

# Technical Datasheet



## VTE 02 (Ex)

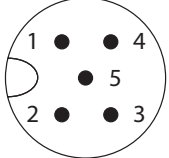
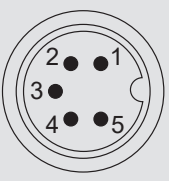
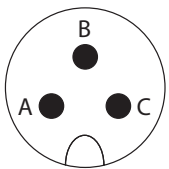
Carrier-Frequency Pulse Amplifiers  
with Single Pickup

## Application

The VTE 02 are carrier frequency pickups for all ZHM, HM, SRZ and LFM. Due to the wide frequency range (0.5 to 5,000 Hz) they work with all sizes.

For applications in hazardous areas intrinsically safe versions with ATEX and IECEx certification for zone 1 and cCSAus certification for zone 0 and division 1 are available.

## Technical Data

|                                     |  |   |
|-------------------------------------|--|---|
| Supply Voltage $U_B$                | 10 up to 30 V DC, regulated<br>7 up to 30 V DC („U“, NAMUR operation)<br>5 up to 10.5 V („N“)  |   |
| Quiescent Current                   | < 1 mA   |   |
| Frequency Range                     | 0.5 up to 5,000 Hz   |   |
| Ambient Temperature                 | -40 °C up to +80 °C [-40 °F up to +176 °F] (non Ex)<br>-40 °C up to +60 °C [-40 °F up to +140 °F] (Ex, T4)   |   |
| Medium Temperature                  | Form K + R: -40 °C up to +120 °C [-40 °F up to +248 °F] <sup>1)</sup><br>Form L + S: -40 °C up to +150 °C [-40 °F up to +302 °F] <sup>2)</sup>                 |   |
| Housing                             | Stainless steel as per DIN 1.4104 [AISI 430F]<br>Option: 1.4404 [AISI 316L]  |   |
| Dimensions                          | See dimensional drawing (page 3)   |   |
| Ingress Protection                  | IP65   |   |
| Ex Protection                       | ATEX: II 2G Ex ia IIC T4 Gb<br>IECEx: Ex ia IIC T4 Gb<br>cCSAus: Class I, Div. 1, Groups A, B, C, D; T4<br>Ex ia IIC T4 Ga<br>Class I, Zone 0 AEx ia IIC T4 Ga |   |
| Electrical Connection <sup>2)</sup> | M12 plug-in connector (5-pin, male, A-coded)<br>1 = + $U_B$<br>2 = n.c. / NAMUR- („N“, „U“)<br>3 = 0 V (not „N“)<br>4 = Signal Push Pull (not „N“)<br>5 = n.c. |  |
|                                     | M16 plug-in connector (5-pin, male, A-coded) (option)<br>1 = + $U_B$<br>2 = Signal Push Pull<br>3 = 0 V<br>4 = n.c.<br>5 = n.c.                                |  |
|                                     | MIL plug-in connector (3-pin, male, A-coded) (option)<br>A = + $U_B$<br>B = 0 V<br>C = output  |  |

<sup>1)</sup> With a distance >25 mm between flow meter and electronic housing

<sup>2)</sup> With a distance >65 mm between flow meter and electronic housing

<sup>3)</sup> Other plugs or pin assignments on request.

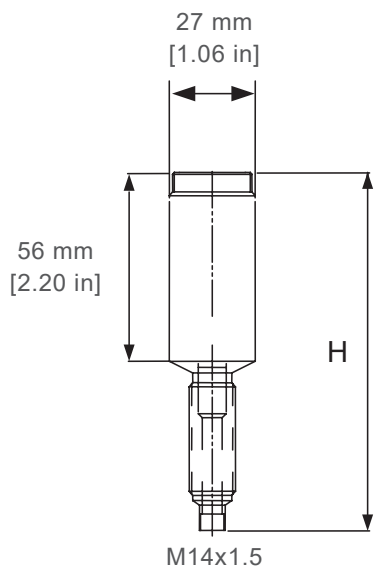
**Ex-Supply Data**

|   |   |   |
|---|---|---|
| Supply Circuit<br>(pin 1 and 3)<br>(version P, U)                       | Voltage<br>Current<br>Power<br>Effective internal capacitance | $U_i = \text{DC } 30 \text{ V}$<br>$I_i = 120 \text{ mA}$<br>$P_i = 850 \text{ mW}$<br>$C_i = 8 \text{ nF}$ |
| Signal Current Circuit<br>Push/Pull<br>(pin 3 and 4)<br>(version, P, U) | Voltage<br>Current<br>Power<br>Effective internal capacitance | $U_i = 30 \text{ V}$<br>$I_i = 24.6 \text{ mA}$<br>$P_i = 185 \text{ mW}$<br>$C_i = 8 \text{ nF}$           |

