

# MACX MCR-EX-SL-SD-23-48-LFD - Solenoid driver



2924867

<https://www.phoenixcontact.com/us/products/2924867>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Ex i solenoid driver for controlling Ex i solenoid valves in hazardous areas, logic input, open-circuit voltage 22.6 V, current limitation at 48 mA, line fault transparency, error message output, up to SIL 3 in accordance with IEC 61508, screw connection

## Your advantages

- Input: logic
- Output: intrinsically safe [Ex ia]; open-circuit voltage > 22.6 V DC; current limitation > 48 mA
- Line fault detection (can be enabled/disabled), via the signal circuit or via a separate error message output
- Transparent for test pulses
- Up to SIL 3 according to IEC/EN 61508
- Safe electrical isolation between output, input, supply, and error message output
- Power supply and error indication possible via DIN rail connector
- Plug-in connection terminals, screw connection technology
- Installation in zone 2 permitted
- Housing width: 12.5 mm

## Commercial data

Item number	2924867
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK1214
GTIN	4046356635172
Weight per piece (including packing)	173.3 g
Weight per piece (excluding packing)	100 g
Customs tariff number	85437090
Country of origin	DE

## Technical data

### Product properties

Product type	Solenoid driver
Product family	MACX Analog
No. of channels	1
Configuration	DIP switches

### Electrical properties

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

#### Electrical isolation

Overvoltage category	II
Pollution degree	2

#### Electrical isolation Output/input, error message output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V <sub>PP</sub>
Test voltage	2.5 kV AC (50 Hz, 60 s)

#### Electrical isolation Output/input, error message output IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V <sub>rms</sub>
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Safe isolation

#### Electrical isolation Output/supply, DIN rail connector IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V <sub>PP</sub>
Test voltage	2.5 kV AC (50 Hz, 60 s)

#### Electrical isolation Output/supply, DIN rail connector IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V <sub>rms</sub>
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Safe isolation

#### Electrical isolation Input/error message output/supply

Test voltage	1.5 kV AC (50 Hz, 60 s)
--------------	-------------------------

#### Supply

Nominal supply voltage	24 V DC -20 % ... +25 %
Supply voltage range	19.2 V DC ... 30 V DC
Power dissipation	< 2.2 W

### Input data

# MACX MCR-EX-SL-SD-23-48-LFD - Solenoid driver



2924867

<https://www.phoenixcontact.com/us/products/2924867>

Signal: Logic

Number of inputs	1
Switching level "0" signal	0 V DC ... 5 V DC (or open)
Switching level "1" signal	15 V DC ... 30 V DC
Input current	< 12 mA
Input impedance	3 M $\Omega$ (high-resistance in the event of a line fault at the output)
Immune to test pulses	Yes

## Output data

Signal: Error message output

Contact switching type	N/O contact
Type of output signal	Transistor output, passive
Maximum switching voltage	30 V DC
Max. switching current	50 mA
Short-circuit-proof	yes

Signal: Voltage

Output description	intrinsically safe
Number of outputs	1
Output voltage	$\geq 9.36$ V DC (48 mA)
Current limitation	> 48 mA (with line fault detection)
Response time	< 30 ms
Open-circuit voltage	> 22.5 V DC
Short-circuit-proof	yes
Line fault detection	> 10 k $\Omega$ (Line break) < 50 $\Omega$ (Short circuit) Activated /deactivated via DIP switch

## Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm

Test socket

Max. diameter	2.3 mm
---------------	--------

## Ex data

Ex installation (EPL)	Gc
	Div. 2
	[Ga]

# MACX MCR-EX-SL-SD-23-48-LFD - Solenoid driver



2924867

<https://www.phoenixcontact.com/us/products/2924867>

Ex i circuits (EPL)	[Da]
	[Ma]
	[Div. 1]

