Pulse counter interface

Description

The device detects, counts and processes the information (water, gas, etc.) received from meters with pulse outputs, and makes it available to the SCS BUS.

The processing and accounting functions are:

- calculation of the instantaneous value (flow rate - unit/h): the distance between two consecutive pulses. If the distance between two pulses exceeds 30 seconds, the value of the flow rate will be 0. The formula to calculate the flow rate is as follows: Flow rate = (3600 / distance between two pulses) * (multiplication factor/divisor). For the details, please see the "Configuration" chapter.

- saving the following data to the internal memory:
  - Number of pulses accumulated on an hourly basis for the last 12 months
  - Number of pulses accumulated on a daily basis for the past 2 years
  - Number of pulses accumulated on a monthly basis for the past 12 years.

The interface can be installed inside flush mounted boxes, behind traditional devices or even in distribution boards, without using a DIN rail space.

In order to allow the device to archive consumption information, the system must be fitted with a device capable of supplying current date and time information (e.g. Touch Screen). If this information is not available, the pulse counter interface will be unable to archive the data, but will continue calculating the instantaneous values (flow rate).

The pulse counter interface has a bay for 5 configurators: A1, A2, A3, MUL and DIV.

NOTE: The counter cannot detect any pulses shorter than 60ms (30 ms pulse length, 30 ms pause).

Front view
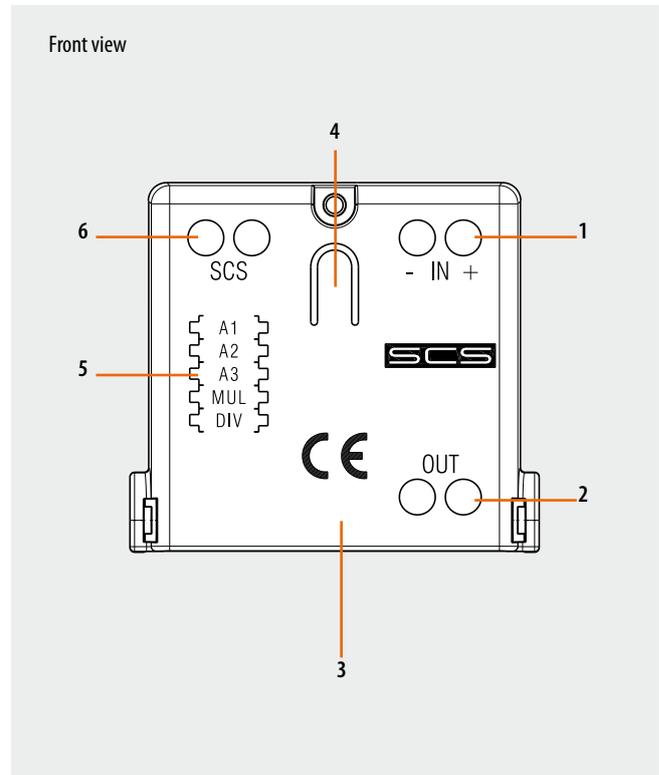
Technical data

Operating power supply with SCS BUS:	21 – 27 Vdc
Power consumption on standby:	17 mA max
Operating temperature:	0 – 40℃

Dimensions

Basic module:	- Length:	40 mm
	- Width:	40 mm
	- Height:	23 mm

Legend

1. Pulse input
   The stated polarity must be observed with Open drain and Open collector counters.
2. Opto-isolated pulse input repetition
3. LED
   steady green: device ON
   red ON steady/OFF steady: pulse detection (each time a pulse is received the status passes from ON steady to OFF steady and vice versa).
   flashing green 500ms/500ms: problem on the bus (low BUS voltage or voltage drop detected).
   red and green flashing irregularly: configuration error.
   flashing red and green 128ms/128ms: not configured.
4. Button
5. Configurator socket
6. SCS BUS connection

Configuration

The device can be configured in two ways:
- Physical configuration, inserting the configurators in the sockets:
  A1/A2/A3 device address (A1 for hundreds, A2 for tens, A3 for units). The maximum number of configurable addresses is 127.
  MUL (multiplication factor to be applied to each pulse received), DIV (indicates the number of pulses emitted by the meter before the pulse counter interface saves a pulse).
- Virtual configuration via MYHOME_Suite software package, downloadable from www.homesystems-legrandgroup.com; this mode has the advantage of offering many more options than the physical configuration.
For a list of the procedures and their meanings, please refer to the instructions in this sheet and to the "Function Descriptions" help section in the MYHOME_Suite software package.

