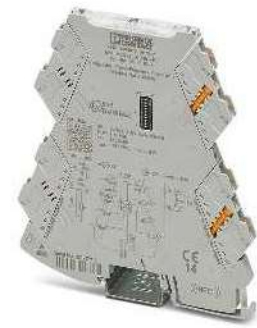
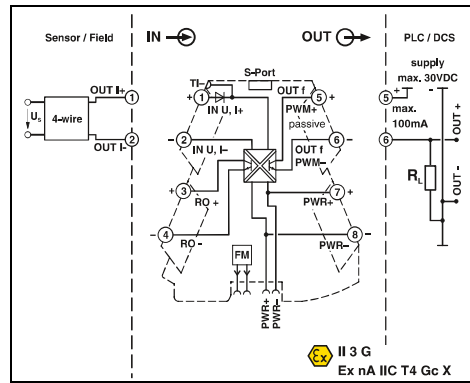
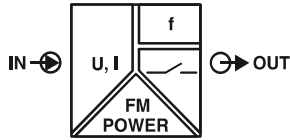


Frequency
Analog frequency transducers



Configurable,
frequency, PWM or switching output



Housing width 6,2 mm

- Universally configurable highly-compact analog-to-frequency measuring transducer for electrical isolation, amplification, conversion and filtering of analog standard signals to frequencies or PWM signals
- Plug-in connection system
- Safe 3-way isolation
- Additional switching output
- Frequency output can be used as second switching output
- Standard signal combinations configurable via DIP switches
- Freely-configurable with software or smartphone app
- Power supply and fault monitoring possible via DIN rail connector
- Status and error indicator LEDs

Notes:

The configuration software can be downloaded from the Internet: phoenixcontact.net/products .
Information on the programming adapters can be found on page 111
Information on MINI Analog Pro accessories can be found from page 107
To order a product with an order configuration, enter the required configuration by referring to the adjacent order key.

Input data	Input signal (configurable via DIP switch or freely via software)
Maximum input signal	12 V
Input resistance	>120 kΩ
Output data	Output signal (configurable via DIP switch or freely via software)
Minimum load	100 mA
Load current maximum	30 V
Maximum switching voltage	Can be set (via software)
Overrange/underrange	
General data	Supply voltage range: 9.6 V DC ... 30 V DC
	Nominal supply voltage: 24 V DC
	Current consumption: 27 mA (12 V DC), 13.5 mA (24 V DC), ≤350 mW (9.6 V DC)
	Power consumption: ≤0.1% (>7 kHz ≤0.2%)
	Transmission error, maximum: <0.01%/K, typically 0.01%/K
	Temperature coefficient: 120 ms (15 Hz sample rate)
	Step response (0-99%): Further values can be set via software
Electrical isolation	Reinforced insulation in accordance with IEC 61010-1
Degree of protection	IP20
EMC note	Class A product, see page 583
Conformance/approvals	CE-compliant
Conformance	Ex II 3 G Ex nA IIC T4 Gc X
ATEX	UL 508 Listed
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC T6
	B, B, A, A
DNV GL	

Technical data

U input	0 V ... 10 V	I input	0 mA ... 20 mA
	2 V ... 10 V		4 mA ... 20 mA
	0 V ... 5 V		0 mA ... 10 mA
	1 V ... 5 V		2 mA ... 10 mA
	10 V ... 0 V		20 mA ... 0 mA
	10 V ... 2 V		20 mA ... 4 mA
	5 V ... 0 V		10 mA ... 0 mA
	5 V ... 1 V		10 mA ... 2 mA
	0 V ... 12 V		0 mA ... 24 mA
	12 V		24 mA
			Approx. 50 Ω (+ 0.7 V for test diode)
Frequency output	0 Hz ... 10 kHz / 0 Hz ... 5 kHz	PWM output	15.6 kHz (10 bit) / 1.9 kHz (10 bit)
	0 Hz ... 2.5 kHz / 0 Hz ... 1 kHz		3.9 kHz (12 bit) / 488 Hz (12 bit)
	0 Hz ... 500 Hz / 0 Hz ... 250 Hz		977 Hz (14 bit) / 122 Hz (14 bit)
	0 Hz ... 100 Hz / 0 Hz ... 50 Hz		50 Hz (15 Bit) / 244 Hz (16 bit)
	4 mA ≤ (U _L / R _L) ≤ 100 mA		12 mA ≤ (U _L / R _L) ≤ 100 mA
	100 mA		
	30 V		
	Can be set (via software)		
	9.6 V DC ... 30 V DC		
	24 V DC		
	27 mA (12 V DC)		
	13.5 mA (24 V DC)		
	≤350 mW (9.6 V DC)		
	≤0.1% (>7 kHz ≤0.2%)		
	<0.01%/K, typically 0.01%/K		
	120 ms (15 Hz sample rate)		
	Further values can be set via software		
	Reinforced insulation in accordance with IEC 61010-1		
	IP20		
	Class A product, see page 583		
	CE-compliant		
	Ex II 3 G Ex nA IIC T4 Gc X		
	UL 508 Listed		
	Class I, Div. 2, Groups A, B, C, D T6		
	Class I, Zone 2, Group IIC T6		
	B, B, A, A		

