MC Connector Wiring Diagrams

Version: 07-09-2011

This manual supports: MCHP1-L MCHP1-R

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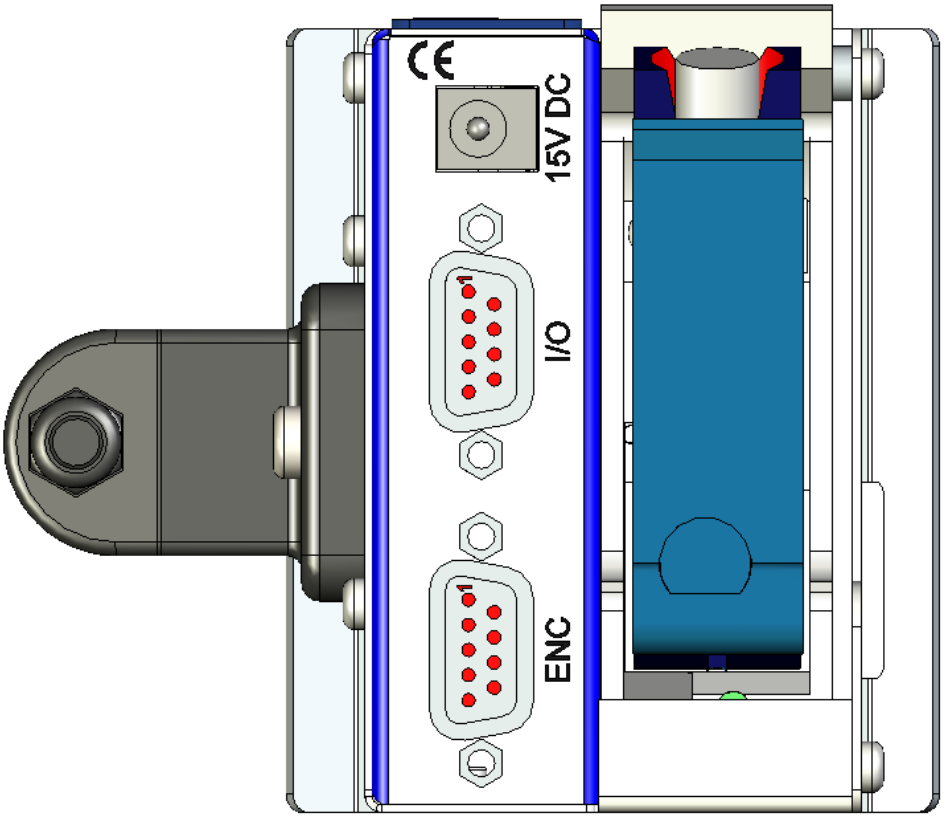
MCHP1 connectors



Fuses

The MC units have 2 fuses, both are located inside the unit.
F1 is for the USB port the type is 0,5A SMD Fast acting.
F2 is the main power fuse the type is 1A SMD Fast acting.
If there is no reaction at all when you turn on the unit please check these fuses.

You can buy the fuses from HSA or locally, if you choose locally make sure you get the right fuses, warranty does not cover replacement of burned PCB's because of wrong fuses.

Part number:

HSA	Farnell	Mouser
ACEL-Fuse-0,5A-SMD	9922156	576-0451.500MRL
ACEL-Fuse-1A-SMD	9922164	576-0451001.MRL

I/O connector

Main function for this connector is to provide the start signal, to begin print. In the same connector are also additional inputs as well as 2 output signals. It is located in the back of the printer, as a 9-pin female D-SUB connector.

Output 1 = Active low in Print mode (open collector)

Output 2 = Active low on low ink warning (open collector)

Input 1 = Print start/stop negative edge trigger toggle function (trigger signal min. 50 mSec.)

Input 2 = Purge active low level trigger

If the external sensor is enabled in the layout, you will not get a print without proper wiring of this connector.

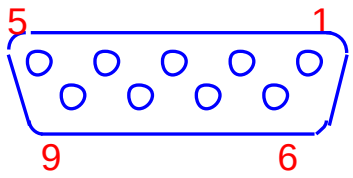
You can use either a simple mechanical switch or a photo cell for the start signal. The I/O connector can supply 5V and **15V** DC for the sensor but you can use any sensor in the 3-33V range if you connect an external power source.

You can buy an I/O-ENC test box set from HSA which enables you to test:

- I/O connector - Input 1, Input 2, Output 1, Output 2, Start signal input, 5V and 12V on the I/O connector and an adjustable automatically continuous start signal is available.
- Encoder connector - Enc A & Enc B channels, Low ink, 5V and 12V and an automatically continuous encoder pulse generator is available.

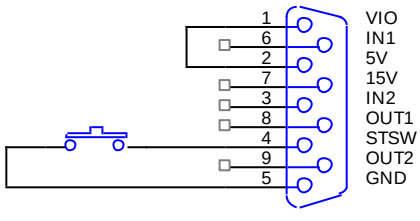
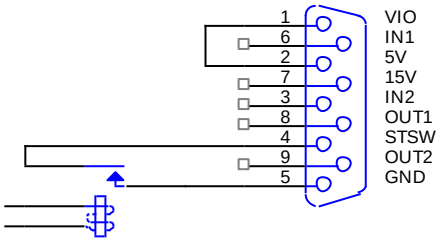
Part number:

