


● Characteristics

	- Input:	Universal, Standard signal, Digital input
	- Output:	Current, Voltage, Digital, Relays
	- Interface:	Ethernet, RS485, CAN, Profibus, Profinet
	- USB-Port:	1x Mini USB, 1x Standard
	- Supply:	100...240 V AC, 24 VDC
	- Electrical connection:	Plug-in terminal strips
	- Sensor supply:	18 V, 45 mA
	- Display:	3,5" Touch Screen, 320 x 240 Px
	- Configuration:	Keys on front, Software
	- Ambient temperature:	0...55 °C
- Ingress protection:	IP65 (Front)	

● Technical data

Equipping

Function:

- 2x Input/Output modules, analog/digital (Option)
- 1x Communication module (Option)
- 1x Relay output module (Standard)
- 1x Voltage supply module (Standard)
- 1x Sensor supply module (Standard)
- 2x USB (Standard)

Input / Output module

Universal input:

- Number: 2 (galvanically isolated)
- Channels: 2
- Resolution converter: 24 Bit
- Cycle time: 50 ms

Channel 1:

Measurement: Widerstandsthermometer, PTC:

- Accuracy: <1 K
- Temperature drift: <0,08% / 10 K
- Monitoring: Short circuit, sensor break

Sensor	Connection	Range	Measurement current
Pt100	3-wire	-200...850 °C	<0,5 mA
Pt1000	3-wire	-200...850 °C	<50 µA
Ni100	3-wire	-60...300 °C	<0,5 mA
Ni1000	3-wire	-60...300 °C	<50 µA
KTY 11-6	2-wire	-50...125 °C	<50 µA

● Applications

With this process controller sequential controls and automatic controls can be realized and can also substitute cost-effective a SPC for many applications. As input several sensors and signals can be connected. Available outputs are relays, analog and digital signals and a sensor supply.



● **Technical data (continued)**

Input / Output module (continued)

Channel 1 (continued):

Measurement: Thermocouple: Connection: 2-wire
 Input resistance: >10 MΩ
 Temperature drift: <0,08% / 10 K
 Monitoring: sensor break
 Compensation of cold junction: available
 Additional error: <2 K

Sensor	Range	Accuracy	Resolution
Type L	-200...900 °C	<2 K	0,05 K
Type J	-210...1200 °C	<2 K	0,05 K
Type K	-270...1370 °C	<2 K	0,08 K
Type N	-196...1299 °C	<2 K	0,08 K
Type S	-50...1760 °C	<2 K	0,07 K
Type R	-50...1760 °C	<2 K	0,07K
Type T	-270...400	<2 K	0,02 K
Type E	-270...1000 °C	<2 K	0,04 K
Type B	25...1820 °C	<3 K	0,1 K
Type W	0...2299 °C	<3 K	0,1 K

Measurement: Resistance: Connection: 2-wire
 Range: 0...20 kΩ
 Maximum range: Range +10%
 Accuracy: <0,1%
 Temperature drift: <0,08% / 10 K
 Monitoring: Overflow maximum range

Measurement: Current: Connection: 2-wire
 Range: 0...20 mA
 Maximum range: Range ±10%
 Input resistance: 50 Ω maximum
 Accuracy: <0,1%
 Temperature drift: <0,08% / 10 K
 Monitoring: Underflow/overflow max. range

Channel 2:

Measurement: Standard signal current: Input: Differential input
 Connection: 2-wire
 Range: 0...20 mA
 Maximum range: Range ±10%
 Accuracy: <0,1%
 Input resistance: 50 Ω maximum
 Temperature drift: <0,08% / 10 K
 Monitoring: Underflow/overflow max. range

Measurement: Standard signal current: Input: Differential input
 Connection: 2-wire
 Range: 0...10 V
 Maximum range: Range ±10%
 Accuracy: <0,1%
 Input resistance: 1,2 MΩ (typical)
 Temperature drift: <0,08% / 10 K
 Monitoring: Underflow/overflow max. range

● Technical data (continued)

Input / Output module (continued)

Analog Output:	Number:	2 (galvanically isolated)	
	Output:	Voltage, current	
	Resolution converter:	12 Bit	
	Linearity:	<0,1%	
	Accuracy:	<0,2%	
	Temperature drift:	<0,1% / 10 K	
	Cycle time:	50 ms	
Output:	Voltage:	Range:	0...+11 V
		Load resistance:	>1 kΩ
Ausgang:	Current:	Range:	0...+22 mA
		Working resistance:	500 Ω maximal

