

# SHARKY 774 COMPACT

## COMPACT ENERGY METER | ULTRASONIC

**DIEHL**  
Metering



### APPLICATION

The ultrasonic compact energy meter can be used for measuring the energy consumption in heating or cooling application for billing purposes. The measurement principle is static and based on the measurement of the transit time. Ultrasonic technology offers many benefits: no moving parts (avoids wear and tear of the metering components), low pressure loss, large metering dynamics and low start flowrate, insensitiveness to suspended particles.

### FEATURES

- ▶ AMR Smart Meter
- ▶ M-Bus or wM-Bus Radio. Combined with Diehl Metering AMR System technology highest transmission performance is achievable
- ▶ Constantly high measuring rates (flow: 2 s; temp.: 16 s) with up to 12 years battery lifetime. Current power is calculated and updated every 2 s.
- ▶ AA-cells contain less lithium (0.7 g per piece) than A-cells.
- ▶ Springless battery contact (hard-solder) is corrosion-protected
- ▶ MID class 2 and PTB K7.2
- ▶ MID electromagnetic class E2 and mechanical class M2 – less sensitive to neg. influence, e.g. culprit PWM pump
- ▶ 8-digit LCD offers 3 fractional digits without risk of display overflow.
- ▶ Only 54 mm design height from pipe center, hence easy to install in compact heat stations

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## BASIC FEATURES

| SHARKY 774 compact            |   |
|-------------------------------|---|
| Application                   | Heating - cooling - heating/with cooling tariff   |
| Approval                      | MID (DE-13-MI004-PTB008) and PTB K7.2 for cooling (DE-16-M-PTB-0041)  |
| Environmental class           | Class C   |
| Ambient class                 | Class E2 + M2   |
| Ambient operating temperature | °C +5 ... +55 (<35 °C have a positive effect on battery lifetime)   |
| Ambient storage temperature   | °C -25 ... +60 (>35 °C max. 4 weeks)  |
| Communication                 | M-Bus or radio  |
| Frequency band                | 868 or 434 MHz  |
| Type of radio telegram        | Open Metering Standard (OMS)  |
| Transmission data updating    | Online - no time delay between value measurement and data transmission  |
| Data transmission             | Unidirectional  |
| Sending interval              | Rapid mode (drive-by): 14 s + synchron telegram: 900 s   standard mode (walk-by): 64 s + synchron telegram: 900 s |
| Test possibilities            | Via display, optical test pulses  |

## REACH

Information pursuant to Article 33 (1) of Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006:

This product series contains articles with the following substances in a concentration of more than 0.1% weight by weight (w/w):

- Lead (CAS no.: 7439-92-1)
- Lead titanium zirconium oxide (CAS no.: 12626-81-2)
- Octamethylcyclotetrasiloxane (CAS no.: 556-67-2)
- Decamethylcyclopentasiloxane (CAS no.: 541-02-6)
- Dodecamethylcyclohexasiloxane (CAS no.: 540-97-6)

## BASIC FEATURES - CALCULATOR

| SHARKY 774 compact                    |  |
|---------------------------------------|--|
| Protection class                      | IP 65  |
| Battery supply                        | 3.6 VDC (2xAA-cell), up to 12 years lifetime (at standard conditions of use and temperature) |
| Battery <sup>1</sup> lifetime - radio | Rapid mode: up to 7 years; standard mode: up to 11 years (depends on sending interval)       |
| Battery <sup>1</sup> lifetime - M-Bus | Up to 12 years   |
| Temperature sensor type               | Pt 500, 2-wire; Ø 5.2 mm   |
| Cable length of temperature sensor    | m 1.45 / 1.95  |
| Absolute temperature range (heating)  | Θ °C 1 ... 105 / 1 ... 130   |
| Absolute temperature range (cooling)  | Θ °C 1 ... 50  |
| Measuring cycle - flow                | T s 2  |
| Measuring cycle - temperature sensor  | T s 16   |
| Starting temperature difference       | ΔΘ K 0.125   |
| Min. temperature difference           | ΔΘ <sub>min</sub> K 3  |
| Max. temperature difference           | ΔΘ <sub>max</sub> K 90 / 120 (heating)   50 (cooling)  |
| Interfaces standard                   | Optical ZVEI interface   |
| Interfaces optional                   | M-Bus or radio   |
| Extensive readable data memory        | Periodical log <sup>2</sup> ; 3 history logs; event memory                                   |

<sup>1</sup> Battery exchangeable at lab

<sup>2</sup> Programmable storage interval (daily, weekly, monthly, ...)

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## BASIC FEATURES - FLOW SENSOR

| SHARKY 774 compact                            |  |
|---|--|
| Mounting position flow sensor                 | Any position, horizontal, riser or downpipe and overhead                                     |
| Protection class flow sensor                  | Heating IP 54   Heating with cooling tariff / cooling IP 68 (at normal ambient air pressure) |
| Material of the flow sensor body              | Brass  |
| Temperature range heating                     | °C 5 ... 105 / 5 ... 130   |
| Temperature range cooling                     | °C 2 ... 50  |
| Temperature range heating with cooling tariff | °C 5 ... 105   |
| Dynamic range ( $q_p/q_i$ )                   | 1:100  |
| Useful range ( $q_s/q_p$ )                    | 2:1  |

## DISPLAY

| SHARKY 774 compact |  |
|--------------------|--|
| Display indication | LCD, 8-digit   |
| Units              | MWh - kWh - GJ - °C - m <sup>3</sup>                       |
| Total values       | 99,999,999 - 9,999,999.9 - 999,999.99 - 99,999.999         |
| Values displayed   | Energy - Power - Volume - Flow rate - Temperature and more |