**Ex-Supply Data Version „N“ NAMUR**

|  |   |   |
|--|---|---|
| Supply and Signal Circuit<br>(pin 1 and 2) | Voltage<br>Current<br>Power<br>Effective internal capacitance | $U_i = \text{DC } 10.5 \text{ V}$<br>$I_i = 16 \text{ mA}$<br>$P_i = 40 \text{ mW}$<br>$C_i = 8 \text{ nF}$ |
|--|---|---|

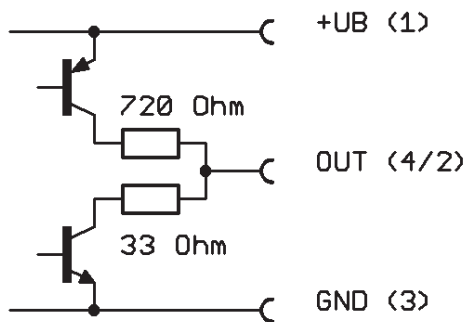
**Dimensional Drawing**



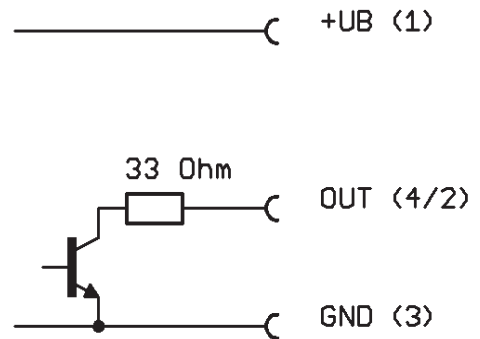
| Type       | H                   |
|------------|---------------------|
| VTE 02 - K | 110 mm<br>(4.33 in) |
| VTE 02 - R | 110 mm<br>(4.33 in) |
| VTE 02 - L | 149 mm<br>(5.87 in) |
| VTE 02 - S | 149 mm<br>(5.87 in) |

## Output (short-circuit proof)

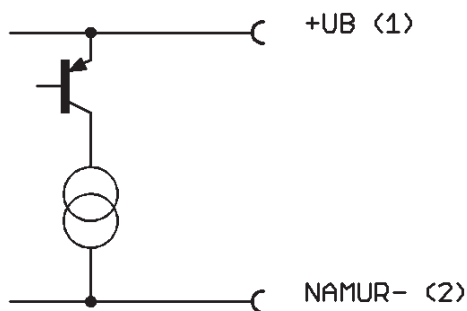
Push Pull



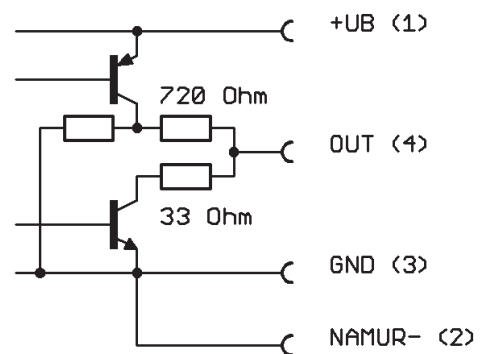
Open Collector



NAMUR



Push Pull + NAMUR



## Ordering Code

|   |       |   |   |   |   |   |     |   |       |
|---|-------|---|---|---|---|---|-----|---|-------|
|   | VTE02 | - | X | - | X | - | X   | - | X     |
| <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>Output<sup>4)</sup></b>                  |       |   |   |   |   |   |     |   |       |
| M16, Push-Pull                              |       |   |   |   | A |   |     |   |       |
| MIL-5015 3-pin, Push Pull                   |       |   |   |   | D |   |     |   |       |
| MIL-5015 3-pin, Open Collector              |       |   |   |   | E |   |     |   |       |
| M12, Push Pull                              |       |   |   |   | P |   |     |   |       |
| M12, NAMUR                                  |       |   |   |   | N |   |     |   |       |
| M12, NAMUR + Push Pull                      |       |   |   |   | U |   |     |   |       |
| <b>Ex Protection</b>                        |       |   |   |   |   |   |     |   |       |
| No certification                            |       |   |   |   |   |   |     |   |       |
| ATEX (II 2G Ex ia IIC T4 Gb), IECEx, cCSAus |       |   |   |   |   |   | Ex  |   |       |
| ATEX (II 3G Ex nA IIC T4)                   |       |   |   |   |   |   | Exn |   |       |
| For custom specific options                 |       |   |   |   |   |   |     |   | 01-99 |

## Examples

|              |  |
|--------------|--|
| VTE02-K-N-Ex | K-Pickup, M12, NAMUR, Ex certification ATEX, IECEx, cCSAus |
| VTE02-R-P    | R-Pickup, M12 push-pull, no Ex                             |

## 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 +60 °C [+140 °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.

<sup>4)</sup> Other plugs or pin assignments on request.



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