Digital Inputs/Outputs:	Number:	6 (galvanically isolated)	
	Supply:	24 VDC ±20%, externally	
	Function:	programmable (input or output)	
	Counter function:	2 digital inputs can be used as a counter input in combination with analog input 1	
		Limiting frequency:	10 kHz
		Output signal:	pulses / time unit

Communication module

This module can be equipped variably, see below for possibilities:

Ethernet interface:	Number:	2 Ports - 10/100 MBit/s - Auto-Negotiation - Auto-MDIX - Indication:Link = LED permanent Data = LED flashes	
Profinet CC-A:	Number:	2	
Modbus TCP:	Number:	2	
	Function:	Slave	
RS485 Interface:	Number:	2 Ports - galvanically isolated - Data rate 500 Baud - Device driver for 32 nodes maximum	
CAN	Number:	1	

Combination possibilities:

- Type 1: 1x Profinet CC-A, 1x Modbus TCP (Slave) or 1x Ethernet (LAN), 1x RS485 (Modbus RTU Master)
1x RS485 (HPR-Bus Master)
- Type 2: 1x Profinet CC-A, 1x Modbus TCP (Slave), 1x RS485 (Modbus RTU Master), 1x CAN
- Type 3: 1x Ethernet (LAN), 1x RS485 (Modbus RTU Master), 1x RS485 (Modbus RTU Slave)
- Type 4: 1x Ethernet (LAN), 1x CAN, 1x RS485 (Modbus RTU Master)
- Type 5: 1x Ethercat, 1x Ethernet (LAN), 1x RS485 (Modbus RTU Master)
- Type 6: 1x Ethercat, 1x Ethernet (LAN), 1x CAN
- Type 7: 1x Profibus DP Slave, 1x Ethernet (LAN), 1x RS485 (Modbus RTU Master)
- Type 8: 1x Profibus DP (Slave), 1x Ethernet (LAN), 1x CAN

● Technical data (continued)

Relay output module

Number:	4 Relays
Contact:	Changeover
Load:	230 VAC, 5 A (resistive load) 24 VDC, 5 A (resistive load)

Voltage supply module

Alternating voltage:	100...240 VAC
Direct voltage:	24 VDC ±10%
	Current consumption: 350 mA maximum

Sensor supply module

Voltage:	18 VDC
Current:	45 mA

USB-Port

Front:	Type:	Mini-USB
	Version:	2.0
	Plug:	B
	Protection:	galvanically isolated
Rear:	Type:	Standard (Host)
	Version:	2.0
	Plug:	A

Characteristic features

Display unit:	Display:	Resistive Touch-Screen
	Size:	3,5"
	Resolution:	320 x 240 Pixel QVGA
LED:	Number:	2
	Function:	freely assignable for status indication
Keys:	Number:	4
	Function:	freely assignable
CPU:	Type:	Cortex A8
	Frequency:	600 MHz
Time for boot:	ca. 17 s	
Real-time clock:	buffered on loss of power	
Memory:	Mass storage:	1x Micro SD-Card, 4 GB
	RAM:	DDR2, 64 MB
	Flash:	128 MB
	MRAM:	128 kB

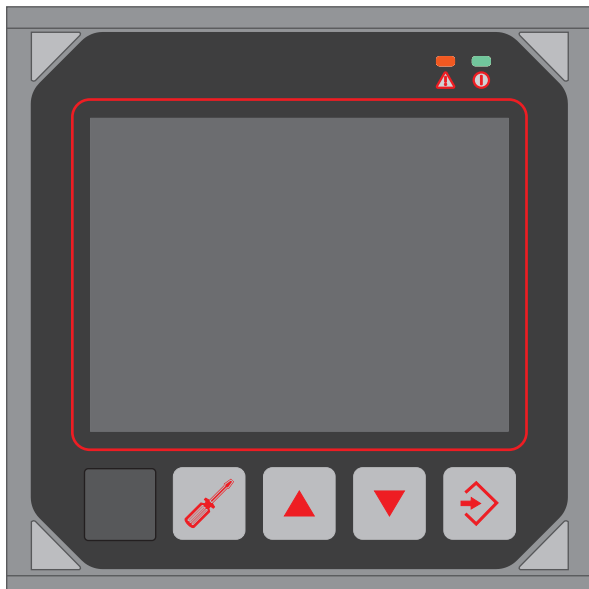
Mechanics








Enclosure:	Typ:	flush mounting
	Dimensions:	98x98x115 mm (without plugs) 98x98x130 mm (with plugs)
	Ingress protection:	IP65 (front) IP20 (other parts)
	Mounting cut-out:	92x92 mm, (+0,8 mm tolerance)

