ELSTER® TRZ2

Turbine gas meter in sizes from DN50 to 150 (2” to 6”).

Honeywell Elster TRZ2 turbine gas meters are robust meters used to accurately and reliably measure gas flows in gas distribution, industrial plants or for commercial users.

TRZ2 turbine meter (6") with Oil lubrication system and S1 Index and two HF pulse sensors.

Over decades the TRZ2 has proven to be highly accurate from the first calibration on to the end off its lifetime many years later. This is why leading gas distribution companies around the globe rely on the TRZ2 for their standard gas metering applications.

The patented Honeywell Elster metering cartridge enables repeatable measurement results even under non-ideal inlet flow condition and additionally reduces service time in the field significantly in case the cartridge shall be replaced. Due to its design ambient condition changes (e.g. a drop in temperature) have minimal impact on the meter performance as the cartridge is decoupled from the meter body.

The TRZ2 turbine gas meter is designed and manufactured in accordance with:

- EN12261
- OIML Provision R137-1&2
- EC directive 2014/34/EU(ATEX) / IECEx
- EC directive 2014/68/EU (PED)

APPLICATIONS

Custody transfer approved gas flow measurement from low to high operating pressures, gas distribution, industrial and commercial applications, hydrogen applications.

OPERATING PRINCIPLE

The gas flowing through the meter sets the turbine wheel in motion. The number of revolutions of the wheel is proportional to the volume passing through the meter. To optimize measurement performance a patented flow straightener eliminates flow disturbances such as swirl or asymmetric flow created by upstream bends or T-pieces. The combination of flow conditioning and optimized measurement unit incl. the turbine wheel make it possible to measure the flow rate accurately even at low flows and pressures. The revolutions of the turbine wheel are transmitted to the 8-digit mechanical counter located in the pressure-less index head.

FEATURES AND BENEFITS

Patented Measuring Cartridge

Suitable for 30% H2 for custody transfer- and 100% H2 for non-custody transfer applications

Used as reference meter in major calibration facilities

Conformity to EN12261, PED, ATEX and IECEx

Lowest measurement uncertainty, typically
+/- 1 % for Q_{min} - $0.2Q_{max}$
+/- 0.5% for $0.2Q_{max}$ to Q_{max}

Honeywell

TRZ METER INDEX AND PULSE OPTIONS

S1 Meter Index

S1 index head (standard)
The rugged design of the meter index (including the plastic cover) has proven itself in the harshest environments and is IP67 certified. The S1 index head is equipped with an 8-digit mechanical index for continuous meter reading. For better usability the index head can be rotated by 350° without breaking any seals.

The low frequency outputs (reed contacts) can be connected to any Flow Computer or Electronic Volume Corrector. An additional switch is included to detect manipulation attempts from the outside.

MI-2 Meter Index

Multi-Index MI-2
The rugged, aluminum design of the meter index (including the metal cover) has proven itself in the harshest environments and is IP67 certified. The MI-2 is equipped with an 8-digit mechanical index for continuous meter reading.

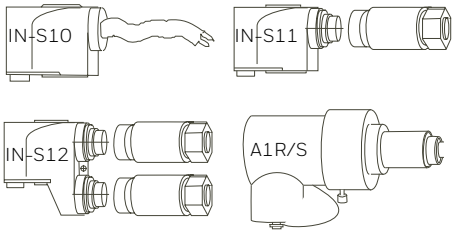
Absolute Encoder Option
Absolute ENCODER for digital data transfer between the meter and Flow Computer / EVC

Pulse outputs
The TRZ2 can be equipped with low and high frequency outputs depending on customer requirements.

Low frequency ouputs

- Max. 2x LF outputs (type E1) with maximum frequency of 0.5 Hz
- 1x manipulation contact
- The standard IN-S10 pulse output is delivered with 2.5m open-ended 6-wire cable to be connected directly to an EVC or junction box. Optionally the IN- S11 and IN-S12 offer a 6-pin flange plug and one/two connector sockets.

