

themis^{alpha}



Electronic index for diaphragm gas meters BK..E

Applications

Smart electronic index for all residential and commercial diaphragm gas meters BK..E from Elster (G1.6 – G25)

Brief information

The themis^{alpha} index provides features which go well beyond simple remote reading. The existing options (time- and load-dependent tariffs, valve control, load profiles, communications interval control, data logging, etc.) can be combined in such a way as to suit the needs of individual customers. A secure, remotely controlled software update and the modular principle guarantee that the technology is future-proof and also that it can be adjusted to meet new challenges retrospectively at low cost if necessary.

A wide range of communications solutions is available for the themis^{alpha} to ensure safe data exchange between the different communications partners. The themis^{alpha} guarantees the authenticity and integrity of the data and allows the granting of authorization to users. For example M-Bus (cable-based or wireless), GSM/GPRS or ZigBee communications modules are available for various markets.

The themis^{alpha} is constantly being developed to ensure that it always represents the current state of the art and can even offer options above and beyond this.



The themis^{alpha} index is part of the Elster smart meter solutions package. From mechanical meters and smart index technologies to complete meter data collection and meter data management systems, Elster can supply everything required for a well functioning, coordinated all-in smart metering solution.



Main features

- Modular concept: communications module and batteries can be replaced in the field without data loss
- Flexible communications options for HAN, LAN and WAN applications
 - GSM/GPRS
 - Cable-based/Wireless M-Bus
 - ZigBee
 - Internal and external antenna available
- Supports valve control
- Standard smart metering functions
 - Load profiles
 - Event and alarm signalling
 - Time synchronization
- Extended smart metering functions
 - Prepayment (optional)
 - Time- and load-dependent tariffs
- State-of-the-art data security and data protection
- Supports safe remote firmware updates
- Matrix display (LCD)
 - Backlight
 - Menu navigation using 1 or 3 keys
- Long battery life
 - Up to 20 years, depending on requirements
- Meters with themis^{alpha} indexes can be installed as "smart ready" meters and then be connected for remote reading at a later date
- Simple commissioning due to delivery of individually ready-configured indexes

Technical data

Display and entry

- Backlit LCD display
- Intuitive menu navigation using 1 or 3 keys
- Display of indicative kWh values possible



Languages

- English (other language kits available on request)

Local communication

- Opto-adapter interface to EN 62056-21 (DLMS/COSEM)
- ZigBee or M-Bus HAN interface for communication with a hub or an optional in-home display (IHD)

Wide area network (WAN) communication

- GSM/GPRS in accordance with DLMS/COSEM
- GSM/GPRS in accordance with Universal Metering Interface (UMI)
- ZigBee in accordance with SE Profile 1.1 (2.4 GHz)
- M-Bus (cable-based) in accordance with DSRM 2.0
- M-Bus (wireless) in accordance with DSRM 4.0 (868 MHz)
- M-Bus (wireless) in accordance with UNI TS (169 MHz) currently in preparation

Temperature compensation

- Supports electronic and mechanical temperature compensation

Application

- Residential and commercial gas meters (BK-G1.6 – BK-G25)
- Permitted gases: natural gas, propane, butane (gases to EN 437)

Current approvals

- MID Class 1.5, EN 1359, ATEX Directive explosion group IIA, ZigBee SEP 1.1, CE, EMC, R&TTE

Enclosure

- IP 54

Gas/ambient conditions

- Gas/ambient temperature range: -25°C to +55°C
- Storage temperature range: -25°C to +60°C

Data logging in the index

- The integrated data logging function records the supplied gas volume in conjunction with the current time and the corresponding tariff. The index has a storage capacity of 60 weeks (half-hourly values).
- Supports daily, weekly and monthly load profiles

Time-based tariffs

- Depending on time of day
- Depending on time of use

Prepayment function (optional)

Actuation of an integrated valve

- Safe switching of the valve (valve is not opened unless the installation is in a safe state)
- Local confirmation at the press of a button
- Controlled opening and closing of the valve with feedback on result
- Designed lifetime: 3000 cycles
- Pressure loss < 2 mbar

Delivery

- The indexes are supplied ready-configured, thus vastly reducing installation work.

Data security and data protection

The themis^{alpha} provides secure end-to-end encryption of data using current industrial standards. The standards guarantee a reasonable level of data security and data protection. The diaphragm gas meter and the electronic index are also very well protected against attempted fraud and tampering and are able to report attempted tampering to downstream entities. Remotely readable event logs provide additional security. Certificate-based asymmetric encryption processes and symmetric encryption, for example in accordance with AES-128, for all existing communications adapters (WAN, LAN, HAN) are supported.

Possible system layout



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