

MCR-F-UI-DC - Frequency measuring transducer



2814605

<https://www.phoenixcontact.com/gb/products/2814605>

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MCR frequency measuring transducer, programmable, for converting frequencies into analog signals, with 3-way isolation and configurable output

Your advantages

- Replacement product MINI MCR-2-F-UI(-PT) 2902056 (2902058, Push-in version) in combination with MINI MCR-2-SPS-24-15(-PT) 1033202 (1033201, Push-in version)
- Can be programmed via membrane keypad or software
- Display of the input or output signal
- 3-way isolation
- Analog and switching output
- For NAMUR sensors, floating contacts, frequency generators, and NPN/PNP transistor outputs
- Frequencies up to 120 kHz

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2814605 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Product key | DK1XXX |
| GTIN | 4017918168827 |
| Weight per piece (including packing) | 234.9 g |
| Weight per piece (excluding packing) | 234.9 g |
| 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 |
| Operating elements | Membrane keypad with 3 keys and LCD display |

Electrical properties


| | |
|---|------------------------------|
| Alignment span | ± 25 % |
| Alignment zero | ± 25 % |
| Electrical isolation between input and output | yes |
| Maximum power dissipation for nominal condition | 1.8 W |
| Test voltage, input/output/supply | 1.5 kV (50 Hz, 1 min.) |
| Protective circuit | Transient protection |
| | Reverse polarity protection |
| Step response (10-90%) | < 25 ms |
| Maximum temperature coefficient | 0.015 %/K |
| Temperature coefficient, typical | 0.01 %/K |
| Maximum transmission error | ≤ 0.15 % (of measured value) |
| Transmission error, typical | 0.1 % |

Supply

| | |
|--------------------------|--|
| Supply voltage range | 20 V DC ... 30 V DC |
| Max. current consumption | < 60 mA (without load, without switching output) |

Input data

Measurement: Frequency

| | |
|---------------------------|--|
| Configurable/programmable | Yes |
| Available input sources | NPN/PNP transistor outputs |
| | NAMUR initiators |
| | Floating relay contact (dry contact) |
| | Frequency generator |
| Encoder supply voltage | ≈  V DC |
| Encoder supply current | ≤ 25 mA (constant) |
| Signal level | 2 V _{PP} (In case of rectangle 0.1 Hz ... 120 kHz) |
| | 2 V _{PP} (In case of sine 8 Hz ... 120 kHz) |
| | 13 V _{PP} (In case of sine 1 Hz ... 120 kHz) |
| Max. voltage input signal | 30 V (incl. DC voltage) |
| Impulse form | any |

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| | |
|---------------------------|----------------------|
| Pulse time | $\geq 1 \mu\text{s}$ |
| Measured value resolution | $> 12 \text{ bit}$ |
| A/D conversion time | $\leq 32 \text{ ms}$ |
| Frequency measuring range | 0.1 Hz ... 120 kHz |

Signal: I analog

| | |
|--------------------------------|--|
| Description of the input | Current input (isolating amplifier function) |
| Number of inputs | 1 |
| Configurable/programmable | Yes |
| Current input signal | 0 mA ... 20 mA (freely adjustable) |
| Max. current input signal | 24 mA |
| Input resistance current input | 200 Ω |
| Measured value resolution | 14 bit (full-scale) |
| Step response (10-90%) | $< 25 \text{ ms}$ |
| Supply voltage | 24 V DC |

Signal: U digital

| | |
|-----------------------------------|--|
| Description of the input | Voltage input (isolating amplifier function) |
| Configurable/programmable | Yes |
| Voltage input signal | 0 V ... 10 V (freely adjustable) |
| Max. voltage input signal | 12 V |
| Input resistance of voltage input | 95 k Ω |
| Measured value resolution | 14 bit (full-scale) |
| Step response (10-90%) | $< 25 \text{ ms}$ |

Output data

Switching: Transistor

| | |
|--------------------|---|
| Output description | Switches supply voltage to terminal block SW, can carry a load of 100 mA, not protected against short-circuit |
|--------------------|---|

Signal:

| | |
|---------------------------------|--|
| Number of outputs | 1 |
| Configurable/programmable | Yes |
| Voltage output signal | 0 V ... 10 V 0 V ... 5 V 10 V ... 0 V 5 V ... 0 V |
| Max. voltage output signal | 12.5 V |
| Load/output load voltage output | $\geq 500 \Omega$ |
| Ripple | $< 20 \text{ mV}_{PP}$ |

Signal:

| | |
|---------------------------|--|
| Configurable/programmable | Yes |
| Current output signal | 0 mA ... 20 mA 4 mA ... 20 mA 20 mA ... 0 mA |

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| | |
|---------------------------------|------------------------|
| | 20 mA ... 4 mA |
| Max. current output signal | 25 mA |
| Load/output load current output | $\leq 500 \Omega$ |
| Ripple | $< 20 \text{ mV}_{PP}$ |

