

MINI MCR-SL-UI-F-SP - Frequency converter



2810243

<https://www.phoenixcontact.com/us/products/2810243>

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MCR analog frequency converter for converting standard analog signals into frequency signals or PWM signals, with spring-cage connection. Replacement part: 2902032 MINI MCR-2-UI-FRO-PT.

Your advantages

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

Commercial data

Item number	2810243
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	C403
Product key	DK1136
GTIN	4017918996062
Weight per piece (including packing)	110.9 g
Weight per piece (excluding packing)	108.3 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

Insulation characteristics

Overvoltage category	II
Pollution degree	2

Electrical properties

Rated insulation voltage	30 V AC
	50 V DC
Electrical isolation	Basic insulation in accordance with EN 61010
Electrical isolation between input and output	yes
Test voltage, input/output/supply	1.5 kV AC (50 Hz, 60 s)
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 %)

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

Input data

Signal

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

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Max. current input signal	100 mA
Input resistance of voltage input	approx. 110 k Ω
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 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 bits)
61 Hz (16 bits)	
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

Signal

Number of outputs	1
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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

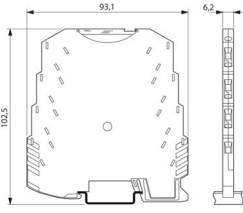
Dimensions

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Dimensional drawing	
Width	6.2 mm
Height	93.1 mm
Depth	102.5 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
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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 Recognized
	Class I, Div. 2, Groups A, B, C, D T4

Shipbuilding approval

Identification	BBBAA
Certificate	DNV GL TAA00000N1

EMC data

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

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	deviations.
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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	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 %

Standards and regulations

Electrical isolation	Basic insulation in accordance with EN 61010
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Mounting

Mounting type	DIN rail mounting
Mounting position	any

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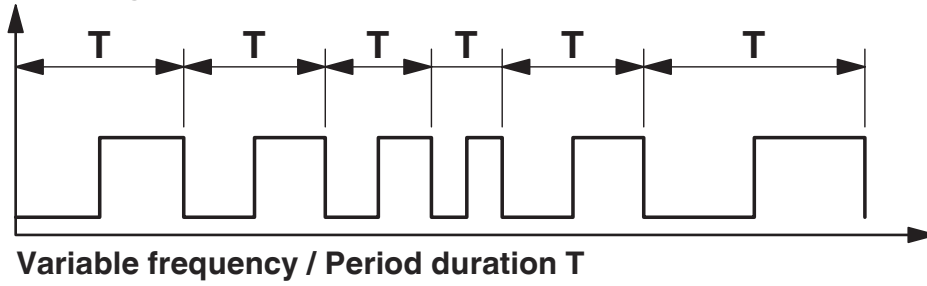


Drawings

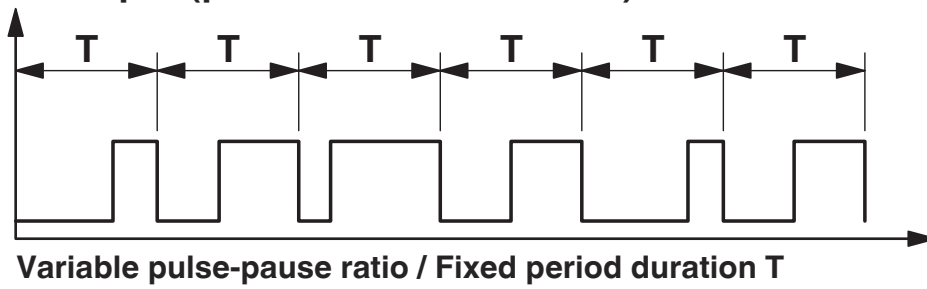


Diagram

Frequency output



PWM output (pulse width modulation)

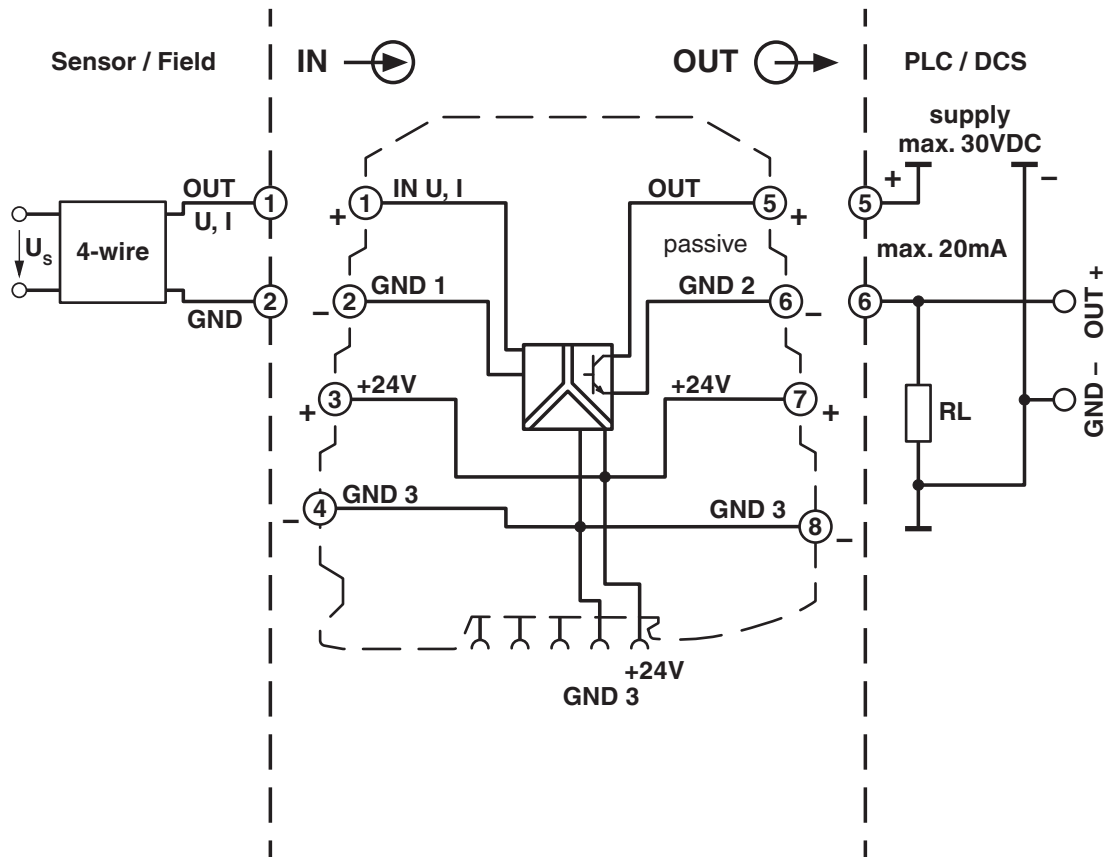


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Block diagram



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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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