

# MINI MCR-2-F-UI - Frequency measuring transducer



2902056

<https://www.phoenixcontact.com/au/products/2902056>

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Universally configurable frequency transducer for converting frequency (Hz/rpm) and PWM signals into standard signals. Sensor voltages greater than 8.2 V DC are possible in combination with MINI MCR-2-SPS 1033202. Screw connection technology.

## Commercial data

Item number	2902056
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DK1126
Product key	DK1126
Catalog page	Page 86 (C-5-2019)
GTIN	4046356649872
Weight per piece (including packing)	126.4 g
Weight per piece (excluding packing)	125.1 g
Customs tariff number	85437090
Country of origin	DE

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## Technical data

### Notes

#### Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area
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### Product properties

Product type	Frequency value transformer
Product family	MINI Analog Pro
No. of channels	1
Type	Signal conditioner
Configuration	DIP switches
	Software
	App

#### Insulation characteristics

Overvoltage category	II
Pollution degree	2

### System properties

#### Functionality

Configuration	DIP switches
	Software
	App

### Electrical properties

Step response (0–99%)	< 35 ms ( $f > 500$ Hz)
Maximum temperature coefficient	0.01 %/K
Maximum transmission error	0.1 % (Frequency (Hz/rpm))
	1 % (PWM signal)

#### Electrical isolation Input/output/power supply

Rated insulation voltage	300 V <sub>rms</sub>
Test voltage	3 kV AC (50 Hz, 60 s)
Insulation	Reinforced insulation according to IEC/EN 61010-1

#### Supply

Nominal supply voltage	24 V DC
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	32 mA (24 V DC)
	63 mA (12 V DC)

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Power consumption (I output)	≤ 1 W (at I <sub>OUT</sub> = 20 mA, 9.6 V DC, 600 Ω load)
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## Input data

Measurement: Frequency

Available input sources	NAMUR initiators
	NPN/PNP transistor outputs
	Floating contact (dry contact)
	Frequency generator
	Incremental encoder (speed only)
	HTL encoders
	TTL rotary transducer
	S0 signal
Max. voltage input signal	30 V (incl. DC voltage)
Voltage measuring range	≥ 2 V
Frequency measuring range	0.002 Hz ... 200 kHz
PWM (range)	0.002 Hz ... 60 Hz (Duty cycle 2 ... 98 %)
	60 Hz ... 300 Hz (Duty cycle: 5 ... 95 %)
	300 Hz ... 600 Hz (Duty cycle: 10 ... 90 %)
	600 Hz ... 1000 Hz (Duty cycle 20 ... 80 %)

Signal

Number of inputs	1
Input signal	Frequency

## Output data

Switching: Transistor

Number of outputs	1
Contact switching type	1 N/O contact
Minimum switching voltage	1 V
Maximum switching voltage	30 V DC
Min. switching current	100 μA
Max. switching current	100 mA (30 V)

Signal: Voltage/current

Number of outputs	1
Configurable/programmable	Yes
Voltage output signal	0 V ... 10 V (via DIP switch)
	2 V ... 10 V (via DIP switch)
	0 V ... 5 V (via DIP switch)
	1 V ... 5 V (via DIP switch)
	0 V ... 10.5 V (can be set via software)
Max. voltage output signal	12.3 V
Current output signal	0 mA ... 20 mA (via DIP switch)
	4 mA ... 20 mA (via DIP switch)

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	0 mA ... 10 mA (via DIP switch)
	2 mA ... 10 mA (via DIP switch)
	0 mA ... 21 mA (can be set via software)
Max. current output signal	24.6 mA
Load/output load voltage output	$\geq 10 \text{ k}\Omega$
Load/output load current output	$\leq 600 \text{ }\Omega$ (20 mA)
Ripple	$< 20 \text{ mV}_{PP}$ (600 $\Omega$ )
	$< 20 \text{ mV}_{PP}$ (600 $\Omega$ )

## Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	M3
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (with ferrule)
	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (without ferrule)
Conductor cross section flexible	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12 (flexible)
Tightening torque	0.5 Nm ... 0.6 Nm

## Ex data

Ex installation (EPL)	Gc
	Div. 2

## Signaling

Status display	Green LED (supply voltage)
	Yellow LED (switching output)
Error indication	Red LED

## Dimensions

Width	6.2 mm
Height	109.81 mm
Depth	119.2 mm

## Material specifications

Color	gray (RAL 7042)
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 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 70 °C

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Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

