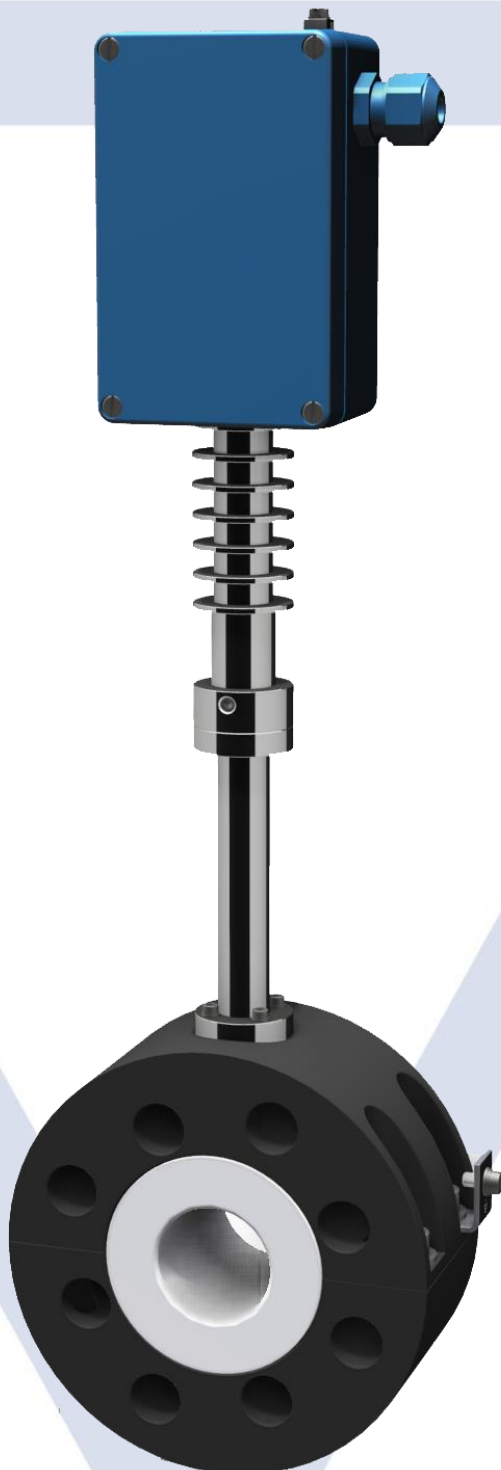




Interface pipe probe

TSS80 DN(ANSI) ... SF T6 KS MTI50/1 AG ExG



- No commissioning, plug & processing
- High-resolution measuring signal
- Pressure independent, stable measuring signal
- No moving parts
- PTFE-core Ex ia IIC
- Process pressure PN16 / 150 lbs
- Process temperature 170 °C
- Insensitive to contamination

Use

Can be utilized in pipe probes after settling tanks and reactors, in mono and multipurpose plants, from pilot plant to production, as well in tank depots. For liquid/liquid phase separation of organics to aqueous media.

Application

The pipe probe flanges in the standard version are manufactured as sandwich-structured probe, combined with a PTFE inner body (including the measurement system) and combined with the aluminum housing in hard anodized aluminum with PTFE-inclusion (ALTEF® coating). The TSS80 is applied as interface pipe probe for interface detection, separation, monitoring or as empty signal.



Serial-number:

TAG-number:

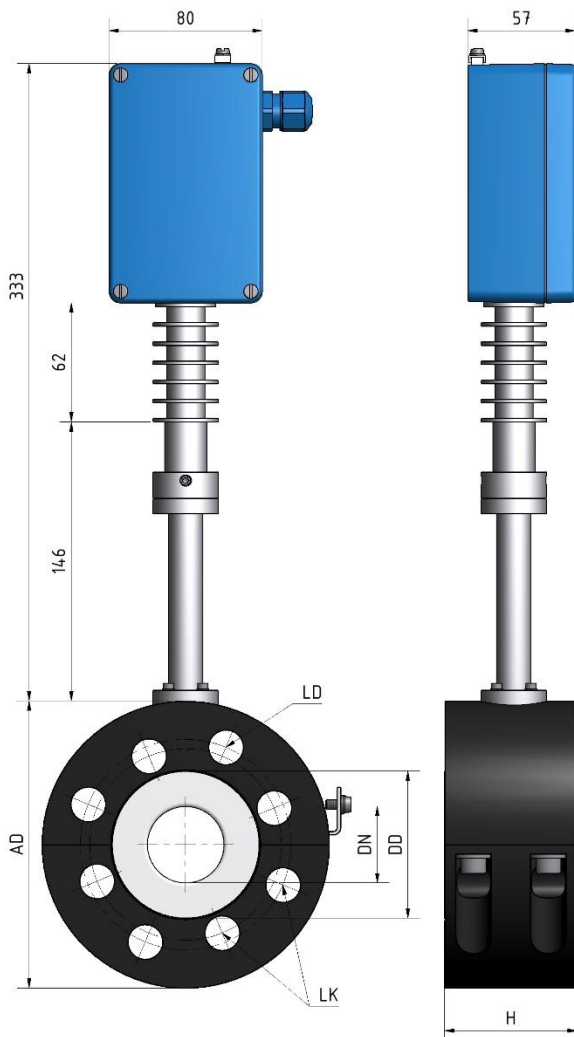
Model code:

TSS80 DN(ANSI) .. SF T6 KS MTI 50/1 AG ExG

TSS80	Pipe probe with PTFE measuring electrode in aluminum flange body construction
DN	Flange DN 32/40, 50, 80, 100, 150 PN16 form A to EN 1092-1 ANSI 2, 3, 4" 150lbs ASTM A182, ASME B16,5 RF
SF	Process connection on steel flange
T6	Teflon® TFM® 1600 measuring body s = 1.4 mm
K	Cooling gills stainless steel (<-20 / >100 max. 170 °C)
S	With extension L = 100 mm for insulated lines
MTI	Built in measuring electronics device, selected according to process condition MTI 50/1 AEE2 K
A	Analog measurement technology for interphase detection, product monitoring, full and empty signal
G	Measuring electronics – protective housing, 360° rotatable fixed with adjustment screw, indoor, blue RAL 5007, seal: Viton, cable gland PM M16 × 1.5, cable clamping range 6-8 mm, IP 65 to EN 60529
(F3	Only for phase separation with media with el. conductivity up to 5000 µS/cm, higher measuring frequency)

Probe Ex-protection: SEV 09 ATEX 0133 X CE 0036/1254

ExG | (Gas-) Ex version (probe/MTI) II 1/2 G Ex d ia IIC T6



Technical data

Temperature range

-20 ... +170 °C medium | -20 ... +60 °C connection head

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

Pressure -0.5 bar to max. 16 bar / 150 lbs. standard

Measuring principle Impedance

Measuring range DK 1.20 ... > 80
measuring value water 2800 Imp.

Resolution < 6 Impulses

Conductivity optimum for organic phase
MTI Standard: 0...5000 µS/cm

Basic capacity Cp: 38 pF / Rp: 2.8 MΩ

Integration time 40-400 ms / 0-3750 Imp

Use in Ex-Zone II 1/2G Zone 0

Measuring electrode PTFE-layer thickness PTFE s = 1.4 mm

Application

Interface detection for separation and monitoring (MIQ/MAT)

Measuring electronics Square housing MTI 50/1 AEE2K

Wiring

Shielded 2-core cable 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

Connection to control unit mipromex® MIQ / MAT / MLS

Article-n° 02.29.11.0000 xxxx

Nominal diameter	OD	DN	LD drill hole	LK	DD	Installation H	Weight
DN 32/40	150	32/40	8 x \varnothing 18	100/110	77	70	
DN 50	165	50	4 x \varnothing 18	125	97	92	
DN 80	200	80	8 x \varnothing 18	160	123	74	
DN 100	220	100	8 x \varnothing 18	180	146	74	
ANSI 2"	152.4	50	4 x \varnothing 19.1	120.7	97	92	
ANSI 3"	190.5	80	4 x \varnothing 19.1	152.4	123	74	
ANSI 4"	228.6	100	8x19.1	190.5	146	74	

Connection to MTI-unit:
Length x Width x Depth
125 x 80 x 57 mm
Extension:
Insulation thickness max. 100 mm

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 pluggable, 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 RF cable and uncovered dry probe, LED display for quick adjustment

Dimensions

Square model 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®-or *TI*K-units
Circuit with the following maximum output values

$U_i \leq 18.9 \text{ V}$ $I_i \leq 49 \text{ mA}$

$P_i \leq 231 \text{ mW}$

$C_i = 60 \text{ nF}$ $L_i = 0 \text{ mH}$

For ignition protection type flameproof enclosure and intrinsic safety, **Ex d ia IIC** only for connection to mipromex® Typ M** **** *

Circuit with the following maximum output values

$U \leq 19.3 \text{ V}$ $I \leq 75 \text{ mA}$

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 dimension and is product specific.

