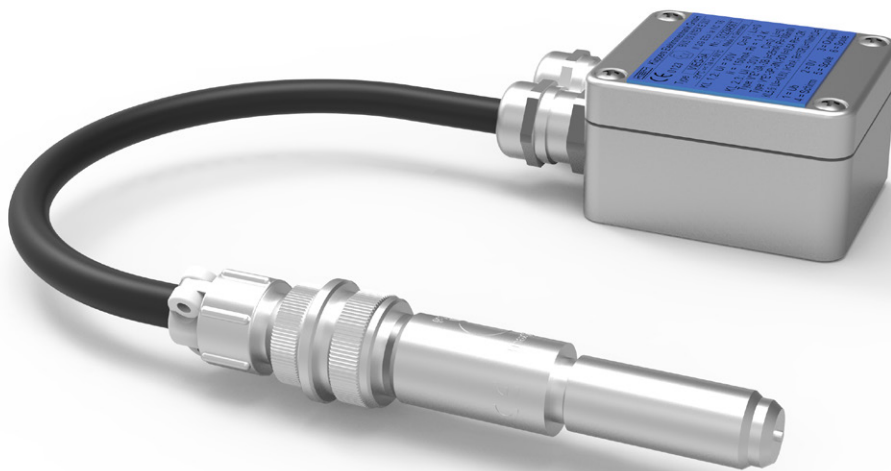


Technical Data Sheet



IF and VIEG (Ex)

Inductive Pickups and Amplifiers
for extreme medium temperatures

Application

Contactless IF sensors detect the rotational speed of KEM flow meters. These are inductive sensors that output a sinusoidal voltage signal in the mV range. The remotely via cable connected VIEG amplifier unit amplifies and converts this signal. The spatial and thermal separation of the IF sensor and amplifier unit allows flows to be measured at extreme medium temperatures of -196 °C up to +350 °C [-320.8 °F up to +662 °F]

Technical Specifications – VIEG-XX

Supply Voltage U_B	+7 up to 29 V DC
Quiescent Current	< 4 mA
Frequency Range	7 up to 3,000 Hz depending on flow meter
Ambient Temperature	-20 °C up to +50 °C [-4 °F up to +122 °F] (Ex T4) -40 °C up to +80 °C [-40 °F up to +176 °F] (non Ex)
Medium Temperature:	Max. +350 °C [+662 °F] depending on IF sensor
Input Impedance	< 100 Ω
Input	0.5 to 500 mV
Electrical Connection	Two 3-pin terminal blocks for inductive pickup, amplifier, power supply and output signal
Housing	Aluminum, L = 64, W = 58, H = 37 (mm) With 2 cable glands
Weight	Approx. 400 g
Dimensions	See dimensional drawing (page 6)
Degree of Protection	IP65 (DIN 40050)
Ex Protection	II 2G EEx ia IIC T4-T6

Frequency Output

Three-Wire Active NPN	High level: $U_{high} > U_B - 0.6 \text{ V} - (2.6 \text{ k}\Omega \cdot I_{out})$ Low level: $U_{low} < 0.6 \text{ V} + (1.3 \text{ k}\Omega \cdot I_{out})$
Three-Wire Passive NPN/Open Collector	High level: $U_{high} > U - (1.3 \text{ k}\Omega \cdot I_{out})$ Low level: $U_{low} < 0.6 \text{ V} + (1.3 \text{ k}\Omega \cdot I_{out})$ U, applied to the output, max. 29 V
Three-Wire PNP Active (not available for Ex-Versions)	High level: $U_{high} > U - 0.6 \text{ V} - (150 \Omega \cdot I_{out})$ Low level: $U_{low} = \text{closing}$ $I_{max.} = 60 \text{ mA}$, $P_{max.}$ an $R_s = 1 \text{ W}$, $R_s = 150 \Omega$ Current level two-wire DIN 19234 NAMUR High level: $I_{high} > 2.2 \text{ mA}$ Low level: $I_{low} < 1.1 \text{ mA}$

