

DISPLAYS AND EVALUATION DEVICES

PRODUCT CATALOGUE



PRESSURE at the highest LEVEL.

BD | SENSORS
pressure measurement

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EVALUATION AND VISUALIZATION AT THE HIGHEST LEVEL



"Successful medium-sized companies are not successful because they are active in many areas, but rather because they concentrate on one area and do it better than anyone else."

This is our philosophy. That's why BD|SENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unrelenting product and quality strategy we have been successful in becoming a major player on the world market for electronic pressure sensing devices within a few years.

With 300 employees at 3 locations in Germany, the Czech Republic and China BD|SENSORS has solutions from 0.1 mbar up to 6.000 bar:

- > pressure sensors, pressure transducers
pressure transmitters
- > electronic pressure switches
- > pressure measuring devices with display and
switching outputs
- > hydrostatic level probes

Two pressure transmitters and a submersible probe, based on a stainless steel silicon sensor were the beginning. Today the range extends to more than 100 standard products, from economical OEM devices to high-end products with HART® communication or field bus interface.

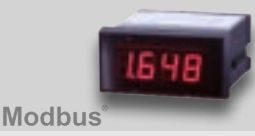
In addition we have developed hundreds of customer-specific applications, underlining the competence and flexibility of BD|SENSORS. The excellent price/performance ratio of our products is proof of the fact that we are able to meet the toughest demand: Being a problem-solver for our customers.

For large production batches as well as for small production numbers, no matter for what medium or external factors, with almost any mechanical or electrical connection - we solve your problem.

flexibly. quickly. cost-efficiently.

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Product		Description	Display
PA 430		Plug-on Display with Contacts and Ex-approval	4-digit LED-display 4 x 7 mm, rotatable
PA 440		Field Display with Contacts and Ex-approval	4-digit LED-display 4 x 10 mm 4-digit LCD-display 4 x 18 mm
CIT 200		Process Display	4-digit LED-display 4 x 13 mm
CIT 250		Process Display with Contacts	4-digit LED-display 4 x 13 mm 4-digit LED-display 5 x 9 mm
CIT 300		Process Display with Contacts and Analogue Output	4-digit LED-display 4 x 20 mm
CIT 350		Process Display / Field Display with Bargraph, Contacts and Analogue Output	4-digit LED-display 4 x 9 mm + 20-segment-Bargraph
CIT 400		Process Display with Contacts, Analogue Output and Ex-approval	4-digit LED-display 4 x 10 mm
CIT 600		Multichannel Process Display (LCD)	graphic LCD-display 128 x 64 pixel
CIT 650		Multichannel Process Display (LCD) with Datalogger	graphic LCD-display 128 x 64 pixel
CIT 700/750		Multichannel Process Display (TFT) with Contacts, Analogue Outputs and Datalogger	graphic 3,5 " TFT-monitor graphic 5,7 " TFT-monitor, touchscreen 320 x 240 pixel

Input	Output	Housing Dimensions (w x h x d) in mm	Interface	Page
4 ... 20 mA 0 ... 10 V	0 / 1 / 2 PNP 4 ... 20 mA, 0 ... 10 V	plastic housing rotatable 47 x 47 x 68	-	6-8
4 ... 20 mA	0 / 1 / 2 PNP 4 ... 20 mA	wall panel 120 x 80 x 57	-	9-11
0/4 ... 20 mA 0/1 ... 5 V, 0/2 ... 10 V PT100 / PT500 / PT1000		front panel 72 x 36 x 103 (86)	RS 485 Modbus RTU	12-14
0/4 ... 20 mA 0/1 ... 5 V, 0/2 ... 10 V PT100 / PT500 / PT1000 thermocouple	0 / 1 / 2 relay 0 / 1 / 2 OC	front panel 72 x 36 x 107	RS 485 Modbus RTU	15-17
universal entry 0/4 ... 20 mA 0/1 ... 5 V, 0/2 ... 10 V PT100 / PT500 / PT1000 thermocouple	0 / 2 / 4 relay 0 / 2 / 4 OC 0/4 ... 20 mA, 0 ... 10 V	front panel 96 x 48 x 107 wall panel 166 x 161 x 103	RS 485 Modbus RTU	18-21
0/4 ... 20 mA 0/1 ... 5 V, 0/2 ... 10 V	0 / 2 / 4 relay 0/4 ... 20 mA	front panel 48 x 96 x 107	RS 485 Modbus RTU	22-24
4 ... 20 mA	2 / 4 relay 0/4 ... 20 mA	front panel 72 x 72 x 110 hat rail 70 x 75 x 110	-	25-27
2 / 4 / 8 inputs 0/4 ... 20 mA 0/1 ... 5V, 0/2 ... 10 V PT100 / PT500 / PT1000 thermocouple	2 OC	front panel 96 x 96 x 100	RS 485 Modbus RTU	28-31
1 / 4 / 8 inputs 0/4 ... 20 mA 0/1 ... 5 V, 0/2 ... 0 V PT100 / PT500 / PT1000 thermocouple	2 relay 2 OC	front panel 96 x 96 x 110	RS 485 Modbus RTU USB-Host Port	32-36
max. 72 inputs 0 ... 20 mA, 0 ... 10 V binary max. 18 inputs PT 100 / PT 500 / PT 1000, max. 36 inputs thermocouple (mV) max. 12 inputs counter/ ratemeter/ flowmeter	max. 36 relay-outputs max. 72 SSR-outputs max. 24 outputs 4 ... 20 mA	front panel 96 x 96 x 110 front panel 144 x 144 x 110 wall panel 166 x 161 x 103	RS 485 Modbus RTU, RS 232, Ethernet, Modbus TCP USB-Host Port	36-42



PA 430

Plug-on Display for Current Loop with Contacts

Functional range

- ▶ free scalable display
- ▶ switch mode, hysteresis, parameterizable deceleration of the contacts
- ▶ display 330° rotatable
- ▶ connector 300° rotatable
- ▶ no external power supply necessary

Product characteristics

- ▶ plug-on display for pressure transmitter with output signal: 4 ... 20 mA / 2-wire or 0 ... 10 V / 3-wire
- ▶ 4-digit LED display

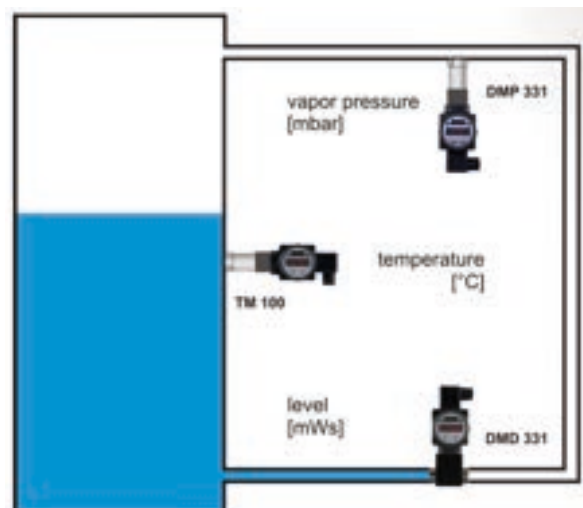
Optional versions

- ▶ IS-version
- ▶ 1 or 2 programmable contacts

Typical application



in situ display of pressure, temperature and level



Analogue signal				
2-wire-system	2-wire: 4 ... 20 mA			
Option Ex-protection	2-wire: 4 ... 20 mA			
3-wire-system	0 ... 10 V			
Supply				
2-wire-system	supplied by current loop; voltage drop ≤ 6 V; $V_S = (V_{T \min} \dots V_{T \max}) + 6 V_{DC}$ with V_T = supply of the used transmitter Ex-protection: max. 28 V_{DC} (for combination of transmitter and PA 430)			
3-wire-system	display is supplied parallel with transmitter $V_{S \min} = 8 V_{DC} \dots V_{T \min}$; $V_{S \max} = V_{T \max} \dots 36 V_{DC}$ with V_T = supply of the used transmitter			
Contact (optionally) ¹				
Number, type	max. 2 independent PNP open collector contacts			
Switching performance	$V_{switch} = V_S - 2 V$; contact rating max. 125 mA, short-circuit resistant			
max. switching current ²	70 mA			
Repeatability	≤ ± 0.1 % FSO			
Switching frequency	max. 10 Hz			
Switching cycles	> 100 x 10 ⁶			
Delay time	0 ... 100 sec			
¹ max. 1 contact for: 4 ... 20 mA / 2-wire with plug ISO 4400; 0 ... 10 V / 3-wire with Binder 723 (5-pin) or M12x1; Ex-protection no contact possible with 0 ... 10 V / 3-wire with plug ISO 4400				
² the real switching current in the application depends on the power supply unit				
Miscellaneous				
Electrical protection	reverse polarity protection (no damage, but also no function); electromagnetic compatibility (emission and immunity according to EN 61326); short-circuit protection; ingress protection IP 65			
Display	4-digit, 7-segment red LED display, digit height 7 mm; range of indication -1999 ... +9999; accuracy 0.1 % ± 1 digit; digital damping 0.3 ... 30 sec (programmable); measured value update 0.0 ... 10 sec (programmable)			
Permissible temperatures	electronics / environment: -25 ... 85 °C storage: -40 ... 85 °C			
Material of display housing	PA 6.6, polycarbonate			
Mechanical stability	vibration: 5 g RMS (20 ... 2000 Hz) shock: 100 g / 11 msec			
Weight	approx. 150 g			
CE-conformity	EMC Directive: 2014/30/EU			
Explosion protection (optionally for 4 ... 20 mA / 2-wire)				
Approval AX14-PA 430	IBExU 06 ATEX 1050 X zone 1: II 2G Ex ia IIC T4 Gb			
Safety techn. maximum values	$U_i = 28 V$, $I_i = 93 mA$, $P_i = 660 mW$, $C \approx 0 nF$, $L_i \approx 0 \mu H$; plus cable inductivities 1 $\mu H/m$ and cable capacities 100 pF/m			
Permissible temperature for environment	-25 ... 70 °C			
Wirings diagrams				
Pin configuration				
Electrical connection	ISO 4400	M12x1 metal (5-pin)	Binder 723 (5-pin)	Binder 723 (7-pin) ³
Supply +	1	1	3	3
Supply -	2	2	4	1
Signal + (for 3-wire)	3 ¹	3 ¹	5 ¹	-
Contact 1	3 ¹	5	2	-
Contact 2	-	3 ¹	1 ¹	-
Shield	ground pin	4	ground pin	2
³ intended for usage with DMP 331i, DMP 333i and LMP 331i with electrical connection Binder Series 723 (7-pin); pins 4, 5, 6, 7 are wired through 1:1; standard without contacts; contacts on request; 3-wire version not possible				
Dimensions (in mm)				
ISO 4400	M12x1	Binder 723	ISO 4400	M12x1 (5-pin)
			Binder 723 (5-pin)	Binder 723 (7-pin)

Ordering code PA 430

PA 430								-		-		-			-		-		
Standard version						8	5	0											
Analogue output																			
	4 ... 20 mA / 2-wire								1										
	0 ... 10 V / 3-wire								3										
	intrinsic safety for zone 1 / 4 ... 20 mA / 2-wire								E										
	customer								9										consult
Contact¹																			
	without contact								0										
	1 contact								1										
	2 contacts								2										
Electrical connection																			
	ISO 4400								1	0	0								
	Binder series 723 (5-pin)								2	0	0								
	Binder series 723 (7-pin) ²								A	0	1								
	M12x1 (5-pin) / metal version								N	1	0								
Unit																			
	without ³								0										
	bar								1										
	mbar								2										
	mH ₂ O								3										
	%								P										
	mA								A										
	customer								9										consult
Label on display																			
	standard									1									
	neutral									N									
	customer									9									consult
Special version																			
	standard													0	0	0			
	customer													9	9	9			consult

