

MACX MCR-EX-SL-SD-21-60-LP-SP - Solenoid driver



2924100

<https://www.phoenixcontact.com/pc/products/2924100>

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Ex i solenoid driver. For the intrinsically safe control of Ex i solenoid valves, alarm modules or LEDs installed in the Ex area. Current limitation at 58 mA. For gases up to Group IIB, loop-powered, electrical isolation, SIL 3. Push-in connection.

Your advantages

- Mechanically compatible with the DIN rail connector
- Various output characteristic curves compatible with standard solenoid valves
- Loop-powered: the required power is supplied via the control signal on the input side.
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- Up to SIL 3 in accordance with IEC 61508
- 2-way electrical isolation
- Input: 19.2 V DC ... 30 V DC
- Output [Ex ia] IIB

Commercial data

Item number	2924100
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	CK3142
Catalog page	Page 167 (C-5-2019)
GTIN	4046356338523
Weight per piece (including packing)	173.433 g
Weight per piece (excluding packing)	155 g
Customs tariff number	85437090
Country of origin	DE

Technical data

Notes

Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area
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Product properties

Product type	Solenoid driver
Product family	MACX Analog
No. of channels	1
Type	Ex i signal conditioners with SIL functional safety
Compatible valve	ASCO Coil 302 (12 V)
	ASCO Coil 302 (24 V)
	Bürkert Coil AC 10 standard
	Bürkert Coil AC 10 high resistance
	FESTO Coil MFH-...IA-SA-EX GBXE022AIAD03
	FESTO Coil (J)MFH-...BIA-SA-EX GBXE022AIAD03
	Norgren Herion Coil 2050
	Norgren Herion Coil 2051
	Norgren Herion Coil 2052
Note	Norgren Herion Coil 2053
	Parker Coil VZ95 482160.01 EEx ia IIB T6
	This is an extract of possible combinations of valves and solenoid drivers.

Electrical properties

Electrical isolation	2-way isolation
Maximum temperature coefficient	0.01 %/K

Electrical isolation

Test voltage	2.5 kV AC (50 Hz, 60 s)
Overvoltage category	II
Pollution degree	2

Electrical isolation Output/input IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V _{PP}

Electrical isolation Output/input IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V _{rms}
Insulation	Safe isolation

Supply

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Supply voltage range	loop-powered, no external supply necessary
Power dissipation	< 1.325 W

Input data

Signal: Voltage

Number of inputs	1
Voltage input signal	19.2 V DC ... 30 V DC (24 V DC, -20 % ... +25 %)
Max. current input signal	95 mA ($U_e = 24$ V DC)

Output data

Signal: Voltage

Output description	intrinsically safe
Number of outputs	1
Output voltage	12.9 V DC (58 mA)
Output resistor	133.4 Ω (Internal resistance R_i)
Current limitation	58 mA
Response time	20 ms
Non-load voltage	21.9 V DC
Short-circuit-proof	yes

Connection data

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section AWG	24 ... 16

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	negligible
Max. output voltage U_o	25.1 V
Max. output current I_o	188 mA
Max. output power P_o	1.18 W
Safety-related maximum voltage U_m	253 V AC
	125 V DC

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IIB/IIIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	4 mH / 0.83 μ F
IIB/IIIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	2 mH / 300 nF, 1 mH / 370 nF, 0.5 mH / 460 nF, 0.1 mH / 790 nF

Signaling

Status display	Yellow LED (switching state / status, lights up when output circuit is active)
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Dimensions

Dimensional drawing	
Width	12.5 mm
Height	116 mm
Depth	113.7 mm
Depth NS 35/7,5	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)

Material specifications

Color	gray (RAL 7042)
Flammability rating according to UL 94	V0 (Housing)
Housing material	PA 6.6-FR

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	\leq 2000 m
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant
Note	and EN 61326

ATEX

Identification	⊕ II (1) G [Ex ia Ga] IIB/IIA
	⊕ II (1) D [Ex ia Da] IIIC
	⊕ II 3 (1)G Ex nA [ia IIB Ga] IIC T4 Gc X

