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

2902832

https://www.phoenixcontact.com/us/products/2902832

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The configurable frequency transducer is suitable for the connection of NAMUR proximity sensors as well as for sensors with NPN and PNP outputs. Configurable via DIP switch and teach-in wheel. Screw connection, standard configuration.

## 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 | 2902832 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C403 |
| Product key | DK1136 |
| GTIN | 4046356682367 |
| Weight per piece (including packing) | 116.9 g |
| Weight per piece (excluding packing) | 114.7 g |
| Customs tariff number | 85437090 |
| Country of origin | DE |

## Technical data

### Notes

Utilization restriction

| | |
|---|---|
| EMC note | EMC: class A product, see manufacturer's declaration in the download area |

### Product properties

| | |
|---|---|
| Product type | Frequency value transformer |
| Product family | MINI Analog |
| No. of channels | 1 |
| Operating elements | Press/slide button |
| Configuration | DIP switches |

Insulation characteristics

| | |
|---|---|
| Overvoltage category | II |
| Pollution degree | 2 |

### System properties

Functionality

| | |
|---|---|
| Configuration | DIP switches |

### Electrical properties

| | |
|---|---|
| Electrical isolation | 3-way isolation |
| Electrical isolation between input and output | yes |
| 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

| | |
|---|---|
| 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) |

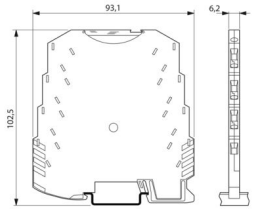
## Connection data

| | |
|---|---|
| Connection method | Screw connection |
| Stripping length | 12 mm |
| Screw thread | M3 |
| Conductor cross-section rigid | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section flexible | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section AWG | 26 ... 12 |

## Signaling

| | |
|---|---|
| Status display | LED (red) |

## Dimensions

| | |
|---|---|
| Dimensional drawing |   |
| Width | 6.2 mm |
| Height | 93.1 mm |
| Depth | 101.2 mm |

## 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 |
| Altitude | ≤ 2000 m |
| Permissible humidity (operation) | 5 % ... 95 % (non-condensing) |

## Approvals

### CE

| | |
|---|---|
| Certificate | CE-compliant |

### UKCA

| | |
|---|---|
| Certificate | UKCA-compliant |

### 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

| | |
|---|---|
| Certificate | DNV GL TAA00002R0 |

### Shipbuilding data

| | |
|---|---|
| Temperature | B |
| Humidity | B |
| Vibration | B |

| | |
|---|---|
| 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 |

### Electrostatic discharge

| | |
|---|---|
| Standards/regulations | EN 61000-4-2 |

### Electrostatic discharge

| | |
|---|---|
| Comments | Safety measures must be taken to prevent electrostatic discharge. |

