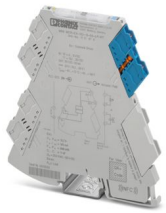
MINI MCR-EX-SD-16-50-LP-PT - Solenoid driver

1157870

https://www.phoenixcontact.com/us/products/1157870

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CRA-READY



Ex i-Solenoid driver for controlling Ex i solenoid valves in the Ex area. number of channels: 1, open-circuit voltage: 16 V DC, current limitation: 50 mA, Standard configuration, Loop-powered, 2-way isolation, Safety Integrity Level (SIL, IEC 61508): 3, Push-in connection

Commercial data

Item number	1157870
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK1224
GTIN	4063151163501
Weight per piece (including packing)	118.5 g
Weight per piece (excluding packing)	118.5 g
Customs tariff number	85437090
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	Solenoid driver
Product family	MINI Analog Pro
No. of channels	1

Electrical properties

Electrical isolation	2-way isolation
Electrical isolation between input and output	yes

Electrical isolation

Overvoltage category	II (≤ 5000 m)
Pollution degree	2 (≤ 5000 m)

Electrical isolation Input/output IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V_{rms}
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Double/reinforced insulation

Electrical isolation Input/output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	265 V_{rms}

Electrical isolation Input/output IEC/EN 60079-7

Standards/regulations	IEC/EN 60079-7
Rated insulation voltage	251 V_{rms}

Supply

Supply voltage range	loop-powered, no external supply necessary
Power consumption	< 1.4 W

Input data

Signal: Voltage

Number of inputs	1
Voltage input signal	19.2 V DC ... 30 V DC (24 V DC, -20 % ... +25 %)

Output data

Signal: Voltage

Number of outputs	1
Output voltage	≥ 10.7 V DC (50 mA)
Output resistor	≥ 103 Ω (Internal resistance R_i)
Current limitation	> 50 mA
Response time	< 50 ms
Open-circuit voltage	> 16 V DC
Short-circuit-proof	yes

Connection data

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross-section rigid	0.2 mm² ... 2.5 mm² (with ferrule)
	0.14 mm² ... 2.5 mm² (without ferrule)
Conductor cross-section flexible	0.14 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 12 (flexible)

Ex data

Ex installation (EPL)	Gc
	Div. 2
Ex i circuits (EPL)	[Ga]
	[Da]
	[Ma]
	[Div. 1]

Safety data

Max. internal inductance L_i	negligible
Max. internal capacitance C_i	11 nF
Max. output voltage U_o	19.2 V
Max. output current I_o	185 mA
Max. output power P_o	888 mW
Safety-related maximum voltage U_m	253 V AC (≤ 2000 m)
	125 V DC (≤ 2000 m)
	121 V AC (> 2000 m ... 3000 m)
	110 V DC (> 2000 m ... 3000 m)
	33 V AC/DC (> 3000 m ... 4000 m)
	33 V AC/DC (> 4000 m ... 5000 m)
IIA (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	7 mH / 6.1 µF
IIB/IIIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	4 mH / 1.53 µF
IIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	0.8 mH / 240 nF
I (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 8.7 µF

Dimensions

Width	6.2 mm
Height	109.81 mm
Depth	119.2 mm

Material specifications

Color	gray (RAL 7042)

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

Altitude range (IEC/EN 61010-1)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 63 °C
Rated insulation voltage	300 V_{rms} (Input/output)
Insulation	Double/reinforced insulation

Altitude range (IEC/EN 61010-1)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 56 °C
Rated insulation voltage	300 V_{rms} (Input/output)
Insulation	Double/reinforced insulation

Altitude range (IEC/EN 61010-1)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 49 °C
Rated insulation voltage	150 V_{rms} (Input/output)
Insulation	Double/reinforced insulation

Altitude range (IEC/EN 60079-11)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 63 °C
Rated insulation voltage	150 V_{rms} (Input/output)

Altitude range (IEC/EN 60079-11)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 56 °C
Rated insulation voltage	60 V_{rms} (Input/output)

Altitude range (IEC/EN 60079-11)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 49 °C

Rated insulation voltage	60 V_{rms} (Input/output)

Altitude range (IEC/EN 60079-7)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 63 °C
Rated insulation voltage	162 V_{rms} (Input/output)

Altitude range (IEC/EN 60079-7)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 56 °C
Rated insulation voltage	60 V_{rms} (Input/output)

Altitude range (IEC/EN 60079-7)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 49 °C
Rated insulation voltage	60 V_{rms} (Input/output)

Approvals

CE

Certificate	CE-compliant

ATEX

Identification	Ⓔx I (M1) [Ex ia Ma] I
	Ⓔx II (1) G [Ex ia Ga] IIC
	Ⓔx II (1) D [Ex ia Da] IIIC
	Ⓔx II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
Certificate	TÜV 21 ATEX 8651 X

IECEx

Identification	[Ex ia Ma] I
	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	IECEx TUR 21.0043 X

CCC / China-Ex

Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	2023122310116238

INMETRO

Identification	[Ex ia Ma] I
	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	DNV 23.0189 X

