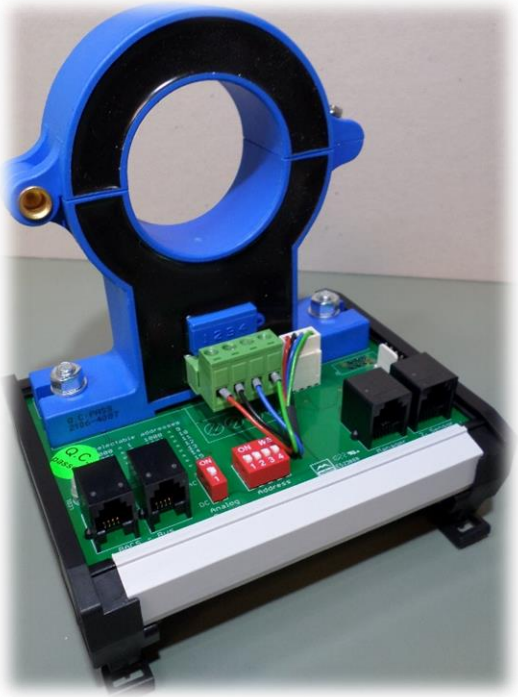
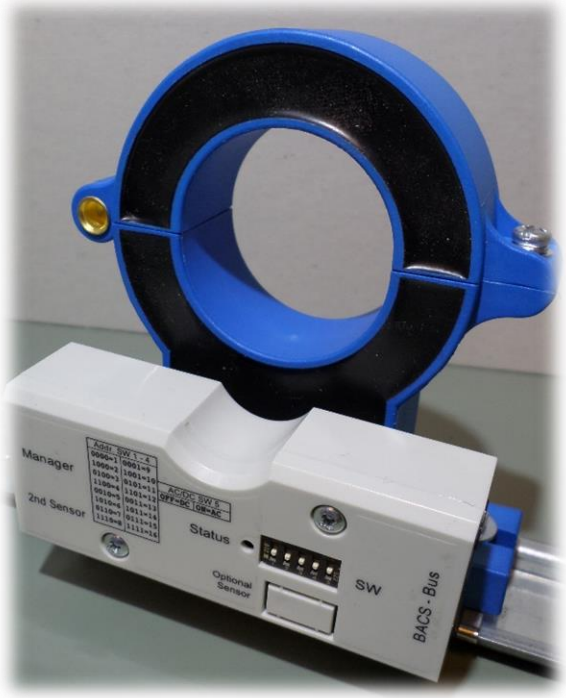
BACS® Current Sensor

Intelligent Power Distribution Infrastructure Monitoring





Product picture may differ

BACS_CSHxxxx / SM_CSHxxxx

BACS_CSHxxxx(D/F) /SM_CSHxxxxF

Quick installation guide

BACS_CSHxxxx Current Sensor
BACS_CSHxxxx(D/F) Current Sensor
SM_CSHxxxx(F) Current Sensor

Before you start

The Sensortypes **BACS_CSHxxxx(D/F)** and **SM_CSHxxxx(F)** are similar devices with identical technical specifications, the difference is the cable coming with the sensor on delivery:

- The BACS_CSHxxxx (D/F) comes with 4 pole BACS Bus cable (RJ10).
- the SM_CSHxxxx(F) comes with a 6 pole analog cable (RJ12).

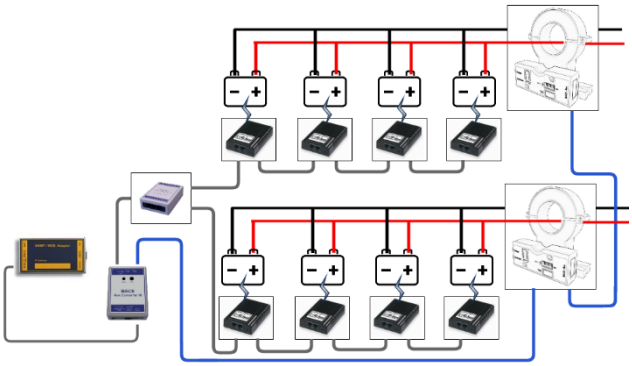
Description & Functions

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. 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 Current Sensor is designed for DIN Rail mounting.

