

# SHARKY SOLAR 775

ULTRASONIC COMPACT ENERGY METER

**DIEHL**  
Metering



## APPLICATION

SHARKY SOLAR 775 is a ultrasonic compact energy meter designed for measuring the energy consumption in solar systems. The measurement principle is static and based on the measurement of the transit time. Ultrasonic technology offers many benefits : no moving parts (prevents wear and tear of the metering components), low pressure loss, large metering dynamics and low start flowrate, insensitiveness to suspended particles...

## FEATURES

- ▶ Designed for the specific heat transfer fluid TYFOCOR LS
- ▶ Available in DN 15 and 20
- ▶ Low power consumption enabling a long battery lifetime (up to 16 years)
- ▶ Integrated radio option
- ▶ Modular version, M-Bus, RS232, RS485, Analog outputs 4-20mA, pulse outputs and inputs

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### GENERAL

SHARKY Solar 775	
Application	Heating - heating with cooling tariff
Medium	TYFOCOR LS
Approval	-
Accuracy	±10 %
Mounting position flow sensor	Any position, no straight length
Protection class flow sensor	Heating: IP 54   Heating with cooling tariff : IP 65
Battery supply	3.6 VDC D-cell (up to 16 years lifetime*)
Mains supply	24 VAC; 230 VAC
Temperature sensor type	Pt 500 with 2-wire leads; Ø 5.2 direct sensor
Cable length of temperature sensor	Pt 500: 2 / 3 / 5 / 10 m
Volume measuring cycle	With mains unit: 1/8 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

\* Standard conditions of use and temperature. Theoretical life, with no guarantee.

### CALCULATOR - BASIC FEATURES

SHARKY Solar 775	
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 M-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 Solar 775	
Frequency band	868 or 434 MHz
Type of radio telegram	Real Data or Open Metering Standard (OMS)
Transmission data updating	Online
Data transmission	Unidirectional
Sending interval	12 s (up to 16 years lifetime*) depending on length of telegram (duty cycle)

\* Standard conditions of use and temperature. Theoretical life, with no guarantee.

### DISPLAY

SHARKY Solar 775	
Display indication	LCD, 8-digit
Units	MWh - kWh - GJ - Gcal - MBtu - gal - GPM - °C - °F - m <sup>3</sup> - m <sup>3</sup> /h
Display capacity	99,999,999 - 9,999,999.9 - 999,999.99 - 99,999.999 (depending on the nominal diameter)
Values displayed	Energy - Volume - Flow rate - Power - Temperature

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### INTERFACES

SHARKY Solar 775	
Optical	ZVEI interface, for communication and testing, M-Bus protocol
M-Bus	Configurable telegram, according to EN13757-3, data reading and parametrization via 2 wires with polarity reversal protection, auto baud detect (300 and 2,400 baud), 2 M-Bus outputs with 2 primary addresses
L-Bus	Adapter for external radio module, configurable telegram, according to EN13757-3, data reading and parametrization via 2 wires with polarity reversal protection
RS232	Serial interface for communication with external devices, a special data cable is required, M-Bus protocol, 300 and 2,400 baud
RS485	Serial interface for communication with external devices, power supply with 12 V $\pm$ 5 V, M-Bus protocol, 2,400 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: 200 Hz (pulse width $\geq$ 5 ms), ratio: pulse duration/pulse break $\sim$ 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 Solar 775			
Measuring cycle	T	s	With main units: 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	175
Absolute temperature measuring range	$\theta$	$^{\circ}\text{C}$	0 ... +130

