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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

Why buy this product

- 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

Packing unit	1 STK
GTIN	4 046356 338493

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Width	12.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

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Technical data

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 % (non-condensing)
Noise immunity	EN 61000-6-2
Degree of protection	IP20

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
	Bürkert Coil AC 10 standard
	Bürkert Coil AC 10 high resistance
	Bürkert Coil AC 21 standard 700 mW / 65°C
	Bürkert Coil AC 21 high resistance 700 mW / 65°C
	Bürkert Coil AC 21 standard 900 mW / 45°C
	Bürkert Coil AC 21 high resistance 900 mW / 45°C
	Bürkert Coil AC 21 standard 900 mW / 60°C
	Bürkert Coil AC 21 high resistance 900 mW / 60°C
	Bürkert Coil G1 642735 standard 600 mW / 50°C
	Bürkert Coil G1 642735 high resistance 600 mW / 50°C
	Bürkert Coil G1 642735 standard 800 mW / 40°C
	Bürkert Coil G1 642735 high resistance 800 mW / 40°C
	Bürkert Coil G1 642735 standard 1000 mW / 40°C
	Bürkert Coil G1 642735 high resistance 1000 mW / 40°C
	Norgren Herion Coil 2050
	Norgren Herion Coil 2051
	Norgren Herion Coil 2052
	Norgren Herion Coil 2080 / 2082
	Norgren Herion Coil 2081 / 2083
	Norgren Herion Coil 2084
	Hörbiger Piezo P8 38x RF-Nx-SPN65 30 V type
	Hörbiger Piezo P20 381RF-NG-CPN61 30 V type
	Parker Coil VZ07 488650.01
	Parker Coil VZ33 494035.10
	Parker Coil VZ08 488660.01
	Parker Coil VZ09 488670.01

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Compatible valves

	Parker Coil VZ95 482160.01 EEx ia IIB T6
	Parker Coil VZ23 482870.01
	Samson Coil 3701-12 (12 V)
	Samson Coil 3701-13 (24 V)
	Samson Coil 3963-12 (12 V)
	Samson Coil 3963-13 (24 V)
	Samson Coil 3964-12 (12 V)
	Samson Coil 3964-13 (24 V)
	Seitz Pilot valve PV 12F73 Ci oH
	Seitz Pilot valve PV 12F73 Xi oH
	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 flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm
Connection method	Push-in connection

General

Maximum temperature coefficient	0.01 %/K
Status display	Yellow LED (switching state / status, lights up when output circuit is active)
Flammability rating according to UL 94	V0
Degree of pollution	2
Overvoltage category	II
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Emitted interference	EN 61000-6-4
Housing material	PA 66-FR
Color	green
Designation	Output/input
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
	300 V _{rms} (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1))
	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

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Technical data

General

	# II (1) G [Ex ia Ga] IIC/IIB/IIA
	# II (1) D [Ex ia Da] IIIC
IECEX	[Ex ia Ga] IIC/IIB/IIA
	[Ex ia Da] IIIC
	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
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)
	0 (5 years)
	0 (10 years)
Diagnostic coverage (DC)	DC _S = 0%, DC _D = 0%

Safety data

Input power P _i	negligible
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	87 mA
Max. output power P _o	550 mW
Group	IIC
Max. external inductivity L _o	6.3 mH
Max. external capacity C _o	0.1 µF
Group	IIB
Max. external inductivity L _o	26 mH
Max. external capacity C _o	0.8 µF
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)

Standards and Regulations

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Technical data

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Noise emission	EN 61000-6-4
Flammability rating according to UL 94	V0
Conformance	CE-compliant, additionally EN 61326
ATEX	# II 3 G Ex nA IIC T4 Gc X
	# II (1) G [Ex ia Ga] IIC/IIB/IIA
	# II (1) D [Ex ia Da] IIIC
IECEX	[Ex ia Ga] IIC/IIB/IIA
	[Ex ia Da] IIIC
	Ex nA IIC T4 Gc X
UL, USA / Canada	Class I Div 2; IS for Class I, II, III Div 1
Group	IIC
	IIB
	IIA

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
ETIM 4.0	EC001599
ETIM 5.0	EC002653

UNSPSC

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

Approvals

Approvals

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Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / cULus Listed

Ex Approvals

UL Listed / cUL Listed / ATEX / EAC Ex / ATEX / cULus Listed

Approvals submitted

Approval details

UL Listed

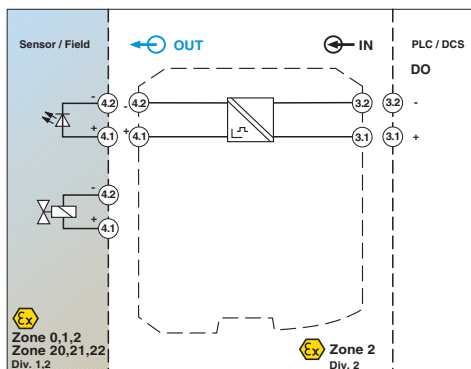
cUL Listed

Functional Safety

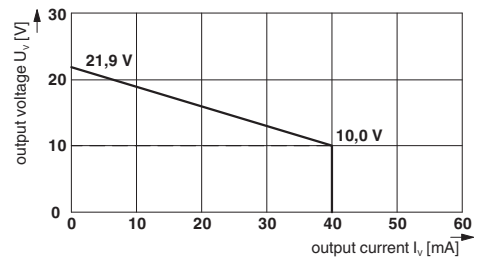
cULus Listed

Drawings

Block diagram

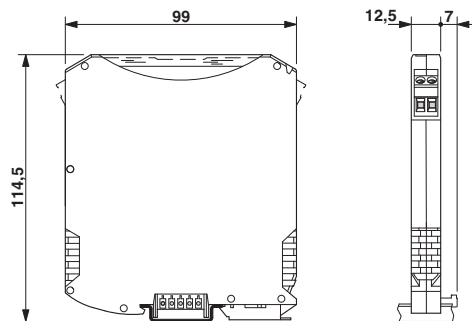


Diagram



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Dimensional drawing



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Product	Code	Reference	Product link
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