

# SHARKY SOLAR 775

COMPACT ENERGY METER | ULTRASONIC

**DIEHL**  
Metering



## APPLICATION

The ultrasonic compact energy meter SHARKY Solar 775 can be used for measuring the energy consumption in solar systems.

## FEATURES

- ▶ Energy meter for the specific media TYFOCOR LS
- ▶ Available in the sizes qp 0.6 up to 2.5 m<sup>3</sup>/h
- ▶ Extremely low power consumption --> longer battery lifetime
- ▶ Insensitive against dirt
- ▶ Versatile possibility of power supply
- ▶ Optional with integrated radio, Real Data or Open Metering Standard (868 or 434 MHz)
- ▶ Individual remote reading (AMR) with add on modules Plug & Play
- ▶ Extensive readable data memory
- ▶ 3 communication interfaces (e. g. M-Bus + M-Bus + Radio)
- ▶ Significantly improved radio performance

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## GENERAL

	SHARKY
Application	Heating - cooling - heating/with cooling tariff
Medium	TYFOCOR LS
Approval	Without
Accuracy	±10 %
Mounting position flow sensor	Any position, calming sections not necessary
Protection class flow sensor	Heating: IP 54; cooling and heating/with cooling tariff: acc. IP 68
Battery supply	3.6 VDC A-cell up to 10,5 years lifetime (depending on configuration); 3.6 VDC D-cell 16 years lifetime
Mains supply	24 VAC; 230 VAC
Temperature sensor type	Pt 100 or Pt 500 with 2-wire leads; Ø 5.2 / 6 mm or direct sensor
Cable length of temperature sensor	Pt 100: 1.9 m; Pt 500: 1.9 / 2.9 / 4.9 / 9.9 m
Volume measuring cycle	With mains unit: 1/8 s; with A-cell battery: 1 s; with D-cell battery: 1 s
Test possibilities	Via display, optical test pulses, test output or via NOWA software
Material of the flow sensor body	Brass

## 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

## CALCULATOR - BASIC FEATURES

	SHARKY
Environmental class	Class C
Ambient class	Class E2 + M2
Ambient temperature	°C 5 ... 55
Ambient storage temperature	°C -25 ... +60 (>35 °C max. 4 weeks)
Protection class	IP 54
Communication	3 communication interfaces (e. g. M-Bus + M-Bus + integr. radio; 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	°C 5 ... 130
Extensive readable data memory	Periodical log <sup>1</sup> ; history log; event memory

<sup>1</sup> 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	With A-cell: 180 s (11 years lifetime); with D-cell: 12 s (16 years lifetime); with mains unit: 12 s; depending on length of telegram (duty cycle)

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## DISPLAY

SHARKY	
Display indication	LCD, 8-digit
Units	MWh - kWh - GJ - Gcal - MBtu
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	
Optical	ZVEI interface, for communication and testing, M-Bus protocol
M-Bus	Configurable telegram, according to EN13757-3, two wires with non polarity, 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 EN13757-3, 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 12 V ± 5 V, M-Bus protocol, 2400 baud
Pulse output	Module with 2 Open Collector pulse outputs (potential-free), output 1: 4 Hz (pulse width 125 ms), pulse or static conditions (e.g. errors), output 2: 2000 Hz (pulse width ≥ 5 ms), ratio: pulse duration / pulse break ~ 1:1, configurable via IZAR@MOBILE 2 software.
Pulse input	Module with 2 pulse inputs, max. 20 Hz, configurable via IZAR@MOBILE 2 software, data can be transferred remotely
Combined pulse in-/output	Module with 2 pulse inputs and 1 pulse output, configurable via IZAR@MOBILE 2 software, needed for leak detection
Analogue output	Module for 4 ... 20 mA with 2 programmable passive outputs, programmable value in case of error

## TEMPERATURE INPUT

SHARKY			
Sensor current		mA	Pt 100 peak < 8; rms < 0.015, Pt 500 peak < 2; rms < 0.012
Measuring cycle	T	s	With mains unit: 2 s; with A-cell battery: 16 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	127
Absolute temperature measuring range	$\theta$	°C	0 ... 130

