

Frequency transducer - MINI MCR-2-F-UI



2902056

<https://www.phoenixcontact.com/il/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.

Frequency transducer - MINI MCR-2-F-UI



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Commercial Data

Item number	2902056
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to Order (non-returnable)
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

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 transducer
No. of channels	1
Type	Signal conditioner
Configuration	DIP switches
	Software
	App

Insulation characteristics

Overvoltage category	II
Pollution degree	2

Electrical properties

No. of channels	1
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 bus 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 according to EN 60715))
Typical current consumption	32 mA (24 V DC)
	63 mA (12 V DC)
Power consumption	≤ 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

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	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 type	1 N/O contact
Minimum switching voltage	1 V
Maximum switching voltage	30 V DC
Min. switching current	100 μ A
Max. switching current	100 mA (30 V)

Signal: Voltage/current

Output name	Voltage output / current output
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 k Ω

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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 solid	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)
Torque	0.5 Nm ... 0.6 Nm

LED signaling

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

Software

Functionality

Configuration	DIP switches
	Software
	App

Dimensions

Width	6.2 mm
Height	109.81 mm
Depth	119.2 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 (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)

Approval data

CE

Certificate	CE-compliant
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CE

Identification	<input type="checkbox"/> II 3 G Ex ec IIC T4 Gc
Certificate	BVS 20 ATEX E 024 X

CE

Identification	<input type="checkbox"/> II 3 G Ex ec IIC T4 Gc
Certificate	PxCIF21UKEX2902049X

CE

Identification	Ex ec IIC T4 Gc
Certificate	IECEX BVS 20.0017X

CE

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

CE

Certificate	DNV GL TAA000021E Rev. 1
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CE

Identification	<input type="checkbox"/> 2Ex 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

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

Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

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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 T connector can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715.
Mounting position	any

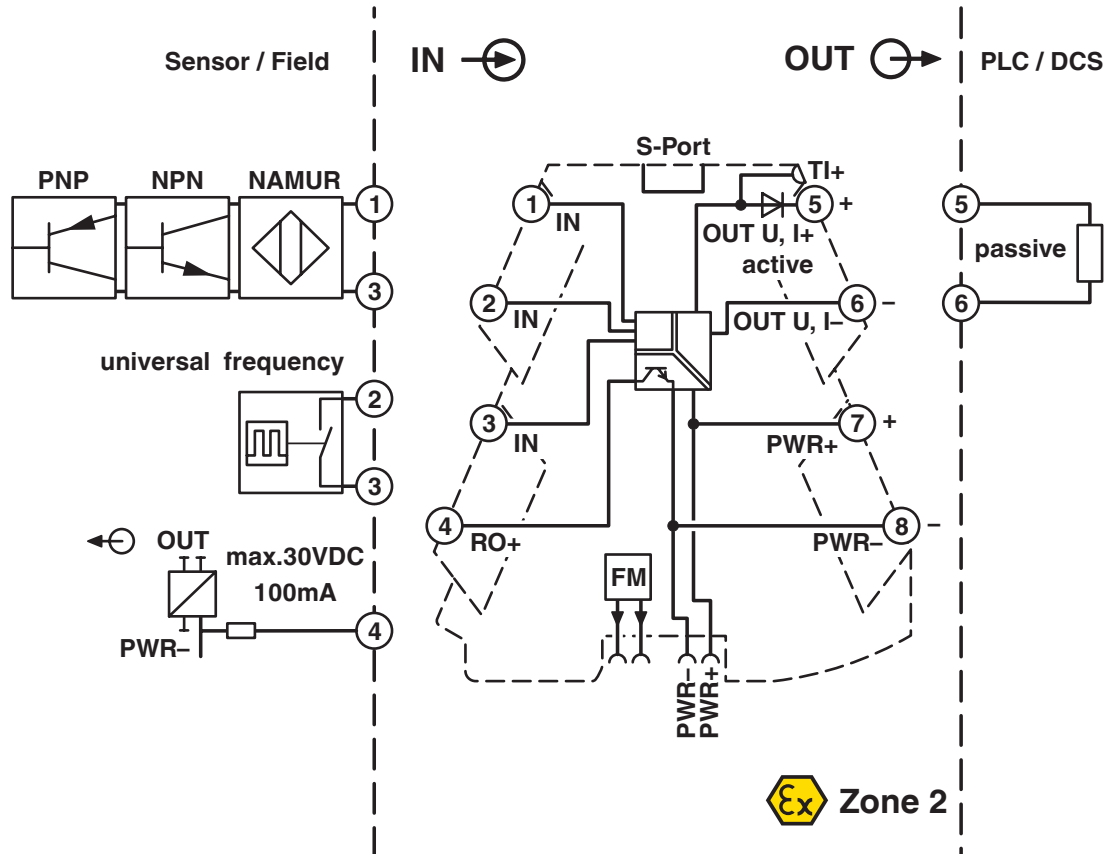
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Drawings

