



16-bit I/O expansion card

This card has 8 bits of opto-isolated and Darlington buffered outputs and 8 bits of opto-isolated inputs.

There is a jumper on the PC card. With the jumper fitted the ports are SA and SB and with the jumper removed the ports are TA and TB. Therefore you can have 2 cards, one mapped to S and one mapped to T

If you are not sure which one you have here is a quick check:

HEX 55 SA OUT

SA IN X. result 0055

If the result is 00FF then try TA

The outputs are in 2 separate groups of 4 each with 1A Darlington drivers which pull down to the common ground for each group. The positive supplies must also be brought to the connectors.

The inputs are on a 25 way socket which connects to a 16 way 2 row HE14 connector J4 on the card.

OUTPUTS (SA/TA)

INPUTS (SB/TB)

25w D skt	Function	25w D plug	Function
1	output 7	1	input 7 neg
2	output 6	2	input 6 neg
3	output 5	3	input 5 neg
4	output 4	4	input 4 neg
5	output 3	5	input 3 neg
6	output 2	6	input 2 neg
7	output 1	7	input 1 neg
8	output 0	8	input 0 neg
14	positive supply for outputs 4,5,6,7	14	input 7 pos
15	common ground for outputs 4,5,6,7	15	input 6 pos
16	common ground for outputs 4,5,6,7	16	input 5 pos
17	common ground for outputs 4,5,6,7	17	input 4 pos
18	positive supply for outputs 0,1,2,3	18	input 3 pos
19	common ground for outputs 0,1,2,3	19	input 2 pos
20	common ground for outputs 0,1,2,3	20	input 1 pos
21	common ground for outputs 0,1,2,3	21	input 0 pos

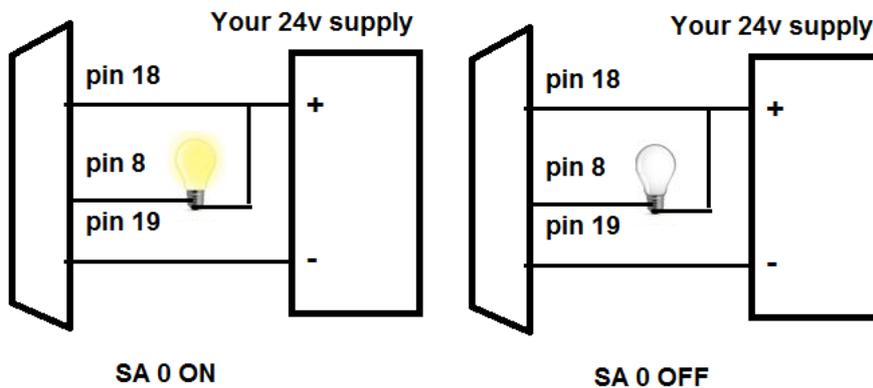


SATA Outputs

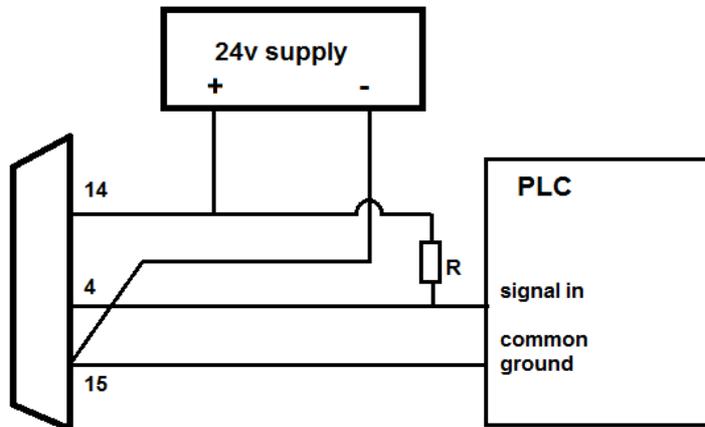
All the outputs are open collector Darlington transistors with their ground returns isolated from the controller. You need a separate external 12 or 24v DC supply. There are two sets of 4 outputs each with its own 0v and +v connections. Therefore you can use two separate supplies if you wish or connect one supply to both sets. Connect the + terminal of your supply to pins 14,18 and the – terminal of your supply to pins 15 (and/or16,17) and 19 (and/or 20,21).

You can connect a load e.g. a solenoid or a relay between the output pin and your +v.

Example: 24v lamp to be operated by SA 0 would connect between pin 8 and 18 (24v).



Example: connection to other logic device or PLC via SA 4.



Depending on the instrument you might need a pullup resistor R, e.g. 4K7

- SA 4 ON – sends a 0 to the PLC
- SA 4 OFF – sends a 1 to the PLC



SB/TB inputs

The inputs are likewise isolated and require an external supply. You connect your – terminal to one of the negative pins and your load between your + terminal and an output pin. In other words to make an input on SB bit 0 you apply a voltage to pins 8 and 21, pin 8 being the negative and 21 being positive.

The input is most easily monitored with a command similar to PP but PP only shows PB.

Instead use
SB WATCH

This continually displays the input in binary e.g.

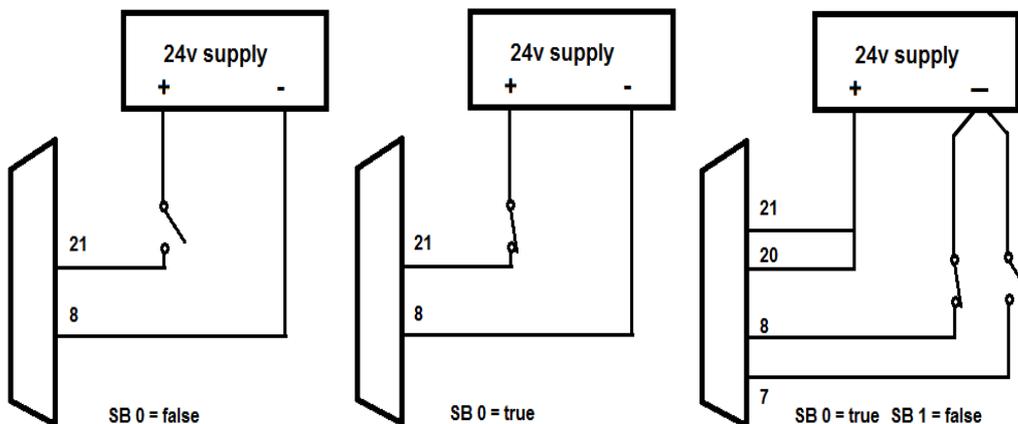
11111111

From right to left is ascending value so bit 0 is furthest right and bit 7 is furthest left.

To change an input from 1 to 0 apply a voltage 12-24v between the two pins for that input. For example connect a 24v supply, negative to pin 8, positive to pin 21 and you should see 11111110

All the inputs are independent opto-isolators so you can common up all the + pins if you wish or all the – pins, or use completely independent sources of voltage.

Example: simplest form of inputs – just switch 12 or 24 volts into the inputs. A voltage going into an input turns on the opto-isolator so is read as a 0.



SB 0 0 WAIT

The system will wait for the switch to close

SB 0 1 WAIT

The system will wait for the switch to open.

In the third diagram SB WATCH would show

11111110

Operate both the switches and you would see

11111101

SB 1 BIT? Leaves true if the switch is closed e.g.

SB 1 BIT? . <enter> 0 OK (means switch is open)

SB 1 BIT? . <enter> 2 OK (non-zero means switch is closed)

(remember the dot means print)