FA MCR-EX-D-TUI-UI-2REL-UP - Digital display

2907216

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CRA-READY



Ex i, Process indicator, multifunctional, in control panel component housing for monitoring and displaying analog measurement data. Universal inputs enable the connection of current, voltage, RTDs, and TCs. 2 relay change-over contact outputs and 1 analog output.. HART

Product description

Multifunctional Ex i process indicator in control panel housing for monitoring, displaying, and transmitting analog measurement data from the Ex area to the safe area. Dual-conductor sensors can be powered with the integrated measuring transducer supply. Universal inputs permit connection of current, voltage, RTDs, and TCs. Limit values can be monitored and relays can be switched. The analog output allows you to transmit process signals. A color change in the event of a fault supports the detection of alarm conditions. 5-digit, 7-segment LC display, with backlight, 1 universal input, 2 relays, min./max. value memory, linearization table, digital status output (open collector)

Commercial data

Item number	2907216
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK1241
GTIN	4055626173627
Weight per piece (including packing)	598.2 g
Weight per piece (excluding packing)	580 g
Customs tariff number	90328900
Country of origin	DE

Technical data

Notes

Note on application

Note on application	As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA.

Product properties

Product type	Digital displays
Product family	Field Analog
No. of channels	1
Configuration	Keyboard
	Software

Insulation characteristics

Protection class	I

Insulation characteristics

Overvoltage category	II
Pollution degree	2

System properties

Functionality

Configuration	Keyboard
	Software

Electrical properties

Test voltage (Relay/relay)	2500 V
Test voltage (Relay for input/output/power supply)	2500 V
Test voltage (Input/output)	1500 V

Electrical isolation Input/output/power supply

Electrical isolation	375 V

Supply

Supply voltage range	24 V AC/DC ... 230 V AC/DC (-20 % ... +10 %, 50 Hz ... 60 Hz)
Max. current consumption	30 mA
Power consumption	≤ 6.9 W

Input data

Signal: Voltage

Description of the input	Universal input
Input signal	Voltage

Voltage input signal	0 V ... 10 V
	2 V ... 10 V
	0 V ... 5 V
	0 V ... 1 V
	1 V ... 5 V
	-1 V ... 1 V
	-10 V ... 10 V
	-30 V ... 30 V
	-100 mV ... 100 mV
Max. voltage input signal	± 35 V (≥ 1 V)
	± 12 V (< 1 V)
Available input sources	Voltage
Input resistance of voltage input	> 1 MΩ

Signal: Current

Description of the input	Universal input
Number of inputs	1
Input signal	Current
Current input signal	0 mA ... 20 mA +10 %
	4 mA ... 20 mA +10 %
Max. current input signal	< 150 mA
Available input sources	Current
Input resistance current input	10 Ω
Transmitter supply voltage	> 16 V (22 mA)
Transmitter supply voltage range	22.8 V ... 27.6 V (No-load)
Transmitter supply current	< 30 mA (Short-circuit and overload protection)
D/A converter resolution	16 bit

Signal: Resistance

Description of the input	Universal input
Input signal	Resistor
Available input sources	Resistance: 30 Ω ... 3000 Ω

Measurement

Description of the input	Universal input
Configurable/programmable	Yes
Sensor types (RTD) that can be used	Pt, Ni, Cu sensors
Available input sources	Resistance thermometers
Temperature measuring range	-200 °C ... 1100 °C (Range depends on sensor type, adjustable)
Connection technology	2-, 3-, 4-conductor
Measuring rate	200 ms

Measurement

Description of the input	Universal input
Configurable/programmable	Yes
Sensor types that can be used (TC)	J, K, T, N, B, S, R, U. L, C, D

Available input sources	Thermocouples
Temperature measuring range	-200 °C ... 2495 °C (Range depends on sensor type, adjustable)
Measuring rate	200 ms

Output data

Switching: Relay

Contact switching type	2 changeover contacts
Minimum switching voltage	12 V
Maximum switching voltage	30 V DC (3 A)
	230 V AC (3 A)
Min. switching current	10 mA
Max. switching current	3 A

Switching: Transistor

Output description	Open collector output
Number of outputs	1
Contact switching type	Transistor
Maximum switching voltage	28 V
Max. switching current	200 mA

