



# Interface bar probe

STM 1550/750 SB R TN ES4 ANSI 2" C ExG



- High-resolution measuring signal
- Pressure independent, stable measuring signal
- No moving parts
- Indoor application IP65
- Process pressure PN16 / 150 lbs
- Process temperature 80 °C
- Insensitive to contamination

## Use

Can be utilized at multipurpose plants, separators, continuous settling tanks, pilot plant or production. For liquid/liquid interface separation of organic to aqueous media.

## Application

The bar probe is manufactured in the standard version in stainless steel, the measuring electrode in PTFE with a bar reference electrode, which is applied as an interface-level bar probe. The media to be measured must have constant electrical properties. If the dielectrical constant or the el. conductivity changes, a product compensated measuring system has to be used.



Serial number:

TAG number:

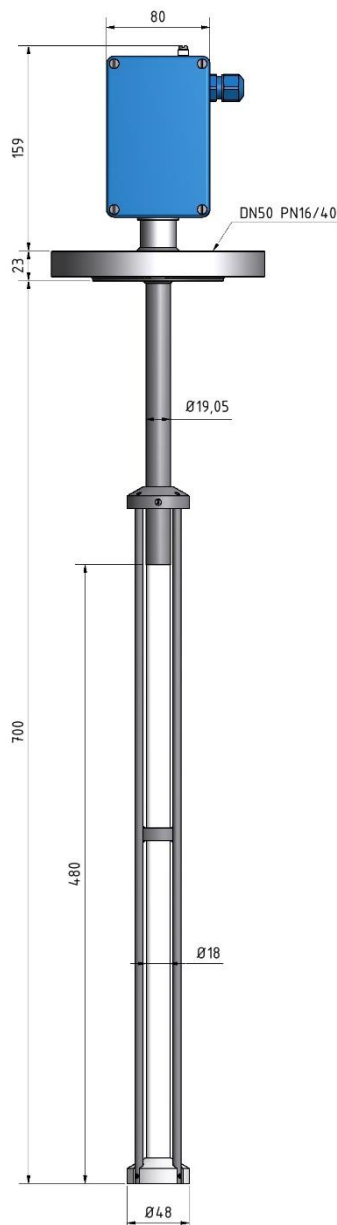
## Model code:

STM 700/480 SB R TN ES4 ANSI2" C ExG

S	Bar probe
T	Teflon® coated measuring electrode
M	Measuring electronics protection housing (indoor) integrated measuring electronics MTI 100/2 AEE2 Connection head aluminum, blue powder coated, viton gasket, IP 65 according to EN 60529 cable connection PM M16 x 1.5 blue, cable clamping range $\varnothing$ 6-8 mm
L	Probe length to lower edge of the flange 1550 mm
EL	Measuring probe length 750 mm
SB	Bar measuring electrode, $\varnothing$ /diam. = 18 mm, s = 4 mm
R	Wetted probe material stainless steel 316L
TN	Continuous interface layer and level detection (analog measuring technique)
ES4	4-fold cage Reference electrode $\varnothing$ /diam. 6 mm with spacer block $\varnothing$ 48 mm (from DN 50 onwards)
ANSI	Flange ANSI 2" 150 lbs according to ASTM A-182, ASME B16.5, RF (with raised face); 316L
C	Double seal Chemraz 505, second O-ring FPM (universally applicable)

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

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. 16 bar / 150 lbs. standard

**Measuring principle** Impedance

**Measuring range** DC 1.4 ... 80 / 0 - 1555 Imp

**Resolution** up to < 1 mm

### Conductivity optimum of the organic phase

MTI standard: 0 ... 200  $\mu$ S/cm (constant)

**Basic capacity** Cp: 48.8 pF / Rp: 1.8 M $\Omega$

**Integration time** 40 - 400 ms / 0 - 3750 Imp

**Use Ex-zone** II 1/2G Zone 0

### Measuring electrode PTFE-layer thickness

$\varnothing$  18.0 mm / PTFE s = 4 mm

**Application** Interface detection continuous, level

**Measuring electronics** Housing square: MTI 100/2 AEE2

**Protection** connection head square IP65

### Wiring

Shielded 2-core cable 0.75 mm<sup>2</sup> 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® MIQ / MIL

**Article n°** 02.29.12.0000 1281

# 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 mm<sup>2</sup> 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

$U_i \leq 18,9 \text{ V}$   $I_i \leq 49 \text{ mA}$

$P_i \leq 231 \text{ mW}$

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



## 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 safe 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

- Installation from top to bottom or bottom to top (length and turbulence dependent)
- During installation the bar probe must be handled carefully. Always hold the probe at the flange and support the measuring electrode.
- Internal installation guidelines always have to be followed and suitable sealing used.
- Observe internal safety regulations for open tanks
- 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
- Pressure tests have to be conducted with mounted probe

## 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 safety 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 mm<sup>2</sup>
- 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 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

