (Cyrillic), CP 1252 (Western European), CP 1253 (Greek), CP 1255 (Hebrew)..
- Each of 10 universal inputs may be alternatively used as analog or digital input (potential free contact).
- 4 of 10 universal inputs may be used as current inputs 4(0)÷20 mA, the range is set by jumper. Other inputs may be configured on one of ranges Ni1000, Pt1000, OV1000. The range of measurement is set as user configuration.
- Other 2 analog inputs may be used for connecting of thermocouples, or for voltage measurement in range 0 – 2 V.
- 6 standard 3 A relay outputs and 1 10 A output.
- 4 SSR (Solid State Relay) outputs for use of pulse control (PWM).
- Memory expandable by SD/SDHC/MMC cards, built-in file system compatible with FAT32.
- Built-in clocks and calendar.
- No. of I/O is expandable up to 148 I/O, resp. up to 10 modules on high speed internal serial bus TCL2 (345 kbps).
- Other I/O can be expanded also by 2 wire installation bus CIB (19.2 kbps). Maximum number of CIB branches is 9.
- On terminals CIB+ and CIB- is powered bus (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 PLC according IEC EN 61131-3.
- On-line programming during operation.
- Programming and data communication (in LAN, WiFi, WAN, Internet) is available on Ethernet port (100 Mbps) with fixed IP address or DHCP.
- 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. 4 ×), 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 (9 modules width) for standard circuit breaker cabinets.

Connection example



Features of CPU

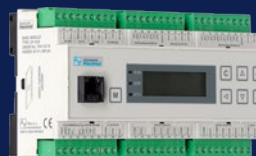
CPU	32 bit RISC processor
PLC Instruction cycle	0.2 ms/1k instructions
Real Time Clock (RTC)	Yes
Backup period of RAM and RTC	500 hours without batteries 20 000 hours with batteries
User program memory	192+64 kB
Program memory backup	Yes
Internal data memory (DataBox)	0.5 MB
Archive memory for the project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

Communication

Ethernet; supported protocols	1 × 100/10 Mbit/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
Installation bus	1 × CIB (19.2 kbit/s) (Common installation bus)



CP-1008



CP-1018

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
Permissible 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
Permissible overvoltage	–20 to +30 V (between AI and AGND)
Sensor disconnection detection	Yes, in status word

Function as Analog inputs (AI10-AI11)	
Resolution	12 bit
Conversion time	50 μs/1 input
Period of measurement	650 μs
Protection type	integrated, overvoltage

Measurement ranges	
Voltage	
Input impedance	> 1 GΩ
Input range	0 .. +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 _{I0})	min. 2.3 V, max. 12 V
Input voltage for log. 1 (U _{I1})	min. 0 V, max. 1 V
Input current for log. 1 (I _{I1})	typ. –1.7 mA
Delay0 → 1/1 → 0	1 ms/1 ms

Digital input 230 V AC (DI10)	
Galvanic isolation	Yes, 4 kV
Input voltage for log.0 (U _{I0}):	max. 120 V AC
Input voltage for log.1 (U _{I1}):	min. 200 V AC
Input current for log.1 (I _{I1}):	typ. 5 mA
Delay0 → 1/1 → 0:	10 ms/10 ms

Analog outputs (AO0-AO3)	
No. of outputs	4
Common wire	minus (AGND)
Galvanic isolation	No
Resolution	8 bit
Conversion time	10 μs/output
Max. output current	10 mA
Output range	0 to +10 V
Max. error at 25 °C	±2% of full range
Protection type	integrated overvoltage
Permissible overvoltage	±20 V (AI against AGND)

SSR outputs (Solid State Relay) (DO0–DO1)	
No. of outputs	2
Galvanic isolation	Yes (also among groups)
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 common wire	max. 2 A
Time of close/open the contact	typ. 1 μs
Switching frequency without load	max. 400 switching/min.

Relay outputs (DO2-DO5)	
No. of outputs/groups	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 common wire	max. 10 A
Time of close/open the contact	typ. 10 ms/4 ms
Threshold limits of switched loads	
for resistive load	max. 3 A at 30 V DC or 230 V AC
for inductive load DC13	max. 3 A at 30 V DC
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/100 000 cycles
Short-circuit protection	No
Spike suppressor of inductive load	External. (RC unit, varistor, diode)
Insulation voltage	3750 V AC (for details see documentation TXV 004 11)

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

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
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	
Dimensions	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 outputs, DI10 and CH2
Memory backup	Built-in Li-Ion accumulator (500 hours). Lithium battery CR2032 holder (20 000 hours)



CP-1008



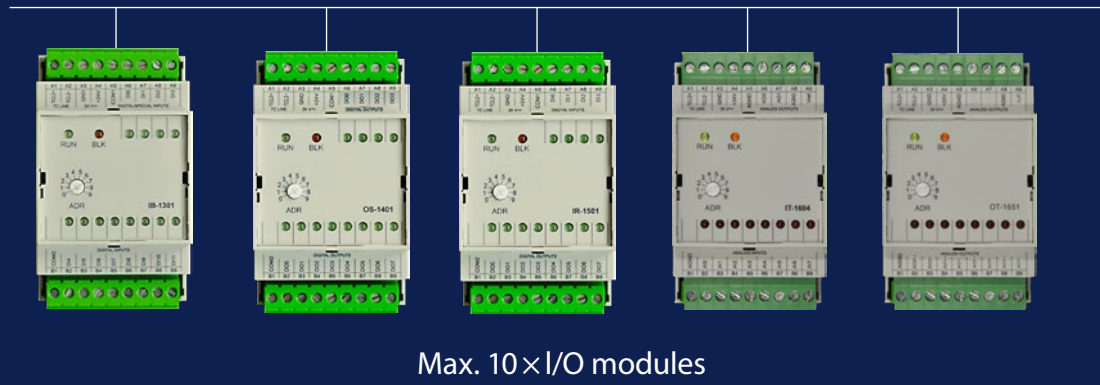
CP-1018

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

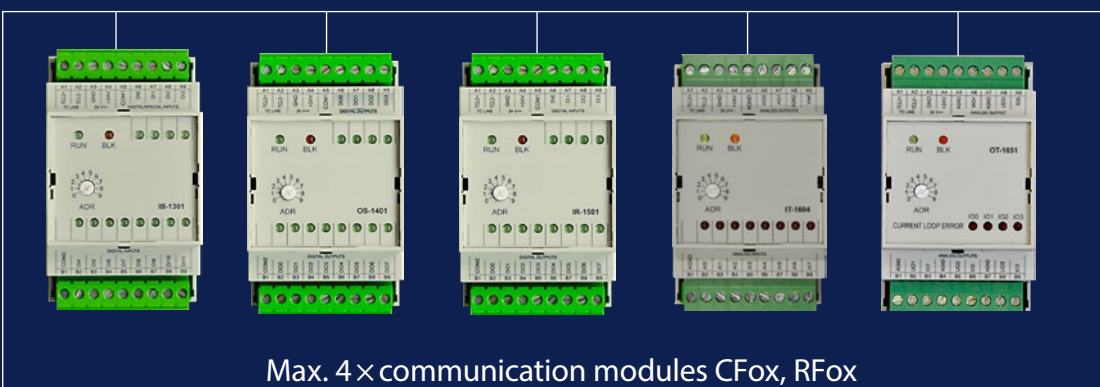
PLC Foxtrot

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

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



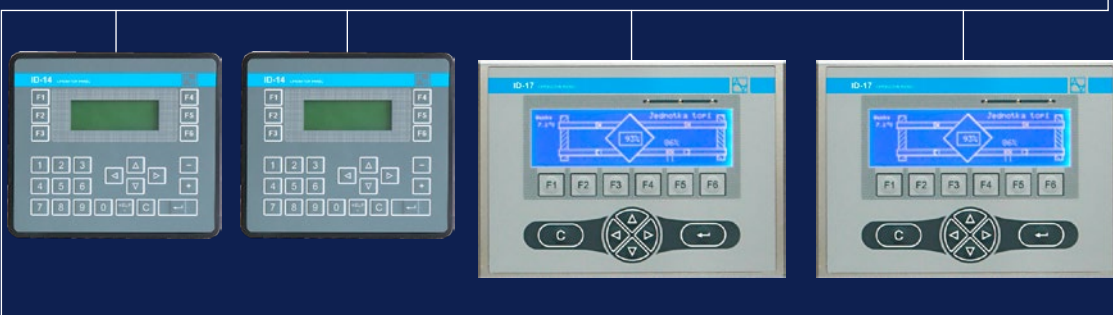
IB-1301
OS-1401
IR-1501
IT-1602
IT-1604
OT-1651



Expansion with
installation bus CIB
CF-1141
and with wireless
network RFox
RF-1131



Graphical panel
ID-17
Character panel
ID-14



Expansion module with binary inputs

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

Basic features

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

Connecting

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

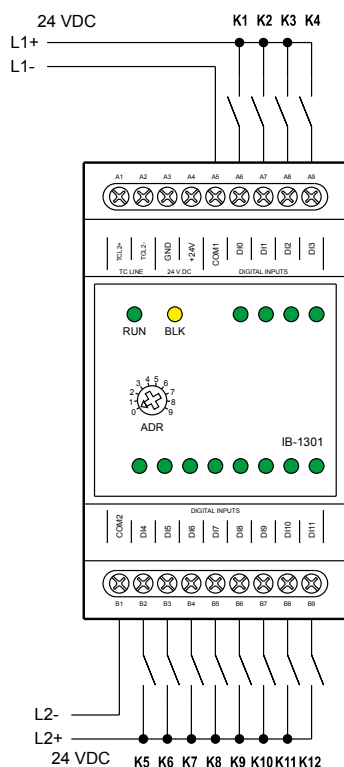
Use

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



IB-1301

Connection example



Digital inputs (DI0–DI11)	
No. of inputs in groups	8 and 4
Option: High speed counter	4 (DI0–DI3)
Common wire	minus and 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 μ s/5 μ s (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 μ s
Delay 0 → 1/1 → 0	5 μ s/5 μ s
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 protection IEC 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 mm ²

Dimensions and weight

Dimensions	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
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Expansion module with binary outputs

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

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!
- Unique address of module on TCL2 expansion bus must be set manually by the rotary switch on the front panel.
- Power supply, TCL2 and I/O are connected by removable screw connector.

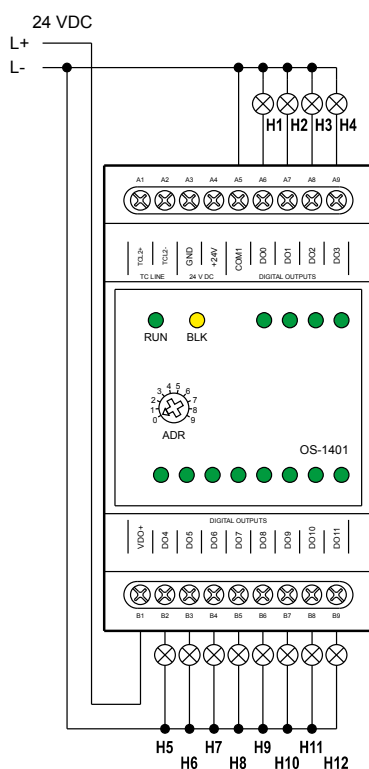
Use

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



OS-1401

Connection example



Binary outputs (DO0–DO11)

No. of outputs	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)
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Operating conditions

Operating temperature	–20 ÷ +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 EN 61131-2	2
Working position	vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	max. 2.5 mm ²

Dimensions and weight

Dimensions	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
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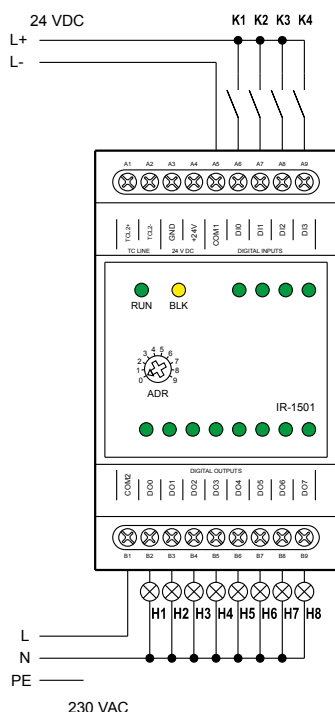
Expansion module with binary inputs and relay outputs

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

Basic features

- Expansion module with 4 binary inputs and 8 relay outputs for enlarging I/O number of the PLC Foxtrot basic modules.
- Module is designed 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.

Connection example



Digital inputs (DI0–DI3)	
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)

Operating conditions

Operating temperature	–20 ÷ +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 EN 61131-2	2
Working position	vertical
Installation	on DIN rail
Connections	screw terminals
Conductors cross-section	max. 2.5 mm ²

Order number

TXN 115 01	IR-1501, 4×DI 24 V AC/DC, 8×RO, common wire, 230 V/2 A, GO
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Connecting

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

Use

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

High speed counters (DI0–DI3)	
No. of counting inputs	4
Input Frequency/Pulse width	5 kHz/min. 50 µs
Delay 0 → 1/1 → 0	5 µs
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

Communication

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

Dimensions and weight

Dimensions	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



IR-1501

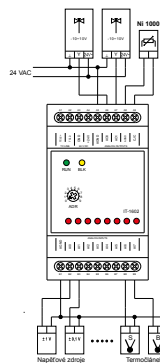
Expansion modules with analog inputs and outputs

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

Basic features

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

Connection example



Communication

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

Analog inputs (AI0–AI7)

No. of inputs × groups	8 × 1
Configurable inputs	Voltage measurement/ resistance measurement/current measurement at binary input see separate table
Common wire	minus (AGND)
Galvanic isolation	Yes
Resolution	16 bit
Conversion time	65 ms/1 vstap
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), +–10 V (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 protection IEC 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 mm ²

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/±10 V, GO

- Output value provided in binary, in % or directly in temperature units.
- Overload or disconnecting on input (only for 4 – 20 mA range) is 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 1.7 km!
- Unique module address on TCL2 expansion bus must be set manually by the rotary switch on the front panel.
- Power supply, TCL2 and I/O are connected by screw terminals (IT-1602), resp. removable connector (IT-1604)

Use

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

Measurement ranges IT-1604

Voltage	
Input impedance	> 100 kΩ (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
Permissible overvoltage	±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, in status word
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
Sensor disconnection detection	Yes, in status word

Measurement ranges IT-1602

Voltage	
Input impedance	> 1 MΩ
Input range	–1 ÷ +1 V; –0.1 ÷ +0.1 V
Max. error at 25 °C	±0.3 % of full range
Permissible overvoltage	±35 V (between AI a AGND)
Thermocouples	
Input impedance	>1 MΩ
Input range	J, K, R, S, B
Max. error at 25 °C	±0.5 % of full range
Sensor disconnection detection	Yes, in status word

Dimensions and weight

Dimensions	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 2.5 W; IT-1602 2.5 W
Galvanic isolation	No



IT-1604



IT-1602

Expansion module with analog outputs

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

Basic features

- Module with 4 independent output analog channels, galvanic isolated.
- Each channel is both voltage and at neighboring terminals.
- Output voltage resolution is 10 bit.
- Each channel is independently addressed and controlled in range 0 – 100% of current range.
- Type and output range is set in user configuration.
- Status and error/run is indicated by LED on module.

- Unique module address on TCL2 expansion bus must be set manually by the rotary switch on the front panel.
- Module is power supplied like other modules from 24 V DC power supply, connected to removable screw connector.

Use

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

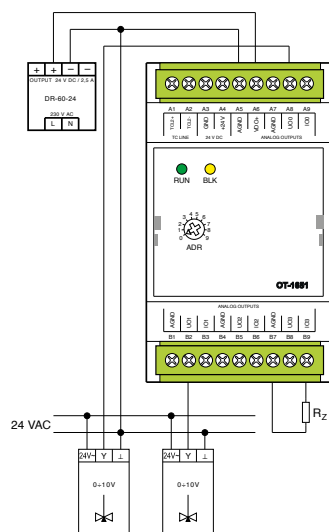
Connections

- Module is designed for DIN rail mounting for standard circuit breaker cabinets.
- Module can be connected to the central module directly on the distance up to 400 m by shielded twisted pair (TCL2).



OT-1651

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	10 bit
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)

Operating conditions

Operating temperature	–20 .. +55 °C
Storage and transport temperature	–25 .. +70 °C
Electric strength	according EN 60950
IP Degree of protection(IEC 529)	IP10B
Overvoltage category	II
Pollution degree IEC EN 60664-1:2008	2
Working position	vertical
Installation	on DIN rail
Connections	removable screw type connector, max. 2.5 mm ²

Communication

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

Dimensions	53 × 90 × 58 mm
Weight	120 g

Power supply modulu

Power supply	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
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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
2xRS-232
1xRS-485



MR-0106
1xRS-232
2xRS-485
(2xDMX512)



MR-0115
3xRS-485
(2xDMX512)



MR-0152
profibus DP
slave



MR-0161
2xCAN bus



MR-0158
M-bus



MX-0301
Wiegand

Modules on system bus TCL2



CF-1141
2xCLB master



RF-1131
1xRFox
master



UC-1203
Open
Therm
master



UC-1204
1xMP bus
Belimo



KB-0552
TCL2/ mm
optické
vlákno



SX-1162
5x port Tx



105FX
4x port TX
1x port FX



306FX2
4x port TX
2x port FX

Routers – connected via LAN



UR5 V2 Full
UMTS router



ER75i v2 Full
GPRS/EDGE router



UC-1205
GSM gateway



INSYS
GSM Small



SX-1181
M-Bus



SMM-33
Multifunctional
measurement
of 3 phase network

Modules connected via RS-232/RS-485

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.
- Selection of interface module is a selection of the physical layer of communication. The higher layers as protocols and communication modes can be set in configuration tool of Mosaic.

Connecting

- Submodules are inserted in the slot which is inside the basic module.
- The basic module has to be opened. The slot is placed on the CPU PCB.
- The module has to be placed on the free pins of slot in proper orientation.
- The signal layout of terminals C1 – C9 is a part of documentation of each submodule.

Use

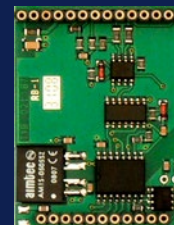
- In all cases where Foxtrot has to be adapted to communicate with other device or with other Foxtrot.

Specification	MR-0104	MR-0105	MR-0106	MR-0115	MR-0114	MR-0124
Interface	RS-232	2×RS-232, 1×RS-485	1×RS-232, 2×RS-485	3×RS-485	RS-485	RS-422
Galvanic isolation (GO)	Yes	Yes	Yes	Yes	Yes	Yes
Insulation voltage GO	1000 V DC	1000 V DC	1000 V DC	1000 V DC	1000 V DC	1000 V DC
Max. comm. rate	200 kBd	200 kBd	200 kBd	2 MBd	2 MBd	2 MBd
Receiver input impedance	Min. 7 kΩ	Min. 7 kΩ	Min. 7 kΩ	Sensitivity ±200 mV	Sensitivity ±200 mV	Sensitivity ±200 mV
Transmitter output level	±8 V	±8 V	±8 V	Typ 3.7 V	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 meters (heat apod.)	CAN/2×CAN	Wiegand
Galvanic isolation (GO)	Yes	Yes	Yes	No
Insulation voltage GO	1000 V DC	1000 V DC	1000 V DC	–
Max. comm. rate	12 Mbit/s	9.6 kbit/s	0.5 Mbit/s	–
Receiver input impedance	Sensitivity ±200 mV		+200 mV	TTL
Transmitter output level	Typ 3.7 V	Typ 24 V Power supply	Typ 5 V	24 V(max.29 V)/max. 100 mA, open collector
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			

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.
- For Foxtrot PX-7811 enables to add 7 binary inputs. PX-7812 enables 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.