BACS - Wiring: General Bus Connection (CSHxxx F)



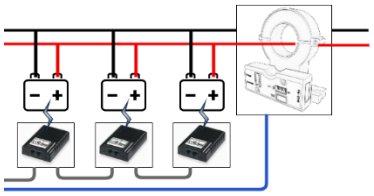
To connect a single BACS current sensor, use a single BACS Bus port. Do not mix up BACS Bus modules with the current sensor. Since the sensor is powered by the BACS Bus, no additional power source is required.

BACS - Daisychain for up to 16 sensors (CSHxxx F)

Use a daisy chain to connect other current sensors. The BACS Webmanager according to the number of configured battery strings:

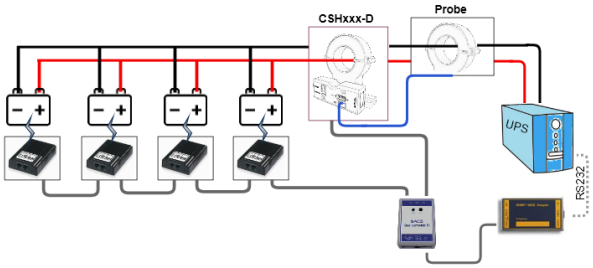
Each BACS Webmanager can therefore hold up to 16 current sensors. For structured wiring, the current sensors can also be used with a BACS Bus Splitter in combination with a daisy chain.

BACS - Circuit wiring and current direction (CSHxxx F)



Open the hall sensor and place the power cable in the sensor ring. Take care for the the measuring direction of the sensor to avoid wrong measurements. A small arrow on the top of the hall sensor shows the correct current flow. We recommend to use the + cable only. Ensure

BACS - Ground fault mode wiring (CSHxxx D only)



The Ground fault mode is a special mode that combines two current sensors to find errors within a battery string:

In case of a faulty power circuit, the measurements of both sensors will differ and therefore indicates a ground fault with imminent risk of electrical shock on touching metallic parts.

Note: Each Sensor / Probe pair is calibrated, do not mix them if more than one sensor pair is in use.

SENSORMANAGER / SITEMANAGER

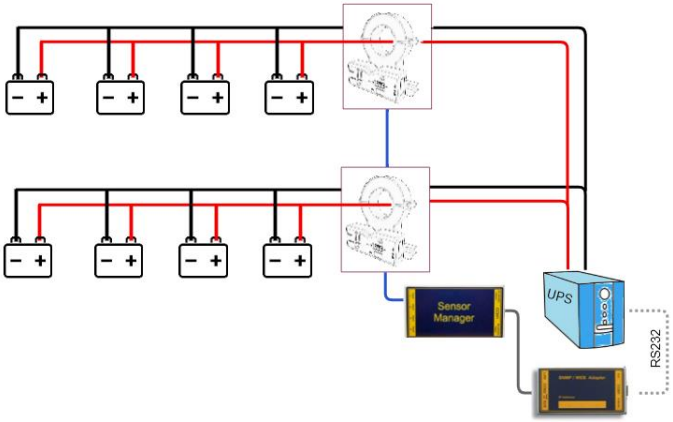
Analog wiring

Use the RJ12 – cable to connect the Sensor with a Sensormanager or the analog ports of a SITEMANAGER 6

Analog Daisy Chain (2 devices per port)

Connect the second sensor to the first sensor to use a daisy chain. Please note that only 2 devices can be connected.

