

# Frequency transducer - MINI MCR-SL-F-UI-SP-NC - 2902833

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Frequency transducer for connecting NAMUR proximity sensors and sensors with NPN or PNP outputs. Configurable via DIP switch and teach-in wheel. Spring-cage connection, standard configuration. Replacement part: 2902058 MINI MCR-2-F-UI-PT.

## Product Description

The configurable 3-way isolated frequency transducer is suitable for the connection of NAMUR proximity sensors (IEC 60947-5-6 and EN 50227) as well as for sensors with NPN and PNP outputs that generate a frequency signal. The measured values are converted into a linear current or voltage signal. The device is configured via DIP switches. Alternatively, the frequency range can be configured with extended options via the teach-in wheel. The measuring transducer supports fault monitoring.



## Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356685573
Weight per Piece (excluding packing)	111.200 g
Custom tariff number	85437090
Country of origin	Germany
Note	Made to Order (non-returnable)

## Technical data

### Note

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

Width	6.2 mm
Height	93.1 mm
Depth	102.5 mm

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 65 °C
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## Technical data

### Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Degree of protection	IP20
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.

### Input data

Frequency input	Frequency input
Configurable/programmable	Yes
Frequency measuring range	0.002 Hz ... 20 kHz (DIP switch)
Available input sources	NPN/PNP transistor outputs
	NAMUR initiators
	Floating relay contact (dry contact)
Max. input amplitude	30 V (incl. DC voltage)

### Output data

Output name	Voltage output
Number of outputs	1
Configurable/programmable	Yes
Voltage output signal	0 V ... 5 V
	1 V ... 5 V
	0 V ... 10 V
	10 V ... 0 V
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
	20 mA ... 0 mA
	20 mA ... 4 mA
Max. output voltage	approx. 12.3 V
Max. output current	24.6 mA
Load/output load voltage output	≥ 10 kΩ
Load/output load current output	500 Ω (at 20 mA)
Ripple	< 20 mV <sub>PP</sub>
	< 20 mV <sub>PP</sub> (at 500 Ω)
Step response (0–99%)	< 35 ms (At f > 500 Hz)

### Power supply

Supply voltage range	9.6 V DC ... 30 V DC (The DIN rail bus connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, Order No. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715))
Typical current consumption	< 28 mA (at I <sub>OUT</sub> = 20 mA, 24 V DC, load 500 Ω)
Power consumption	< 800 mW (at I <sub>OUT</sub> = 20 mA, 9.6 V DC, load 500 Ω)

### Connection data

# Frequency transducer - MINI MCR-SL-F-UI-SP-NC - 2902833

## Technical data

### Connection data

Connection method	Spring-cage connection
Stripping length	8 mm
Conductor cross section solid	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 ... 12

### General

No. of channels	1
Transmission error in the set measuring range	0.1 %
Maximum temperature coefficient	0.01 %/K
Status display	LED red
Operating elements	Press/slide button
Protective circuit	Transient protection
Electrical isolation	Basic insulation according to EN 61010
Overvoltage category	II
Degree of pollution	2
Rated insulation voltage	50 V AC/DC
Test voltage, input/output/supply	1.5 kV (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.
Color	green
Housing material	PBT
Mounting position	any
Assembly instructions	The T connector can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715.
Conformance	CE-compliant
ATEX	# II 3 G Ex nA IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC
Certificate of classification	DNV GL 14085-15HH
Fire protection for rail vehicles (DIN EN 45545-2) R22	HL 1 - HL 2
Fire protection for rail vehicles (DIN EN 45545-2) R23	HL 1 - HL 2
Fire protection for rail vehicles (DIN EN 45545-2) R24	HL 1 - HL 2

### EMC data

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Typical deviation from the measuring range final value	0.1 %
Designation	Fast transients (burst)

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## Technical data

### EMC data

Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	2 %
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	0.3 %

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Standards/regulations	EN 61000-4-2
Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
	EN 61000-4-5
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Electrical isolation	Basic insulation according to EN 61010
Conformance	CE-compliant
ATEX	# II 3 G Ex nA IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC