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Certificate	IBExU 07 ATEX 1133X
UKCA Ex (UKEX)	
Identification	Ⓢ I (M1) [Ex ia Ma] I
	Ⓢ II (1) G [Ex ia Ga] IIB
	Ⓢ II (1) D [Ex ia Da] IIIC
	Ⓢ II 3 (1) Ex ec [ia IIB Ga] IIC T4 Gc
Certificate	CML 22UKEX3526X
IECEX	
Identification	[Ex ia Ga] IIB/IIA
	[Ex ia Da] IIIC
	Ex nA [ia IIB Ga] IIC T4 Gc
Certificate	IECEX IBE 08.0002X
CCC / China-Ex	
Identification	[Ex ia Ga] IIC
	[Ex iaD]
	Ex nA [ia Ga] IIC T4 Gc
Certificate	NEPSI GYJ20.1316X
UL, USA/Canada	
Identification	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Div. 2, Groups IIC, IIB, IIA T4
	Associated apparatus for use in Class I, Division 1, Groups C,D
	Associated apparatus for use in Class II, Div.1 Groups E,F,G
	Associated apparatus for use in Class III, Division 1
	Associated apparatus for use in Class I, Zone 0,1,2, Groups IIB, IIA
Certificate	UL, C.D.-No 83104549
UL, USA/Canada	
Identification	Class I Div 2; IS for Class I, II, III Div 1
Certificate	UL, C.D.-No 83104549
Shipbuilding approval	
Certificate	DNV GL TAA000020C
Safety Integrity Level (SIL, IEC 61508)	
Identification	3
INMETRO	
Identification	[Ex ia Ga] IIC/IIB/IIA
	[Ex ia Da] IIIC
	Ex nA [ia IIC Ga] IIC T4 Gc
Certificate	DNV 18.0115 X

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EAC Ex

Identification	Ex [Ex ia Ga] IIC
	Ex [Ex ia Da] IIIC
Certificate	RU C-DE.AB72.B.00093/19

DNV GL 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

Noise immunity	EN 61000-6-2
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4

Standards and regulations

Electrical isolation	2-way isolation
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GB Standard

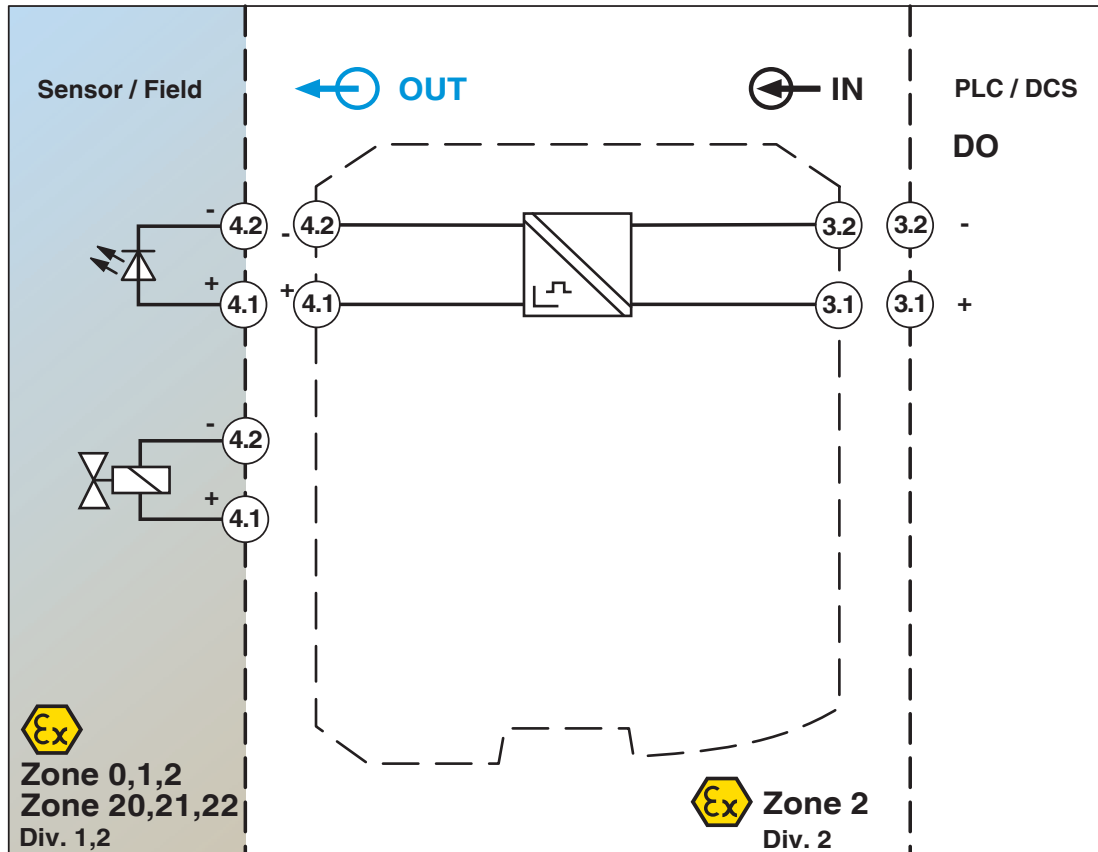
Standards/regulations	GB 3836.1
	GB 3836.4
	GB 3836.8
	GB 3626.20
	GB 12476.1
	GB 12476.4