Ambient conditions

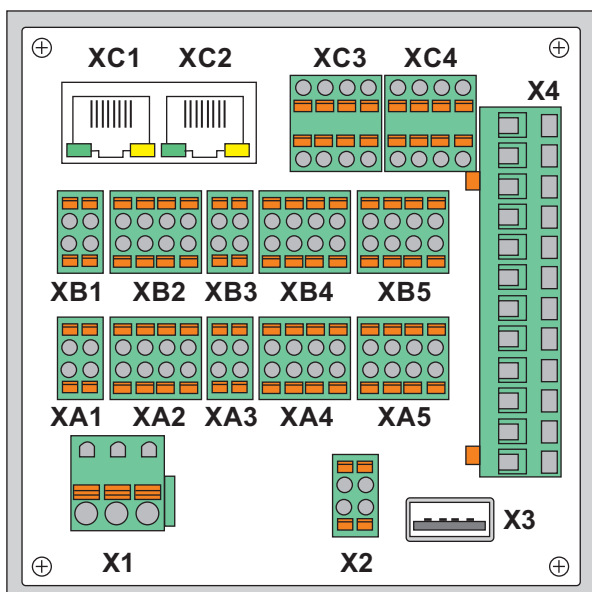
Temperature:	Operation:	0...55 °C
	Storage:	-20...70 °C
	Transport:	-20...70 °C
Humidity:	95% rH without condensation	
Contamination level:	2	
Overvoltage:	Category II	
Altitude:	2000 m maximum	
Category a:	Rated insulation voltage:	230 V
	Testing voltage:	3000 VAC, 1 min
Category b:	Rated insulation voltage:	50 V
	Testing voltage:	520 VAC, 1 min

Front of device



-  Device „ON“,
Freely assignable display element
-  Freely assignable display element
-  Freely assignable operator control
-  Freely assignable operator control
-  Freely assignable operator control
-  Freely assignable operator control
-  Mini USB-Port

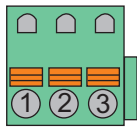
Rear of device



- X1 Voltage supply module
- X2 Sensor supply module
- X3 USB-Port (A)
- X4 Relay output module
- XA1, XB1 Analog output 1 (U; I)
- XA2, XB2 Analog output 1
- XA3, XB3 Analog output 2 (U; I)
- XA4, XB4 Analog output 2
- XA5, XB5 Digital Input / Output
- XC1 Profinet CC-A, Modbus TCP, Ethernet
- XC2 Profinet CC-A, Modbus TCP, Ethernet
- XC3 RS485
- XC4 RS485, CAN

● Electrical connection

X1 Voltage supply module



Supply	Terminal	Signal	Note
100...240 VAC	1	L	
	2	N	
	3	PE	
24 VDC	1	+	
	2	-	
	3	PE	

X2 Sensor supply module



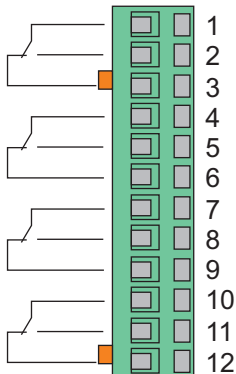
Output	Terminal	Signal	Note
18 VDC, 45 mA	1	U+	
	2	U-	
	3	U+	
	4	U-	

X3 USB-Port



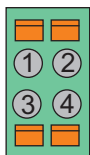
USB-Host, Plug Type A, Version 2.0

X4 Relay output module



Relay	Common	Make contact	Break contact
Output 1	1	2	3
Output 2	4	5	6
Output 3	7	8	9
Output 4	10	11	12

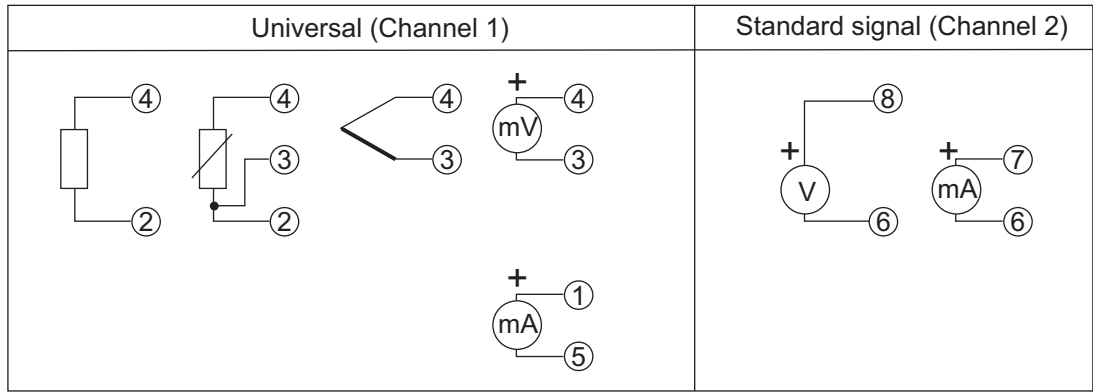
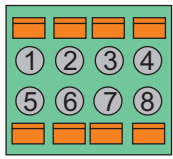
XA1, XA3, XB1, XB3 Analog output