## INTERFACES

| SHARKY 774 compact |  |
|--------------------|--|
| Optical            | ZVEI interface, for communication and testing, M-Bus protocol  |
| M-Bus              | Configurable telegram, according to EN13757-3, data reading via two wires with non polarity (1.5 m), auto baud detect (300 and 2400 baud), galvanically isolated, one M-Bus load |
| Wireless M-Bus     | Open Metering Standard (OMS), Generation 3 Profile A or Generation 4 Profile B; frequency band 868 or 434 MHz  |

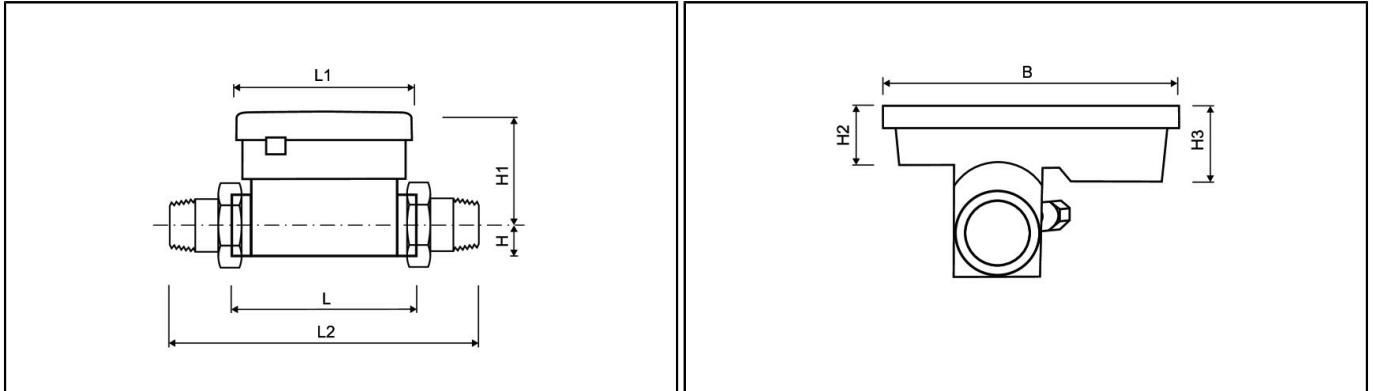
## TECHNICAL DATA FLOW SENSOR

| Nominal flow rate  | $q_p$      | m <sup>3</sup> /h | 0.6  | 1.5  | 1.5  | 2.5  |
|--|------------|-------------------|------|------|------|------|
| Nominal diameter   | DN         | mm                | 15   | 15   | 20   | 20   |
| Overall length   | L          | mm                | 110  | 110  | 130  | 130  |
| Starting flow rate   |            | l/h               | 1    | 2.5  | 2.5  | 4    |
| Minimum flow rate  | $q_i$      | l/h               | 6    | 15   | 15   | 25   |
| Maximum flow rate  | $q_s$      | m <sup>3</sup> /h | 1.2  | 3    | 3    | 5    |
| Overload flow rate   |            | m <sup>3</sup> /h | 2.5  | 4.6  | 4.6  | 6.7  |
| Operating pressure   | PN         | bar               | 16   | 16   | 16   | 16   |
| kv value ( $q_p^2$ (m <sup>3</sup> /h) = kv <sup>2</sup> x $\Delta p$ (bar)) |            |                   | 1.95 | 4.33 | 5.48 | 7.91 |
| Pressure loss at $q_p$   | $\Delta p$ | mbar              | 95   | 120  | 75   | 100  |

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## DIMENSIONS THREAD VERSION



| Nominal flow rate             | q <sub>p</sub> | m <sup>3</sup> /h | 0.6                             | 1.5                             | 1.5                           | 2.5                           |
|-------------------------------|----------------|-------------------|---------------------------------|---------------------------------|-------------------------------|-------------------------------|
| Nominal diameter              | DN             | mm                | 15                              | 15                              | 20                            | 20                            |
| Overall length                | L              | mm                | 110                             | 110                             | 130                           | 130                           |
| Overall length with coupling  | L2             | mm                | 190                             | 190                             | 230                           | 230                           |
| Length of calculator          | L1             | mm                | 90                              | 90                              | 90                            | 90                            |
| Height                        | H              | mm                | 14.5                            | 14.5                            | 18                            | 18                            |
| Height                        | H1             | mm                | 55                              | 55                              | 58                            | 58                            |
| Height of calculator          | H2             | mm                | 27                              | 27                              | 27                            | 27                            |
| Height of calculator          | H3             | mm                | 40                              | 40                              | 40                            | 40                            |
| Width of calculator           | B              | mm                | 135                             | 135                             | 135                           | 135                           |
| Connection thread on meter    | Inch           |                   | G <sup>3</sup> / <sub>4</sub> B | G <sup>3</sup> / <sub>4</sub> B | G1B                           | G1B                           |
| Connection thread of coupling | Inch           |                   | R <sup>1</sup> / <sub>2</sub>   | R <sup>1</sup> / <sub>2</sub>   | R <sup>3</sup> / <sub>4</sub> | R <sup>3</sup> / <sub>4</sub> |
| Weight                        | kg             |                   | 0.70                            | 0.70                            | 0.77                          | 0.77                          |

## PRESSURE LOSS GRAPH / TYPICAL ERROR GRAPH