Signal: Voltage

Voltage output signal	0 V ... 10 V
	2 V ... 10 V
	0 V ... 5 V
	1 V ... 5 V
Max. voltage output signal	< 11 V
Open-circuit voltage	24 V DC (+15 %/-5 %)
Short-circuit current	< 25 mA
Ripple	< 10 mV_{PP} (1000 Ω)
D/A converter resolution	13 bit
Temperature coefficient, typical	0.01 %/K

Signal: Current

Number of outputs	1
Configurable/programmable	Yes
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Max. current output signal	< 22 mA
Load/output load current output	≤ 500 Ω (22 mA)
Ripple	< 10 mV_{PP} (500 Ω)
D/A converter resolution	13 bit
Number of positions displayed	5
Display	7-segment LC display, with backlight, dot matrix for text/bar graph
Temperature coefficient, typical	0.01 %/K

Connection data

Input, Output, Status

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross-section rigid	0.14 mm² ... 1.5 mm²
Conductor cross-section flexible	0.14 mm² ... 1.5 mm²
Conductor cross-section AWG	26 ... 16

Relay, power supply

Connection method	Screw connection
Stripping length	10 mm
Conductor cross-section rigid	0.2 mm² ... 2.5 mm²
Conductor cross-section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 14
Tightening torque	0.4 Nm ... 0.4 Nm

Ex data

Ex i circuits (EPL)	Ga
	Da

Safety data

Note	Two-conductor measuring transducer supply (intrinsically safe)
Max. internal inductance L_i	75 µH
Max. internal capacitance C_i	8 nF
Max. output voltage U_o	≤ 27.3 V
Max. output current I_o	≤ 96.5 mA
Max. output power P_o	≤ 659 mW
Ex ia IIC: Max. external inductivity L_o / Max. external capacitance C_o	4 mH / 88 nF
Ex ia IIB: Max. external inductivity L_o / Max. external capacitance C_o	17 mH / 683 nF
Ex ia IIA: Max. external inductivity L_o / Max. external capacitance C_o	34 mH / 2280 nF

Safety data

Note	Temperature inputs (intrinsically safe)
Max. internal inductance L_i	75 µH
Max. internal capacitance C_i	8 nF
Max. output voltage U_o	≤ 27.3 V
Max. output current I_o	≤ 22.1 mA
Max. output power P_o	≤ 151 mW
Ex ia IIC: Max. external inductivity L_o / Max. external capacitance C_o	500 µH / 85 nF
Ex ia IIB: Max. external inductivity L_o / Max. external capacitance C_o	2 mH / 360 nF

Ex ia IIA: Max. external inductivity L_o / Max. external capacitance C_o	5 mH / 530 nF

Safety data

Note	Current input (intrinsically safe)
Max. internal inductance L_i	75 µH
Max. internal capacitance C_i	8 nF
Max. output voltage U_o	≤ 27.3 V
Max. output current I_o	≤ 5 mA
Max. output power P_o	≤ 34.2 mW
Ex ia IIC: Max. external inductivity L_o / Max. external capacitance C_o	500 mH / 88 nF
Ex ia IIB: Max. external inductivity L_o / Max. external capacitance C_o	2 mH / 380 nF
Ex ia IIA: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 540 nF

Safety data

Note	Voltage input (intrinsically safe)
Max. internal inductance L_i	75 µH
Max. internal capacitance C_i	8 nF
Max. output voltage U_o	≤ 27.3 V
Max. output current I_o	≤ 5 mA
Max. output power P_o	≤ 34.2 mW
Ex ia IIC: Max. external inductivity L_o / Max. external capacitance C_o	500 mH / 88 nF
Ex ia IIB: Max. external inductivity L_o / Max. external capacitance C_o	2 mH / 380 nF
Ex ia IIA: Max. external inductivity L_o / Max. external capacitance C_o	100 mH / 540 nF

Interfaces

Data: T-PORT

Connection method	4-pos. socket

Data: USB

Serial transmission speed	38400 baud

Data communication (bypass)

Protocols supported	HART

Signaling

Status display	LED (red)

Dimensions

Width	96 mm
Height	48 mm
Depth	175 mm

Material specifications

Color	light gray (RAL 7035)
Housing material	PC-GF10

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP65 (Front)
Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2000 m
Climatic class	according to IEC 60654-1, class B2
Permissible humidity (operation)	Front: condensation permitted
	Device body: no condensation

Approvals

CE

Certificate	CE-compliant

ATEX

Identification	⟨Ex⟩ II (1) G [Ex ia Ga] IIC
	⟨Ex⟩ II (1) D [Ex ia Da] IIIC
Certificate	PTB 15 ATEX 2011