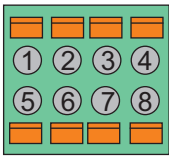
Output	Terminal	Signal	Note
Voltage	1	U-	
	2	U+	
Current	3	I-	
	4	I+	

● **Electrical connection**

XA2, XA4, XB2, XB4 Analog input

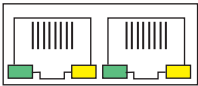


XA5, XB5 Digital Input / Output



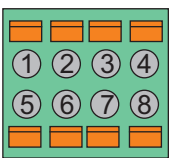
Function	Terminal	Signal	Note
24 VDC externally	5	U+	
	1	U-	
Input / Output	2	E/A 1	
	3	E/A 2	
	4	E/A 3	
	6	E/A 4	
	7	E/A 5	
	8	E/A 6	

XC1, XC2 Interface



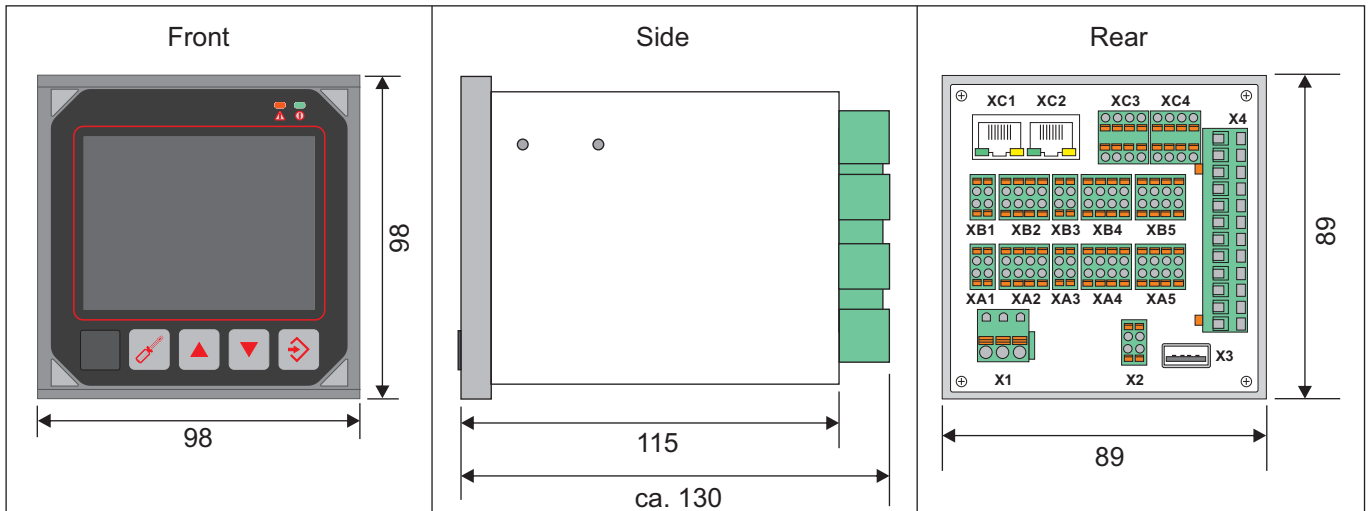
Profinet CC-A, Modbus TCP, Ethernet

XC3, XC4 Interface

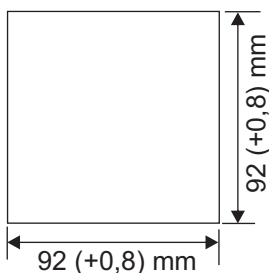


Interface	Terminal	Signal	Note
RS485	1	PE (Screen)	
	2	GND	
	3	B	
	4	A	

● **Dimensions (in mm)**



● **Mounting cut-out**



● **Order code**

U P X X X X

Main unit:	Relay output module, Sensor supply module Voltage supply module, 2x USB	1
Input/Output module:	Without 1x analog/digital 2x analog/digital	0 1 2
Communication module:*	Without Type 1 Type 2 Type 3 Type 4 Type 5 Type 6 Type 7 Type 8	0 1 2 3 4 5 6 7 8
Special model:	No Yes (special model)	0 1

***Communication module**

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Subject to change, version 42-674