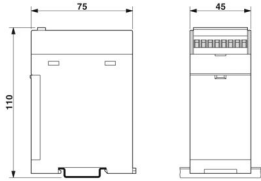
Connection data

| | |
|----------------------------------|---|
| Connection method | Screw connection |
| Stripping length | 8 mm |
| Screw thread | M3 |
| 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 ... 14 |

Signaling

| | |
|----------------|------------|
| Status display | LC display |
|----------------|------------|

Dimensions

| | |
|---------------------|--|
| Dimensional drawing |  |
| Width | 45 mm |
| Height | 75 mm |
| Depth | 110 mm |

Material specifications

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|------------------|------------------|
| Color | green (RAL 6021) |
| Housing material | ASA-PC (V0) |

Environmental and real-life conditions

Ambient conditions

| | |
|---------------------------------|---------------------------------------|
| Ambient temperature (operation) | -20 °C ... 65 °C (for specified data) |
|---------------------------------|---------------------------------------|

Approvals

CE

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

UL, USA/Canada

| | |
|----------------|---|
| Identification | Class I, Div. 2, Groups A, B, C, D or Non-Hazardous Locations |
|----------------|---|

GL

| | |
|----------------|--------|
| Identification | DNV GL |
|----------------|--------|

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Mounting

| | |
|-------------------|-------------------|
| Mounting type | DIN rail mounting |
| Mounting position | any |

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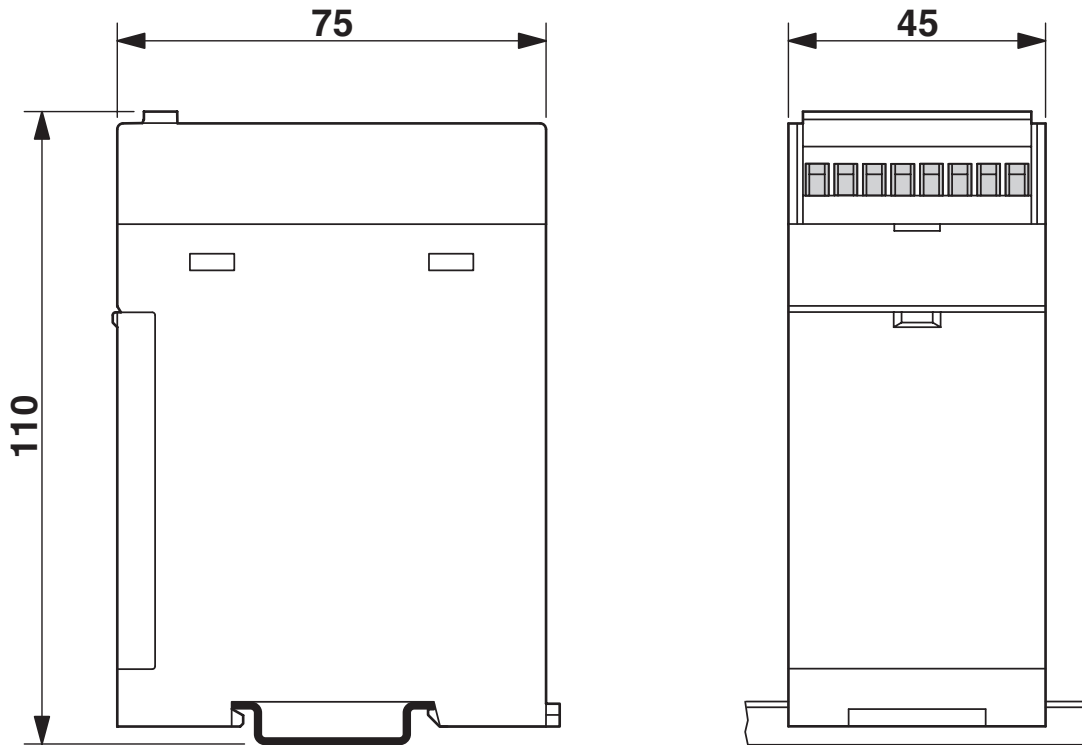