### 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 |

### Conducted interference

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

## Standards and regulations

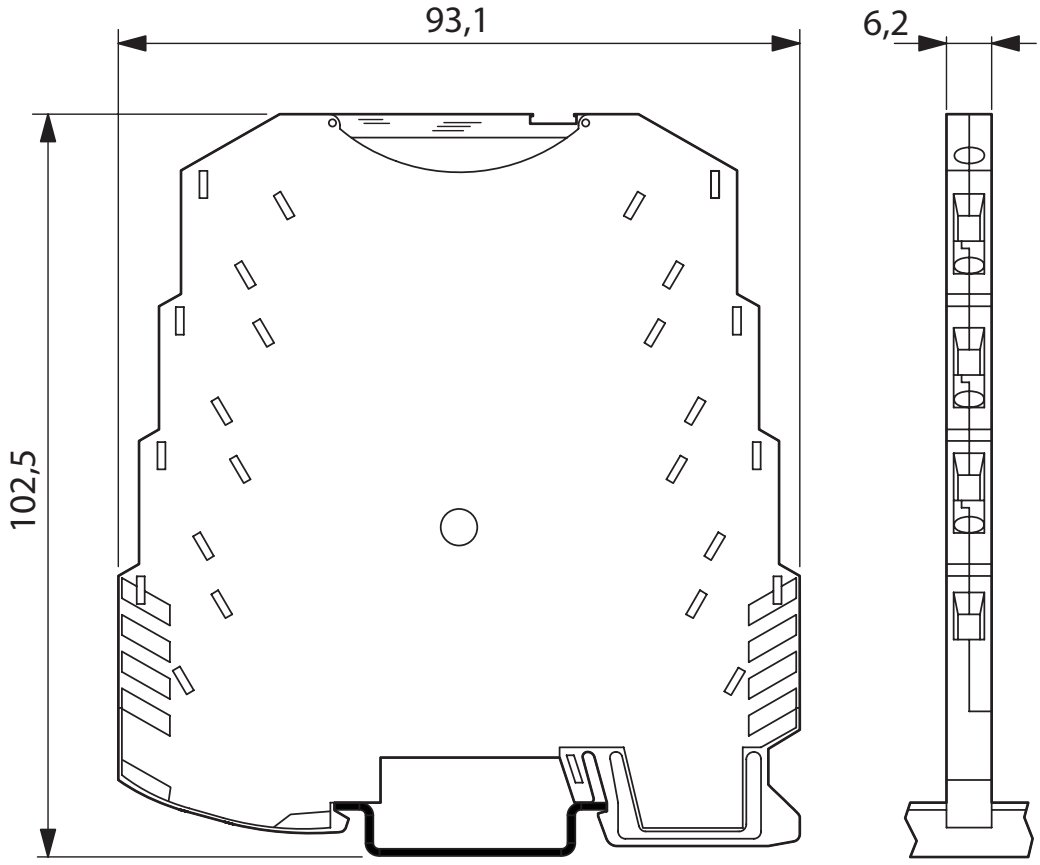
| | |
|---|---|
| Electrical isolation | 3-way isolation |

## Mounting

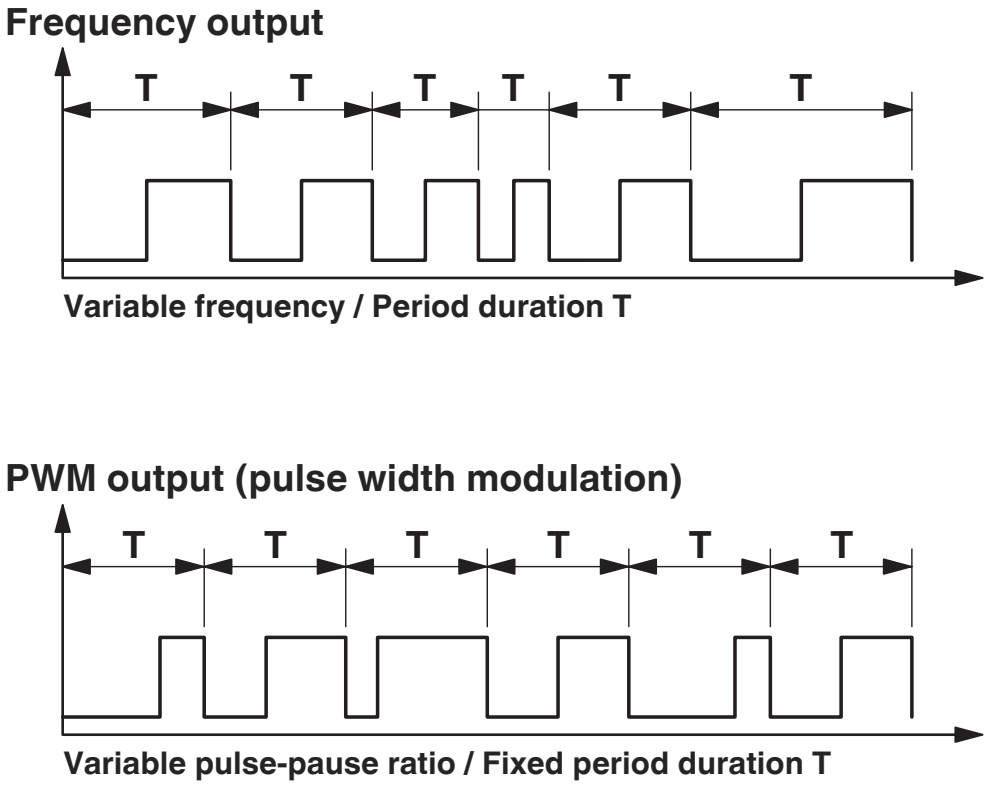
| | |
|---|---|
| Mounting type | DIN rail mounting |
| Assembly note | The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail. |
| Mounting position | any |