Block diagram



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Approvals



EAC

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



DNV GL

Approval ID: TAA000021E



UL Listed

Approval ID: FILE E 238705

Nominal Voltage U_N

Nominal Current I_N

Cross Section AWG

Cross Section mm^2

-

-



cUL Listed

Approval ID: FILE E 238705

Nominal Voltage U_N

Nominal Current I_N

Cross Section AWG

Cross Section mm^2

-

-



IECEx

Approval ID: IECEx_BVS_20.0017X



cUL Listed

Approval ID: FILE E 196811

Nominal Voltage U_N

Nominal Current I_N

Cross Section AWG

Cross Section mm^2

-

-



UL Listed

Approval ID: FILE E 196811

Nominal Voltage U_N

Nominal Current I_N

Cross Section AWG

Cross Section mm^2

-

-



ATEX

Approval ID: BVS 20 ATEX E 024 X

cULus Listed

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27210128
ECLASS-10.0.1	27210128
ECLASS-11.0	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

Monitoring module

Monitoring module - MINI MCR-2-FM-RC - 2904504

<https://www.phoenixcontact.com/il/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

Monitoring module

Monitoring module - MINI MCR-2-FM-RC-PT - 2904508

<https://www.phoenixcontact.com/il/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

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DIN rail bus connectors

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - 2695439

<https://www.phoenixcontact.com/il/products/2695439>

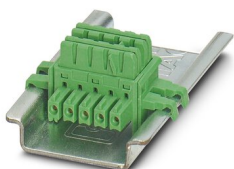


DIN rail connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rails according to EN 60715

DIN rail bus connectors

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728

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



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

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Constant voltage source

Constant voltage source - MINI MCR-2-SPS-24-15 - 1033202

<https://www.phoenixcontact.com/il/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.

Constant voltage source

Constant voltage source - MINI MCR-2-SPS-24-15-PT - 1033201

<https://www.phoenixcontact.com/il/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.

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Communication module

Communication module - MINI MCR-2-V8-MOD-RTU - 2905634

<https://www.phoenixcontact.com/il/products/2905634>



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

Communication module

Communication module - MINI MCR-2-V8-MOD-TCP - 2905635

<https://www.phoenixcontact.com/il/products/2905635>



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

Frequency transducer - MINI MCR-2-F-UI

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



Communication module

Communication module - MINI MCR-2-V8-PB-DP - 2905636

<https://www.phoenixcontact.com/il/products/2905636>



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

Programming adapter

Programming adapter - IFS-USB-PROG-ADAPTER - 2811271

<https://www.phoenixcontact.com/il/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.

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Programming adapter

Programming adapter - TWN4 MIFARE NFC USB ADAPTER - 2909681

<https://www.phoenixcontact.com/il/products/2909681>



Near Field Communication (NFC) programming adapter with USB interface for the wireless configuration of NFC-capable products from PHOENIX CONTACT with software. No separate USB driver is required.

