

# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer

1290530

<https://www.phoenixcontact.com/us/products/1290530>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Ex i-Frequency transducer, the frequencies measured at the Ex i inputs (0.001 Hz ... 20 kHz) are output as 0 mA / 4 mA ... 20 mA non Ex i signals. number of channels: 2, Standard configuration, 5-way isolation, Screw connection

## Commercial data

Item number	1290530
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK121W
GTIN	4063151522063
Weight per piece (including packing)	215.5 g
Weight per piece (excluding packing)	160 g
Customs tariff number	85437090
Country of origin	DE

# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer



1290530

<https://www.phoenixcontact.com/us/products/1290530>

## Technical data

### Notes

Note on application	Accuracy, typically specified as a percentage of the basic measuring range at $U_N$ , 23°C
Notes on operation	Installation conditions influence the ambient temperature. Please refer to the "Control cabinet installation instructions".
Notes on operation	Use suitable cables and cable glands for applications below -20°C.

### Product properties

Product type	Frequency value transformer
Product family	MACX Analog
No. of channels	2
Configuration	Software

### System properties

#### Functionality

Configuration	Software
---------------	----------

### Electrical properties

Electrical isolation	5-way isolation
Electrical isolation between input and output	yes
Temperature coefficient, typical	$\leq 0.05\%$
Reverse polarity protection	yes

#### Electrical isolation Input/output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V <sub>PP</sub>

#### Electrical isolation Input/power supply IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V <sub>PP</sub>

#### Electrical isolation Input/error message output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V <sub>PP</sub>

#### Electrical isolation Input/configuration interface IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V <sub>PP</sub>

#### Electrical isolation Output 1/output 2

Test voltage	350 V (50 Hz, 60 s)
--------------	---------------------

#### Electrical isolation Output/supply

Test voltage	350 V (50 Hz, 60 s)
--------------	---------------------

# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer



1290530

<https://www.phoenixcontact.com/us/products/1290530>

## Electrical isolation Output/configuration interface

Test voltage	350 V (50 Hz, 60 s)
--------------	---------------------

## Electrical isolation Output/supply/error message output

Test voltage	350 V (50 Hz, 60 s)
--------------	---------------------

## Supply

Nominal supply voltage	24 V DC
Supply voltage range	18 V ... 31.2 V
Power dissipation	≤ 1.5 W
Power consumption	1.8 W

## Input data

### Measurement: Frequency

Description of the input	intrinsically safe
Available input sources	in accordance with IEC/EN 60947-5-6 NAMUR
Pulse time	25 µs
Frequency measuring range	0.001 Hz ... 20000 Hz
Line fault detection	< 0.05 mA ... 0.35 mA (Line break) < 100 Ω ... 360 Ω (Short circuit)

## Output data

### Signal: Error message output

Maximum switching voltage	30 V
Max. switching current	100 mA

### Signal: Current

Current output signal	0 mA ... 20 mA (configurable) 4 mA ... 20 mA (configurable) 0 mA ... 20.5 mA (Function area)
Output current with short-circuit	3.8 mA (Default setting, adjustable)
Output current with wire break	20.5 mA (Default setting, adjustable)
Load	0 Ω ... 600 Ω
Line fault detection	< 0.05 mA ... 0.35 mA (Line break) < 100 Ω ... 360 Ω (Short circuit)

## Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm

# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer



1290530

<https://www.phoenixcontact.com/us/products/1290530>

## Ex data

Ex installation (EPL)	Gc
Ex i circuits (EPL)	[Ga]
	[Da]
	[Ma]

## Safety data

Max. internal inductance $L_i$	negligible
Max. internal capacitance $C_i$	negligible
Max. output voltage $U_o$	10.5 V
Max. output current $I_o$	23.4 mA
Max. output power $P_o$	61.4 mW
Safety-related maximum voltage $U_m$	253 V AC
I/A (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	450 mH / 75 $\mu$ F
IIB/IIIC (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	230 mH / 16.8 $\mu$ F
IIC (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	63 mH / 2.41 $\mu$ F
I (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	600 mH / 95 $\mu$ F
I/A (mixed circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	100 mH / 2.9 $\mu$ F, 10 mH / 4.5 $\mu$ F, 1 mH / 7.3 $\mu$ F, 0.1 mH / 14 $\mu$ F
IIB/IIIC (mixed circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	100 mH / 1.9 $\mu$ F, 20 mH / 2.7 $\mu$ F, 2 mH / 4.5 $\mu$ F, 0.5 mH / 6.4 $\mu$ F
IIC (mixed circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	20 mH / 0.49 $\mu$ F, 5 mH / 0.67 $\mu$ F, 1 mH / 0.96 $\mu$ F, 0.2 mH / 1.4 $\mu$ F
I (mixed circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	100 mH / 4 $\mu$ F, 10 mH / 5.7 $\mu$ F, 2 mH / 7.8 $\mu$ F, 0.1 mH / 17 $\mu$ F

