

Certified according to DIN EN ISO 9001

Technical Datasheet



VTM Local Display Unit with Frequency and Analogue Output

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Description


The VTM is a programmable local display with integral carrier-frequency pickup and amplifier for KEM flow meters. It serves the evaluation of flow volumes. Measuring results are indicated in an 8 digit LCD display with 14 segments. A 10 point linearization is included to optimize the accuracy.

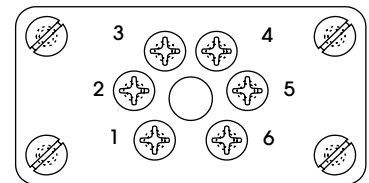
The pulse output provides a flow-proportional frequency signal or scaled volume pulse in accordance with programming. Optionally the measuring signal may be scaled in a 4–20 mA current loop. The electronic housing is slewable by 360°, in addition the display unit may be positioned in steps of 90°. This guarantees for an excellent readability independent of the installing position. For electrical connection a junction box with six internal terminals is provided.

Features:

- 10 point-linearization
- LCD-Display: 8 digit (14 segments)
- Ex-Approval: EX II 2 G EEx ia IIC T4

Technical Data

General	
LCD display	8 digits (14 segments), digit height 7 mm for real-time value, totals and programming, slewable in steps of 90° after loosening the fixing screws
Linearization	possible with 10 points
Ambient temperature	–40 up to +60 °C
Medium temperature	–40 up to +120 °C with a distance of at least 25 mm (for versions up to +150°C see ordering information page 6) between flow meter and electronic housing
Electrical connection	junction box with 6 internal terminals and adjustable cable sleeve 7–13 mm 1 = UB 2 = frequency output 3-wire 3 = 0 V 4 = -IA 5 = +IA 6 = shield
Ex-protection ATEX 100a	 II 2 G EEx ia IIC T4, BVS 03 ATEX E 205
Protection class	IP 65
Housing	aluminium AlMgSiPb, blue anodised, slewable by 360°
Weight	approx. 700 g



Frequency output/divider	
Operating mode	3-wire
Supply voltage	8–30 V DC controlled, Ex-protected versions: 12–30 V DC
Quiescent current (IR)	< 25 mA
Signal output	push/pull I_{max} : 20 mA 1. Frequency output: f_{max} : 3,000 Hz duty cycle: approx. 1:1 2. Divider: pulse width: 1 ms, 20 ms, 50 ms f_{max} : 500 Hz
Analogue output	
Operating mode	2-wire passive (4–20mA)
Supply voltage	14–30 V DC controlled $U_B = (R_{load} \times 20 \text{ mA}) + 14 \text{ V}$
Load	< 800 Ω
Resolution	12 bit (3,9 μ A)
Time constant	< 0.2–3 s (programmable)
Signal output	4–20 mA

Safety-relevant data

Three-wire supply and frequency signal current circuit

Supply: pins 1 (A) and 3 (C) or corresponding terminals

voltage U_i = DC 30 V
 current power I_i = 120 mA
 power P_i = 750 mW
 effective internal capacity C_i = \leq 26 nF
 effective internal inductivity L_i = 0

Frequency signal current circuit: pins 3 (C) and 2 (B) or corresponding terminals

