

EK260 now even more universal

Within the scope of maintaining our products, the EK260 volume corrector has been further developed. With the new firmware version 2.51, a number of further useful hardware and software options are possible that can significantly extend the range of use of the volume corrector.

External pressure sensor

Installing a volume corrector in a gas meter system generally requires three connections:

- The pulse generator or the encoder counter
- The temperature sensor and
- The connection to the pressure sensor.

Here, the connection between the pressure tap on the gas meter or the pipe to the internal pressure sensor using Ermeto pipework or a flexible pressure tube is the most complex part of the installation. Therefore for solely practical reasons, compact volume correctors like the EK260 are generally installed directly on a gas meter or immediately adjacent to it.

But there are always the famous exceptions to the case! These might be a gas pipe with a meter fitted several metres up on a pipeline bridge, for example, or fitting the meter in an inlet and outlet pipe pit or a place that is hard to access. Under such installation conditions, proper reading, operation and checking is only possible with difficulty (Fig. 1).



Fig. 1: EK260 – Installation on a pipeline bridge

For these applications, the EK260 volume corrector has the option of an external pressure sensor with a 10 m long connection cable. The sensor can be

Table 1: Example of a Modbus configuration

Meter readings					
Modbus register	Short designation	Description	Unit	LIS200 address	Adjustable
501	VT	Total actual volume	m ³	4:302	No
504	V _b T	Total standard volume	m ³	2:302	No
507	WT	Total energy	kWh	1:302	No
Analogue measured values and constants (32-bit real numbers)					
Modbus register	Short designation	Description	Unit	LIS200 address	Adjustable
301	p _b	Base pressure	bar	7:312_1	No
303	T _b	Base temperature	°C	6:312_1	No
305	p.Abs	Abs. pressure measurement	bar	6:210_1	No
307	p.Mes	Pressure measurement	bar	6:211_1	No
309	T. Mes	Temperature measurement	°C	6:310_1	No
311	C	Conversion factor		5:310	No
313	K	Gas law deviation factor		8:310	No
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installed via a valve directly on the pressure tap (Fig. 2). The measuring signals are transmitted through the cable connection to the volume corrector. This significantly reduces the time-intensive mechanical piping for the pressure sensor during installation. Naturally, this option also includes a new temperature sensor (6 mm diameter) for universal use, which also has a 10 m long connection cable.

Modbus protocol

In gas meter and gas control systems in which SCADA systems are used for controlling and monitoring technical processes, there is an increasing demand for these systems to also use process data from a compact volume corrector. The Modbus protocol is generally used here for data communication. This is a communication protocol based on a master/slave or client/server architecture. Modbus has become established as a standard in industry as it is an open protocol.

Data communication based on the Modbus protocol can now be used as an alternative to the standard IEC 62056-21 protocol for the EK260. Modbus/RTU and Modbus/ASCII operating modes are supported. In order to guarantee the greatest flexibility in the application, Elster-Instromet can freely configure the data elements, associated indicators and data formats and thus individually adapt the EK260 to an existing application (see example of a Modbus configuration in table 1).

Technical calibration logbook

As with the DL210 data logger, a technical calibration

logbook is now also available for the EK260 volume corrector. The functions required of this logbook are described in PTB Requirements 50.7. With the EK260 logbook, up to 50 changes of parameters for which calibration is obligatory are possible without the calibration lock having to be opened. Then, before further amendments are possible, the logbook has to be deleted when the calibration lock is open in the presence of a representative of the appropriate authority. Changes are automatically documented with a time stamp. For a complete overview of this, the entries can be shown at any time on the device display.

Naturally, protection against unauthorised access is guaranteed at all times by the supplier lock. Thus the meter readings for the operating and standard volumes, for example, can be adapted while the volume corrector is in operation, according to information and on agreement with the calibration authorities. Limit values for pressure and temperature measurements can also be set to new operating conditions in the same way. It is an advantage that these changes can be carried out by remote data transfer. Consistent use of the technical calibration logbook means that the maintenance costs of a gas meter system can be reduced.

Should these functions conflict with country-specific regulations, then they can also be deactivated by Elster-Instromet.

Many more facilities

In addition to the facilities presented above, there are also further functions and optimisations, such as:

- > Alternative compressibility calculation procedures (AGA-8 GC and AGA-NX19 according to Herning & Wolowsky)
- > Meter readings, consumption and status information sent by SMS
- > Expansion of the display range for GSM parameters

We continually develop and optimise the devices on the basis of recognised standards and new technologies as a matter of course. With its new, versatile facilities and functions, the EK260 volume corrector can now be used even more universally – just give it a try. We are happy to offer you support with this – and that's a promise!

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Fig. 2: EK260 – New external pressure sensor

Table 2: Example of the technical calibration logbook

Time stamp		Address	Description	New value	Old value	Calibration lock	Supplier lock	Customer lock	Indenture number	Check sum
Date	Time									
27.11.2006	2:54:23 PM	4:0300	Standard volume Vb	15111996	15111985	closed	open	closed	7513	CRC OK
27.11.2006	2:54:30 PM	7:3A0_1	Upper alarm limit pressure	3,5	4,9	closed	open	closed	7514	CRC OK
27.11.2006	2:54:45 PM	6:3A0_1	Upper alarm limit temperature	50,0	60,0	closed	open	closed	7515	CRC OK
27.11.2006	2:55:51 PM	8:317	k-value calculation mode	S-GERG 88	0,9987	closed	open	closed	7516	CRC OK
27.11.2006	2:56:13 PM	4:0150	Measurement period	15	60	closed	open	closed	7517	CRC OK