

CSM03 Current Sensor

The CSM03 is designed to monitor AC mains current supplied to equipment in order to determine whether they are switched on or off.

CSM03 Components

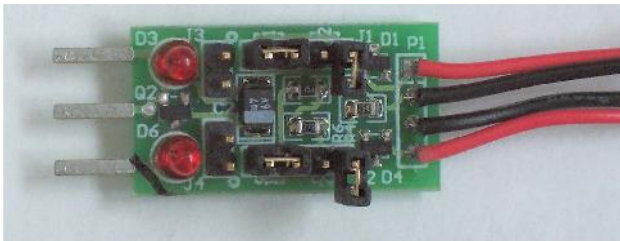
CSM03 consists of two parts sold separately;

- CSM03-CT Current Transformer
- CSM03-PCB which is plugged into two adjacent zones, i.e. a single 3-pin terminal block in Comfort.

One CSM03-PCB can be connected to 2 CSM03-CT. Hence it is best if current sensors are used in pairs. If there are an odd number of Current sensors needed, this means that only one zone in a CSM03-PCB will be connected to a CSM03-CT current transformer.



CSM03-CT Wired Current Transformer



CSM-PCB Current Sensor PCB (PC01-040A)

- 🔊 Headers J1 and J2 are present for PCB version PC01-040A., and not in the older version PC01-012D

The Live wire of the mains cable must be passed through the central hole of the Current transformer. Do not pass both Live and Neutral wires through the hole as this will cause the magnetic fields to cancel out. If the current is

too low to be detected at the maximum sensitivity setting, the mains wire can be looped several times through the sensor.

The Current sensor does not work on DC current.

In the current is too low to be detected at the maximum sensitivity setting, the mains wire can be looped several times through the sensor.

The polarity of the connection from CSM03-CT to the CSM03-PCB is not important. The Current sensor zone must be programmed as Digital Input - Normally Open. Zone Type 31 in the default .cct template is set to Digital Normally Open, but check this in Configurator. Digital Zone Types are available in 4.166 onwards. For firmware prior to 4.166, CSM03 cannot be used as Digital zone types are not implemented. CSM01 Current sensors should be used for Comfort firmware prior to 4.166.

The CSM03-PCB should be connected to any Zone of the Comfort panel, or LEM, SEM, or RIO01 (Remote Input/Output) input.

- 🔌 The EOL shunts must be set to the Double End of Line position (ie shunt is on the two pins further away from the terminal blocks), but End of Line Resistors are not required.
- 🔌 To connect CSM03-PCB to an RIO input or Comfort II, SEM-M2, or LEM-M2 inputs, the shunt J3 and J4 must be connected. This shorts the LEDs so there will be no visual indication of current flow. The voltage input range for RIO and Comfort II inputs do not work with the LEDs
- 🔌 When connected to a Comfort I, SEM-M1 or LEM-M1 input, J3 and J4 shunts can be left out, allowing the LED indicators to operate.

Specifications

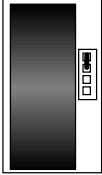
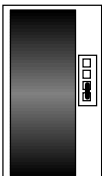
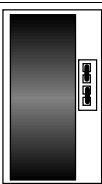
PCB Dimensions (CSM03-PCB):	25 mm x 15 mm (not incl. tongue)
Transformer Hole Diameter	8 mm
Minimum Sensitivity	100 ma rms
Output:	Open Collector to Ground

Principle of Operation

The Current sensor detects current flowing in the mains cable supplying an appliance to determine if the appliance is on or off. One lead of the mains cable (L or N) should go through the transformer center hole. When no current is flowing, the output is open circuit. When sufficient current (min 100 ma rms.) flows, the coil produces a voltage which turns on the Open collector output. The current sensor detects currents of 100 ma and above. Jumper settings J1 and J2 set the sensitivity of the current detection circuit. To detect lower current, loop the mains cable several times through the hole for greater sensitivity. The current sensor works on AC current only.

Sensitivity Settings

The 4-pin Header J1 and J2 allows setting of different sensitivity to current. Two shunts can be inserted onto J1. Shunt 1 for the top 2 pins, and shunt 2 for the bottom 2 pins, as shown in the table below;

	Shunts	Sensitivity
	Shunt 1 OFF Shunt 2 OFF	High OFF < 50 ma ON > 100 ma
	Shunt 1 ON Shunt 2 OFF	Medium High OFF < 100 ma ON > 200 ma
	Shunt 1 OFF Shunt 2 ON	Medium Low OFF < 200 ma ON > 400 ma
	Shunt 1 ON Shunt 2 ON	Low OFF < 300 ma ON > 500 ma

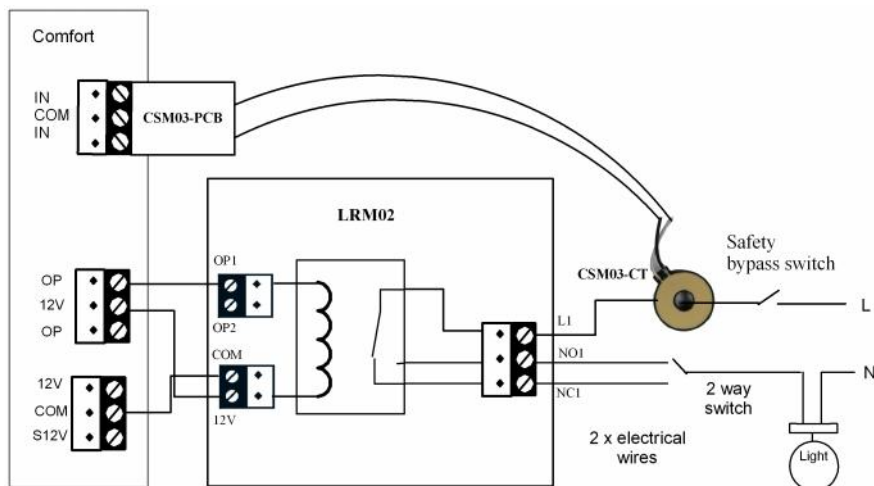
Find the settings for which the output is off when the appliance is OFF and ON when the appliance is ON. Some appliances e.g. Airconditioner Fan Coils have some current even when it is off.

Programming

Program the zone as a normally open Digital Zone (Zone Type 31). Set the shunt for the zone to the position (1-2) for Double End of Line resistors. However, DO NOT connect any End of Line Resistors.

This input zone number should be programmed in the appropriate location corresponding to the Control Key. This allows Comfort to announce the ON/OFF state of the appliance controlled, based on the feedback input.

The connection diagram below shows how the CSM03 is used with the latched relay module LRM02 to sense whether the lighting is switched on.



LRM Connections

Revision History

2.0.1 28 December 2013

Added CSM03

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