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	DK1126
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

Product properties

Product type	Frequency value transformer
Product family	MINI Analog Pro
No. of channels	1
Configuration	DIP switches
	Software
	App

Insulation characteristics	
Overvoltage category	II
Pollution degree	2

System properties

Functionality	
Configuration	DIP switches
	Software
	App

Electrical properties

Electrical isolation between input and output	yes
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)

Power consumption (I output)	≤ 1 W (at I_{OUT} = 20 mA, 9.6 V DC, 600 Ω load)

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	≥ 2 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)

	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	≥ 10 kΩ
Load/output load current output	≤ 600 Ω (20 mA)
Ripple	< 20 mV$_{PP}$ (600 Ω)
	< 20 mV$_{PP}$ (600 Ω)

Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	M3
Conductor cross-section rigid	0.2 mm² ... 1.5 mm² (with ferrule)
	0.14 mm² ... 2.5 mm² (without ferrule)
Conductor cross-section flexible	0.14 mm² ... 2.5 mm²
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)
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 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 70 °C

Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant

ATEX

Identification	⟨Ex⟩ II 3 G Ex ec IIC T4 Gc
Certificate	BVS 20 ATEX E 024 X

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

EAC Ex

Identification	EAC[Ex] ⌐‾⌐Ex ec IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00081

Shipbuilding 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

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

Noise emission

Standards/regulations	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.

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

Conducted interference

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

Mounting

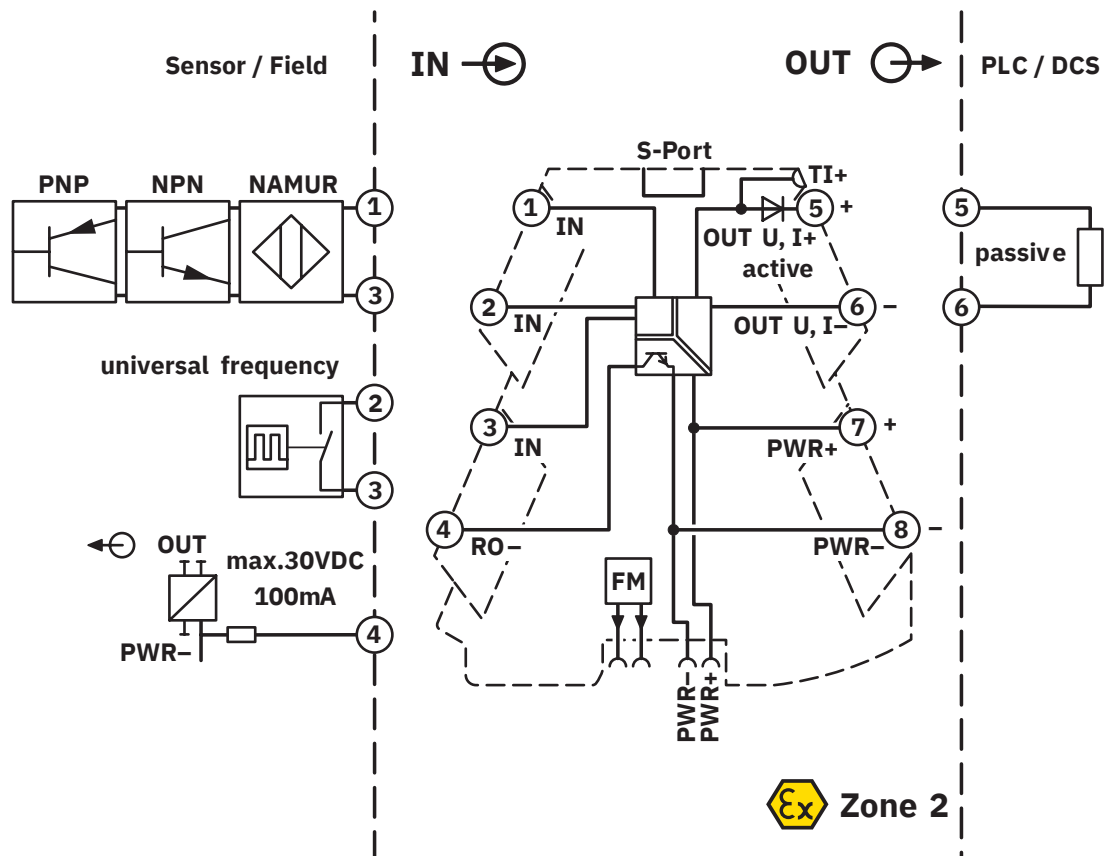|	
Mounting type	DIN rail mounting
Assembly note	The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail.
Mounting position	any

Drawings

Block diagram

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2902056

EAC
Approval ID: RU*DE.*08.B.01536/19

UL Listed
Approval ID: E238705

cUL Listed
Approval ID: E238705

DNV
Approval ID: TAA000021E

IECEx
Approval ID: IECEx_BVS_20.0017X

cUL Listed
Approval ID: E196811

UL Listed
Approval ID: E196811

ATEX
Approval ID: BVS 20 ATEX E 024 X

EAC Ex
Approval ID: TR TS_S_103.01.00081

Classifications

ECLASS

ECLASS-13.0	27210128
ECLASS-15.0	27210128

ETIM

ETIM 9.0	EC002918

UNSPSC

UNSPSC 21.0	39121000

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	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: n/a)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	44cae1a9-f804-44b3-8461-5a648055564e

