

### Technical specifications

Housing	polycarbonate	Measuring temperature range	-25 °C to +60 °C	
Dimensions (w x h x d)	193 x 160 x 73 mm	Measuring pressure ranges (absolute)	MID certified	non MID
Weight	1.2 kg	<u>standard range (bar):</u>	<u>0.8 - 5.2</u>	<u>0.8 - 5.2</u>
			<u>2 - 10</u>	<u>0.8 - 10</u>
			<u>4 - 20</u>	<u>0.8 - 20</u>
			<u>7 - 35</u>	<u>0.8 - 35</u>
			<u>14 - 70</u>	<u>0.8 - 70</u>
Protection class	IP 66 (EN 60529)	enhanced range (bar):	0.8- 10	4 - 70
Working temperature	-25 °C to +70 °C	Accuracy	<0.5 % from measured value (MID) <0.15 % typically from measured value	
Power supply	Lithium battery, operating time is more than 6 years in defined condition with option of intrinsic safe power supply JBZ-02	Communication interface	RS-232 / RS-485 serial interface Optical interface IEC-1107 GSM/GPRS modem	
Type of battery	SAFT standard lithium battery (D size 3.6V/17Ah)	Communication speed	RS232/RS485: 9.6 - 57.6 kbit/sec Optical interface: 9.6 - 38.4 kbit/sec	
Control panel	6 button keypad	Analog output	external CL1 module (4 - 20mA)	
Display	Graphical LCD display with backlighting (also in battery mode), 128 x 64 pixels	Digital input	4 digital inputs (configurable as LF, HF or binary)	
Communication and service software	TELVES software for Windows	Digital output	4 digital outputs (configurable as pulse or binary output)	

### Approvals

Approved according to the European metrology standard EN 12405-01 and 2004/22/EC (MID)	TCM 143/09 - 4664
ATEX approval for installation into hazardous area	FTZÚ 08 ATEX 0324X
Classification (according to EN 60 079-0, EN 60 079-11)	II 2G Ex ia IIC T4/T3

### Delivery, accessories

Standard delivery	User's manual Telves - service and communication software
Optional accessories	
Thermowell	Communication module DATCOM-K3, K4
Mounting kit	Pressure transmitter EDT-23
Intrinsically safe power supply JBZ-02	Temperature transmitter EDT-34
Module of current loop CL-1	Communication infrared head HIE-03 (RS-232)
Three-way tap, type DN 3 PN 100	Communication infrared head HIE-04 (USB)

BATTERY POWERED  
GAS VOLUME CONVERSION DEVICE  
with option of external power supply

## miniElcor

Complex solution for custody transfer measuring  
and telemetric data collecting



- High performance valuable product
- Basic telemetric functions
- Battery lifetime more than 6 years
- Typical error under reference conditions < 0.15 % of measured value
- Graphical LCD display with backlighting
- Possibility to connect 2nd pressure or temperature sensor
- Basic parameters setting via keypad
- Large capacity of different type of archives
- Designed for hazardous area ZONE 1 and ZONE 2
- EC certificate FTZU 08 ATEX 0324X
- Microsoft Windows compatible software
- Remote reading option

Manufacturer: ELGAS, s. r. o., Ohrázenice 211, 533 53 Pardubice, Czech republic  
tel.: +420/ 466 414 500, 466 414 511 fax: +420/ 466 411 190  
E-mail: sales@elgas.cz, <http://www.elgas.cz>

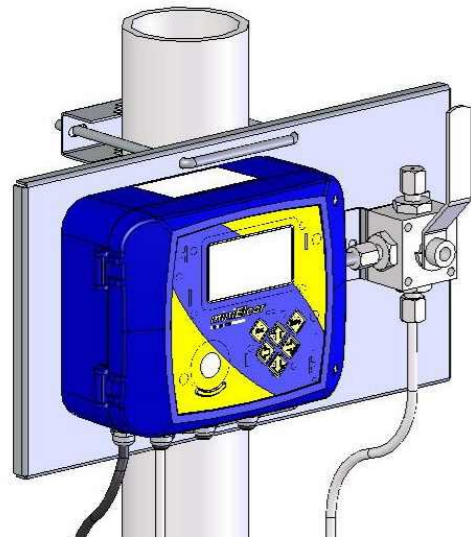
Certificate according to EN ISO 9001:2001

Revision 1

### Basic description

MiniElcor is designed for converting of gas volume in operating conditions to gas volume in standard conditions according to state equation. For that purpose, it reads pulses from gas meter, measures gas temperature and pressure. The gas volume corrector is of the PTZ, PT, TZ or T type. The device supports those algorithms for calculation of compressibility factor according to standards AGA 8-92DC, AGA NX-19 mod, AGA 8-G1, AGA 8-G2, SGERG-88 or fixed.

Mechanical concept of the device is selected to operate as a single channel. Device configuration also enables measuring and monitoring other quantities.



Example of application

MiniElcor is constructed on the latest microprocessor technology which enables measuring of pressure and temperature using analog transducers. The device provides large capacity of archives and enables flexibly to change period of data recording.

As a standard function the device offers generator of output digital pulses which respond to primary and standard volume and alarm signal. Protection of data is secured either by hardware switch or by using programmable passwords.

MiniElcor is designed for complex solution based on flexible modular system. MiniElcor is battery power supplied with option of external power supply. All required actual and calculated values are presented on back lighted graphical LCD display with using of 6-buttons keypad. It is also possible to make basic parametrization through keypad. Communication with superior system can be realized trough serial interface RS-232/RS-485 or infra-red head.