Power terminal block

Power terminal block - MINI MCR-2-PTB - 2902066

<https://www.phoenixcontact.com/il/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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Power terminal block

Power terminal block - MINI MCR-2-PTB-PT - 2902067

<https://www.phoenixcontact.com/il/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

Marker for end clamp

Marker for end clamp - UCT-EM (30X5) - 0801505

<https://www.phoenixcontact.com/il/products/0801505>



Marker for end clamp, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snap in, lettering field size: 30 x 5 mm, Number of individual labels: 24

Frequency transducer - MINI MCR-2-F-UI

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Marker for end clamp

Marker for end clamp - UCT-EM (30X5) CUS - 0801589

<https://www.phoenixcontact.com/il/products/0801589>



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

Marker for end clamp

Marker for end clamp - UCT-EM (30X5) YE - 0830340

<https://www.phoenixcontact.com/il/products/0830340>



Marker for end clamp, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snap in, lettering field size: 30 x 5 mm, Number of individual labels: 24

Frequency transducer - MINI MCR-2-F-UI

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

Marker for end clamp

Marker for end clamp - UCT-EM (30X5) YE CUS - 0830348

<https://www.phoenixcontact.com/il/products/0830348>



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

Marker strip

Marker strip - SK 5,0 WH:REEL - 0805221

<https://www.phoenixcontact.com/il/products/0805221>



Marker strip, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMaster 300/600, THERMOMARK X1.2, mounting type: adhesive, for terminal block width: 5 mm, lettering field size: continuous x 5 mm, Number of individual labels: 90000

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Adapter

Adapter - IFS-BT-PROG-ADAPTER - 2905872

<https://www.phoenixcontact.com/il/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.

System adapter

System adapter - MINI MCR-2-V8-FLK 16 - 2901993

<https://www.phoenixcontact.com/il/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.

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Power supply unit

Power supply unit - QUINT4-SYS-PS/1AC/24DC/2.5/SC - 2904614

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



Primary-switched power supply unit, QUINT POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 2.5 A

Plastic label

Plastic label - UC-EMLP (15X5) - 0819301

<https://www.phoenixcontact.com/il/products/0819301>



Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

Frequency transducer - MINI MCR-2-F-UI

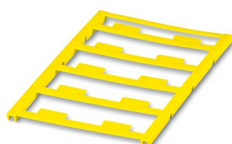
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<https://www.phoenixcontact.com/il/products/2902056>

Plastic label

Plastic label - UC-EMLP (15X5) YE - 0822615

<https://www.phoenixcontact.com/il/products/0822615>



Plastic label, Sheet, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

Plastic label

Plastic label - UC-EMLP (15X5) CUS - 0824550

<https://www.phoenixcontact.com/il/products/0824550>



Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm

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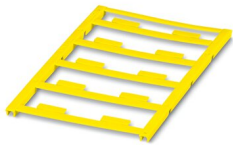
<https://www.phoenixcontact.com/il/products/2902056>

Plastic label

Plastic label - UC-EMLP (15X5) YE CUS - 0824551

<https://www.phoenixcontact.com/il/products/0824551>

Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm



Plastic label

Plastic label - UC-EMLP (15X5) SR - 0828095

<https://www.phoenixcontact.com/il/products/0828095>

Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10



Frequency transducer - MINI MCR-2-F-UI

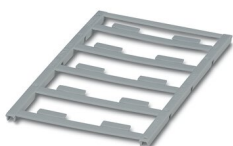
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<https://www.phoenixcontact.com/il/products/2902056>

Plastic label

Plastic label - UC-EMLP (15X5) SR CUS - 0828099

<https://www.phoenixcontact.com/il/products/0828099>



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

Plastic label

Plastic label - US-EMLP (15X5) - 0828790

<https://www.phoenixcontact.com/il/products/0828790>



Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

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Plastic label

Plastic label - US-EMLP (15X5) YE - 0828873

<https://www.phoenixcontact.com/il/products/0828873>



Plastic label, Card, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

Plastic label

Plastic label - US-EMLP (15X5) SR - 0828874

<https://www.phoenixcontact.com/il/products/0828874>



Plastic label, Card, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

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Plastic label

Plastic label - US-EMLP (15X5) CUS - 0830076

<https://www.phoenixcontact.com/il/products/0830076>

Plastic label, can be ordered: by card, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189



Plastic label

Plastic label - US-EMLP (15X5) YE CUS - 0830077

<https://www.phoenixcontact.com/il/products/0830077>

Plastic label, can be ordered: by card, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189



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Plastic label

Plastic label - US-EMLP (15X5) SR CUS - 0830078

<https://www.phoenixcontact.com/il/products/0830078>

Plastic label, can be ordered: by card, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189



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