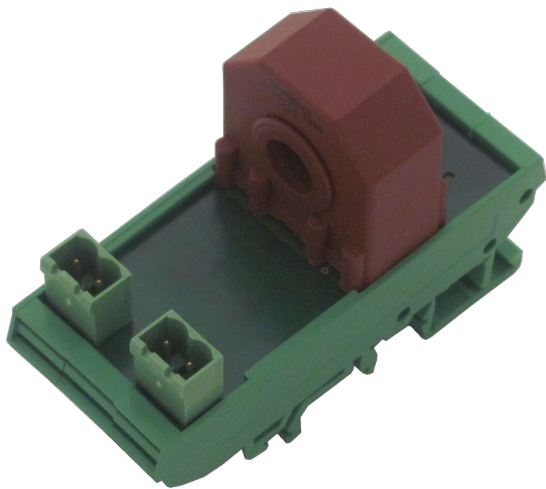


User manual

version 1.1

DALicus



sensor for AC measurement

measurement true RMS

Galvanic isolation of measured circuit

Measurement range 0 - 12A AC

Powered from DALI bus

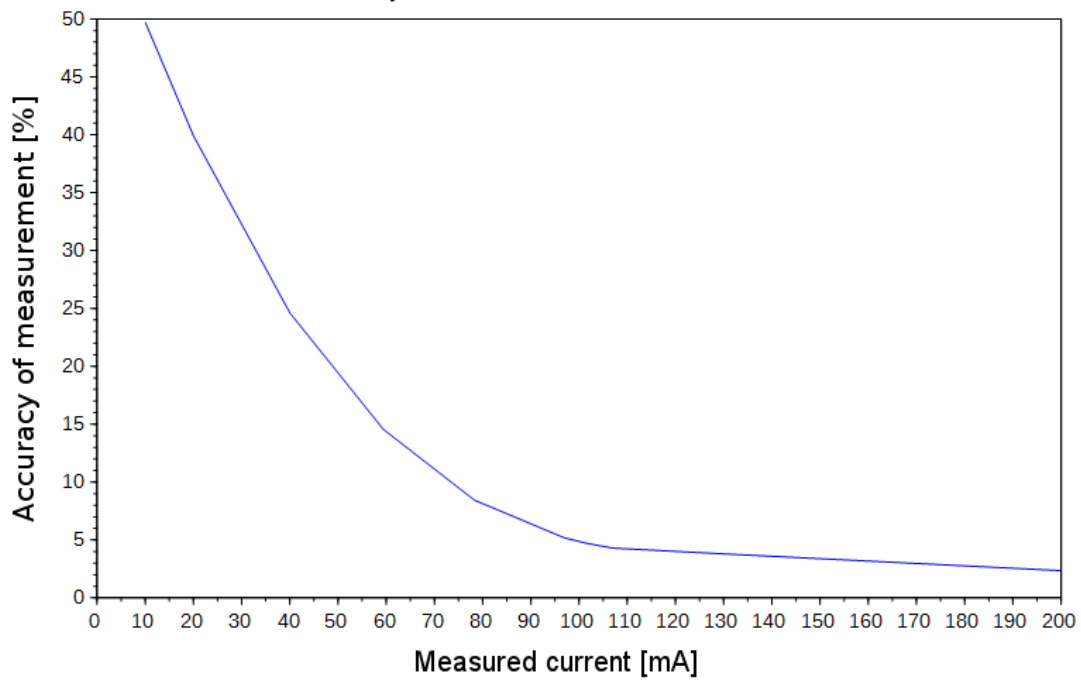
Up to six sensors in one device

DALIcus is universal digital current sensor which allows galvanically isolated measurement of effective AC value with frequency 50 Hz in the range 0 – 12A. Sensor communicates by DALI bus messages. It is also powered from DALI bus. Except standard DALI address assignment there is no other setting required. Basic variant DALIcus1 allows current measurement for one conductor. Variants DALIcus2 up to DALIcus6 allows current measurement for multiple conductors.

