BACS_CSHxxxx Current Sensor / SM_CSHxxxx Current Sensor

Important Note:

The Sensortypes **BACS_CSHxxxx** and **SM_CSHxxxx** are similar devices with same technical specifications. The difference are the varied cables for transmission of the measured values.

That´s why the sensors designated as BACS_CSHxxxx in the text below.

Description & Functions:

The BACS_CSHxxxx Current Sensor is a measuring unit for the integration into the BACS bus system. This unit provides the measuring of the string current into the negative or rather positive range of a battery circuit and displays the data in Ampere.

The active measuring value will be displayed via the web-interface, the BACS Webmanager showing the „BACS Status" of the string (*Fig.1*). The measuring values will be stored sequentially in the history files and this data can then be used later for system analyze and performance interpretation by using the BACS Viewer software.

Assembling:

The BACS_CSHxxxx Current Sensor is designed for DIN Rail mounting

Bus Connection (only for BACS_CSHxxxx):

The BACS CSHxxxx sensors (one or more units) should be connected to the BACS CONVERTER via a separate communication bus cable. Do not mix a BACS_CSHxxxx Current Sensor into the same communication bus string where BACS Modules are connected.

Connect the „X1"-RJ10 socket of the BACS_CSHxxxx Current Sensor with any BACS bus-cable to the „battery bus"of the BACS CONVERTER or rather an input of the BACS SPLITTBOX. Please reserve one of the 2 Inputs "battery bus" at the BACS CONVERTER or if occupied, at the BACS SPLITTBOX for the BACS Current sensor bus to avoid conflicts with the BACS C modules and to get a clear signal at longer cable lenghts. You can connect up to 10 BACS_CSHxxxx Current Sensors on this bus. Use the « X2 » for the connection to the next BACS_CSHxxxx Current Sensor.

SensorManager / SiteManager connection (only for SM_CSHxxxx):

Connect the current sensor on port X3 to the Sensor-Manager / Site-Manager through the RJ12 Cable, which comes with the sensor. It is possible to connect a second sensor to port X4.

Circuit Connection:

Put the cable of the battery circuit you want to measure through the transducer on the BACS CSxxx Current Sensor. Check to make sure the cable is place in the unit in the correct direction to measure the flow of current (see marking of the BACS_CSHxxxx Current Sensor, *Fig. 4*)!

Addressing (only for BACS_CSHxxxx):

The BACS_CSHxxxx Current Sensor can be ad dressed via the DIP-Switch „S1". The string number and the address will be defined via the switch setting of the switches (see fig. 1 and 2). The measuring value will be displayed below the string number (see *Fig. 2*). The BACS Webmanager detects the connection of the BACS CSHxxxx current sensors and will automatically monitor and display the measuring value for each of the strings accordingly the position of the DIP SW. Please note, that it is required to enable the function « BACS CS Current Sensor connected » into the BACS Configuration menu.If you want to change the setting of the switch into operating mode, it is required to disconnect the power supply via detaching of the bus connection, so the new string number will be active. See the following table for switch settings and their string allocation:

S1-1:	S1-2:	S1-3:	S1-4:	String Number:
off	off	off	off	1
off	off	off	on	2
off	off	on	off	3
off	off	on	on	4
off	on	off	off	5
off	on	off	on	6
off	on	on	off	7
off	on	on	on	8
on	off	off	off	9
on	off	off	on	10
on	off	on	off	11
on	off	on	on	12
on	on	off	off	13
on	on	off	on	14
on	on	on	off	15
on	on	on	on	16

Fig.:1

Status LED:

When green LED on the BACS_CSHxxxx Current Sensor is flashing it indicates that power is available. The green LED is constantly on if the device was detected by the BACS Webmanager and measuring values are transferred (normal operation). If the communication to the BACS Webmanager is interrupted, the LED will start flashing after 180 seconds to indicate that there is communication problem.

Setting up the Sensor Manager / Site Manager (only for SM_CSHxxxx):

The Switch SW1 allows you to select the type of current measurement (AC or DC).