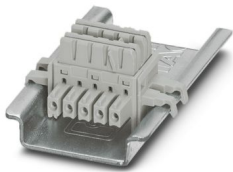# MINI MCR-2-F-UI - Frequency measuring transducer

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Accessories

ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - DIN rail bus connector

2695439

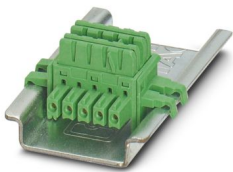https://www.phoenixcontact.com/us/products/2695439

DIN rail bus connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rail in accordance with EN 60715

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

2869728

https://www.phoenixcontact.com/us/products/2869728

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

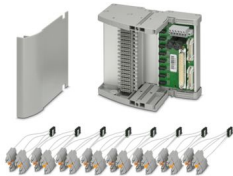# MINI MCR-2-F-UI - Frequency measuring transducer

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TC-D37SUB-AIO16-MP-PS-UNI - Module carrier

2906640

https://www.phoenixcontact.com/us/products/2906640

Universal Termination Carrier for connecting 16 MINI Analog Pro 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-MP-P-UNI - Module carrier

2906639

https://www.phoenixcontact.com/us/products/2906639

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

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MINI MCR-2-V8-FLK 16 - System adapter

2901993

https://www.phoenixcontact.com/us/products/2901993

Eight MINI Analog Pro signal conditioners and measuring transducers can be connected to a controller with minimal cabling effort and without any errors using system adapters and system cabling.

MINI MCR-2-V8-MOD-RTU - Communication module

2905634

https://www.phoenixcontact.com/us/products/2905634

Eight MINI Analog Pro signal conditioners and measuring transducers are quickly and easily integrated into a Modbus/RTU network via a communication adapter.

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

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MINI MCR-2-V8-MOD-TCP - Communication module

2905635

https://www.phoenixcontact.com/us/products/2905635

Eight MINI Analog Pro signal conditioners and measuring transducers are quickly and easily integrated into a Modbus/TCP network via a communication adapter.

MINI MCR-2-V8-PB-DP - Communication module

2905636

https://www.phoenixcontact.com/us/products/2905636

Eight MINI Analog Pro signal conditioners and measuring transducers are quickly and easily integrated into a PROFIBUS DP network via a communication adapter.

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

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MINI MCR-2-V8-PN - Communication module

2905637

https://www.phoenixcontact.com/us/products/2905637

Eight MINI Analog Pro signal conditioners and measuring transducers can be quickly and easily integrated into a PROFINET network via a communication adapter.

IFS-USB-PROG-ADAPTER - Programming adapter

2811271

https://www.phoenixcontact.com/us/products/2811271

Programming adapter with USB interface, for programming with software. The USB driver is included in the software solutions for the products to be programmed, such as measuring transducers or motor managers.

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

2902056

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IFS-BT-PROG-ADAPTER - Adapter

2905872

https://www.phoenixcontact.com/us/products/2905872

Bluetooth adapter with micro USB and S-PORT interface for wireless communication with the MINI Analog, MINI Analog Pro, MACX Analog, Interface System Gateways, and PLC logic device series.

TWN4 MIFARE NFC USB ADAPTER - Programming adapter

2909681

https://www.phoenixcontact.com/us/products/2909681

Near Field Communication (NFC) programming adapter with USB interface for the wireless configuration of NFC-capable products from Phoenix Contact with software. A separate USB driver is not required.

FASTCON PRO-SET - Connector set

2906227

https://www.phoenixcontact.com/us/products/2906227

FASTCON Pro plug set consisting of four plugs with screw connection, one for each position on the module. Suitable for all MINI Analog Pro modules.

FASTCON PRO-SET-PT - Connector set

2906228

https://www.phoenixcontact.com/us/products/2906228

FASTCON Pro plug set consisting of four plugs with push-in connection, one for each position on the module. Suitable for all MINI Analog Pro modules.

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

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UCT-EM (30X5) - Marker for end clamp

0801505

https://www.phoenixcontact.com/us/products/0801505

Marker for end clamp, Sheet, white, unmarked, can be labeled with: BLUEMARK E.CARD, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME 2.0, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, TOPMARK NEO, TOPMARK LASER, mounting type: latching, Number of individual labels: 24, text field height: 5 mm, text field width: 30 mm

UCT-EM (30X5) CUS - Marker for end clamp

0801589

https://www.phoenixcontact.com/us/products/0801589

Marker for end clamp, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: snapped into marker carrier, Number of individual labels: 24, text field height: 5 mm, text field width: 30 mm

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

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SK 5,0 WH:REEL - Marker strip

0805221

https://www.phoenixcontact.com/us/products/0805221

Marker strip, Roll, white, unmarked, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 90000 mm