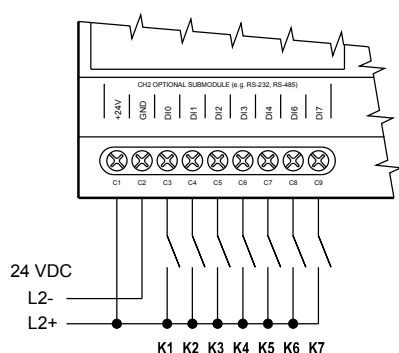


PX-7811

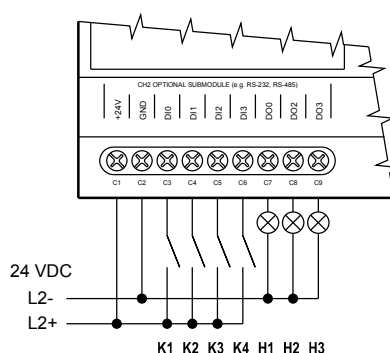


PX-7812

Connection example PX-7811



Connection example PX-7812



Binary 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 common wire	max. 2 A
Cut-off current	max. 300 µA
Time of close/open the contact	400 µs/400 µs
Short-circuit protection/ /Short circuit current limitation	Yes, internal/<1.1 A
Reversing of polarity protection	Yes
Spike suppressor of inductive load	External (RC circuit, varistor, diode)

²⁾ for Foxtrot 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/0.5 A, 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 designed for the Tecomat Foxtrot basic module as communication channels expansion by Belimo's company MP-Bus that is used for valve drives and air-condition shutters control.
- MP-Bus is supplied from 24 V DC/AC.
- Up to 8 Belimo MFT drives can be driven by one bus.
- UC-1203 can read 1 temperature sensor (RTD Ni1000, Pt1000, resistance transmitter 1000 Ω) or contact connected to each drive.
- Measured temperature (or contact status) is transferred to the system and it is available as standard analog (binary) input.
- The module **UC-1204** is designed for the Tecomat Foxtrot basic module for bidirectional communication with boilers equipped with OpenTherm interface/protocol.
- Supported protocol**
OT/+ (OpenTherm/plus) and OT/- (OpenTherm/Lite).

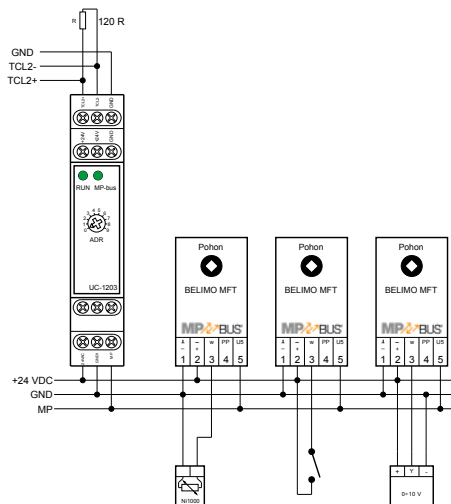
Connection

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

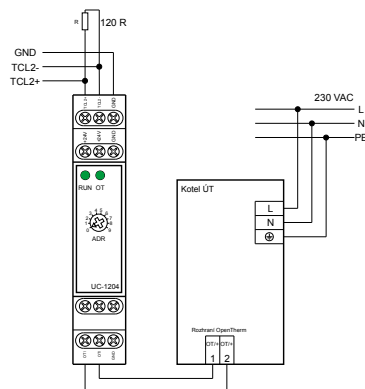
Use

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

Connection example UC-1203 (MP-Bus)



Connection example UC-1204 (OpenTherm)



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

Operating conditions

Operating temperature	$-20 \div +55 \text{ }^{\circ}\text{C}$
Storage temperature	$-30 \div +70 \text{ }^{\circ}\text{C}$
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 mm ²

Dimensions and weight

Dimensions	90 \times 18 \times 65 mm
Weight	75 g

Power supply

Power supply voltage (SELV)	+24 V DC/25 mA
Allowed range	$-15\% \div +25\%$ (20.4 \div 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



UC-1203



UC-1204

GSM gateway for SMS communication

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

Basic features

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

Connection

- Power supply by screw terminals.
- Serial channel RS-232 by screw terminals.
- SIM card to be inserted to a connector placed at the front side.

- External antenna to be connected via SMA connector both to module and via cable to an optimal place, e.g. outside the switching cabinet.
- Antenna is not a part of the module..

Use

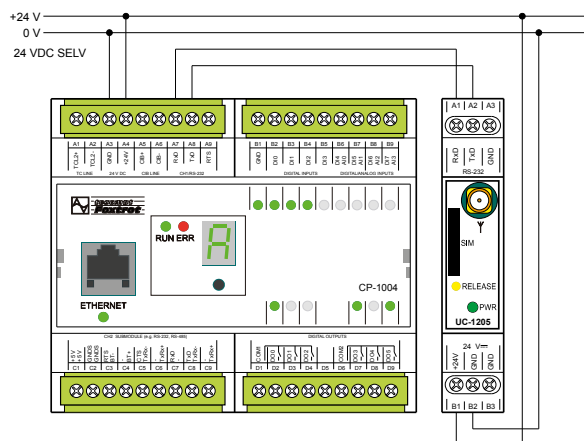
- Module is designated as both directions communication gateway of system Tecomat Foxtrot to GSM networks.
- In parametrization software FoxTool may be set e.g. 48/32 incoming/outgoing SMS messages, 32 different phone numbers (where to send SMS messages), maximum number of outgoing SMS messages for a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



UC-1205

Foxtrot

Connection example



Communication

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

Operating conditions

Operating temperature	−20 .. +55 °C
Storage temperature	−25 .. +70 °C
Electric strength	according EN 60730
IP Degree of protection IEC 529	IP20
Overvoltage category	II
Degree of pollution ČSN EN60664-1:2008	1
Working position	Vertical
Installation	On DIN rail
Power supply and RS-232 connection	Screw terminals, diameter of wire max. 4mm².

Dimensions and weight

Dimensions	95×65×17,7 mm
Weight	70g

Power supply

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

Order number

TXN 112 05	UC-1205, GSM gateway - bands 850/900, 1800/1900 MHz (quad-band)
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TCL2 bus optical interconnection module

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

Basic features

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

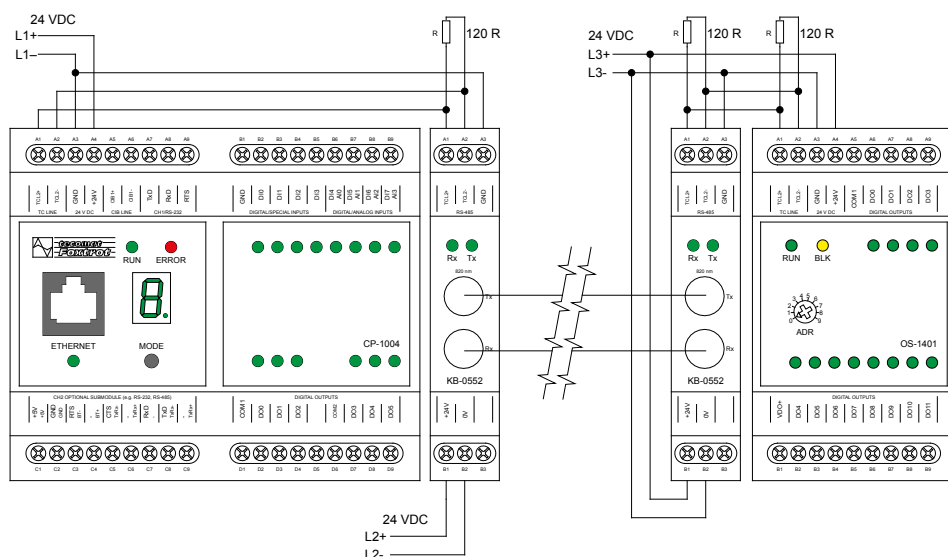
Connection

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

Use

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

Connection example



Communication

System I/O bus	1 × TCL2 (RS-485, 345 kbit/s)
Communication medium	Multi Mode glass fibre
Optic fibre connection	ST connector
Optical radiation wave length	820 nm
Ultimate operating range	15 dB, min. 8 dB
62.5/125 mm	
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

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 of optic fibre	Duplex 2 × ST
Connections others	Screw terminals
Conductors cross-section	max. 2.5 mm ²

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

Dimensions and weight

Dimensions	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
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KB-0552

Ethernet switch 10/100BaseTX

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

Basic features

- 5 × UTP ports 10BaseT/100BaseTX according the standard IEEE 802.3.
- Housing designed for the DIN rail installation and into 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 mm ²

Dimensions and weight

Dimensions	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



SX-1162

Order number

TXN 111 62	SX-1162, ETH switch, 5 × 10/100base TX, IEEE802.3
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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.
- Robust design in metallic box. Designed for extended range of operational temperatures.
- Supported functions.
 - Full/Half Duplex Operations
 - Auto Sensing Duplex,
 - Speed and MDIX
- Store and Forward technologies..

Connections

- With RJ45 connector and standard ETH cables UTP CAT5.
- Optical fibre port connection with SC connector.
- Redundant inputs for Power supply.
- Power supply 24 V DC input with screw terminals.
- Mechanic design for installation on DIN rail.

Use

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

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 mm²	max. 2.5 mm²

Dimensions and weight

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

Power supply

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

Order number

105FX	105FX ETH switch, 4 × 10/100base TX, IEEE802.3, 1 × 100BaseFX, SC, unmanaged
306FX2	306FX2 ETH switch, 4 × 10/100base TX, IEEE802.3, 2 × 100BaseFX, SC, unmanaged



105FX



306FX2

GSM gateway for SMS communication

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

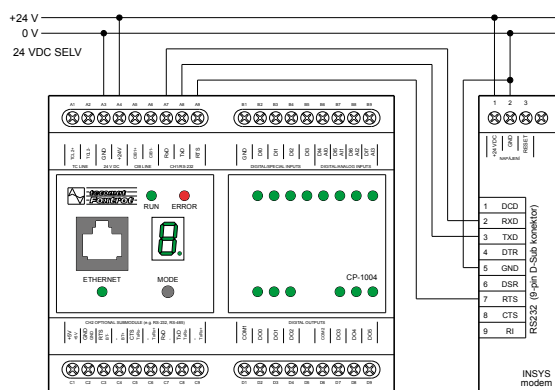
Basic features

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

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.

Connection example



Use

- Module is designed 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.

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

Dimensions	120 × 23 × 75 mm
Weight	125 g

Power supply

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

Order number

INSYS GSM Small	INSYS GSM Small, GSM gateway – band 900, 1800 Mhz (dual-band)
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Communication module M-bus

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

Basic features

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

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

Communication

Connection to central module	RS-232, Tx,Rx
Installation bus/protocol	M-Bus
Transmission 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:	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 mm ²

Dimensions and weight

Dimensions:	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



SX-1181

Order number

TXN 111 81	SX-1181, M-bus – Communication module for connection of M-bus stations.
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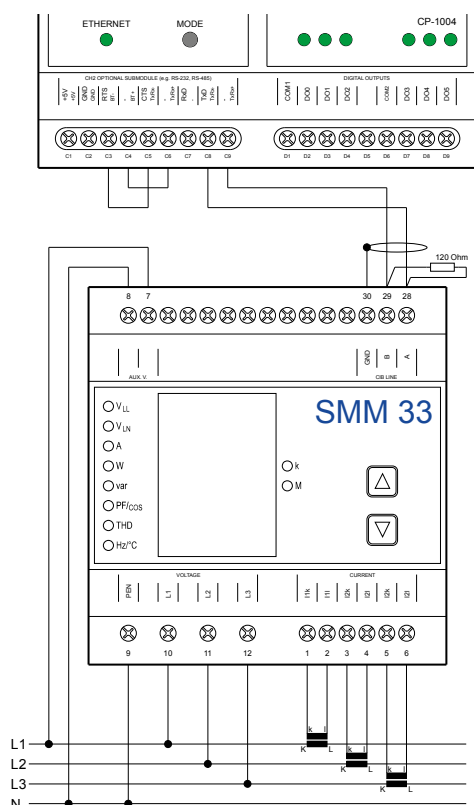
MULTIFUNCTIONAL MEASUREMENT MODULE OF 3 PHASE POWER LINE

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

Basic features

- Module is designed for measuring and monitoring of basic values in 3 phase power line 3 × 230V AC.
- Measured values:
 - Phase voltage and current
 - Line voltage and current
 - Active and reactive power
 - Power factor
 - Total harmonic distortion (THD) of voltage and current.
 - Frequency
- Inputs are designed for direct connection of voltage 3 × 230 V AC and separated current inputs up to 5 Aef.

Connection example



Connections

- Module is powered from 230V AC.
- Voltage is connected via fuse direct to inputs L1, L2, L3.
- Signals from current transformers are connected to pair of I, I2 (I,k) and I3 (I,k). terminals I1 (I,k)
- It is necessary to take care about the orientation of transformers and phase sequence.
- SMM-33 module is to be connected to the Foxtrot basic module by CH2 equipped with RS-485 interface submodule.

Use

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

Communication

Serial channel	RS-485, protocol MODBUS or KMB protocol
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Analog inputs

Measured voltage	3 × 5 – 500 V AC
Voltage measurement accuracy	±1 % ±1 digit
Connection	star
Allowed overload/top overload	2 × / 4 × < 1s
Frequency	45 – 65 Hz
Measured current	0.02 – 7 A _{AC}
Current measurement accuracy	±1 % ±1 digit
Power consumption	< 0.25 VA
Galvanic isolation	Yes
Allowed overload	14 A _{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 harmonic 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

Order number

SMM-33	SMM-33, multifunctional module to measure 3 phase network
---------------	---

Dimensions and weight

Dimensions	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



SMM-33

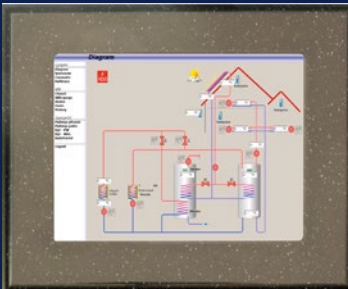
Related products



MR-0114 – communication submodule RS-485 into Foxtrot

Displays

Displays connected via Ethernet/LAN



ID-18

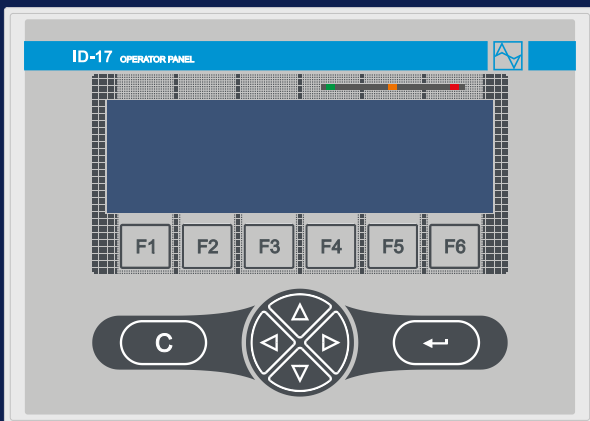


ID-18 Design



ID-28

Displays connected via system bus TCL2

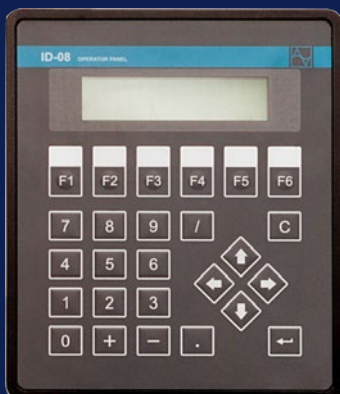


ID-17



ID-14

Displays connected via serial channel



ID-08



ID-07

Displays, operator panels

Type	DI	RO	AI	AO	Comm
ID-18 (in to wall)					Eth
ID-28 (in to panel)					Eth

Basic features

- Graphic panel with touch screen
- Low power consumption, without cooling, without heating even in closed spaces, wide range of operation temperatures.
- Installed microbrowser, interpret directly built-in web pages of Foxtrot, TC700.
- ID-18** is designed to built-in the wall, where is no access from other side. The part of delivery is the KO 110/L installation box for plasterboard walls, KO100E is for the walls from the bricks.
- ID-28** is designed for fixing in doors of control cabinets or in any place where is the access from other side.
- Other features are the same for both panels.
- It is equipped with TFT display 5.7" with resolution 640×480 pixels (VGA).
- Front frame design – plastic with dimension 180×150 mm, black and white color. Other colors according to sampler after the order.

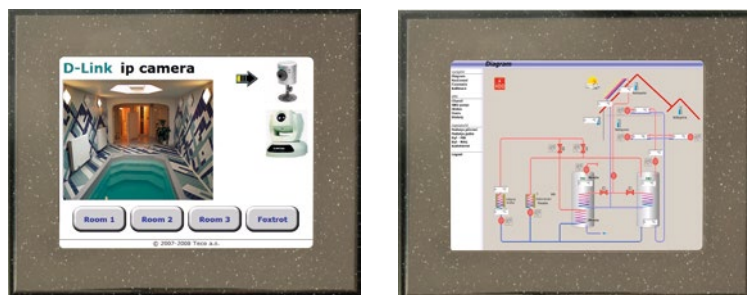
Connection

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

Use

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

Examples of screens created in WebMaker



Communication

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

Screen

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

Operating conditions

Operating temperature	-20 ÷ +55 °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

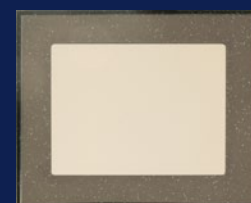
Dimensions	180×150×55 mm
Weight	1015 g

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 of power supply	No

Order number

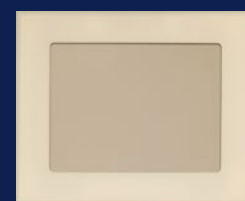
TXN 054 39	ID-18; 5.7" TFT 640×480; touch panel; 100/10 Ethernet; built-in into the wall
TXN 054 40	ID-28; 5.7" TFT 640×480; touch panel; 100/10 Ethernet; into electrical installation cabinet



ID-18



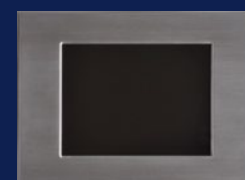
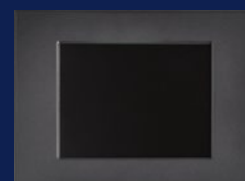
ID-18



ID-28



ID-28



ID-18 Design

according vzorníku RAL

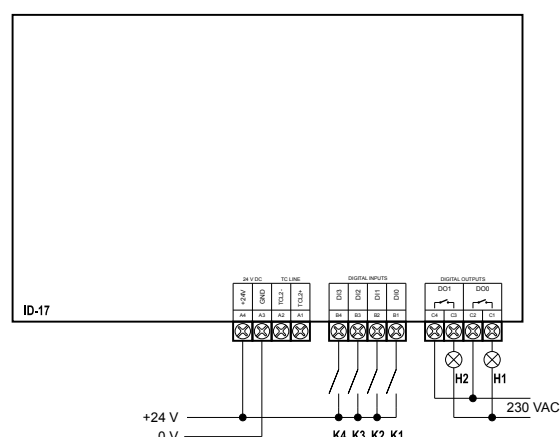
Graphic panel with keyboard

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

Basic features

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

Connection example



Digital inputs

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

Operating conditions

Operating temperature	-20 ÷ +55 °C
Storage temperature	-30 ÷ +70 °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 mm ²

Order number

TXN 054 37	ID-17, Graphic operator panel, monochrom LCD, 240×64 px, 12 keys
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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 4 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 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