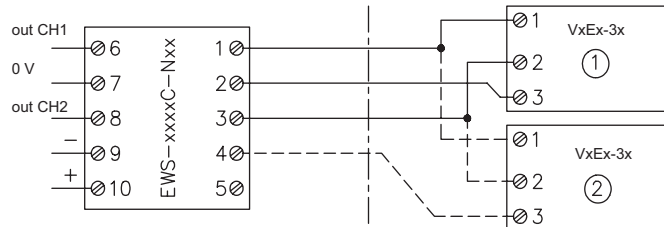
Technical Specifications – IF*

Outlet	Uss 0.5 mV up to 500 mV
Output Resistance	< 100 Ω
Frequency Range	7 to 3,000 Hz
Medium Temperature (non Ex)	-40 °C up to +120 °C [-40 °F up to +248 °F] (IF X) -60 °C up to +240 °C [-76 °F up to +464 °F] (IF X HT) -60 °C up to +350 °C [-76 °F up to +662 °F] (IF X HTK)
Medium Temperature (Ex)	-20 °C up to +120 °C [-4 °F up to +248 °F] (IF X) (T4) -20 °C up to +240 °C [-4 °F up to +464 °F] (IF X HT) (T2)
Connection	Connector type MIL 3-pole
Housing Material	Stainless steel as per DIN 1.4104 [AISI 430F]
Dimensions	See drawing
Ex Protection	II 2G EEx ia IIC T4-T6
Parameters	U_o : AC 2.6 V I_o : 35 mA P_o, P_i : 25 mW R_i : 75 Ω C : negligible L_i : 30 mH

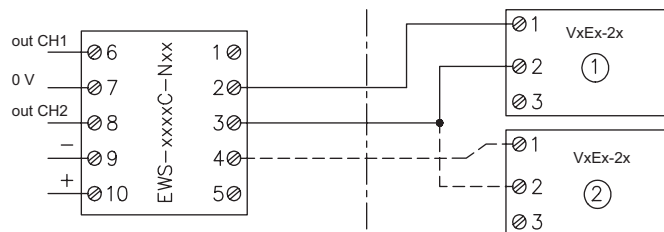
Safety-Related Data – VIEG-**-Ex

Three wire active NPN, version VIEG-3A				
Input	Terminal 1 and 2	$U_{max.} = 30 \text{ V}$ $R_i = 1.2 \text{ k}\Omega$	$I_{max.} = 150 \text{ mA}$ $C_i = 0$	$P_i = 250 \text{ mW}$ $L_i = 0$
Output	Terminal 2 and 3	$U_{max.} = 30 \text{ V}$ $R_i = 1.2 \text{ k}\Omega$	$I_{max.} = 25 \text{ mA}$ $C_i = 0$	$L_i = 0$
Three-wire passive NPN/open collector, version VIEG-3P				
Input	Terminal 1 and 2	$U_{max.} = 30 \text{ V}$ $R_i = 1.2 \text{ k}\Omega$	$I_{max.} = 150 \text{ mA}$ $C_i = 0$	$P_i = 250 \text{ mW}$ $L_i = 0$
Output	Terminal 2 and 3	$U_{max.} = 30 \text{ V}$ $R_i = 1.2 \text{ k}\Omega$	$I_{max.} = 500 \text{ mA}$ $C_i = 0$	$P_i = 250 \text{ mW}$ $L_i = 0$
Two-wire passive DIN 19234 NAMUR, version VIEG-2N				
Input-output	Terminal 1 and 2:	$U_{max.} = 30 \text{ V}$ $C_i = 56.4 \text{ nF}$	$I_{max.} = 150 \text{ mA}$ $L_i = 0$	$P_{max.} = 175 \text{ mW}$
Version VIEG-**-				
Input	Terminal 5 and 6	$U_o = 0.8 \text{ V}$ $R_i = 15 \Omega$	$I_o = 2 \text{ mA}$ $C_i = \text{negligible}$	$P_o = 1.6 \text{ mW}$ $L_i = \text{negligible}$
Connect only pickups of the following safety-relevant values to input terminals 5 and 6:				
		$U_i = 30 \text{ V}$ $P_i = 25 \text{ mW}$	$I_i = 65 \text{ mA}$ $L/R < 2.4 \text{ mH}/\Omega$	

