

# 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

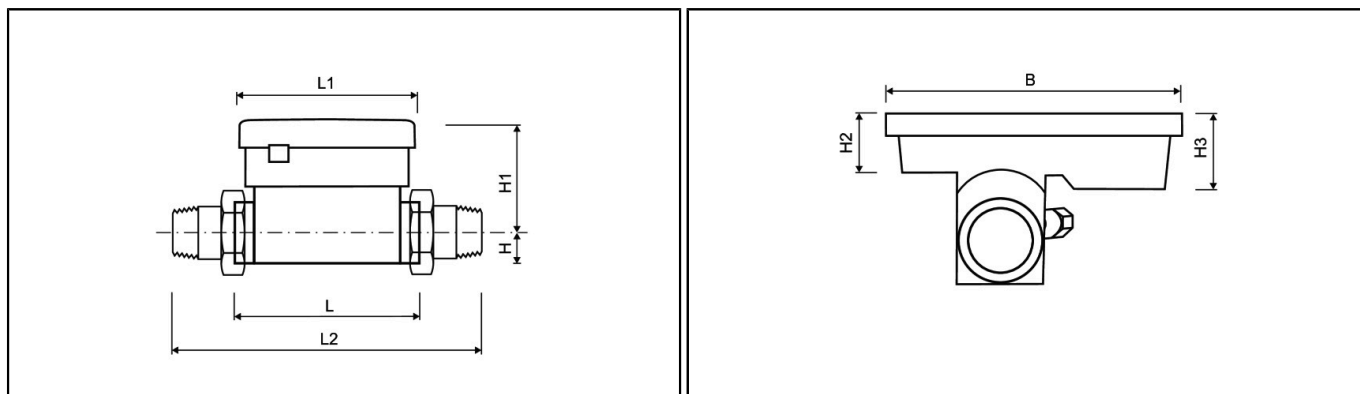
## TECHNICAL DATA FLOW SENSOR

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	$q_p$	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
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

