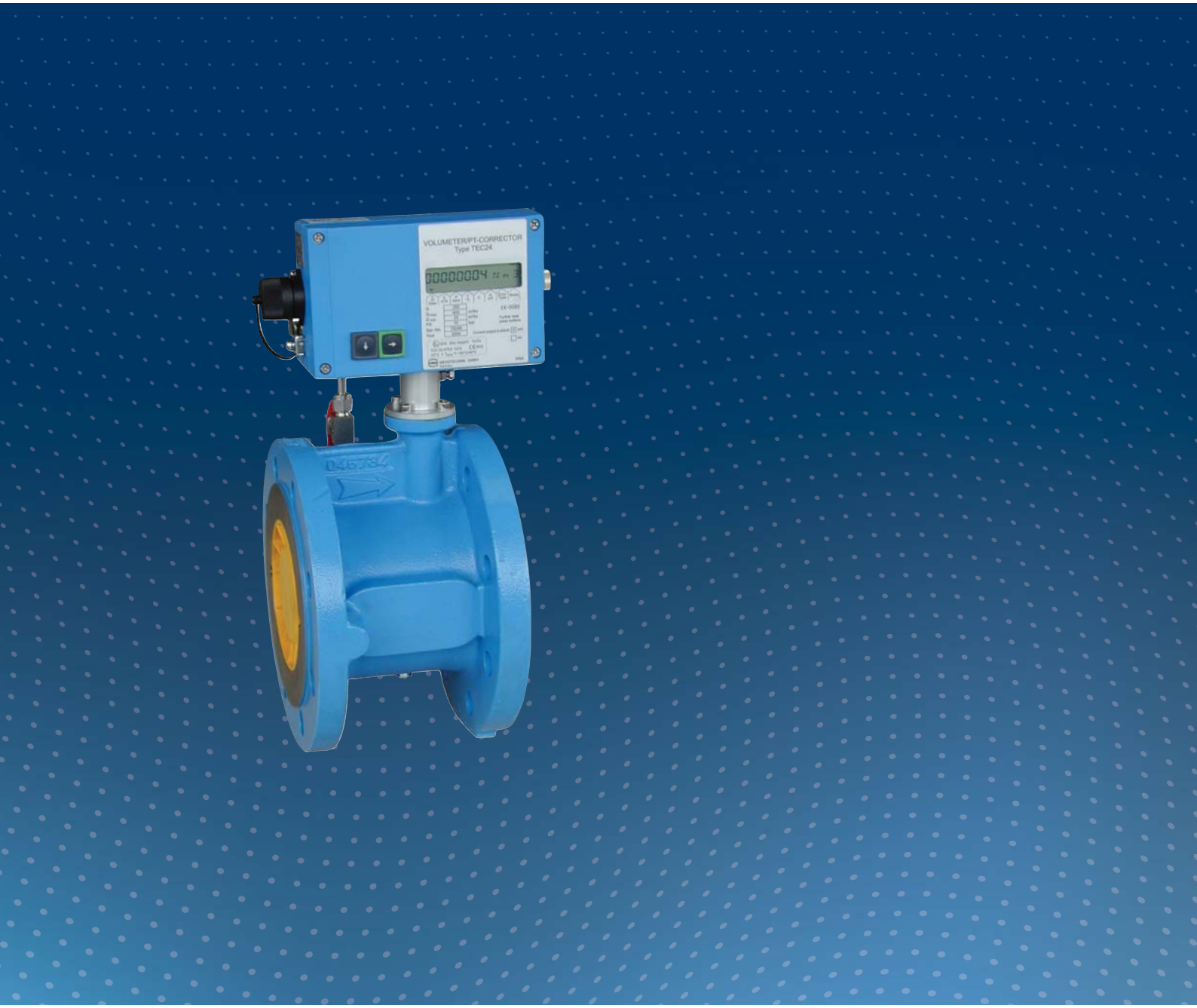
Meter for Volume at Base Conditions TEC 24



PRODUCT INFORMATION

Reliable Measurements of Gas

METER FOR VOLUME AT BASE CONDITIONS TEC 24

Method of operation, variants, features

Method of operation

The TEC 24 meter for volume at base conditions is a flow-meter which directly measures the flow rate of gases at measurement conditions and calculates the volume at base conditions via temperature and measured pressure value. The flow rate and the volumes at measurement and base conditions can be displayed on the electronic totalizer.

The operating principle of the meter is based on velocity measurement using a turbine wheel. The gas flow passes the ring-shaped inlet section of the flow straightener and reaches the coaxially mounted turbine wheel, whose speed is proportional to the mean velocity of the gas flow within the scope of the measuring range. The speed of the turbine wheel is recorded inductively using non-contact measurement by a pulse wire sensor and a permanent magnet.