¹ max. 1 contact for: 4 ... 20 mA / 2-wire with plug ISO 4400; 0 ... 10 V / 3-wire with Binder 723 (5-pin) or M12x1 (5-pin); IS protection
no contact possible with 0 ... 10 V / 3-wire with plug ISO 4400

² intended for the use with DMP 331i, DMP 333i and LMP 331i with el. connection Binder Serie 723 (7-pin)

³ the unit signs are loose-settled



PA 440

Field Display for Current Loop with Contacts

Functional range

- ▶ free scalable display
- ▶ switch mode, hysteresis, parameterizable deceleration of the contacts
- ▶ no external power supply necessary

Product characteristics

- ▶ field display for pressure transmitter with output signal: 4 ... 20 mA / 2-wire or 0 ... 10 V / 3-wire
- ▶ 4-digit LCD display
- ▶ plastic housing
- ▶ pressure compensation element with PTFE-Filter

Optional versions

- ▶ IS-version
- ▶ 2 contacts
- ▶ 4-digit LED display

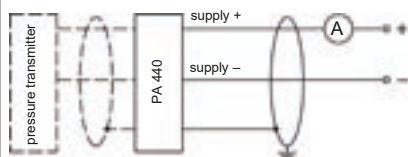
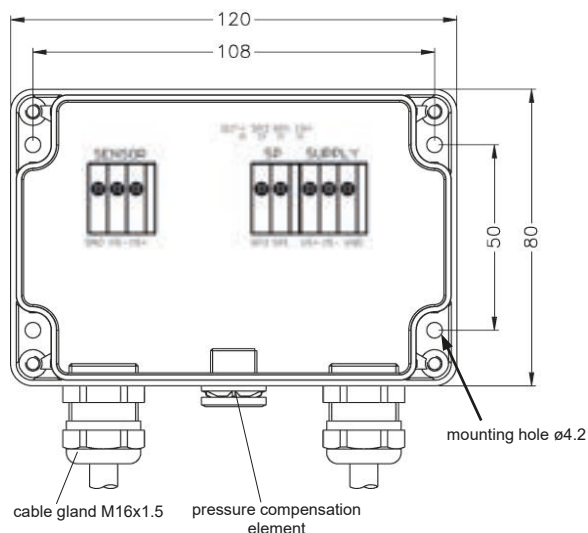
Typical application



in situ display at e.g. for tank batteries, pumping stations and much more



Analogue signal	
Standard	2-wire: 4 ... 20 mA
Option IS-version	2-wire: 4 ... 20 mA
Option 3-wire	0 ... 10 V (in preparation)
Accuracy	$\leq \pm 0.1 \% \text{ FSO} \pm 1 \text{ digit}$
Supply	
2-wire system	supplied by current loop; voltage drop $\leq 6.5 \text{ V}$ IS version: max. 28 V_{DC} (for combination with transmitter and PA 440)
3-wire system	display is supplied parallel with transmitter; $V_{\text{S}} = 8 \text{ V}_{\text{DC}} \dots 36 \text{ V}_{\text{DC}}$
Contact	
Number, type	2 independent PNP open collector contacts
Switching performance	contact rating max. 125 mA, short-circuit resistant
Switching frequency	max. 8/sec
Delay time	0 ... 100 sec
Miscellaneous	
Electrical protection	reverse polarity protection (no damage, but also no function); electromagnetic compatibility (emission and immunity according to EN 61326); short-circuit protection
Ingress protection	IP 65
Display	4-digit, 7-segment LC display, range of indication -1999 ... +9999; accuracy $0.2 \% \pm 1 \text{ digit}$; standard: LC display, digit height 18 mm option: LED display, digit height 10 mm, red
Permissible temperatures	electronics / environment / storage: $-20 \dots 70 \text{ }^{\circ}\text{C}$
Material display housing	plastic ABS, grey
Cable entries	cable gland M16x1.5 Polyamide, seals NBR, diameter range: standard 5 ... 10 mm
Atmospheric pressure compensation	pressure compensation element with PTFE filter
Terminal clamps	vertical clamps for stranded and solid wires up to 2.5 mm^2
Dimensions (height/width/depth)	80 mm x 120 mm x 57 mm
Weight	approx. 220 g
CE-conformity	EMC Directive: 2014/30/EU
Explosion protection (optionally)	
Approval AX15-PA 440	IBExU 08 ATEX1126 X / IECEx IBE 21.0023X zone 1: II 2G Ex ia IIB T4 Gb
Safety technical maximum values	$U_i = 28 \text{ V}_{\text{DC}}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i = 0 \text{ nF}$, $L_i = 0 \text{ } \mu\text{H}$
Ambient temperature range	from $-20 \text{ }^{\circ}\text{C}$ to $+70 \text{ }^{\circ}\text{C}$

Wiring diagram**Dimensions (in mm)**

Ordering code PA 440

PA 440

				-		-		-		-		-				
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Standard version																
	8	5	1													
Analogue output																
4 ... 20 mA / 2-wire				1												
intrinsic safety for zone 1 / 4 ... 20 mA / 2-wire				E												
customer				9												consult
Contact																
without contact				0												
2 contacts ¹				2												
Unit																
without ²				0												
bar				1												
mbar				2												
mH ₂ O				3												
%				P												
mA				A												
customer				9												consult
Label on display																
standard					1											
neutral					N											
customer					9											consult
Display																
LC display								C								
LED display								D								
Housing material																
plastic ABS								G								
Special version																
standard										0	0	0				
overvoltage protection ³										1	0	1				
customer										9	9	9				consult

¹ only possible in combination with LED display² the unit signs are loose-settled³ not possible for IS version



CIT 200

Process Display

Functional range

- ▶ free scalable display
- ▶ four characteristic curve functions selectable (linear, square, square root or user defined)
- ▶ display brightness and filter adjustable
- ▶ programming via infrared remote control

Product characteristics

- ▶ input 0/4 ... 20 mA, 0/1/2 ... 5/10 V
- ▶ 4-digit LED display
- ▶ interface RS-485 (Modbus RTU)
- ▶ front panel housing 72 x 36 mm

Optional versions

- ▶ input Pt100 / Pt500 / Pt1000

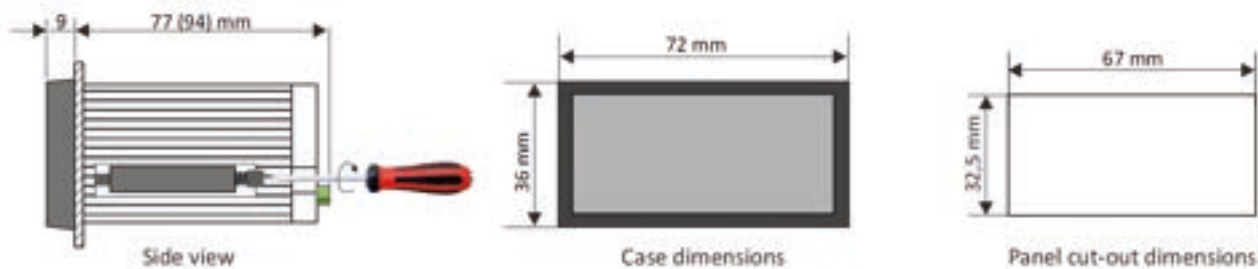
Typical application



display panel for silo battery



Modbus

Supply	
Supply voltage / power consumption	10 ... 30 V _{DC} (not isolated from signal input) / max. 1 W 110 V _{AC} ± 10 % (isolated from signal input) / max. 1,5 VA 230 V _{AC} ± 10 % (isolated from signal input) / max. 1,5 VA
Signal input	
Input signal	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V PT100 / PT500 / PT1000
Accuracy (25 °C)	± 0.1 % FSO, stability: 50 ppm/°C
Display	
Display	LED, red, 4 x 13 mm
Display range	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V: - 999 ... 9999 + decimal point Pt100 / Pt500 / Pt1000: -100,0 ... 600,0 °C
Communication	
Communication interface	RS-485 (Modbus RTU), 8N1/8N2, 1200 – 115200 bit/s
Ingress protection	
Standard	IP 40 (front side), IP 20 (case and connectors)
Option	IP 65 (front side with additional sealing frame for panel cut-out), IP 20 (case and connectors)
Permissible temperatures	
Standard	environment: 0 ... 50 °C, storage: -10 ... 70 °C
Option	environment: -20 ... 50 °C, storage: -20 ... 70 °C
Electrical protection	
Electrical safety	EN 61010-1
EMC	EN 61326-1
CE-conformity	EMC Directive: 2014/30/EU
Housing	
Housing type / dimensions	10 ... 30 V _{DC} : front panel mounting / 72 x 36 x 86 mm 110 V _{AC} : front panel mounting / 72 x 36 x 103 mm 230 V _{AC} : front panel mounting / 72 x 36 x 103 mm
Material	NORYL UL94V-0
Weight	approx. 175 g
Dimensions	
 The technical drawings show the CIT 200 device from three perspectives: a side view, case dimensions, and panel cut-out dimensions. The side view shows a depth of 9 mm and a total width of 77 (94) mm. The case dimensions are 72 mm wide and 36 mm high. The panel cut-out dimensions are 67 mm wide and 32,5 mm high. A screwdriver is shown for reference in the side view.	
Accessories	
Infrared remote control IR 2 Enables setting of CIT 200. Material number: Z900033	

Ordering code CIT 200

CIT 200 - - -

Input type			
0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V	8		
Pt100, Pt500, Pt1000	3		
Supply			
10 ... 30 VDC	1		
230 VAC	2		
110 VAC	8		
Special version			
standard	0	0	0
sealing frame IP65	0	1	0
operating temperature -20°C...50°C	0	8	0
IP65 + operating temp. -20...50°C	0	P	0
customer	9	9	9
			consult
Accessories			
infrared remote control IR 2	Z900033		



CIT 250

Process Display with Contacts

Functional range

- ▶ free scalable, two-coloured display
- ▶ five characteristic curve functions selectable (linear, square, square root, user defined or tank volume)
- ▶ switching mode, hysteresis, timing of contacts settable
- ▶ display brightness and filter adjustable

Product characteristics

- ▶ input 0/4 ... 20 mA, 0/1/2 ... 5/10 V
- ▶ 4-digit LED display
- ▶ transducer supply 24 V_{DC}
- ▶ interface RS-485 (Modbus RTU)
- ▶ front panel housing 72 x 36 mm

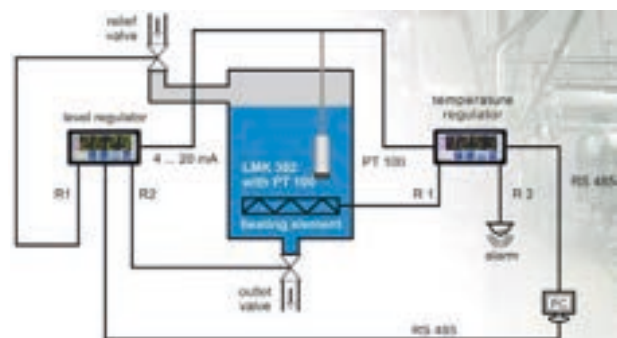
Optional versions

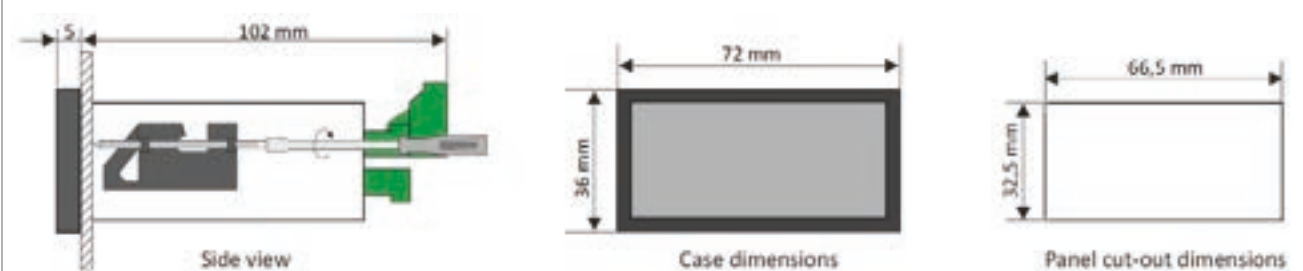
- ▶ input Pt100 / Pt500 / Pt1000
- ▶ input thermocouple
- ▶ output 1/2 relay / OC
- ▶ 5-digit LED display