Relay outputs

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

Display

Display size	127×33 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

Dimensions and weight

Dimensions	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



ID-17

Alphanumeric panel with LCD and keyboard

Type	DI	DO	AI	AO	Comm
ID-14					TCL2

Basic features

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

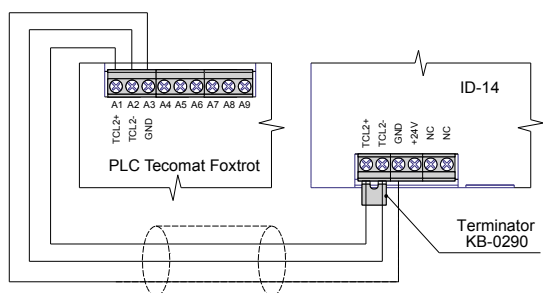
Connection

- 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 of communication	No

Display and Keyboard

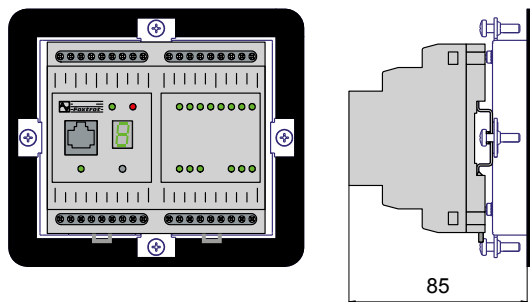
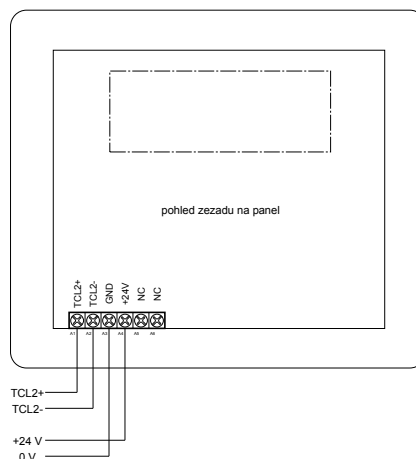
Character size	3.5 mm
No. of characters	4×20 characters
Keyboard	Membrane
Keys	25 keys 10×numeric 4×cursor 6×functional 5×other

Operating conditions

Operating temperature	−20 ÷ +55 °C
Storage temperature	−20 ÷ +60 °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

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



Dimensions and weight

Dimensions	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 of Power supply	No



ID-14



ID-14 + CP-1004

Alphanumeric panel with keyboard

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

Basic features

- Alphanumeric operator panel for programmable controllers Tecomat Foxtrot and Tecomat TC700.
- ID-07 is smaller and is equipped with monochromatic backlit LCD with 4 × 20 characters with characters 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

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



ID-07



ID-08

Operating conditions

Operating temperature	0 .. +50 °C
Storage temperature	–20 .. +60 °C
Electric strength	according EN 61131-2
IP Degree of protection(IEC 529)	IP54 front panel, IP20 whole device
Overvoltage category	II
Degree of pollution according IEC EN60664-1:2008	2
Working position	vertical
Installation	int the panel
Connections power supply and communication	Screw terminals max. 4 mm ²

Power supply

Power Voltage	24 V DC +– 20%, 24V AC –+20%, 50 – 60Hz
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Dimensions and weight ID-07

Dimensions	141 × 123 × 42 mm
Weight	400 g

Dimensions and weight ID-08

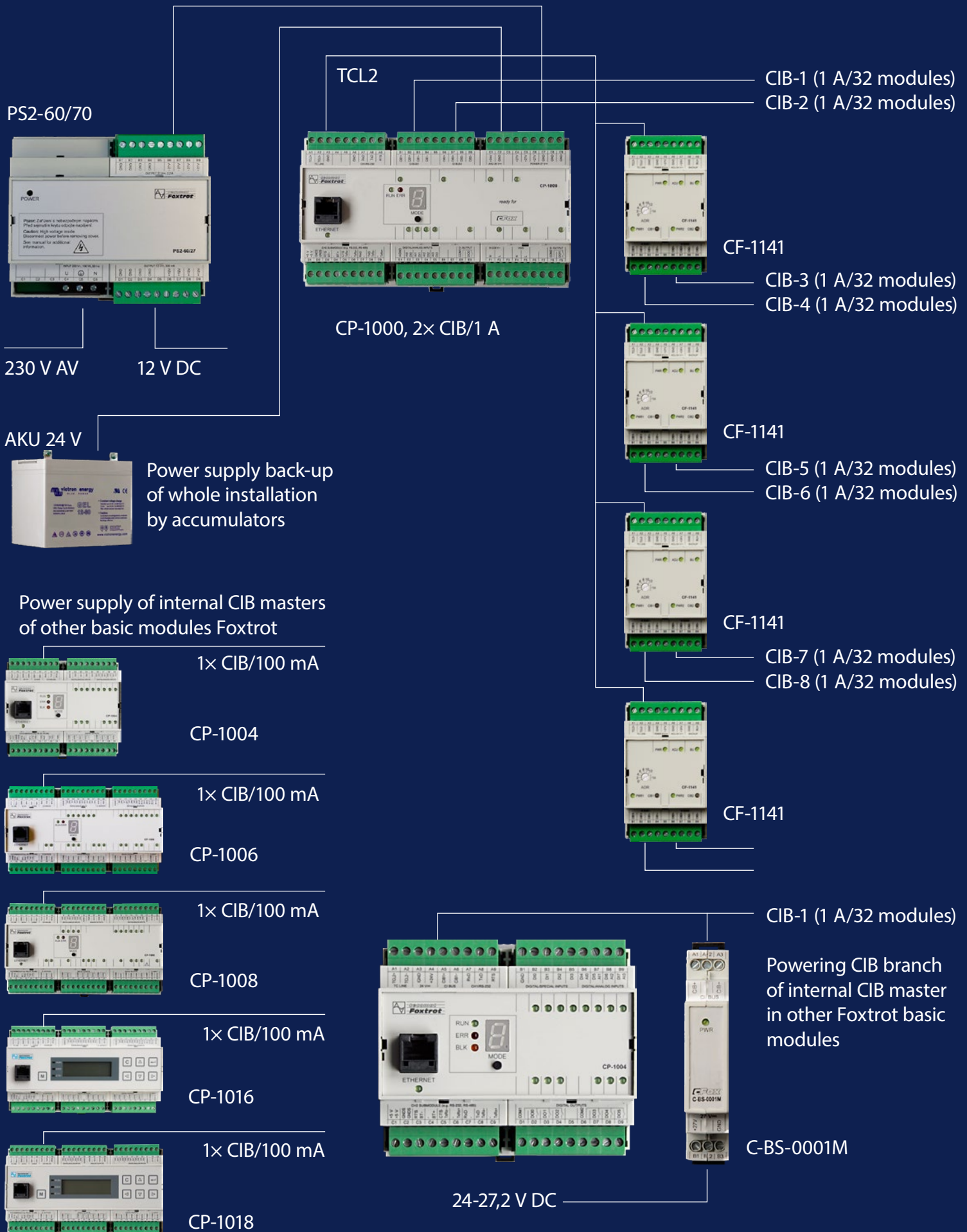
Dimensions	177 × 205 × 42 mm
Weight	750 g

Order number

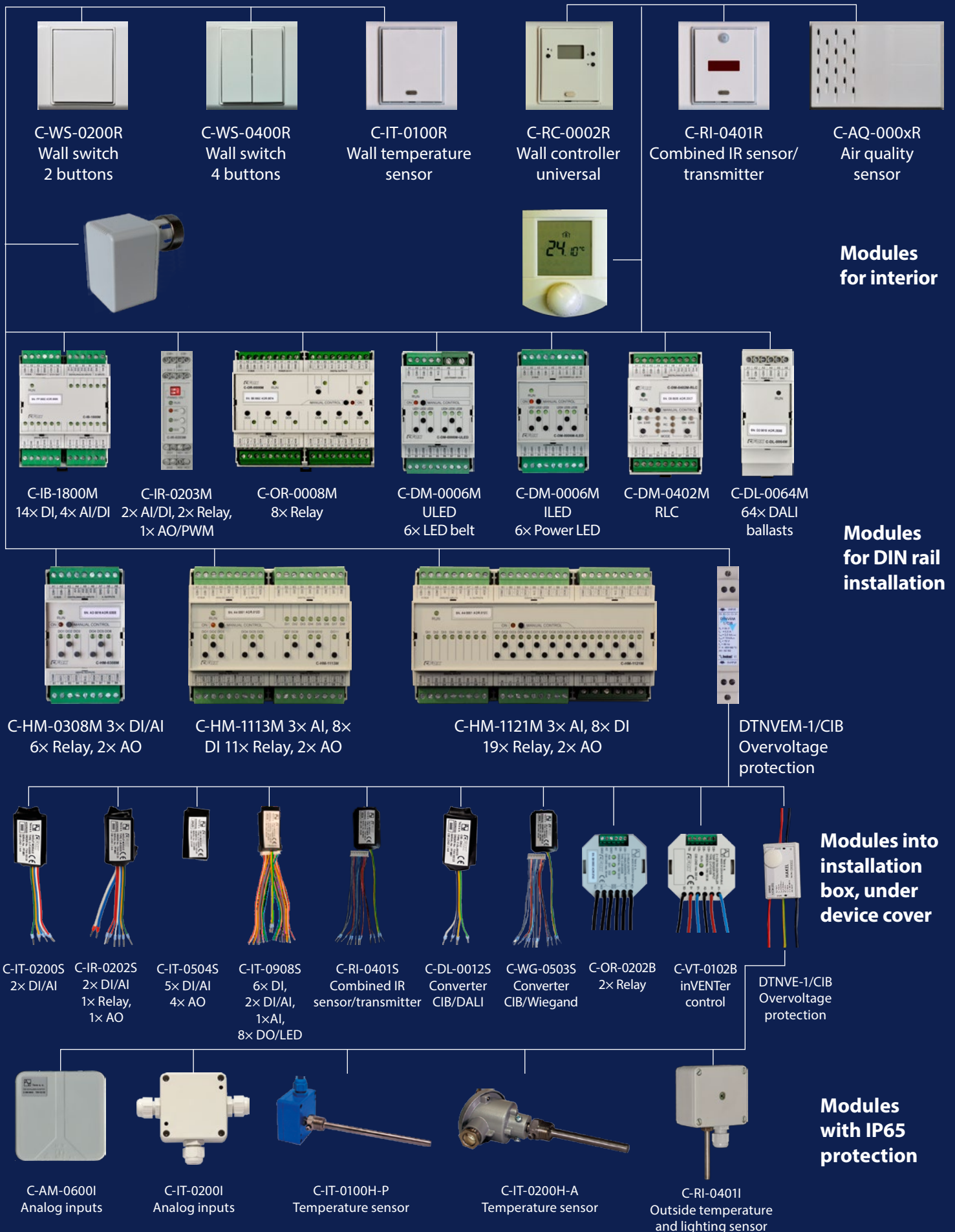
TXN 054 25.11	ID-07 panel LCD 2 × 16 characters, 8 buttons, optional interface
TXN 054 26.11	ID-08 panel LCD 2 × characters, 26 buttons, optional interface
TXN 054 26.12	ID-08 panel LCD 4 × 20 characters, 26 buttons, optional interface

CFox

Intelligent installation – CIB bus masters



CIB – bus with free topology, max. 400 m



External CIB bus master, Separation module CIB bus

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

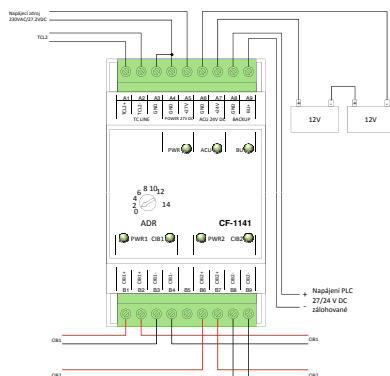
Basic features CF-1141

- Module is designed to expand the number of CIB bus branches connected 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 can be expanded with up to 4 external CD-1141, what means expansion up to 4×2×32 = 288 CIB modules.
- Status operation/error is indicated on front panel.
- Module can be connected with 2×12 V accumulators in serial connection as back-up power supply for both CIB buses and for one another load e.g. for central module.
- Capacity of accumulator has to be chosen according to demand time of back-up, module can charge accumulators with continuous current max. 3 A.

Connections

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

Connection example CF-1141



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

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	on DIN rail
Connections	CF-1141 screw-type connector, C-BS-0001M Screw-type terminals

Order number

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

Basic features C-BS-0001M

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

Connections

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

Use

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

Connection example C-BS-0001M



Dimensions and weight CF-1141

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

Dimensions and weight C-BS-0001M

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

Power supply CF-1141

Input Voltage – range	24 ÷ 27.2 V DC
Output Voltage for CIB	2×24 ÷ 27 V DC, 1 A
Output back-up voltage	1×24 V DC e.g. for the basic module
Connected accumulators	2×12 V in serial
Maximal continuous 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



CF-1141



C-BS-0001M

Overvoltage protection for CIB bus

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

Basic features

- Overvoltage protection device is designed for protection of CIB bus against flash current and overvoltage.
- Each CIB branch have to be assess individually against overvoltage.
- It contains the base and the exchange module. Teh base is permanently connected with CIB installation. Manipulation with exchange module does not interrupt the bus and its function.

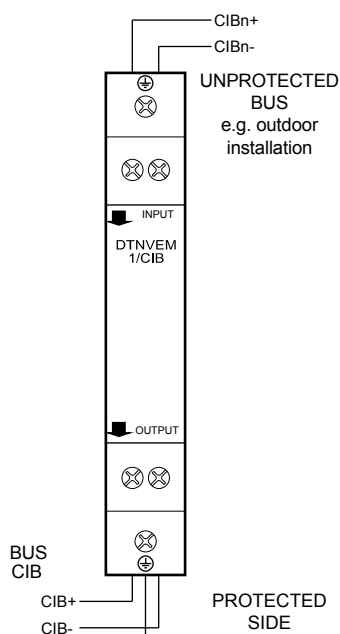
Connections

- Module is connected in serial into each CIB bus branch.
- In project it is necessary to calculate the voltage overvoltage protections device, which depends on consumption of modules behind the overvoltage protection device.

Use

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

Connection example



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

Order number

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



DTNVEM-1/CIB



DTNVE-1/CIB

Technical features

No. of protected buses	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

Dimensions and weight DTNVEM 1/CIB

Dimensions	90 × 13 × 65 mm
Weight	75 g

Dimensions and weight DTNVE 1/CIB

Dimensions	45 × 30 × 7 mm
Weight	35 g

CIB – Module of digital and combined inputs on DIN rail

Type	DI	RO	AI	AO	Comm
C-IB-1800M	14x DI		4x AI/DI		CIB

Basic feature

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

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

Connection

- Module connect to CIB bus via screw terminals.
- Contact inputs and resistance sensors connect via screw terminals.

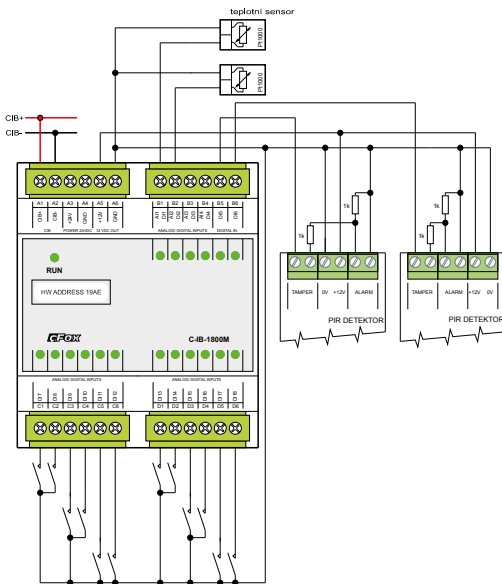
Use

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



C-IB-1800M

Connection example



Digital inputs

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

Universal inputs (analog/digital)

Number of universal inputs	4x AI/DI (AI1/DI1-AI4/DI4)
Number of counter inputs	4x (AI1/DI1-AI4/DI4)
Capacity counter	16 bit
Galvanic separation	No

Operating conditions

Operating temperature	0 .. +70 °C
Storage temperature	-25 .. +85 °C
Electrical strength	according EN 60730
IP Degree of protection IEC 529	IP10B
Overvoltage category	II
Degree of pollution according EN60664-1:2008	1
Operating position	Vertical
Installation	On DIN rail
Connection of inputs and CIB bus	4x screw terminals, wire diameter max. 2,5 mm²

Table

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

Dimensions and weight

Dimensions	70 x 93 x 59 mm
Weight	155 g

Power supply

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

Order number

TXN 133 06	C-IB-1800M, CIB, 14DI, 4DI/AI, 4M
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CIB – Module of combined inputs/outputs on DIN rail

Type	DI	RO	AI	AO	Comm
C-IR-0203M	2x DI/AI	2x RO		1x AO/PWM	CIB

Basic features

- Module is an actuator on CIB bus with two independent relays 16A with embarrassed switching contacts.
- Each relay is independently addressed and controlled. Status of each relay is signalled at front panel.
- Module may be switched into manual mode by MC button. Then, outputs are controlled independently manually by buttons DO1 and DO2.
- Module is an actuator with one analog input 0-10V.
- Analog output may be switched by button at front panel to PWM mode (pulse wide modulation). The amplitude and frequency of switching may be set in the program.
- Module is also a sensor on CIB bus and has two universal inputs.

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

Connection

- Inputs, outputs and CIB bus to be connected via screw terminals.

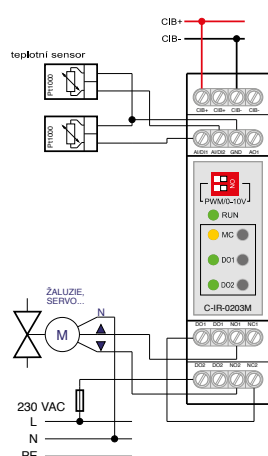
Use

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



C-IR-0203R

Connection example



Relay outputs

Number of outputs	2x switching 16 A/AC1
Galvanic isolation	yes (even outputs each other)
Switching voltage	min. 5 V DC; max. 300 V AC/DC
Switching power	4000 VA/AC1, 384 W/DC
Switching current	max.16 A (NO) max.10 A (NC), min. 100 mA
Peak current	80 A / <20ms (switching contact)
Time of switching on/off	typ. 15 ms/ 5 ms
Frequency of switching without load	max. 1200 min ⁻¹
Frequency of switching with load	max. 6 min ⁻¹
Mechanical life cycle	2x10 ⁷
Electrical life cycle	0,5x10 ⁵
Protection against short circuit	No
Inductive load treatment	Outside. (RC element, varistor, diode)
Isolation voltage between each contacts/groups/outputs and CIB bus	1000V AC/ 4000V AC/ 4000V AC

Operating conditions

Operating temperature	-10 .. +70 °C
Storage temperature	-25 .. +85 °C
Electric strength	according EN 60730
Class of electric device protection according EN 61140:2003	I
IP Degree of protection IEC 529	IP10B
Overvoltage category	II
Degree of pollution according EN60664-1:2008	1
Operating position	Vertical
Installation	On DIN rail
Connection input, output, CIB	Terminals, wire diameter max. 4mm ² .