## Approvals

### CE

Certificate	CE-compliant
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### ATEX

Identification	⊕ II 3 G Ex ec IIC T4 Gc
Certificate	BVS 20 ATEX E 024 X

### IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX BVS 20.0017X

### UL, USA/Canada

Identification	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T5
	Class I, Zone 2, Group IIC T5

### Shipbuilding approval

Certificate	DNV GL TAA000021E Rev. 1
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### EAC Ex

Identification	Ex ec IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00081

### Shipbuilding data

Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

## 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	0.2 %

## Fast transients (burst)

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

## 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	2.8 %

## 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

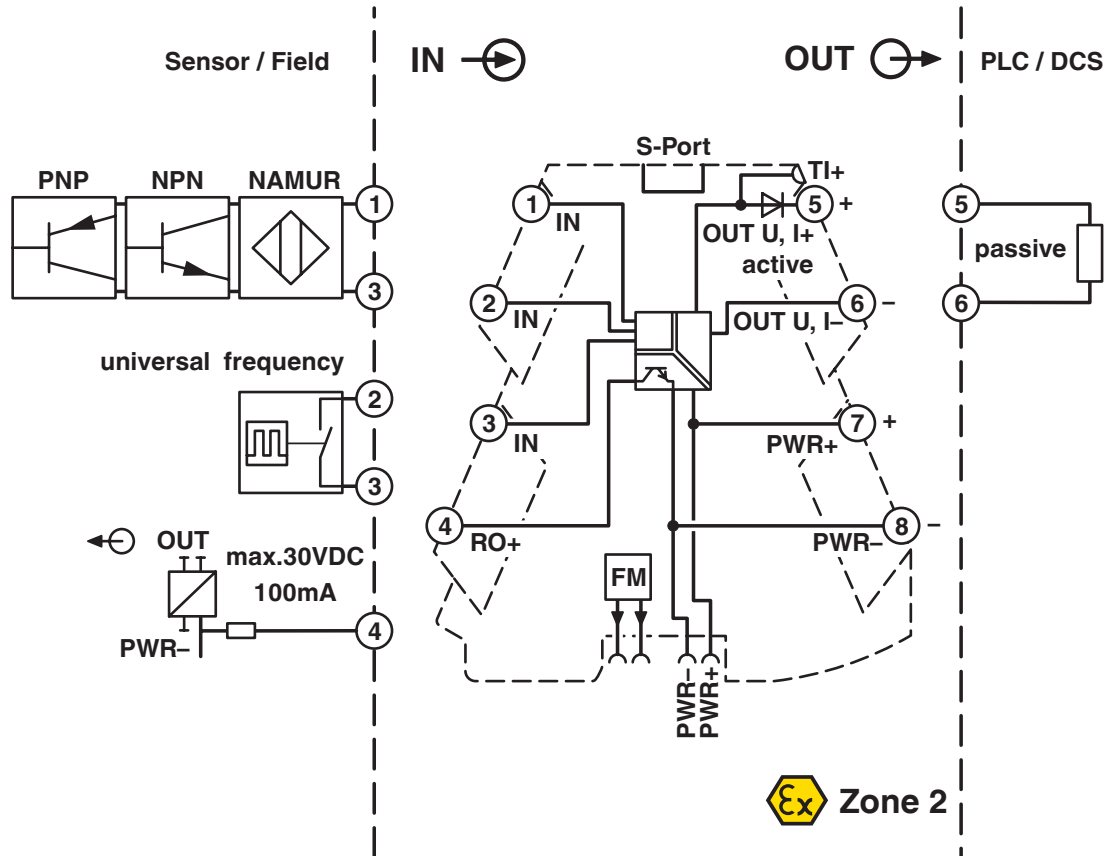
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## Drawings

Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/au/products/2902056>



**EAC**

Approval ID: RU\*DE.\*08.B.01536/19



**UL Listed**

Approval ID: E238705



**cUL Listed**

Approval ID: E238705

**DNV**

Approval ID: TAA000021E



**IECEx**

Approval ID: IECEx\_BVS\_20.0017X



**cUL Listed**

Approval ID: E196811



**UL Listed**

Approval ID: E196811



**ATEX**

Approval ID: BVS 20 ATEX E 024 X



**EAC Ex**

Approval ID: TR TS\_S\_103.01.00081



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## Classifications

### ECLASS

ECLASS-13.0	27210128
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### ETIM

ETIM 9.0	EC002918
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	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)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	44cae1a9-f804-44b3-8461-5a648055564e

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