

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



2864082

<https://www.phoenixcontact.com/pc/products/2864082>

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Analog frequency transducers for converting analog standard signals into frequency signals or PWM signals, configurable via DIP switch, with screw connection

## Product Description

The 6.2 mm wide configurable analog frequency transducer MINI MCR-SL-UI-F... is used for converting analog standard signals into frequency signals or into pulse width modulated (PWM) signals.

On the input side, there are the analog signals 0...20 mA, 4...20 mA, 0...10 mA, 2...10 mA, 0...10 V, 2...10 V, 0...5 V or 1...5 V

The DIP switches are accessible on the side of the housing and allow the following parameters to be configured:

- Input signal,
- Output signal,
- Output behavior in case the measuring range is exceeded or undershot and
- Filter type (for eliminating malfunctions in the input signal)

Voltage (19.2 V DC to 30 V DC) can be supplied through connection terminal blocks on the modules or in conjunction with the DIN rail connector.

## Your advantages

- Power supply possible via the foot element (TBUS)
- Error indication via diagnostic LED and analog signal
- PWM output of 5 ... 95 %
- Highly-compact analog-to-frequency transducer for electrical isolation, amplification, conversion, and filtering of standard signals to create frequencies or PWM signals
- Input and output signals can be configured via DIP switches
- Configurable interference filter
- 3-way isolation

## Commercial Data

Item number	2864082
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CK1231
Catalog Page	Page 110 (C-7-2015)
GTIN	4046356046435
Weight per Piece (including packing)	108.3 g
Weight per Piece (excluding packing)	108.3 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
No. of channels	1
Configuration	DIP switches

#### Insulation characteristics

Overvoltage category	II
Pollution degree	2

### System properties

#### Functionality

Configuration	DIP switches
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### Electrical properties

No. of channels	1
Electrical isolation between input and output	yes
Step response (0–99%)	< 15 ms (+ (1/f) smallest filter) < 1 s (+ (1/f) largest filter)
Maximum temperature coefficient	< 0.02 %/K
Temperature coefficient, typical	< 0.02 %/K
Maximum transmission error	≤ 0.1 % (> 7 kHz ≤ 0.2 %)

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

Rated insulation voltage	30 V AC
	50 V DC
Test voltage	1.5 kV AC (50 Hz, 60 s)
Insulation	Basic insulation in accordance with IEC/EN 61010

#### Supply

Nominal supply voltage	24 V DC
Supply voltage range	19.2 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)
Max. current consumption	< 10 mA (at 24 V DC)
Power consumption	< 200 mW

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## Input data

Signal: Voltage/current

Number of inputs	1
Configurable/programmable	Yes
Voltage input signal	0 V ... 5 V 1 V ... 5 V 0 V ... 10 V 2 V ... 10 V
Max. voltage input signal	30 V DC
Current input signal	0 mA ... 20 mA 4 mA ... 20 mA 0 mA ... 10 mA 2 mA ... 10 mA
Max. current input signal	100 mA
Input resistance of voltage input	approx. 110 kΩ
Input resistance current input	approx. 50 Ω
Behavior in the event of an error	Alarm in the form of a red LED

## Output data

Frequency: Frequency

Frequency output	0 Hz ... 10 kHz 0 Hz ... 5 kHz 0 Hz ... 2.5 kHz 0 Hz ... 1 kHz 0 Hz ... 500 Hz 0 Hz ... 250 Hz 0 Hz ... 100 Hz 0 Hz ... 50 Hz
Load min.	$4 \text{ mA} \leq (U_L / R_L) \leq 20 \text{ mA}$
Output signal PWM	7.8 kHz (10 bit) 3.9 kHz (10 bit) 1.9 kHz (12 bit) 977 Hz (12 bit) 488 Hz (14 bit) 244 Hz (14 bit) 122 Hz (16 bit) 61 Hz (16 bit)
Load min.	$12 \text{ mA} \leq (U_L / R_L) \leq 20 \text{ mA}$
Load current maximum	20 mA
Maximum switching voltage	30 V
Overrange/underrange	Can be set (via DIP switch)
Protective circuit	Short-circuit protection, polarity reversal protection

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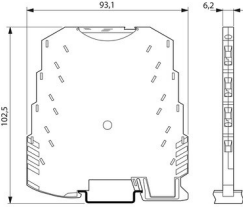
## Signal

Number of outputs	1
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## Connection data

Connection method	Screw connection
Stripping length	12 mm
Screw thread	M3
Conductor cross section rigid	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	26 ... 12

## Dimensions

Dimensional drawing	
Width	6.2 mm
Height	93.1 mm
Depth	101.2 mm

## Material specifications

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
Housing material	PBT

## 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
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### UKCA

Certificate	UKCA-compliant
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## UL, USA/Canada

Identification	UL 508 Recognized
	Class I, Div. 2, Groups A, B, C, D T4

## Shipbuilding approval

Certificate	DNV GL TAA000020N
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## DNV GL 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

Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal deviations.
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4

## 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	2 %

## 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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## Surge current load (surge)

Comments	Criterion B
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## Conducted interference