## Signaling

Status display	Green LED (supply voltage)
	Red LED (line errors)

## Dimensions

Dimensional drawing	
Width	17.5 mm
Height	112.5 mm
Depth	113.7 mm
Depth NS 35/7,5	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)

# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer



1290530

<https://www.phoenixcontact.com/us/products/1290530>

## Material specifications

Flammability rating according to UL 94	V0
Housing material	PA 6.6

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20 (Terminal blocks) IP30 (Housing)
Ambient temperature (operation)	-40 °C ... 70 °C (Stand-alone device: any mounting position) -40 °C ... 50 °C (Group assembly: vertical DIN rail without circulating air) -40 °C ... 65 °C (Group assembly: vertical DIN rail with circulating air) -40 °C ... 65 °C (Group assembly: horizontal DIN rail without circulating air) -40 °C ... 70 °C (Group assembly: horizontal DIN rail with circulating air)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	≤ 95 % (non-condensing)

## Approvals

### ATEX

Identification	⊕ II (1) G [Ex ia Ga] IIC ⊕ II (1) D [Ex ia Da] IIIC ⊕ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc ⊕ I (M1) [Ex ia Ma] I
----------------	--

### IECEX

Identification	[Ex ia Ga] IIC [Ex ia Da] IIIC Ex nA nC [ia Ga] IIC T4 Gc [Ex ia Ma] I
----------------	---

## EMC data

Electromagnetic compatibility	Tested in accordance with the following standards and regulations: EN 61326-1 For industrial use, NAMUR NE 21
-------------------------------	---

## Standards and regulations

Electrical isolation	5-way isolation
----------------------	-----------------

## Mounting

Mounting type	NS 35/15, NS 35/7,5
Mounting position	vertical, horizontal

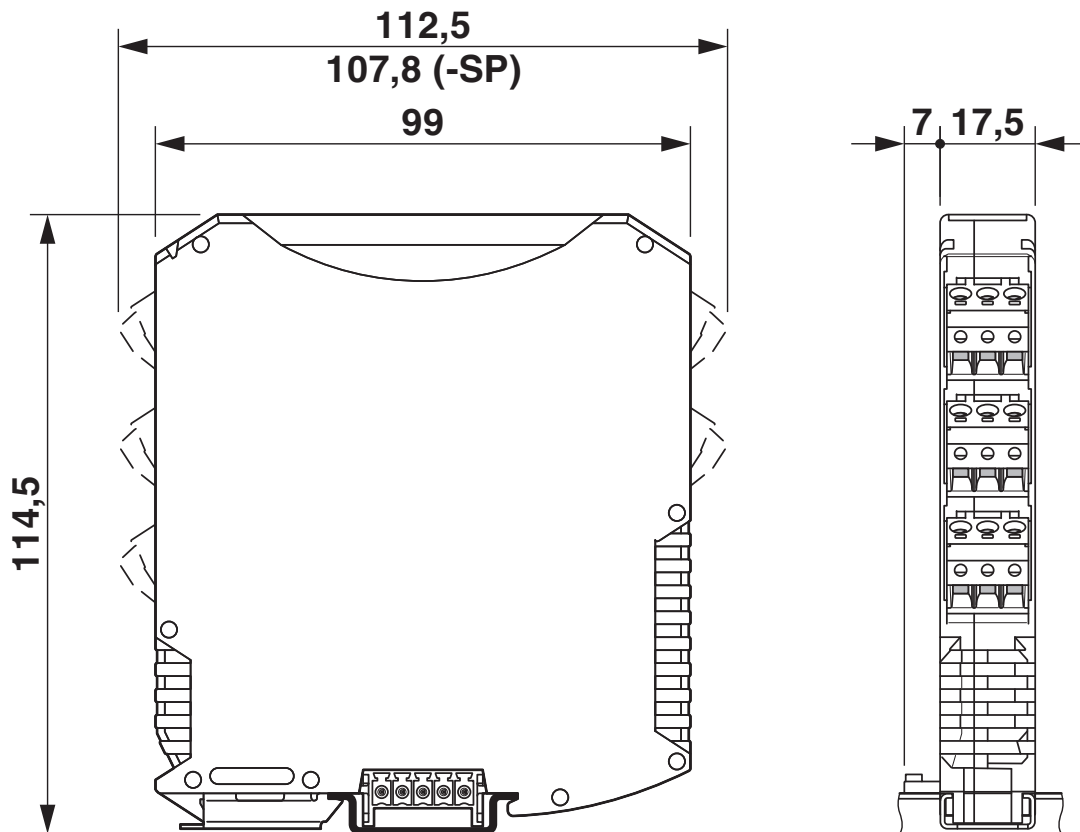
# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer

1290530

<https://www.phoenixcontact.com/us/products/1290530>

## Drawings

Dimensional drawing

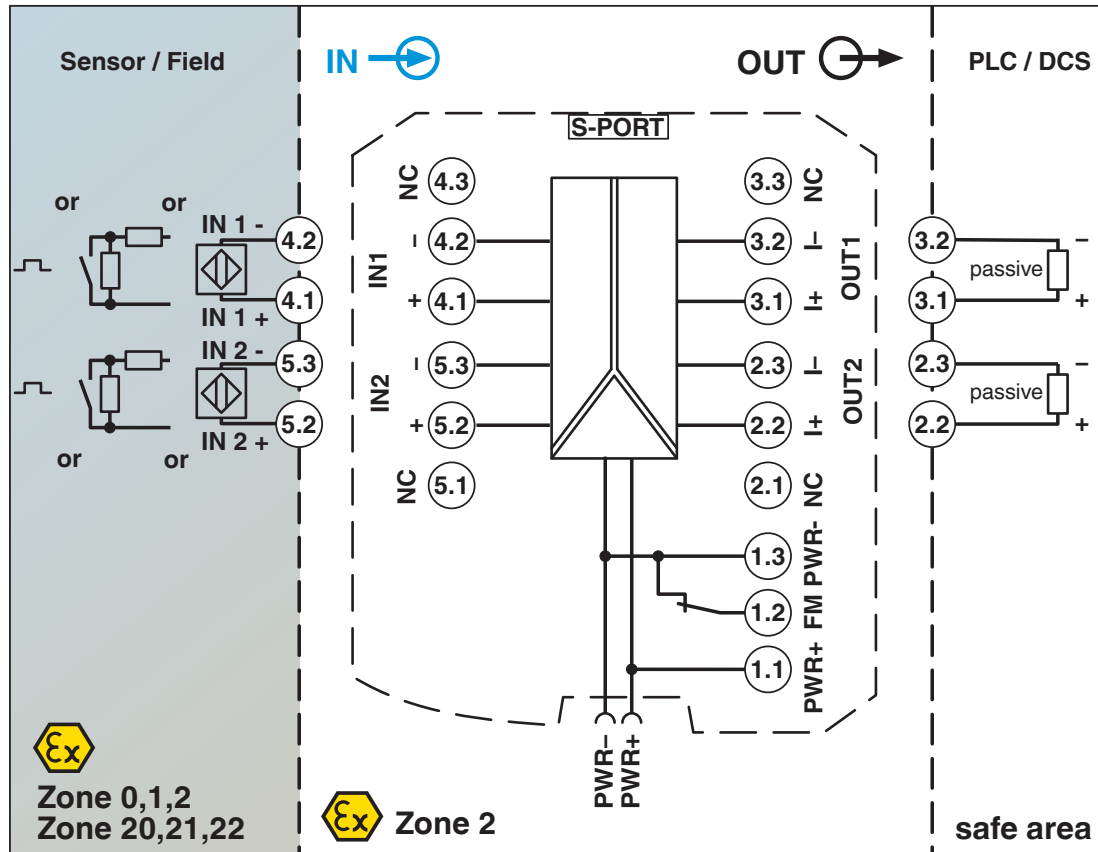


# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer

1290530

<https://www.phoenixcontact.com/us/products/1290530>

Block diagram



# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer



1290530

<https://www.phoenixcontact.com/us/products/1290530>

## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1290530>



**IECEx**

Approval ID: IECEx BVS 21.0018X



**ATEX**

Approval ID: BVS 21 ATEX E 016X

# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer



1290530

<https://www.phoenixcontact.com/us/products/1290530>

## Classifications

### ECLASS

ECLASS-13.0	27210128
ECLASS-15.0	27210128

### ETIM

ETIM 10.0	EC002918
-----------	----------

# MACX MCR-EX-AP-2F-2I - Frequency measuring transducer



1290530

<https://www.phoenixcontact.com/us/products/1290530>

## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 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: 7439-92-1)
SCIP	24247c88-130a-4008-8342-335d1c1327d7

Phoenix Contact 2026 © - all rights reserved

<https://www.phoenixcontact.com>

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