Universal inputs

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

Measured ranges

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

Analog outputs

Number of outputs	1x	
Galvanic isolation	No	
Output mode	Analog	PWM
Nominal input voltage/amplitude	10 V	10-24 V
Frequency of switching		100-2 000Hz
Adjustable range of outputs	0..130% U _{jm}	0..100%
Min. resolution/load resistance	Min. 1% / > 1kΩ	
Output current/load capacity	Max. 3 mA/ Max. 50 nF	

Dimensions and weight

Dimensions	105 x 90 x 22 mm
Weight	93 g

Power supply

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

Order number

TXN 133 59	C-IR-0203M, CIB, 2DI/AI, 2RO switching contacts 230V AC, 1AO/PWM
------------	--

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

Basic features

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

Connections

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

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

Use

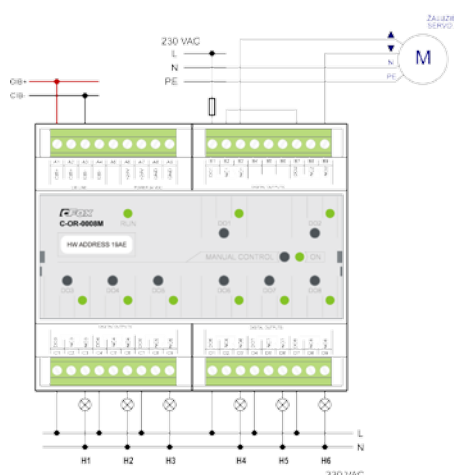
- Module is designed for switching independent loads and devices by relay contacts.
- By suitable interconnection of output contacts the module can be used to control up to four 230 V drives - such as blinds or shutters with electric blocking of the concurrent connections of voltage on both control winding.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



C-OR-0008M

Connection example

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



Relay outputs

No. of outputs	8 x switch contact
Galvanic isolation	Yes even (outputs each other)
Switching voltage	min. 5 V DC; max. 300 V AC
Switching power	4000 VA/AC1, 384 W/DC
Switching current	max. 16 A, min. 100 mA,
Inrush current	80 A/<20 ms (switch contact)
Time to switch on/off	typ. 15 ms/5 ms
Mechanical life	2 x 10 ⁷ switching
Electrical life	5 x 10 ⁴ (1 x 10 ⁴ at 80 A peak)

Operating conditions

Operating temperature	-10 .. +55 °C
Storage temperature	-25 .. +70 °C
Electric strength	according EN 60730
IP Degree of protection(IEC 529)	IP 10B
Overvoltage category	II
Degree of pollution according IEC EN60664-1:2008	1
Working position	vertical
Installation	on DIN rail
Connections CIB	Screw terminals max. 4 mm ²
Conductors cross-section relay outputs	Screw terminals max. 4 mm ²

Relay outputs

Short-circuit protection	No
Spike suppressor of inductive load	External. (RC, varistor, diode)
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

Dimensions and weight

Dimensions	105 x 90 x 58 mm
Weight	310 g

Power supply

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

Order number

TXN 133 03	C-OR-0008M, CIB, 8x RO, switch contact, 230 V/16 A
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Type	DI	RO	AI	AO	Comm
C-HM-0308M	see AI	6	3 AI/DI	2	CIB
C-HM-1113M	8	11	3	2	CIB
C-HM-1121M	8	19	3	2	CIB

Basic features

- Modules on DIN rail with combination of analog and digital inputs and outputs.
- Each module has on CIB bus only one address. On each CIB bus branch we may connect up to $32 \times 32 = 1024$ analog and digital inputs and outputs in combination.
- 3 analog inputs for Resistance Temperature Detectors (RTD) and 2 analog outputs 0–10 V are designed for 1–2 regulation loop, e.g. heating, air-conditioning or for general use.
- Analog inputs of C-HM-0308M module may be configured for high resistance measurement, e.g. condensation sensor or as voltage free contact digital inputs.
- Modules C-HM-1113M and C-HM-1121M are equipped with 8 independent inputs for voltage free contacts.
- C-HM-0308M contains two galvanic insulated groups with 3 relays. Each group may be used independently for switching 24 V DC or 230 V AC.
- C-HM-1113M contains 4 galvanic insulated groups of relays for 5 A and 1 power relay for 16 A with separately embarrassed switching contact. Each group may be used independently for switching 24 V DC or 20 V AC in different phases.
- C-HM-1121M contains 6 galvanic insulated groups of relays with normally open (NO) contacts and with common wire for 3A load and 3 independent relays for 16 A each with both NO and NC contacts available on the terminal. Each group can be used independently for switching 24 V DC or 230 V AC in different phases.
- Power relays for 16 A have contacts with combination of wolfram/AgSnO₂ 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, providing power supply and communication. HW address (4 hexadecimal digits) is shown at front panel.
- Modules C-HM-0308M, C-HM-1113M are powered from CIB bus, module C-HM-1121M is powered from power supply 230 V AC.
- Modules are connected with removable connectors and power connectors of C-HM-1121M module via fixed screw type terminal.

Use

- Modules are used for large installations centralised into installation cabinet. Typically for one hotel room, one 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, shutters, 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



C-HM-0308M

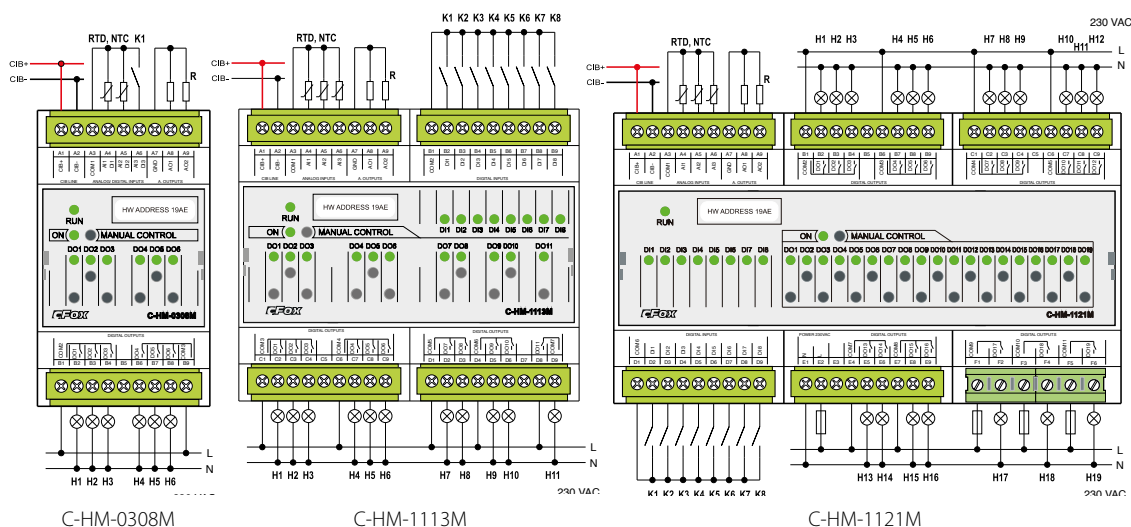


C-HM-1113M



C-HM-1121M

Connection example



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 ÷ 10V, 1 ÷ 10V	0 ÷ 10V, 1 ÷ 10V	0 ÷ 10V, 1 ÷ 10V

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		12 bit	12 bit	12 bit
Measurement ranges				
RTD		Pt1000, Ni1000	Pt1000, Ni1000	Pt1000, Ni1000
NTC (termistor)		12 kΩ, optionally 5 up to 20 kΩ	12 kΩ, optionally 5 up to 20 kΩ	12 kΩ, optionally 5 up to 20 kΩ
Resistive – sensor of condensation		2 MΩ,	–	–
Potential free contact		Yes, on each contact	–	–

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

Relay outputs		C-HM-0308M	C-HM-1113M	C-HM-1121M
No. of outputs/groups		Total 6 2 × 3 relay 3 A	Total 11 2 × 3 relay 3 A 2 × 2 relay 3 A 1 × relay 16 A	Total 19 4 × 3 relay 3 A 2 × 2 relay 3 A 3 × 1 relay 16 A
Galvanic isolation		Yes (even groups each other)	Yes (even groups each other)	Yes (even groups each other)
Switching voltage			min. 5 V DC; 24 V DC; max. 250 V AC	
Relay outputs groups		DO1 ÷ DO3, DO4 ÷ DO6	DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ DO8, DO9 ÷ DO10	DO1 ÷ DO3, DO4 ÷ DO6, DO7 ÷ DO9, DO10 ÷ DO12, DO13 ÷ DO14, DO15 ÷ DO16
Switching current		Min. 100 mA; max. 3 A	Min. 100 mA; max. 3 A	Min. 100 mA; max. 3 A
Inrush 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 common wire		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, varistor, diode)	External (RC, varistor, diode)	External (RC, varistor, diode)
Insulation voltage between each relay outputs		3750 V AC	3750 V AC	3750 V 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
Switching current			16 A	16 A
Inrush 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				Fixed screw type 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	III
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
Dimensions		90×52×65 mm	90×105×65 mm	90×156×65 mm
Weight		82 g	160 mA	35 mA

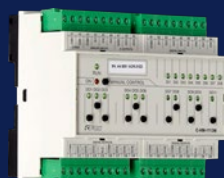
Power supply		C-HM-0308M	C-HM-1113M	C-HM-1121M
Input nominal voltage (SELV)/		+24 – 27.2 V DC/from bus CIB	+24 – 27.2 V DC/from bus CIB	230 V AC
Nominal load		80 mA	160 mA	35 mA

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 3 A
TXN 133 10	C-HM-1113M – CIB – combined module 3 × AI, 8 × DI (kontakt), 2 × AO, 10 × RO 230 V 3 A, 1 × RO 230 V 16 A
TXN 133 11	C-HM-1121M – CIB – combined module 3 × AI, 8 × DI (kontakt), 2 × AO, 16 × RO 230 V 3 A, 3 × RO 230 V 16 A



C-HM-0308M



C-HM-1113M



C-HM-1121M

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

Basic features

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

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

Use

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

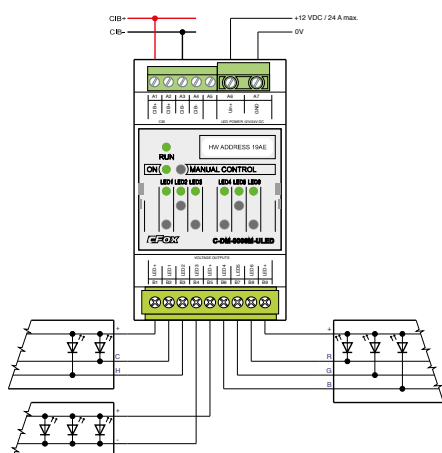


C-DM-0006M ULED

Connections

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

Connection example



Outputs for continuous control of LED strips

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

Operating conditions

Operating temperature	0 .. +45 °C
Storage and transport 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. 2.5 mm ²
Connections Power supply	Screw terminals max. 4 mm ²
Connections LED strips	Screw connector, max. 2.5 mm ²

Dimensions and weight

Dimensions	53 × 90 × 58 mm
Weight	120 g

Power supply

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

Order number

TXN 133 45	C-DM-0006M ULED, 6 channel dimming module for LED strips 12 – 24 VDC, max. 4 A/channel
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Type	DI	DO	AI	AO	Comm
C-DM-0006M ILED				6 × controlled current supply (0 – 100%)	CIB

Basic features

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

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

Use

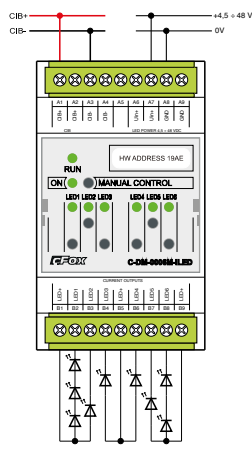
- Direct control of LED lights equipped by LED chips.
- Channels may be associated by three for fully independent control of two RGB light sources.
- May be used for decoration and effect lighting in interiors and exteriors.

Connections

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

Connection example

Connection of 6 LEDs individually controlled



C-DM-0006M ILED

Proportional outputs for LED chip control

No. and type of outputs	6 x, semiconductive current output, controlled PWM (0 – 100%)
Load type	LED chip, RGB/monochromatic
Power voltage for LED	4.5 – 48 V
Output current	150, 350, 500, 700 mA/channel
Max. 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 per 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. 2.5 mm ²
Connections Power supply	screw connector, max. 2.5 mm ²
Connections LED belts	screw connector, max. 2.5 mm ²

Dimensions and weight

Dimensions	53 × 90 × 58 mm
Weight	120 g

Power supply of module

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

Order number

TXN 133 46	C-DM-0006M ILED, 6 channel dimming module for LED chip 150, 350, 500, 700 mA/max. 48 V DC
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CIB – Universal dimming module RLC on CIB bus 230 V/AC

Type	DI	DO	AI	AO	Comm
C-DM-0402M RLC			4x AI/DO	2x phase controlled channels (0-100%)	CIB

Basic features

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

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

Connections

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

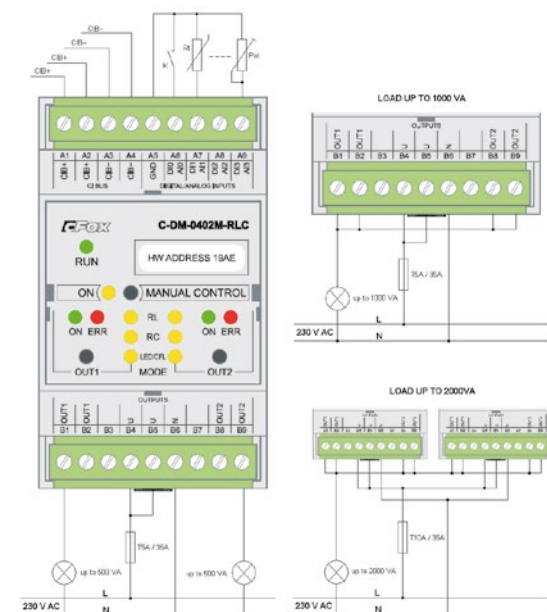
Use

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



C-DM-0402M RLC

Connection example



Outputs for continuous load control 230 V AC

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

Measured ranges

Sensor type	Range	Basic accuracy
Voltage-free contact	0/1	0 if > 1.5 kΩ 1 if < 0.5 kΩ
Balanced output (security detectors)	Interrupted wire /0/1/tamper	for 2x 1k1 balanced resistor
Pt1000	–90 .. 320°C	0,5%
Ni1000	–60 .. 200°C	0,5%
NTC 12 k	–40 .. 125°C	0,5%
KTZ81-121	–55 .. 125°C	0,5%
Resistor	0-160 kΩ	0,5%

Dimensions and weight

Dimensions	90 x 58 x 53 mm
Weight	120 g

Power supply of module

Power supply for load	230 V AC
Max. output current of load	2x 2,2 A in total
Module power supply	24 V (27 V) from CIB bus
Typical load from CIB	20 mA
Typical/max. input power from CIB	0,46 W
Internal protection	Yes, recovering fuse

Operating conditions

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

Order number

TXN 133 58	C-DM-0402M-RLC, CIB – 2x dimmer RLC, 230 V AC, 2x 500 VA
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CIB – Converter to DALI bus on DIN rail

Typ	DI	RO	AI	AO	Comm
C-DL-0064M					CIB, DALI

Basic features

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

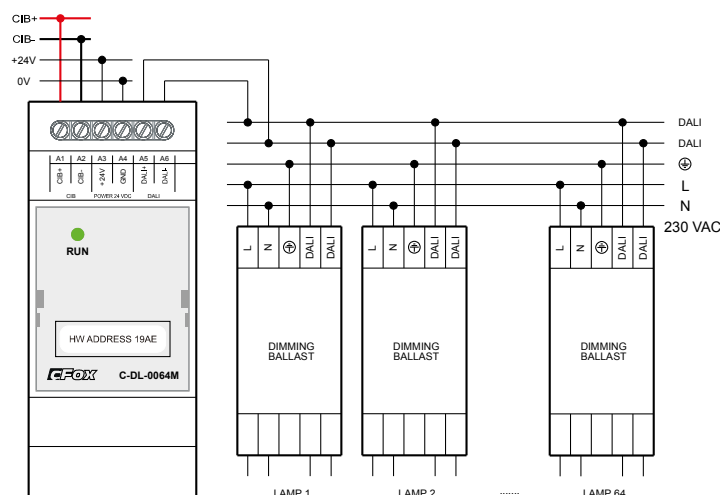
Connection

- Both DALI and CIB buses connect to the module via screw terminals.

Use

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

Connection example



C-DL-0064M

Communication

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

Operating conditions

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

Dimensions and weight

Dimensions	106 × 92 × 35 mm
Weight	65 g

Power supply

Power supply and communication	24 V (27 V) from external power source
Nominal /max. load	30 mA/320 mA
Typical /max. input power	0.75 W/7,6 W
Internal protection	Yes
Load from CIB bus	0 mA

Order number

TXN 133 54	C-DL-0064; CIB-DALI ballast, for 64 DALI ballasts
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CIB – built-in modules with combined inputs, outputs

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

Basic features

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

Connections

- Inputs and outputs of modules are connectable by set of stranded wires finished by sleeves.
- Inputs and outputs are available

Use

- Module C-IR-0202S with relay and analog output for: Temperature measurement and control of heating valve 230 V AC.
- Designing the application the maximum load of each terminal must be taken into account.
- 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 security system sensors.



C-IR-0202S



C-IT-0200S

Relay outputs	C-IR-0202S	C-IT-0200S
No. of outputs	1	–
Galvanic isolation	Yes	
Switching voltage	max. 230 V AC	
Switching current	min. 100 mA; typ. 3 A; max. 5 A (check the peak current of electronic loads)	
Time of close/open the contact	typ. 10 ms/4 ms	
Switching frequency without load	max. 300 min ⁻¹	
Switching frequency with nominal load	max. 20 min ⁻¹	
Mechanical/Electrical lifetime at maximal load	5 × 10 ⁶ /1 × 10 ⁵	
Short-circuit protection	No	
Spike suppressor of inductive load	External (RC unit, 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 to sensor type)	Pt1000, Ni1000, –20 ÷ 250 °C (according to sensor type)
NTC (thermistor)	12 kΩ, KTY81-121	12 kΩ, KTY81-121
Resistance	160 kΩ	160 kΩ
Potential-free contact	Yes, on each input	Yes, on each input
Balanced inputs for security systems sensors	Yes, on each input	Yes, on each input
Measured temperature accuracy	0.6 °C	0.6 °C

Operating conditions	
Operating temperature	–20 .. +55 °C
Storage temperature	–30 .. +70 °C
Electric strength	according EN 60950
IP Degree of protection IEC 529	IP 20
Overvoltage category	III
Degree of pollution IEC EN 61131-2	2
Working position	any
Installation	Into installation box or into the 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 outputs	1	
Galvanic isolation	no	
Resolution	8 bit	
Output ranges	0 ÷ 10 V, 1 ÷ 10 V	

Dimensions and weight	C-IR-0202S	C-IT-0200S
Dimensions	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	24 V (27 V) from CIB bus	24 V (27 V) from CIB bus
Typical 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/3 A, Temperature/contact sensing
TXN 133 29	C-IT-0200S, CIB, 2 × AI/DI; Temperature, voltage or voltage-free contact sensing

CIB

FANCOIL CONTROLLER

POWER 24 V		FAN OUTPUT		VALVE OUTPUT		TEMPERATURE	
Terminal	Label	Terminal	Label	Terminal	Label	Terminal	Label
1	A	1	A	1	A	1	A
2	B	2	B	2	B	2	B
3	C	3	C	3	C	3	C
4	D	4	D	4	D	4	D
5	E	5	E	5	E	5	E
6	F	6	F	6	F	6	F
7	G	7	G	7	G	7	G
8	H	8	H	8	H	8	H
9	I	9	I	9	I	9	I
10	J	10	J	10	J	10	J
11	K	11	K	11	K	11	K
12	L	12	L	12	L	12	L
13	M	13	M	13	M	13	M
14	N	14	N	14	N	14	N
15	O	15	O	15	O	15	O
16	P	16	P	16	P	16	P
17	Q	17	Q	17	Q	17	Q
18	R	18	R	18	R	18	R
19	S	19	S	19	S	19	S
20	T	20	T	20	T	20	T
21	U	21	U	21	U	21	U
22	V	22	V	22	V	22	V
23	W	23	W	23	W	23	W
24	X	24	X	24	X	24	X
25	Y	25	Y	25	Y	25	Y
26	Z	26	Z	26	Z	26	Z

Connection

- Module to be connected to two wires CIB bus, which holds communication and power supply of the module.
- Jumper may set, whether module is powered from independent power source or from CIB bus. In position ACTIVE module provide powering of CIB bus.