IN-S10 IN-S12 IN-S11



High frequency (optional)

- up to 4x HF outputs (The 2" meter allows only for 1 HF)
- max. 2x of type A1S which pick up the revolutions of the turbine wheel blades
- max. 2x of type A1R which pick up the revolutions of the turbine wheel by scanning boreholes at the inside of the wheel

TRZ2 PULSE VALUES

Size		Measuring data		Output pulse values [pulses/m³]*		
Nominal size	Meter size	Measuring range (1:20)		LF type E1 (IN-Sxx)	HF type A1R (P+F, NJ)	HF type A1S (IFM, N95000)
DN	G	Q_{min}	Q_{max}			
50	65	5	100	10	28000	-
80	100	8	160	1	10500	21000
	160	12.5	250	1	10500	21000
	250	20	400	1	10500	21000
100	160	12.5	250	1	6630	13260
	250	20	400	1	6630	13260
	400	32	650	1	6630	13260
150	250	20	400	1	6630	-
	400	32	650	1	2560	5120
	650	50	1000	1	2560	5120
	1000	80	1600	0.1	2560	5120

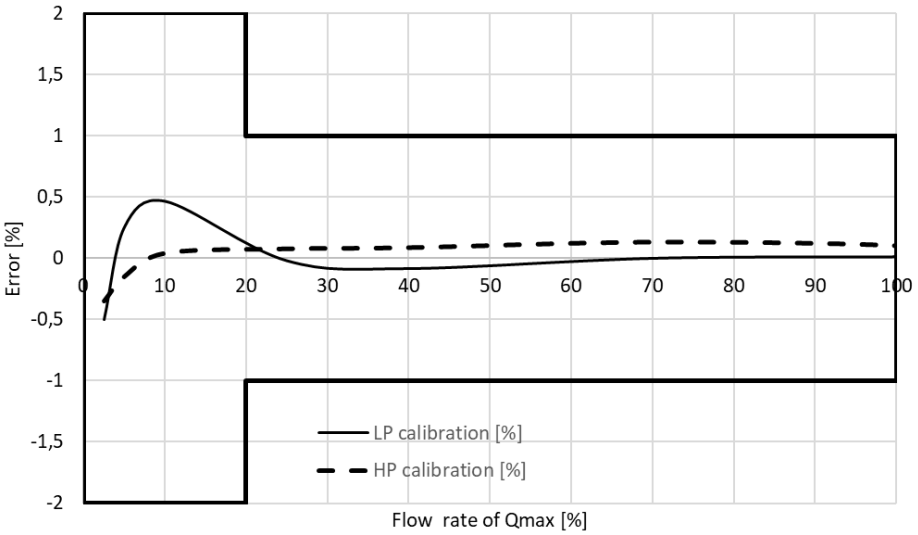
* Small deviations are possible for HF

TRZ2 METROLOGICAL PERFORMANCE

The TRZ2 turbine gas meter is designed and manufactured according to the European Standard for turbine meters EN 12261. As a standard the TRZ2 fullfill the error limit requirements of EN12261 which are as follows:

- ± 1 % for 0.2 Qmax to Qmax
- ± 2 % for Qmin to 0.2 Qmax

Typically the error of the Honeywell turbine meters is approx. half of these limits;
+/- 1% for Qmin - 0.2Qmax and 0.5% for 0.2Qmax to Qmax. Smaller errors are available on request.
Repeatability: <0.1%



Measuring ranges
Standard measurement range is 1:20, a range of 1:30 is available for most of the G-Ranges and higher ranges on request.

Material
Meter bodies: Spheroidal graphite cast iron (EN-GJS-400-18-LT) or steel (S355J2N), Turbine wheel: Aluminum

Installation tips/Mounting position:
According to EN12261 turbine gas meters can be operated in horizontal and vertical position.

Inlet pipe:
Apply straight pipe in case of up-stream flow disturbances;
≥2 DN for DN 80 – 150 and ≥5 DN for DN 50

Outlet pipe:
Fitting to nominal diameter of the meter.

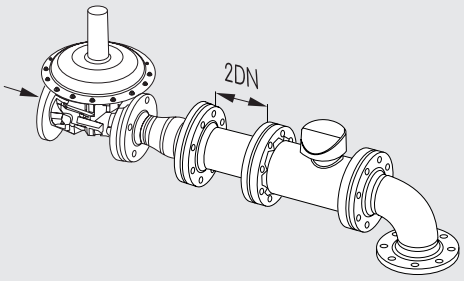
Approvals and Conformity
Elster TRZ2 turbine gas meters are manufactured in accordance with DIN EN ISO 9001:2015 (DIN EN ISO 14001). They are designed, produced and tested in accordance with the following guidelines, standards and references:

General
European standard for turbine meters EN-12261:2018 and OIML Provision R137

Metrology
EC directive 2014/32/EU (MID)

