elster

Operating instructions for consumers

Electronic index for diaphragm gas meters BK..E

themis^{alpha}

Translation from the German

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Contents

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 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.

Transport

On receipt of the product, check that the delivery is complete see page 2 (Part designations). Report any transport damage immediately.

Storage

Store the product in a dry place. Ambient temperature: see page 6 (Technical data).

Changes to edition 03.12

The following chapters have been changed:
– Navigating within the menu
– Releasing the valve
– Technical data
– Disposal

Checking the usage

Electronic index for diaphragm gas meters BK..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 6 (Technical data). Any other use is considered as non-compliant.

Type code

Code	Description
BK-G	Diaphragm gas meter
	Flow rate
1.6	0.016–2.5 m³/h
2.5	0.025–4 m³/h
4	0.04–6 m³/h
6	0.06–10 m³/h
10	0.1–16 m³/h
16	0.16–25 m³/h
25	0.25–40 m³/h
E	Electronic index
	Temperature conversion:
T	mechanical
Te	electronic

Part designations
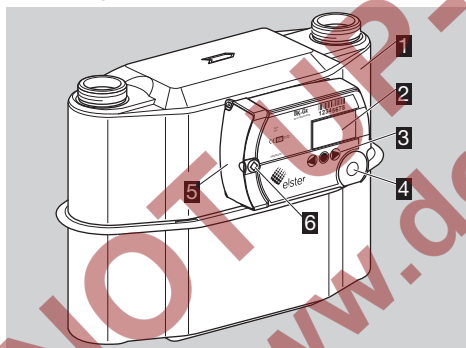
1 Gas meter with electronic index
2 Display
3 User keys
4 Opto-adapter interface
5 Service cap
6 Installation seal/screw locking cap

Type label/Index plate

ATEX

▷ The electronic index is suitable for use in potentially explosive atmospheres. For the exact use (zone), see ATEX sticker on the diaphragm gas meter or 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.

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.

Gas meter with integrated valve

▷ If the integrated shut-off valve in the gas meter is closed, it must be released.

Operating the electronic index

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

▷ 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
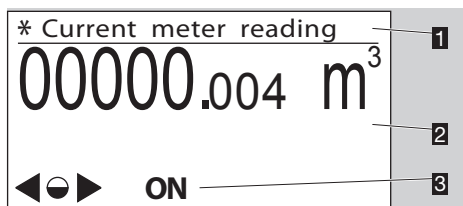
1 Menu area
2 Information area
3 Status line (symbols)

▷ The **ON**/**OFF** symbols are only displayed when a valve is integrated in the gas meter.

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.

```
Icon definitions
OFF Valve closed
ON Valve open
▱  Low battery
Press ▶ for more ...
◀●▶        OFF        ▲
```
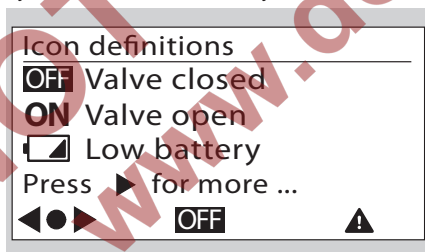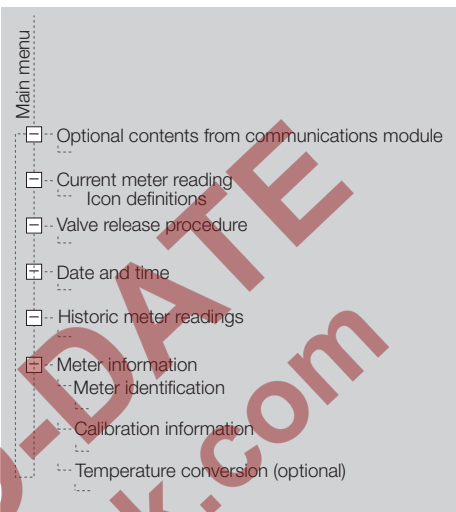
Navigating within the menu

▷ 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.

Main menu
- ⊟ Optional contents from communications module
- ⊟ Current meter reading
  - Icon definitions
- ⊟ Valve release procedure
- ⊟ Date and time
- ⊟ Historic meter readings
- ⊟ Meter information
  - Meter identification
  - Calibration information
  - Temperature conversion (optional)

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).

Valve release procedure

▷ If the valve was released while the display was switched off, the release note will appear the next time the index is switched on.

```
Valve open safety check
CHECK IF
APPLIANCES OFF
HOLD ● FOR GAS
```

▷ The note remains active until the valve has been released.
▷ If the selection key ● is not pressed, the display will switch back to the main screen after 30 s.