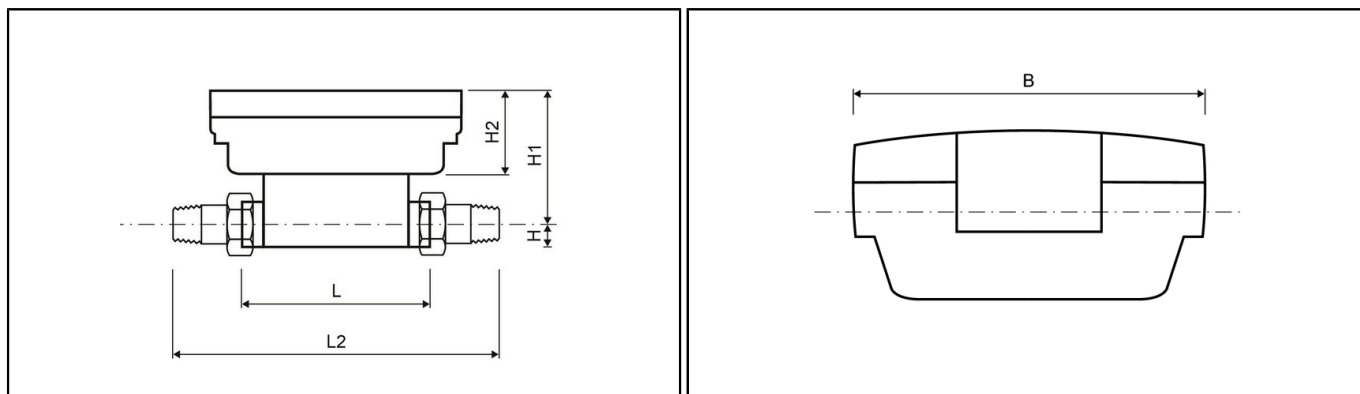
### TECHNICAL DATA FLOW SENSOR

Nominal flow rate	$q_p$	$\text{m}^3/\text{h}$	1.5	2.5
Nominal diameter	DN	mm	15	20
Overall length	L	mm	110	130
Starting flow rate		l/h	2.5	4
Minimum flow rate	$q_i$	l/h	6	10
Maximum flow rate	$q_s$	$\text{m}^3/\text{h}$	3	5
Overload flow rate		$\text{m}^3/\text{h}$	4.6	6.7
Operating pressure	PN	bar	16	16
Pressure loss at $q_p$	$\Delta p$	mbar	75	100
Temp. range		$^{\circ}\text{C}$	+5 ... +130	+5 ... +130
Kvs value ( $\Delta p=Q^2/Kvs^2$ )			5.48	7.91

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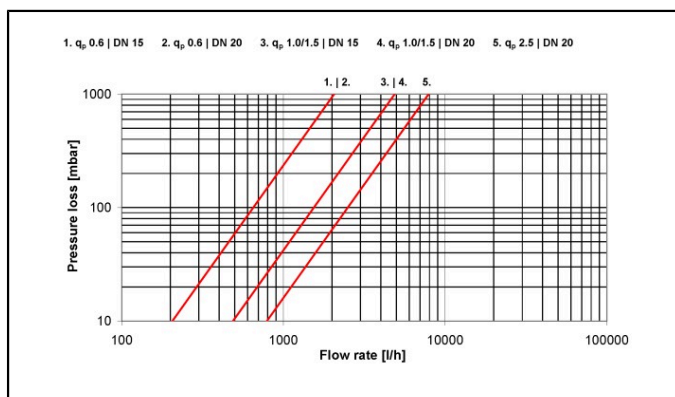
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## DIMENSIONS THREAD VERSION



Nominal flow rate	$q_p$	$m^3/h$	1.5	2.5
Nominal diameter	DN	mm	15	20
Overall length	L	mm	110	130
Overall length with coupling	L2	mm	190	230
Length of calculator	L1	mm	150	150
Height	H	mm	14.5	18
Height	H1	mm	82	84
Height of calculator	H2	mm	54	54
Width of calculator	B	mm	100	100
Connection thread on meter		Inch	G $\frac{3}{4}$ B	G1B
Connection thread of coupling		Inch	R $\frac{1}{2}$	R $\frac{3}{4}$
Weight		kg	0.76	0.85

## PRESSURE LOSS GRAPH



Pressure loss graph