Examples for Connecting Ex-Versions



Three-wire connection EWS-xxxxC-Nxx ¹⁾ with one or two VIEG-3*

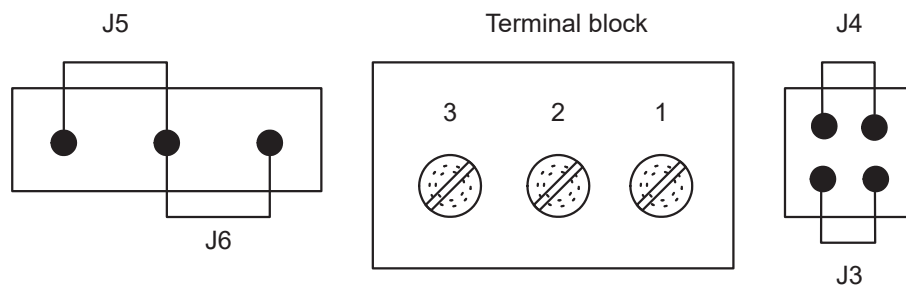


Two-wire connection EWS-xxxxC-Nxx ¹⁾ with one or two VIEG-2*

Setting the Output Mode

In the VIEG amplifier unit the type of output for non-Ex applications can be selected freely. By inserting or removing the 2 jumpers, the output mode is defined. The output mode in all VIEG with Ex approval is preset and cannot be changed. The output mode is determined in advance by the appropriate type designation and is factory set.

Output mode	Jumper J3	Jumper J4	Jumper J5	Jumper J6
Two-Wire Passive DIN 19234 NAMUR	Remove	Insert	Remove	Remove
Three-Wire Active NPN	Insert	Remove	Remove	Insert
Three-wire Active PNP (PLC)	Insert	Remove	Insert	Remove
Three-wire Passive NPN/Open Collector	Remove	Remove	Remove	Insert



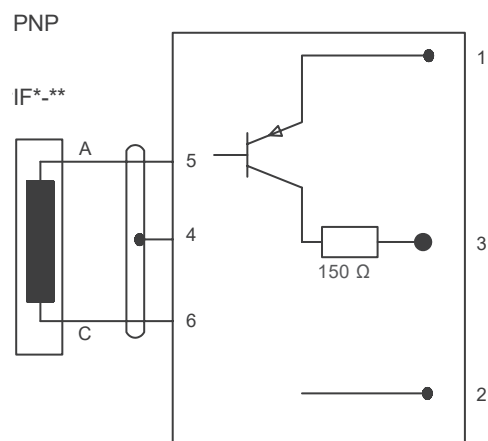
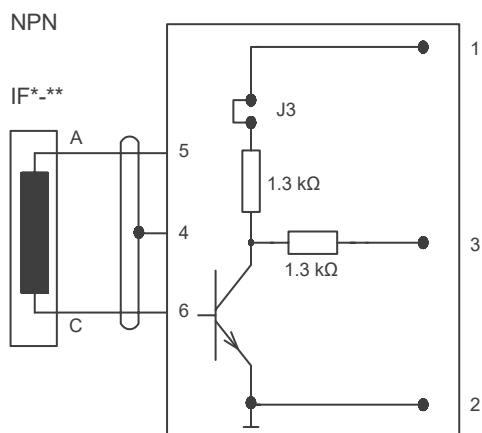
¹⁾ EWS = intrinsically safe power supply unit and isolation amplifier, required for Ex applications