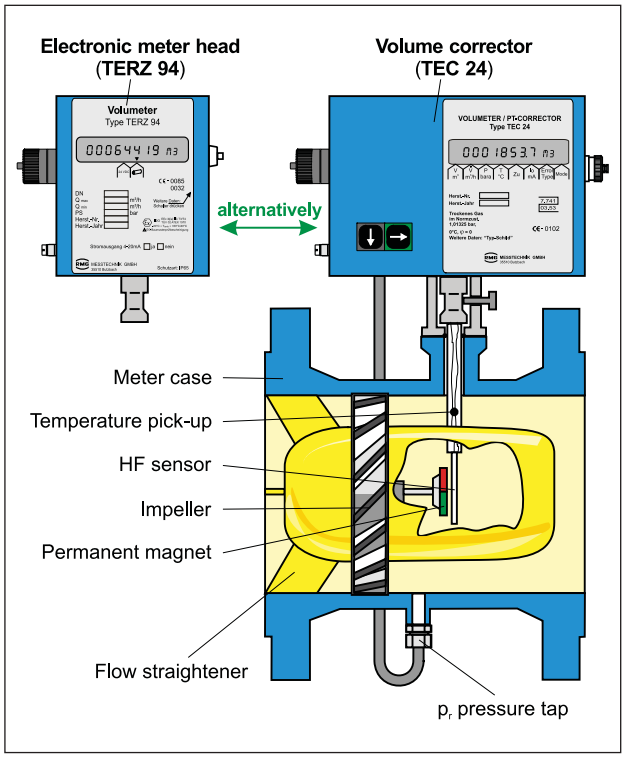
The sensor sleeve contains a PT 1000 resistance thermometer for measuring the temperature; the pressure transmitter of the TEC 24 is located in the meter head.

Variants

The TEC 24 meter for volume at base conditions is a variant of the TERZ 94 volumeter where the electronic meter head was replaced by a volume corrector of the type EC 24. The meters of this series are suitable for secondary metering applications, but there are also PTB-approved meters for custody transfer metering available. The most important variants are:

- **TERZ 94**: Compact measuring element with electronic totalizer, without corrector feature.
- **TEC 24**: Compact measuring element with volume corrector (p and T measured).

For detailed information about the measuring element and the measuring uncertainties, see the product information for the TERZ 94, for details regarding the corrector feature, see the product information for the EC 24.



Features

- **Low-torque metering system with long-term stability**
  Apart from the turbine wheel, there are no mechanically actuated parts.
- **Battery-powered or mains-powered operation**
  The standard design of the TEC 24 is powered by two lithium cells. In normal operating mode, the batteries have a service life of a minimum of six years and can be changed without opening the case.
- **Explosion protection**
  The TEC 24 is intrinsically safe and can be used in zone 1.
- **Calculation of the K coefficient**
  The volume corrector of the TEC 24 calculates the K coefficient in conformity with GERG 88S or AGA 8 gross method 1.
- **Two pulse outputs**
  HF (Vm) and LF (Vm or Vb)
- **Flow display (HF sensor)**
  The current flow value and the maximum value are displayed.
- **Digital interface**
  A serial RS 485 interface with Modbus protocol is available for exchanging data.
- **4-20 mA current output (transmitter)**
  For designs with a current output board (an external power supply unit is required for devices located in areas subject to explosion hazards).
- **Remote totalizer (option)**

Nominal dia.		Measuring range	Pressure classes		Dimensions		Weight
		Q_{min} - Q_{max}	PN	ANSI	Length	Height [1]	
mm	in	m^3/h			mm	mm	kg
25	1	2.5 - 25	10/16 [2]	-	185	145	4
40	1½	6 - 70	10/16 [2]	-	140	145	4
50	2	6 - 100	10/16	150/300	150	180	10
80	3	13 - 160 16 - 250 25 - 400	10/16	150	120	215	14
100	4	25 - 400 40 - 650	10/16	150	150	225	25
150	6	40 - 650 65 - 1000 100 - 1600	10/16	150	175	255	40
200	8	100 - 1600 160 - 2500	10/16	150	200	280	60
250	10	160 - 2500 250 - 4000	10/16	150	300	320	70
300	12	250 - 4000 400 - 6500	10/16	150 300/600	300 450	325	100 200
400	16	400 - 6500 650 - 10000	10/16	150 300/600	600	335	180 400
500	20	650 - 10000 1000 - 16000	10/16	150 300/600	750	385	300 650
600	24	1000 - 16000 1600 - 25000	10/16	150 300/600	900	440	400 850

[1] measured from pipe center [2] max. pressure for combustible gases: 5 bar other pressure classes on request

The nominal diameters of DN 25 and DN 40 can only be supplied with screw-threaded aluminium cases; the data of the other nominal diameters refer to flanged cases.
The weights are approximate values. Devices of a lower pressure class can have a lower weight.
Other case designs for adaptor-flange mounting (sandwich case) are described in product information for the TERZ 94. There you also find further technical data.

Specifications	
Explosion protection:	II2 G EEx ib[ia] IIC T3/T4 Approval No.: TÜV 02 ATEX 1970
Degree of protection:	IP 65
Ambient temperature range:	-20°C to +60°C
Fluid temperature range:	-10°C to +60°C (standard)
Temperature pick-up:	PT 1000
Pressure ranges:	0.7 - 2 bar(a) 2 - 10 bar(a) 8 - 40 bar(a) 0.8 - 5 bar(a) 4 - 20 bar(a) 14 - 70 bar(a)
Power supply:	Two lithium batteries of 3.6 V each (service life > 6 years) Service life of the standby battery with 24 V/DC external power supply via interface or current output > 12 years
Outputs:	• 3 transistor outputs: - HF for Vm - LF (programmable) for Vm or Vb - Fault U_{max} = 28 V, I_{max} = 60 mA, P_{max} = 420 mW • 4 - 20 mA analog output (only with external power supply), electrically isolated, load resistance max. 260 Ω
Interfaces:	RS 485 (Modbus protocol) / external power supply

For More Information

To learn more about RMG´s advanced gas solutions, contact your RMG account manager or visit www.rmg.com

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