Typical application



combined level and temperature measurement in heated container



Supply	
Supply voltage / power consumption	85 ... 260 V _{AC} / V _{DC} / max. 4,5 W 16 ... 35 V _{AC} / 19 ... 50 V _{DC} / max. 4,5 VA
Transducer supply	24 V _{DC} + 5%, - 10%, max. 100 mA
Signal input	
Input signal	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V Pt100 / Pt500 / Pt1000 thermocouple K, S, J, T, N, R, B, E, 0 ... 90 mV
Accuracy (25 °C)	± 0,1 % FSO, stability: 50 ppm/°C
Contacts	
Contact	1/2 SPST relay, max. 30 V _{DC} / 250 V _{AC} , max. 1 A (cos φ 1) 1/2 OC, max. 30 V _{DC} , max. 30 mA (cos φ 1), max. 100mW
Display	
Display	standard: LED, red/green, 4 x 13 mm option: LED, green, 5 x 9 mm ¹
Display range	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V: - 999 ... 9999 + decimal point Pt100 / Pt500 / Pt1000: -100,0 ... 600,0°C thermocouple: -200 ... 1370 °C(K), -50 ... 1768 °C(S, R), -210 ... 1200 °C(J), -200 ... 400 °C(T), -200 ... 1300 °C(N), 250 ... 1820 °C(B), -200 ... 1000 °C(E)
¹ Display 5 x 9 mm only with IP65	
Communication	
Communication interface	RS-485 (Modbus RTU), 8N1/8N2, 1200 – 115200 bit/s
Ingress protection	
Standard	IP 40 (front side), IP 20 (case and connectors)
Option	IP 65 (front side with additional sealing frame for panel cut-out) ² , IP 20 (case and connectors)
² IP65 only with display 5 x 9 mm	
Permissible temperatures	
Standard	environment: 0 ... 50 °C, storage: -10 ... 70 °C
Option	environment: -20 ... 50 °C, storage: -20 ... 70 °C
Electrical protection	
Electrical safety	EN 61010-1
EMC	EN 61326-1
CE-conformity	EMC Directive: 2014/30/EU
Housing	
Housing type / dimensions	front panel mounting / 72 x 36 x 107 mm
Material	NORYL-GFN2S E1
Weight	approx. 165 g
Dimensions	
 The side view shows the device mounted on a panel with a total width of 102 mm and a depth of 5 mm. The case dimensions are 72 mm wide and 36 mm high. The panel cut-out dimensions are 66,5 mm wide and 32,5 mm high.	

Ordering code CIT 250

CIT 250 -

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Input type				
0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V	8			
Pt100 , Pt500, Pt1000	3			
thermocouple	A			
Number of outputs				
without	0			
1	1			
2	2			
Output type				
without	0			
SPST relay	1			
Open collector	2			
Supply				
16...35 VAC / 19...50 VDC		3		
85...260 VAC / VDC		4		
Special version				
standard			0 0 0	
sealing frame IP65			0 1 0	
operating temperature -20°C...50°C			0 8 0	
IP65 + operating temp. -20...50°C			0 P 0	
customer			9 9 9	consult



CIT 300

Process Display with Contacts and Analogue Output

Functional range

- ▶ free scalable display
- ▶ five characteristic curve functions selectable (linear, square, square root, user defined or tank volume)
- ▶ switching mode, hysteresis, timing of contacts settable
- ▶ display brightness and filter adjustable
- ▶ acoustic signal

Product characteristics

- ▶ input 0/4 ... 20 mA, 0/1/2 ... 5/10 V
- ▶ 4-digit LED display
- ▶ transducer supply 24 V_{DC}
- ▶ interface RS-485 (Modbus RTU)
- ▶ front panel housing 96 x 48 mm

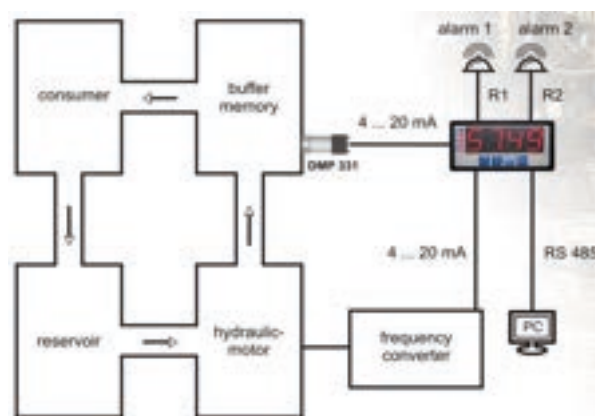
Optional versions

- ▶ input Pt100 / Pt500 / Pt1000
- ▶ input thermocouple, 0 ... 150 mV
- ▶ output 1/2/4 relay / OC
- ▶ output 4 ... 20 mA / 0 ... 10 V
- ▶ wall mounted housing IP67

Typical application

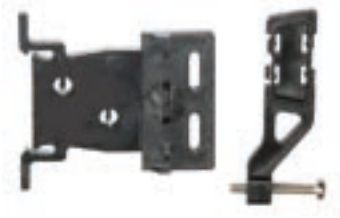


pressure regulation of a hydraulic circuit



Modbus

Supply		
Supply voltage / power consumption	85 ... 260 V _{AC} / V _{DC} / max. 6,5 W 16 ... 35 V _{AC} / 19 ... 50 V _{DC} / max. 6,5 VA	
Transducer supply	24 V _{DC} + 5%, - 10%, max. 100 mA	
Signal input		
Input signal	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V Pt100 / Pt500 / Pt1000 thermocouple K, S, J, T, N, R, B, E, 0 ... 90 mV universal input ¹ 0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V, Pt100 / Pt500 / Pt1000, thermocouple K, S, J, T, N, R, B, E, 0 ... 60/75/100/150 mV	
Accuracy (25 °C)	± 0,1 % FSO, ± 0,2% FSO (TC N), ± 0,5 % FSO (TC S, T, R, B), stability: 50 ppm/°C	
¹ universal input only with front panel housing		
Contacts		
Contact	1/2/4 SPST relay, max. 30 V _{DC} / 250 V _{AC} , max. 1 A (cos φ 1) 1/2/4 OC, max. 30 V _{DC} , max. 30 mA (cos φ 1), max. 100mW	
² 4 contacts only with front panel housing without analogue output, 1 contact only with wall mounted housing and analogue output		
Analogue output		
Output signal / load ³	0/4 ... 20 mA active / max. 700 Ω 4 ... 20 mA passive / max. 600 Ω (24V DC) 0/1 ... 5 V, 0/2 ... 10 V active / min. 2000 Ω	
³ analogue output only with 1 contact (wall mounted housing) resp. 2 contacts (front panel housing)		
Display		
Display	LED, red, 4 x 20 mm	
Display range	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V: - 999 ... 9999 + decimal point Pt100 / Pt500 / Pt1000: -100, 0 ... 600,0°C thermocouple: -200 ... 1370 °C(K), -50 ... 1768 °C(S, R), -210 ... 1200 °C(J), -200 ... 400 °C(T), -200 ... 1300 °C(N), 250 ... 1820 °C(B), -200 ... 1000 °C(E)	
Communication		
Communication interface	RS-485 (Modbus RTU), 8N1/8N2, 1200 – 115200 bit/s	
Ingress protection		
Standard	IP 65 (front side), IP 20 (case and connectors)	
Option	IP 65 (front side with additional sealing frame for panel cut-out), IP 20 (case and connectors) IP 67 (wall mounted housing)	
Permissible temperatures		
Standard	environment: 0 ... 50 °C, storage: -10 ... 70 °C	
Option	environment: -20 ... 50 °C, storage: -20 ... 70 °C	
Electrical protection		
Electrical safety	EN 61010-1	
EMC	EN 61326-1	
CE-conformity	EMC Directive: 2014/30/EU	
Housing		
Housing type / dimensions	front panel mounting / 96 x 48 x 107 mm	wall mounted housing / 110 x 80 x 67 mm
Material	NORYL-GFN2S E1	ABS, PC
Weight	approx. 230 g	ca. 350 g
Dimensions		
Side view		
Case dimensions		
Panel cut-out dimensions		
Case dimensions		
Side view		
Distances between mounting holes		

Accessories	
Hat rail adapter for front panel housing 48 mm Enables mounting on a hat rail TS35. Material number: Z900029	
Infrared remote-control IR 2 Enables configuration of CIT 300 with wall mounted housing, without opening the case cover. Material number: Z900033	

Ordering code CIT 300 panel housing

CIT 300 - - -

Input type					
0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V	8				
Pt100, Pt500, Pt1000	3				
thermocouple	A				
universal (mA, mV, V, RTD, TC)	J				
Number of outputs					
without	0				
2	2				
3	3				
4	4				
Output type					
without	0				
2x / 4x SPST relay	1				
2x / 4x Open collector	2				
2x SPST relay + 1x 0/4...20 mA active	3				
2x Open collector + 1x 0/4...20 mA active	4				
2x SPST relay + 1x 4...20 mA passive	9				
2x Open collector + 1x 4...20 mA passive	A				
2x SPST relay + 1x 0/1...5 V, 0/2...10V	B				
2x Open collector + 1x 0/1...5 V, 0/2...10V	C				
Supply					
16...35 VAC / 19...50 VDC		3			
85...260 VAC / VDC		4			
Special version					
standard			0	0	0
sealing frame IP65			0	1	0
operating temperature -20°C...50°C			0	8	0
IP65 + operating temp. -20...50°C			0	P	0
customer			9	9	9
					consult

Ordering code CIT 300 wall mounted housing

CIT 300 - - -

Input type					
0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V	8				
Pt100, Pt500, Pt1000	3				
thermocouple	A				
Number of outputs					
without	0				
2	2				
Output type					
without	0				
2x SPST relay	1				
2x Open collector	2				
1x SPST relay + 1x 0/4...20 mA active	3				
1x Open collector + 1x 0/4...20 mA active	4				
1x SPST relay + 1x 4...20 mA passive	9				
1x Open collector + 1x 4...20 mA passive	A				
1x SPST relay + 1x 0/1...5 V, 0/2...10V	B				
1x Open collector + 1x 0/1...5 V, 0/2...10V	C				
Supply					
16...35 VAC / 19...50 VDC		3			
85...260 VAC / VDC		4			
Special version					
wall mounted housing IP67			5	0	0
IP67 + operating temp. -20...50°C			5	8	0
customer			9	9	9
					consult

Accessories

hat rail adapter 48 mm	Z900029
infrared remote control IR 2	Z900033



CIT 350

Process Display with Contacts and Analogue Output

Functional range

- ▶ free scalable display
- ▶ five characteristic curve functions selectable (linear, square, square root, user defined or tank volume)
- ▶ switching mode, hysteresis, timing of contacts settable
- ▶ display brightness and filter adjustable
- ▶ acoustic signal