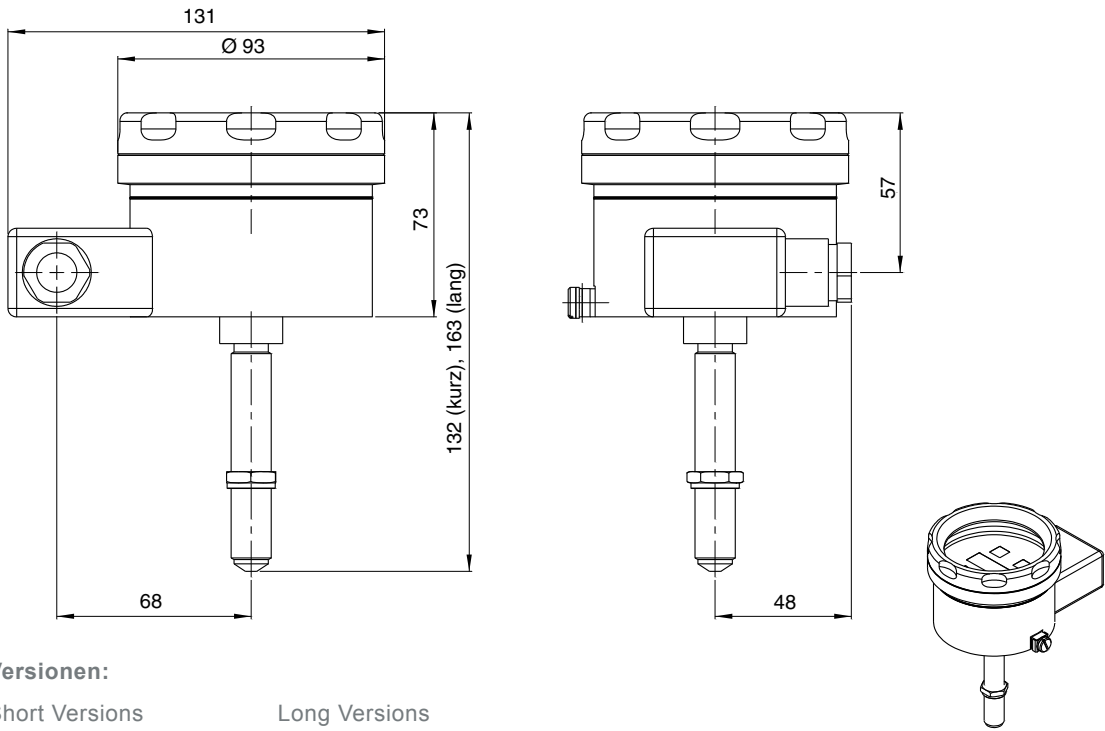
voltage U_i = DC 30 V
 current power I_i = 500 mA
 power P_i = 750 mW
 internal resistance R_i = 1350 Ω , ± 5 %
 effective internal capacity C_i = \leq 13 nF
 effective internal inductivity L_i = 0

Two-wire supply and signal current circuit (4–20 mA current loop)

Pins 4 (D) and 5 (E) or corresponding terminals

voltage U_i = DC 30 V
 current power I_i = 120 mA
 power P_i = 750 mW
 effective internal capacity C_i = \leq 26 nF
 effective internal inductivity L_i = 0

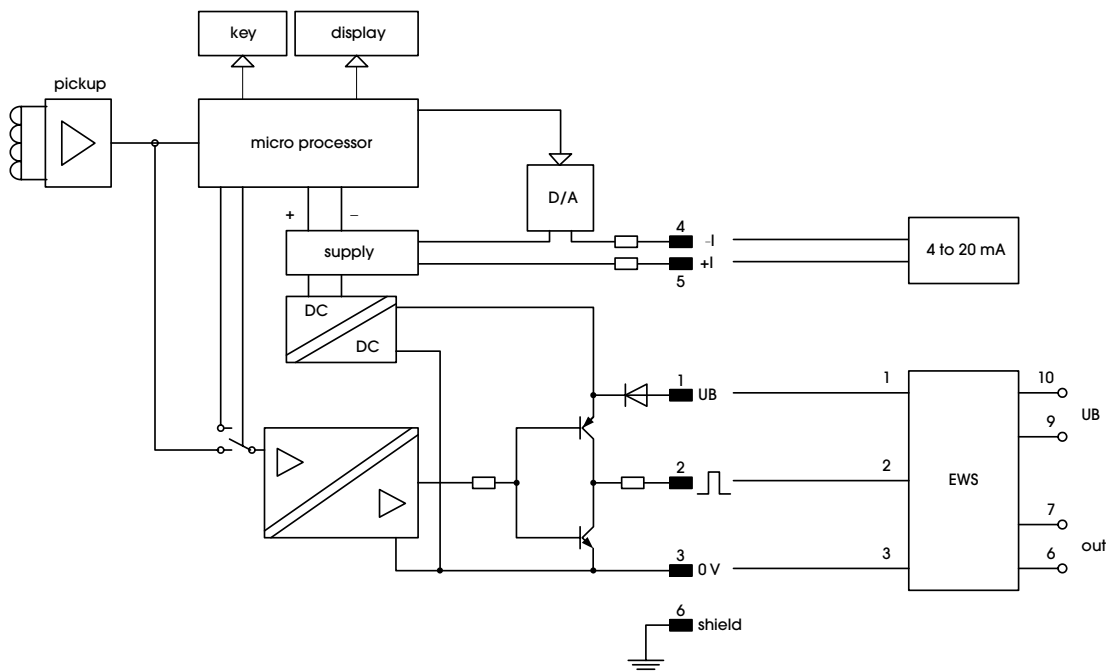
Dimensional Drawing (mm)