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

FANCOIL CONTROLLER

POWER 24 Volt		FAN OUTPUT		VALVE OUTPUTS		CIB SUPPLY		WINDOW SENSOR	
		0 V		0 V		0 V		TEMPERATURE CUS BUS (SENSORS)	
A1	A2	A3	A4	A5	A6	A7	A8	B1	B2
C1	C2	C3	C4	C5	C6	C7	C8	D1	D2
+24 V	0 V	FOUT	0 V	HEAT	HEAT	COLD	0 V	CIB+	CIB-
								B3	B4
								D3	D4
								B5	B6

24V+
24V-
CIB+
CIB-
24V EC motor
50Hz/60Hz

Otvoreni kontakt
 Teplota pretvore
 Teplota vymeřova
 Ventil otevřeno
 Ventil uzavřeno
 24V EC motor
 50Hz/60Hz

Number of inputs	3
Galvanic isolation	No
Resolution	12bit, approximation converter
Common wire	plus
External power supply	No
Input resistance	4,7 kΩ
Interrupted input detection	No

■ Dimensions and weight

■ Power supply

Power supply and communication	24 V(27 V) from bus CIB
Nominal/max. load	22 mA/80 mA
Typ./Max. input power	0,5 W/1,9 W
Internal protection	Yes

Operating temperature	0 .. +55 °C
Storage temperature	-25 .. +70 °C
Electric strength	according EN 60730-1 ed2:2001
IP Degree of protection IEC 529	IP 10
Overvoltage category	II
Degree of pollution according EN60664-1:2008	1
Operating position	vertical
Installation	Module is designated as built-in module to device
Connection CIB, AI/DI	Screw terminals, wire max 2.5 mm²

TXN 133 39.01	C-FC-0024X CIB, Fan Coil controller with 0-100% regulation of fan revolutions 24 V, 3x AI/DI, 2x RO
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CIB – Built in module with combined inputs/outputs

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

Basic features

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

Connections

- Module is connected by two wires of flat cable to CIB bus.
- Inputs are connected by other wires of the flat cable each finished by sleeve.

Use

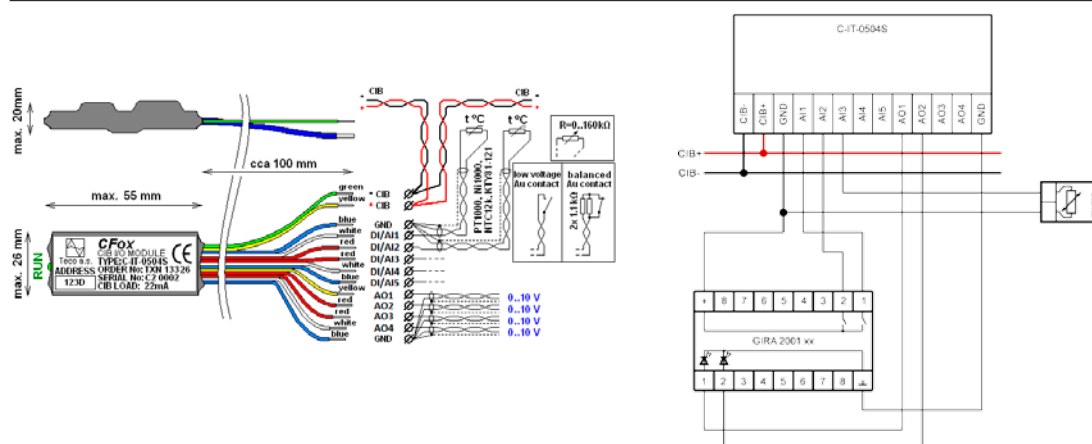
- Module is designed for connecting of wall switches and set-point panels equipped by different combinations of contact, resistance sensors and LED indicators with common cathode or other devices with analog inputs 0 – 10 V (dimmers etc.).
- Module can be used to connect low stroke wall switches of JUNG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



C-IT-0504S
new version
with screwless terminals

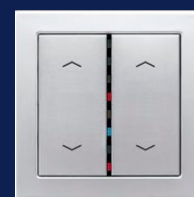


Connection example



Examples of connected drivers

Drivers JUNG



Drivers GIRA



Analog/universal inputs

No. of inputs	4+1
Galvanic isolation	No

Sensor type	Range	Basic accuracy
Potential free contact	0/1	0 if < 1.5 kΩ 1 if > 1.5 kΩ
Balanced input	interrupted wire 0/1/tamper	for 2 x 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 %

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 and inputs/outputs	Flat wire with sleeves 0.5 mm²

Analog outputs

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

Dimensions and weight

Dimensions	55 x 26 x 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, 5 x AI/DI Temperature, contact, 4 x AO (0 – 10 V/10 mA)
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CIB – Built-in module of combined inputs/outputs, built-in

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

Basic features

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

Use

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



C-IT-0908S

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



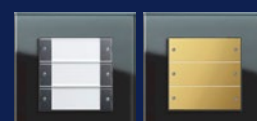
JUNG Flat Design (3248TSM)



JUNG design: LS, A

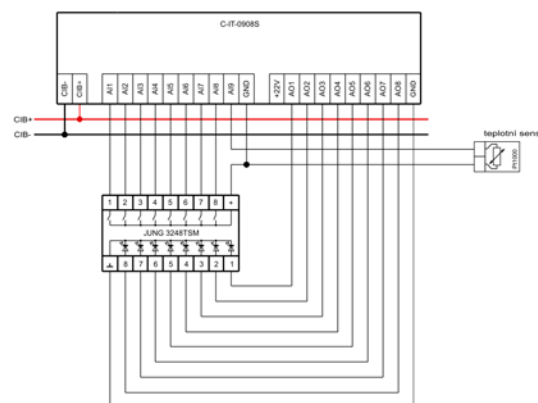
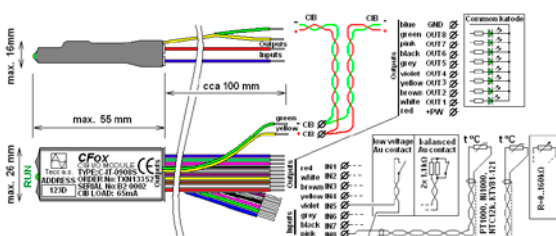


JUNG design: AL, CD



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

Connection example



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

Analog/universal inputs

No. of digital inputs	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
Potential-free contact	0/1	0 for <1.5 kΩ 1 for >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 – 160 kΩ	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 according to IEC EN60664-1:2008	1
Working position	any
Installation	into installation box, under cover
Connection of inputs, outputs and CIB	Wires 0.5 mm², grouped on 2 connectors inserted into module

Order number

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

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

Dimensions and weight

Dimensions	55 × 26 × 20 mm
Weight	8g

Power supply

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

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

Basic features

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

Connections

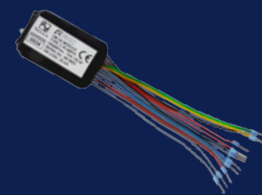
- Module must be connected to two wires to the CIB bus, that provide both communication and power supply of module.
- Module is designed mostly for assembly into standard

installation boxes in the wall or under device cover.

- Inputs, outputs and CIB bus are connected by stranded wires with sleeves.
- Module can be individually customized and built in the covers of wall switch design under the code C-RI-0401R-Design. Standard design is Time by ABB.

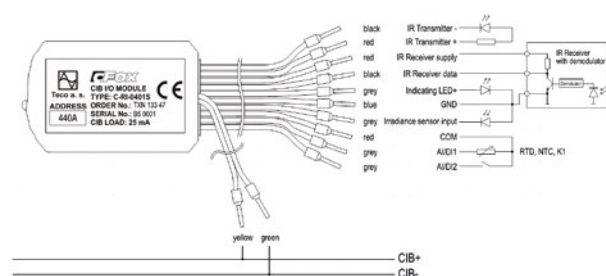
Use

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



C-RI-0401S

Connection example



IR receiver

No. of receivers	1 with demodulator
Galvanic isolation	No
Power supply of receiver-demodulator	3.3 V
Pilot frequency of demodulator	36 kHz

IR transmitter

No. of transmitters	1
Galvanic isolation	No
IR transmitter type	IR LED ($I_{f,max} = 100 \text{ mA}$) + resistor according I_f
Power supply of transmitter	3.3 V
Short-circuit protection	No

Input for light sensor

No. of inputs	1
Galvanic isolation	No
Sensor type/range/accuracy	photodiode, 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 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,	Wires 0.5mm ² , grouped on 2 connectors inserted into module

Analog/digital inputs

No. of inputs	2
Galvanic isolation	No
Resolution	12 bit

Measurement ranges

Sensor type	Range	Accuracy
Potential-free contact	on/off	
Balanced input (security system)	broken link/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

Dimensions	55 × 32 × 13 mm
Weight	8 g

Power supply

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

Order number

TXN 133 47	C-RI-0401S; CIB input module for sensors 1 × IR, 1 × lighting, 2 × temperature, IR transmitter
------------	--



Variant:
C-RI-0401R-Design

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

Basic features

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

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.

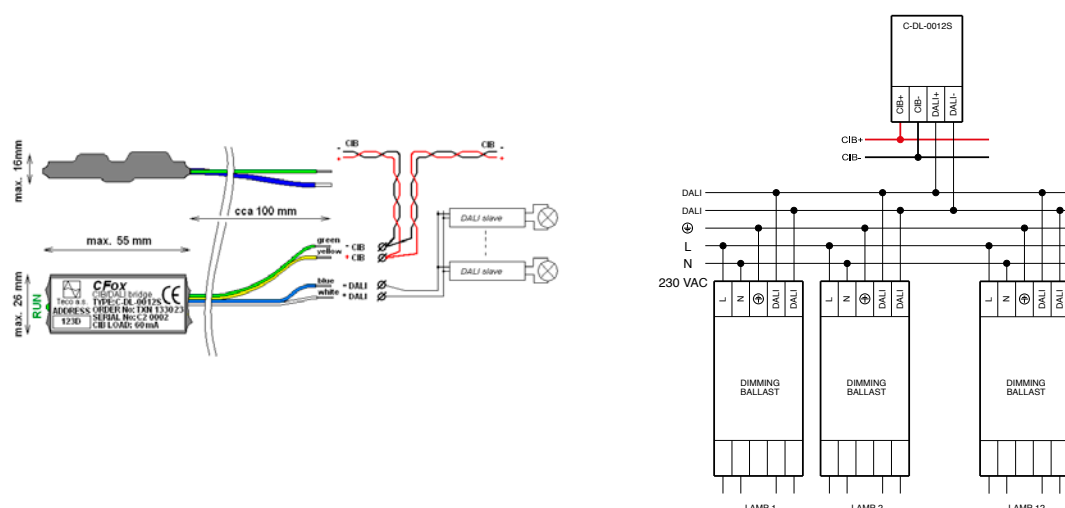
Use

- Control of fluorescent tubes with DALI ballasts ALI.
- 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 in Mosaic.



C-DL-0012S

Connection example



Communication

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

Operating conditions

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

Dimensions and weight

Dimensions	50 × 26 × 20 mm
Weight	7 g

Power supply

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

Order number

TXN 133 23	C-DL-0012S; CIB-DALI converter, for 12 ballasts
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Type	DI	DO	AI	AO	Comm
C-WG-0503S	3 DI (TTL)	3 × DO (NPN)	2 AI/DI		Wiegand, CIB

Basic features

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

- Module is in miniature built-in design. In extreme cases may be built-in into detectors of security systems.
- Operation of module is indicated by LED diode.

Connections

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

Use

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



C-WG-0503S

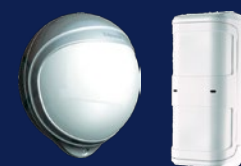
Example of devices connectable to module C-WG-0503S



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



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

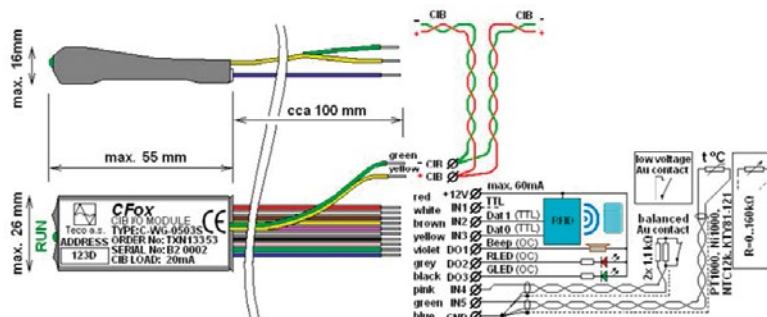


PIR detectors Texcom Security systems



Fire detectors Texcom Fire alarm systems

Connection example



Analog/combined inputs

No. of digital inputs	3 × DI (IN1–IN3), TTL 5 V 3.9 kΩ pull up resistor
No. of universal inputs	2 × AI/DI (IN4–IN5)
Galvanic isolation	No

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

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 device cover
Connections of CIB, inputs, outputs	Wires 0.5mm ² . grouped on connector inserted into module

Order number

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

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

Communication

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

Power supply output 12 VDC

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

Dimensions and weight

Dimensions	55 × 26 × 16 mm
Weight	7 g

Power supply

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

Type	DI	RO	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 NO and NC contacts available
- It is designed for switching 2 independent power load.
- Each relay is independently addressed and controlled.
- Module has 2 universal inputs for potential free contacts or resistive temperature sensors.
- Inputs can operate also as double balanced inputs for safety detectors. Inputs can be used to connect other resistive sensors up to 160 kΩ.
- Status of outputs and error/operation is indicated by LED on module.

Connections

- Module must be connected on two wire CIB bus, providing both communication and power supply of module.
- Module is designed for assembly into standard installation box in the wall or under device cover.
- All relay contacts are available on stranded isolated wires of

70 mm length finished by sleeves.

- CIB bus and universal inputs are available on screw-type terminals.

Use

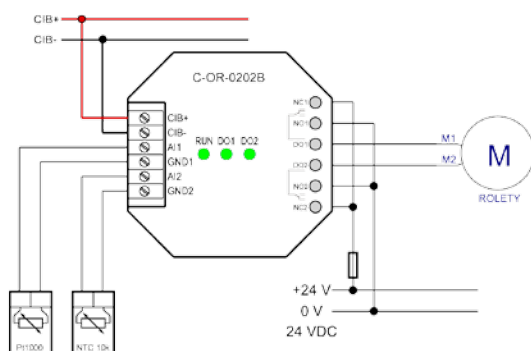
- Module is designed for switching independent power loads and other devices by relay contacts.
- With appropriate connections of contacts of both relays which avoid the simultaneous presence of voltage on both output contacts, module can be used to control drives of shutters, shutters and blinds.
-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



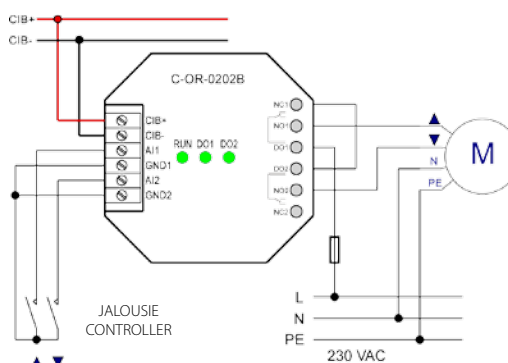
C-OR-0202B

Connection example

Connection of DC motor and 2 temperature sensors



Connection of 230 V drives of shutters etc. and 2 push buttons.



Analog/combined inputs

No. of digital inputs	3 × DI (IN1–IN3), TTL 5 V 3.9 kΩ pull up resistor
No. of universal inputs	2 × AI/DI (IN4–IN5)
Galvanic isolation	No

Sensor type	Sensor type	Basic accuracy
Potential-free contact	0/1	
Balanced outputs	tamper broken line/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. 1.5 mm²
Relay outputs	6 × stranded wire H05 VK, 2.5 mm²

Relay outputs

No. of outputs	2 × both NO, NC contacts 16 A/AC1
Galvanic isolation	Yes (even among outputs)
Switching voltage	min. 5 V DC; max. 300 V AC
Switching power	4000 VA/AC1, 384 W/DC
Switching current	max.16 A (NO), max.10 A (NC), min. 100 mA
Inrush current	80 A/<20 ms (switching contact)
Switch on/off 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 × 10 ⁷ /0.7 × 10 ⁵
Electrical lifetime	0.7 × 10 ⁵
Short-circuit protection	No
Spike suppressor of inductive load	External (RC unit, varistor, diode)
Insulation voltage among each relay outputs	1000 V AC

Dimensions and weight

Dimensions	48 × 48 × 26 mm
Weight	50 g

Power supply

Power supply and communication	24 V (27 V) from CIB bus
Nominal load	45 mA (NO on both relays)
Internal protection	Recovering fuse

Order number

TXN 133 02	C-OR-0202B; CIB relay module 2 × RO 230 V AC/16 A; 2 × AI/DI
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Type	DI	DO	AI	AO	Comm
C-VT-0102B			1 × temperature	2 × fan	CIB

Basic features

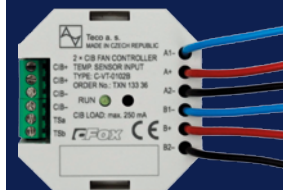
- Module is designed for proportional control of speed and rotation direction of two fans in recuperation system inVENTer®
- Both fans are powered from the CIB bus.
- Module on CIB bus acts as two analog outputs 0–100% and one analog input for interior temperature measurement.
- Error/operation is indicated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

Connections

- Module has to be connected to CIB bus by two wires. CIB provides both communication and power supply.
- Cah fan is connected by 3 stranded wires finished by sleeves.
- Two screw type terminals are used for connection of temperature sensors

Use

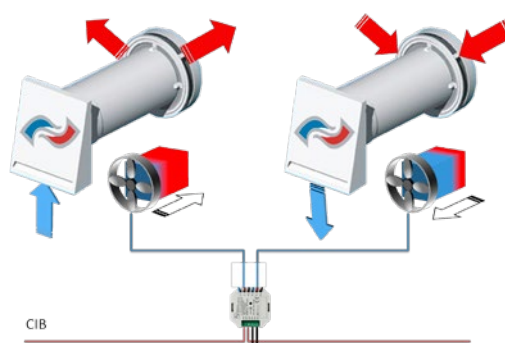
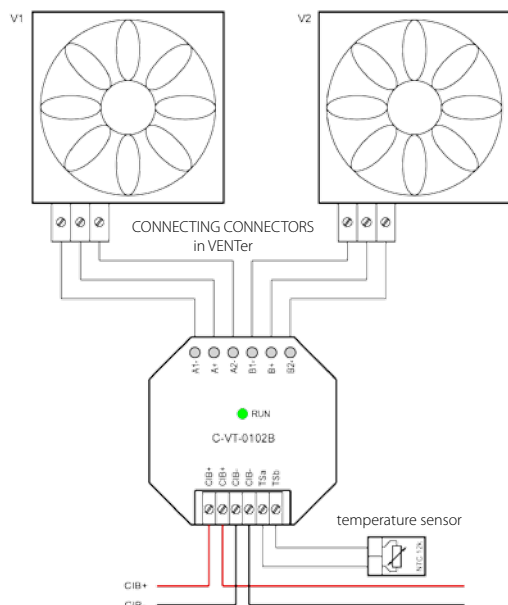
- Module is designed specifically to control recuperation fans of patented system inVENTer. Together with these two fans, module is de facto recuperation unit controlled and powered by CIB bus.
- Logic of both fans control in modes of recuperation, dehumidification or charging is given by application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

Analog input

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 mm ²
Outputs for fans	6 × wire H05 VK, 0.5 mm ²

Dimensions and weight

Dimensions	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	Recovering fuse

Order number

TXN 133 36	C-VT-0102B, CIB, 2 × fan drive for inVENTer (+–15 V DC); 1 × AI for temperature sensor
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CIB – Module of universal analog inputs with protection IP65

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

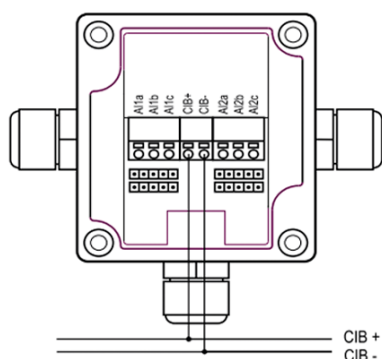
Basic features

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

Connections

- Module must be connected to CIB bus providing both communication and power supply of module.
- Wires connect via screw-less terminals accessible after opening.
- Module can be fixed on flat or on the wall.