Product characteristics

- ▶ input 0/4 ... 20 mA, 0/1/2 ... 5/10 V
- ▶ 4-digit LED display
- ▶ transducer supply 24 V_{DC}
- ▶ interface RS-485 (Modbus RTU)
- ▶ front panel housing 48 x 96 mm

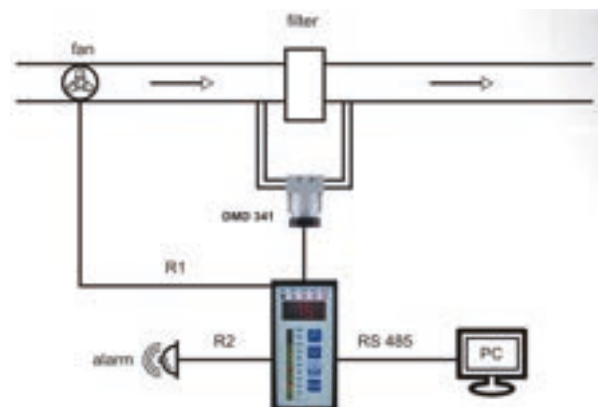
Optional versions

- ▶ output 2/4 relay / OC
- ▶ output 4 ... 20 mA / 0 ... 10 V

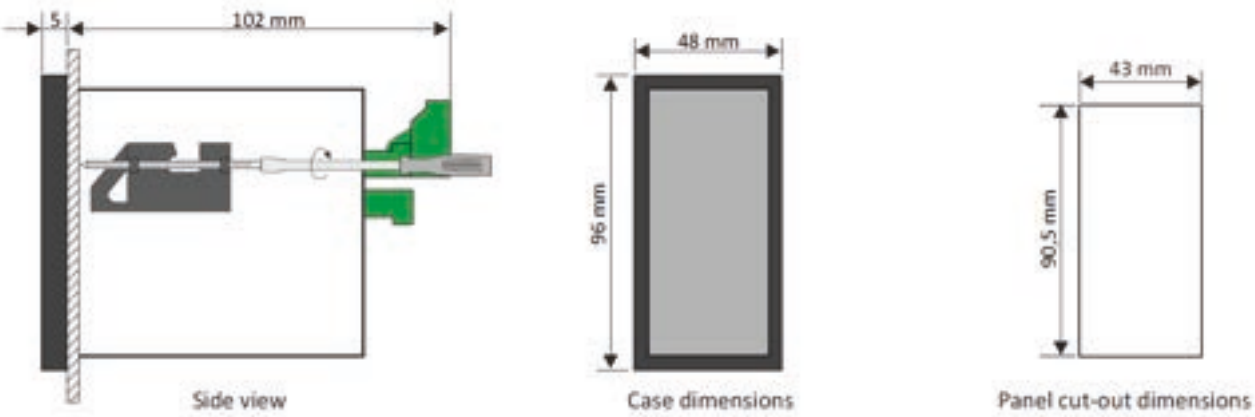
Typical application



filter controlling



Modbus

Supply	
Supply voltage / power consumption	85 ... 260 V _{AC} / V _{DC} / max. 6,5 W 16 ... 35 V _{AC} / 19 ... 50 V _{DC} / max. 6,5 VA
Transducer supply	24 V _{DC} + 5%, - 10%, max. 100 mA
Signal input	
Input signal	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V
Accuracy (25 °C)	± 0,1 % FSO, stability: 50 ppm/°C
Contacts	
Contact	2/4 SPST relay, max. 30 V _{DC} / 250 V _{AC} , max. 1 A (cos φ 1) 2/4 OC, max. 30 V _{DC} , max. 30 mA (cos φ 1), max. 100mW
Analogue output	
Output signal / load ¹	0/4 ... 20 mA active / max. 700 Ω 4 ... 20 mA passive / max. 600 Ω (24V DC) 0/1 ... 5 V, 0/2 ... 10 V active / min. 2000 Ω
¹ analogue output only with 2 contacts	
Display	
Display	LED, red, 4 x 9 mm + bargraph, red/green, 20 points
Display range	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V: - 999 ... 9999 + decimal point
Communication	
Communication interface	RS-485 (Modbus RTU), 8N1/8N2, 1200 – 115200 bit/s
Ingress protection	
Standard	IP 65 (front side), IP 20 (case and connectors)
Option	IP 65 (front side with additional sealing frame for panel cut-out), IP 20 (case and connectors)
Permissible temperatures	
Standard	environment: 0 ... 50 °C, storage: -10 ... 70 °C
Option	environment: -20 ... 50 °C, storage: -20 ... 70 °C
Electrical protection	
Electrical safety	EN 61010-1
EMC	EN 61326-1
CE-conformity	EMC Directive: 2014/30/EU
Housing	
Housing type / dimensions	front panel mounting / 48 x 96 x 107 mm
Material	NORYL-GFN2S E1
Weight	approx. 220 g
Dimensions	
	
Accessories	
Hat rail adapter for front panel housing 96 mm Enables mounting on a hat rail TS35. Material number Z900030	

Ordering code CIT 350

CIT 350 -

1			
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1	
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Input type				
0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V	8			
Number of outputs				
without	0			
2	2			
3	3			
4	4			
Output type				
without	0			
2x / 4x SPST relay	1			
2x / 4x Open collector	2			
2x SPST relay + 1x 0/4...20 mA active	3			
2x Open collector + 1x 0/4...20 mA active	4			
2x SPST relay + 1x 4...20 mA passive	9			
2x Open collector + 1x 4...20 mA passive	A			
2x SPST relay + 1x 0/1...5 V, 0/2...10V	B			
2x Open collector + 1x 0/1...5 V, 0/2...10V	C			
Supply				
16...35 VAC / 19...50 VDC		3		
85...260 VAC / VDC		4		
Special version				
standard		0	0	0
sealing frame IP65		0	1	0
operating temperature -20°C...50°C		0	8	0
IP65 + operating temp. -20...50°C		0	P	0
customer		9	9	9
				consult
Accessories				
hat rail adapter 96 mm		Z900030		



CIT 400

Process Display with Contacts and Analogue Output

Functional range

- ▶ free scalable display
- ▶ linearization via max. 32 free selectable supporting points
- ▶ switching mode delay of the relay inputs and outputs, parameterizable calibration
- ▶ simulation / testing mode

Product characteristics

- ▶ input signal: 4 ... 20 mA
- ▶ 4-digit LED display
- ▶ housing variant: front panel or hat rail
- ▶ 2 or 4 limit value relays and 1 alarm relay
- ▶ scalable analogue output

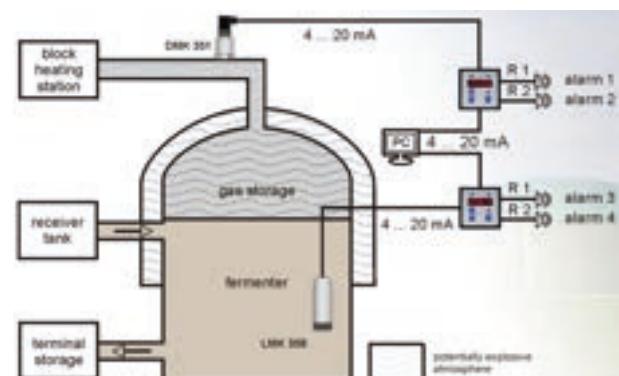
Optional versions

- ▶ supply voltage 230 V_{AC}
- ▶ Ex-approval

Typical application

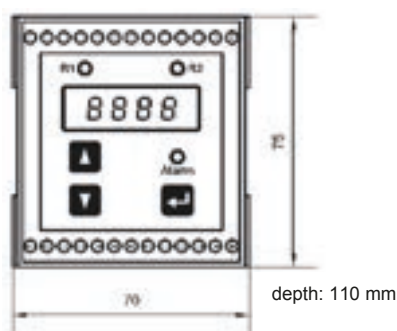


pressure and level monitoring in biogas plants

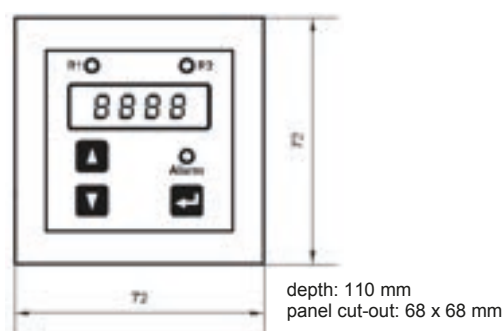


Signal output		
Output signal, permissible load	0/4 ... 20 mA, max. 500 Ω, galvanically insulated	
Signal input		
2-/ 3-wire-system	4 ... 20 mA (in front panel housing only 2-wire-system)	
Load	R _i = 50 Ω; input current max. 75 mA without damage; protected by poly-switch	
Supply		
Supply voltage AC-device	standard: 230 V _{AC} , 50/60 Hz IS-protection (optional): 100 ... 240 V _{AC} , 50/60 Hz	others on request
Supply voltage DC-device	standard: 24 V _{DC} ± 10 % IS-protection (optional): 18 ... 36 V _{DC}	others on request
Power consumption	standard: approx. 4 VA	option: approx. 6 VA
Contacts / Alarm relay		
Contacts	standard: 2 independent relay contacts (floating SPDT) option: 4 independent relay contacts (floating SPDT)	
Alarm relay	1 relay contact (floating SPDT with hat rail housing; floating NO with front panel housing); notifies broken line and over-current	
Switching voltage	max. 230 V _{AC}	
Switching current	max. 5 A (cos φ 0.9)	
Sensor supply		
DC device	V _S – 3 V	IS-protection (optional): approx. 14.5 V @ 20 mA
AC device	approx. 14 V @ 20 mA; approx. 20.5 V @ 4 mA	
Sensor current limit		
Standard	approx. 32 mA	
Ex-protection (optional)	linear limit, electronic limit approx. 37 mA	
Electrical protection		
Short-circuit protection	permanent - galvanic insulation of the contacts against measuring circuit and power supply	
Reverse polarity protection	DC device: no damage, but also no function	
EMC	emission and immunity according to EN 61326	
Electrical connection		
Standard	with fixed terminal clamp ; clamp section 2.5 mm ²	
Housing		
	front panel housing	hat rail housing
Material	Noryl	ABS
Ingress protection	housing: IP 40 / IP 65 ¹ clamps: IP 20	housing: IP 40 clamps: IP 20
¹ IP 65 can be reached by an additional, front sided sealing with a flexible transparent protection cover (available as accessory)		
Miscellaneous		
Display	4-digit 7-segment-LE display, red; digit height 10 mm; digit with 7.5 mm; range of indication -1999 ... 9999; accuracy 0.2 % ± 1 Digit	
LEDs	contacts: green alarm: red	
Permissible temperatures	electronics / environment / storage: -20 ... 60 °C	
Weight	AC-device: approx. 450 g	DC-device: approx. 300 g
CE-conformity	EMC Directive: 2014/30/EU	
Explosion protection (optional) – only in combination with 2 contacts and 1 alarm relay		
Approval AX13-CIT 400	IBExU05 ATEX 1097 X	II (1)G [Ex ia Ga] IIC II (1)D [Ex ia Da] IIIC
Safety technical maximum values	U _o = 25.2 V, I _o = 84.8 mA, P _o = 535 mW; IIC: C _o = 107 nF; L _o = 5.7 mH	
Permissible temperatures	environment: -20 ... 40 °C	
Dimensions (in mm)		

hat rail mounting



front panel mounting



Ordering code CIT 400

CIT 400		P H 0 - - - - -									
Type of construction											
	hat rail or wall mounting	H									
	front panel mounting	F									
	customer	9									consult
Output											
	2 independent relay outputs		2								
	4 independent relay outputs ¹		4								
Ex-protection											
	without Ex protection				S						
	with Ex protection				E						
Supply											
<i>without Ex-protection</i>											
	24 V _{DC}					3					
	230 V _{AC}					5					
	customer					9					consult
<i>with Ex-protection</i>											
	100 ... 240 V _{AC}					6					
	18 ... 36 V _{DC}					8					
Version											
	BD SENSORS						B				
	neutral						N				
	customer						9				consult
Special version											
	standard							0	0	0	
	customer							9	9	9	consult