Versionen:

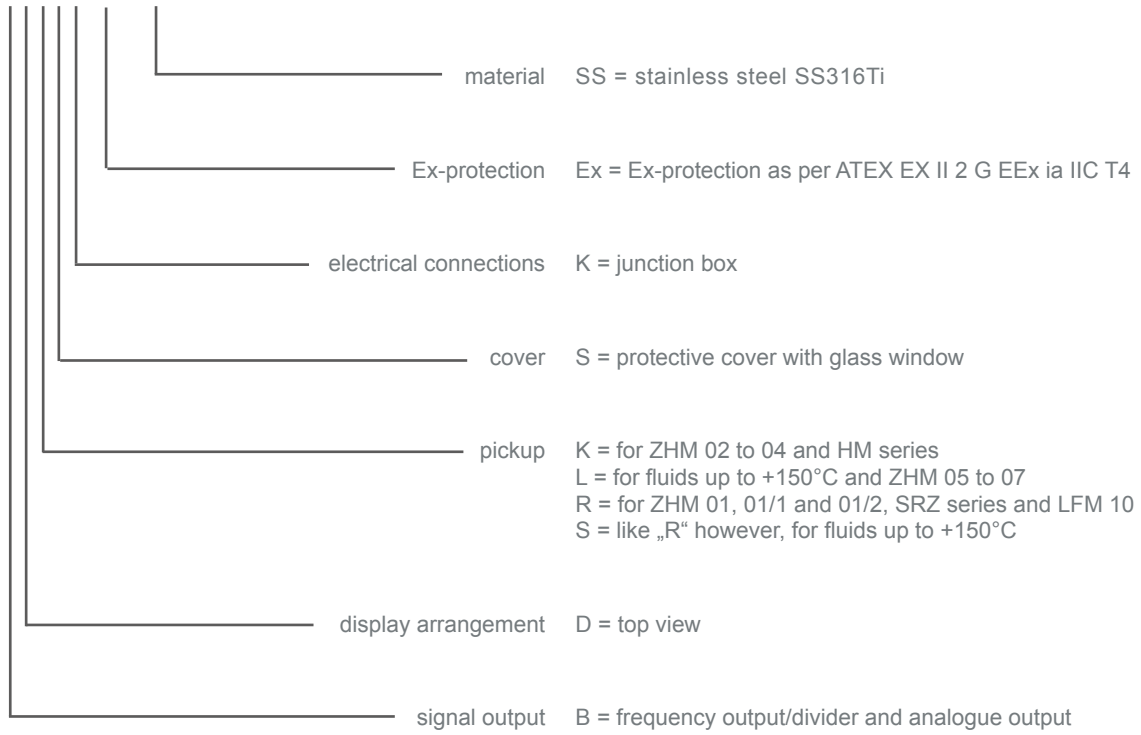
Short Versions	Long Versions
VTM B.D.K. ...	VTM B.D.L. ...
VTM B.D.R. ...	VTM B.D.S. ...

Signal flow and connection



Ordering Information

VTM xxxxx-Ex-SS



Notes

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 +60°C (consider self heating).
- 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) Flammable media may only be used as measuring medium when they do not build an explosive atmosphere permanently or for a longer period of time. In addition, the amount of air and oxygen contained must be low enough to ensure the danger of explosion can definitely be excluded. The local display unit has to be included in repeated pressure tests.

Marking and Safety Characteristics

Three-wire supply and frequency signal current circuit
Two-wire supply and signal current circuit (4–20 mA current loop)

KEM Küppers Elektromechanik GmbH

 0123  II 2G EEx ia IIC T4

BVS 03 ATEX E 205

Type Ser.Nr.

-40°C ≤ T_a ≤ 60°C

KL 1/3 U_i=30 V, I_i = 120 mA, P_i = 750 mW, C_i = 26 nF, L_i = 0

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