Level switch bar probe

ST3Md 275/160°/50/100 SB RT3 GS A DN50 V ExG

ST3Md 425/100 SB RT3 GS A DN50 V ExG (same probe without angle)

- High-resolution measuring signal
- Pressure independent, stable measuring signal
- FEP version
- Process pressure PN40 / 300 lbs
- Process temperature 80 °C
- Insensitive to contamination

Use

Can be utilized at multipurpose plants, reactors, fermenters, pilot plant or production. For the detection of liquid organic to aqueous media.

Application

The bar probe is manufactured in the standard version in FEP, which is applied as an liquid detection-level bar probe. The media to be measured can have variable electrical properties. If the dielectric constant or the electrical conductivity changes, the medium is reliably detected via the hysteresis even if the probe is (organic) dirty.

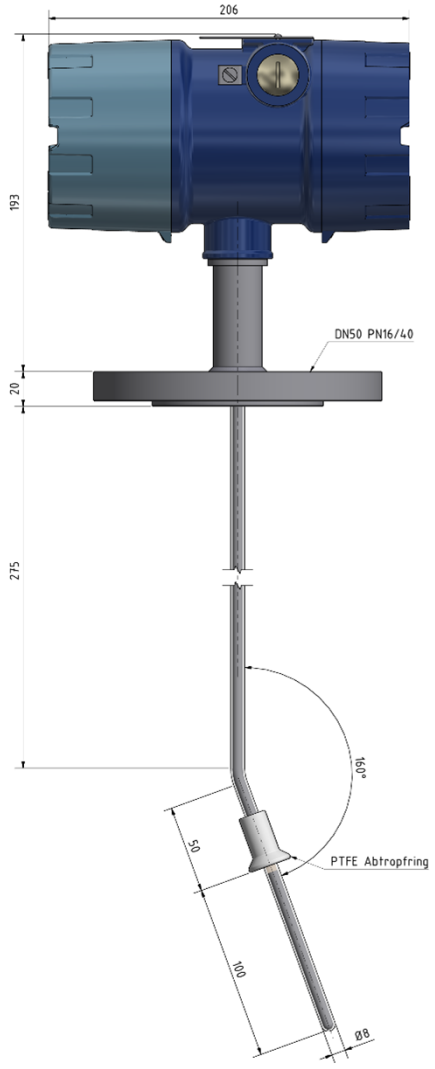
Model code:

ST3Md 275/160°/50/100 SB RT3 GS A DN50 V ExG

S	|	bar probe
T3	|	FEP coated measuring electrode
Md	|	measuring electronics protection housing integrated measuring electronics MTI ../. AEO2 measuring electronics – protective housing, seawater-proof, seal: Silicone cable gland PM M20 × 1.5, cable clamping range 8-11mm, IP 68 to EN 60529
LR	|	length to radius: LR = 220 mm
R	|	angular dimension: 160 °
L	|	inactive length by radius: 50 mm
EL	|	measuring electrode length: EL = 100 mm
SB	|	bar measuring electrode, ø 8 mm, s = 1 mm
RT3	|	wetted probe material stainless steel (flange), FEP
GS	|	foam detection
A	|	drainer ø = 20 mm
DN	|	flange DN50 PN40 (300 lbs), form B1 DIN EN 1092-1; 316L
V	|	seal O-ring FKM (Viton®)

Probe Ex-protection: SEV 09 ATEX 0133 X CE 0063

ExG	|	(Gas-) Ex-version (probe/MTI) II 1/2G Ex ia IIC Ga/Gb



Technical data

Temperature range
–20 ... +80 °C medium | –20 ... +60 °C connection head

Cleaning temperature 210 °C max., 10 min. pressureless (CIP)

Pressure -1 bar up to max. 40 bar / 300 lbs. standard

Measuring principle Impedance

Measuring range DC 1.4 ... 80

Resolution up to < 1 mm

Integration time 40 - 400 ms / 0 - 3750 Imp

Use Ex-zone II 1/2G Zone 0

Measuring electrode FEP-layer thickness
ø 8 / s = 1 mm (Depending on the meas. electrode length and application)

Application level switch full / empty

Measuring electronics Housing square: MTI ../. AEO2

Protection connection head square IP68

Wiring
Shielded 2-core cable 0.75 mm^2 twisted CY/EIG to all evaluation devices mipromex®, cable length up to 200 m or max.
C = 120 nF / R = 30 Ohm line impedance

Connection to evaluation unit mipromex® MAT / MLS

Article n° 02.29.12.1335

Technical data on-site MTI measuring electronics

Design type
Plug-in electronics with square stainless cover in the protective housing, with HF-connection; IP 20

Installation
Protection housing with mounting holes, plug-in electronics insertable, fixed with 2 screws M4x8

Performance
Linear conversion of an impedance range into a normed digital measurement signal

Use/Display
One-time compensation of basic capacity of the HF cable and uncovered dry probe, LED display for quick adjustment

Dimensions
Square version height x width x length 57 x 80 x 175 mm

Weight electronics
140 g

Ex-power supply / connection wiring
Shielded two-wire connection 0.75 mm2 twisted CY/EIG to all evaluation devices mipromex® cable length up to 200 m or max. C= 120 nF / R = 30 Ohm line impedance

Transfer signal
Impulse parcel, superimposed on the supply current

Measuring voltage/current
U ~ 14.5 V I ~ 13,5 mA

Nominal data of the supply voltage
Rate data **Ex ia** IIC only for connection to mipromex® type M** **** * - or *TI*K-units

Circuit with the following maximum output values
$U_i \leq$ 18,9 V $I_i \leq$ 49 mA
$P_i \leq$ 231 mW
$C_i =$ 60 nF $L_i =$ 0 mH

Ambient temperature
–20 … +60 °C

Storage temperature
–30 … +80 °C, ideal +20 °C

Measuring range
10 / 20 / 50 / 100 / 200 / 300 respective 0 up to max. 3750 impulses, special ranges available. The resolution range depends on the probe dimensions and is product specific.