Resolution

Max. 0.003 pF/impulses

Norm range for pipe probe with remote MTI housing

Type TSS80 .../100/200/300
55 pF, type MTI 30/, 50/(0 - 16) basic adjustment range depending on probe and RF 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 impulses

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 safe Ex-connection:

Measuring electronics MTI ... in a protective housing or tube probe type TSS80

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



Function

The impedance changes as a function of the dielectric constant and the el. conductivity of the organic and aqueous media, measured in a partially filled, horizontally installed pipe probes. The measured 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

- Installation position of a 3 % slope to vertical, depending on the application (see mounting directions for TSS)
- Installation independent of the flow direction
- Installation between two smooth flanges or flared, loose flanges only with special installation protection gaskets
- Caution! Note flange to flange distance for different nominal widths, the PTFE core protrudes on both sides by 0.2 mm
- Additional flat gaskets "Gylon" protect the PTFE-core (with appropriate tightening torque)
- Internal installation guidelines always have to be followed and suitable sealing types used.
- Observe internal safety regulations for open tanks
- Installation in pipes with appropriate nominal diameter with flat gasket and tightening torques (see mounting directions for TSS80)
- The pipe insulation must not enclose the cooling rod
- Ambient temperature: max. allowed temperature in the connection head must not exceed +60 °C, if pipe probe is insulated and measuring electronics is remote installed
- The connection electronics MTI must be mounted at pipe temperatures of >60 °C horizontal or downwards and with the adjustment screw fixed in any 360° position.
- Pressure tests have to be conducted with mounted probe
- Caution! Probe body is only leak-proof when flanged in.

Disassembly instructions

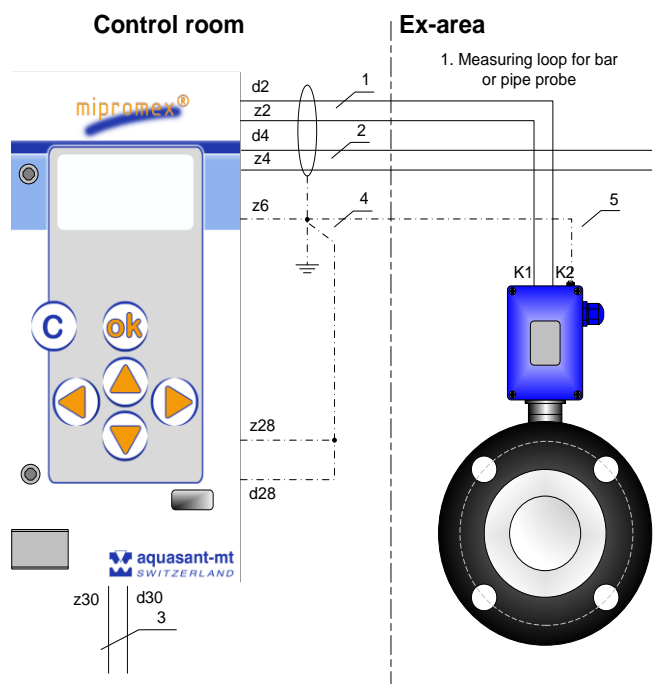
- Empty tank and flush with nitrogen or water according to operating instructions (observe internal safety regulations)
- Disconnect electrical connections. Dismount probe, lift at the flange. Careful, residual liquid may leak out
- Data sheets for personal security purpose need to be added with repair shipments to aquasant.

Electrical directions

- Wiring must comply with the circuit and grounding diagram.
- Connections to MTI clamps 1/2, protected against polarity reversal, suitable for wire cross section 0.2 – 1.5 mm²
- 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 $U_0 \leq 18.9 \text{ V}$

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 the directive 2014/34 EU
- Confidential test report no: 08-IK-0395.01

CE-Mark

The probe fulfills the legal requirements according to the EC directives. CE 1254