

# Technical Datasheet



## WT.02/WI.02 (Ex)

Programmable Local Converters  
with Interface

## Description

The local converters type WT.02/WI.02 are passive 4 - 20 mA sensors with carrier-frequency-input stage (WT.02) or inductive input stage (WI.02).

The carrier frequency converters WT.02 are recommended for low flow due to the lower cut off frequency (typically < 0.5 Hz).

The inductive converters WI.02 are recommended for higher medium temperatures up to 150 °C [302 °F].

In addition to the analogue output the sensors provide a galvanically isolated open collector output, which can be used either as a switch or frequency output. The frequency output is freely scaleable. This scaleable output allows a calibration to the volume flow independent of the type of flow meter.

The W\*.02 have an interface integrated in the M12 sensor plug. The interface adapter and remote software KEM »EasyControl« allow for programming the operating parameters and to read the input frequency and temperature.

Both analogue and frequency output can be linearized with up to 20 points. When ordered with a flow meter the W\*.02 output will be adjusted to this meter.

## Besonderheiten

- Temperature compensation of the linearisation (various characteristic curves)
- Adjustment of operation mode
- Built in Interface
- Linearization of Current and Frequency Output

## Accessories<sup>1)</sup>

CON.USB.WT:	USB-adapter for W*.02 with output plug to loop through the analogue and frequency output. In the remote mode the W*.02 can be powered via the USB interface or via an external power supply
EasyControl:	Remote software for WINDOWS®, VISTA and 7 (for WINDOWS® XP SP3 or N.NET-framework is required)

## Technical Data

Analogue Signal	
Type	4 - 20 mA, 2-wire (passive)
Resolution	5 µA
Supply Voltage	12 - 30 V, regulated
Allowable Load	(U <sub>B</sub> - 12 V) / 20 mA, max. 800 Ω
Operating Modes	ON (frequency proportional current) OFF (supply current 4 mA independent of frequency)

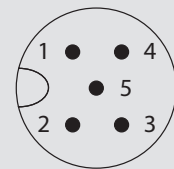
<sup>1)</sup> Other adapters and drivers on request.

**Digital Output**

Type	Open collector, potential free
Protective Resistor	Ex 1,600 $\Omega$ non Ex 800 $\Omega$
Frequency Range	1 - 5,000 Hz
Operating Modes	OFF (frequency output disabled) 1:1 (output frequency = input frequency) CORR (scaleable output frequency) SW (switch output)

**Further Specifications**

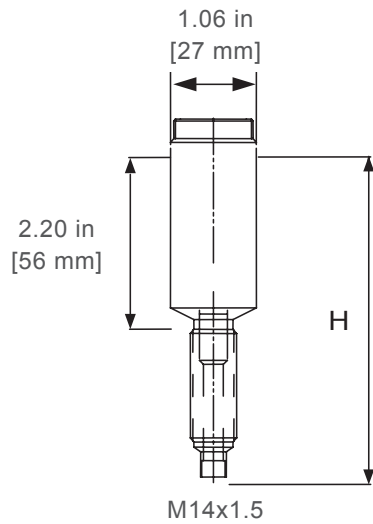
Measuring Frequency	WT: 1 - 3,000 Hz (typ. 0.5 up to 5,000 Hz) WI: 7 - 3,000 Hz (typ. 5 up to 5,000 Hz)
Response Time	250 ms (for input frequencies >5 Hz)
Temperature Drift	< 100 ppm/K
Connector	M12 plug-in connector (5-pin, male, A-coded) 1 = +I 2 = -I 3 = emitter (digital ground) 4 = collector (frequency output) 5 = remote input
Ambient Temperature	-40 °C up to +70 °C [-40 °F up to +158 °F] (non Ex) -40 °C up to +50 °C [-40 °F up to +122 °F] (Ex, T4)
Medium Temperature	Form K + R: -40 °C up to +120 °C [-40 °F up to +248 °F] <sup>2)</sup> Form L + S: -40 °C up to +150 °C [-40 °F up to +302 °F] <sup>3)</sup>
Dimensions	See dimensional drawing (page 4) L = 117 mm (form K, R) L = 156 mm (form L, S)
Material	Stainless steel
Protection Class	IP65
Ex-Approval ATEX	II 2G Ex ia IIC T4 II 3G Ex nA IIC T4



<sup>2)</sup> With a distance >25 mm between flow meter and electronic housing

<sup>3)</sup> With a distance >65 mm between flow meter and electronic housing

## Dimensional Drawing – WT.02 / WI.02



Typ	H
WT.02 / WI.02 - K	110 mm (4,33 in)
WT.02 / WI.02 - R	110 mm (4,33 in)
WT.02 / WI.02 - L	149 mm (5,87 in)
WT.02 / WI.02 - S	149 mm (5,87 in)

**Ordering Code**

	<b>W</b>	<b>X</b>	<b>02</b>	-	<b>X</b>	-	<b>X</b>
<b>Sensor Type</b>							
Carrier-Frequency		T					
Inductive		I					
<b>Pickup Form</b>							
ZHM 01/* - 04, HM series					K		
ZHM 01, SRZ Serie, LFM series					R		
ZHM 01/* - 07, HM series					L		
ZHM 01, SRZ , LFM series					S		
<b>Ex Protection</b>							
ATEX Zone 1: II 2G Ex ia IIC T4							Ex
ATEX Zone 2: II 3G Ex nA IIC T4							Exn

**Safety-Related Data**

**Pin 1 and 2**

U<sub>i</sub> = 30 V  
 I<sub>i</sub> = 120 mA  
 P<sub>i</sub> = 850 mW  
 C<sub>i</sub> = 5 nF

**PIN 3 and 4**

U<sub>i</sub> = 30 V  
 I<sub>i</sub> = 100 mA  
 P<sub>i</sub> = 120 mW

**Pin 3 and 5**

U<sub>i</sub> = 30 V  
 I<sub>i</sub> = 100 mA  
 P<sub>i</sub> = 60 mW

**Safety Instructions**

The following has to be adhered to:

- a. Installation instructions for electrical devices  
 Installation instructions for associated intrinsically-safe devices  
 The »Special conditions for safe use« as per EC-Type Examination Certificate
- b. The amplifier has to be installed in a way that the max. ambient temperature does under no circumstances exceed +50 °C [+122 °F].
- c. With cables care should be taken, that the max inductivity and capacity of the respective voltage or gas group are not exceeded
- d. Exceeding or falling below the regular measuring range will cause invalid frequency output signals.
- e. Shielded cables are to be used as connecting lines.
- f. Generally, supplied units have to be connected by an expert according to EMC stipulations.
- g. Disconnect power supply before making electrical connection.



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