### Power supply

The device operates from inbuilt lithium battery for 6 years in defined operating conditions. It is possible to use pulse outputs during battery power supply. In case of request for operation mode with increased consumption, external power supply with intrinsically safe sources can be used (JBZ-02, DATCOM-K3/K4).

### Communication

#### Communication with superior system

For connection with superior system can be used RS-232 or RS-485 or infrared optical port.

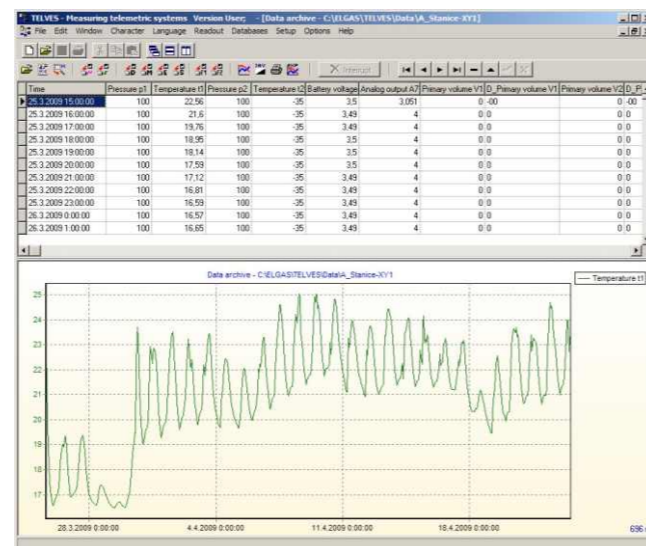
Communication can be realized through the PSTN modem, GSM or GPRS modem or with radiomodem. TCP/IP protocol is supported. The device is equipped with communication protocols ELGAS version 2, MODBUS®. Another protocols can be used on request.

#### Communication with modem GSM, GPRS

For the purposes of diagnostics during modem installation, there is realized possibility of representing information from a modem about presence and connection to GSM or GPRS network and information about strength of a signal measured by modem.

#### Communication and telemetry

Device is equipped with functions which are standard for telemetric systems. It enables monitoring excesses of set limits, sending alarms to control centre, operation of modem and others.



Communication software

### Temperature sensor

- PT-1000 probe
- length 120mm,  $\phi$  5.7 mm
- two-wire cable length up to 10m
- accuracy: <0.1 % from measured value
- possibility to add another temperature transducer (EDT-34)

### Pressure transducer

- internal or external pressure transducer
- cable length up to 5 m
- silicon piezoresistive sensor
- connection - thread M12 x 1.5
- accuracy: <0.25 % from measured value
- possibility to add another pressure transducer (EDT-23)

### Digital inputs

4 digital inputs (configurable as):

- LF input
- HF input (NAMUR)
- binary input or tamper LF input
- binary input NAMUR
- encoder

- LF input pulse frequency: max. 10Hz
- LF pulses: reed contact or Wiegand
- HF input pulse frequency: max. 5 kHz - external power supply required
- HF pulses: NAMUR (DIN 19234) - external power supply required

### Digital outputs

4 digital outputs (configurable as):

- pulse output (primary volume, standard volume, odorization control, etc.), programable pulse 0.1 sec to 25 sec
- binary output (alarm, etc.)
- analog output - realized through CL-1 module (4-20mA)

### Compressibility formulas

- AGA-8 92DC
- AGA-8 G1
- AGA NX-19 mod
- AGA-8 G2

### Data protection

Data are protected by:

- Using password
- Switch, which is placed inside of the device

### Communication interface

- RS-232 / RS-485 serial interface
- Optical interface (IEC-1107)

### Display and keypad

- clear graphical LCD display with backlighting (Backlighting also in battery mode), operated by 6-button keypad
- display of measured current values and pre-set parameters
- possibility to set basic parameters trough keypad

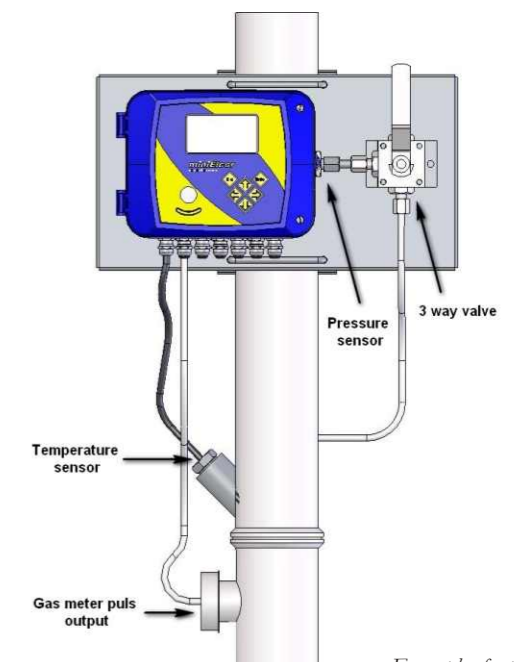
### Error conditions

The device indicates and stores different error 's conditions which can be set as alarm status:

- disturbance of gas meter
- full audit log
- low capacity of battery warning (3 months in advance)
- exceeding of measured range of pressure and temperature
- exceeding of upper limit of flow rate

### Memory

- memory type: FLASH, 1MB
- data archive: 14300 records (flexible - according to configured parameters), programmable period: 1 - 60 min
- daily archive: 400 records
- status archive: over 500 records, contains formation and extinction of errors, date and time.
- monthly archive: 25 records
- audit log: over 500 records, contains the changes of parameters



Example of application