¹ not possible in combination with IS-version



CIT 600

Multichannel Process Display with Contacts

Functional range

- ▶ data and configuration transfer via USB and RS-485
- ▶ parameterizable alarms for exceeded input range
- ▶ adjustable contrast and brightness of the display
- ▶ software for parameterization

Product characteristics

- ▶ 2/4/8 input channels
- ▶ input 0/4 ... 20 mA + 0/1/2 ... 5/10 V
- ▶ output 2 relays
- ▶ graphic LC display
- ▶ transducer power supply 24 V_{DC}
- ▶ interface RS-485 (Modbus RTU)
- ▶ front panel housing 96 x 96 mm

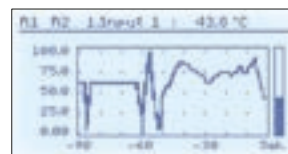
Optional versions

- ▶ input Pt100/500/1000
- ▶ input thermocouples

Display modes

PL	RS	12-02-20	HL	21.02.2018
1.	Input 1	48.5	°C	
2.	Input 2	7.417	mV	
3.	Input 3	<<10000>	mV	
4.	Input 4	38.6	l/min	
5.	Input 5	105	°F	
6.	Input 6	30.0	%	
7.	Input 7	1.00	bar	
8.	Input 8	10.2	ml/s	

- ▶ simultaneous display of max. eight channels with scaled value or standardized value and bargraph

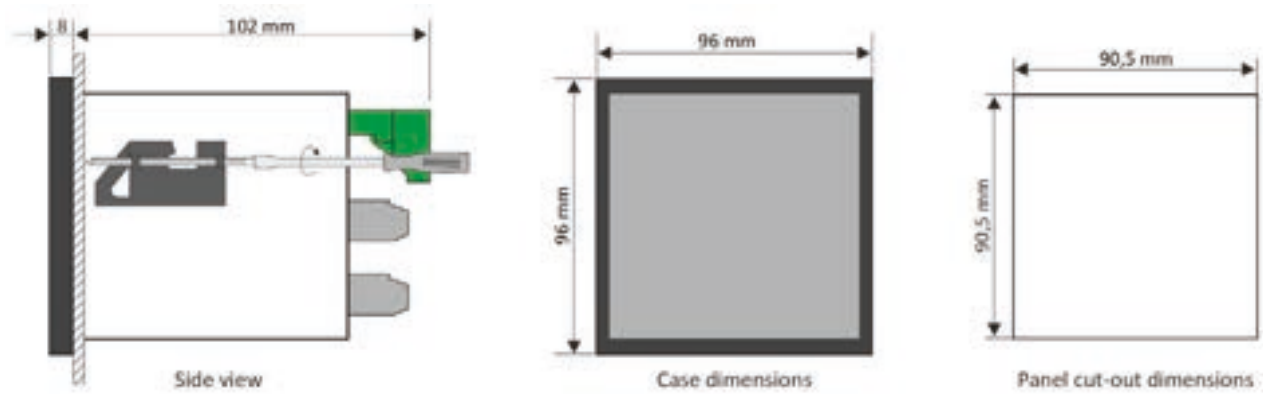


- ▶ chart display of one channel with scaled value and bargraph



- ▶ single channel display with scaled value, standardized value and bargraph



Supply	
Supply voltage / power consumption	85 ... 260 V _{AC} / V _{DC} / max. 12 W 16 ... 35 V _{AC} / 19 ... 50 V _{DC} / max. 12 VA
Transducer supply ¹	24 V _{DC} + 5%, - 10%, max. 200 mA
¹ Transducer supply 24V _{DC} only for current/voltage inputs	
Signal input	
Quantity	2, 4 or 8 inputs
Input signal	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V, common ground Pt100 / Pt500 / Pt1000, 2-/3-wire Thermoelement Typ K, S, J, T, N, R, B, E, 0 ... 60/75/100/150 mV
Accuracy (25 °C)	± 0,1 % FSO, ± 0,2% FSO (TC N), ± 0,5 % FSO (TC S, T, R, B), stability: 50 ppm/°C
Contacts	
Contact	2 el. relays, max. 35 V _{DC} / 24 V _{AC} , max. 200 mA
Display	
Display	graphic LCD (graph max. 8h), black/white, 128 x 64 points, with backlight
Display range	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V: - 9999 ... 9999 + decimal point Pt100 / Pt500 / Pt1000: -100, 0 ... 600,0°C thermocouple: -200 ... 1370 °C(K), -50 ... 1768 °C(S, R), -210 ... 1200 °C(J), -200 ... 400 °C(T), -200 ... 1300 °C(N), 250 ... 1820 °C(B), -200 ... 1000 °C(E)
Communication	
Communication interface	RS-485 (Modbus RTU), 8N1, 1200 – 115200 bit/s, USB PC (Mini-B)
Ingress protection	
Standard	IP 65 (front side), IP20 (case and connectors)
Option	IP 65 (front side with additional sealing frame for panel cut-out), IP 20 (case and connectors)
Permissible temperatures	
Standard	environment: 0 ... 50 °C, storage: -10 ... 70 °C
Option	environment: -20 ... 50 °C, storage: -20 ... 70 °C
Electrical protection	
Electrical safety	EN 61010-1
EMC	EN 61326-1
CE-conformity	EMC Directive: 2014/30/EU
Housing	
Housing type / dimensions	front panel mounting / 96 x 96 x 110 mm
Material	NORYL-GFN2S E1
Weight	approx. 600 g
Dimensions (in mm)	
 The figure contains three technical drawings of the CIT 600 device. The 'Side view' on the left shows the device's profile with a total width of 102 mm and a mounting flange thickness of 8 mm. The 'Case dimensions' in the middle show a square case with a width of 96 mm and a height of 96 mm. The 'Panel cut-out dimensions' on the right show a square cut-out with a width of 90,5 mm and a height of 90,5 mm.	

Software	
S-Toolkit Program for the complete configuration of CIT 600. The data are transferred via USB memory stick or via interface USB PC / RS-485. This software is included in scope of supply.	
Accessories	
Lockable door IP 54 for front panel housing 96 x 96 mm Prevents damage of display and increases access protection. Material number Z900002	
Hat rail adapter for front panel housing 96 mm Enables mounting on a hat rail TS35. Material number Z900030	

Ordering code CIT 600

CIT 600 - - 5 0 - -

Number of inputs									
	2	2							
	4	4							
	8	8							
Input type									
0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V			8						
Pt100, Pt500, Pt1000, thermocouple			T						
Number of outputs									
	2	2							
Output type									
El. relay 200mA			8						
Supply									
16...35 VAC / 19...50 VDC						3			
85...260 VAC / VDC						4			
Special version									
standard						0	0	0	
sealing frame IP65						0	1	0	
operating temperature -20°C...50°C						0	8	0	
IP65 + operating temp. -20...50°C						0	P	0	
customer						9	9	9	consult
Accessories									
lockable, transparent door 96 x 96 mm ¹						Z900002			
hat rail adapter 96 mm						Z900030			

¹ not for IP65



CIT 650

Multichannel Process Display with Datalogger and Contacts

Functional range

- ▶ sampling rate from 1 sec up to 1 h
- ▶ triggering of logging via digital input
- ▶ data and configuration transfer via USB, RS-485 or USB memory stick
- ▶ parameterizable alarms for exceeded input range
- ▶ adjustable contrast and brightness of the display
- ▶ software for parameterization and archiving of measured values

Product characteristics

- ▶ 1/4/8 input channels
- ▶ input 0/4 ... 20 mA + 0/1/2 ... 5/10 V
- ▶ output 2 relays
- ▶ graphic LC display
- ▶ transducer power supply 24 V_{DC}
- ▶ interface RS-485 (Modbus RTU)
- ▶ USB host front / rear
- ▶ front panel housing 96 x 96 mm

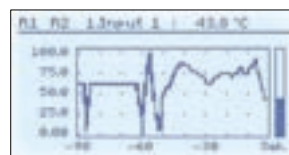
Optional versions

- ▶ input Pt100/500/1000
- ▶ input thermocouples
- ▶ wall mounted housing 166 x 161 mm

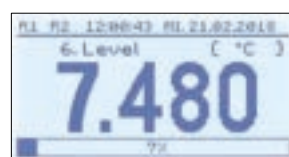
Display modes

PL	PL2	12:02:28	PL 21.02.2018
1.	Input 1	48.3	°C
2.	Input 2	7.417	mV
3.	Input 3	<<10000>>	mV
4.	Input 4	30.6	1/mV
5.	Input 5	105	°F
6.	Input 6	30.0	%
7.	Input 7	1.00	bar
8.	Input 8	10.2	mls

- ▶ simultaneous display of max. eight channels with scaled value or standardized value and bargraph

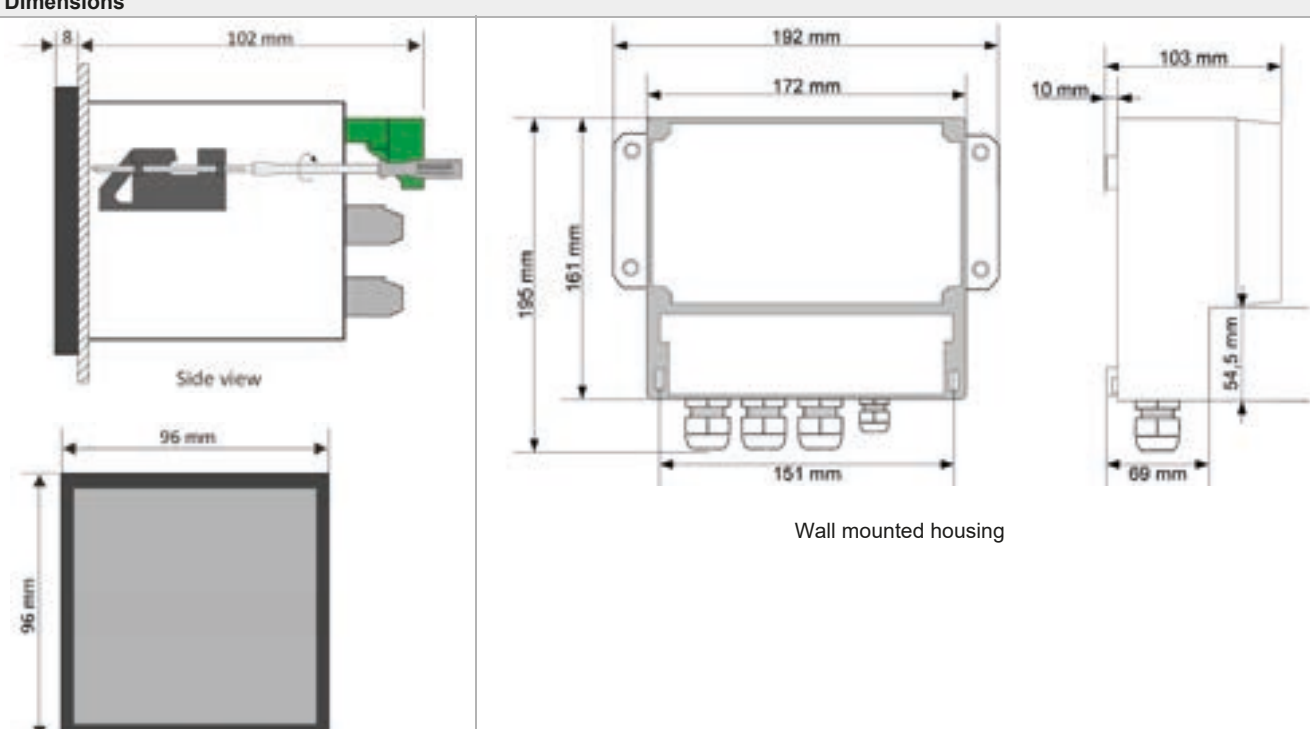


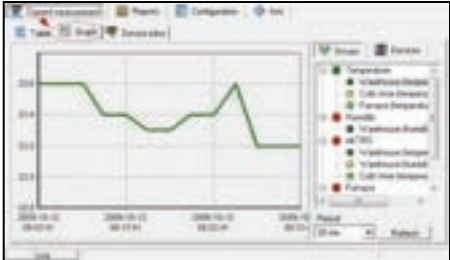
- ▶ chart display of one channel with scaled value and bargraph



