

SHARKY 775

ULTRASONIC COMPACT METER

SAPPEL



APPLICATION

SHARKY ultrasonic compact energy meter can be used for measuring the energy consumption in heating / 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

- ▶ Approved according EN 1434 and MID in class 2 with dynamic range of 1:250 (qi:qp) in class 2
- ▶ Complete range from ND 15 mm qp 1.5 m³/h up to ND 100 mm qp 60 m³/h
- ▶ Extermely low power consumption enabling a long battery lifetime (16 years in standard use)
- ▶ Radio option integrated
- ▶ Modular version, M-Bus, RS232, RS485, Analog outputs 4-20mA, pulse outputs and pulse inputs

SHARKY 775

ULTRASONIC COMPACT METER

GENERAL

SHARKY	
Application	Heating - heating/cooling
Approval	MID (DE-10-MI004-PTB013)
Mounting position flow sensor	Any position, calming sections not necessary
Protection class flow sensor	Heating: IP 54; cooling: IP 65; heating/with cooling tariff: IP 65
Battery supply	3.6 VDC- D-cell max. 16 years lifetime
Mains supply	24 VAC; 230 VAC
Temperature sensor type	Pt 500 with 2-wire leads; Ø 5.2 mm or direct sensor
Cable length of temperature sensor	Pt 500: 2 / 3 / 5 / 10m
Absolute temperature range calculator	Θ °C 1 ... 180
Volume measuring cycle	With power supply: 1/8 s; with D-cell battery: 1 s
Material of the flow sensor body	Brass or grey cast iron (only q _p 15 up to q _p 60m ³ /h)
Test possibilities	Via display, optical test pulses, test output or via NOWA software

CALCULATOR - BASIC FEATURES

SHARKY	
Environmental class	Class C
Ambient class	Class E2 + M2
Ambient operating temperature	°C 5 ... 55
Ambient storage temperature	°C -25 ... +70
Protection class	IP 54
Communication	2 communication slots (e. g. M-Bus + M-Bus; 2 primary addresses, 1 secondary address)
Integrated Radio	Optional
Interfaces standard	Optical ZVEI interface
Interfaces optional	2 Slots for modules with M-Bus, L-Bus, RS232, RS485, pulse output, pulse input, combined pulse in-/output or analogue output
Temperature range heating	°C 5 ... 130 / 150
Temperature range heating/cooling meter	°C 5 ... 105
Extensive readable data memory	Periodical log ¹ ; history log; event memory

¹: Programmable storage interval (daily, weekly, monthly, ...)

CALCULATOR - INTEGRATED RADIO

SHARKY	
Frequency band	868 or 434 MHz
Type of radio telegram	Real Data or Open Metering Standard (OMS)
Transmission data updating	Online - no time delay between value measurement and data transmission
Data transmission	Unidirectional
Sending interval	12 ... 20 s; depending on length of the radio frame

DISPLAY

SHARKY	
Display indication	LCD, 8-digit
Units	MWh - kWh - GJ - Gcal - MBtu - gal - GPM - °C - °F - m ³ - m ³ /h
Total values	99,999,999 - 9,999,999.9 - 999,999.99 - 99,999.999 (depending of th nominal diameter)
Values displayed	Energy - Power - Volume - Flow rate - Temperature

SHARKY 775

ULTRASONIC COMPACT METER

INTERFACES

SHARKY	
Optical	ZVEI interface, for communication and testing, M-Bus protocol.
M-Bus	Configurable telegram, according to EN13757-3, data reading and parametrization are via two wires with polarity reversal protection, auto baud detect (300 and 2400 baud), 2 M-Bus with 2 primary addresses.
L-Bus	Adapter for external radio module, configurable telegram, according to EN1434-3, data reading and parametrization are via two wires with polarity reversal protection.
RS232	Serial interface for communication with external devices, a special data cable is required, M-Bus protocol, 300 and 2400 baud.
RS485	Serial interface for communication with external devices, power supply with $12V \pm 5V$, M-Bus protocol, 2400 baud.
Pulse output	Module with 2 Open Collector pulse outputs (potential-free), 4 Hz (pulse width 125 ms), 100 Hz (pulse width ≥ 5 ms), ratio: pulse duration / pulse break $\sim 1:1$, configurable via IZAR@SET software ¹ .
Pulse input	Module with 2 pulse inputs, max. 20Hz, configurable via IZAR@SET software ¹ , data can be transferred remotely.
Combined pulse in-/output	Module with 2 pulse inputs and 1 pulse output, configurable via IZAR@SET software, needed for leak detection.
Analogue output	Module for 4 ... 20 mA with 2 programmable passive outputs, programmable value in case of error.