UL, USA/Canada

Identification	UL 61010-2-201 Listed
	Class I, Div. 1, Groups A, B, C, D
	Class II, Div. 1, Groups E, F, G
	Class III, Div. 1
	Class I, Zone 0, 1, 2, Groups IIC, IIB, IIA
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2
	AEx ec [ia Ga] IIC T4 Gc; AEx ec [ia IIIC Da] IIC T4 Gc
	Ex ec [ia Ga] IIC T4 Gc X; Ex ec [ia IIIC Da] IIC T4 Gc X
	Class I, Zone 0, [AEx ia Ga] IIC, [Ex ia Ga] IIC X
	Class I, Zone 20, [AEx ia Da] IIIC, [Ex ia Da] IIIC X
Certificate	C.D.-No 097285872

Shipbuilding approval

Certificate	DNV TAA00003FZ

Safety Integrity Level (SIL, IEC 61508)

Identification	3

Shipbuilding data

Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

EMC data

Electromagnetic compatibility	Tested in accordance with the following standards and regulations: EN 61326-1 For industrial use, NAMUR NE 21
Noise immunity	IEC/EN 61000-6-2
	IEC/EN 61326-3-2

Noise emission

Standards/regulations	IEC/EN 61000-6-4

Standards and regulations

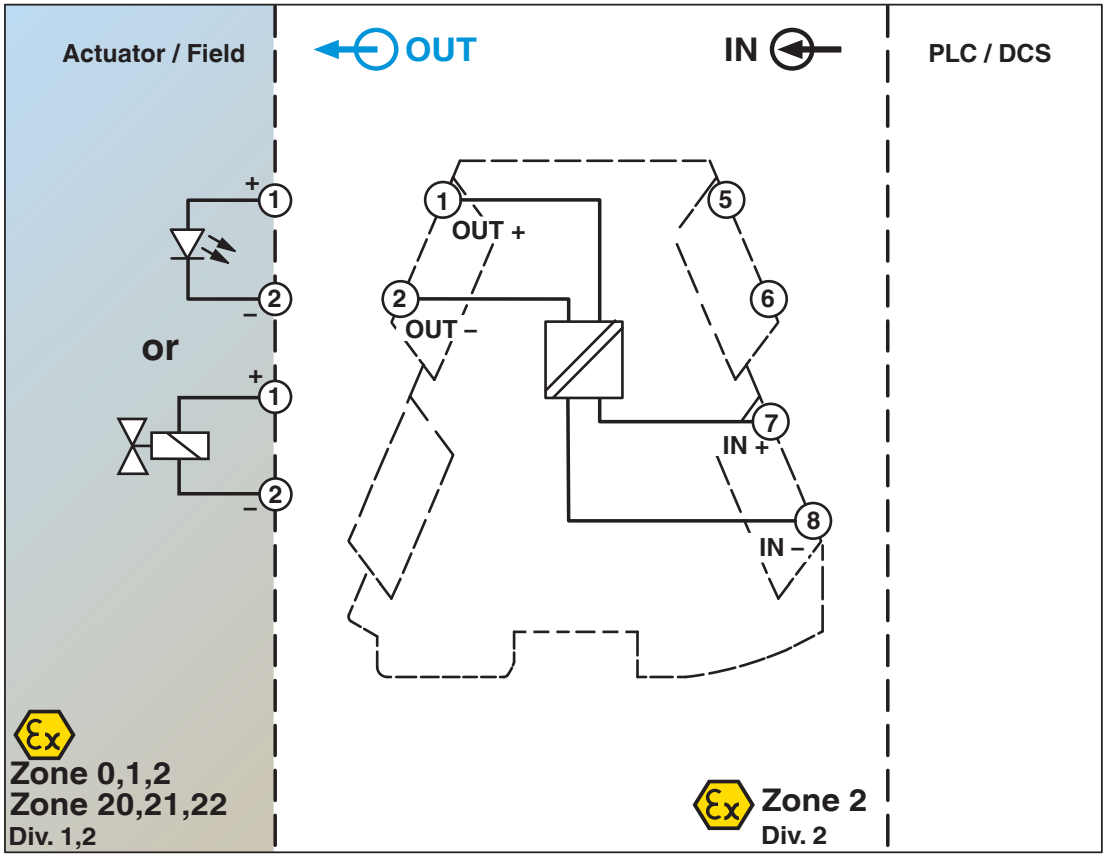
Electrical isolation	2-way isolation

GB Standard

Standards/regulations	GB/T 3836.1
	GB/T 3836.3
	GB/T 3836.4

Drawings

Block diagram



Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1157870

Functional Safety
Approval ID: 1435.IM.131623/19

cULus Listed
Approval ID: E238705

DNV
Approval ID: TAA00003FZ

cULus Listed
Approval ID: E238705

IECEx
Approval ID: IECEx TUR 21.0043X

ATEX
Approval ID: TUeV 21 ATEX 8651 X

CCC
Approval ID: 2023122316116237

cULus Listed
Approval ID: E196811

cULus Listed
Approval ID: E196811

INMETRO
Approval ID: DNV 23.0189 X

Classifications

ECLASS

ECLASS-13.0	27210120
ECLASS-15.0	27210120

ETIM

ETIM 10.0	EC002653

UNSPSC

UNSPSC 21.0	39121008

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)
SCIP	7cc67b5b-d0ea-4a3a-ab5f-8b40bed58ccc

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