## Safety data

Max. internal inductance $L_i$	negligible
Max. internal capacitance $C_i$	11 nF
Max. output voltage $U_o$	25.3 V
Max. output current $I_o$	94 mA
Max. output power $P_o$	595 mW
Maximum internal resistance $R_i$	269 $\Omega$
Safety-related maximum voltage $U_m$	253 V AC
	125 V DC
IIA/I (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	32.2 mH / 2.85 $\mu$ F
IIB/IIIC (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	16.1 mH / 0.81 $\mu$ F
IIC (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	4 mH / 0.095 $\mu$ F
IIA (mixed circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	20 mH / 0.55 $\mu$ F, 10 mH / 0.57 $\mu$ F, 1 mH / 0.61 $\mu$ F, 0.5 mH / 0.7 $\mu$ F, 0.2 mH / 0.89 $\mu$ F
IIB/IIIC (mixed circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	5 mH / 289 nF, 0.5 mH / 489 nF
IIC (mixed circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	1 mH / 39 nF, 0.5 mH / 59 nF, 0.15 mH / 89 nF

## Signaling

Status display	Green LED (supply voltage)
	LED yellow (switching state)
	Red LED (line errors)

## Dimensions

Dimensional drawing	
Width	12.5 mm
Height	112.5 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 (Housing)	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)	-20 °C ... 60 °C (Any mounting position)
	-20 °C ... 70 °C (Derating)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

### Altitude range ( $\leq 2000$ m)

Altitude	$\leq 2000$ m (The technical data refers to altitudes $\leq 2000$ m above mean sea level. For altitudes $>2000$ m above mean sea level, refer to the data sheet.)
Ambient temperature (operation)	-20 °C ... 70 °C
Safety-related maximum voltage $U_m$	253 V AC
	125 V DC
Rated insulation voltage	375 V <sub>PP</sub>
	300 V AC/DC

### Altitude range ( $\leq 3000$ m)

Height range	$> 2000$ m ... 3000 m
Ambient temperature (operation)	-20 °C ... 63 °C
Safety-related maximum voltage $U_m$	190 V AC
	110 V DC
Rated insulation voltage	190 V

### Altitude range ( $\leq 4000$ m)

Height range	$> 3000$ m ... 4000 m
Ambient temperature (operation)	-20 °C ... 56 °C
Safety-related maximum voltage $U_m$	60 V AC/DC
Rated insulation voltage	60 V AC/DC

### Altitude range ( $\leq 5000$ m)

Height range	$> 4000$ m ... 5000 m
Ambient temperature (operation)	-20 °C ... 49 °C
Safety-related maximum voltage $U_m$	60 V AC/DC
Rated insulation voltage	60 V AC/DC

## Approvals

### CE

Certificate	CE-compliant
Note	and EN 61326

### ATEX

# MACX MCR-EX-SL-SD-23-48-LFD - Solenoid driver



2924867

<https://www.phoenixcontact.com/us/products/2924867>

Identification	⊕ I (M1) [Ex ia Ma] I
	⊕ II (1) G [Ex ia Ga] IIC
	⊕ II (1) D [Ex ia Da] IIIC
	⊕ II 3(1) G Ex ec [ia Ga] IIC T4 Gc X
Certificate	IBExU 13 ATEX1045X

## IECEX

Identification	[Ex ia Ma] I
	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	IECEX IBE 13.0014X

## CCC / China-Ex

Identification	[Ex ia Ga] IIB
	[Ex ia Da] IIIC
	Ex ec [ia IIB Ga] IIC T4 Gc
Certificate	2022122316115979

## UL, USA/Canada

Identification	UL 61010 Listed
Certificate	Ⓢ C.D.-No 83104549

## Shipbuilding approval

Certificate	DNV GL TAA000020C
-------------	-------------------

## Safety Integrity Level (SIL, IEC 61508)

Identification	3
----------------	---

## INMETRO

Identification	[Ex ia Ma] I
	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	DNV 18.0145 X

## 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	Conformance with EMC directive
Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal

# MACX MCR-EX-SL-SD-23-48-LFD - Solenoid driver



2924867

<https://www.phoenixcontact.com/us/products/2924867>

	deviations.
--	-------------

## Noise emission

Standards/regulations	EN 61000-6-4
-----------------------	--------------

## Standards and regulations

### GB Standard

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

## Mounting

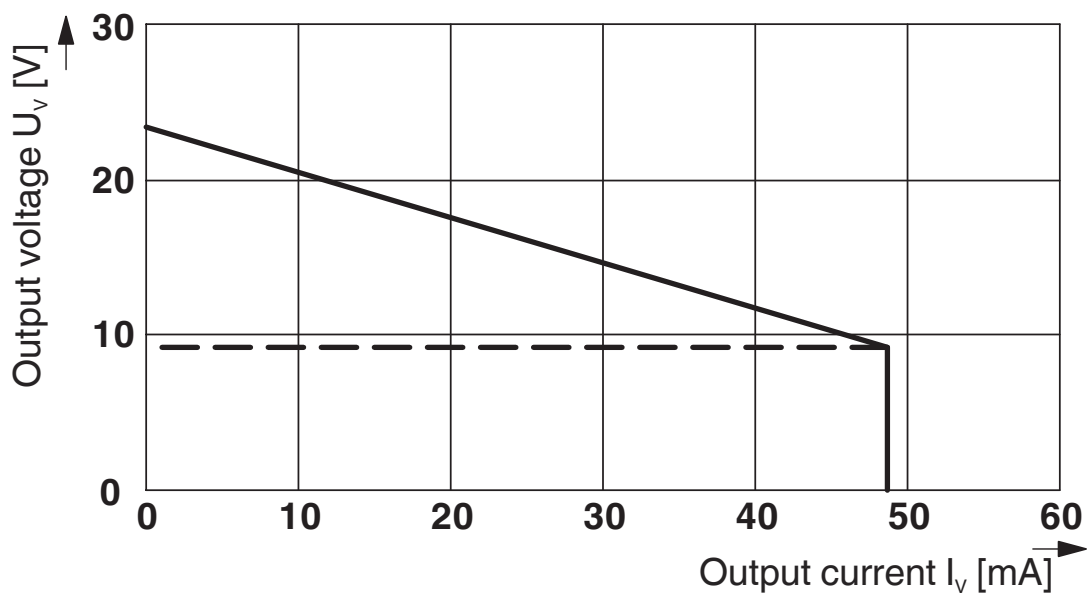
Mounting type	DIN rail mounting
---------------	-------------------

Drawings

Dimensional drawing



Diagram



# MACX MCR-EX-SL-SD-23-48-LFD - Solenoid driver



2924867

<https://www.phoenixcontact.com/us/products/2924867>

Block diagram



2924867

<https://www.phoenixcontact.com/us/products/2924867>


## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2924867>


 **UL Listed**  
Approval ID: E330267

**Functional Safety**  
Approval ID: BVS Pb 11/13


**DNV**  
Approval ID: TAA000020C


 **IECEx**  
Approval ID: IECEx IBE 13.0014X

 **cUL Listed**  
Approval ID: E199827

 **UL Listed**  
Approval ID: E199827

**INMETRO**  
Approval ID: DNV 18.0145 X

 **CCC**  
Approval ID: 2022122316115979

 **ATEX**  
Approval ID: IBExU13ATEX1045 X

2924867

<https://www.phoenixcontact.com/us/products/2924867>

## Classifications

### ECLASS

ECLASS-13.0	27210120
ECLASS-15.0	27210120

### ETIM

ETIM 10.0	EC002653
-----------	----------

### UNSPSC

UNSPSC 21.0	39121000
-------------	----------

2924867

<https://www.phoenixcontact.com/us/products/2924867>

## 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)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	694591bb-5c04-446b-b18f-0111548034d0

Phoenix Contact 2026 © - all rights reserved  
<https://www.phoenixcontact.com>

Phoenix Contact USA  
 586 Fulling Mill Road  
 Middletown, PA 17057, United States  
 (+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)