## TECHNICAL DATA FLOW SENSOR

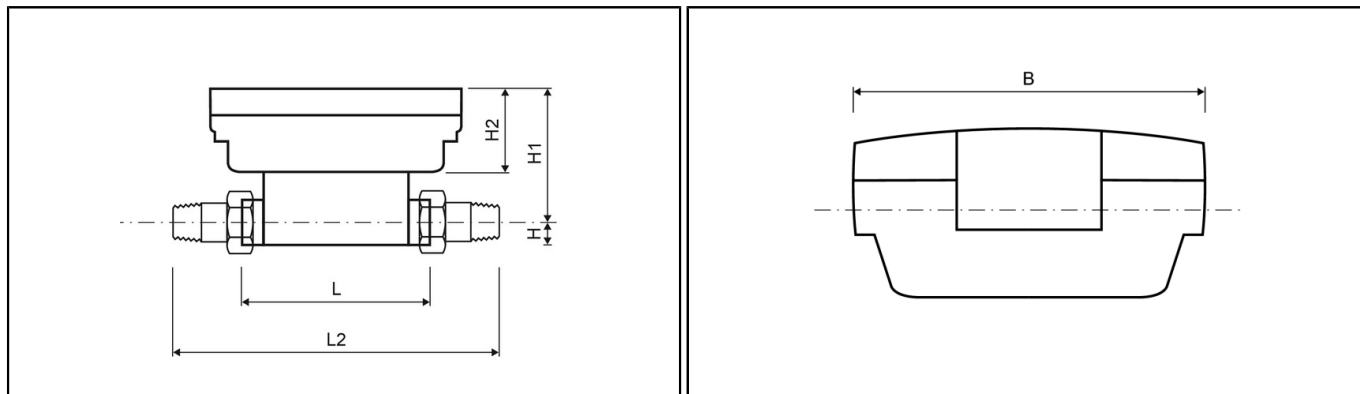
Nominal flow rate	$q_p$	m <sup>3</sup> /h	0.6	0.6	0.6	1.5	1.5	1.5	2.5	2.5
Nominal diameter	DN	mm	15	20	20	15	20	20	20	20
Overall length	L	mm	110	130	190	110	130	190	130	190
Starting flow rate		l/h	1	1	1	2.5	2.5	2.5	4	4
Minimum flow rate	$q_i$	l/h	6	6	6	6	6	6	10	10
Maximum flow rate	$q_s$	m <sup>3</sup> /h	1.2	1.2	1.2	3	3	3	5	5
Overload flow rate		m <sup>3</sup> /h	2.5	2.5	2.5	4.6	4.6	4.6	6.7	6.7
Operating pressure	PN	bar	16 <sup>1</sup>	16 <sup>1</sup>	16 <sup>1</sup>	16 <sup>1</sup>	16 <sup>1</sup>	16 <sup>1</sup>	16 <sup>1</sup>	16 <sup>1</sup>
Pressure loss at $q_p$	$\Delta p$	mbar	95	85	85	120	75	75	100	100
Temp. range		°C	5 ... 130	5 ... 130	5 ... 130	5 ... 130	5 ... 130	5 ... 130	5 ... 130	5 ... 130
Kvs value ( $\Delta p=Q^2/Kvs^2$ )			2.06	2.06	2.06	5.48	5.48	5.48	7.91	7.91

<sup>1</sup> Also available in PN 25 bar

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## DIMENSIONS THREAD VERSION