On the device itself or on the packaging you can see the device designation. In addition, it is possible to increase the accuracy of the sensor by setting a gain factor. The current range depends on the gain factor. Please refer to the following table:

Gain	SW2-1	SW2-2	SM_CSH50	SM_CSH200	SM_CSH400
1	off	off	+/- 50A	+/- 200A	+/- 400A
2	off	on	+/- 25A	+/- 100A	+/- 200A
4	on	off	+/- 12.5A	+/- 50A	+/- 100A
8	on	on	+/- 6.25A	+/- 25A	+/- 50A

Gain	SW2-1	SW2-2	SM_CSH1000	SM_CSH2000
1	off	off	+/- 1000A	+/- 2000A
2	off	on	+/- 500A	+/- 1000A
4	on	off	+/- 250A	+/- 500A
8	on	on	+/- 125A	+/- 250A

Fig. 2

In the web interface of the CS141 or Site Manager, you need to configure the analog input where the current sensor is connected. Type in the minimum and maximum of the current sensor and the unit "A" for ampere.
Here you can also set up alarm and pre-alarm values.

The Offset is necessary to do the 0 ampere calibration when sensor has no-load.
- To compensate an offset enter the **displayed value * (-1)** of the idling sensor.
- Apply settings. Now the graphics should display the value zero.

