

**Operating instructions
for consumers**
Electronic index EI4



themis® log

Contents

Electronic index EI4	1
Contents	1
Safety	1
Checking the usage	2
Installation	2
Operating the electronic index	2
Navigating within the menu	3
Assistance in the event of malfunction	5
Technical data	5
Logistics	6
Contact	6



Safety

Please read and keep in a safe place



Please read through these instructions carefully before installing or operating. Following the installation, pass the instructions on to the operator. This unit must be installed and commissioned in accordance with the regulations and standards in force. These instructions can also be found at www.docuthek.com.

Explanation of symbols

-  **1, 2, 3...** = Action
-  = Instruction

Liability

We will not be held liable for damage resulting from non-observance of the instructions and non-compliant use.

Safety instructions

Information that is relevant for safety is indicated in the instructions as follows:

 **DANGER**

Indicates potentially fatal situations.

 **WARNING**

Indicates possible danger to life and limb.

! CAUTION

Indicates possible material damage.

All interventions may only be carried out by qualified gas technicians. Electrical interventions may only be carried out by qualified electricians.

Conversion, spare parts

All technical changes are prohibited. Only use OEM spare parts.

Changes to edition 07.14

The following chapters have been changed:

- Checking the usage
- Logistics

Checking the usage

Electronic index EI4.01 for diaphragm gas meters BK-G...E

Electronic index for reading out absolute meter readings and for retrieving consumption data, current tariffs, messages and the valve position.

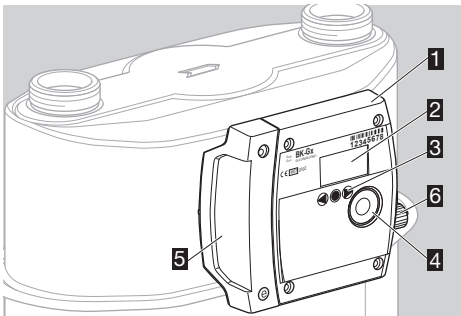
This function is only guaranteed when used within the specified limits – see page 5 (Technical data). Any other use is considered as non-compliant.

Type code

Code	Description
EI4	Electronic index based on EI4 Variant
.01	Pulse interface, ATEX Cat. 1 Communication module
.07	ECM.07, GSM wireless technology

- ▷ The index version is shown on the index plate, see page 2 (Type label/Index plate).
- ▷ When retrofitting or replacing the communication module, it may be the case that the last two characters in the type code are no longer applicable.

Part designations

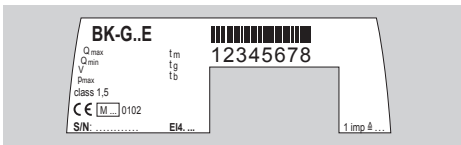


- 1** Electronic index EI4
- 2** Display
- 3** User keys
- 4** Opto-adaptor interface
- 5** Service cover
- 6** Pulse output

Type label/Index plate

Please quote for all enquiries:

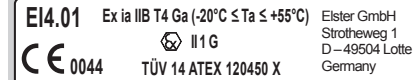
- ▷ Manufacturer's serial number S/N (at the bottom left)
- ▷ Index version EI (next to the serial number)



ATEX

- ▷ The electronic index is suitable for use in potentially explosive atmospheres.

Markings:



Use as follows:

Category 1 (Zone 0).

Type of atmosphere: gases, hazes and vapours.

- ▷ Any technical modifications carried out on the device will lead to loss of ATEX conformity.

Installation

Installing the gas meter

- ▷ For installing the gas meter in the pipework, refer to the operating instructions for diaphragm gas meters BK-G1.6 to BK-G25 → http://docuthek.kromschroeder.com/doclib/main.php?language=1&folderid=400041&by_class=2&by_lang=-1.

Operating the electronic index

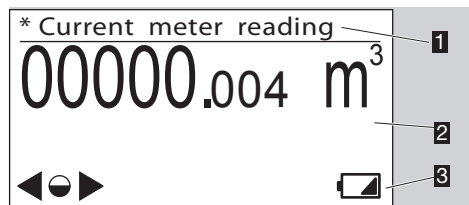
- ▷ The display on the index is switched off.
- Briefly press any key.



Unpower

- ▷ A beep sounds and the main screen appears.
- ▷ An internal buzzer gives audible feedback, e.g. a short beep indicates a valve is open and a long beep indicates a valve is closed. A short beep sounds each time a key is pressed or if the unit automatically changes back to the main screen.
- ▷ This function can be switched off.

Main screen



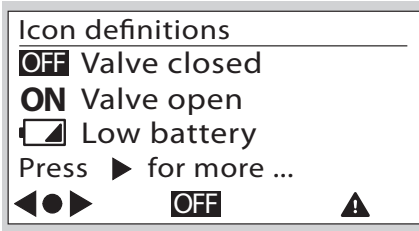
- 1** Menu area
- 2** Information area
- 3** Status line (symbols)

User keys, selection key and symbols

- ▷ You can navigate through the menu using the user keys ▶, ◀ and the selection key ●.

