Turbine meter RQ UST
with Universal Smart Transmitter / HART®-Communication

CHARACTERISTICS

- Direct measurement of volume and flow rate
- Long meter life and reliability
- Measurement of low viscosities (even LPG)
- Measurement of non-conductive liquids possible (especially hydrocarbons)
- Highest accuracy/repeatability
- Minimized influence of flow profile and viscosity due to optimized design
- No zero drift
- Low pressure loss (max. 0.4 bar at nominal flow)

MEASURING PRINCIPLE

The turbine meter is an indirect volumetric meter. Its main component is an axial turbine wheel turning freely in the flowing liquid. The turbine wheel is set in rotation by the fluid at a speed which is directly proportional to the average velocity of the fluid in the free cross-section of the turbine meter. The speed of the turbine wheel is therefore directly proportional to the volumetric rate of flow, with the number of revolutions proportional to the volume that has passed through the meter.

The rotation will be transmitted through the housing wall by means of a non-interacting magnetic-inductive sensor to the electronic converter UST1. From there a flow-proportional 4-20 mA signal, in addition to the integral display (with e.g. actual flow rate, total volume or resettable totalizer), is available.
Major applications are process control or flow control loops in any branch of industry.

TECHNICAL DATA

Measured error (accuracy)	≤ 0,15 % of reading over a reduced flow range* (straight inlet pipe) ≤ 0,25 – 0,3 % of reading for normal flow range* The accuracy depends on the viscosity, flow range and the requested nominal size.
Repeatability	0.02 % of measured value
Operating temperature	-40°C to +80°C (-196°C to +250°C upon request)
Ambient temperature	-10°C to +70°C
Viscosity range	0.2 to 50 mPa·s
Process connection	Flanges for ratings PN 6 to 320 (DIN 2501) or Class 150 to 2500 (ANSI B 16.5)
Electrical connection	Sensor supply 14 to 30 VDC 2-wire technique, 4-20 mA, HART® or current pulses (without HART®)
Material	Wetted parts: stainless 1.4571/1.4462, 1.4429 other materials upon request Electronics housing: cast aluminum
Degree of protection	IP 67
Safety class	DMT 99 ATEX E014X EEx ia IIC T6 DMT 99 ATEX E0125X EEx d [ia] IIC/IIB T6 DMT 99 ATEX E0125X EEx de [ia] IIC/IIB T6
EU declaration of conformity	In accordance with EMC directives 89/336/EWG, 92/3/EWG, 93/68 EWG, EN 50081-1, EN 50082-2 and NAMUR NE 21

OIML

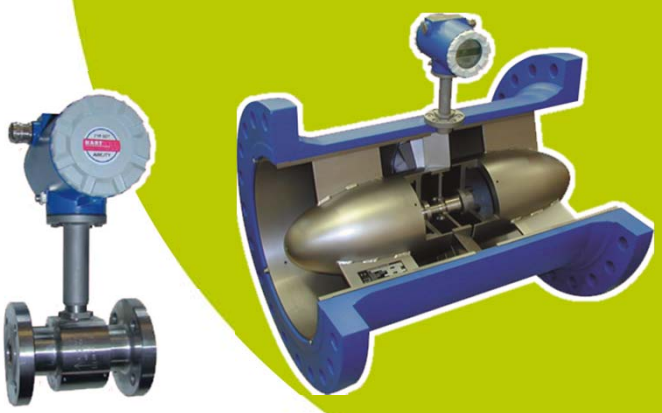
PTB Physikalisch-Technische Bundesanstalt Braunschweig und Berlin

HART COMMUNICATION FOUNDATION

MEASURING RANGE

RQ		
Nominal size		Nominal flow or full-scale value (m³/h)
(mm)	(inch)	
15	½	6
25	1	18
40	1 ½	42
50	2	72
65	2 ½	120
80	3	180
100	4	300
150	6	600
200	8	1200
250	10	1800
300	12	2400

* The given values for the accuracy are for viscosities of 0,2 – 0,7 mPa·s



BOPP & REUTHER MESSTECHNIK

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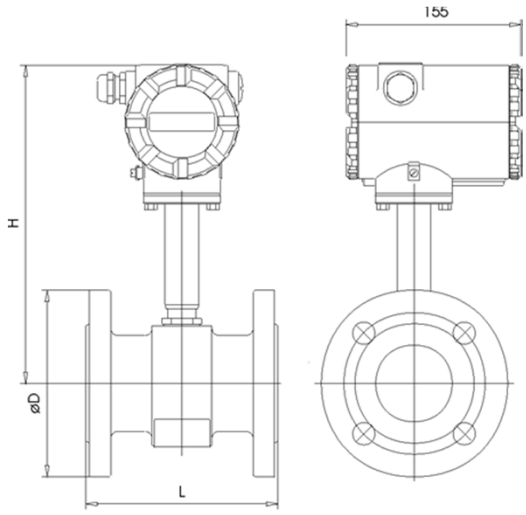
DIMENSIONS

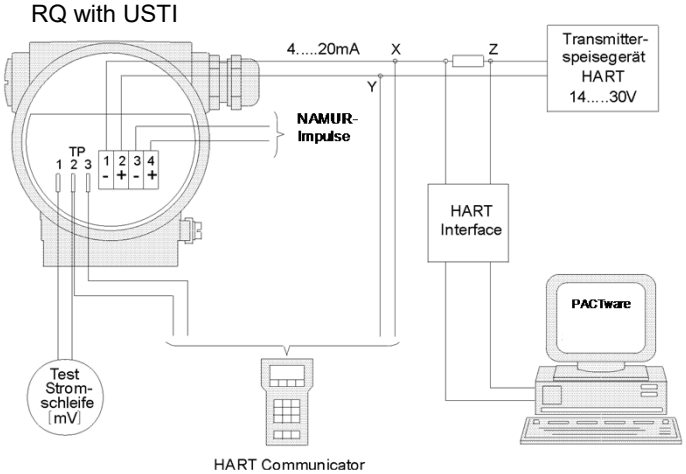
Type	RQ15	RQ25	RQ40	RQ50	RQ65	RQ80	RQ100	RQ150	RQ200	RQ250	RQ300
Length (mm)	140	150	170	170	190	200	200	300	400	500	600
Height (mm)	265	270	280	280	290	300	310	330	350	385	410
Ø D	95	115	150	165	185	200	235	300	375	450	515

Dimensions in mm (PN40 / Class 300)



CONNECTION

RQ with USTI



... **... combined with modern electronics suitable for communication**

- High-resolution sensor without moving parts
- 2-wire technology
- 4-20 mA output or pulse output
- Local display
- Special, easy-to-use software (PACTware) and easy-to-handle hardware
- HART® protocol
- Hand-held terminal available
- Status messages allow preventive maintenance

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Edition September 2018
Subject to modification

P-EN-02412-00Rev.C