

Solenoid driver - MACX MCR-EX-SL-SD-21-40-LP-SP - 2924139

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Ex-i solenoid driver. For controlling Ex-i solenoid valves, alarm modules or LEDs installed in Ex areas. Current limitation at 40 mA. For gases up to Group II C, loop-powered, electrical isolation, SIL 3.

The illustration shows the versions with screw connection

Product Features

- 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 according to EN 61508
- 2-way electrical isolation
- Output [Ex ia] IIC/[Ex ia] IIB
- 20
30 V DC input



Key commercial data

package_quantity	1
GTIN	4046356338493

Technical data

Dimensions

Width	12.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (no condensation)
Degree of protection	IP20

Output data

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Technical data

Output data

Minimum output voltage	10 V DC (At 40 mA)
Output characteristic curve: Output resistor	287 Ω (Internal resistance R _i)
Response time	20 ms

Compatible valves

Note	This is an extract of possible combinations of valves and solenoid drivers.
Compatible valve	ASCO Coil 195
Compatible valve	Bürkert Coil AC 10 standard
Compatible valve	Bürkert Coil AC 10 high resistance
Compatible valve	Bürkert Coil AC 21 standard 700 mW / 65°C
Compatible valve	Bürkert Coil AC 21 high resistance 700 mW / 65°C
Compatible valve	Bürkert Coil AC 21 standard 900 mW / 45°C
Compatible valve	Bürkert Coil AC 21 high resistance 900 mW / 45°C
Compatible valve	Bürkert Coil AC 21 standard 900 mW / 60°C
Compatible valve	Bürkert Coil AC 21 high resistance 900 mW / 60°C
Compatible valve	Bürkert Coil G1 642735 standard 600 mW / 50°C
Compatible valve	Bürkert Coil G1 642735 high resistance 600 mW / 50°C
Compatible valve	Bürkert Coil G1 642735 standard 800 mW / 40°C
Compatible valve	Bürkert Coil G1 642735 high resistance 800 mW / 40°C
Compatible valve	Bürkert Coil G1 642735 standard 1000 mW / 40°C
Compatible valve	Bürkert Coil G1 642735 high resistance 1000 mW / 40°C
Compatible valve	Norgren Herion Coil 2050
Compatible valve	Norgren Herion Coil 2051
Compatible valve	Norgren Herion Coil 2052
Compatible valve	Norgren Herion Coil 2080 / 2082
Compatible valve	Norgren Herion Coil 2081 / 2083
Compatible valve	Norgren Herion Coil 2084
Compatible valve	Hörbiger Piezo P8 38x RF-Nx-SPN65 30 V type
Compatible valve	Hörbiger Piezo P20 381RF-NG-CPN61 30 V type
Compatible valve	Parker Coil VZ07 488650.01
Compatible valve	Parker Coil VZ33 494035.10
Compatible valve	Parker Coil VZ08 488660.01
Compatible valve	Parker Coil VZ09 488670.01
Compatible valve	Parker Coil VZ95 482160.01 EEx ia IIB T6
Compatible valve	Parker Coil VZ23 482870.01
Compatible valve	Samson Coil 3701-12 (12 V)
Compatible valve	Samson Coil 3701-13 (24 V)
Compatible valve	Samson Coil 3963-12 (12 V)
Compatible valve	Samson Coil 3963-13 (24 V)
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Compatible valves

Compatible valve	Seitz Pilot valve PV 12F73 Ci oH
Compatible valve	Seitz Pilot valve PV 12F73 Xi oH
Compatible valve	Seitz Pilot valve PV 12F73 Xi oH-2

Power supply

Power consumption	< 1.2 W
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Connection data

Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section stranded min.	0.2 mm ²
Conductor cross section stranded max.	1.5 mm ²
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	16
Stripping length	8 mm
Connection method	Spring-cage conn.