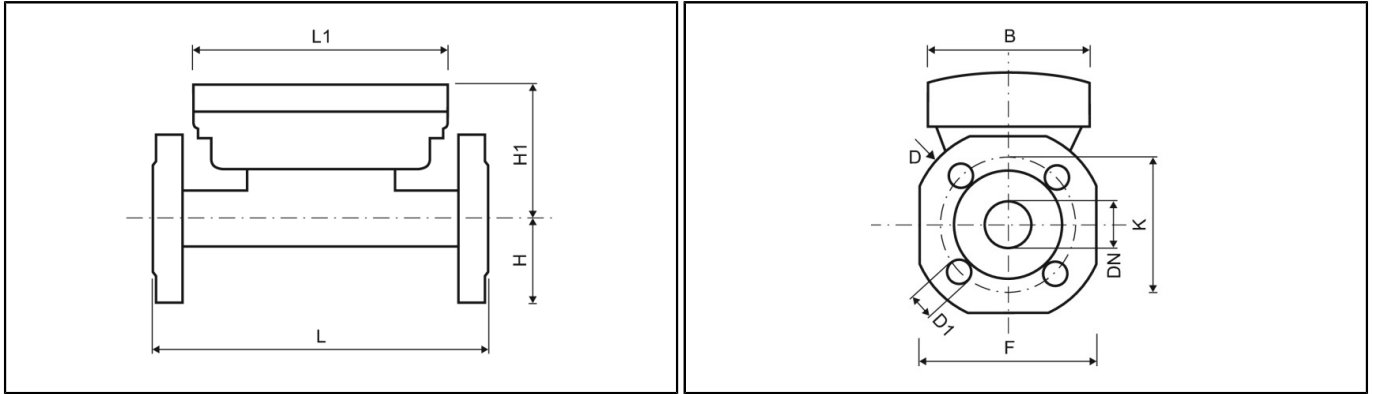
Nominal flow rate	q <sub>p</sub>	m <sup>3</sup> /h	0.6	0.6	0.6	1.5	1.5	1.5	2.5	2.5
Nominal diameter	DN	mm	15	20	20	15	20	20	20	20
Overall length	L	mm	110	130	190	110	130	190	130	190
Overall length with coupling	L2	mm	190	230	290	190	230	290	230	290
Length of calculator	L1	mm	150	150	150	150	150	150	150	150
Height	H	mm	14.5	18	18	14.5	18	18	18	18
Height	H1	mm	82	84	84	82	84	84	84	84
Height of calculator	H2	mm	54	54	54	54	54	54	54	54
Width of calculator	B	mm	100	100	100	100	100	100	100	100
Connection thread on meter		Inch	G¾B	G1B	G1B	G¾B	G1B	G1B	G1B	G1B
Connection thread of coupling		Inch	R½	R¾	R¾	R½	R¾	R¾	R¾	R¾
Weight <sup>1</sup>		kg	0.76	0.85	0.96	0.76	0.85	0.96	0.85	0.96

<sup>1</sup> Meter with A-cell, without modules, 1.4 m cable length, 1.9 m cable length of temperature sensor Ø 5.2 mm

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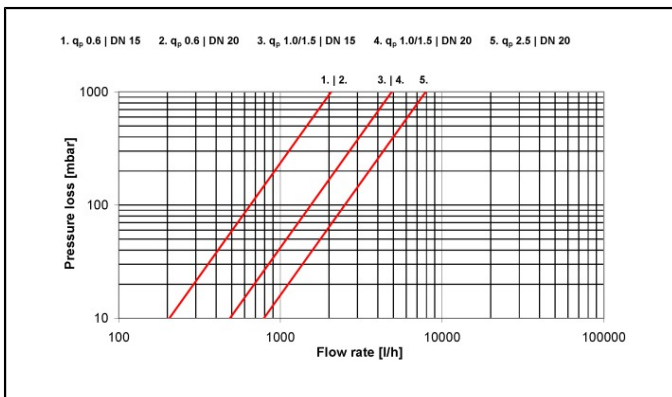
## DIMENSIONS FLANGE VERSION



Nominal flow rate	q <sub>p</sub>	m <sup>3</sup> /h	0.6	0.6	0.6	1.5	1.5	1.5	2.5	2.5
Nominal diameter	DN	mm	15	20	20	15	20	20	20	20
Overall length	L	mm	110	130	190	110	130	190	130	190
Length of calculator	L1	mm	-	-	150	-	-	150	-	150
Height	H	mm	-	-	47.5	-	-	47.5	-	47.5
Height	H1	mm	-	-	84	-	-	84	-	84
Height of calculator	H2	mm	-	-	54	-	-	54	-	54
Width of calculator	B	mm	-	-	100	-	-	100	-	100
Flange dimension	F	mm	-	-	95	-	-	95	-	95
Flange diameter	D	mm	-	-	105	-	-	105	-	105
Hole circle diameter	K	mm	-	-	75	-	-	75	-	75
Screw hole diameter	D1	mm	-	-	14	-	-	14	-	14
Number of screw holes		pcs	-	-	4	-	-	4	-	4
Weight <sup>1</sup>		kg	-	-	2.75	-	-	2.75	-	2.75

<sup>1</sup> Meter with A-cell, without modules, 1.4 m cable length, 1.9 m cable length of temperature sensor Ø 5.2 mm

## PRESSURE LOSS GRAPH



Pressure loss graph