

SHARKY 774 COMPACT

DIEHL
Metering

COMPACT ENERGY METER | ULTRASONIC



APPLICATION

The ultrasonic compact energy meter can be used for measuring the energy consumption in heating 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, intensiveness to suspended particles.

FEATURES

- ▶ AMR Smart Meter
- ▶ M-Bus or wM-Bus Communication. Combined with Diehl Metering AMR System technology highest transmission performance is achievable
- ▶ Constantly high measuring rates (vol.: 2s; temp.: 16s) with up to 12 years battery life time. Current power is calculated and updated every 2s.
- ▶ AA-Cells contain less Lithium (0,7g per piece) than A-Cells. Not affected by dangerous goods transportation rules
- ▶ Springless battery contact (hard-solder) is corrosion-protected
- ▶ MID electromagnetic class E2 – less sensitive to neg. influence, e.g. culprit PWM pump
- ▶ 8-digit LCD offers 3 fractional digits without risk of display overflow. Comfortable reading by removeable calculator (0.45m coax cable)
- ▶ Only 54 mm design height from pipe center, hence easy to install in compact heat stations

SHARKY 774 COMPACT

COMPACT ENERGY METER | ULTRASONIC

GENERAL

| SHARKY 774 compact | | | |
|------------------------------------|---|--|----|
| Application | Heating | | |
| Approval | MID | | |
| Accuracy class | Class 2 | | |
| Ambient temperature | °C | +5 ... +55 (<35 °C have a positive effect on battery lifetime) | |
| Storage temperature | °C | Typical +5... +55°C Max. -20... +60°C (max. 4 weeks) | |
| Humidity | % | 93 max. | |
| Battery supply | 3.6 VDC, up to 12 years lifetime (at standard conditions of use and temperature. Theoretical life, with no guarantee) | | |
| Temperature sensor type | Pt 500, 2-wire; Ø 5.2 mm | | |
| Cable length of temperature sensor | m | 1.45 | |
| Test possibilities | Via display | | |
| Battery ¹ | 3.6 VDC, 2xAA-Cell | | |
| Lithium content | g | 2 x 0.7 | |
| Volume measurement rate | T | s | 2 |
| Temp. measurement rate | T | s | 16 |
| Power calculation rate | T | s | 2 |

¹Battery exchangeable at lab.

FLOW SENSOR - BASIC FEATURES

| SHARKY 774 compact | | | |
|---------------------------------|-------|--------------------------|--|
| Volume measuring cycle | s | 2 | |
| Dynamic range (q_p/q_i) | 1:100 | | |
| Useful range (q_s/q_p) | 2:1 | | |
| Temperature range heating water | °C | 15 ... 90 (MID approved) | |
| Protection class | IP 54 | | |

CALCULATOR - BASIC FEATURES

| SHARKY 774 compact | | | |
|---|---|----|-------------------------|
| Protection class | IP 54 | | |
| Environmental class - mechanical | M1 | | |
| Environmental class - electromechanical | E1, E2 | | |
| Calculator | Removable, with 0.45 m cable to flow sensor | | |
| Absolute temperature range calculator | θ | °C | 15 ... 105 (calculator) |
| Starting temperature difference | $\Delta\theta$ | K | 0.125 |
| Min. temperature difference | $\Delta\theta_{\min}$ | K | 3 (MID approved) |
| Max. temperature difference | $\Delta\theta_{\max}$ | K | 90 (MID approved) |
| Temperature measuring cycle | T | s | 16 |
| Extensive readable data memory | Two predefined history logs for 720 daily (Log-1) and 120 monthly (Log-2) values of energy, volume and error hours; additionally event memory (error log) | | |

SHARKY 774 COMPACT

COMPACT ENERGY METER | ULTRASONIC

INTERFACES

| SHARKY 774 compact | |
|--------------------|-----------------------------|
| Optical | According to ZVEI standard |
| Display | LCD Display |
| M-Bus | According to EN13757-3:2013 |
| Wireless M-Bus | According to EN13757-4:2013 |

DISPLAY

| SHARKY 774 compact | |
|--------------------|--|
| Display indication | 8-digit |
| Units | kWh - MWh - GJ - m ³ - °C |
| Total values | 99,999,999 |
| Values displayed | Energy - Power - Volume - Flow rate - Temperature - etc. |

M-BUS

| SHARKY 774 compact | | | |
|-------------------------------|---|---|----|
| M-Bus | Auto baud detect (300 and 2400 baud); Galvanically Isolated | | |
| Data transmission | Data reading via two wires with non polarity (1.5m) | | |
| Battery ¹ lifetime | T | a | 12 |

¹Battery exchangeable at lab.