General

Maximum temperature coefficient	0.01 %/K
Status display	Yellow LED (switching state / status, lights up when output circuit is active)
Inflammability class according to UL 94	V0
Pollution degree	2
Surge voltage category	II
Housing material	PA 66-FR
Color	green
Name	Output/input
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Electrical isolation	300 V _{rms} (Rated insulation voltage (surge voltage category II; pollution degree 2, safe isolation as per EN 61010-1))
Electrical isolation	2.5 kV (50 Hz, 1 min., test voltage)
Conformance	CE-compliant, additionally EN 61326
ATEX	# II 3 G Ex nA IIC T4 Gc X
ATEX	# II (1) G [Ex ia Ga] IIC/IIB/IIA
ATEX	# II (1) D [Ex ia Da] IIIC
IECEX	[Ex ia Ga] IIC/IIB/IIA
IECEX	[Ex ia Da] IIIC
IECEX	Ex nA IIC T4 Gc X
UL, USA / Canada	Class I Div 2; IS for Class I, II, III Div 1
Functional safety (SIL)	SIL 3

Safety characteristic data

Integrity requirement	IEC 61508 - Low demand
Equipment type	Type A

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Technical data

Safety characteristic data

Safety Integrity Level (SIL)	3
Safe Failure Fraction (SFF)	100 %
λ_{SU}	2.84×10^{-7} (284 FIT)
λ_{SD}	0
λ_{DU}	0
λ_{DD}	0
Probability of a hazardous failure on demand (PFD_{AVG})	0 (1 year)
Probability of a hazardous failure on demand (PFD_{AVG})	0 (5 years)
Probability of a hazardous failure on demand (PFD_{AVG})	0 (10 years)
Diagnostic coverage (DC)	(DC _S = 0%, DC _D = 0%)

Safety data

Input power P_i	(negligible)
Max. internal capacitance C_i	(negligible)
Max. output voltage U_o	25.1 V
Max. output current I_o	87 mA
Max. output power P_o	550 mW
Gas group	IIC
Max. external inductivity L_o	6.3 mH
Max. external capacity C_o	0.1 µF
Gas group	IIB
Max. external inductivity L_o	26 mH
Max. external capacity C_o	0.8 µF
Gas group	IIA
Max. external inductivity L_o	56 mH
Max. external capacity C_o	2.9 µF
Safety-related maximum voltage U_m	253 V AC (125 V DC)

classifications

eCl@ss

eCl@ss 4.0	27210121
eCl@ss 4.1	27210121
eCl@ss 5.0	27210121
eCl@ss 5.1	27210121
eCl@ss 6.0	27210121
eCl@ss 7.0	27210121
eCl@ss 8.0	27210121

ETIM

ETIM 2.0	EC001430
ETIM 3.0	EC001599

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classifications

ETIM

ETIM 4.0	EC001599
ETIM 5.0	EC001599

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008

approvals

IECEX / UL Listed / cUL Listed / ATEX / IECEx / ATEX / cULus Listed / UL Listed / cUL Listed / Functional Safety / cULus Listed /