Resolution
Max. 0.003 pF/impulses

Norm range for pipe probe with remote MTI housing
Type STK .../100/200/300
55 pF, type MTI 30/, 50/(0 - 16) basic adjustment range depending on probe and HF-cable length, determined by the manufacturer

Basic adjustment range
MTI .../. 0 to 16, 0 to 500 pF

Measurement frequency
~ 500 kHz

Linearity
Deviation < 0,1 % (without probe)

Hysteresis
1 measured impulse

Temperature influence 5 – 45 °C
Type MTI .../.A analog: < ± 3 measuring impulse

Certification
Gas II 1/2G Ex ia Gb IIC T6
Dust II 1/2D Ex iaD 20/21 IP65 T85°C
II 1/2G Ex d ia IIC T6
RL 2014/34/EU
Inspection report n°: 08-IK-0395.01 with extension 1
Unit can be supplied without Ex-protection

Intrinsically save Ex-connection:
Measuring electronics MTI ... In a protective housing or bar probe type S**; K** ; F**
EMC-tested, STS 024 report n° 990102WS corresponds to EN 1127-1 : 20011
EN 61000-6-2 2005 EN 6100-6-4 : 2007
EN 60079-0 : 2012 EN 60079-11 : 2012

Measuring system

The measuring loop consists of a probe with remote on-site electronics MTI and the evaluation unit mipromex® in a non Ex-zone. The cable length is for an Ex ia application max. 200 m.

Function

The impedance changes as a function of the dielectric constant and the el. conductivity of the organic and aqueous media, as well as depending on the immersion depth of the active measuring electrode. The detected impedance at the measuring electronics MTI is transformed directly into a normed digital sum signal and transmitted as a pulse train to the mipromex®.

Mounting directions

- The company's internal safety regulations and assembly guidelines must be observed
- Installation in side nozzles (angle: 0-45°) or for bar probe without angle from top to bottom (depending on length and turbulence)
- The bar probe must be handled with care during installation; the probe must always be held by the flange and housing and the measuring electrode supported
- Use gasket types corresponding to the flange
- The tank insulation must not enclose the connection head
- Ambient temperature: max. permissible temperature in the connection head must not exceed +60 ° C
- The pressure test must be carried out with the probe installed

Maintenance

- The probe is maintenance-free.
- If the probe is dirty, it must be removed and carefully cleaned with a suitable solvent. Attention, electrostatic charge!
- Then install the probe again and check the 0-point [Menu 3.1.3.] on the mipromex® and save.

Disassembly instructions

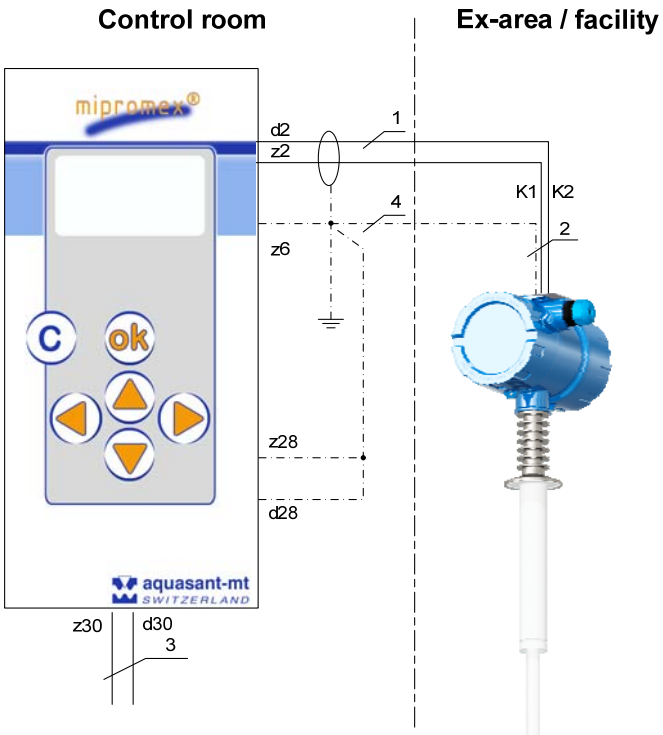
- The company's internal safety regulations and assembly guidelines must be observed
- Empty the container and flush with nitrogen or water as per
- Disconnect electrical connections. Remove probe, lift on flange. The active measuring electrode must be supported.
- When returning repairs, the probe must be cleaned and the safety data sheets for personal protection enclosed

Electrical directions

- Wiring must comply with the circuit and grounding diagram.
- Connections to MTI clamps K1(+)/K2(-), protected against polarity reversal, suitable for wire cross section 0.2–1.5 mm^2
- The connecting cable has to suit the demands at the measuring circle.
- MTI-housing lid in [Ex ia] zone can be opened under live-line working.
- Output signal of mipromex® is a pulse modulated signal U_0 ≤18.9 V

Basic circuit diagram

Probe connection to evaluation unit mipromex®
Connection diagram MRM2 Monorack DIN housing



Certificates

Explosion protection (ATEX)
EC-type examination SEV 09 ATEX 0133 X
- Ex-certification according to directive 2014/34 EU

CE-Mark
The probe fulfills the legal requirements according to the EC-directives. CE 0063

Aquasant Messtechnik AG | Postfach 107 | Hauptstrasse 22 | 4416 Bubendorf | Switzerland
T: +41 61 935 50 00 | info@aquasant-mt.com | www.aquasant-mt.com