- ▶ single channel display with scaled value, standardized value and bargraph



Supply		
Supply voltage / power consumption	85 ... 260 V _{AC} / V _{DC} / max. 12 W 16 ... 35 V _{AC} / 19 ... 50 V _{DC} / max. 12 VA	
Transducer supply ¹	24 V _{DC} + 5%, - 10%, max. 200 mA	
¹ Transducer supply 24V _{DC} only for current/voltage inputs		
Signal input		
Quantity	1, 4 or 8 inputs	
Input signal	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V, common ground Pt100 / Pt500 / Pt1000, 2-/3-wire Thermoelement Typ K, S, J, T, N, R, B, E, 0 ... 60/75/100/150 mV	
Accuracy (25 °C)	± 0,1 % FSO, ± 0,2% FSO (TC N), ± 0,5 % FSO (TC S, T, R, B), stability: 50 ppm/°C	
Digital input	1 input 24 V _{DC} (galvanically separated)	
Contacts		
Front panel housing	2 el. relays, max. 35 V _{DC} / 24 V _{AC} , max. 200 mA	
Wall mounted housing	2 SPST-relays, max. 30 V _{DC} / 250 V _{AC} , max. 1 A (cos φ 1)	
Display		
Display	graphic LCD, black/white, 128 x 64 points, with backlight	
Display range	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V: - 9999 ... 9999 + decimal point Pt100 / Pt500 / Pt1000: -100, 0 ... 600,0°C thermocouple: -200 ... 1370 °C(K), -50 ... 1768 °C(S, R), -210 ... 1200 °C(J), -200 ... 400 °C(T), -200 ... 1300 °C(N), 250 ... 1820 °C(B), -200 ... 1000 °C(E)	
Communication / Datalogger		
Communication interface ²	RS-485 (Modbus RTU), 8N1, 1200 – 115200 bit/s, USB PC (Mini-B), USB Host (A) front-/rear	
Internal memory	8 MB, max. 3 million measurements (expandable with USB memory stick)	
² Interface USB PC und USB Host rear only with front panel housing		
Ingress protection		
Front panel housing	IP 65 (front side), IP20 (case and connectors) IP 65 (front side with additional sealing frame for panel cut-out), IP 20 (case and connectors) IP 40 (front side, USB front), IP20 (case and connectors)	
Wall mounted housing	IP 65	
Permissible temperatures		
Standard / Option	environment: 0 ... 50 °C, storage: -10 ... 70 °C / environment: -20 ... 50 °C, storage: -20 ... 70 °C	
Electrical protection		
Electrical safety / EMC / CE	EN 61010-1 / EN 61326-1 / 2014/30/EU	
Housing		
Housing type / dimensions	front panel mounting / 96 x 96 x 110 mm	wall mounted housing / 166 x 161 x 103 mm
Material	NORYL-GFN2S E1	ABS, PC
Weight	approx. 600 g	ca. 600 g
Dimensions		
		

Software	
LoggySoft Program for display (table or chart), archiving, evaluation and export from stored data of CIT 650. The data are imported via USB memory stick or via interface USB PC / RS-485. Export of the data is in TXT format. This software is included in scope of supply.	
S-Toolkit Program for the complete configuration of CIT 650. The data are transferred via USB memory stick or via interface USB PC / RS-485. This software is included in scope of supply.	
Accessories	
Lockable door IP 54 for front panel housing 96 x 96 mm Prevents damage of display and increases access protection. Material number Z900002	
Hat rail adapter for front panel housing 96 mm Enables mounting on a hat rail TS35. Material number Z900030	
Mini USB Stick 8 GB Enables transfer of logged data and configuration to a PC (even with mounted front door). Material number Z900024	

Ordering code CIT 650 panel housing

CIT 650		-				-			-		-			
Number of inputs														
	1	1												
	4	4												
	8	8												
Input type														
	0/4 ... 20 mA, 0/1 ... 5 V, 0/2 ... 10 V	8												
	Pt100 , Pt500, Pt1000, thermocouple	T												
Number of outputs														
	2	2												
Output type														
	El. relay 200mA	8												
USB interface														
	Front USB host port					5	1							
	Rear USB host port					5	2							
Supply														
	16...35 VAC / 19...50 VDC						3							
	85...260 VAC / VDC						4							
Special version														
	standard							0	0	0				
	sealing frame IP65 ¹							0	1	0				
	operating temperature -20°C...50°C							0	8	0				
	sealing frame IP65 + -20...50°C ¹							0	P	0				
	customer							9	9	9				

consult

¹ only for rear USB host port

Ordering code CIT 650 wall mounted housing

	CIT 650	-				-			-		-			
Number of inputs														
	1		1											
	4		4											
	8		8											
Input type														
	0/4 ... 20 mA		1											
	0/1 ... 5 V, 0/2 ... 10 V		2											
	Pt100 , Pt500, Pt1000		3											
	Thermocouple		A											
Number of outputs														
	2		2											
Output type														
	SPST relay 1A		1											
USB interface														
	Front USB host port					5	1							
Supply														
	16...35 VAC / 19...50 VDC							3						
	85...260 VAC / VDC							4						
Special version														
	wall mounted housing IP65									5	0	0		
	wall mounted housing IP65 + -20...50°C									5	8	0		
	customer									9	9	9		

Accessories

lockable, transparent door 96 x 96 mm	Z900002
hat rail adapter 96 mm	Z900030
mini USB stick 8GB	Z900024



CIT 700 / 750

**Multichannel Process Display
with Datalogger, Contacts
and Analogue Outputs**

Functional range

- ▶ up to 90 channels for in- / outputs
- ▶ 35 mathematical / logical functions
- ▶ 8 integrated PID-controllers with autotuning
- ▶ 8 time- / event-driven profiles
- ▶ touchscreen- and remote-controlling
- ▶ multilevel access system
- ▶ webserver incl. HTML5 widgets
- ▶ e-mail function

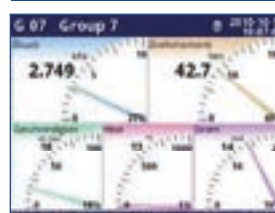
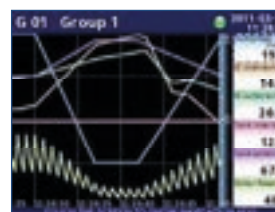
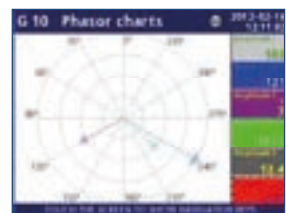
Datalogger

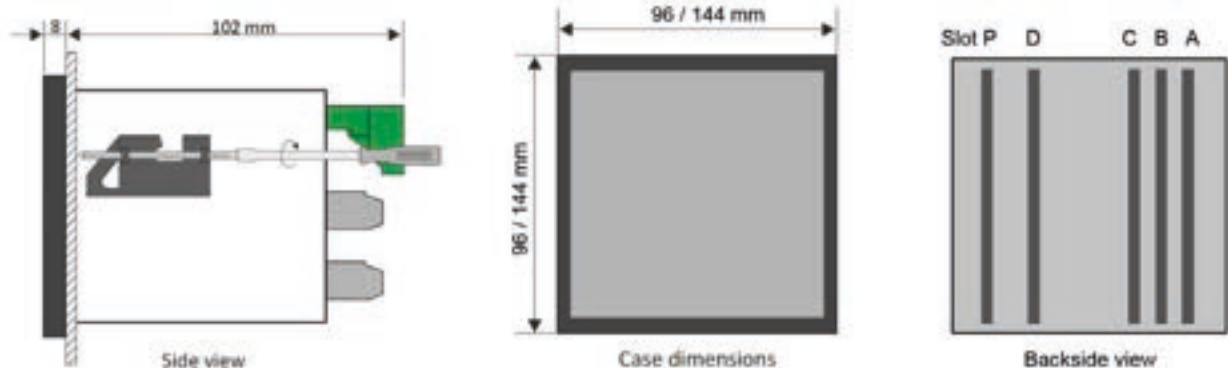
- ▶ data acquisition of up to 60 channels
- ▶ 2 configurable sample rates (max. 10 Hz)
- ▶ extensive triggering functions
- ▶ internal memory 1.5 GB
- ▶ data transfer via USB memory stick or Ethernet

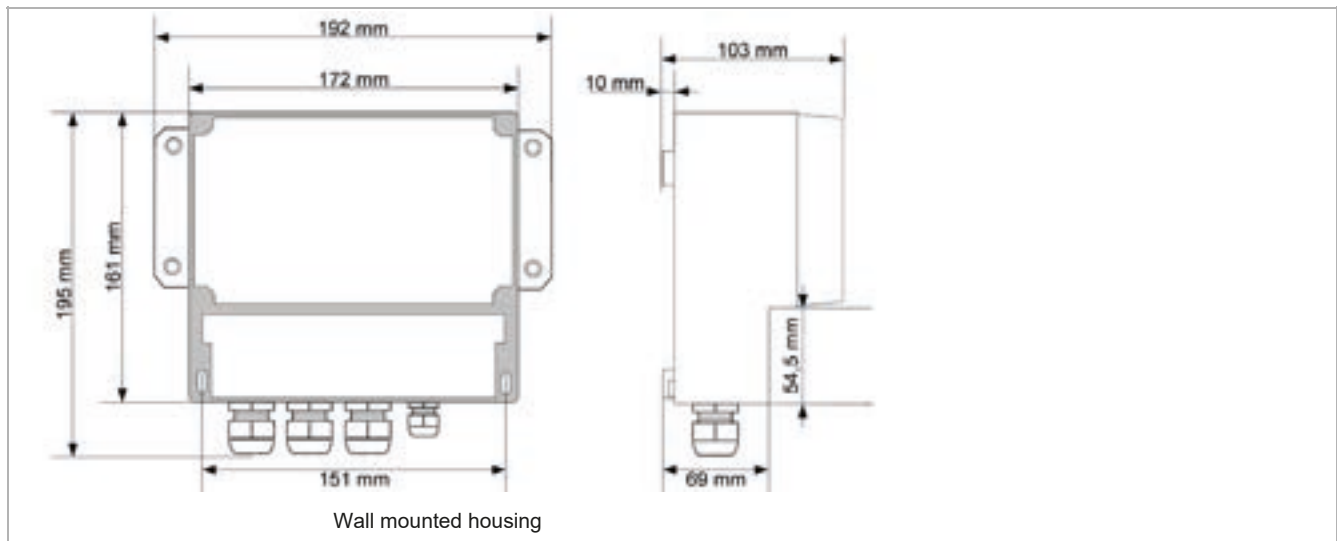
Product characteristics

- ▶ front panel housing 96 x 96 / 144 x 144mm
- ▶ graphic TFT monitor, touchscreen
- ▶ 3 slots for 40 different input- / output modules
- ▶ interfaces: RS-485 (Modbus RTU), RS-232, USB-Host, Ethernet (Modbus TCP)
- ▶ transducer power supply 24 V_{DC}

