

# TC-90/K

## *Electronic temperature volume corrector with data storage function for Elster diaphragm gas meters BK-G10 - BK-G25*



### Range of Application

The tendency to ensure a higher degree of justice concerning the billing of specific gas consumption as well as increasing energy prices require that the current gas temperature is taken into account. In the event that the temperature is neglected, a deviation of 3 °C already causes an error of approx. 1%.

### Brief Information

TC-90/K is a battery-operated volume corrector equipped with a permanently connected temperature sensor. The unit records the volume pulses of the gas meter and calculates the standard volume by means of the measured value of the gas temperature as well as the programmable fixed values for the gas pressure and the compressibility factor.

### Operation

All data and parameters as well as additional information can be displayed on an 8-digit screen using two keys. To ensure an easy operation, the data display consists of two levels. The standard level indicates the values of operating volume, standard volume, gas temperature, (absolute) gas pressure, K-factor, status register and other values. Within the archive level, the stored end-of-month readings can be displayed.

### Additional Functions

TC-90/K stores the last 15 end-of-month readings of the standard volume as well as the reading of the operating volume as recorded at the end of the respective last month. The stored data may be read out via the serial interface.

The TC-90/K volume corrector has a digital output that allows to connect additional units for further processing. Via this output it is possible to emit standard or actual volume pulses or signal the error status.

### Parameterization

As a rule, parameters will be set at Elster's according to your requirements. To set parameters on site, the parameterization program WinPADS and the connecting cable KD-100 will be required. WinPADS allows an easy adjustment of the settings and also provides the option of reading out stored meter readings and transmit these readings for further processing by Elster's analysis software WinLIS.

### Commissioning

TC-90/K may be commissioned at Elster's together with the commercial diaphragm meters BK-G10 to BK-G25 as a measuring unit in accordance with the PTB guideline TR G3.

### Design

The TC-90/K volume corrector has a solid plastics housing. In order to replace the battery, the calibration seal must be opened.

### Main Features

- Value for money temperature volume corrector
- Stores 15 end-of-months readings
- Readout of data via serial interface
- Digital output
- Measurement of temperature directly on the meter surface
- High measuring accuracy
- Compact size
- Inclusion of pressure as fixed value
- PTB approval
- Approved for operation in hazardous area zone 2

Technical Data		
Unit Type	Temperature volume corrector with data storage function	
Mechanical data	Housing: Protection class: Weight:	injection-moulded plastics IP54 230 g
Explosion protection	approved for use in hazardous area zone 2	
Power supply	Lithium battery module: Service life: > 6 years Change of battery without loss of data (EEPROM)	
Volume pulse input	1 pulse input (Elster system IN-Z 31)	
	Open-circuit voltage Pulse duration: Pause duration: Frequency:	3.5 V ≥ 150 ms ≥ 350 ms ≤ 2 Hz
Temperature sensor	Type: Pt-500 Class B to DIN IEC 751 permanently connected to the corrector: measurement on meter surface	
Temperature measuring range	Gas temperature: Environmental temperature	-20°C to +50°C -20°C to +60°C
Pressure	Fixed value:	≤ 1,5 bar (absolute)
Calibration switch	Pushbutton in the unit; accessible via a borehole without opening the housing	
Measuring error at normal operation	Actual volume: Standard volume: Temperature:	no loss of pulses ≤ 0,2% of measured value ≤ 0,1% of measured value
Data interface	Serial interface: Connection:	similar to RS232 / V.24 6-pole circular socket to DIN 41524
Digital output	Transistor output Voltage: Current: Frequency: Pulse duration: Connection:	$U_{\max} = 30 \text{ V}$ $I_{\max} = 30 \text{ mA}$ $f_{\max} = 1 \text{ Hz}$ $t = 500 \text{ ms}$ 4-pin round plug to DIN 41524

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