WIRELESS M-BUS

| SHARKY 774 compact | | | |
|---------------------------------------|--|---|--|
| Frequency band | 868 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 options ² | Rapid Mode (Drive-by): 14 s + Synchron Telegram (OMS 3.0): 900 s Standard Mode (Walk-by): 64 s + Synchron Telegram (OMS 3.0): 900 s | | |
| Battery ¹ lifetime | T | a | Rapid mode: 6 years; Standard mode: 12 years (depends on sending interval) |

¹Battery exchangeable at lab.

²Factory settings

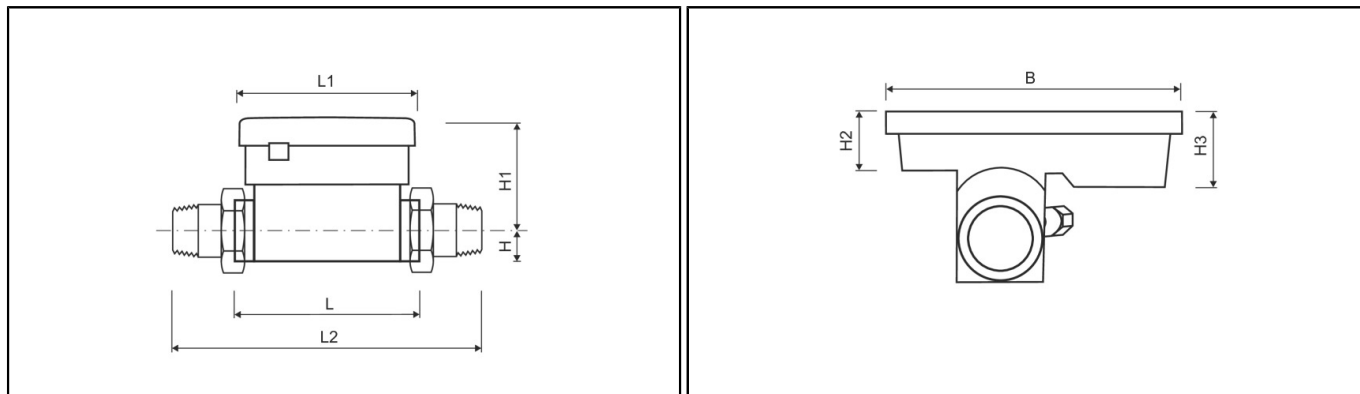
TECHNICAL DATA FLOW SENSOR

| | | | | | | |
|------------------------------------|----------------|-------------------|------|------|------|------|
| Nominal flow rate | q _p | m ³ /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 ³ /h | 1.2 | 3 | 3 | 5 |
| Overload flow rate | | m ³ /h | 2.5 | 4.6 | 4.6 | 6.7 |
| Operating pressure | PN | bar | 16 | 16 | 16 | 16 |
| Kvs value ($\Delta p=Q^2/Kvs^2$) | | | 2.06 | 5.48 | 5.48 | 7.91 |
| Pressure loss at q _p | Δp | mbar | 85 | 75 | 75 | 100 |

SHARKY 774 COMPACT

COMPACT ENERGY METER | ULTRASONIC

DIMENSIONS THREAD VERSION



| | | | | | | |
|-------------------------------|-------|-------------------|-------------------|-------------------|-----------------|-----------------|
| Nominal flow rate | q_p | m ³ /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 $\frac{3}{4}$ B | G $\frac{3}{4}$ B | G1B | G1B |
| Connection thread of coupling | | Inch | R $\frac{1}{2}$ | R $\frac{1}{2}$ | R $\frac{3}{4}$ | R $\frac{3}{4}$ |
| Weight | | kg | 0.70 | 0.70 | 0.77 | 0.77 |

PRESSURE LOSS GRAPH / TYPICAL ERROR GRAPH

