

# MACX MCR-EX-AP-2SD-25-35-LP-SP - Solenoid driver



1291186

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Ex i-Solenoid driver for intrinsically safe activation of Ex i solenoid valves, alarm transmitters, or displays installed in potentially explosive areas. number of channels: 2, Standard configuration, Loop-powered, 4-way isolation, Safety Integrity Level (SIL, IEC 61508): 3, Push-in connection

## Commercial data

Item number	1291186
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK121W
GTIN	4063151523756
Weight per piece (including packing)	196.3 g
Weight per piece (excluding packing)	160 g
Customs tariff number	85437090
Country of origin	DE

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## Technical data

### Notes

Notes on operation	Installation conditions influence the ambient temperature. Please refer to the "Control cabinet installation instructions".
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### Product properties

Product type	Solenoid driver
Product family	MACX Analog
No. of channels	2

### Electrical properties

Electrical isolation	4-way isolation
Electrical isolation between input and output	yes
Reverse polarity protection	yes

#### Electrical isolation Input/output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V <sub>PP</sub>

#### Electrical isolation Output 1/output 2

Test voltage	500 V (50 Hz, 60 s)
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#### Electrical isolation Input 1 / input 2

Test voltage	350 V (50 Hz, 60 s)
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### Supply

Supply voltage range	loop-powered, no external supply necessary
Power consumption	0.5 W (+ I <sub>A</sub> × 37 mW/mA)

### Input data

#### Signal: Digital

Switching level "0" signal	0 V ... 5 V
Switching level "1" signal	18 V ... 31.2 V

### Output data

#### Switching: Digital

Output description	intrinsically safe
Typical response time	≤ 18 ms
Typical turn-off time	≤ 50 ms
Switching frequency	≤ 10 Hz
Open-circuit voltage	25 V DC
Output current	≤ 35 mA (per output) ≤ 70 mA (Outputs connected in parallel)
Internal resistance	250 Ω (per output)

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	125 Ω (Outputs connected in parallel)
Residual ripple	≤ 100 mV

## Connection data

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

## Ex data

Ex installation (EPL)	Gc
Ex i circuits (EPL)	[Ga]
	[Da]
	[Ma]

### Safety data: Highest values per output

Max. internal inductance $L_i$	negligible
Max. internal capacitance $C_i$	1.1 nF
Max. output voltage $U_o$	27.6 V
Max. output current $I_o$	110 mA (Ex ia)
	50 mA (Ex ib)
Max. output power $P_o$	760 mW
Safety-related maximum voltage $U_m$	253 V AC
IIA (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	100 mH / 2.22 μF
IIB (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	9 mH / 667 nF
IIC (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	1.2 mH / 85 nF
I (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	100 mH / 3.5 μF

### Safety data: Highest values with two outputs connected in parallel

Max. internal inductance $L_i$	negligible
Max. internal capacitance $C_i$	2.2 nF
Max. output voltage $U_o$	27.6 V
Max. output current $I_o$	220 mA (Ex ia)
	100 mA (Ex ib)
Max. output power $P_o$	1520 mW
Safety-related maximum voltage $U_m$	253 V AC
IIA (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	25 mH / 2.22 μF
IIB/IIC (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	1.8 mH / 665 nF
I (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	40 mH / 3.5 μF

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## Signaling

Status display	Yellow LED/per channel
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## Dimensions

Dimensional drawing	
Width	17.5 mm
Height	107.8 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

Flammability rating according to UL 94	V0
Housing material	PA 6.6

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20 (Terminal blocks) IP30 (Housing)
Ambient temperature (operation)	-20 °C ... 70 °C (Stand-alone device: any mounting position) -20 °C ... 50 °C (Group assembly: vertical DIN rail without circulating air) -20 °C ... 60 °C (Group assembly: vertical DIN rail with circulating air) -20 °C ... 60 °C (Group assembly: horizontal DIN rail without circulating air) -20 °C ... 65 °C (Group assembly: horizontal DIN rail with circulating air)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	≤ 95 % (non-condensing)

## Approvals

### ATEX

Identification	⊕ II (1) G [Ex ia Ga] IIC
	⊕ II (1) D [Ex ia Da] IIIC
	⊕ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
	⊕ I (M1) [Ex ia Ma] I

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## IECEX

Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA [ia Ga] IIC T4 Gc
	[Ex ia Ma] I

## Safety Integrity Level (SIL, IEC 61508)

Identification	3
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## EMC data

Electromagnetic compatibility	Tested in accordance with the following standards and regulations: EN 61326-1 For industrial use, NAMUR NE 21
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## Standards and regulations

Electrical isolation	4-way isolation
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## Mounting