Connection example

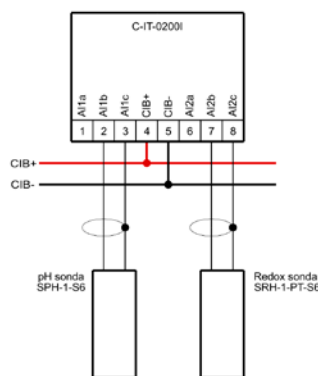


Use

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



C-IT-0200I



Example of connection pH and Redox probes

Analog inputs

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

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

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-less free Push-in terminals 1.5 mm ²

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

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

Dimensions and weight

Dimensions	125 × 100 × 38 mm
Weight	120g

Power supply

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

Order number

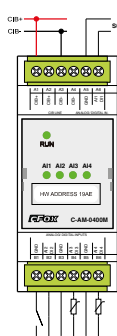
TXN 133 09	C-IT-0200I; CIB; 2×AI; 0–10 V; 4–20 mA; RTD, TC; IP65
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Type	DI	DO	AI	AO	Comm
C-AM-0400M			4 × AI/DI		CIB
C-AM-0600I			5 × AI/DI 2 × AI for flow meter AV23		CIB

Basic features

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

Connection example



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

Binary inputs	C-AM-0400M	C-AM-0600I
No. of inputs	4 × AI/DI	5 × AI/DI
Input type	Active/passive	Active/passive
Delay 0→1	10 ms	10 ms
Delay 1→0	500 ms	500 ms

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

Operation and installation conditions

Operation temperature	-10 .. +55 °C
Storage temperature	-25 .. +80 °C
Electrical strength	according EN 60730
Degree of protection IP (IEC 529)	IP55
Overvoltage category	II
Degree of pollution according ČSN EN 60664-1:2008	1
Operation position	Any
Installation	On wall
Connection CIB and sensors	Screwless push-in terminals 0.14÷1.5 mm ²

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

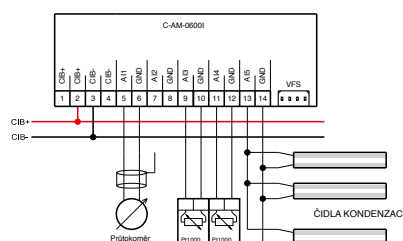
- Module firmware linearizes characteristics of resistance sensors, optimizes accuracy of measurement and recalculates it into temperature, which is further transmitted into central unit.

Connection

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

Use

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



Sensor type	Range	Basic accuracy
Potential-free contact	0/1	0 for <1.5 kΩ 1 for >1.5 kΩ
Balanced input	tamper/0/1/tamper	pro 2 × 1k1 balancing resistor
Pt1000	-90 .. 320 °C	0.5%
W1000=1.385/1.391		
Ni1000	-60 .. 200 °C	0.5%
W1000=1.500/1.617		
NTC 12k	-40 .. 125 °C	1%
KTY 81-121	-55 .. 125 °C	0.5%
Resistor OV 200k	0 – 200 kΩ	10%
Resistor OV 400k only for AI5	0 – 400 kΩ	10%
Voltage	0÷10 V, 0÷2 V, 0÷1 V	0.5%
Current	0 – 20 mA, 4 – 20 mA	

Interface features

of flow meter AV23	C-AM-0400M	C-AM-0600I
Power supply voltage		5 V DC
Integrated power supply		Yes
Typical load from CIB		3 mA
Measured range of flow meter/Internal converter		0.5 – 3.5 V /1 – 12 l/min /2 – 40 l/min
Input error		0.5%
Measured range of thermo meter/Internal converter		0.5 – 3.5 V/0 – 100 °C
Input error		0.5%

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

Power supply

Power supply and communication	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

UNDER CONSTRUCTION



C-AM-0400M



C-AM-0600I

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

Connection

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

Use

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

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 accuracy	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 protection according IEC 529	IP54	IP65
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, IP65, plastic head
TXN 133 16.01	C-IT-0100H-P, CIB, Surface contact temperature sensor with stem, IP65, plastic head
TXN 133 16.02	X-IT-0100H-P Outdoor temperature sensor with IP65, plastic head



C-IT-0100H-A



C-IT-0100H-P



C-IT-0100H-P
Surface contact



C-IT-0100H-P
outdoor
temperature

CIB – Outside temperature and lighting sensor module

Type	DI	RO	AI	AO	Comm
C-RI-0401I			1× lighting sensor 1× temperature sensor		CIB

Basic features

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

Connection

- Module to be connected to two wires CIB bus, which holds communication and power supply of module.
- CIB bus comes to module through bushing by two wires cable up to diameter 7mm.

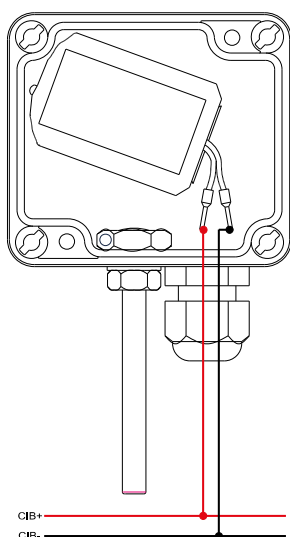
Use

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



C-RI-0401I

Connection example



Temperature sensor

Number	1
Galvanic isolation	No
Resolution	12 bit

Measured ranges

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

Operating conditions

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

Lighting sensor

Number	1
Galvanic isolation	No
Resolution	12 bit

Measured ranges

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

Dimensions and weight

Dimensions	74×125×39 mm
Weight	150 g

Power supply

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

Order number

TXN 133 47.92	C-RI-0401I, CIB combined module for outside lighting and temperature metering
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CFox

Interior controllers

Logus90 EFAPEL



C-WS-0200R
Logus



C-WS-0400R
Logus



C-IT-0200R
Logus



C-RC-0002R
Logus



C-RC-0003R
Logus



C-RI-0401R
Logus

Time ABB



C-WS-0200R
Time



C-WS-0400R
Time



C-IT-0200R
Time



C-RC-0002R
Time



C-RI-0401R
Time

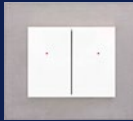


RCM2

Decente Obzor



C-WS-0200R
Decente



C-WS-0400R
Decente



C-IT-0200R
Decente



C-AQ-0001R
CO2



C-AQ-0002R
VOC



C-AQ-0003R
Kouř

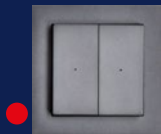


C-AQ-0004R
vlhkost

System 55 Merten, Gira



S-WS-0200R
Merten



S-WS-0400R
Merten



C-IT-0200R
Gira



C-RC-0002R
Merten



C-RC-0003R
Gira



C-RI-0401R
Gira



S-WS-0600R
Gira

Bticino Living Light Axolute



S-WS-0200R
Bticino Living



S-WS-0400R
Bticino Living



C-IT-0200R
Bticino Living

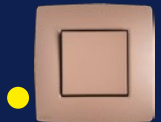


C-RC-0002R
Bticino Living

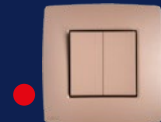


C-RC-0003R
Bticino Light

Eaton Original, Pure. Intense



S-WS-0200R
Niko



S-WS-0400R
Niko



C-IT-0200R
Niko



C-RC-0002R
Niko



C-RC-0003R
Niko



S-WS-0600R
Niko

Schneider Unica



S-WS-0200R
Unica



S-WS-0400R
Unica



C-IT-0200R
Unica



C-RC-0002R
Unica



C-RC-0003R
Unica

Integration via



C-IT-0200S



C-IT-0504S































































C-IT-0908S

Basic features

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

Order codes

- Order number are mentioned below images.

White	Ivory	Ice	Pearl	Aluminium	Gray
Covers for devices					
					
90601 TBR-U1	90601 TMF-U1	90601 TGE-U1	90601 TPE-U1	90601 TAL-U1	90601 TIS-U1
					
90611 TBR-U1	90611 TMF-U1	90611 TGE-U1	90611 TPE-U1	90611 TAL-U1	90611 TIS-U1
Covers with devices					
					
LPA4-white	LPA4-ivory	LPA4-ice	LPA4-pearl	LPA4-aluminium	LPA4-gray
					
LCD1-L-white	LCD1-L-ivory	LCD1-L-ice	LCD1-L-pearl	LCD1-L-aluminium	LCD1-L-gray
					
LCD HL1-L-white	LCD HL1-L-ivory	LCD HL1-L-ice	LCD HL1-L-pearl	LCD HL1-L-aluminium	LCD HL1-L-gray
					
90677 TBR	90677 TMF	90677 TGE	90677 TPE	90677 TAL	90677 TIS
Frames, line Basic			Frames, line Aquarella		
					
90910 TBR White	90910 TGF Ivory	90910 TGE Ice	90910 TPE Pearl	90910 TAL Aluminium	90910 TIS Gray
Frames, line Metallo					
					
90910 TIA Inox, aluminium	90910 TOP Gold, aluminium	90910 TQS Nickel, gray	90910 TRS Chrom, gray	90910 TTP Titanium, pearl	90910 TUS Aluminium, gray
Frames, line Arbore					
					
90910 TFP Beech, pearl	90910 TJP Cherry-tree, pearl	90910 TMS Mahogany, gray	90910 TNA Walnut-tree, aluminium		
Frames, line Crystal					
					
90910 TCA Glass, aluminium	90910 TCG Glass, ice	90910 TCP Glass, pearl	90910 TCS Glass, gray		
Frames, line Petra					
					
90910 TGA Granite, aluminium	90910 TGG Granite, ice	90910 TGP Granite, pearl	90910 TGS Granite, gray		

CIB devices:



C-WS-0200R Logus
TXN 133 56



C-WS-0400R Logus
TXN 133 57

CIB bus interfaces:



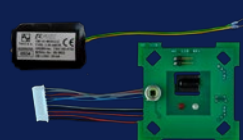
C-IT-0200R-Design-Zak
TXN 133 20



C-RC-0002R-Design-Zak
TXN 133 33



C-RC-0003R-Design-Zak
TXN 133 37



C-RI-0403R-Logus
TXN 133 47.21
TXN 133 47.22
TXN 133 47.23

Basic features

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

Order number

- Order number are mentioned below images.

White/ice white	White/white	Titanium	Old-fashioned silver	Champagne	Anthracite
Covers with devices					
3558E-A00651 01	3558E-A00651 03	3558E-A00651 08	3558E-A00651 32	3558E-A00651 33	3558E-A00651 34
3558E-A00652 01	3558E-A00652 03	3558E-A00652 08	3558E-A00652 32	3558E-A00652 33	3558E-A00652 34
5015E-A00200 01	5015E-A00200 03	5015E-A00200 08	5015E-A00200 32	5015E-A00200 33	5015E-A00200 34

Covers with devices					
LCD1-Ti-white/ice	LCD1-Ti-white/white	LCD1-Ti-titanium	LCD1-Ti-old-fashioned silver	LCD1-Ti-champagne	LCD1-Ti-anthracite
LCD-HL1-Ti-white/ice	LCD-HL1-Ti-white/white	LCD-HL1-Ti-titanium	LCD-HL1-Ti-old-fashioned silver	LCD-HL1-Ti-champagne	LCD-HL1-Ti-anthracite
3902E-A00001-01	3902E-A00001-03	3902E-A00001-08	3902E-A00001-32	3902E-A00001-33	3902E-A00001-34

Frames Time					
3901F-A00110 01	3901F-A00110 03	3901F-A00110 08	3901F-A00110 32	3901F-A00110 33	3901F-A00110 34

Frames Time Arbo			
3901F-A50110-50	3901F-A50110-51	3901F-A50110-52	3901F-A50110-53

Natural beech	Alder-tree	Cherry-tree	Mahogany
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End caps Time					
3902E-A00001-01	3902E-A00001-03	3902E-A00001-08	3902E-A00001-32	3902E-A00001-33	3902E-A00001-34

CIB devices:



C-WS-0200R-Time
TXN 133 30



C-WS-0400R-Time
TXN 133 31



C-IT-0200R-ABB-Zak
TXN 133 19

Bus interfacery



C-RC-0002R-Time
TXN 133 33



C-RC-0003R-Time
TXN 133 37



C-RI-0401R-Time
TXN 133 47.01
TXN 133 47.02
TXN 133 47.03

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

Basic features

- Because of wide range of color and material combinations of covers and frames from Time/Element line, the cover and frame order separately.

Order number

- Order number are mentioned below images.

White ice white	White/ white	White ice gray	Caramel ice gray	Ivory ice white	Agave ice gray	Carmin ice gray	Coffee/ice opal
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Covers for C-WS-0200R-Element



3558E-A00651 01 3558E-A00651 03 3558E-A00651 04 3558E-A00651 07 3558E-A00651 21 3558E-A00651 22 3558E-A00651 24 3558E-A00651 25

Covers for C-WS-0400R-Element



3558E-A00652 01 3558E-A00652 03 3558E-A00652 04 3558E-A00652 07 3558E-A00652 21 3558E-A00652 22 3558E-A00652 24 3558E-A00652 25

Covers for C-IT-0200R-Element



5015E-A00200 01 5015E-A00200 03 5015E-A00200 04 5015E-A00200 07 5015E-A00200 21 5015E-A00200 22 5015E-A00200 24

Covers for C-RC-0002R-Element



LCD1-Ti-white/ice white LCD1-Ti-white/white LCD1-Ti-ice gray LCD1-Ti-caramel/ice gray LCD1-Ti-ivory/ice gray LCD1-Ti-agave/ice gray LCD1-Ti-carmin/ice gray LCD1-Ti-coffee/ice opal

Covers for C-RI-0401R-Element



3902E-A00001-01 3902E-A00001-03 3902E-A00001-04 3901E-A00110 07 3901E-A00110 21 3901E-A00110 22 3901E-A00110 24 3901E-A00110 25

Frames for Element



3901E-A00110 01 3901E-A00110 03 3901E-A00110 04 3901E-A00110 07 3901E-A00110 21 3901E-A00110 22 3901E-A00110 24 3901E-A00110 25

End caps for



3902E-A00001-01 3902E-A00001-03 3902E-A00001-04 3902E-A00001-07 3902E-A00001-21 3902E-A00001-22 3902E-A00001-24 3902E-A00001-25

CIB devices:



C-WS-0200R-Time
TXN 133 30



C-WS-0400R-Time
TXN 133 31



C-IT-0200R-ABB-Zak
TXN 133 19



C-RC-0002R-Time
TXN 133 33



C-RI-0401R-Time
TXN 133 47.01
TXN 133 47.02
TXN 133 47.03

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

Basic features

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

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

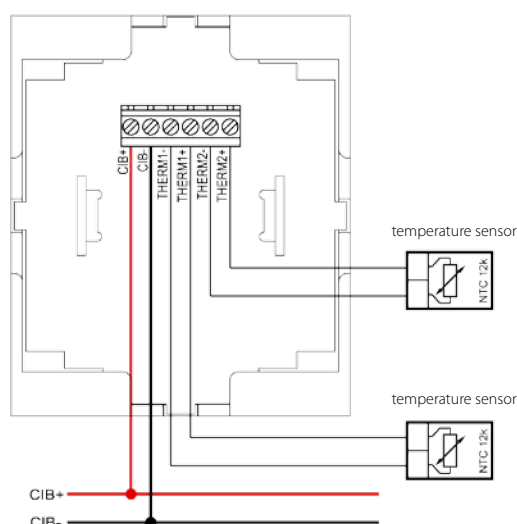
Connections

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

Use

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

Connection example



Analog inputs	C-WS-0200R	C-WS-0400R
Input type	2×NTC12K/ resistance 0–100 kΩ, NTC 12k/odpor 0–100 kΩ	2×NTC12K/ resistance 0–100 kΩ
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 mm ²

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

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. load	13 mA/17 mA	13 mA/17 mA
Typical/max. input power	0.3 W/0.4 W	0.3 W/0.4 W
Internal protection	No	No

Order number

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



C-WS-0200R Time



C-WS-0400R Time

Requirements for other design of wall switches you may solve out with use of combined modules C-IT-05%4S or C-IT-0908S.

CIB – Group wall switch controllers Logus90 (EFAPEL)

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

Basic features

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

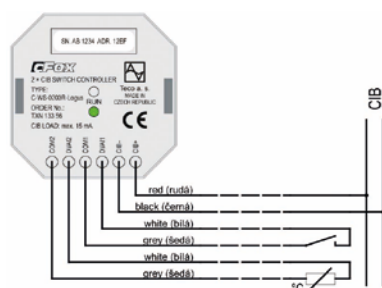
Connection

- Wall switches connect directly to CIB bus, which holds communication and power supply of switches.

Use

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

Connection example



Button inputs	C-WS-0200R-Logus	C-WS-0400R-Logus
Input type	2x built-in button	4x built-in button
Binární výstupy indikace LED	C-WS-0200R-Logus	C-WS-0400R-Logus
Output type	1x green LED 1x red LED	2x green LED 2x red LED

Universal inputs	2x AI/DI
Galvanic isolation from CIB bus	No

Sensor type	Ranges	Základní Accuracy
Voltage-free contact	0/1	0 if >1.5 kΩ 1 if >1) <0.5 kΩ
Balanced input (security systems)	Interrupted wire /0/1/tamper	for 2x 1k1 balanced resistor
Pt1000	-90 .. 320°C	0,5%
Ni1000	-60 .. 200°C	0,5%
NTC 12 k	-40 .. 125°C	0,5%
KTZ81-121	-55 .. 125°C	0,5%
Resistor	0-160 kΩ	0,5%

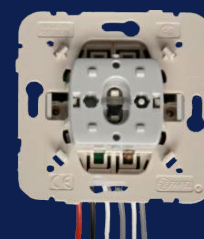
Operating conditions	
Operating temperature	-10 .. +55 °C
Storage temperature	-30 .. +70 °C
Electric strength	according EN 60950
Electric device protection degree according EN 61140:2003	II
IP Degree of protection IEC 529	IPxxB
Overvoltage category	x
Degree of pollution according EN60664-1:2008	1
Operating position	Vertical
Installation	On the wall, into installation box
Connection, wire dimension	Independent wires

Dimensions and weight	
Dimensions	88x86x38mm
Weight	79g

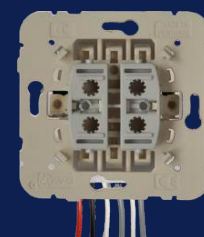
Power supply	
Power supply	24 V (27 V) from CIB bus
Nominal/max. load	13 mA/17 mA
Typ./Max. input power	0.3 W/0.4 W
Internal protection	No

Order number

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



C-WS-0200R Logus



C-WS-0400R Logus



Bottom view



Drivers must be complete with box and cover

Basic features

- Because of wide range of color and material combinations of covers and frames in design line LOGUS90, there is need to order separately covers and frames as independent items.

Order number

- Order numbers are mentioned bellow each image.

Covers for C-WS-0200R-Logus



90601 TBR-U1
White



90601 TMF-U1
Ivory



90601 TGE-U1
Ice



90601 TPE-U1
Pearl



90601 TAL-U1
Aluminium



90601 TIS-U1
Gray

Covers for C-WS-0400R-Logus



90611 TBR-U1
White



90611 TMF-U1
Ivory



90611 TGE-U1
Ice



90611 TPE-U1
Pearl



90611 TAL-U1
Aluminium



90611 TIS-U1
Gray

Frames, line Basic

Frames, line AQUA



90910 TBR
White



90910 TMF
Ivory



90910 TGE
Ice



90910 TPE
Pearl



90910 TAL
Aluminium



90910 TIS
Gray

Frames, line Metallo



90910 TIA
Inox, aluminium



90910 TOP
Gold, aluminium



90910 TQS
Nickel, gray



90910 TRS
Chrome, gray



90910 TTP
Titanium, pearl



90910 TUS
Aluminium, gray

Frames, line Arbore

Frames, line Crystal



90910 TFP
Beech, Pearl



90910 TJP
Cherry-tree, pearl



90910 TMS
Mahogany, gray



90910 TNA
Walnut-tree,
aluminium



90910 TCA
Glass, aluminium



90910 TCG
Glass, ice

Frames, line Petra

Frames, line Crystal



90910 TGA
Granite, aluminium



90910 TGG
Granite, ice



90910 TGP
Granite, pearl



90910 TGS
Granite, gray



90910 TCP
Glass, pearl



90910 TCS
Glass, gray

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 designed 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 lower part of cover. This placement maximizes accuracy of measurement and eliminates influence of module heating to measurement.
- Input for external temperature sensor and connection CIB bus is placed in bottom part of module.
- Firmware supports linearization and direct reading of temperature from external NTC 5k, 10k, 12k, 15k and 20k. For these types of sensors it eliminates even distortion, resp. error of measurement for long distance.
- Input for external sensor can be used for measurement of general resistance up to 100 kΩ.
- Status and error/operation is indicated by LED diode at bottom part of module.

