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# Frequency transducer - MINI MCR-SL-UI-F-SP - 2810243

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MCR analog frequency transducers for converting analog standard signals into frequency signals or PWM signals, with spring-cage connection

The figure shows a version with a screw connection

## Why buy this product

- 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



## Key Commercial Data

Packing unit	1 STK
GTIN	4 017918 996062

## Technical data

### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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### Dimensions

Width	6.2 mm
Height	93.1 mm
Depth	102.5 mm

### Ambient conditions

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## Technical data

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 65 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m
Degree of protection	IP20

### Input data

Configurable/programmable	Yes
Current input signal	0 mA ... 0.02 A
	4 mA ... 0.02 A
	0 mA ... 0.01 A
	2 mA ... 0.01 A
Input resistance current input	approx. 50 Ω
Voltage input signal	0 V ... 5 V
	1 V ... 5 V
	0 V ... 10 V
	2 V ... 10 V
Input resistance of voltage input	approx. 110 kΩ

### Output data

Number of outputs	1
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.	$12 \text{ mA} \leq (U_L / R_L) \leq 20 \text{ mA}$
Maximum switching voltage	30 V
Load current maximum	20 mA
Overrange/underrange	Can be set (via DIP switch)
Type of protection	Short-circuit protection, polarity reversal protection

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## Technical data

### Output data

Step response (0–99%)	< 15 ms (+ (1/f) smallest filter)
	< 1 s (+ (1/f) largest filter)

### Power supply

Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (The DIN rail bus connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, Order No. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715))
Max. current consumption	< 10 mA (at 24 V DC)
Power consumption	< 200 mW

### Connection data

Connection method	Spring-cage connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Stripping length	8 mm

### General

No. of channels	1
Maximum transmission error	≤ 0.1 % (> 7 kHz ≤ 0.2 %)
Maximum temperature coefficient	< 0.02 %/K
Temperature coefficient, typical	< 0.02 %/K
Electrical isolation	Basic insulation according to EN 61010
Overvoltage category	II
Degree of pollution	2
Rated insulation voltage	50 V AC/DC
Test voltage, input/output/supply	1.5 kV (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC (valid until 19.04.2016) / 2014/30/EU (valid from 20.04.2016)
Noise emission	EN 61000-6-4
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.
Color	green
Housing material	PBT
Mounting position	any
Conformance	CE-compliant
ATEX	# II 3 G Ex nA IIC T4 Gc X
UL, USA / Canada	UL 508 Recognized
	Class I, Div. 2, Groups A, B, C, D T5 applied for

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## Technical data

### General

GL	GL EMC 2 D
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### EMC data

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Typical deviation from the measuring range final value	2 %
Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	2 %
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	2 %

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC (valid until 19.04.2016) / 2014/30/EU (valid from 20.04.2016)
Noise emission	EN 61000-6-4
Connection in acc. with standard	CUL
Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Electrical isolation	Basic insulation according to EN 61010
Conformance	CE-compliant
ATEX	# II 3 G Ex nA IIC T4 Gc X
UL, USA / Canada	UL 508 Recognized
	Class I, Div. 2, Groups A, B, C, D T5 applied for
GL	GL EMC 2 D

## Classifications

### eCl@ss

eCl@ss 4.0	27210120
eCl@ss 4.1	27210120
eCl@ss 5.0	27210120
eCl@ss 5.1	27210120
eCl@ss 6.0	27210120
eCl@ss 7.0	27210120
eCl@ss 8.0	27210120

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## Classifications

### ETIM

ETIM 2.0	EC001485
ETIM 3.0	EC001485
ETIM 4.0	EC001485
ETIM 5.0	EC002653

### UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008

## Approvals

### Approvals

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#### Approvals

UL Recognized / cUL Recognized / GL / BV / EAC / cULus Recognized

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#### Ex Approvals

#### ATEX

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#### Approvals submitted

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### Approval details

UL Recognized
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cUL Recognized
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GL
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BV
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EAC
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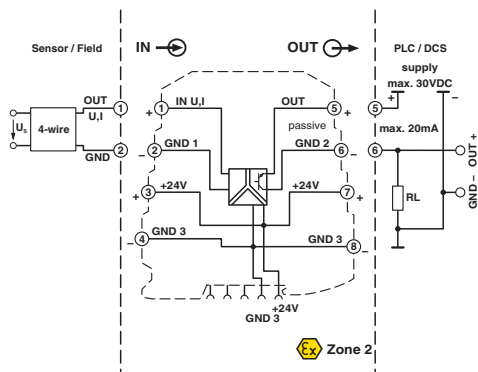
# Frequency transducer - MINI MCR-SL-UI-F-SP - 2810243

## Approvals



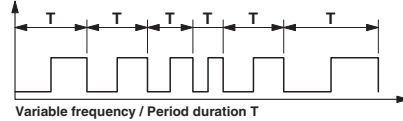
## Drawings

Block diagram

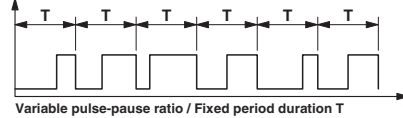


Diagram

Frequency output



PWM output (pulse width modulation)





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