

MINI MCR-2-F-UI - Frequency measuring transducer



2902056

<https://www.phoenixcontact.com/us/products/2902056>

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Universally configurable frequency transducer for converting frequency (Hz/rpm) and PWM signals into standard signals. Sensor voltages greater than 8.2 V DC are possible in combination with MINI MCR-2-SPS 1033202. Screw connection technology.

Commercial data

Item number	2902056
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C404
Product key	CK1431
Catalog page	Page 86 (C-5-2019)
GTIN	4046356649872
Weight per piece (including packing)	126.4 g
Weight per piece (excluding packing)	125.1 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 Pro
No. of channels	1
Type	Signal conditioner
Configuration	DIP switches
	Software
	App

Insulation characteristics

Overvoltage category	II
Pollution degree	2

System properties

Functionality

Configuration	DIP switches
	Software
	App

Electrical properties

Step response (0–99%)	< 35 ms ($f > 500$ Hz)
Maximum temperature coefficient	0.01 %/K
Maximum transmission error	0.1 % (Frequency (Hz/rpm))
	1 % (PWM signal)

Electrical isolation Input/output/power supply

Rated insulation voltage	300 V _{rms}
Test voltage	3 kV AC (50 Hz, 60 s)
Insulation	Reinforced insulation according to IEC/EN 61010-1

Supply

Nominal supply voltage	24 V DC
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	32 mA (24 V DC)
	63 mA (12 V DC)

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Power consumption	$\leq 1 \text{ W}$ (at $I_{\text{OUT}} = 20 \text{ mA}$, 9.6 V DC , 600Ω load)
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Input data

Measurement: Frequency

Available input sources	NAMUR initiators
	NPN/PNP transistor outputs
	Floating contact (dry contact)
	Frequency generator
	Incremental encoder (speed only)
	HTL encoders
	TTL rotary transducer
	S0 signal
Max. voltage input signal	30 V (incl. DC voltage)
Voltage measuring range	$\geq 2 \text{ V}$
Frequency measuring range	0.002 Hz ... 200 kHz
PWM (range)	0.002 Hz ... 60 Hz (Duty cycle 2 ... 98 %)
	60 Hz ... 300 Hz (Duty cycle: 5 ... 95 %)
	300 Hz ... 600 Hz (Duty cycle: 10 ... 90 %)
	600 Hz ... 1000 Hz (Duty cycle 20 ... 80 %)

Signal

Number of inputs	1
Input signal	Frequency

Output data

Switching: Transistor

Number of outputs	1
Contact switching type	1 N/O contact
Minimum switching voltage	1 V
Maximum switching voltage	30 V DC
Min. switching current	100 μA
Max. switching current	100 mA (30 V)

Signal: Voltage/current

Number of outputs	1
Configurable/programmable	Yes
Voltage output signal	0 V ... 10 V (via DIP switch)
	2 V ... 10 V (via DIP switch)
	0 V ... 5 V (via DIP switch)
	1 V ... 5 V (via DIP switch)
	0 V ... 10.5 V (can be set via software)
Max. voltage output signal	12.3 V
Current output signal	0 mA ... 20 mA (via DIP switch)
	4 mA ... 20 mA (via DIP switch)

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	0 mA ... 10 mA (via DIP switch)
	2 mA ... 10 mA (via DIP switch)
	0 mA ... 21 mA (can be set via software)
Max. current output signal	24.6 mA
Load/output load voltage output	$\geq 10 \text{ k}\Omega$
Load/output load current output	$\leq 600 \Omega$ (20 mA)
Ripple	$< 20 \text{ mV}_{PP}$ (600 Ω)
	$< 20 \text{ mV}_{PP}$ (600 Ω)

Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	M3
Conductor cross section rigid	0.2 mm ² ... 1.5 mm ² (with ferrule)
	0.14 mm ² ... 2.5 mm ² (without ferrule)
Conductor cross section flexible	0.14 mm ² ... 2.5 mm ²
Conductor cross section AWG	24 ... 12 (flexible)
Tightening torque	0.5 Nm ... 0.6 Nm

Ex data

Ex installation (EPL)	Gc
	Div. 2

Signaling

Status display	Green LED (supply voltage)
	Yellow LED (switching output)
Error indication	Red LED

Dimensions

Width	6.2 mm
Height	109.81 mm
Depth	119.2 mm

Material specifications

Color	gray (RAL 7042)
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 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 70 °C

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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 ec IIC T4 Gc
Certificate	BVS 20 ATEX E 024 X

UKCA Ex (UKEX)

Identification	Ⓜ II 3 G Ex ec IIC T4 Gc
Certificate	PxCIF21UKEX2902049X

IECEX

Identification	Ex ec IIC T4 Gc
Certificate	IECEX BVS 20.0017X

UL, USA/Canada

Identification	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T5
	Class I, Zone 2, Group IIC T5

Shipbuilding approval

Certificate	DNV GL TAA000021E Rev. 1
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EAC Ex

Identification	Ⓜ Ex ec IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00081

DNV GL data

Temperature	B
Humidity	B
Vibration	A
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

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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	0.2 %

Fast transients (burst)

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	0.1 %

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Conducted interference

Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	2.8 %

Mounting

Mounting type	DIN rail mounting
Assembly instructions	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

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Classifications

ECLASS

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

ETIM

ETIM 9.0	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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