Pulse counter interface

Physical configuration

1.1 MUL position

The configurator in the MUL position specifies the multiplication factor to be applied to the single pulse, as specified in the following table:

Configurator on MUL	Multiplication factor
0	x1
1	x2
2	x5
3	x10
4	x20
5	x50
6	x100

EXAMPLE: The water volume meter provides 1 pulse every ten litres. We want to save the litres to the pulse counter interface and make them available on the SCS BUS. We put configurator 3 into position MUL. The pulses measured by the counter are multiplied by 10 and saved in the pulse counter interface.

The MUL and DIV configurator can be used simultaneously to meet every specific need.

1.2 DIV position

The configurator in the DIV position specifies how many pulses must be measured by the interface to produce a valid effective pulse for energy accounting, as specified in the following table:

Configurator on DIV	Divisor
0	/1
1	/10
2	/100
3	/1000
4	/2
5	/20
6	/200
7	/2000

EXAMPLE: The water volume meter provides 1 pulse every half litre. We want to save the litres to the pulse counter interface and make them available on the SCS BUS. We put configurator 4 into position DIV. For every two pulses the meter emits, the pulse counter interface saves one pulse.

WARNING: The maximum number of pulses the interface can save in 1 h is equal to 65536 * (divisor / multiplication factor).
FOR EXAMPLE: The counter provides 1 pulse per hundred litres and we want to save the litres to the memory of the pulse counter interface. We configure MUL=6 and DIV=0. The maximum number of pulses the meter emits must be 65536 * (1/100) = 655 pulses/h. Should this value be exceeded, the pulse counter interface would in any case make 655 pulses/h available on the BUS.

Virtual configuration

For the configuration mode, please refer to the MYHOME_Suite software package and to the "Function Descriptions" help section within the application itself.

Procedure for deleting measured data

At any time you can reset the cumulative value of the number of pulses measured by the interface. The procedure is as follows:

1. Press the button on the interface for at least 20 seconds and release it when the two green and red LEDs flash.
2. The data of the readings saved by the interface are deleted.

Wiring diagrams

NOTE: Observe the polarity with Open drain and Open collector counters.
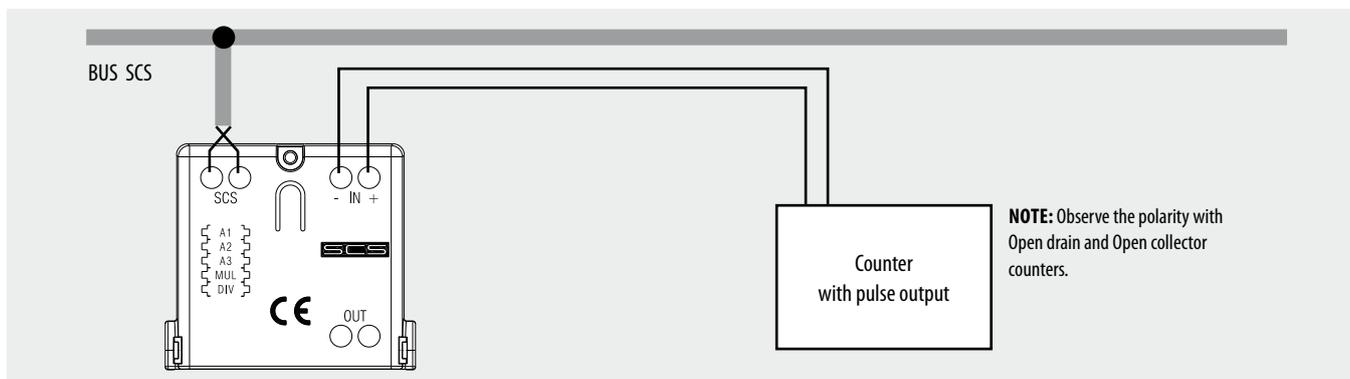
WARNING: The pulse counter interface must be installed as close as possible to the power supply unit, to ensure a high BUS voltage and enable correct management of memory savings in case of power failure. If the supply voltage is insufficient (below 21 Vdc), the pulse counter interface will cause the green LED to flash to signal the installation error. The device will work properly, but will not guarantee correct saving and recovery of data in case of BUS failure.