Connections

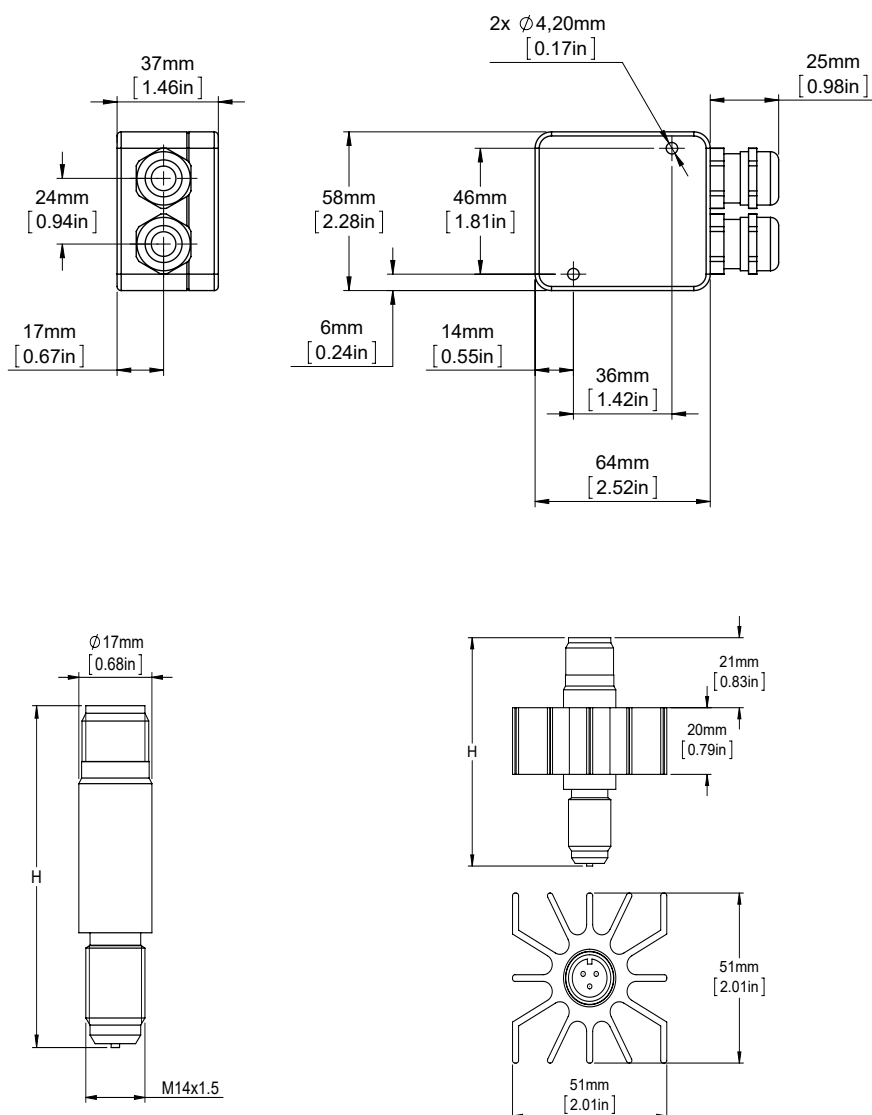
Terminal Assignment

1 = $+U_B$
 2 = 0 V/GND
 3 = output signal

4 = 0 V/GND/shield
 5 = signal IF-coil
 6 = signal IF-coil



Dimensional Drawing



VIEG

Isolated amplifier unit

IF and IF - HTK

Isolated pulse amplifiers

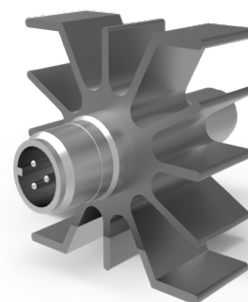
Type	H
IF K/R IF K - HTK	86 mm [3.38 in]
IF L/S IF L - HTK	126 mm [4.96 in]



VIEG



IF and VIEG



IF - HTK

Ordering Code

Amplifier

	VIEG	-	X	X	Ex
Options					
Three-wire passive NPN/Open Collector			3	P	
Three-wire active NPN			3	A	
Two-wire passive DIN 19234 NAMUR			2	N	
Ex Protection					
II 2G EEx ia IIC T5/T6					Ex

Example: VIEK-2N Ex

Pickup

	IF	-	X	X	X	Ex
Mechanical Design						
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			
Options						
High temperature version up to +350 °C [+662 °F] (no Ex-protection)				HT	K	
High temperature version up to +240 °C [+464 °F]				H	T	
Cable screw with 3 Meter cable				P	G	
Ex Protection						
II 2G EEx ia IIC T6						Ex

Safety Instructions

The following has to be adhered to:

- Installation instructions for electrical devices.
Installation instructions for associated intrinsically-safe devices.
The »Special conditions for safe use« as per EC-Type Examination Certificate.
- The amplifier has to be installed in a way that the maximum ambient temperature of +50 °C [+122 °F] is not exceeded under any circumstances (take self-heating into account).
- With cables, care should be taken that the maximum inductivity and capacity of the respective voltage or gas group are not exceeded.
- Please note that exceeding or falling below the regular measuring range will cause invalid frequency output signals.
- Shielded cables have to be used as connecting cables.
- Generally, supplied units have to be connected by a professional technician according to EMC stipulations.



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