Approval details

IECEX

UL Listed

cUL Listed

ATEX

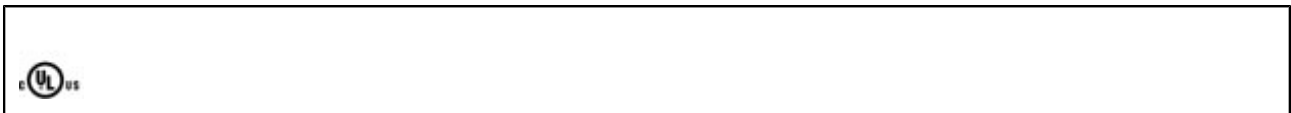
cULus Listed

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approvals

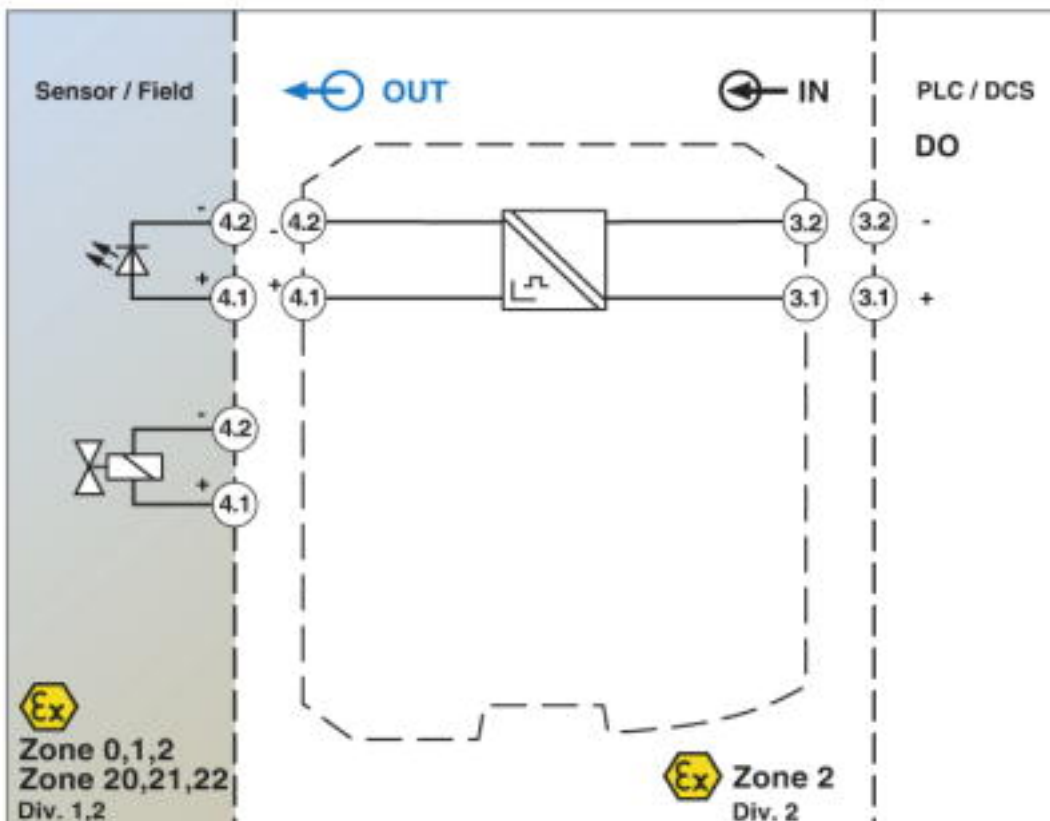


Functional Safety



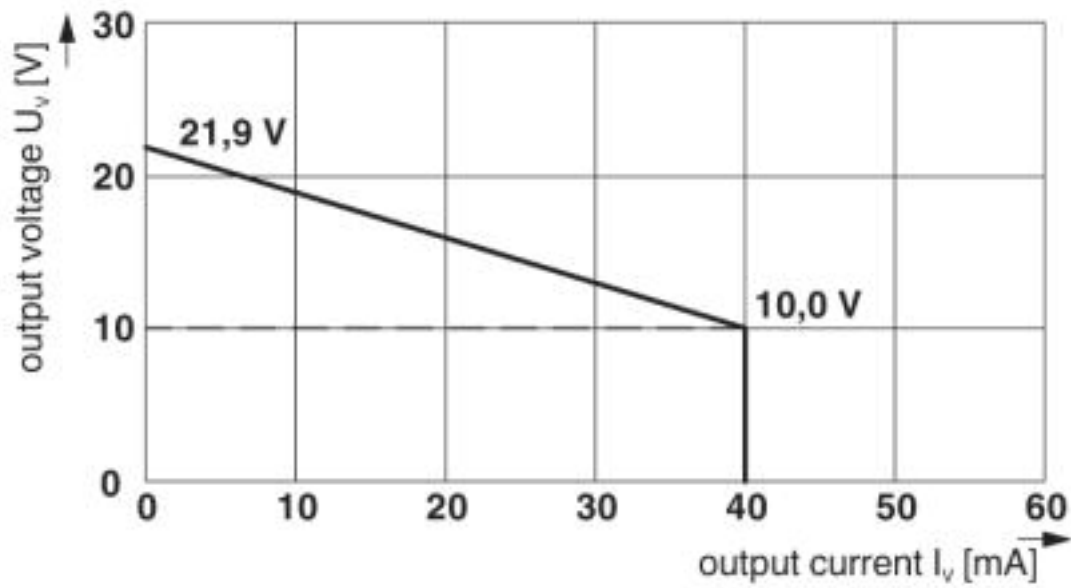
Drawings

Block diagram



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Diagram



Dimensioned drawing