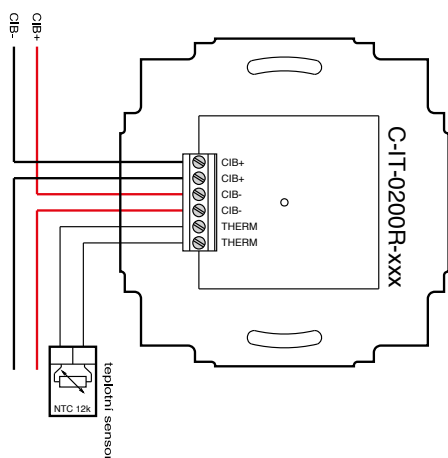
Connections

- 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.
- Upper and bottom part connect each other with cable with connector.

Use

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

Connection example



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

Analog inputs

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

Dimensions and weight

Dimensions	89 x 87 x 25 mm	lower or according used design
Weight	80 g	lower

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 on request



C-IT-0200R-Time

Other designs on request



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

Type	DI	DO	AI	AO	Comm
C-IT-0200R-Design			2 x Temperature internal, external		CIB

Basic features

- Module is on CIB bus connectable module designed 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 kΩ.
- Status and error/operation is indicated by LED diode

on bottom part of module.

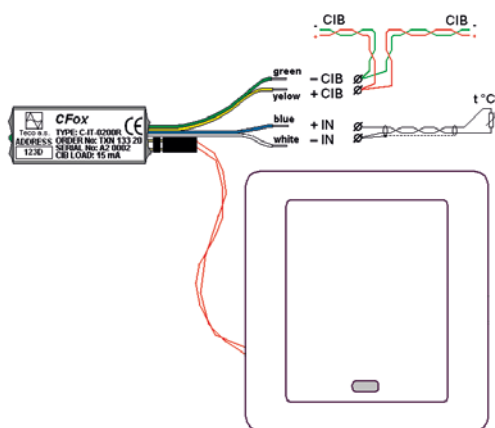
Connections

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

Use

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

Connection example



Analog inputs

Sensor type	Range	Basic accuracy
Internal	0..+55 °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

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 sleeves 1.5 mm²

Analog inputs

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

Dimensions and weight

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

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

Example:
C-IT-0200R– Legrand Galena



Other designs for individual order:



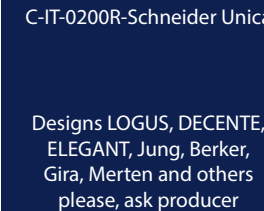
C-IT-0200R-Legrand Valena



C-IT-0200R-Legrand Cariva



C-IT-0200R-Niko Pure



C-IT-0200R-Schneider Unica

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

Order number

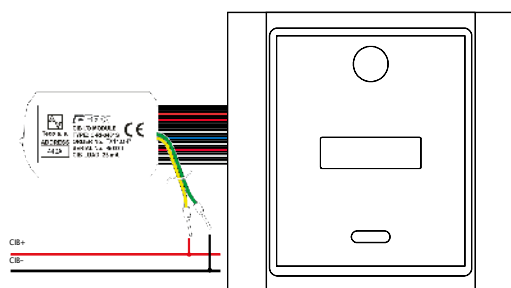
TXN 133 20	C-IT-0200R-Zak; CIB, 2 x temperature (1 x internal, 1 x external); cover and frame separately on request
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Type	DI	DO	AI	AO	Comm
C-RI-0401R-Time			1×internal temperature 1×external temperature/contact 1×light sensor		CIB, IR both directions

Basic features

- Module with bidirectional infrared interface with interior design for use with majority of remote controllers. Module has also inputs for light intensity sensor, temperature sensor and external temperature sensor or contact.
- This input can be used also as balanced input for connection of security detectors.
- Standard design is Time (ABB) white/white.
- Other designs may be delivered on request after agreement with manufacturer.
- Module may learn IR commands of remote controllers of different devices: air-conditioning units, audio/video etc. – and store them in module memory. Subsequently, these commands can be transmitted initiated by the system over CIB bus.
- By this we the manual control can be replaced by automatic control of central module.

Connection example



IR receiver

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

IR transmitter

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

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,	flat cable 0.5 mm ²

Order number

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

Connections

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

Use

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

Analog/combined inputs

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

Measurement ranges

Sensor type	Range	Accuracy
Potential free contact	switched on/ switched of	
Balanced input (security systems)	broken line/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
KTY81-121	–55 .. 125°	0.6°C
Resistance	0 – 160 kΩ	

Dimensions and weight

Dimensions	88 × 81 × 17 mm
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



C-RI-0401R-Time

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

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

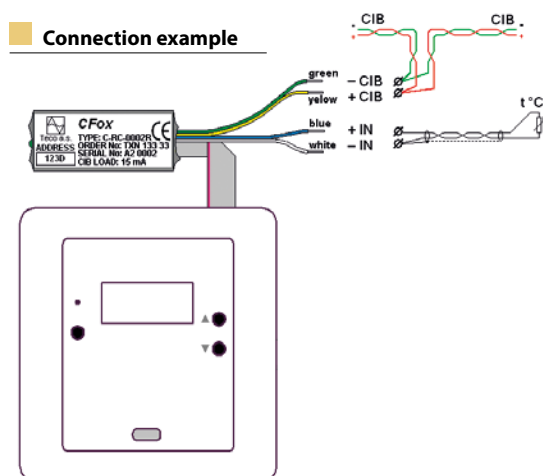
Connections

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

Use

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

Connection example



Analog inputs

Sensor type	Range	Basic accuracy
Internal temperature	0..+55 °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 sleeves 1.5 mm²

Dimensions and weight

Dimensions	83 × 81 × 25 mm
Weight	80 g

Power supply

Power supply and communication	24 V (27 V) from bus CIB
Typical load	45 mA
Typical 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 on request)



C-RC-0002R-Time

Designs on request:



C-RC-0002R-Berker



C-RC-0002R-Bticino



C-RC-0002R-Legrand



C-RC-0002R-Unica



C-RC-0002R-Niko

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

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, (or time, humidity, velocity etc.) and the amount of graphic icons frequently used for heating, ventilation and air-conditioning (HVAC).
- Moving through the menu and settings are performed by rotary element with the pushbutton for acknowledgement.
- Built-in temperature sensor. The additional temperature sensor can be connected. It can be placed on most suitable place in the room.
- The device is fully free programmable through the Mo-saic/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.

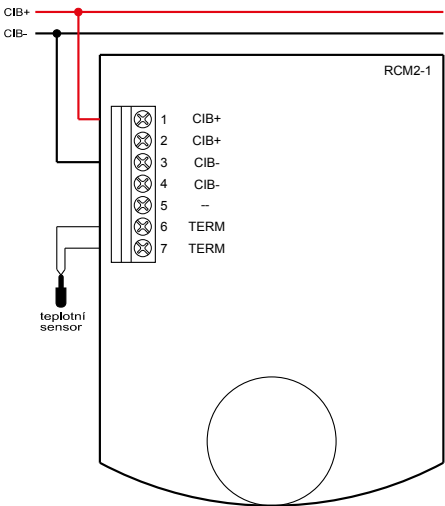
Connecting

- 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 in-dividual 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 x 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 x v x h)	90 x 115 x 39 mm
Weight	130 g
Operational 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 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
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Type	DI	DO	AI	AO	Comm
C-AQ-0001R			1 x CO ₂ , 1 x temperature		CIB
C-AQ-0002R			1 x gas, 1 x temperature		CIB
C-AQ-0003R			1 x smoke, 1 x temperature		CIB
C-AQ-0004R			1 x humidity, 1 x 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 is controlled according to sensors only for necessary time, it is possible to reach significant energy savings, especially with connection of recuperation.

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

Basic features

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

Connections

- The device is to be wired by two wires of CIB, which provide both power supply and communication channel.

Use

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

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 manufacturer
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)

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

- The device is to be wired by two wires of CIB, which provide both power supply and communication channel.

Use

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

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-0002R

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

- The device is to be wired by two wires of CIB, which provide both power supply and communication channel.

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.

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-0003R

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

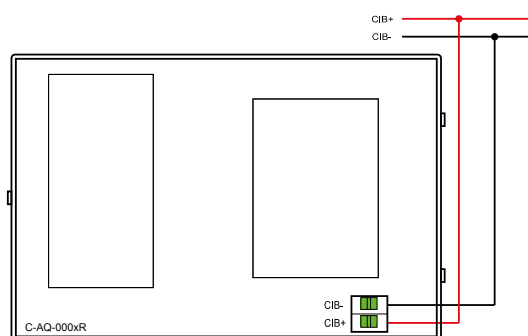
Basic features

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

Use

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

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 %)



C-AQ-0004R

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 mm ²

Dimensions and weight

Dimensions	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

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

Basic features

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

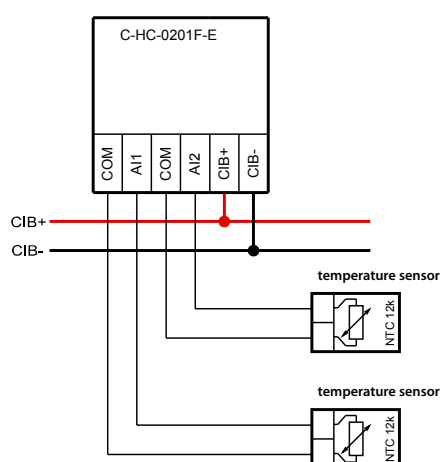
Connections

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

Use

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

Connection example



Analog/combined inputs	C-HC-0201F-E	C-HC-0101F
No. of inputs	2	1
For sensors	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

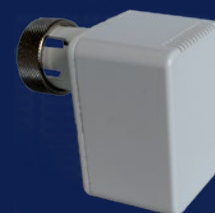
Dimensions and weight

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

Power supply	C-HC-0201F-E	C-HC-0101F
Power supply	24 V (27 V)	24 V (27 V)
a Communication	from bus CIB	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



C-HC-0201F-E



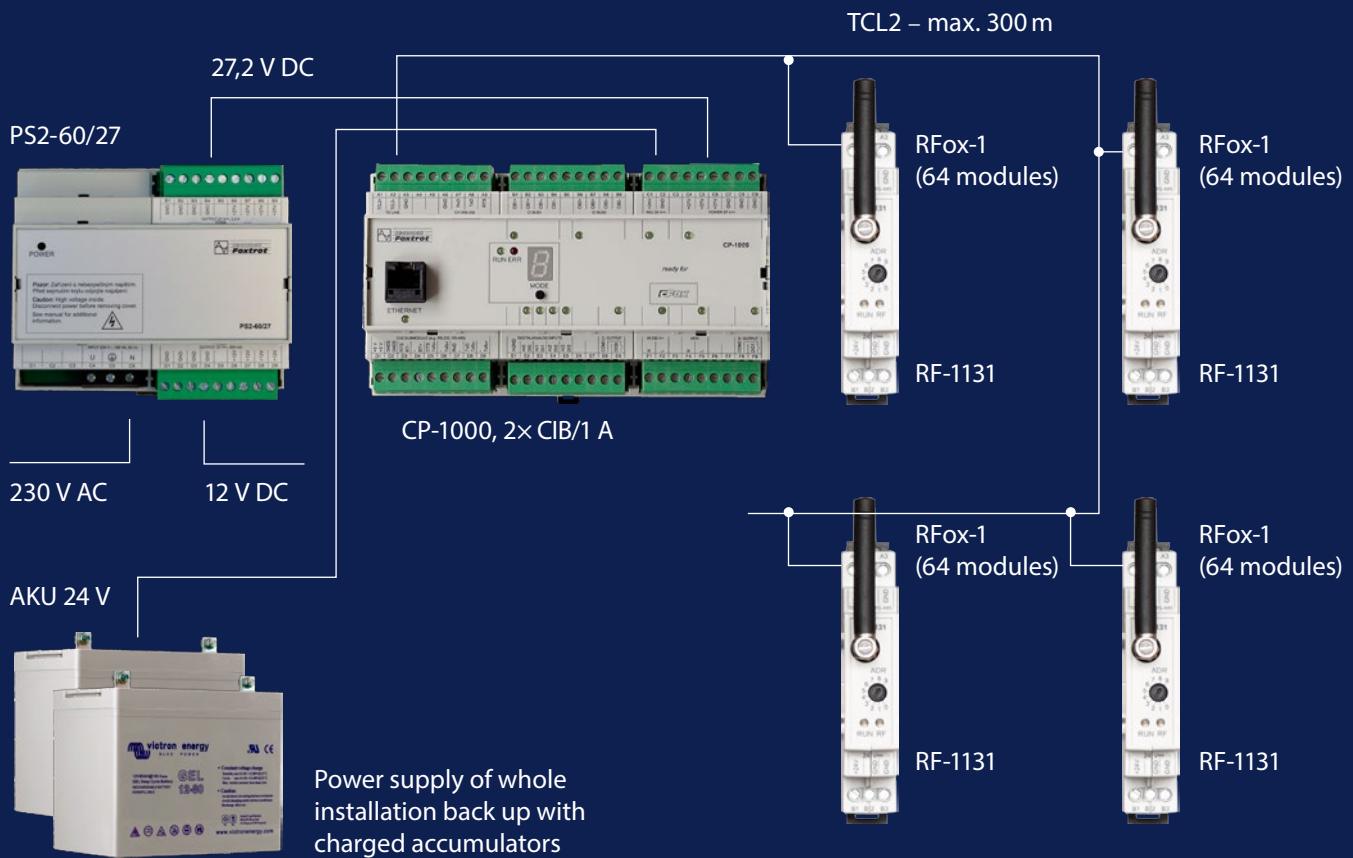
C-HC-0101F

Wireless communication RFox is:

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

RFox

Intelligent wireless electroinstallation and measurement at 868MHz frequency band



Portable modules

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



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

Modules into switchboards



R-HM-1113M
Combined module
on DIN rail



R-HM-1121M
Combined module
on DIN rail

Built-in modules

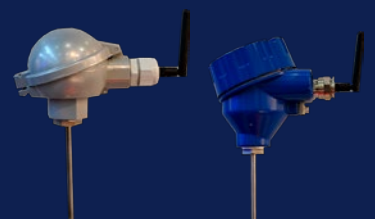


R-OR-0001B
1xRelay 230 V AC



R-IB-0400B
4xcontact sensor

Modules with protection IP65



R-IT-0100I-A
Temperature sensor

RFox master

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

Basic features

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

Connections

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

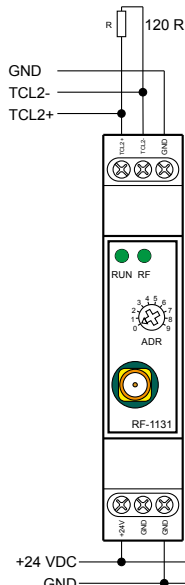
Use

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



RF-1131

Connection example



Communication

System I/O bus	1 x TCL2 (RS-485, 345 kbit/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 routing
Range	About 25 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 mm²

Dimensions and weight

Dimensions	90 x 18 x 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 network
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Type	DI	DO	AI	AO	Comm
R-WS-0200R-Time	2				RFox
R-WS-0400R-Time	4				RFox
R-IT-0100R-Time			1 temperature		RFox

Basic features

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

Connections

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

Use

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

Digital inputs	R-WS-0200R	R-WS-0400R
Input type	2 x Button	4 x Button

Analog inputs	R-IT-0200R
Input type	1 x temperature

Communication	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
Interval of transmitting	9 min (without input activation), always during activation	9 min (without input activation), always during activation	9 min (without input activation), always during activation

Dimensions and weight	R-WS-0200R	R-WS-0400R	R-IT-0200R
Dimensions	80 x 80 x 35 mm	80 x 80 x 35 mm	80 x 80 x 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	About 1 year according frequency of usage.	About 1 year according frequency of usage.	About 1 year according frequency of usage.

Operating conditions	
Operating temperature	-20 .. +55 °C
Storage temperature	-30 .. +70 °C
IP Degree of protection IEC 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, wall switch with 2 short press buttons
TXN 132 31	R-WS-0400R-Time, Element, RFox, wall switch with 4 short press buttons
TXN 132 32	R-IT-0100R-Time, Element, RFox, Temperature sensor in interior design.

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



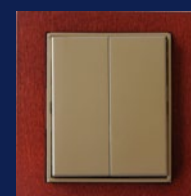
R-WS-0200R Time



R-WS-0200R Time



R-IT-0100R-Time



R-WS-0400R Time-Arbo



R-WS-0400R-Time-Champagne

Room Control Manager

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

Basic features

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

Connections

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

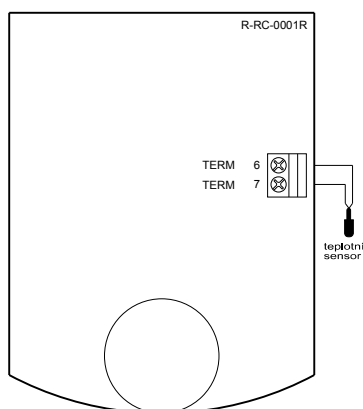
Use

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



R-RC-0001R

Connection example



Display and control elements

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 can be processed in user program

Analog inputs

Inputs	2 x 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 25 m in building, 100 m in empty space ')
Interval of transmission	10 min

Operating conditions

Operation 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	Vertical
Installation	On wall, on installation box

Dimensions and weight

Mechanical construction	Plastic box on wall
Dimensions	90 x 115 x 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
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Type	DI	DO	AI	AO	Comm
R-HC-0101F			1	0 – 100% valve position	RFox

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 module is coconnected by bonding process.

Use

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

Connection example

Communication

Wireless bus	RFox
Antenna	Integrated
Frequency	868 MHz
Signal transission	Both directions with confirmation
Range	About 25 m in building, 300 m in empty space
Range of temperature and position measuring and transmitting	9 min

Inputs

Input/measured value	1 × temperature sensor
Range of measured temperature	0 °C ÷ +50 °C
Basic measuring accuracy	+/-0.5 °C
Calibration	From manufacturing

Outputs

Output value	Opening valve 0 – 100%
--------------	------------------------

Dimensions and weight

Dimensions	47 × 75 × 65 mm
Weight	350 g

Power supply

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

Operating conditions

Operation temperature	0 až +55 °C
Temperature of storage and transport	-20 až +70 °C
Relative humidity	< 80 %
IP Degree of protection according IEC 529	IP 20
Degree of pollution	2
Installation	Plastic head, fixing to radiator valve M30 × 1.5 mm or with reduction

Order number

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

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

R-KF-0500T, R-KF-0400T – key rings

Basic features

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

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 RFox 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 routing 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

Power supply	R-KF-0500T R-KF-0400T
Power supply	CR2032 lithium battery
Battery lifetime	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



R-KF-0500T



R-KF-0400T

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

Basic features

- Modules on DIN rail with combination of analog and digital inputs and outputs.
- Each module has at wireless bus RFox only one address.
- 3 analog inputs for Resistance Temperature Detectors (RTD) and 2 analog outputs 0 – 10 V use for 1 – 2 regulation loops for example heating, cooling or for general use.
- 8 independent inputs for voltage free contacts.
- R-HM-1113M contains 4 galvanic isolated groups for 5 A and 1 power relay for 16 A with independently embarrassed switching contact. Each group may be used independently for switching 24 V DC or 230 V AC in different phases.
- R-HM-1121M contains 6 galvanic isolated groups for 5 A and 3 power relay for 16 A with independently embarrassed switching contact. Each group may be used independently for switching 24 V DC or 230 V AC in different phases.
- Power relays for 16 A have contacts with combination wolfram/AgSnO₂ for reliable switching of high loads.
- Each relay is independently addressed and controlled from program.
- After pushing button MANUAL CONTROL we 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 conditions for radio signal transmitting.
- Module R-HM-1113M is power supplied from 24 V DC, module R-HM-1121M is power supplied from power supply 230 V AC.
- Modules connect via removable connectors, power outputs R-HM-1121M via firm terminals.