UKCA Ex (UKEX)

Certificate	CML 21UKEX2995

UL, USA/Canada

Identification	UL 61010 Recognized

FM

Identification	AIS, NI/I/2/ABCDEFG/T4

CSA

Identification	AIS, NI/I/2/ABCDEFG/T4

Shipbuilding approval

Certificate	DNV GL TAA000029G

Shipbuilding data

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	B (front) / A (rear)

EMC data

Noise immunity	IEC 61326 / NAMUR NE 21

Noise emission

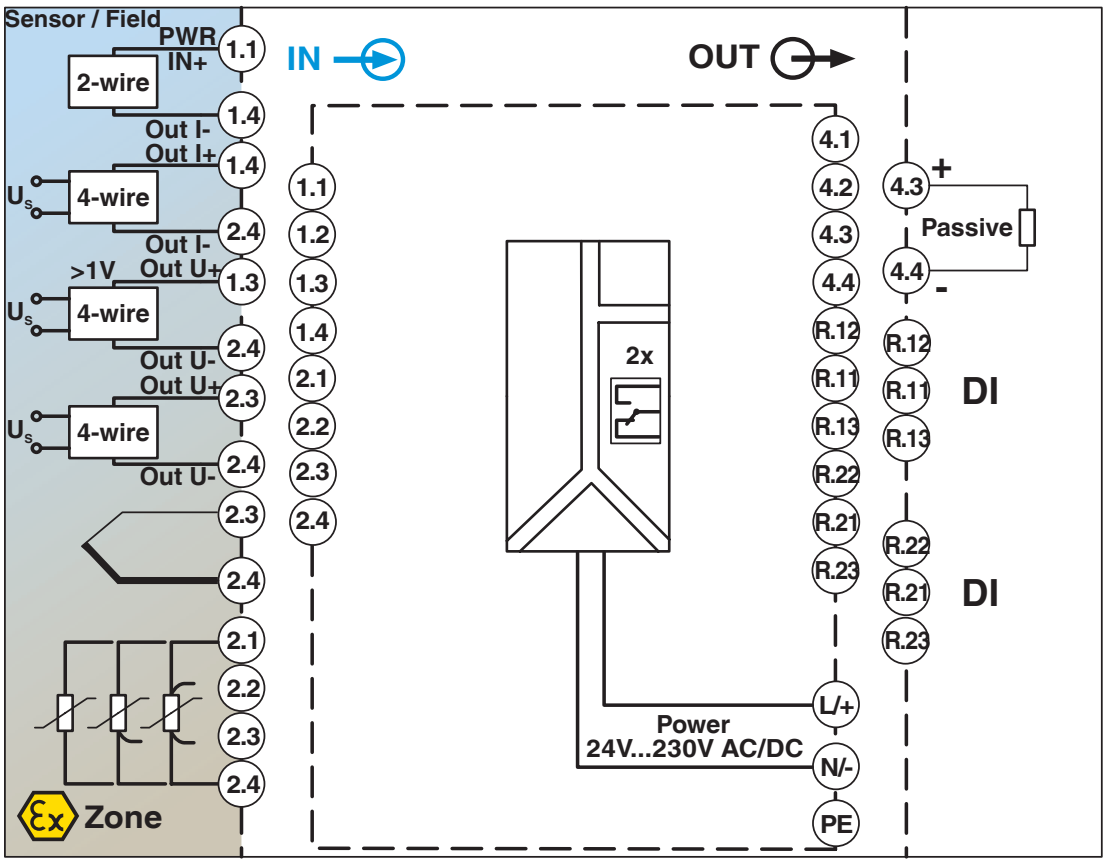
Standards/regulations	IEC 61326, class A

Mounting

Mounting type	DIN rail mounting
	Panel mount
Mounting position	Max. viewing angle range +/- 45° from the centre line of the display in every direction

Drawings

Block diagram



Block diagram FA MCR-EX-D-TUI-UI-2REL-UP

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2907216

CSA
Approval ID: 2879105

cUL Recognized
Approval ID: FILE E 198586

UL Recognized
Approval ID: FILE E 198586

DNV
Approval ID: TAA000029G_2

ATEX
Approval ID: PTB 15 ATEX 2011

CSA
Approval ID: 2879105

FM approved
Approval ID: 3057343

Classifications

ECLASS

ECLASS-13.0	27210301
ECLASS-15.0	27210301

ETIM

ETIM 10.0	EC011349

UNSPSC

UNSPSC 21.0	39121000

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)

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