Hazardous Area
EC directive 2014/34/EU (ATEX) / IECEx

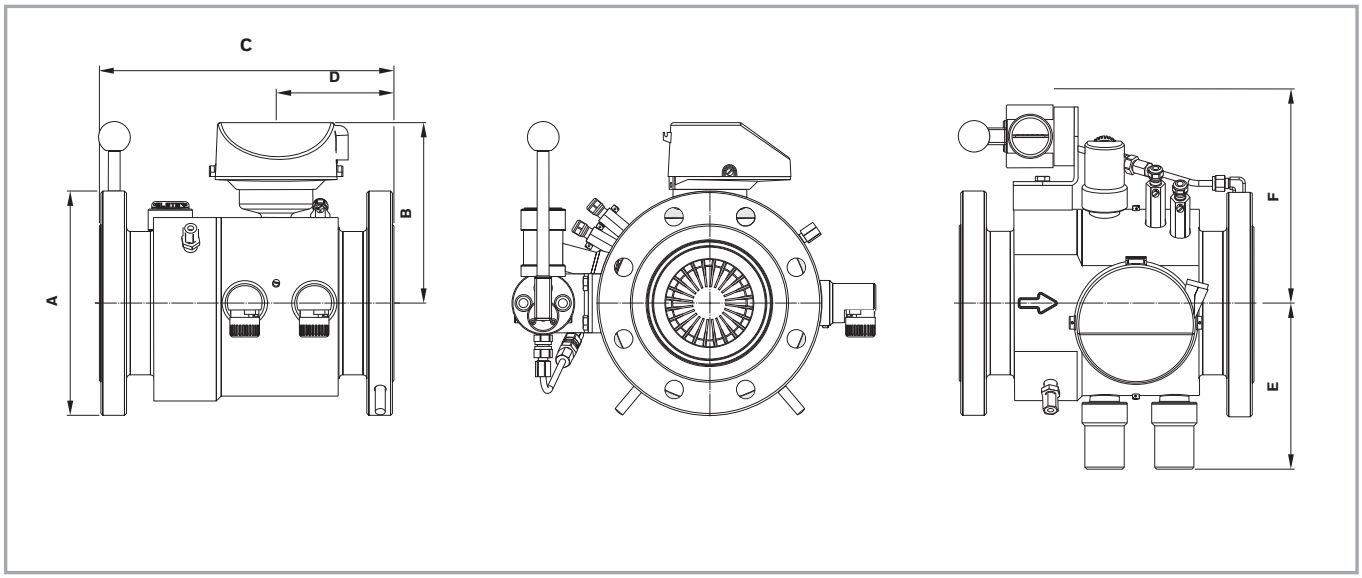
Pressure Equipment
EC directive 2014/68/EU (PED)



In case of upstream flow disturbances ≥2DN straight pipe should be used in front of the meter. (≥5DN for the DN50 meter)

A flow conditioner is not required.

TRZ2 TECHNICAL DATA



DIMENSIONS, WEIGHTS AND PRESSURE DROP													
Size		Measuring data			Dimensions [mm]						Weight [kg]**		
Nominal size	Meter size	Measuring range (1:20)		Δp* @ Qmax							PN10/16, Class150	PN25/40, Class300	PN63/100, Class600
DN	G	Qmin	Qmax	[mbar]	A	B	C	D	E	F	Ductile Iron	Steel	Steel
50	65	5	100	15	165	155	150	75	135	280	10	13	15
80	100	8	160	5	215	172	240	100	157	200	21	32	33
	160	12.5	250	10	215	172	240	100	157	200	21	32	33
	250	20	400	25	215	172	240	100	157	200	21	32	33
100	160	12.5	250	4	273	185	300	120	170	210	29	50	50
	250	20	400	10	273	185	300	120	170	210	29	50	50
	400	32	650	25	273	185	300	120	170	210	29	50	50
150	250	20	400	10	356	210	450	180	193	235	53	91	97
	400	32	650	5	356	210	450	180	193	235	53	91	97
	650	50	1000	10	356	210	450	180	193	235	53	91	97
	1000	80	1600	15	356	210	450	180	193	235	53	91	97

* Δ p for natural gas at 1 bar abs
** Small deviations are possible

For more information

To learn more about Honeywell Elster's Gas Solutions, visit automation.honeywell.com or contact your Honeywell account manager.

Honeywell Process Solutions

United States: 2101 CityWest Blvd, Houston, TX 77042
Germany: Elster GmbH Steinern Str. 19-21 55252 Mainz-Kastel

www.honeywell.com

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