Symbol	Meaning
▶, ◀	Navigate to the left or the right on each level using the user keys. Briefly pressing the selection key selects a sub-menu.
●	Holding the selection key pressed down switches the display back to the previous menu.
◐	Briefly pressing the selection key selects a sub-menu.
◑	Holding the selection key pressed down switches the display back to the previous menu.
▶, ○, ◀	Keys inactive
OFF	Valve/gas flow closed. This symbol is only displayed when a valve is integrated in the gas meter.
ON	Valve/gas flow released. This symbol is only displayed when a valve is integrated in the gas meter.
✉	New messages
⚠	Invalid data
⚠	Error message
🔋	Low battery. This symbol is only displayed when battery power is low.
*	Marking for metrology-relevant data
□	Substitute for undisplayable character in sentence

- ▷ In the “Icon definitions” menu, the most important symbols are described briefly.

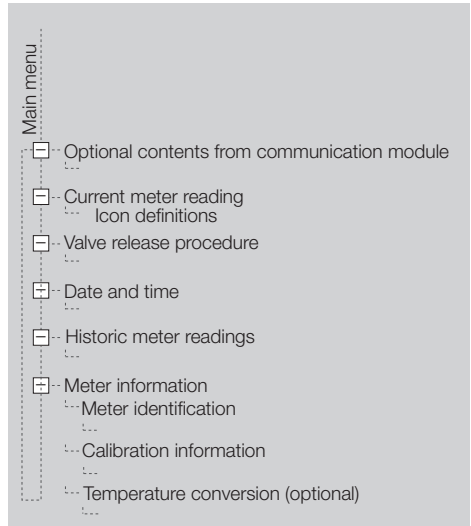


Navigating within the menu

- ▷ The menu is constructed hierarchically.
- ▷ Depending on the configuration, some menus may be missing.
- ▷ The “Current meter reading” main screen appears when switching on the index.
- ▷ If you are in a different menu, the display will automatically change back to the main screen when no user key has been pressed for 30 s, and switches off after a further 30 s.
- ▷ You can navigate from the main screen to the various menus, such as “Meter information” using the user keys ▶, ◀.

Menu overview

The display can differ depending on the parameterization or communications module.



Optional contents from communications module

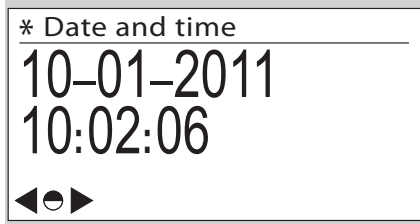
- ▷ For further information, refer to the operating instructions for communications modules type ECM (for electronic index).

Current meter reading

- ▷ The absolute meter reading and optionally the current tariff are indicated in the main screen.
- ▷ This appears when switching on the index.
- ▷ You can receive information about the symbols by pressing the selection key ● and the user keys ▶, ◀, or see page 3 (User keys, selection key and symbols).

Date and time

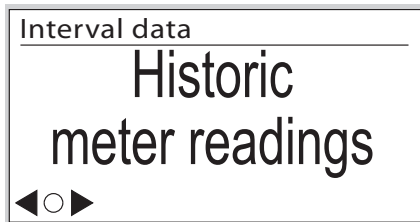
- ▷ Information on the date and time display.



- ▷ The operator can transfer the switchover between winter and summer time to the communications module, provided that it supports this.
- ▷ The date is given in the format day - month - year.
- ▷ The date format can differ depending on the market.
- ▷ This display is only visible if access to the historic meter readings has been activated.

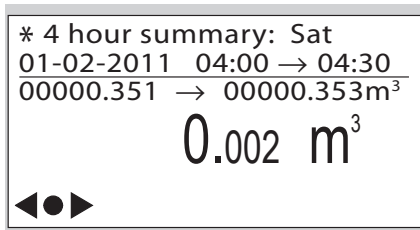
Historic meter readings

- ▷ Consumption data dating as far back as 60 weeks can be called up.



- ▷ The historic meter readings can be viewed as an option. Depending on the parameterization, access to the historic meter readings can either be
 - fully activated or
 - protected by entering a password or
 - deactivated.
- ▷ By pressing the selection key ●, consumption data are displayed, which are given by month, week or day, or 4-hour or ½-hour intervals.

"4 hour summary" example:



- ▷ The timeframe is displayed with date and time for the start and end of the period.
- ▷ The meter reading is displayed for the start and end of the period in m³.
- ▷ The consumption for this period is indicated in m³.
- ▷ The tariff band may be displayed.