1 : only with SAPPEL support

TEMPERATURE INPUT

SHARKY			
Measuring cycle	T	s	With mains unit: 2 s; with D-cell battery: 4 s
Starting temperature difference	$\Delta\Theta$	K	0.125
Min. temperature difference	$\Delta\Theta_{\min}$	K	3
Max. temperature difference	$\Delta\Theta_{\max}$	K	177

SHARKY 775

ULTRASONIC COMPACT METER

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	6	6	10
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 ¹	16 ¹	16 ¹	16 ¹
Pressure loss at q _p	Δp	mbar	85	75	75	100
Temp. range heating		°C	5 ... 130	5 ... 130	5 ... 130	5 ... 130
Temp. range heating/cooling		°C	5 ... 105	5 ... 105	5 ... 105	5 ... 105
Kvs value (Δp=Q ² /Kvs ²)			21.3	5.48	13.6	7.91

Nominal flow rate	q _p	m ³ /h	6	6
Nominal diameter	DN	mm	25	32
Overall length	L	mm	260	260
Starting flow rate		l/h	7	7
Minimum flow rate	q _i	l/h	24	24
Maximum flow rate	q _s	m ³ /h	12	12
Overload flow rate		m ³ /h	18.4	18.4
Operating pressure	PN	bar	16 ¹	16 ¹
Pressure loss at q _p	Δp	mbar	128	128
Temp. range heating		°C	5 ... 150	5 ... 150
Temp. range heating/cooling		°C	5 ... 105	5 ... 105
Kvs value (Δp=Q ² /Kvs ²)			16.77	16.77

Nominal flow rate	q _p	m ³ /h	10	15	25	40	60
Nominal diameter	DN	mm	40	50	65	80	100
Overall length	L	mm	300	270	300	300	360
Starting flow rate		l/h	20	40	50	80	120
Minimum flow rate	q _i	l/h	40 ³ /100	60 ³ /150	100 ³ /250	160	240 ³ /600 ⁴ /1200 ⁵
Maximum flow rate	q _s	m ³ /h	20	30	50	80	120
Overload flow rate		m ³ /h	24	36	60	90	132
Operating pressure	PN	bar	16 ¹	25 ²	25 ²	25 ²	16/25 ²
Pressure loss at q _p	Δp	mbar	95	80	75	80	75
Temp. range heating		°C	5 ... 150	5 ... 150	5 ... 150	5 ... 150	5 ... 150
Temp. range heating/cooling		°C	5 ... 105	5 ... 105	5 ... 105	5 ... 105	5 ... 105
Kvs value (Δp=Q ² /Kvs ²)			32.44	53.03	91.29	141.42	219.09

¹: Also available in PN 25 bar

²: Also available in PN 40 bar

³: Only for horizontal installation

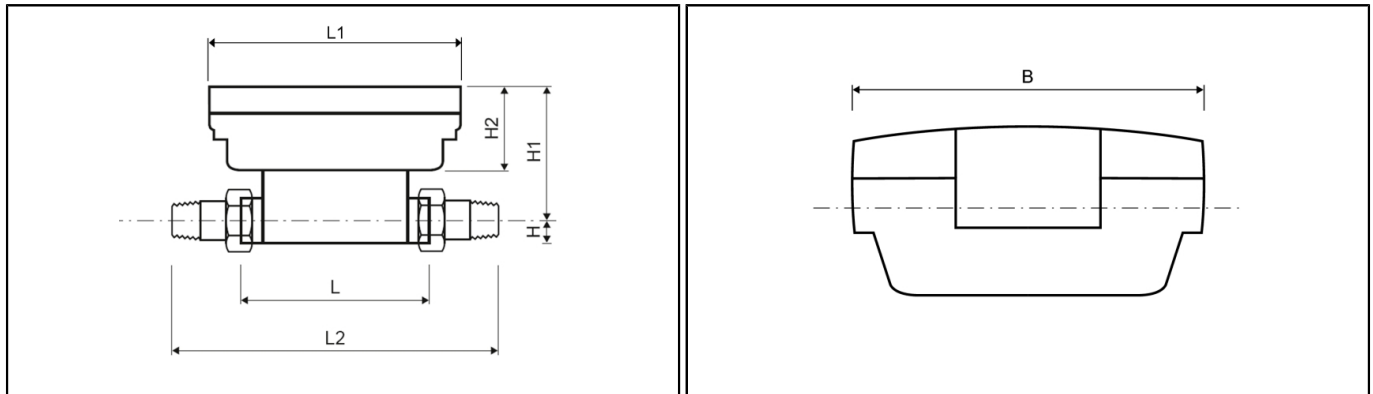
⁴: Only in rising or falling pipes or tilted installation