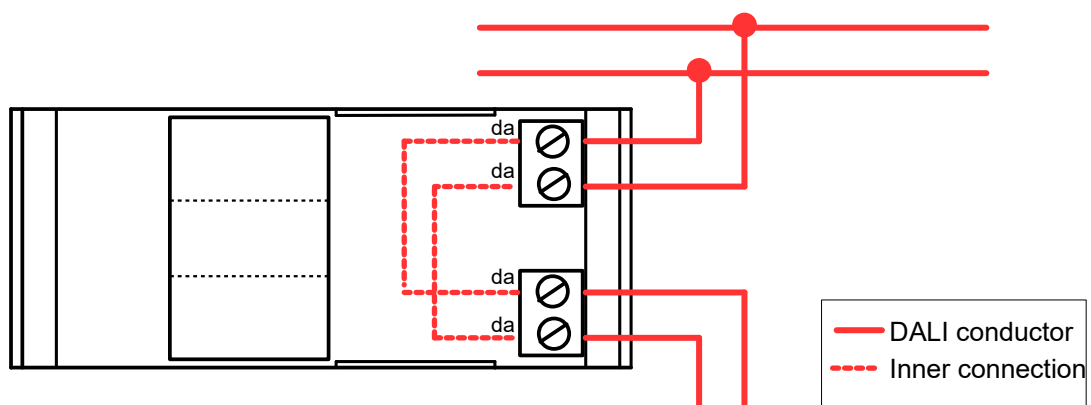
Technical specification			
Measurement range RMS		0 - 12	A
Measurement range pk-pk		0 - 16,6	A
Frequency of measured current		50	Hz
Sampling frequency		2500	Hz
distinction	0 – 1270 mA	10	mA
	1300 – 12000 mA	100	mA
Measurement accuracy	300 – 12000 mA	2	%
	200 – 300 mA	5	%
	0 – 200 mA	See graph	
Type of sensor		Current transformer	
Isolation resistance of transformer		50	MΩ
Number of sensors	DALIcus1	1	
	DALIcus2	2	
	DALIcus3	3	
	DALIcus4	4	
	DALIcus5	5	
	DALIcus6	6	
consumption (from DALI bus)	DALIcus1	4	mA
	DALIcus2	5,5	mA
	DALIcus3	7	mA
	DALIcus4	8,5	mA
	DALIcus5	10	mA
	DALIcus6	11,5	mA
DA terminals for maximal wires cross section		2,5	mm ²
Ingress protection degree		IP10	
Ambient working temperature		-20 ÷ 50	°C
Storing temperature		-20 ÷ 70	°C

weight	DALIcus1	75	g
	DALIcus2	135	g
	DALIcus3	185	g
	DALIcus4	235	g
	DALIcus5	285	g
	DALIcus6	335	g

Accuracy of measurement 0-200mA



Terminals connection



designation	description
DA, DA	DALI bus, two wires mutually interchangeable

Function

DALIcus is universal current sensor suitable for monitoring of appliances. For measurement the sensor uses accurate current transformer which secures safe galvanic isolation of measured circuit. Except the address setting the current sensor requires no setup.

DALIcus is manufactured in six variations (DALIcus1, ... DALIcus6) which differs in the number of measuring sensors. Basic variant DALIcus1 contains of one current sensor. Other variants contains of multiple independent current sensors. Each of those current sensors behave like independent DALI device (it has its own address). E.g.: DALIcus3 contains of three current sensors (it takes three DALI addresses). One DALIcus3 can fully replace three DALIcus1.

Control

Measured current value can be read using DALI bus with command QUERY ACTUAL LEVEL sent to the address of the sensor.

Address of the sensor is assigned by standard way defined in the DALI bus standards. For addressing a sensor program DALIconfig can be used. This program is downloadable for free on the website of manufacturer foxtron.eu.

Control of DALIcus sensor is done by standard DALI bus messages. Following table provides those messages and their meaning for DALIcus.

<i>DALI command</i>	<i>Meaning for DALIcus sensor</i>
QUERY ACTUAL LEVEL	Question on the measured current value (formats of the answer are listed in following table)
QUERY DEVICE TYPE	Question on the device type (answer: 253 _D)

Format of the answer on the QUERY ACTUAL LEVEL question	
answer (binary notation)	Result of current measurement
0xxxxxxx	0 – 1270mA (step 10mA)

1xxxxxxx	1300 – 12000mA (step 100mA)
11111001	reserved
11111010	reserved
11111011	reserved
11111100	reserved
11111101	reading – $I_{RMS} > 12000mA$
11111110	reading – $I_{p-p} > 16600mA$
11111111	reserved

Signaling

DATA	flash	Sending data on DALI bus
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Installation