Display modes



Display		
Display	CIT 700: graphic TFT, 3,5", touchscreen, colored (16 bit), 320 x 240 pixels CIT 750: graphic TFT, 5,7", touchscreen, colored (16 bit), 320 x 240 pixels	
Datalogger		
Internal memory	1,5 GB, max. 125 000 000 measurements	
Sampling rate	0,1 sec to 24 h, 2 sampling rates, triggering internal/external, (max. 60 channels, max. 200/sec)	
Ingress protection		
Front panel housing	IP 65 (front side), IP20 (case and connectors) IP 65 (front side with additional sealing frame for panel cut-out), IP 20 (case and connectors) IP 40 (front side, USB front), IP20 (case and connectors)	
Wall mounted housing	IP 65	
Permissible temperatures		
Standard / Option	environment: 0 ... 50 °C, storage: -10 ... 70 °C / environment: -20 ... 50 °C, storage: -20 ... 70 °C	
Electrical protection		
Electrical safety / EMC / CE	EN 61010-1 / EN 61326-1 / 2014/30/EU	
Housing		
Housing type / dimensions	CIT 700: front panel mounting / 96 x 96 x 110 mm CIT 750: front panel mounting / 141 x 141 x 110 m	CIT 700: wall mounted housing / 166 x 161 x 103mm
Material	NORYL-GFN2S E1	ABS, PC
Weight	CIT 700: max. ca. 800 g CIT 750: max. ca. 1200 g	max. ca. 1000 g
Basic functions		
Allocation of 60 / 90 internal channels to 10 / 15 groups (max. 6 channels each group)		
Visualisation of values in 6 different modes (value, chart, bar, needle, phase chart, ScadaLite)		
Displaying of values numeric (figure) / binary (text) / time / control element (switch / button)		
Lo / Hi alarms, channel highlight (change of background color)		
Filtering (damping / peak detection), scaling (linear / user defined with 20 points), rounding of displayed values		
Extensive mathematic / trigonometric / logical functions		
8 PD- / PI- / PID controller incl. autotuning		
8 user defined time- / event-driven profiles with max. 99 segments		
16 virtual relays, acoustic signal		
Multilingual menu (EN, DE, FR, ES, CZ, PL, HU, RO, RU)		
Date- and time display, time zones, synchronization via NTP		
Adjustable contrast and brightness of display, screen saver, automatic view change, remote shutdown		
Multilevel access system (max. 16 user with definable rights), login via USB dongle		
Editors for letters, figures, special characters, font- and background colors		
Remote control		HTML5 Widgets
		
Dimensions		
		



Slot P – power supply modules with basic functions

PS32, PS42

Supply voltage / Power consumption	16 ... 35 V _{AC} / 19 ... 50 V _{DC} / max. 35 VA 85 ... 260 V _{AC} / V _{DC} / max. 35 W
Transducer supply	24 V _{DC} ± 5%, max. 200 mA
Binary input	0 ... 24 V DC, U < 1 V = LOW, U > 8 V = HIGH, current consumption 7,5mA @ 24V, isolation 500 V DC
RS-485	RS-485 Modbus RTU (master/slave), 8N1, 8N2, 8E1, 8E2, 8O1, 8O2, 1200...115200 bit/s
USB type Mini-B	service port

Slot D – communication modules

USB

Interface	USB host port type A
Max. current output	100 mA
Baudrate	12 Mbit/s

ETU

Interface	USB host port type A	Ethernet RJ-45
Max. current output	100 mA	-
Baudrate/protocol	12 Mbit/s	10 Mbit/s, Modbus TCP (slave)

ACM

Interface	USB host port	Ethernet RJ-45	RS-485, RS-485 / RS-232
Max. current output	100 mA	-	-
Baudrate/protocol	12 Mbit/s	10 Mbit/s, Modbus TCP(slave)	1200...115200bit/s, Modbus RTU(master/slave)

ETE

Interface	Ethernet RJ-45
Max. current output	-
Baudrate/protocol	10 Mbit/s, Modbus TCP (slave)

ETR

Interface	Ethernet RJ-45	RS-485
Max. current output	-	-
Baudrate/protocol	10 Mbit/s, Modbus TCP (slave)	1200...115200bit/s, Modbus RTU master/slave)

SLOT C / B / A – input / output modules

UI4, UI8, UI12, UI16, U24, I16, I24 – 4 / 8 / 12 / 16 / 24 current- / voltage inputs (common ground)

Input range/resolution	0 ... 12 V / 1 mV	0 ... 24 mA / 1 µA
Measurement ranges	0 ... 5 V, 1 ... 5 V, 0 ... 10 V, 2 ... 10 V	0 ... 20 mA, 4 ... 20 mA
Accuracy	0,1 % @ 25°C, stability: 50 ppm/°C	0,1 % @ 25°C, stability: 50 ppm/°C
Internal impedance	50 kΩ	100 Ω, 50 mA fuse

IS6 – 6 current inputs (isolated)

Input range/resolution	3 ... 30 mA / 1 µA
Measurement ranges	4 ... 20 mA
Accuracy	0,25 % @25°C, stability: 65 ppm/°C
Internal impedance	1750 Ω @ 4 mA, 400 Ω @ 20 mA, 50 mA fuse

D8, D16, D24 – 8 / 16 / 24 binary inputs (common ground each 4 inputs)

Input range	0 ... 30 V, U < 1 V = LOW, U > 4 V = HIGH
Current consumption	15 mA (24 V), 5 mA (10 V), 2 mA (5 V)

UI4D8, UI8D8 – 4 / 8 current- / voltage inputs + 8 binary inputs (common ground each 4 inputs)

Technical data see UI4, UI8, D8

UI4N8, UI8N8 – 4 / 8 current- / voltage inputs (common ground) + 8 NTC inputs				
Input range/resolution	0 ... 12 V / 1 mV		0 ... 24 mA / 1 µA	
Measurement ranges	0/1 ... 5 V, 0/2 ... 10 V		0 ... 20 mA, 4 ... 20 mA	
Accuracy	0,1 % @25°C, stability: 50 ppm/°C			
Internal impedance	61 kΩ		100 Ω, 50 mA fuse	
RT4, RT6 – 4 / 6 RTD inputs				
Input range/resolution	0 ... 325 Ω / 0,01 Ω		0 ... 3250 Ω / 0,1 Ω	
Measurement ranges	-100 ... 600 °C (Pt100), -200 ... 600 °C (Pt'50/100), -50 ... 200 °C (Cu50/100), -200 ... 200 °C (Cu'50/100), -60 ... 180 °C (Ni100), 0...300 Ω, 2/3/4-wire		-100 ... 600 °C (Pt500/1000), -200 ... 600 °C (Pt'500), -60 ... 180 °C (Ni1000), 0...3 kΩ, 2/3/4-wire	
Accuracy ¹	0,1 % @25°C, stability 50 ppm/°C		0,1 % @25°C, stability 50 ppm/°C	
Internal impedance	4 kΩ		4 kΩ	
TC4, TC8, TC12 – 4 / 8 / 12 thermocouple inputs				
Input range/resolution	-30...30mV / 1 µV		-120...120 mV / 4 µV	
Measurement ranges	-50 ... 1768 °C (S), -200 ... 400 °C (T), -50 ... 1768 °C (R), 250 ... 1820 °C (B), -25...25 mV		-200 ... 1370 °C (K), -210 ... 1200 °C (J), -200 ... 1300 °C (N), -200 ... 1000 °C (E), -200 ... 800 °C (L), 50 ... 2290 °C (C), -100...100 mV	
Accuracy ¹	0,15 % @25°C, stability 50 ppm/°C		0,1 % @25°C, stability 50 ppm/°C	
Internal impedance	6 MΩ		6 MΩ	
¹ accuracy of temperature measurement: see manual				
UN3, UN5 – 3 / 5 universal inputs (isolated) for current, voltage, RTD, thermocouple				
Current inputs				
Input range/resolution	-2 ... 30 mA / 1µA			
Measurement ranges	0 ... 20 mA, 4 ... 20 mA			
Accuracy	0,1 % @ 25 °C, stability 50 ppm/°C			
Internal impedance	< 65 Ω			
Voltage inputs				
Input range/resolution	-1 ... 12 V / 1 mV	-15 ... 30 mV / 2 µV	-15 ... 120 mV / 4 µV	-50 ... 650 mV / 40 µV
Measurement ranges	0/1 ... 5 V, 0/2 ... 10 V	-10 ... 25 mV	-10 ... 100 mV	0 ... 600 mV
Accuracy	0,1 % @ 25 °C, stability 50 ppm/°C, (-10 ... 25 mV: 0,15 % @ 25 °C)			
Internal impedance	> 100 kΩ	> 100 kΩ	> 100 kΩ	> 100 kΩ
RTD inputs				
Input range/resolution	0...325 Ω / 0,01 Ω		0...3250 Ω / 0,2 Ω	
Measurement ranges	-100 ... 600 °C (Pt100), -200 ... 600 °C (Pt'50/100), -50 ... 200 °C (Cu50/100), -200 ... 200 °C (Cu'50/100), -60 ... 180 °C (Ni100), 0...300 Ω, 2/3/4-Leiter		-100 ... 600 °C (Pt500/1000), -200 ... 600 °C (Pt'500), -60 ... 180 °C (Ni1000), 0...3 kΩ, 2/3/4-Leiter	
Accuracy ¹	0,1 % @ 25 °C, stability 50 ppm/°C		0,1 % @ 25 °C, stability 50 ppm/°C	
Internal impedance	4 kΩ		4 kΩ	
Thermocouple inputs				
Input range/resolution	-15 ... 30 mV / 2 µV		-15 ... 120 mV / 4 µV	
Measurement ranges	-50 ... 1768 °C (S), -200 ... 400 °C (T), -50 ... 1768 °C (R), 250 ... 1820 °C (B)		-200 ... 1370 °C (K), -210 ... 1200 °C (J), -200 ... 1300 °C (N), -200 ... 1000 °C (E), -200 ... 800 °C (L), 50 ... 2290 °C (C)	
Accuracy ¹	0,1 % @ 25 °C, stability 50 ppm/°C		0,1 % @ 25 °C, stability 50 ppm/°C	
Internal impedance	> 1,5 MΩ		< 65 Ω	
HM2, HM4 – 2 / 4 hourmeter inputs (isolated)				
Input range	0 ... 30 V, U < 1 V = LOW, U > 10 V = HIGH			
Current consumption	14 mA (24 V), 6 mA (10 V), 50mA fuse			
Processing	each 1x start-stop input, 1x programmable input (reset/hold/binary input) counting range: max. 10 ⁹ s			
CP2, CP4 – 2 / 4 universal pulse counters (isolated)				
Input range	0...30V, U<1V = LOW, U>10V = HIGH, max. 10 kHz			
Current consumption/isolation	14 mA (24V), 6 mA (10V), 50mA fuse / 2kV			
Processing	each 2x counting input, 1x programmable input (reset/hold/direction), 1x reset input counting range: 52 bit, counting modes: A+B / A-B / counter (up/down) / quadrature counter			
FI2, FI4 – 2 / 4 analogue flowmeters with totalizer + 2 / 4 current inputs (common ground)				
Input range/resolution	0 ... 24 mA / 1 µA			
Measurement ranges	0 ... 20 mA, 4 ... 20 mA			
Accuracy	0,1 % @ 25 °C, stability 50 ppm/°C			
Internal impedance	100 Ω / 50 mA fuse			
Processing	each 1x current input (standard + flowmeter), 1x current input (standard), counting range: 10 ¹²			
FT2, FT4 – 2 / 4 pulse flowmeter / ratemeter with totalizer (isolated) + 2 / 4 current inputs (common ground)				
Input range/resolution	0...30V, U<1V = LOW, U>10V = HIGH, max. 50 kHz		-2 ... 30 mA / 1 µA	
Measurement ranges	1/sec, 1/min, 1/h		0 ... 20 mA, 4 ... 20 mA	
Accuracy			0,1 % @ 25 °C, stability 50 ppm/°C	
Internal impedance			100 Ω / 50 mA fuse	
Current consumption	12 mA (24V), 50mA fuse			
Processing	each 2x counting inputs + 1x current input, counting range: 10 ¹² , modes: counter (up/down) / quadrature			