Electronic index with communications module:

- ▷ The ⚠ symbol is displayed if, for example, the tolerance between the internal time recording and the actual time is too large. This can lead to invalid consumption data. After the next time synchronization, the consumption data are recorded again correctly and ⚠ disappears.

Meter information

- ▷ Meter-specific technical data are displayed in sub-menus by pressing the selection key ● several times.



Meter identification:

- No.: (Owner's meter number)
- EN 1359 Reg. No.: NG-4701BM0443 (example)
- Firmware version
- CRC (checksum)
- Details (firmware details)
- ▷ For further information, see page 5 (Technical data).

Calibration information:



- Meter calibration parameters Q1 to Q3 (adjustment values Q1 to Q3 for three-point calibration)
- Cyclic meter volume
- Temperature conversion (optional):
 - Type of conversion (mechanical or electronic)
 - Base temperature t_b (in accordance with EN 1359)
 - Specified centre temperature t_{sp} (in accordance with EN 1359)

Assistance in the event of malfunction

- ? **Fault**
- ! **Cause**
- **Remedy**

Possible faults and suggested solutions

? The symbol is displayed.

- ! If the  symbol appears next to a measured value, this means that the value is invalid.
- After the next data synchronization, the data are recorded again correctly and  disappears.

? When pressing the user keys, the backlighting and/or display remain switched off. A beep can nevertheless be heard.

- ! Energy-saving mode is active. Due to excessive use of the index, the average energy consumption has been exceeded.
- Leave the index unused for an extended period, e.g. 24 hours. After this, the user interface will once again be available.

? When pressing the user keys, the display remains switched off and no beep can be heard.

- ! The index is defective.
- Contact the manufacturer.

? The symbol is displayed.

- ! Low battery. This symbol is only displayed when battery power is low.
- Replace the battery.

- ▷ In the case of faults which are not described here, contact the manufacturer immediately.

Technical data

Index identification: EI4.01

Application with diaphragm gas meters BK..E

RoHS compliant

Enclosure: IP 65.

Battery life: approx. 8 years.

Maximum allowable ambient temperature range: see type label/index plate of the gas meter.

For meters installed in a potentially explosive atmosphere, the ambient temperature is limited to a maximum range between -20°C and +55°C (see ATEX sticker).

Data logger for historic meter readings: up to 60 weeks in 30-minute intervals.

Optical interface: pursuant to EN 62056-21, Mode (E), Annex B.2.

Accuracy of the clock: 0.4 s/day at 20°C on the day of manufacture.

Diaphragm gas meter BK..ETe with temperature conversion:

Temperature measurement accuracy: $\pm 1^\circ\text{C}$ on the day of manufacture.

The base temperature t_b is specified on the index plate.

Pulse output of optical interface

Pulse value V_{Imp} of the optical interface:

Gas meter	Decimal place in display	Pulse value V_{Imp} in dm^3
BK-G 1.6–BK-G 6	3	1
BK-G 10–BK-G 65	2	10
BK-G 100	1	100

Pulse duration: 90 ms

Electrical pulse output (ST3)

Type of switch: open collector transistor, normally open

Maximum pulse frequency: 16 Hz

Minimum pulse duration: 32 ms

Pulse value:

Gas meter	Decimal place in display	Pulse value V_{Imp} in dm^3
BK-G 1.6–BK-G 6	3	10
BK-G 10–BK-G 65	2	100
BK-G 100	1	1000

Interface parameters:

Intrinsically safe circuit “ib” with the following maximum values:

- $U_i = 12 \text{ V DC}$
- $I_i = 10 \text{ mA}$
- $P_i = 120 \text{ mW}$

The internal energy accumulators effective to the outside are as follows:

- $C_i = 2 \text{ nF}$
- $L_i = \text{negligible}$

UMI interface (ST2) (for communications module)

Interface parameters:

Intrinsically safe circuit "ib" with the following data:

- $U_o = 4.1$ V DC
- $I_o = 2.127$ A
- $P_o = 8.72$ W
- $L_o = 900$ nH
- $C_o = 935$ μ F

For further technical data on diaphragm gas meters BK – see the operating instructions for diaphragm gas meters BK-G1.6 to BK-G25 → http://docuthek.kromschroeder.com/doclib/main.php?language=1&folderid=400041&by_class=2&by_lang=-1.

Logistics

Transport

Diaphragm gas meters are always to be transported in the upright position. On receipt of the product, check that the delivery is complete, see page 2 (Part designations). Report any transport damage immediately.

Storage

Diaphragm gas meters are always to be stored in the upright position and in a dry place. Ambient temperature: see page 5 (Technical data).

Disposal

Meters with electronic components:

Components, particularly batteries, are to be disposed of separately.

On request, old units may be returned carriage paid to the manufacturer, see page 6 (Contact), in accordance with the relevant waste legislation requirements.

Contact

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