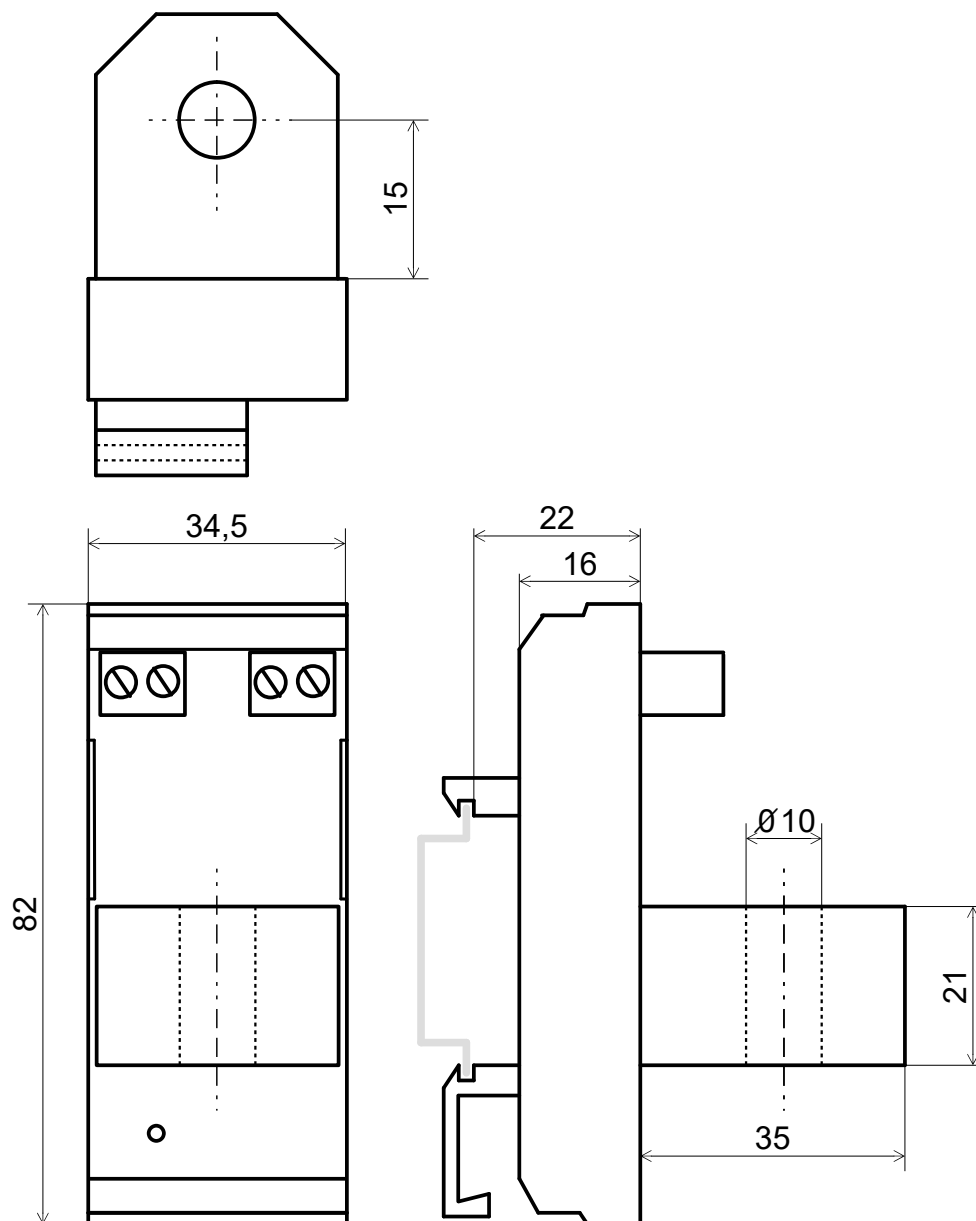
Current sensor DALIcus is designed for mounting on the TS 35 DIN rail. Two wires DALI bus is connected to DALIcus using two-wire connectors DA and DA. Connectors are connected in parallel which can be used when looping the bus. Polarity of connected wires does not matter.

Wire of measured circuit is led through the hole in measuring transformer. Direction of the wire does not matter (multiple looping through the hole can refine the measurement of the low current values. Actual value is then measured value divided by the number of loops in transformer).

Measuring properties

Measured current is captured using accurate current transformer. Subsequently it is sampled by the microprocessor which from sampled current waveform continuously calculates the real effective value. This way allows high accuracy measurement even for mains appliances which has not sinusoidal waveform of input current (e.g. pulse computer power suppliers, phase dimmer bulbs, LED lights). Sensor DALIcus measures effective value of the current in the range 0 – 12A. Maximal peak value of measured current is 16,6A. When exceeding the maximal values sensor announces the overflow.

dimensions [mm] – variant DALIcus1



Dimensions [mm] - variant DALIcusN (N = number of sensors)

<i>N (number of sensors)</i>	<i>w</i>
1	34,5
2	68,5
3	91
4	113,5
5	136
6	158,5

