

MINI MCR-SL-F-UI-SP-NC - Frequency measuring transducer



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.

Commercial data

Item number	2902833
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	C403
Product key	DK1136
GTIN	4046356685573
Weight per piece (including packing)	111.2 g
Weight per piece (excluding packing)	111.2 g
Customs tariff number	85437090
Country of origin	DE

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Technical data

Product properties

Product type	Frequency value transformer
Product family	MINI Analog
No. of channels	1
Operating elements	Press/slide button

Insulation characteristics

Overvoltage category	II
Pollution degree	2

Electrical properties

Rated insulation voltage	50 V AC/DC
Electrical isolation	3-way isolation
Electrical isolation between input and output	yes
Test voltage, input/output/supply	1.5 kV AC (50 Hz, 60 s)
Protective circuit	Transient protection
Step response (0–99%)	< 35 ms (At f > 500 Hz)
Maximum temperature coefficient	0.01 %/K
Transmission error in the set measuring range	0.1 %

Electrical isolation Input/output/power supply

Rated insulation voltage	50 V AC/DC
Test voltage	1.5 kV AC (50 Hz, 60 s)
Insulation	Basic insulation in accordance with IEC/EN 61010

Supply

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

Input data

Measurement: Frequency

Configurable/programmable	Yes
Available input sources	NPN/PNP transistor outputs
	NAMUR initiators
	Floating relay contact (dry contact)
Max. voltage input signal	30 V (incl. DC voltage)
Frequency measuring range	0.002 Hz ... 20 kHz (DIP switch)
	0.002 Hz ... 80 kHz (Teach-in wheel)

Signal

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Number of inputs	1
Input signal	Frequency

Output data

Signal: Voltage/current

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
Max. voltage output signal	≈  V
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
	20 mA ... 0 mA
	20 mA ... 4 mA
Max. current output signal	24.6 mA
Load/output load voltage output	≥ 10 kΩ
Load/output load current output	500 Ω (20 mA)
Ripple	< 20 mV _{PP}
	< 20 mV _{PP} (500 Ω)

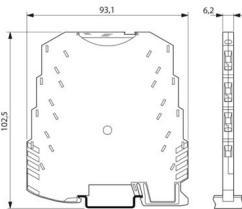
Connection data

Connection method	Spring-cage connection
Stripping length	8 mm
Conductor cross-section rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross-section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 12

Signaling

Status display	LED (red)
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Dimensions

Dimensional drawing	
Width	6.2 mm
Height	93.1 mm
Depth	102.5 mm

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Material specifications

Color	green (RAL 6021)
Housing material	PBT
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

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-20 °C ... 65 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant
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ATEX

Identification	Ⓜ II 3 G Ex nA IIC T4 Gc X
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UL, USA/Canada

Identification	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC

Shipbuilding approval

Identification	D, EMC2
Certificate	DNV GL 14085-15HH

EMC data

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

Noise emission

Standards/regulations	EN 61000-6-4
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Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Comments	Safety measures must be taken to prevent electrostatic discharge.
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Electromagnetic HF field

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

Fast transients (burst)

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	2 %

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Conducted interference

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

Standards and regulations

Electrical isolation	3-way isolation
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Mounting

Mounting type	DIN rail mounting
Assembly note	The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail.
Mounting position	any

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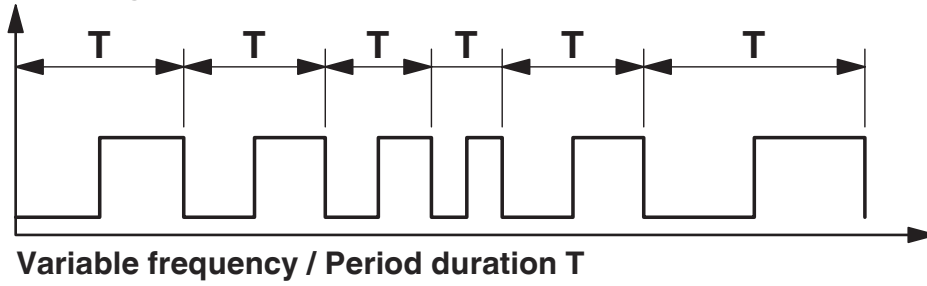
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Drawings