Mounting

Mounting type	DIN rail mounting
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Drawings

Block diagram

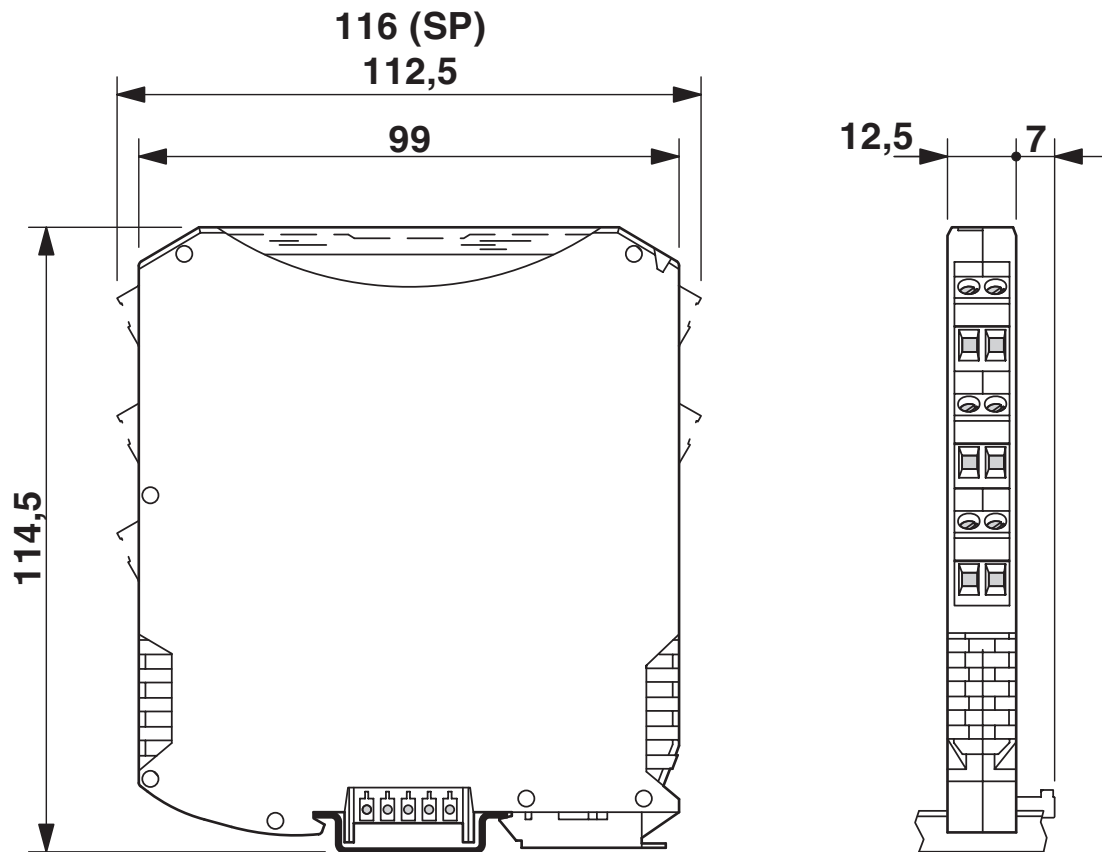


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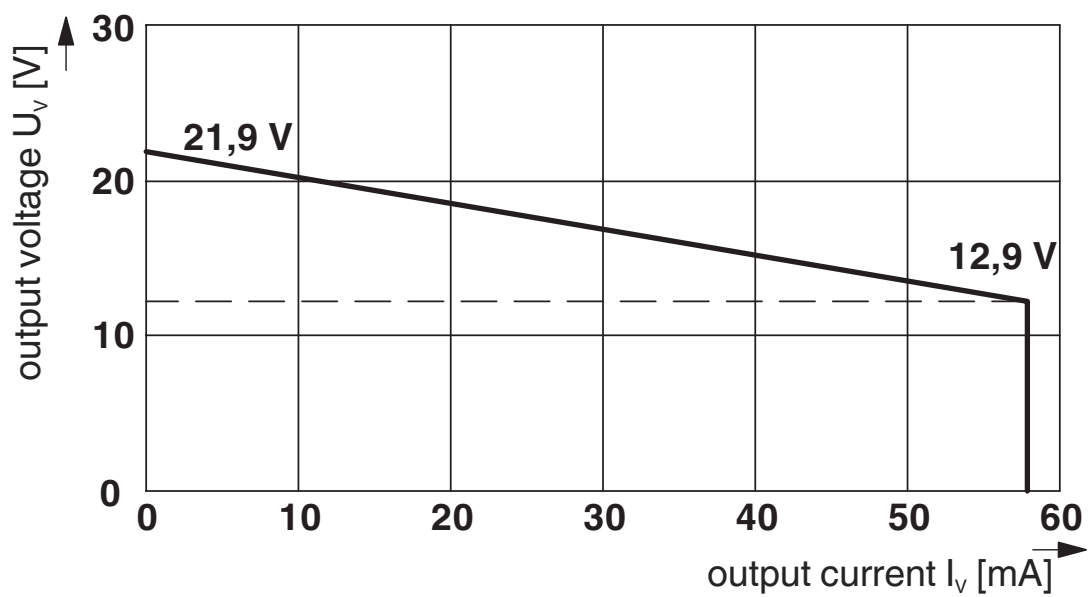
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Dimensional drawing



Diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/2924100>



DNV GL

Approval ID: TAA000020C



UL Listed

Approval ID: FILE E 330267



CCC

Approval ID: 2020322 316001457



cUL Listed

Approval ID: FILE E 330267

Functional Safety

Approval ID: 16/04-017 R025 V1R1



EAC Ex

Approval ID: RU C-DE.AB72.B.00093



IECEx

Approval ID: IECEx IBE 08.0002X



cUL Listed

Approval ID: FILE E 199827



UL Listed

Approval ID: FILE E 199827



ATEX

Approval ID: IBExU 07 ATEX 1133 X

INMETRO

Approval ID: DNV 18.0115 X

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INMETRO

Approval ID: DNV 18.0115 X

cULus Listed

cULus Listed

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Classifications

ECLASS

ECLASS-11.0	27210120
ECLASS-12.0	27210120
ECLASS-13.0	27210120

ETIM

ETIM 9.0	EC002653
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UNSPSC

UNSPSC 21.0	39121000
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Environmental product compliance

China RoHS	Environmentally Friendly Use Period = 50 years For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"
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PHOENIX CONTACT GmbH & Co. KG

Flachsmarktstraße 8

D-32825 Blomberg

+49 (0) 5235-3 00

info@phoenixcontact.com