Mounting type	NS 35/15, NS 35/7,5
Mounting position	vertical, horizontal

# MACX MCR-EX-AP-2SD-25-35-LP-SP - Solenoid driver

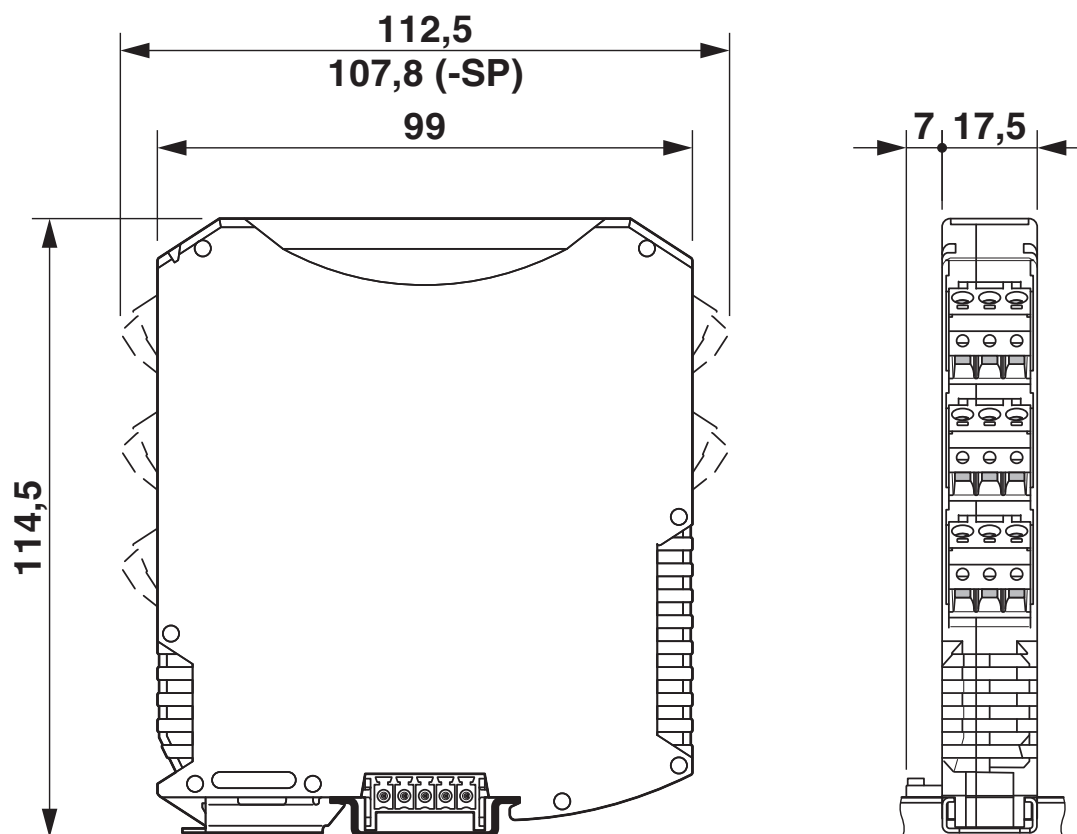


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## Drawings

Dimensional drawing



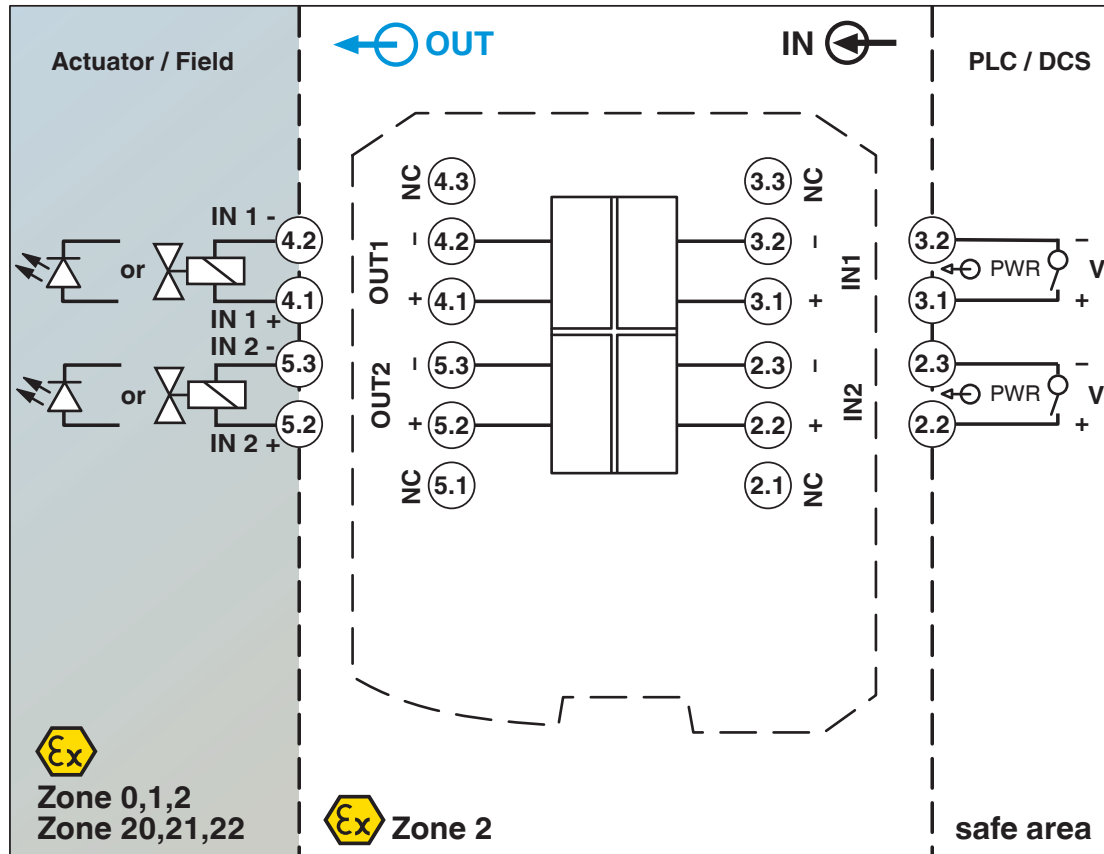
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Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1291186>

### Functional Safety

Approval ID: 22/05-248 R033 V1R0



### IECEX

Approval ID: IECEx BVS 21.0036X



### ATEX

Approval ID: BVS 21 ATEX E 034X

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## Classifications

### ECLASS

ECLASS-13.0	27210120
ECLASS-15.0	27210120

### ETIM

ETIM 10.0	EC002653
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 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	7c5a8b1d-480d-4aed-bfbd-5186dba526ab

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