

Certified according to DIN EN ISO 9001

Technical Datasheet



TD-Ex

Carrier-Frequency Amplifier with Dual Pickup



Description

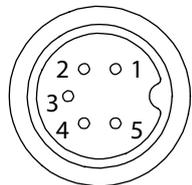
The integral pickups detect the r.p.m. of KEM gear flow meters. This happens without contacting the measuring medium. The output signal of the pickups is amplified, transformed and finally provided as a current or voltage square wave pulse signal for further processing.

The TD* is operated in a three-wire mode. Two output signals phase-shifted by 90° enable for frequency doubling and detection of reverse flow. Versions TD **.**(Ex) are IS approved as per EExialICT4. It is recommended to use our intrinsically safe power supply type EWS for these versions.

Features

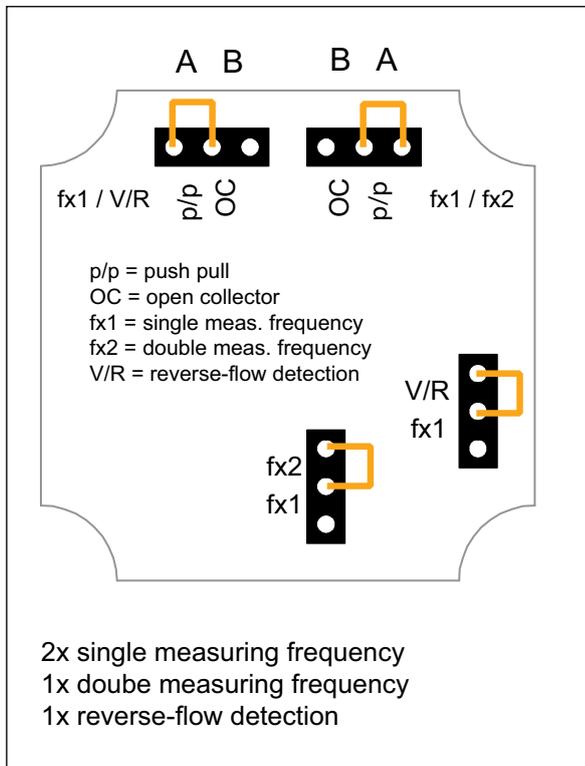
- Pulse doubling
- Reverse-flow detection
- Ex-approval

Technical Data

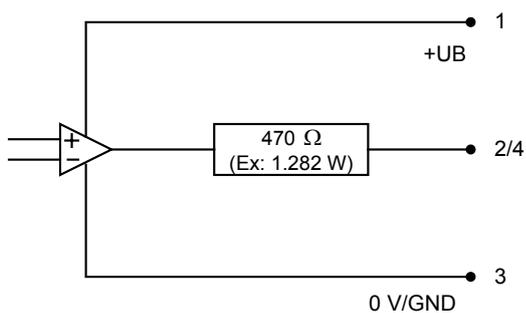
General	
Supply voltage U_B	8 up to 30 V DC
Quiescent current	< 4 mA each channel
Frequency range	3 up to 3,000 Hz in accordance with flow meter
Ambient temperature	-20 up to +50 °C
Medium temperature	up to +80 °C
Phase shift	90°, ±30°
Electrical connection	5-pin plug for supply and output signals 1 = +UB 8 up to 30 V DC 2 = signal out B: push pull or open collector (f x 1 or f x 2) 3 = 0 V 4 = signal out A: push pull or open collector (f x 1 or reverse flow) 5 = com, common 0 V of both open collector outputs
	
Housing	Aluminium
Ingress protection	IP 65
Dimensions	L = 50 mm, W = 45 mm, H = 30 mm
Weight	approx. 200 g
IS approval ATEX 100	 II 2 G EEx ia IIC T4, BVS01.E.060  II 2G EEx ia IIC T4
Operating modes	<ul style="list-style-type: none"> • 2x single measuring frequency (90° phase-shifted) output A leads • double measuring frequency and reverse flow detection valid only within permissible measuring range direction forward = output transistor conducting
Output modes:	<ul style="list-style-type: none"> • push pull $I_{out\ max} = 20\ mA$ • voltage level NPN/OC passive $U_{High} > U - (I_{out} (mA) \cdot 1.3\ k\Omega)$ $U_{Low} < 0,6\ V + (I_{out} (mA) \cdot 1.3\ k\Omega)$ $U_{max} = 30\ V$

Electrical connection

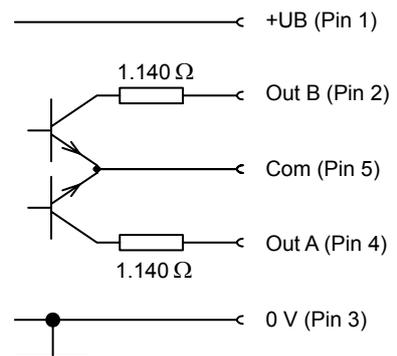
Jumper layout:



Push pull:



NPN open collector passive:



Electrical Data

TD-**. *-Ex

Current supply circuit pins 1 and 3

voltage:	$U_i = \text{DC } 30 \text{ V}$
current power: I	$i = 120 \text{ mA}$
power:	$P_i = 750 \text{ mW}$
effective internal capacity:	$C_i = \text{negligible}$
effective internal inductivity:	$L_i = \text{negligible}$

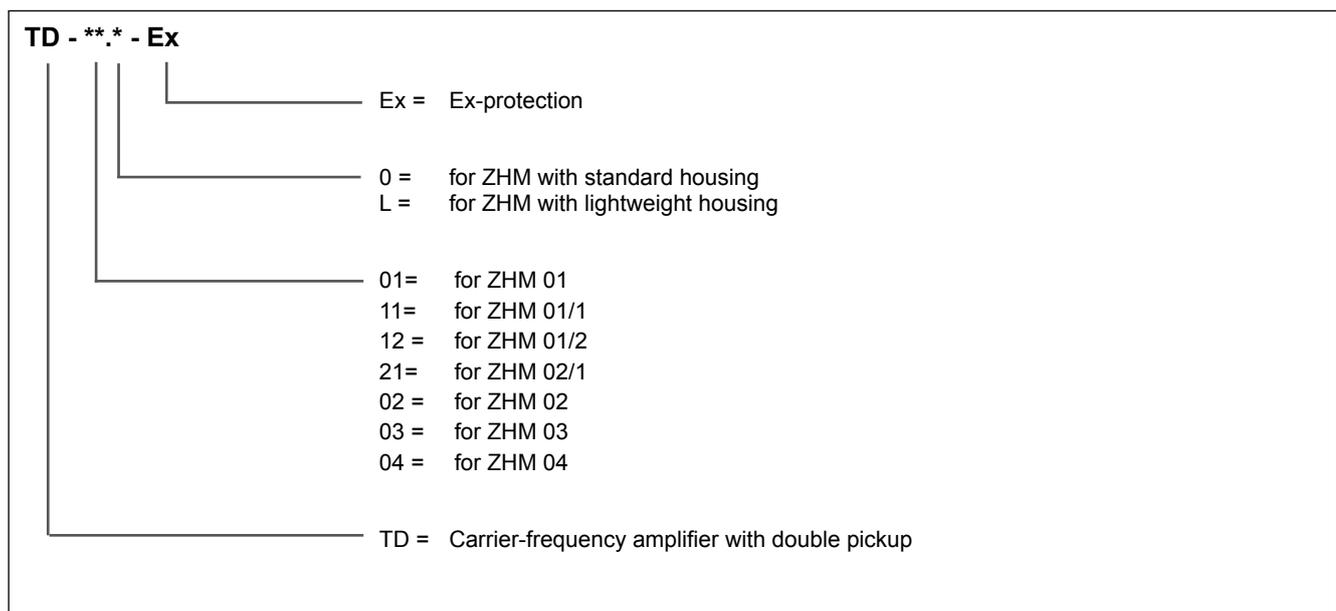
Current signal circuit pins 2/4 and 3 push/pull (jumpers VB1 and VB2 in position A)

voltage:	$U_o = \text{DC } 30 \text{ V}$	$U_i = \text{DC } 30 \text{ V}$
current power:	$i_o = 21 \text{ mA}$	$i_i = 120 \text{ mA}$
power:	$P_o = 157 \text{ mW}$	$P_i = 750 \text{ mW}$
internal resistance:	$R_i \geq 1282 \ \Omega$	
effective internal capacity:	$C_i = \text{negligible}$	
effective internal inductivity:	$L_i = \text{negligible}$	

Current signal circuit pins 2/4 and 5 open collector (jumpers VB1 and VB2 in position B)

voltage:	$U_i = \text{DC } 30 \text{ V}$
current power: I	$i = 120 \text{ mA}$
power:	$P_i = 750 \text{ mW}$
internal resistance:	$R_i \geq 1140 \ \Omega$
effective internal capacity:	$C_i = \text{negligible}$
effective internal inductivity:	$L_i = \text{negligible}$

The signal current circuit and supply current circuit are galvanically connected



Notes on Installation

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 +50C (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.

Marking of the pulse amplifier

KEM Küppers Elektromechanik GmbH

 0123  II 2G Ex ia IIC T4

DMT 01 ATEX E 060

TD-**-*-Ex Ser.Nr. ...

-40°C ≤ TA ≤ +50°C

Ui = 30V, Li = 120 mA, Pi = 750m W