## Drawings

Dimensional drawing



Diagram


Frequency output
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Variable frequency / Period duration T
PWM output (pulse width modulation)
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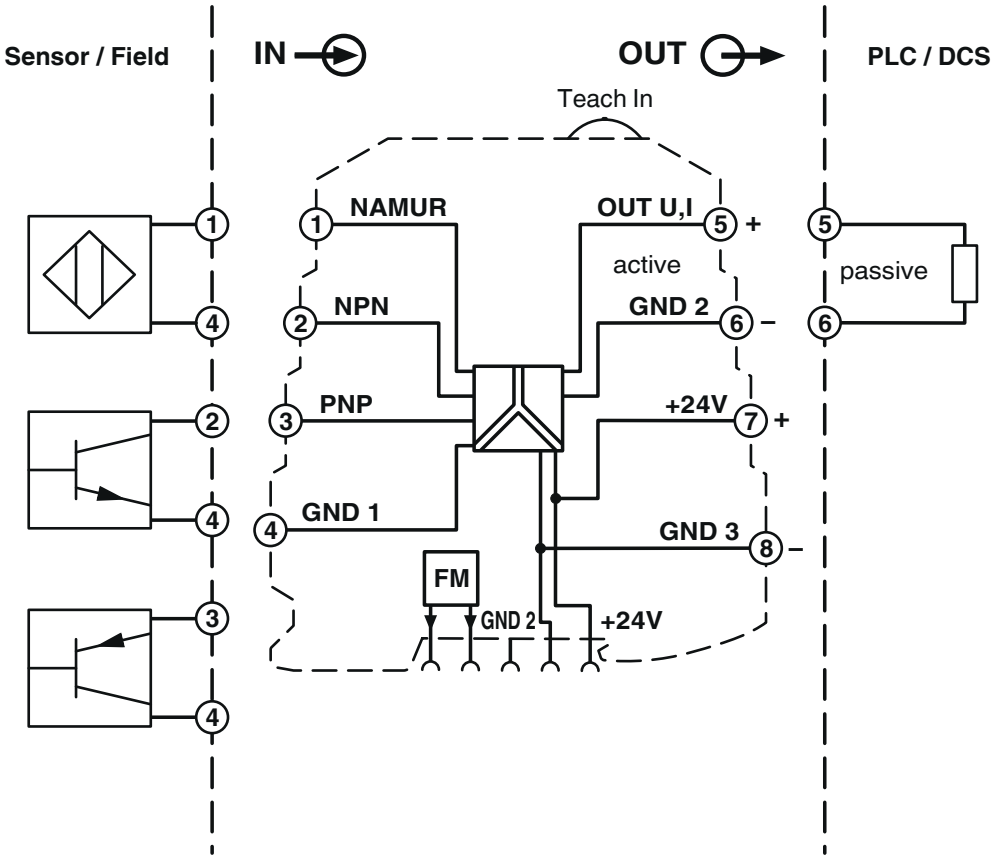
Variable pulse-pause ratio / Fixed period duration T

Block diagram



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2902832

**UL Listed**
Approval ID: E238705

**cUL Listed**
Approval ID: E238705

**DNV**
Approval ID: TAA00002R0

**cUL Listed**
Approval ID: E199827

**UL Listed**
Approval ID: FILE E 199827

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27210128 |
| ECLASS-15.0 | 27210128 |

### ETIM

| | |
|---|---|
| ETIM 9.0 | EC002918 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 39121000 |

## 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 | 343b353d-cae5-41f8-b03c-b880e96783c7 |

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