Date and time

▷ Information on the date and time display.

```
* Date and time
10–01–2011
10:02:06
◄●►
```
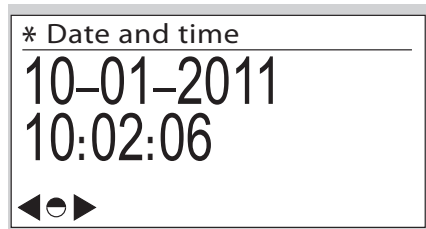
▷ The operator can transfer the switchover between winter and summer time to the communications module, provided that it supports this.
▷ The date is given in the format day - month - year.
▷ The date format can differ depending on the market.
▷ This display is only visible if access to the historic meter readings has been activated.

Historic meter readings

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

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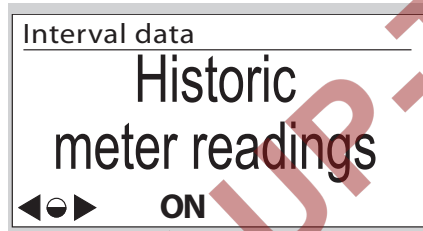
▷ The historic meter readings can be viewed as an option. Depending on the parameterization, access to the historic meter readings can either be
  – fully activated or
  – protected by entering a password or
  – deactivated.
▷ By pressing the selection key ●, consumption data are displayed, which are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

"4 hour summary" example:

```
* 4 hour summary: Sat
01-02-2011  04:00 → 08:00
00000.351 → 00000.353m³
        0.002  m³
◄●►
```
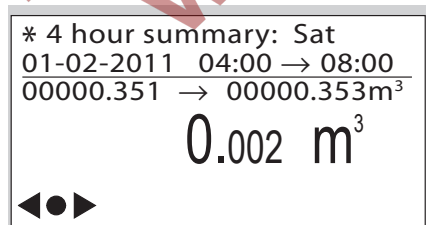
▷ The timeframe is displayed with date and time for the start and end of the period.
▷ The meter reading is displayed for the start and end of the period in m³.
▷ The consumption for this period is indicated in m³.
▷ The tariff band may be displayed.

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 information
Identification &
calibration info
◄⊖►        ON
```

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 6 (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)

Releasing the valve

▷ If a valve is integrated in the diaphragm gas meter BK, this must first be released by the meter operator/gas supplier for opening.

! CAUTION

To avoid damage:
– Ensure the customer's consumers are closed, i.e. all gas appliances must be switched off.

▷ Depending on the meter version, confirmation at the meter on site may be required to open the valve. The following procedure must only be carried out if such confirmation is required.

1 Once the valve has been released, the following display appears:

> ### Valve open safety check
> # CHECK IF APPLIANCES OFF HOLD ● FOR GAS

2 Press the selection key ● and hold down.
▷ After a short time, the unit switches to initialization mode.

> ### Opening valve
> # Please wait
> ◀○▶

▷ The valve is first opened temporarily during the initialization phase.

3 Release the selection key ●.
▷ After successful initialization, a test procedure is started. The remaining test duration is shown in the display.

> ### Gas flow check in progress
> # Max time: 00:29:56
> # Min time: 00:06:08
> ◀○▶

▷ The testing time can vary, depending on the conditions. There is thus a minimum testing time (Min time) and a maximum testing time (Max time).
▷ The result is displayed once the test has been completed:

> ### Gas flow check complete
> # Gas flow check successful
> ◀●▶   **ON**   ⚠

▷ If the release procedure has been successfully completed (message: "Gas flow check successful"), the valve will be opened permanently.

▷ If the release procedure has failed (message: "Gas flow check failed"), the valve will remain closed. Please contact your meter operator/gas supplier.

4 The message must be confirmed by pressing the selection key.

▷ If this message is not confirmed by pressing the selection key, the main screen appears again after 30 s and switches off after a further 30 s. When the the index is switched on again (by pressing any key), the message will be displayed again until it is confirmed.
▷ The valve status is displayed in the main screen, see page 2 (Main screen).

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.

GB

Technical data

Application with diaphragm gas meters BK..E
RoHS compliant
Enclosure: IP 54.
Battery life: approx. 10 years.
Maximum allowable ambient temperature range: see type label/index plate.
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: ± 1°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}:

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 25	2	10

Pulse duration: 90 ms
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.

ATEX explosion protection

Battery

Only use approved batteries from Elster.
The "Battery pack cpl. EI2" is certified as part of the electronic index.

Communications modules

Please contact the manufacturer for details on suitable communications modules. Information on the ATEX suitability can be found in the operating instructions of the respective communications module.
The UMI interface features the following parameters:
– U_O = 3.9 V peak, 3.6 V nominal,
– I_O = 7.5 A peak, 506 mA nominal,
– P_O = 1.55 W,
– C_O = 12 µF,
– L_O = 50 nH.

For more data on explosion protection of 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.

Disposal

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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