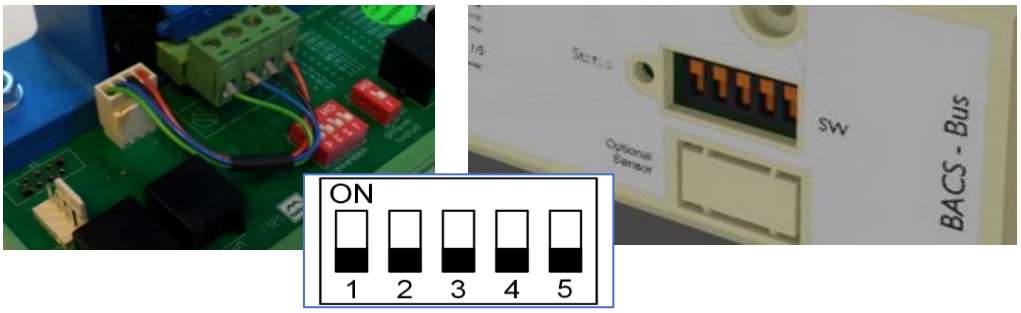
Please note, the ground fault sensor is not supportet.



Addressing

The BACS_CSHxxxx Current Sensor can be addressed via the DIP-Switch:

Address table for the string numbers:



	BACS_CSHxxxx				***BACS_CSHxxxxF/D***					
String No.:	***SW2-1***	***SW2-2***	***SW2-3***	***SW2-4***	***SW 1***	***SW 2***	***SW 3***	***SW 4***	***SW 5***	***Analog AC / DC***
1	off	off	off	off	off	off	off	off	-	
2	off	off	off	on	on	off	off	off	-	
3	off	off	on	off	off	on	off	off	-	
4	off	off	on	on	on	on	off	off	-	
5	off	on	off	off	off	off	on	off	-	
6	off	on	off	on	on	off	on	off	-	
7	off	on	on	off	off	on	on	off	-	
8	off	on	on	on	on	on	on	off	-	
9	on	off	off	off	off	off	off	on	-	
10	on	off	off	on	on	off	off	on	-	
11	on	off	on	off	off	on	off	on	-	
12	on	off	on	on	on	on	off	on	-	
13	on	on	off	off	off	off	on	on	-	
14	on	on	off	on	on	off	on	on	-	
15	on	on	on	off	off	on	on	on	-	
16	on	on	on	on	on	on	on	on	-	
-	-	-	-	-	-	-	-	-	off	**DC**
-	-	-	-	-	-	-	-	-	on	**AC**

The physical address of the sensor is hard-coded and can be changed by setting up the dip switches. to activate the new settings, remove the BACS Bus cable and connect the sensor again. After restart, the new address is assigned and ready to use. To avoid wrong measuring, please check your BACS string setup after changing the sensor address.

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.

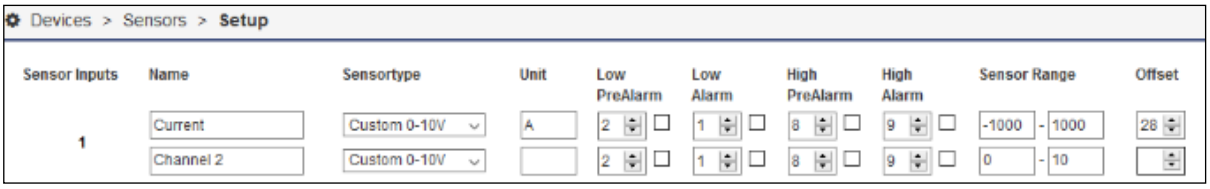
Setting up SENSORMANAGER / SITEMANAGER

AC / DC measuring selector

Switch SW5 provides to select the type of current measurement (AC or DC).

Sensor configuration

The current sensor supplies an analogue voltage of 0 - 10V as a measurement result, which must be defined accordingly in the sensor settings.:



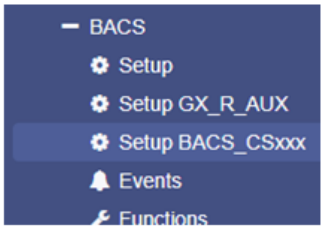
At "Name", assign a unique name of the sensor. This name is then displayed in the sensor monitoring screen.

Offset Settings

Use the Offset Settings to define the sensor output at 0 amps under the condition that the sensor does not measure any current flow.