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

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## Mounting

Mounting type	DIN rail mounting
Mounting position	any

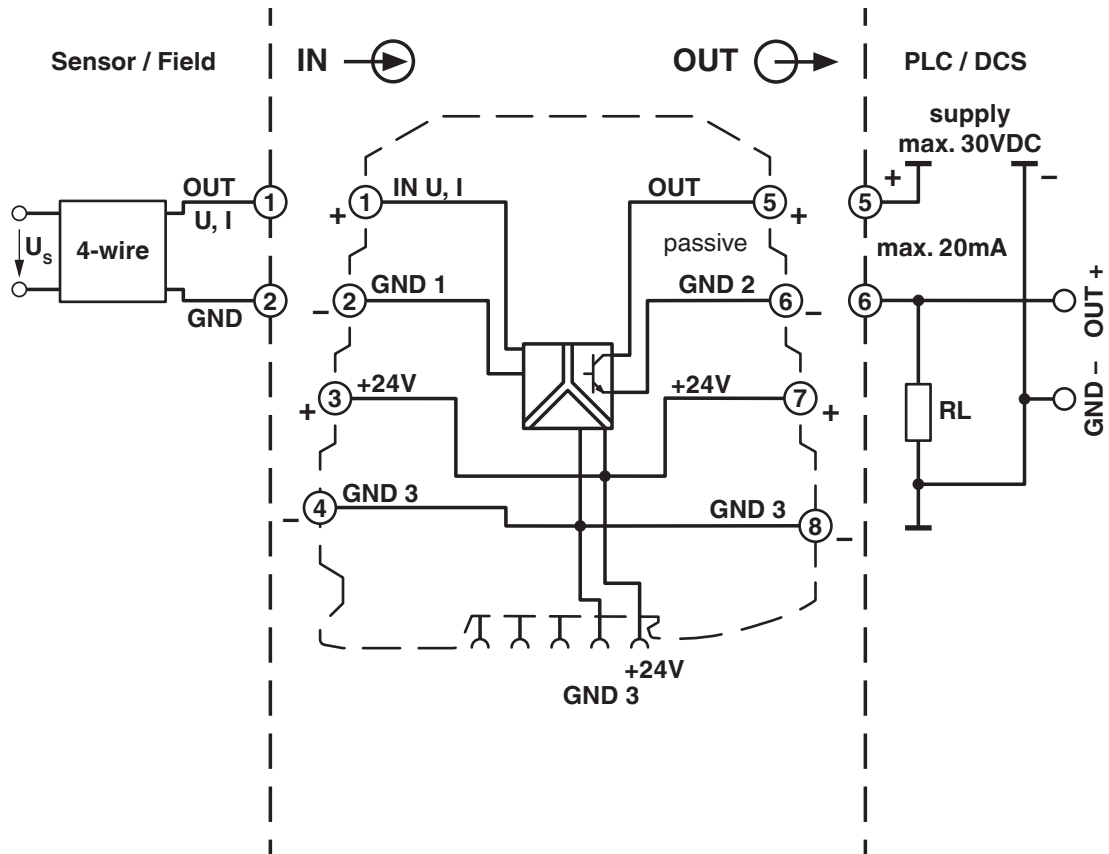
# MINI MCR-SL-UI-F - Frequency transducer