Use

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

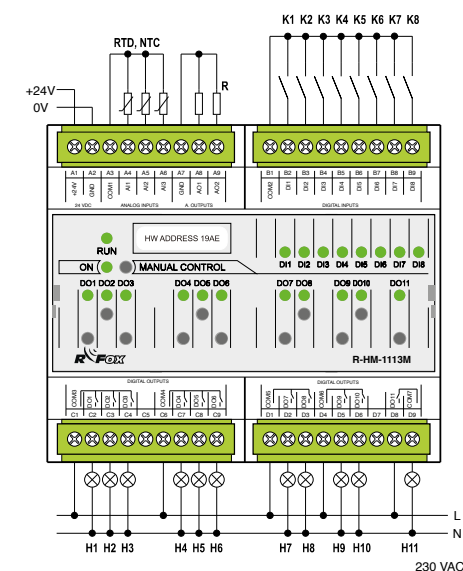


R-HM-1113M

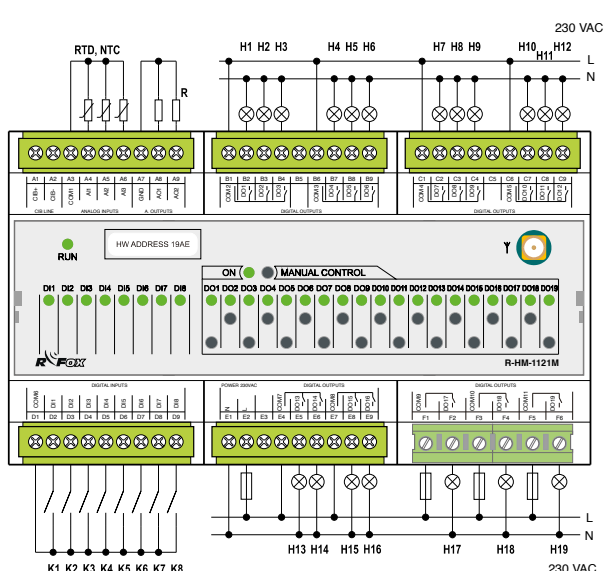


R-HM-1121M

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 transimtion	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	12 bit	12 bit
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	8 bit	8 bit
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, DO9 ÷ 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	3750 V AC	3750 V 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 protection IEC 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
Dimensions	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

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

Basic features

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

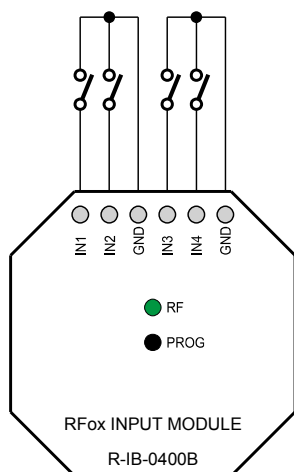
Connections

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

Use

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

Connection example



Digital inputs

No. of inputs	4 x 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 transmission	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 protection IEC 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

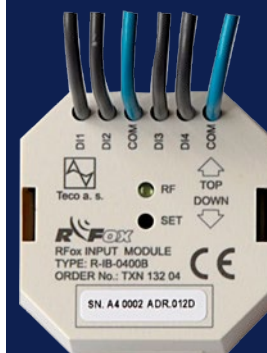
Dimensionsy modulu (š × v × h)	49 × 49 × 25 mm
Weight	30 g

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, 4xDI, voltage-free contact, box, battery
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R-IB-0400B

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

Basic features

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

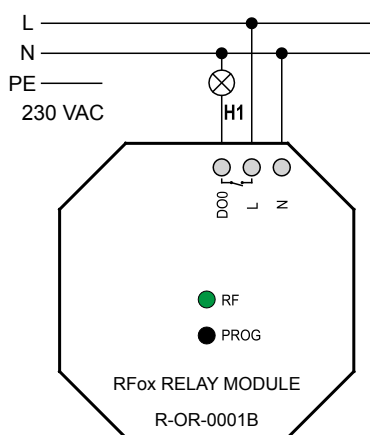
Connections

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

Use

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

Connection example



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 transmission	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 protection IEC 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 mm ²
Power supply protection	Circuit breaker 16 A, specification B



R-OR-0001B

Order number

TXN 132 01	R-OR-0001B, RF, 1 × Relay 2 A, switching contact, box
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Typ	DI	DO	AI	AO	Comm
R-AQ-0001R			1 x CO ₂		RFox
R-AQ-0002R			1 x gas – VOC		RFox
R-AQ-0003R			1 x smoke, CO		RFox
R-AQ-0004R			2 x 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 230 V AC via adapter 230 V AC/24 V DC. They are suitable for interior installations, where the 230 V 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 transmission	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 (CO₂)

Basic features

- Two channel measuring optical system on principle NDIR.
- High selectivity on dioxide concentration in range 0 – 5000 ppm CO₂.
- CO₂ 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.

Connections

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

Use

- Concentration of CO₂ 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, pěstirny hub, sklady ovoce.
 - Breeding companies, where is high concentration of animals.
 - Monitoring and control of food processes - fermentation, maturation

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
Operation humidity	Max. 95 % non-condensing
Calibration	From manufacturing
Lifetime	Typically 10 years
Power supply/load	24 V /90 mA

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.

Connections

- Sensor is designed 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.

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-0001R



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 designed 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 designed as standard device of data radio network RFox.

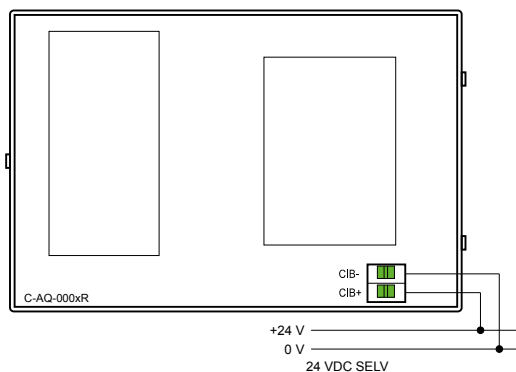
Use

- 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 mm ²

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



PS2-60/27



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 with two 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 0.3 A		

Basic features

- PS2-60/27 module is switching power supply with 2 levels of fixed output voltage 27.2 V DC and 12 V DC.
- It is designed for supplying control systems Foxtrout 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 12 V 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.

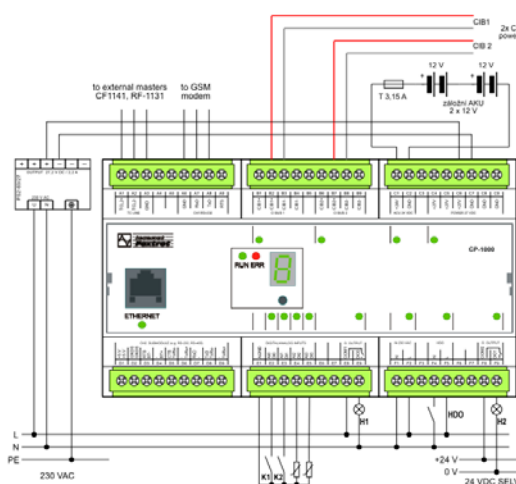
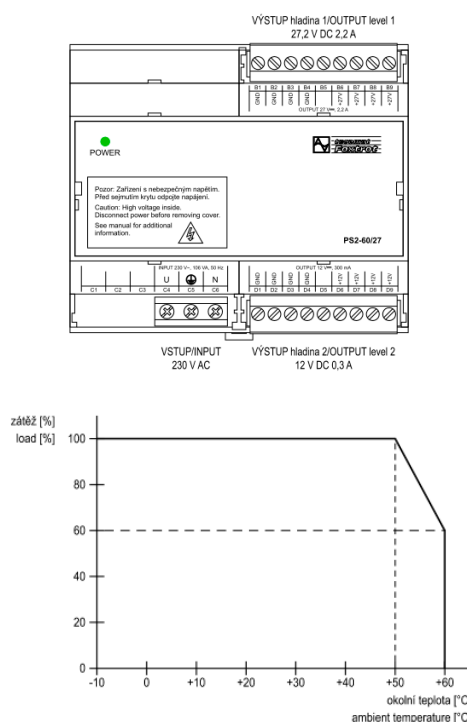
Use

- Power supply for basic and expansion modules of Foxtrout 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.



PS2-60/27

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. 2m,5mm ²

Dimensions and weight

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

Power supply

Input voltage	230 V AC, -15 up to 25%
Min. input voltage	110 V AC/output voltage less 45 W
Input voltage frequency	47 – 63Hz
Max. input power	106 VA
Input fuse	T2.5/250 V
Output	
Current output – range	0.48 A/230 VAC
Level 1; Output voltage/current	27.2 V DC/0 – 2.2 A
Level 2; Output voltage/current	12 V DC/0 – 0.3 A
	60 W
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 230 VAC/27.2 V DC, 2.2 A; 12 V DC, 0.3 A
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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		

Basic features

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

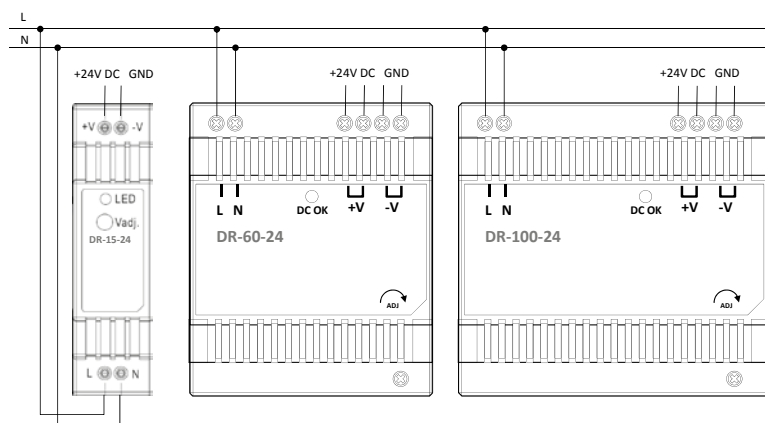
Connections

- 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 with cover in the cabinet
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
Dimensions	25 x 93 x 56 mm (1.5M)	78 x 93 x 56 mm (4M)	100 x 93 x 56 mm (5.7M)
Weight	100g	300g	350g

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, 0.8 A/230 VAC	3 A/115 VAC, 1.6 A/230 VAC
Output voltage	24 VDC	24 VDC	24 VDC
Tuning of output voltage	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$
Output current	0.63 A	2.5 A	4.2 A
Max. permanent output power	15.2 W	60 W	100 W
Short-circuit protection	Electronic	Electronic	Electronic
Electrical resistance of isolation	3000 VAC	3000 VAC	3000 VAC
Galvanic isolation input/output	Yes	Yes	Yes

Order number

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



DR-15-24



DR-60-24



DR-100-24

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

Connections

- Primary and secondary voltage connect with screw terminals.

Use

- Version 24 V DC – basic (non back up) power supply of system Foxtrot.
- Version 27.2 V DC – back up power supply with charging the batteries.
- Power supply of basic and 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
Dimensions	148 x 85 x 57 mm	148 x 85 x 57 mm	148 x 85 x 57 mm	177 x 105 x 54 mm	177 x 105 x 54 mm
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	0.48 A/230 VAC	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 230 VAC/24 VDC, 1 A
TXN 070 10	PS-50/24 Power supply 230 VAC/24 VDC, 2 A
TXN 070 15	PS-100/24 Power supply 230 VAC/24 VDC, 4 A
TXN 070 21	PS-50/27 Power supply 230 VAC/27.2 VDC, 1.75 A
TXN 070 16	PS-100/27 Power supply 230 VAC/27.2 VDC, 3.5 A



PS25/24



PS50/24



PS50/27



PS100/24



PS100/27

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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 Tecno 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 Tecmat

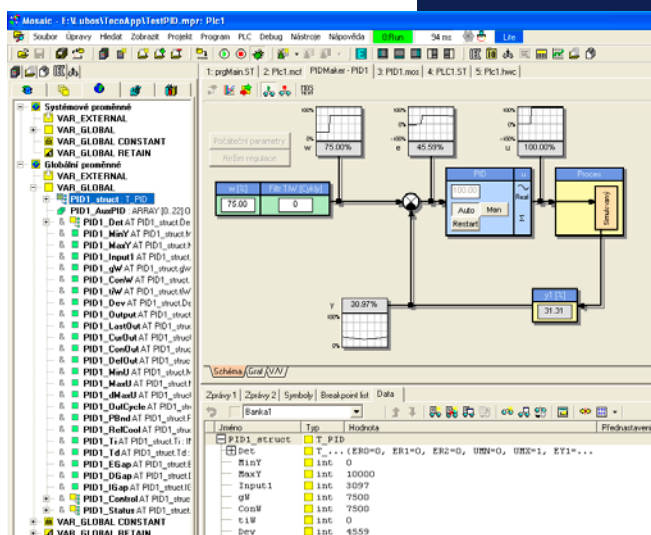
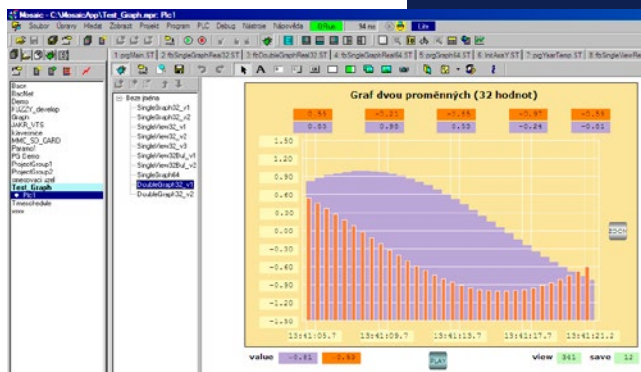
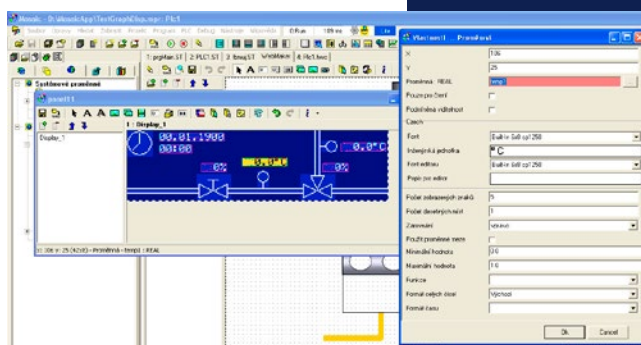
- Graphic tool for creation of web pages for systems Tecmat Foxtro and TC700.
- Generated code in XML language is connected direct on variables in PLC.
- Web pages enables not only visualize, but also to control technology.
- Into pages we may input texts, static and dynamic images, bar graphs, images 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.

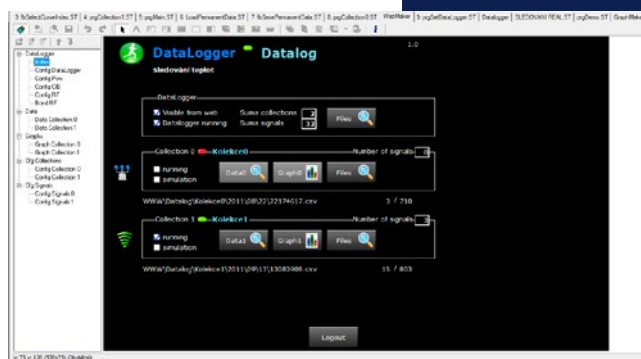
PIDMaker – tool for defining and monitoring of regulation loops

- 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.



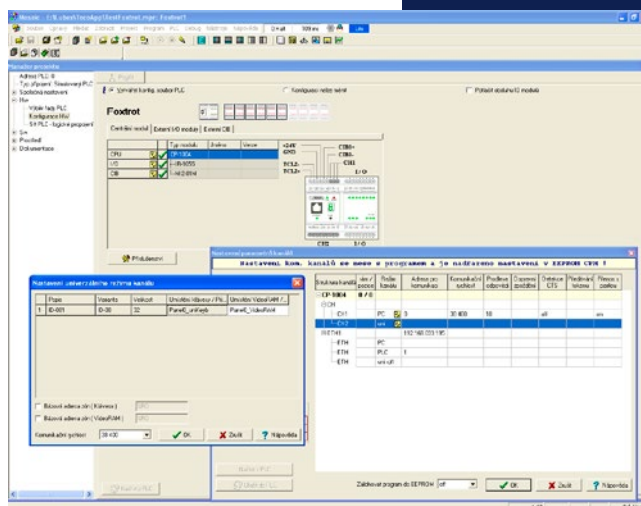
Datalogger – tool for storing data into file

- 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 outputs.

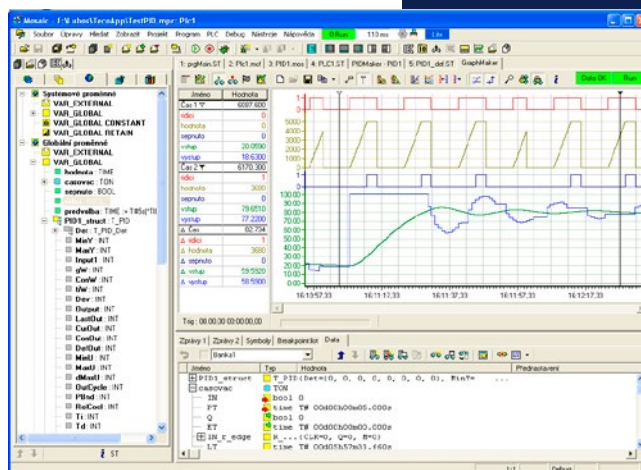
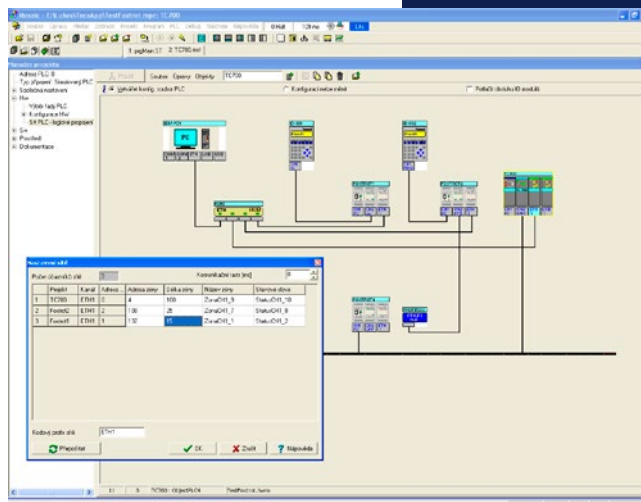


NotPLC – PLC network definition

- 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 designed as specialised sensors of these values or events, whose are directly related with disruption or threat of secured space.
- Units give binary information about monitored value/event status and it 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 12 V 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.

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 mm ²
Dimensions	110×60×55 mm
Weight	120 g

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 mm ²
Dimensions	100×40×23 mm
Weight	120 g

Specification

SA-200	Doors magnetic detector
Detection distance	15 mm
Installation	On flat area
Diameter of connecting wires	1 mm ²
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 mm ²
Dimensions	120×120×40 mm
Weight	150 g

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 mm ²
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 mm ²
Dimensions	120×72×40 mm
Weight	140 g

Specification

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

Order number

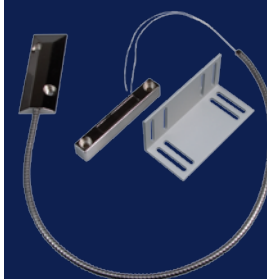
JS-20 LARGO	JS-20 LARGO, PIR motion detector
GBS-210 VIVO	GBS-210 VIVO, Dual broken glass detector
GS-133	GS-133, Flammable gasses detector, power supply 12 Vss
SD-212SP	SD-212SP, Optical smoke detector with relay output and power supply 12 Vss
SA-200A	SA-200A, Magnetic contact with terminals 49×14×13 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



JS-20 LARGO



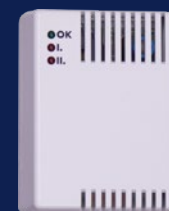
GBS-210 VIVO



SA-200, SA-220



SD-212SP



GS-133



SA-913



