

themis[®]plus

Electronic index EI3 with integrated volume conversion function for diaphragm gas meters BK-G..B

Applications

Smart electronic index for Honeywell commercial and industrial diaphragm gas meters (BK-G..B, G10 to G40)

Brief information

The themis[®]plus index provides features which go well beyond simple remote reading. The themis[®]plus has an integrated volume conversion device and is thus capable of directly outputting cumulative volumes using temperature and pressure compensation. Furthermore, the existing options (time- and load-dependent tariffs, 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 firmware 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 GSM/GPRS communications module, which complies with the requirements of the Italian UNI-TS 11291 standard, is currently available for the themis[®]plus. The communications module ensures safe data exchange between the different communications partners. The themis[®]plus guarantees the authenticity and integrity of the data and allows the granting of authorization to users.

The themis[®]plus 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 Honeywell smart meter solution

themis[®] – the new generation of electronic indexes for residential, commercial and industrial diaphragm gas meters – is part of the Honeywell smart meter solutions package. From mechanical meters and smart index technologies to complete meter data collection and meter data management systems, Honeywell can supply everything required for an efficient, coordinated all-in-one smart metering solution.



Main features

- Modular concept: communications module and batteries can be replaced in the field without data loss
- Flexible communications options for WAN applications
 - GSM/GPRS
 - Internal and external antenna available
- Fully-fledged integrated volume conversion device with temperature and pressure compensation
- Standard smart metering functions
 - Load profiles
 - Event and alarm signalling
 - Time synchronization
- Extended smart metering functions
 - Time- and load-dependent tariffs
- State-of-the-art data security and data protection
- Supports remote firmware updates
- Matrix display (LCD)
 - Backlight
 - Menu navigation using 3 keys
- Long battery life
 - >15 years, depending on requirements
- Meters with themis[®]plus 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
- Pulse output for controlling external devices

Technical data

Display and entry

- Backlit LCD display
- Intuitive menu navigation using 3 keys

Languages

- English (other languages available on request)

Local communication

- Opto-adapter interface to EN 62056-21 (DLMS/COSEM, UMI)
- Low-frequency pulse output for extended applications: $U_{max} = 10 \text{ V DC}$, $I_{max} = 100 \text{ mA}$, $F_{max} = 4 \text{ Hz}$, min. pulse width = 125 ms. In ATEX Zone 1, the technical conditions specified in the ATEX certification must be complied with.

Communications module

- Integrated, battery-operated GPRS modem with internal antenna or optional external antenna

Communications protocol

- In accordance with DLMS/COSEM specifications,
- Data encryption based on AES-128 GCM (Galois/Counter Mode),
- Firmware update based on WELMEC 7.2

Wide area network (WAN)

communication

- GSM/GPRS in accordance with DLMS/COSEM

Scope of Application

- Diaphragm gas meters BK-G..B from G10 to G40
- Permitted gases: natural gas, town gas, propane, butane; gases of the first to third families pursuant to DIN EN 437:2003 (DVGW Code of Practice G260)

Degree of protection

- IP 65

Gas/ambient conditions

- $T_b = 288.15 \text{ K} = 15^\circ\text{C}$, $p_b = 1.01325 \text{ bar}$
- Gas/ambient temperature range: -25°C to $+55^\circ\text{C}$

Data logging in the index

- The integrated hourly logging of data records the supplied gas volume at reference conditions in conjunction with the current time and the corresponding tariff. The index has a storage capacity of 20 weeks (hourly values).
- Supports daily, weekly and monthly load profiles.

Archive

- Archive for 4 different meter readings (3 tariff-related, 1 cumulative meter reading)

Event log

- Recording of non-periodic events (e.g. changes to parameters or tariffs)
- Storage capacity: 371 records

Time-based tariffs

- Depending on time of day (5 intervals/day possible)
- Depending on time of use


Index battery

- 3 AA lithium batteries (6.3 Ah)
- Battery life > 15 years at standard operating conditions

Communications module battery

- Lithium battery with HLC (14 Ah)
- The battery life depends on the received signal level and the reading frequency. A battery life of 8 years can be achieved with one daily reading and a standard GSM received signal level of 70%.

Current approvals

- MID Class 1.5 in accordance with EN 1359 and based on Directive OIML R-137 (NMI T10489) ATEX-Zone 1:  II -/2G IIA T4, CE, EMC, RED

Data security and data protection

- The themis^{plus} 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.
- Symmetric encryption processes, for example in accordance with AES-128 are supported.

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