⁵: Only up side down installation

SHARKY 775

ULTRASONIC COMPACT METER

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	150	150	150	150
Height	H	mm	14.5	14.5	18	18
Height	H1	mm	82	82	84	84
Height of calculator	H2	mm	54	54	54	54
Width of calculator	B	mm	100	100	100	100
Connection thread on meter	Inch		G ³ / ₄ B	G ³ / ₄ B	G1B	G1B
Connection thread of coupling	Inch		R ¹ / ₂	R ¹ / ₂	R ³ / ₄	R ³ / ₄
Weight ¹		kg	0.76	0.76	0.85	0.85

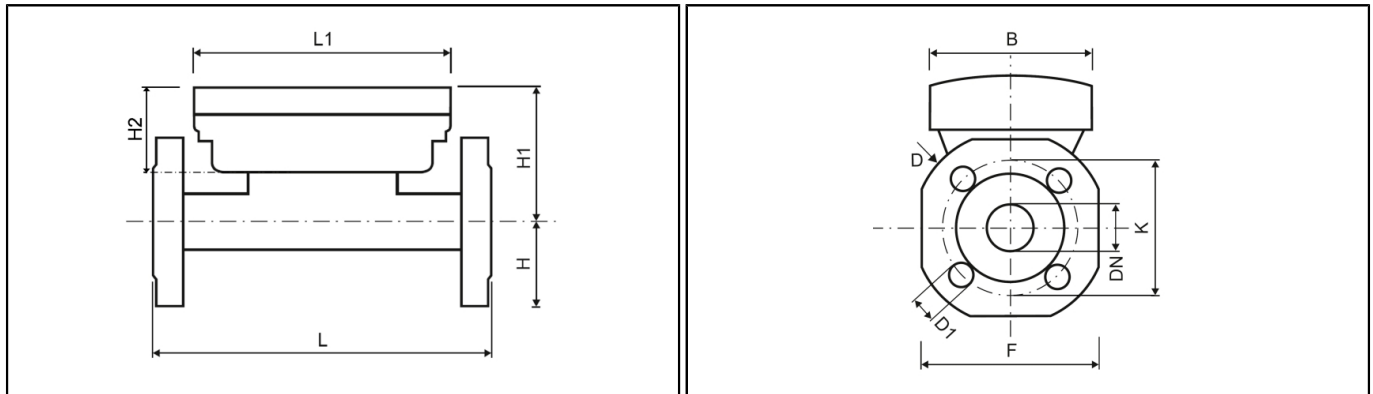
Nominal flow rate	q _p	m ³ /h	6	6
Nominal diameter	DN	mm	25	32
Overall length	L	mm	260	260
Overall length with coupling	L2	mm	380	-
Length of calculator	L1	mm	150	-
Height	H	mm	23	-
Height	H1	mm	88.5	-
Height of calculator	H2	mm	54	-
Width of calculator	B	mm	100	-
Connection thread on meter	Inch		G1 ¹ / ₄ B	-
Connection thread of coupling	Inch		R1	-
Weight ¹		kg	1.5	-

Nominal flow rate	q _p	m ³ /h	10	15	25	40	60
Nominal diameter	DN	mm	40	50	65	80	100
Overall length	L	mm	300	270	300	300	360
Overall length with coupling	L2	mm	440	-	-	-	-
Length of calculator	L1	mm	150	-	-	-	-
Height	H	mm	33	-	-	-	-
Height	H1	mm	94	-	-	-	-
Height of calculator	H2	mm	54	-	-	-	-
Width of calculator	B	mm	100	-	-	-	-
Connection thread on meter	Inch		G2B	-	-	-	-
Connection thread of coupling	Inch		R1 ¹ / ₂	-	-	-	-
Weight ¹		kg	3	-	-	-	-

SHARKY 775

ULTRASONIC COMPACT METER

DIMENSIONS FLANGE 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
Length of calculator	L1	mm	-	-	-	-
Height	H	mm	-	-	-	-
Height	H1	mm	-	-	-	-
Height of calculator	H2	mm	-	-	-	-
Width of calculator	B	mm	-	-	-	-
Flange dimension	F	mm	-	-	-	-
Flange diameter	D	mm	-	-	-	-
Hole circle diameter	K	mm	-	-	-	-
Screw hole diameter	D1	mm	-	-	-	-
Number of screwholes		pcs	-	-	-	-
Weight brass body ²		kg	-	-	-	-