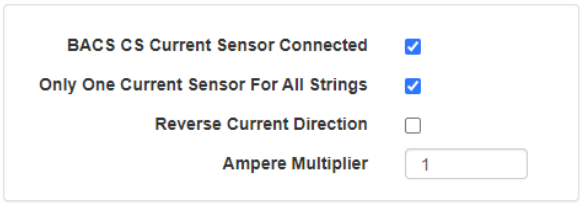
If the sensor shows a deviation at the 0 position, define an offset from the ***measured value X - 1***. The sensor should then display 0 in the sensor monitoring screen.

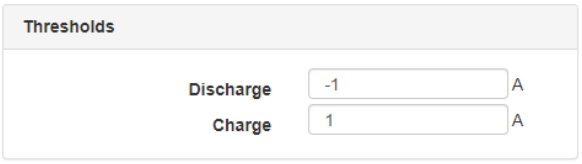
BACS Configuration



➔ Sensor configuration menu

Check the box at „BACS CS Current Sensor Connected“ to enable the sensor





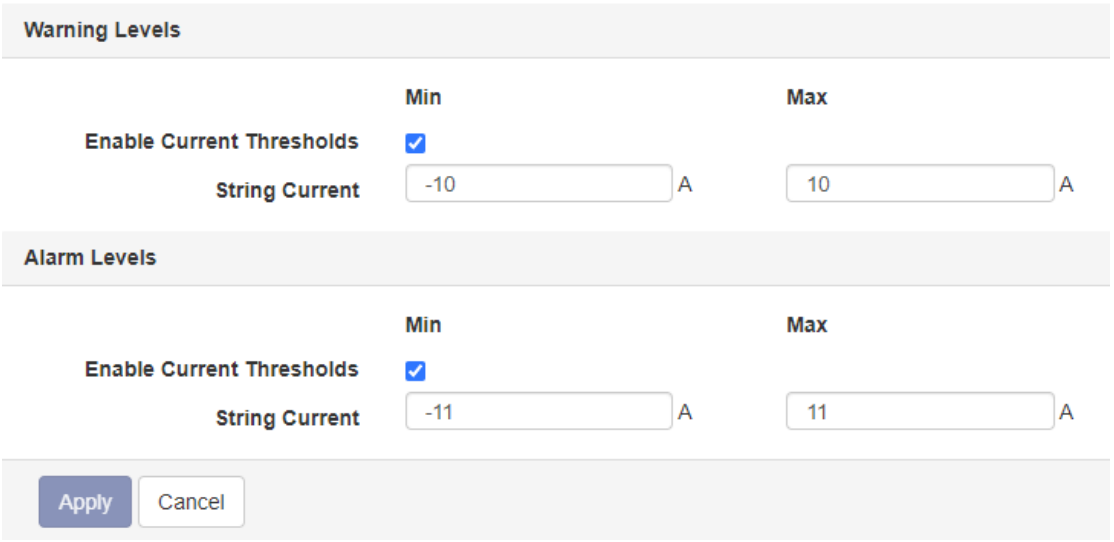
Defining the number of installed sensors

In case of one current sensor only, 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 current must be detected before the sensor reports a charge / discharge cycle in progress.

Defining the threshold levels:



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 Specifactions : BACS CSH_xxx Current Sensor

Module-Version	Current Sensor	Revision 5.x
Power supply	Volt	18 VDC
Power supply	Cable	via bus wiring
Current range	ADC	BACS_CSH50: +/- 50 ADC BACS_CSH200: +/- 200 ADC BACS_CSH500: +/- 500 ADC BACS_CSH1000: +/- 1000 ADC BACS_CSH2000: +/- 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: 20mm BACS_CSH200 – BACS_CSH2000: 40mm
Dimensions CSHxxxx	W x H x D	CSH 50 114 x 98 x 94 mm CSH200 – 2000 114 x 133 x 94 mm
Dimensions CSHxxxxD/F	W x H x D	CSH 50F 85 x 73 x 70 mm CSH 200 – 2000F 100 x 106 x 70 mm
Weight	gr	CSHxxxx 450g CSHxxxxD/F 360g
Protection class	IP	IP 20
Housing	Material	CSHxxxx : Polyamid UL94-V0 CSHxxxxD/F: ABS UL94-V0
Certifications	Norm	DIN EN 50178, RoHS