Description	
Analog frequency converter with limit value function	
Standard configuration	Push-in connection
Standard configuration	Screw connection
Order configuration	Push-in connection
Order configuration	Screw connection

Programming adapter for configuring modules with S-PORT interface	
USB programming adapter for configuring modules with Windows software	
Bluetooth programming adapter , with USB and S-PORT interface	

Ordering data

Type	Order No.	Pcs./Pkt.
MINI MCR-2-UI-FRO-PT	2902032	1
MINI MCR-2-UI-FRO	2902031	1
MINI MCR-2-UI-FRO-PT-C	2906202	1
MINI MCR-2-UI-FRO-C	2906201	1

Accessories

IFS-USB-PROG-ADAPTER	2811271	1
TWN4 MIFARE NFC USB ADAPTER	2909681	1
IFS-BT-PROG-ADAPTER	2905872	1

MINI Analog Pro – Highly compact signal conditioners with plug-in connection technology

Order key for MINI MCR-2-UI-FRO(-PT)(-C) analog frequency measuring transducers (standard configuration entered as example)

Order No.	Input		Output		Carrier frequency		Measuring range limit	
	Input signal	Start	End	Output signal	Start	End	Start	End
2906201	I	0.0	20.0	I	0	0	1,000	15
2906201 ≙ MINI MCR-2-UI-FRO-C	I ≙ I U ≙ U	0.0 ≙ 0 mA I: freely selectable between 0.0 ... 24 mA U: freely selectable between 0.0 ... 12 V	20.0 ≙ 20 mA I: freely selectable between 0.0 ... 24 mA U: freely selectable between 0.0 ... 12 V	f ≙ f PWM ≙ PWM	0 ≙ at frequency output 15.6 k ≙ 15.6 kHz 15.6 kHz (10 bits) 1.9 kHz (10 bits) 7.8 kHz (11 bits) 977 Hz (11 bits) 3.9 kHz (12 bits) 488 Hz (12 bits) 1.9 kHz (13 bits) 244 Hz (13 bits) 977 Hz (14 bits) 122 Hz (14 bits) 488 Hz (15 bits) 61 Hz (15 bits) 244 Hz (16 bits) 31 Hz (16 bits)	0 ≙ 0 Hz f: freely selectable between 0 ... 10 kHz D: freely selectable between 0.0 ... 100%	10,000 ≙ 10 kHz f: freely selectable between 0 ... 10 kHz D: freely selectable between 0.0 ... 100%	0 ≙ off 1 ≙ on

Measuring range span at least 0.5 V / 1 mA
Increment 0.1 V / 0.1 mA

Output signal span at least 10 Hz / 1%
Increment 1 Hz / 0.1%

Cut-off frequency	Failure information	Behavior in the event of an error	Measuring value over-range	Measured value under-range	Factory calibration certificate
15	0	FD	0	0	NONE
15 Hz ≙ 15 Hz 60 Hz ≙ 60 Hz 240 Hz ≙ 240 Hz	0 ≙ 0 Hz f: freely selectable between 0 ... 11 kHz D: freely selectable between 0.0 and 100% (free definition only for unlimited output) (signal type corresponds to selected output signal)	FD ≙ Freely definable Failure information only adjustable for unlimited output	0 ≙ 0 Hz f: freely selectable between 0 ... 11 kHz D: freely selectable between 0.0 and 100% (free definition only for unlimited output) (signal type corresponds to selected output signal)	0 ≙ 0 Hz f: freely selectable between 0 ... 11 kHz D: freely selectable between 0.0 and 100% (free definition only for unlimited output) (signal type corresponds to selected output signal)	None ≙ no factory calibration certificate Yes ≙ certificate but no test data YesPlus ≙ certificate with test data