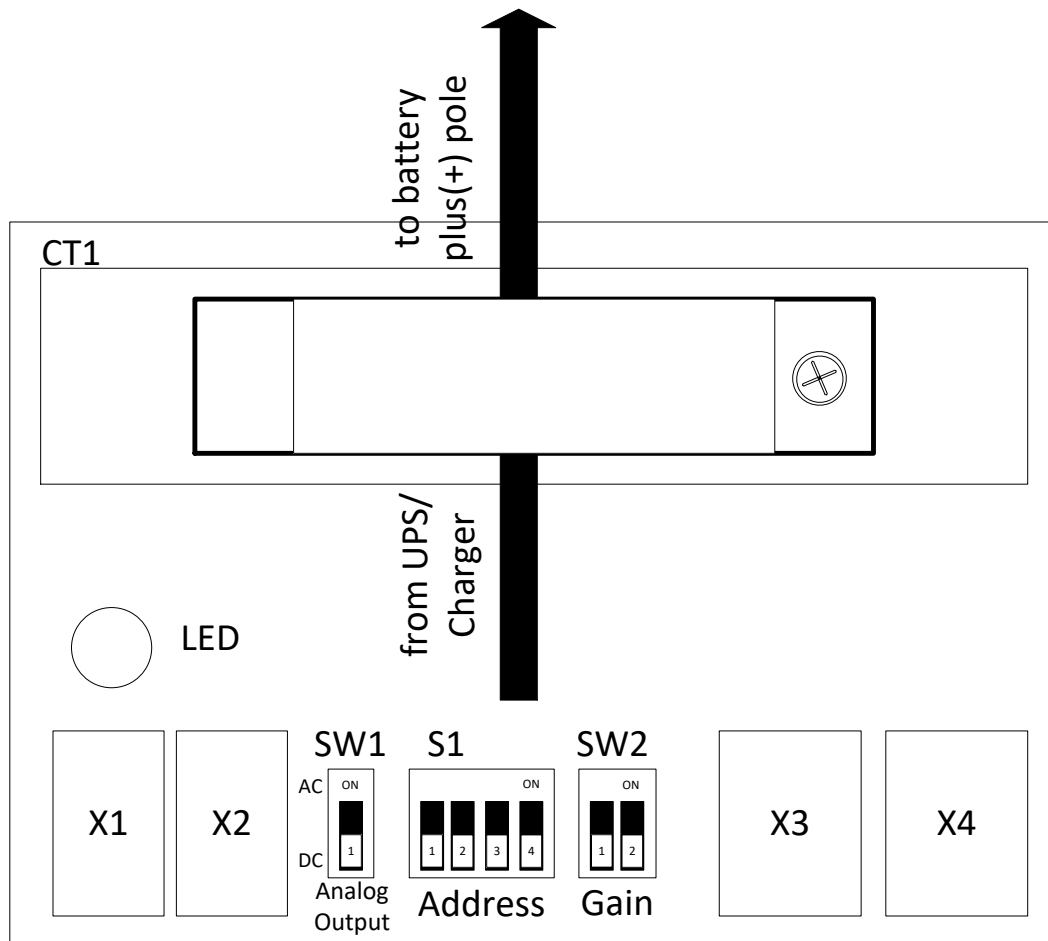*Fig. 3*

Diagram of BACS_CSHxxxx Current Sensor:

Fig.:4

ℹ️ **Attention:** If BACS_CSHxxxx Current Sensors will be refitted, please note, that the power supply of the BACS BUS CONVERTER or rather BACS WEBMANAGER BUDGET II is a controlled (stabilized) 12V power supply. The feeding has to be stable (+/- 0,5V)

Configuration of the sensor / BACS: Enable and selecting number of sensors

➜ Sensor configuration menu
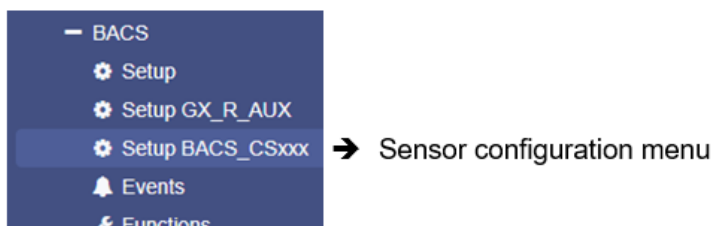
Check the box at „BACS CS Current Sensor Connected" to enable the sensor

Defining the number of installed sensors

In case of one current sensor onle, enable „Only One Current Sensor For All Strings". If not selected, BACS will assume that the number of strings is the finally the number of current sensors..

Thresholds

Define how many current flow must be detected until the sensor assumes that there is a charge / discharge cycle in progress.

Defining the threshold levels:

Warning Levels

	Min	Max
Enable Current Thresholds	☑	
String Current	-10 A	10 A

Alarm Levels

	Min	Max
Enable Current Thresholds	☑	
String Current	-11 A	11 A

Apply   Cancel

To enable the threshold function, select the according check box. Jobs for these thresholds can be added at the BACS event handling menu

Please ensure that the warning level values are always lower than the alarm level values.

Technical Data and Specification BACS_CSHxxxx Current Sensor:

Module-Version	Current Sensor	CSIV	
Power supply range	Volt	12 VDC (Note : stabilized 12VDC power supply necessary !)	
Power supply	Cable	via bus wiring	
Current range	ADC	BACS_CSH50: BACS_CSH200: BACS_CSH400: BACS_CSH1000: BACS_CSH2000 :	+/- 50 ADC +/- 200 ADC +/- 400 ADC +/- 1000 ADC +/- 2000 ADC
Measuring accuracy	Resolution	16 Bit, ±1A, ±2%	
Current consumption	mA	90mA	
Control element	DIP SW	DIP-Switch for the addressing	
Indicator	Optical	LED for status display	
Interface	Serial	Optical, isolated 4-pole connection	
Bus protocol	BACS	Proprietary GENEREX bus protocol, 9600 baud	
Analog Outputrange	SM	0V – 10V → 5V = 0A	
Temperature	Operation	-10 ... +70°C	
Temperature	Storing	-25 ... +85°C	
Humidity	Rel. %	0 - 95% not condensated	
max. cable diameter (incl.cable sheath) of the current circuit you want to measure	mm	BACS_CSH50: BACS_CSH200 – BACS_CSH2000:	20mm 40mm
Dimensions	W x H x D	110 x 82 x 125 mm	
Weight	gr	420g	
Protection class	IP	IP 20	
Housing	Material	PA (Polyamid)	
Certifications	Norm	DIN EN 50178, RoHS	