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## Drawings

Block diagram



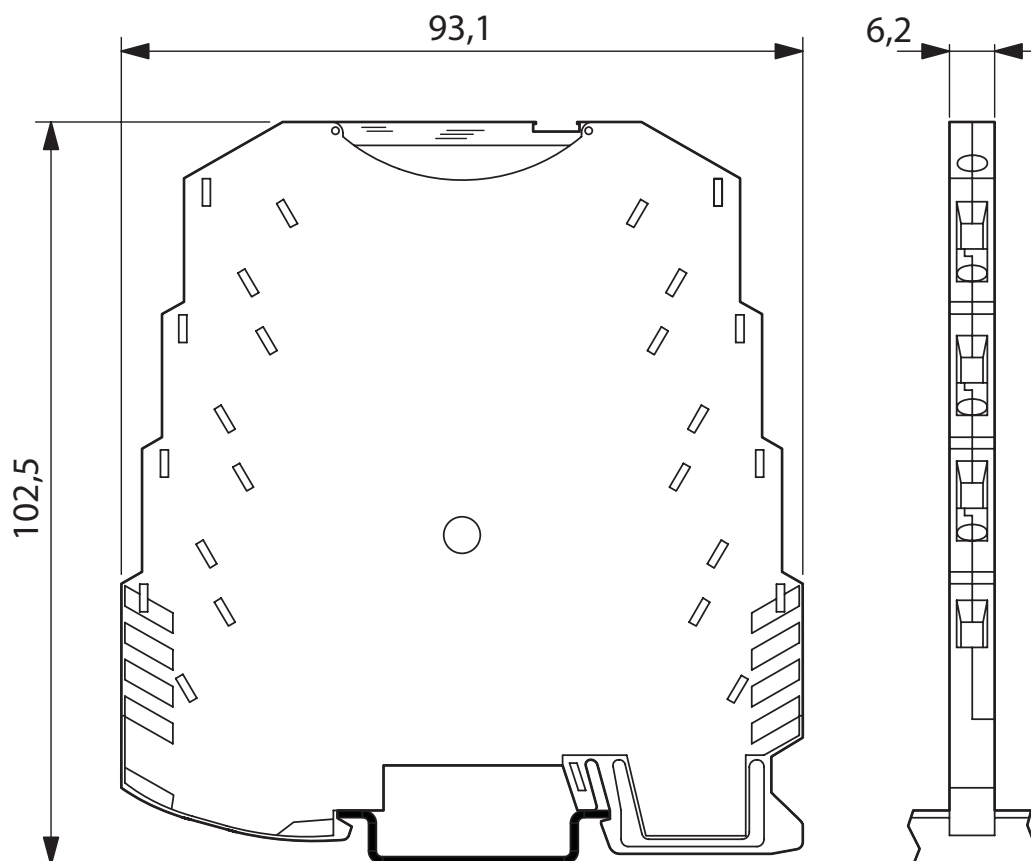
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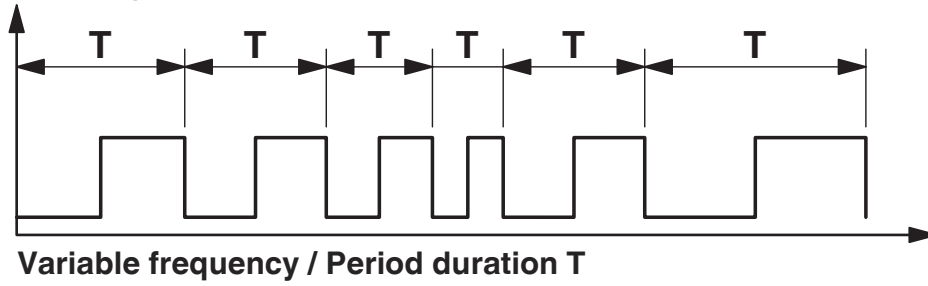
Dimensional drawing



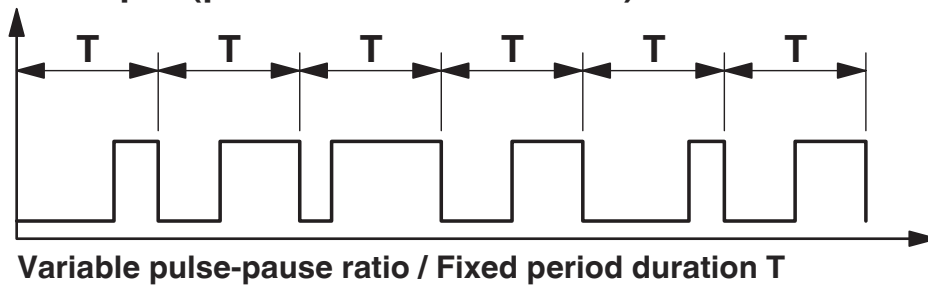


## Diagram

### Frequency output



### PWM output (pulse width modulation)



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## Approvals



**cUL Recognized**  
Approval ID: FILE E 238705



**UL Recognized**  
Approval ID: FILE E 238705



**DNV GL**  
Approval ID: TAA000020N



**BV**  
Approval ID: 39933/B0\_BV



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



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

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## Classifications

### ECLASS

ECLASS-11.0	27210128
ECLASS-12.0	27210128
ECLASS-13.0	27210128

### ETIM

ETIM 8.0	EC002918
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### TC-D37SUB-AIO16-M-PS-UNI - Module carrier

2902934

<https://www.phoenixcontact.com/pc/products/2902934>



Universal termination carrier for connecting 16 MINI Analog signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection), with HART multiplexer connection

### TC-D37SUB-ADIO16-M-P-UNI - Module carrier

2902933

<https://www.phoenixcontact.com/pc/products/2902933>



Universal termination carrier for connecting 16 MINI Analog signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection)

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

2864134

<https://www.phoenixcontact.com/pc/products/2864134>



MCR power terminal block for supplying several MINI Analog modules via the DIN rail connector, with screw connection, maximum current consumption of up to 2 A

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## QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply unit

2904614

<https://www.phoenixcontact.com/pc/products/2904614>



Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

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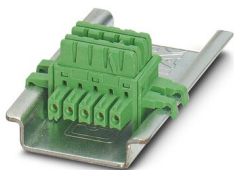
<https://www.phoenixcontact.com/pc/products/2864082>



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

2869728

<https://www.phoenixcontact.com/pc/products/2869728>



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

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## MINI MCR DKL - Transparent cover

2308111

<https://www.phoenixcontact.com/pc/products/2308111>



Fold up transparent cover for MINI MCR modules with additional labeling option using insert strips and flat Zack marker strip 6.2 mm

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## MINI MCR-DKL-LABEL - Marking label

2810272

<https://www.phoenixcontact.com/pc/products/2810272>

Label for extended marking of MINI MCR modules in connection with the MINI MCR-DKL



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