

2902016

https://www.phoenixcontact.com/us/products/2902016

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Configurable potiposition transducer with plug-in connection technology for connecting potentiometers from 0  $\Omega$  ... 100  $\Omega$  to 0 k $\Omega$  ... 100 k $\Omega$ . Configurable via DIP switch or software. Screw connection technology, standard configuration

# Product description

Configurable, 3-way isolated potentiometer measuring transducer with plug-in connection technology. The measured values are converted into a linear and freely adjustable current or voltage signal. You can configure the device using one of the free software solutions. Default settings can also be made directly on the device by simply using the DIP switches (see configuration table). If it is not possible to fully utilize the potentiometer range, you can specify the upper and lower potentiometer values in the software. The measuring transducer supports fault monitoring and NFC communication.

# Commercial data

Item number	2902016
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C404
Product key	CK1432
Catalog page	Page 90 (C-5-2019)
GTIN	4046356649551
Weight per piece (including packing)	123.5 g
Weight per piece (excluding packing)	110 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	Potiposition transducer
Product family	MINI Analog Pro
No. of channels	1
Configuration	DIP switches
	Software
	Арр
Data management status	
Article revision	13
Insulation characteristics	
Overvoltage category	II
Pollution degree	2

## System properties

#### Functionality

Configuration	DIP switches
	Software
	Арр

### **Electrical properties**

Electrical isolation	3-way isolation
Protective circuit	Transient protection
Step response (0-99%)	< 60 ms
Maximum temperature coefficient	0.01 %/K
Temperature coefficient, typical	0.01 %/K
	< 0.1 % (R < 240 Ω = < 0,2 %)
Maximum transmission error	
Maximum transmission error ectrical isolation Input/output/power supply Rated insulation voltage	300 V <sub>rms</sub>
ectrical isolation Input/output/power supply	
ectrical isolation Input/output/power supply Rated insulation voltage	300 V <sub>rms</sub>
ectrical isolation Input/output/power supply Rated insulation voltage Test voltage	300 V <sub>rms</sub> 3 kV AC (50 Hz, 60 s)



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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	33 mA (24 V DC)
	68 mA (12 V DC)
Power consumption	≤ 850 mW (at I <sub>OUT</sub> = 20 mA, 9.6 V DC, 600 Ω load)

### Input data

Signal: Resistance	
Number of inputs	1
Available input sources	3-wire potentiometer
Resistance range	0 Ω 100 Ω
	0 Ω 100 kΩ

# Output data

Number of outputs	1
Voltage output signal	1 V 5 V (via DIP switch)
	10 V 0 V (via DIP switch)
	0 V 5 V (via DIP switch)
	0 V 10 V (via DIP switch)
	0 V 10.5 V (can be set via software)
Max. voltage output signal	≈ॻऻॻ≊ॻ४
Non-load voltage	< 17.5 V
Current output signal	0 mA 20 mA (via DIP switch)
	4 mA 20 mA (via DIP switch)
	20 mA 0 mA (via DIP switch)
	20 mA 4 mA (via DIP switch)
	0 mA 21 mA (can be set via software)
Max. current output signal	24.6 mA
Short-circuit current	< 31.5 mA
Load/output load voltage output	≥ 10 kΩ
Load/output load current output	≤ 600 Ω (20 mA)
Ripple	< 20 mV <sub>PP</sub>
	< 20 mV <sub>PP</sub> (10 kΩ)
Resolution, outputs (voltage)	1 mV
Resolution, outputs (current)	2 μΑ
Behavior in the event of a sensor error	configurable

# Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	М3



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	Conductor cross section rigid	0.2 mm <sup>2</sup> 1.5 mm <sup>2</sup> (with ferrule)
		0.14 mm <sup>2</sup> 2.5 mm <sup>2</sup> (without ferrule)
	Conductor cross section flexible	0.14 mm <sup>2</sup> 2.5 mm <sup>2</sup>
	Conductor cross section AWG	24 12 (flexible)
	Tightening torque	0.5 Nm 0.6 Nm
x d	data	
	Ex installation (EPL)	Gc
		Div. 2
nte	rfaces	
D	ata: IFS interface	
	Connection method	Micro USB type B
Sigr	naling	
	Operating voltage display	Green LED
	Error indication	Red LED
)im	ensions	
	Width	6.2 mm
	Height	109.81 mm
	Depth	119.2 mm
/lat	erial specifications	
	Color	gray (RAL 7042)
	Housing material	РВТ
	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
	ironmental and real-life conditions	
Aı	nbient 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 Permissible humidity (operation)	≤ 2000 m
		5 % 95 % (non-condensing)