Nominal flow rate	q _p	m ³ /h	6	6
Nominal diameter	DN	mm	25	32
Overall length	L	mm	260	260
Length of calculator	L1	mm	150	150
Height	H	mm	50	62.5
Height	H1	mm	88.5	88.5
Height of calculator	H2	mm	54	54
Width of calculator	B	mm	100	100
Flange dimension	F	mm	100	125
Flange diameter	D	mm	114	139
Hole circle diameter	K	mm	85	100
Screw hole diameter	D1	mm	14	18
Number of screwholes		pcs	4	4
Weight brass body ²		kg	3.5	4.8

SHARKY 775

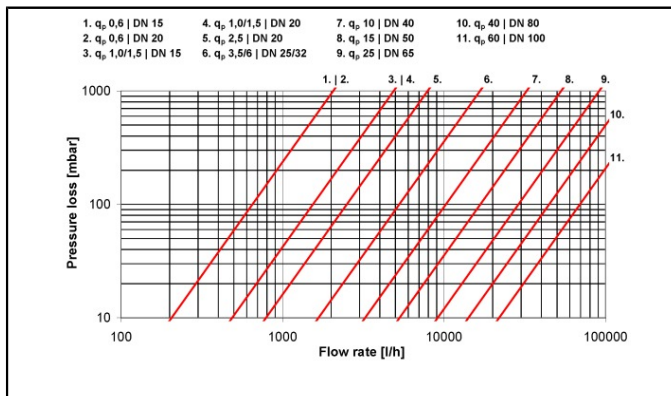
ULTRASONIC COMPACT METER

Nominal flow rate	q_p	m^3/h	10	15	25	40	60
Nominal diameter	DN	mm	40	50	65	80	100
Overall length	L	mm	300	270	300	300	360
Length of calculator	L1	mm	150	150	150	150	150
Height	H	mm	69	73.5	85	92.5	108
Height	H1	mm	94	99	106.5	114	119
Height of calculator	H2	mm	54	54	54	54	54
Width of calculator	B	mm	100	100	100	100	100
Flange dimension	F	mm	138	147	170	185	216
Flange diameter	D	mm	148	163	184	200	235
Hole circle diameter	K	mm	110	125	145	160	180 ^{1/190}
Screw hole diameter	D1	mm	18	18	18	19	19 ^{1/22}
Number of screw holes		pcs	4	4	8	8	8
Weight brass body ²		kg	6.8	7.6	9.6	11.2	17

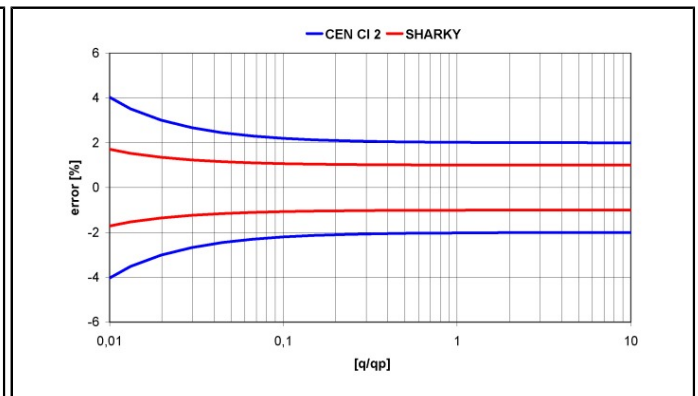
¹: Value for PN16 housing

²: Meter with A-cell, without modules, 1.5m cable length, 2m cable length of temperature sensor Ø 5.2mm

PRESSURE LOSS GRAPH / TYPICAL ERROR GRAPH



Pressure loss graph




Typical error graph

SAPPEL

SAPPEL HEAD OFFICE - 67 rue du Rhône - B.P. 10160 - 68304 Saint-Louis Cedex - Tél. 03 89 69 54 00 - Fax 03 89 69 72 20 - Internet : www.sappel.com - E-mail : info@sappel.com
 EXPORT- 67 rue du Rhône - B. P.10160 - F-68304 Saint-Louis Cedex - Tél. +33 (0)3 89 69 54 21 - Fax +33 (0)3 89 69 54 22 - E-mail : export@sappel.com

Subject to technical adjustments

 smart in solutions

03.06.2013 - 7