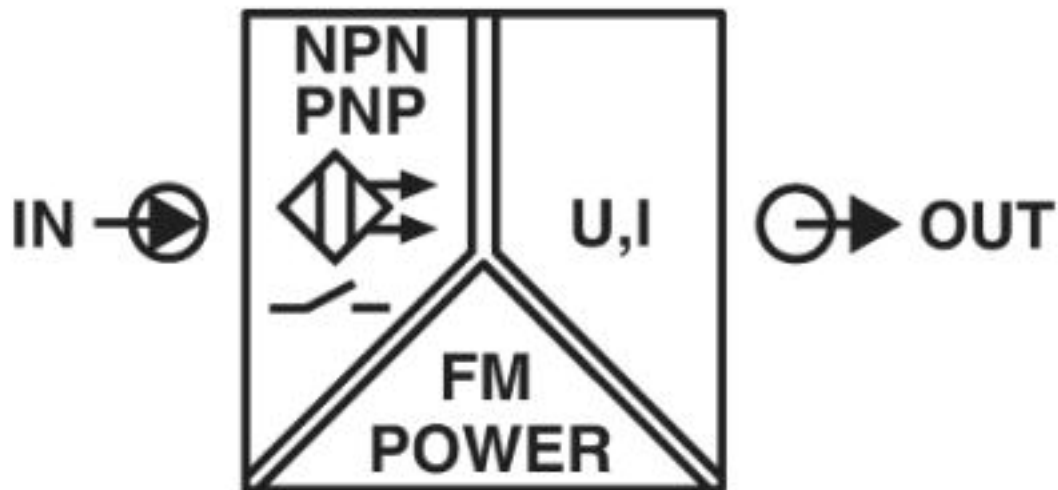
### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

# Frequency transducer - MINI MCR-SL-F-UI-SP-NC - 2902833

Pictogram



## Classifications

### eCl@ss

eCl@ss 4.0	27210100
eCl@ss 4.1	27210100
eCl@ss 5.0	27210100
eCl@ss 5.1	27210100
eCl@ss 6.0	27210100
eCl@ss 7.0	27210120
eCl@ss 8.0	27210120
eCl@ss 9.0	27210120

### ETIM

ETIM 4.0	EC002653
ETIM 5.0	EC002653
ETIM 6.0	EC002653
ETIM 7.0	EC002653

### UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008
UNSPSC 18.0	39121008
UNSPSC 19.0	39121008
UNSPSC 20.0	39121008
UNSPSC 21.0	39121008

# Frequency transducer - MINI MCR-SL-F-UI-SP-NC - 2902833

## Approvals

Approvals

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Approvals

GL / UL Listed / cUL Listed / cULus Listed

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Ex Approvals

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

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## Approval details

GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	14085-15 HH
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UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cULus Listed			
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## Accessories

Accessories

DIN rail connector

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

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Evaluation unit

# Frequency transducer - MINI MCR-SL-F-UI-SP-NC - 2902833

## Accessories

### Monitoring module - MINI MCR-SL-FM-RC-NC - 2902961



The fault monitoring module is used to evaluate and report group errors from the fault monitoring system and to monitor the supply voltages. The error is reported via an N/O contact. Screw connection, standard configuration.

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### Monitoring module - MINI MCR-SL-FM-RC-SP-NC - 2902962



The fault monitoring module is used to evaluate and report group errors from the fault monitoring system and monitor supply voltages. Spring-cage connection, standard configuration. Replacement part: 2904508 MINI MCR-2-FM-RC-PT.

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## Multiplexer

### Multiplexer - MINI MCR-SL-MUX-V8-FLK 16 - 2811815



MINI analog multiplexer, generates one analog output from 8 analog input signals, for MINI analog module with screw connection.

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## Power module

### Power terminal block - MINI MCR-SL-PTB-FM - 2902958



The MINI MCR-SL-PTB-FM(-SP) power terminal block is used to supply the supply voltage to the DIN rail connector. The FM power terminal block offers the additional function of monitoring in combination with the fault monitoring module. Screw connection.

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### Power terminal block - MINI MCR-SL-PTB-FM-SP - 2902959



The MINI MCR-SL-PTB-FM(-SP) feed-in terminal is used to feed in the supply voltage to the DIN rail connector. The FM feed-in terminal offers an additional function: monitoring. Spring-cage connection. Replacement part: 2902067 MINI MCR-2-PTB-PT.

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## Power supply

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### Accessories

Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983



Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A