Certificate	CE-compliant
ATEX	
Identification	ll 3 G Ex ec IIC T4 Gc



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Certificate	BVS 20 ATEX E 024 X
JKCA Ex (UKEX) Identification	II 3 G Ex ec IIC T4 Gc
Certificate	PxCIF21UKEX2902049X
Gentinicate	FXGF2TUKEA2902049A
ECEx	
Identification	Ex ec IIC T4 Gc
Certificate	IECEx BVS 20.0017X
JL, 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 TAA00002UA
EAC Ex	
Identification	⊞ ⊡Ex ec IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00079
DNV GL data	
Temperature	В
Humidity	В
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board
1C 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	
Standards/regulations	EN 61000-4-2
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 %



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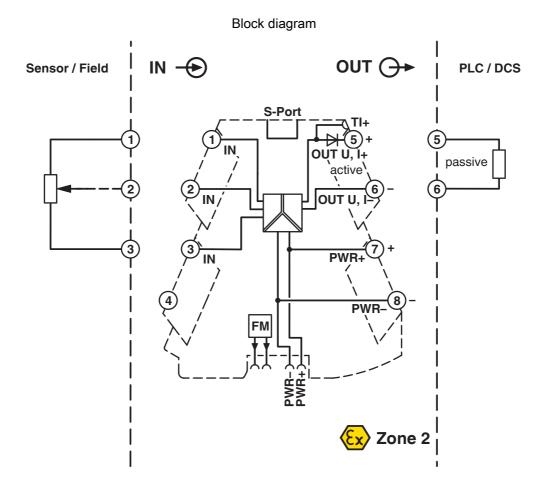
Fast transients (burst) EN 61000-4-4 0.4 %
0.4 %
EN 61000-4-5
Conducted interferences
EN 61000-4-6
0.2 %
3-way isolation
DIN rail mounting
0
The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail.
any



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# Drawings





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# Approvals

🌣 To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2902016

	NV GL oproval ID: TAA00002UA
	Listed proval ID: FILE E 238705
	JL Listed proval ID: FILE E 238705
( IEĈEx	IECEX Approval ID: IECEx_BVS_20.0017X
	JL Listed proval ID: E196811
	Listed proval ID: E196811
	NTEX pproval ID: BVS 20 ATEX E 024 X
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# Classifications

## ECLASS

ECLASS-11.0	27210120
ECLASS-12.0	27210120
ECLASS-13.0	27210120

### ETIM

	ETIM 9.0	EC002653		
UNSPSC				
	UNSPSC 21.0	39121000		



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# Environmental product compliance

#### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-l
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: 7439-92-1)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	c50d67ba-01a9-4c56-a3ef-aa7d1e4b7254



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# Accessories

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

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

DIN rail 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 connectors

#### 2869728

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

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





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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.



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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.



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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.



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IFS-BT-PROG-ADAPTER - Adapter

#### 2905872

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

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.

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.



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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.



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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, 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: latching, lettering field size: 30 x 5 mm, Number of individual labels: 24

### 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, lettering field size:  $30 \times 5$  mm, Number of individual labels: 24



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SK 5,0 WH:REEL - Marker strip

### 0805221

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



Marker strip, Roll, white, unlabeled, 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, lettering field size: continuous x 5 mm, Number of individual labels: 10

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

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



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UC-EMLP (15X5) YE - Plastic label

### 0822615

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

## 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, lettering field size:  $15 \times 5 \text{ mm}$ 





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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, lettering field size: 15 x 5 mm



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

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



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https://www.phoenixcontact.com/us/products/2902016

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, lettering field size: 15 x 5 mm, Number of individual labels: 10



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

0828790 https://www.phoenixcontact.com/us/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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US-EMLP (15X5) YE - Plastic label

### 0828873

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

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

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



#### 2902016

https://www.phoenixcontact.com/us/products/2902016

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, lettering field size:  $15 \times 5 \text{ mm}$ , Number of individual labels: 189



## 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, lettering field size: 15 x 5 mm, Number of individual labels: 189



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https://www.phoenixcontact.com/us/products/2902016

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, lettering field size: 15 x 5 mm, Number of individual labels: 189



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

0830340

https://www.phoenixcontact.com/us/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: latching, lettering field size: 30 x 5 mm, Number of individual labels: 24



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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, lettering field size:  $30 \times 5$  mm, Number of individual labels: 24



## 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 unit

#### 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



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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



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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:  $0.6 \times 3.5 \times 100$  mm, 2-component grip, with non-slip grip

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