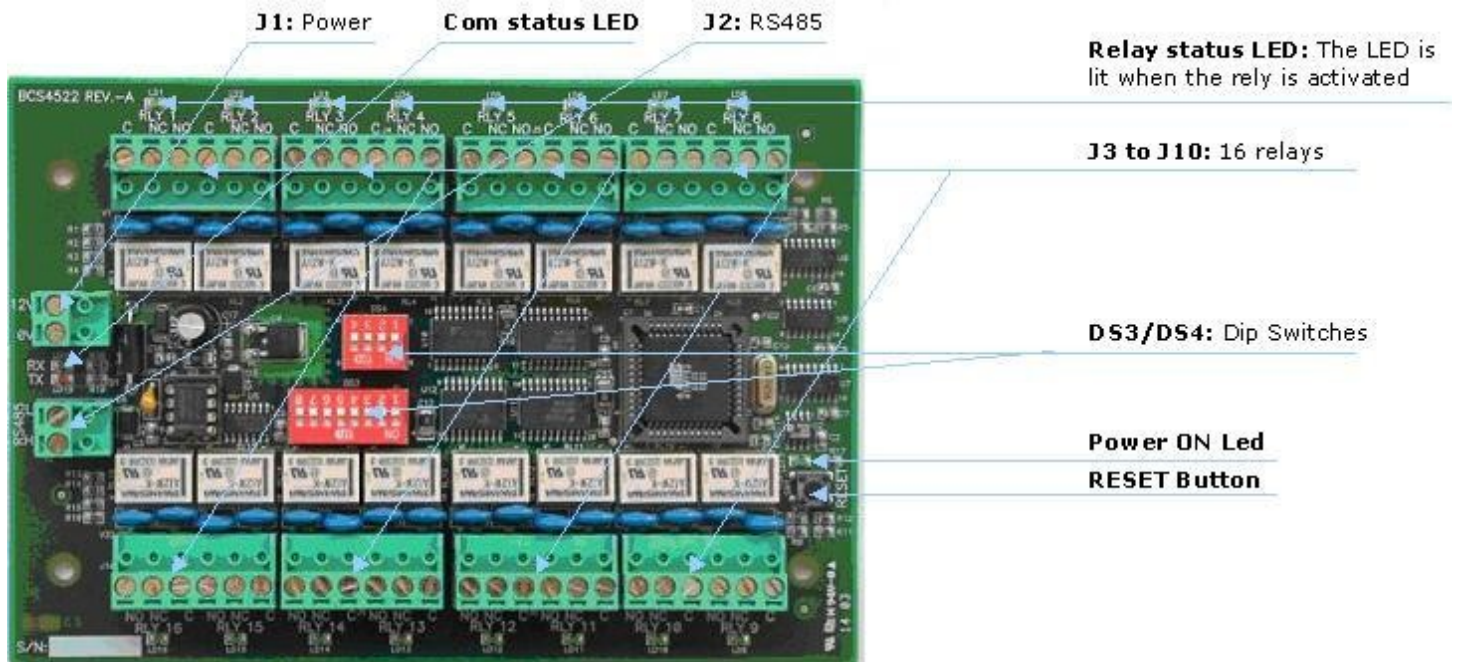# How to use the SAT16 board?

Board description

Preface

The SAT16 is a board with 16 relays. It is a slave board to a master controller.

Currently there are two types of Sensor controllers that can act as masters for the SAT16 : IC2001/4001 and IC1604.

Though the future it would be possible to connect the SAT16 directly to the PC, but at this point it can only receive commands from a master controller and therefore it must be connected to the 2nd RS485 communication port of either the IC2001/4001or the IC1604.

To each master it is possible to connect up to 3 SAT16 s.

Therefore, together with the optional on-board extension relay board, the RLY-12, you can get a 64 relays controller. As follows:

Main controller (IC2001/4001or IC1604): Relays 1 to 4

RLY-12: Relays 5 to 16
SAT16 #0: Relays 17 to 32
SAT16 #1: Relays 33 to 48
SAT16 #2: Relays 49 to 64

Note that when using the SAT16 , the 2nd communication port of the controller must be dedicated for the

SAT16 Addressing

The 5 switches jumpers DS3/7, DS3/6, DS3/5, DS3/4, DS3/3 should be set the same as the master controller address.
Note: DS3/3 matches the LSB of the master controller.

For example: say the master controller address is 18 (i.e., 10010),
thus the corresponding five SAT16 switches (DS3/7 to DS3/3) should be set as follows: DS3/7 = ON; DS3/6 = OFF; DS3/5 = OFF; DS3/4 = ON; DS3/3 = OFF;

The 2 switches DS3/2, DS3/1 should be set to 00, 01 or 10 according to the address of that SAT16 from 0 to 2 in case there are more than one SAT16 units connected to the same controller. I.e.,:
The 1st SAT16 of a controller (relays 17-32) should have DS3/2 = OFF; DS3/1 = OFF;

The 2nd SAT16 of a controller (relays 33-48) should have DS3/2 = OFF; DS3/1 = ON;

The 3rd SAT16 of a controller (relays 49-64) should have DS3/2 = ON; DS3/1 = OFF;

See the following table:

SAT16 Jumpers* DS3/7,6,5,4,3,2,1	Physical 'Master' controller Address	SAT16 relay numbers
0 0 0 0 0 0 0		17 → 32
0 0 0 0 0 0 1		33 → 48
0 0 0 0 0 1 0	#00	49 → 64
0 0 0 0 1 0 0		17 → 32
0 0 0 0 1 0 1	#01	33 → 48
0 0 0 0 1 1 0		49 → 64
	...	
1 1 1 1 1 0 0		17 → 32
1 1 1 1 1 0 1		33 → 48
1 1 1 1 1 1 0	#31	49 → 64

*'0' means jumper 'off', '1' means jumper 'on'.

Notes:
1. In case the SAT16 is already in power, any change in the address settings must be followed by a power reset to the SAT16 .
2. The DS4 dip switch is not used.

Assembly instructions
1. Connect the RS485 connector with the 2nd communication port of a IC1604 or TPL Rev.D1 or higher controller equipped with the "Kit Com2".
(Kit Com2 are the 2 ICs near the 2nd port. On the IC2001/4001these are U29 & U30, and on the IC1604 – U16 & U17)
2. Connect the J1 connector with the 12VDC / 250mA Power supply.

SAT16 Baud rate
The default baud rate of the SAT16 satellites is 4800.
When a SAT16 is connected to the controller, it automatically adjusts its baud rate to that of the controller.