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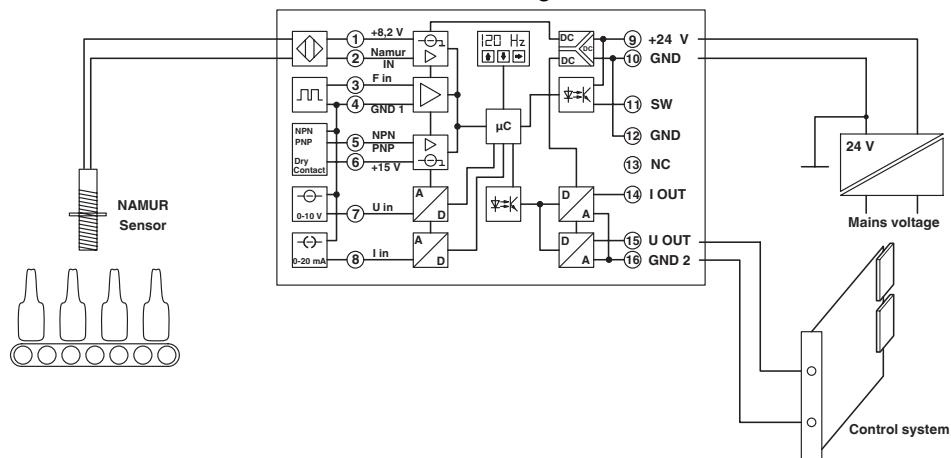
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Drawings

Dimensional drawing



Connection diagram



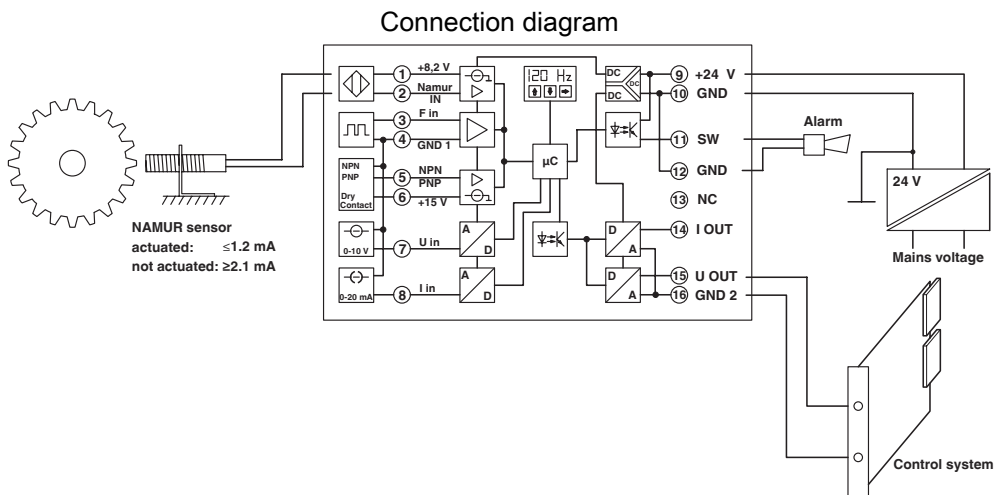
Application example: Flow measurement

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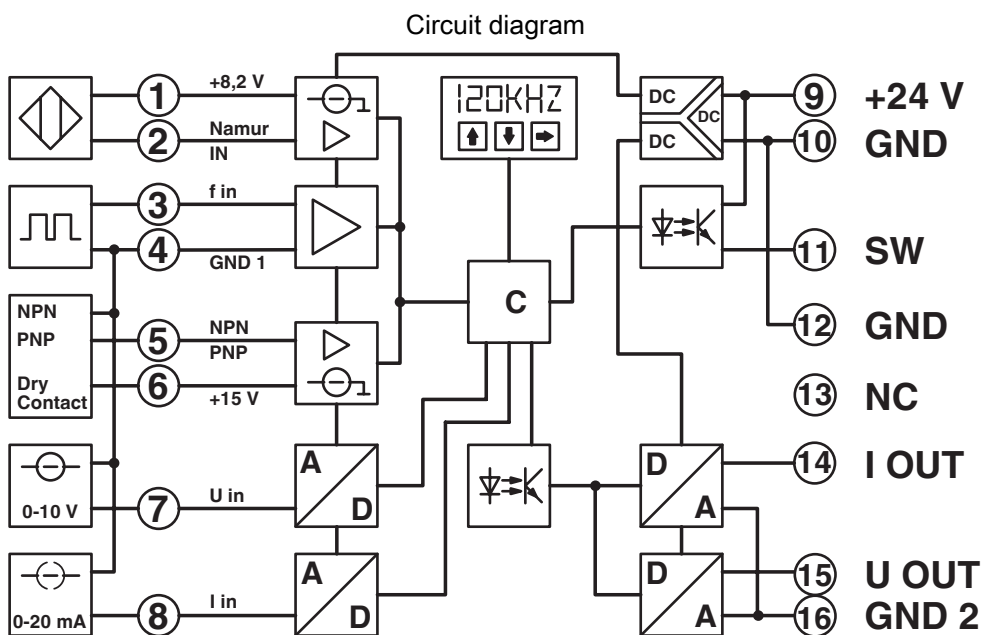


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Application example: Measurement of revolutions of a drive



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Environmental product compliance

EU RoHS

| | |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 6(c), 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) |
|-------------------------------------|----------------------|

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PHOENIX CONTACT Ltd
Halesfield 13, Telford
Shropshire, TF7 4PG
01952 681700
info@phoenixcontact.co.uk