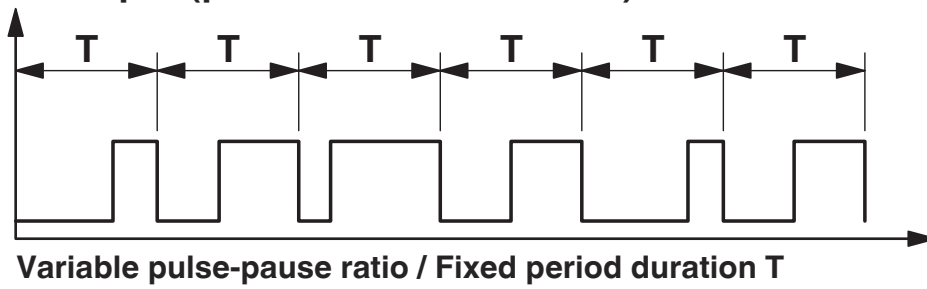


Diagram

Frequency output



PWM output (pulse width modulation)

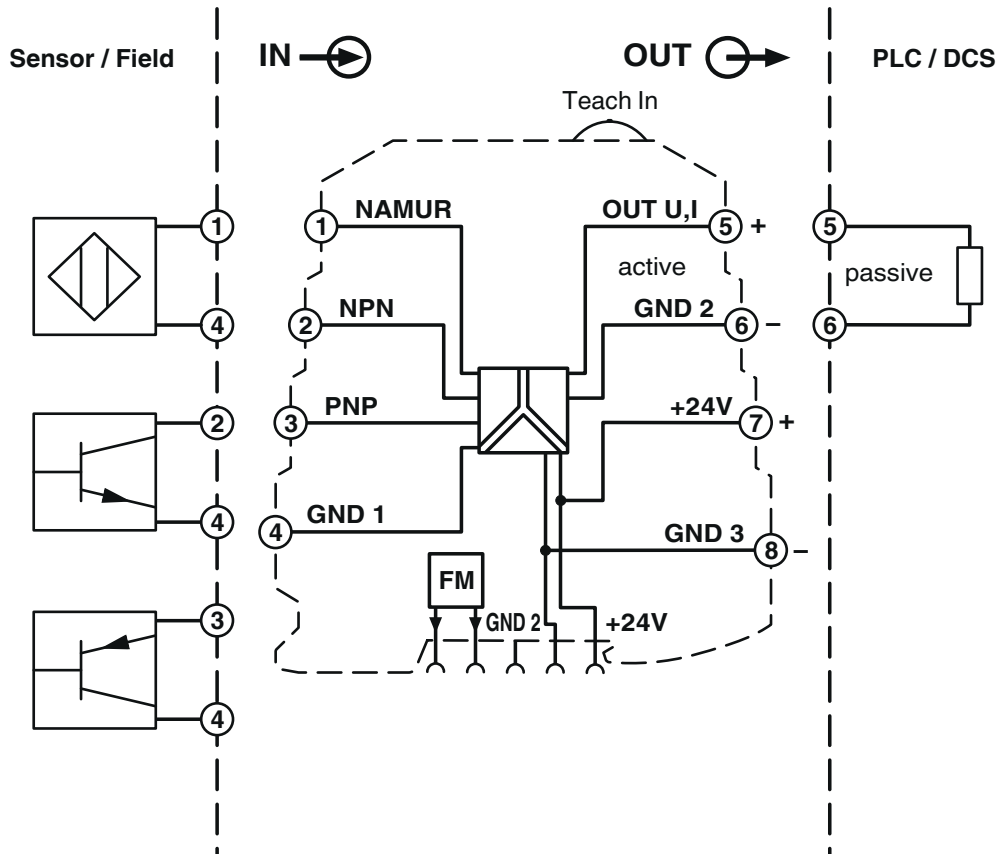


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Block diagram



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Classifications

UNSPSC

UNSPSC 21.0	39121008
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Environmental product compliance

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.)	No substance above 0.1 wt%
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