UC-EMLP (15X5) - Plastic label

0819301

https://www.phoenixcontact.com/us/products/0819301

Plastic label, Sheet, white, unmarked, can be labeled with: BLUEMARK E. CARD, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 15 mm
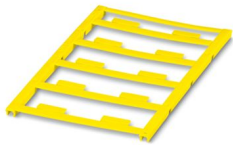
MINI MCR-2-F-UI - Frequency measuring transducer

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UC-EMLP (15X5) YE - Plastic label

0822615

https://www.phoenixcontact.com/us/products/0822615

Plastic label, Sheet, yellow, unmarked, can be labeled with: BLUEMARK E. CARD, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 15 mm

UC-EMLP (15X5) CUS - Plastic label

0824550

https://www.phoenixcontact.com/us/products/0824550

Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, text field height: 5 mm, text field width: 15 mm

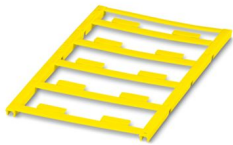# MINI MCR-2-F-UI - Frequency measuring transducer

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UC-EMLP (15X5) YE CUS - Plastic label

0824551

https://www.phoenixcontact.com/us/products/0824551

Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, text field height: 5 mm, text field width: 15 mm

UC-EMLP (15X5) SR - Plastic label

0828095

https://www.phoenixcontact.com/us/products/0828095

Plastic label, Sheet, silver, unmarked, can be labeled with: BLUEMARK E. CARD, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 15 mm

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

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UC-EMLP (15X5) SR CUS - Plastic label

0828099

https://www.phoenixcontact.com/us/products/0828099

Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, Number of individual labels: 10, text field height: 5 mm, text field width: 15 mm

US-EMLP (15X5) - Plastic label

0828790

https://www.phoenixcontact.com/us/products/0828790

Plastic label, Card, white, unmarked, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, THERMOMARK PRIME 2. 0, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm

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

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US-EMLP (15X5) YE - Plastic label

0828873

https://www.phoenixcontact.com/us/products/0828873

Plastic label, Card, yellow, unmarked, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, THERMOMARK PRIME 2.0, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm

US-EMLP (15X5) SR - Plastic label

0828874

https://www.phoenixcontact.com/us/products/0828874

Plastic label, Card, silver, unmarked, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, THERMOMARK PRIME 2.0, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm

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

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US-EMLP (15X5) CUS - Plastic label

0830076

https://www.phoenixcontact.com/us/products/0830076

Plastic label, Card, can be ordered: by card, white, labeled according to customer specifications, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm

US-EMLP (15X5) YE CUS - Plastic label

0830077

https://www.phoenixcontact.com/us/products/0830077

Plastic label, Card, can be ordered: by card, yellow, labeled according to customer specifications, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm

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

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US-EMLP (15X5) SR CUS - Plastic label

0830078

https://www.phoenixcontact.com/us/products/0830078

Plastic label, Card, can be ordered: by card, silver, labeled according to customer specifications, mounting type: adhesive, Number of individual labels: 189, text field height: 5 mm, text field width: 15 mm

UCT-EM (30X5) YE - Marker for end clamp

0830340

https://www.phoenixcontact.com/us/products/0830340

Marker for end clamp, Sheet, yellow, unmarked, can be labeled with: BLUEMARK E.CARD, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME 2.0, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, TOPMARK NEO, TOPMARK LASER, mounting type: latching, Number of individual labels: 24, text field height: 5 mm, text field width: 30 mm

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UCT-EM (30X5) YE CUS - Marker for end clamp

0830348

https://www.phoenixcontact.com/us/products/0830348

Marker for end clamp, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: snapped into marker carrier, Number of individual labels: 24, text field height: 5 mm, text field width: 30 mm

MINI MCR-2-SPS-24-15 - Constant voltage source

1033202

https://www.phoenixcontact.com/us/products/1033202

Constant voltage source with pluggable connection technology for the generation of a highly precise constant voltage of 15 V and for the supply of sensors without internal power supply. Screw connection technology.

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MINI MCR-2-SPS-24-15-PT - Constant voltage source

1033201

https://www.phoenixcontact.com/us/products/1033201

Constant voltage source with pluggable connection technology for the generation of a highly precise constant voltage of 15 V and for the supply of sensors without internal power supply. Push-in connection technology.

MINI MCR-2-PTB - Power terminal block

2902066

https://www.phoenixcontact.com/us/products/2902066

Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Screw connection technology

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MINI MCR-2-PTB-PT - Power terminal block

2902067

https://www.phoenixcontact.com/us/products/2902067

Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Push-in connection technology

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

2904614

https://www.phoenixcontact.com/us/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

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

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MINI MCR-2-FM-RC - Monitoring block

2904504

https://www.phoenixcontact.com/us/products/2904504

Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Screw connection technology, standard configuration

MINI MCR-2-FM-RC-PT - Monitoring block

2904508

https://www.phoenixcontact.com/us/products/2904508

Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Push-in connection technology, standard configuration

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

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SZS 0,6X3,5 - Screwdriver

1205053

https://www.phoenixcontact.com/us/products/1205053

Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com