FUN2, FUN4 – 2 / 4 universal analogue inputs with flowmeter / totalizer (isolated) for current, voltage, RTD, thermocouple		
Technical data see UN3, UN5		
DU2 – 4 binary inputs (common ground each 2 inputs) or 2 pulse flowmeter / ratemeter with totalizer (isolated)		
Technical data see D8, D16, D24 or FT2, FT4, max. 5kHz		
D4 – 4 binary inputs (common ground each 2 inputs)		
Technical data see D8, D16, D24		
IO2, IO4, IO6, IO8 – 2 / 4 / 6 / 8 passive current outputs 4...20mA (isolated)		
Output range/resolution	3 ... 25 mA, 50 mA fuse / 12 bit	
Accuracy	0,1 % @ 25 °C, stability 50 ppm/°C	
Voltage drop/loop supply	max. 9 V / 9 ... 30 V	
R21, R41, R45, R65, R81, R121 – 2 / 4 / 6 / 8 / 12 relay outputs		
Output	4 / 6 SPDT relay	2 / 4 / 8 / 12 SPST relay
Max. current/voltage	5 A (cosφ =1, each output) / 250 VAC	1A (cosφ =1, each output) / 250 VAC
S2, S4, S8, S16, S24 – 2 / 4 / 8 / 16 / 24 solid state relay outputs (SSR) with PWM		
External supply	Uext. 10 ... 30 V	
Max. current/voltage	100 mA, max. 500 mA each 8 outputs / > Uext. -0,5 V	
PWM-period/-resolution	0,1 ... 1 600 s / 0,1 s	
PWM-frequency/-duty factor	5 kHz (internal), 20 μs (output) / 0 ... 100 %, resolution 15 bit	
R21IO2 – 2 relay outputs + 2 passive current outputs 4...20mA (isolated)		
Technical data see R21, IO2		
R21S2 – 2 relay outputs + 2 solid state relay outputs (SSR) with PWM		
Technical data see R21, S2		
IO2S2 – 2 passive current outputs 4...20mA (isolated) + 2 solid state relay outputs (SSR) with PWM		
Technical data see IO2, S2		

Accessories	
License key for datalogger capabilities Material number LK-700	Activation of datalogger capabilities
License key for e-mail notifications Material number LK-702	Activation of e-mail notifications (Ethernet port required)
Software DAQ-Manager Program for displaying (table or graph), archiving, evaluation and export data stored on CIT 700 with enabled data logging capabilities. Data are imported via USB flash drive or Ethernet. Export of data is performed in CSV format. The program shows current measurements as chart or graphic (Ethernet port required). Material number SW-DAQ	
Lockable door IP 54 for front panel housing Prevents damage of display and increases access protection. 96 mm Material number Z900002 144 mm Material number Z900025	
Hat rail adapter for panel housing Enables mounting on a hat rail TS35. 96 mm Material number Z900030 144 mm Material number Z900031	
Mini USB Stick 8 GB Enables transfer of logged data and configuration to a PC (even with mounted front door). Material number Z900024	

Ordering code CIT 700 / 750 panel housing

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Basic version									
	TFT display 3,5"	7	0	0					
	TFT display 5,7" ¹	7	5	0					
Slot P									
	Supply 19..50 VDC, 16...35 VAC								
	Output 24 VDC 200 mA	P	S	3	2				
	Digital input 24 VDC, RS-485 Modbus RTU								
	Supply 85..260 VAC/DC								
	Output 24 VDC 200 mA	P	S	4	2				
	Digital input 24 VDC, RS-485 Modbus RTU								
Slot D									
	empty					E			
	rear USB host port					U	S	B	
	rear USB host port					E	T	U	
	Ethernet 10 Mbit/s								
	Rear USB host port								
	Ethernet 10 Mbit/s, RS-485 Modbus RTU					A	C	M	
	RS-485 Modbus RTU / RS-232								
Slot C / B / A		SLOT C		SLOT B		SLOT A			
	empty		E		E		E		
	16x current input (I)		I 1 6		I 1 6		I 1 6		
	24x current input (I)		I 2 4	¹	I 2 4	¹	I 2 4	¹	
	6x current input (isolated)		I S 6		I S 6		I S 6		
	16x voltage input (U)		U 1 6		U 1 6		U 1 6		
	24x voltage input (U)		U 2 4	¹	U 2 4	¹	U 2 4	¹	
	4x U + 4x I input		U I 4		U I 4		U I 4		
	8x U + 8x I input		U I 8		U I 8		U I 8		
	12x U + 12x I input		U I 1 2	¹	U I 1 2	¹	U I 1 2	¹	
	8x binary input (D)		D 8		D 8		D 8		
	16x binary input (D)		D 1 6		D 1 6		D 1 6		
	24x binary input (D)		D 2 4	¹	D 2 4	¹	D 2 4	¹	
	4x U + 4x I + 8x D input		U I 4 D 8		U I 4 D 8		U I 4 D 8		
	8x U + 8x I + 8x D input		U I 8 D 8	¹	U I 8 D 8	¹	U I 8 D 8	¹	
	4x U + 4x I + 8x NTC input		U I 4 N 8		U I 4 N 8		U I 4 N 8		
	8x U + 8x I + 8x NTC input		U I 8 N 8	¹	U I 8 N 8	¹	U I 8 N 8	¹	
	4x resistance thermometer input (RTD)		R T 4		R T 4		R T 4		
	6x resistance thermometer input (RTD)		R T 6	¹	R T 6	¹	R T 6	¹	
	4x thermocouple input (TC)		T C 4		T C 4		T C 4		
	8x thermocouple input (TC)		T C 8		T C 8		T C 8		
	12x thermocouple input (TC)		T C 1 2	¹	T C 1 2	¹	T C 1 2	¹	
	3x universal input (I, U, RTD, TC)		U N 3		U N 3		U N 3		
	5x universal input (I, U, RTD, TC)		U N 5	¹	U N 5	¹	U N 5	¹	
	2x time counter input		H M 2		H M 2		H M 2		
	4x time counter input		H M 4		H M 4		H M 4		
	2x pulse counter input		C P 2		C P 2		C P 2		
	4x pulse counter input		C P 4		C P 4		C P 4		
	2x flowmeter + 2x I input		F I 2		F I 2		F I 2		
	4x flowmeter + 4x I input		F I 4		F I 4		F I 4		
	2x ratemeter + 2x I-input		F T 2		F T 2		F T 2		
	4x ratemeter + 4x I-input		F T 4		F T 4		F T 4		
	2x current output		I O 2		I O 2		I O 2	¹	
	4x current output		I O 4		I O 4		I O 4	¹	
	6x current output		I O 6	¹	I O 6	¹	I O 6	¹	
	8x current output		I O 8	¹	I O 8	¹	I O 8	¹	
	8x SPST relay 1A		R 8 1		R 8 1		R 8 1	¹	
	12x SPST relay 1A		R 1 2 1	¹	R 1 2 1	¹	R 1 2 1	¹	
	4x SPDT relay 5A		R 4 5		R 4 5	¹	R 4 5	¹	
	6x SPDT relay 5A		R 6 5	¹	R 6 5	¹	R 6 5	¹	
	8x SSR output		S 8		S 8		S 8		
	16x SSR output		S 1 6		S 1 6		S 1 6	¹	
	24x SSR output		S 2 4	¹	S 2 4	¹	S 2 4	¹	
Special version									
	standard ²							0 0 0	
	sealing frame IP65 ²							0 1 0	
	front USB host port							0 B 0	
	operating temperature -20°C...50°C							0 8 0	consult
	sealing frame IP65 + -20...50°C ²							0 P 0	consult
	front USB host port + -20...50°C							0 K 0	consult
	customer							9 9 9	consult

¹ not with TFT display 3,5"² only with rear USB host port

Ordering code CIT 700 wall mounted housing

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Basic version									
TFT display 3,5"		7	0	0					
Slot P									
Supply 19..50 VDC, 16...35 VAC									
Output 24 VDC 200 mA					P	S	3	2	
Digital input 24 VDC, RS-485 Modbus RTU									
Supply 85..260 VAC/DC									
Output 24 VDC 200 mA					P	S	4	2	
Digital input 24 VDC, RS-485 Modbus RTU									
Slot D									
empty									E
Ethernet 10 Mbit/s									E T E
Ethernet 10 Mbit/s									
RS-485 Modbus RTU									E T R
Slot C / B / A					SLOT C		SLOT B		SLOT A
2x universal / flowmeter input (I, U, RTD, TC)									F U N 2
4x universal / flowmeter input (I, U, RTD, TC)									F U N 4
2x pulse counter/ratemeter / 4x binary input							D U 2		
4x binary input							D 4		
2x SPST relay 1A					R 2	1			
4x SPST relay 1A					R 4	1			
2x current output					I O	2			
4x current output					I O	4			
2x SSR output					S	2			
4x SSR output					S	4			
2x SPST relay 1A + 2x current output					R 2	1 I O	2		
2x SPST relay 1A + 2x SSR output					R 2	1 S	2		
2x current output + 2x SSR output					I O	2 S	2		
Special version									
USB + Wall mounted housing IP65								5	B 0
USB + wall mounted housing IP65 + -20...50°C								5	K 0
customer								9	9 9

consult

consult

Accessories

licence key datalogger	LK-700
licence key e-mail notifications	LK-702
lockable, transparent door 96 x 96 mm	Z900002
lockable, transparent door 144 x 144 mm	Z900025
hat rail adapter 96 mm	Z900030
hat rail adapter 144 mm	Z900031
software DAQ-manager	SW-DAQ
mini USB stick 8GB	Z900024

COMPETENCE

**Industrial pressure measurement technology
from 0.1 mbar up to 8000 bar**

- > pressure transmitters, electronic pressure switches or hydrostatic level probes
- > OEM or high-end products
- > standard products or customized solutions

BD|SENSORS has the right pressure measuring device at the right price.

PRICE / PERFORMANCE

pressure measurement at the highest level

The concentration on electronic pressure transmitter has led to extraordinary efficiency and economical pricing.

BD|SENSORS is certain to be one of the most economical suppliers on the world market, given equal technical and commercial conditions.

RELIABILITY

**projectable delivery times and strict
observance of deadlines**

Short delivery times and firm deadlines, even for special designs, make BD|SENSORS a reliable partner for our customers.

BD|SENSORS reduces the level of your stock-keeping and increases your profitability.

FLEXIBILITY

**We have special solutions for your individual
requirement.**

We solve your problem in industrial pressure measurement quickly and economically, not only with large-scale production lines, but also for smaller requirements.

BD|SENSORS is especially flexible when technical support and quick assistance are required in service case as well as for rush orders.