

# MEC<sup>flexV</sup> Volume and Energy Conversion

## Applications

Battery powered gas volume conversion device with integrated GSM/GPRS modem suited for complex solutions for custody transfer measurement and telemetric data collection.

## Main features

- Single or dual channel gas volume conversion device
- Integrated GSM/GPRS modem
- Designed for hazardous area ZONE1 and ZONE2
- Battery lifetime up to 10 years
- Typical error under reference conditions  
< 0.15 % of measured value
- Graphical LCD display with backlighting
- Possibility to connect 3rd pressure and temperature sensor
- Analog inputs
- Telemetry features
- Microsoft Windows compatible software



## Basic description

MEC<sup>flexV</sup> is designed for conversion of gas volume under operating conditions into gas volume in standard conditions according to statutory equations acc. to EN 12405. For that purpose, it reads pulses from the gas meter, measures gas temperature and pressure. The gas volume corrector can be used as a PTZ, PT, TZ or T type corrector. The device supports the algorithms for compressibility factor calculation according to standards AGA 8-92DC, AGA NX-19 mod, AGA 8-G1, AGA 8-G2, SGERG-88 or fixed factor calculations.

The mechanical concept of the device is designed to operate as a single or dual channel with possibility to add another non-metrological channel. It means that in full version MEC<sup>flexV</sup> can handle three measuring channels. The device configuration also enables measuring and monitoring other quantities. An integrated GSM/GPRS modem is providing transfer of collected data to the external supervisory or billing system via a cellular network. MEC<sup>flexV</sup> is also equipped with up to 4 analog inputs, 8 digital inputs and 4 digital outputs.

MEC<sup>flexV</sup> belongs to a new generation of electronic volume conversion devices and it is designed based on the latest microprocessor technology. The device provides large capacity archives and enables flexibly to change period of data recording. As a standard function the device offers generation of digital output pulses which respond to the operating and standard volume and alarm signal. Protection of data is secured either by hardware switch or by using programmable passwords.

MEC<sup>flexV</sup> is designed for complex solutions based on a flexible modular system. MEC<sup>flexV</sup> is battery power supplied with an option of external power feeding. All required actual and calculated values are presented on a backlit graphical LCD display by operating the 6-button keypad. It is also possible to set all basic parameters through the keypad.

Communication with the external supervisory or billing system can be realized via the serial interface RS-232/RS-485, infra-red head or via integrated GSM/GPRS modem.

## Technical specifications

<b>Housing</b>	UV stabilized polycarbonate
<b>Dimensions (w x h x d)</b>	307 x 222 x 87 mm
<b>Weight</b>	2.2 kg
<b>Protection class</b>	IP 65 (EN 60529)
<b>Working temperature</b>	25°C to +70°C (EXT1); -25°C to +60°C (GSM, GSM EXT1)
<b>Control panel</b>	6 button keypad
<b>Display</b>	graphical LCD display with backlighting (also in battery mode), 128 x 64 pixels
<b>Power supply</b>	2 lithium battery packs; operating time of the modem battery is up to 10 years and for EVC battery up to 6 years in defined conditions
<b>Measuring temperature range</b>	-25°C to +60°C
<b>Measuring pressure ranges (bar, absolute)</b>	
MID certified	<ul style="list-style-type: none"> <li>• standard ranges 0.8 - 5.2; 2 - 10; 4 - 20; 7 - 35; 14 - 70</li> <li>• enhanced ranges 0.8 - 10; 4 - 70</li> </ul>
without MID	<ul style="list-style-type: none"> <li>• standard ranges 0.8 - 5.2; 0.8 - 10; 0.8 - 20; 0.8 - 35; 0.8 - 70</li> </ul>
<b>Accuracy</b>	<0.5 % of measured value (MID) <0.15 % typically of measured value
<b>Communication interface</b>	RS-232 / RS-485 serial interface optical interface (IEC 62056-21:2002) / GSM/GPRS modem
<b>Communication speed</b>	RS232/RS485: 9.6 - 57.6 kbit/sec / optical interface (IEC 62056-21:2002): 9.6 - 38.4 kbit/sec
<b>Digital inputs</b>	up to 8 digital inputs (configurable as LF, HF or binary)
<b>Digital outputs</b>	4 digital outputs (configurable as pulse or binary output)
<b>Analog inputs</b>	up to 4 analog inputs; 4-20mA (MEC <sup>flexV</sup> var. EXT1 and EXT2)
<b>Analog outputs</b>	up to 4 analog inputs; 4-20mA (MEC <sup>flexV</sup> var. EXT1 and EXT2)

## Approvals

<b>Approved according to the European metrology standard</b>	EN 12405-01 and 2004/22/EC (MID) TCM 143/10-4722
<b>ATEX approval for installation into hazardous area</b>	FTZÜ 14 ATEX 0135X
<b>Classification (according to EN 60 079-0, EN 60 079-11)</b>	II 1G Ex ia IIC T4/T3 (MEC <sup>flexV</sup> EXT1) II 1G Ex ia IIA T3 (MEC <sup>flexV</sup> GSM, MEC <sup>flexV</sup> GSM EXT1)
<b>Accessories</b>	user's manual
<b>Standard delivery</b>	TELVES - service and data collection software
<b>Optional accessories</b>	
Installation material	thermowell, mounting kit, three-way tap (type DN 3 PN 100)
Power supply	intrinsically safe power supply JBZ-02
Module of current loop	CL-1 (4 - 20mA)
Separation and communication modules	DATCOM-K3, DATCOM-K4
Digital transducers	pressure transmitter EDT 23, temperature transmitter EDT 34
Optical probes	infrared head HIE-03 (RS-232), infrared head HIE-04 (USB)
Expansion module for digital transducer connection	expansion module RS-485

Variants	Digital inputs (LF/HF, binary)	Digital outputs (LF, binary)	Analog inputs (4 - 20mA)	Maximum metrolog. channels	Maximum transducers	GSM/GPRS modem
MEC <sup>flexV</sup> GSM *	4	4	-	1	2	yes
MEC <sup>flexV</sup> EXT1	6	4	2	2	6	-
MEC <sup>flexV</sup> GSM EXT1 *	6	4	2	2	6	yes
MEC <sup>flexV</sup> EXT2	8	4	4	2	4	-
MEC <sup>flexV</sup> GSM EXT2 *	8	4	4	2	4	yes

\* All GSM variants are also available in GSM2 version which is a variant with possibility to power the GSM/GPRS modem externally via MPU<sup>flexM</sup> power supply.