HSA	Product category
I/O-ENC test box set	Electric spare parts

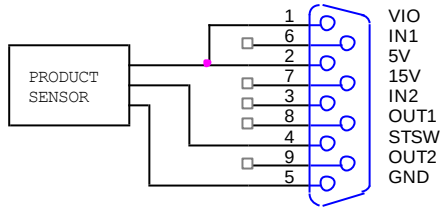
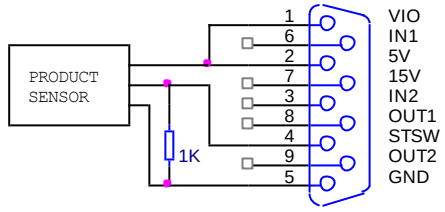


PIN	MEANING
1	V I/O
2	5 V
3	IN 2 - Purge
4	START
5	GND
6	IN 1 – Print start/stop
7	**15 V**
8	OUT 1 - Active low in print mod
9	OUT 2 - Active low on ink low warning

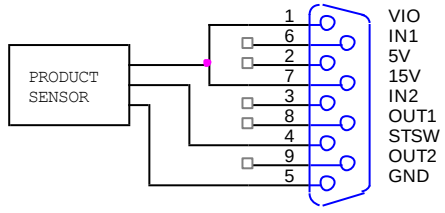
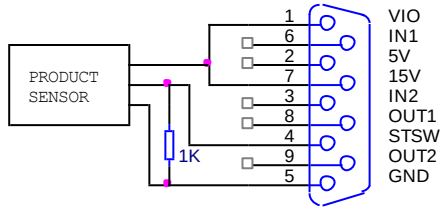
Mechanical start switch

	**Pushbutton** Loop pins 1-2 and connect the switch between pins 4 and 5 N/O contact setup Microdraw to negative edge trigger N/C contact setup Microdraw to positive edge trigger
	**Relay** Loop pins 1-2 and connect the switch between pins 4 and 5 N/O contact setup Microdraw to negative edge trigger N/C contact setup Microdraw to positive edge trigger

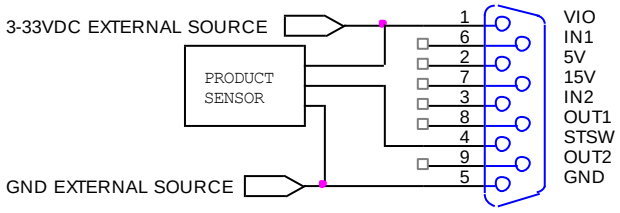
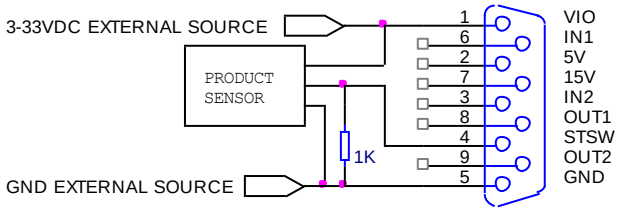
5V DC Sensor

	**5 Volt NPN or PUSH/PULL sensor** VCC to pins 1,2 Signal to pin 4 GND to pin 5
	**5 Volt PNP sensor** VCC to pins 1,2 Signal to pin 4 GND to pin 5 1 K resistor between pin 4 and 5

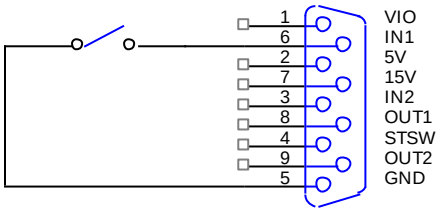
15V DC Sensor

	**15 Volt NPN or PUSH/PULL sensor** VCC to pins 1,7 Signal to pin 4 GND to pin 5
	**15 Volt PNP sensor** VCC to pins 1,7 Signal to pin 4 GND to pin 5 1 K resistor between pin 4 and 5

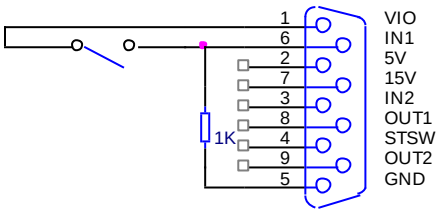
3-33V DC Sensor with external power source

	**NPN or PUSH/PULL sensor** VCC to pin 1 Signal to pin 4 GND to pin 5
	**PNP sensor** VCC to pin 1 Signal to pin 4 GND to pin 5 1 K resistor between pin 4 and 5

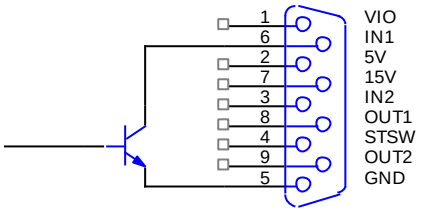
Input 1 – Print start/stop negative edge trigger toggle function



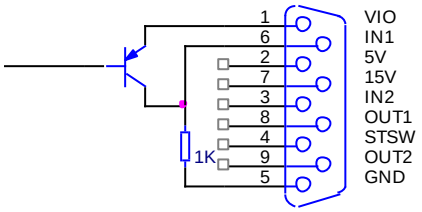
N/O normal open mechanical switch or relay
Connect the switch between pins 6 and 5



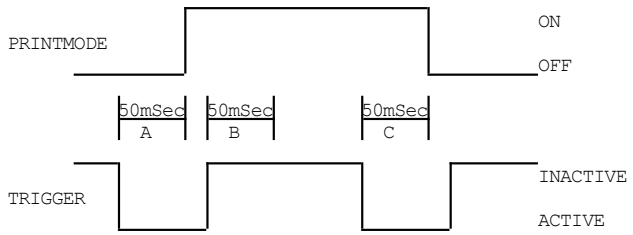
N/C normal closed mechanical switch or relay
Connect the switch between pins 1 and 6
1 K resistor between pin 6 and 5



NPN or PUSH/PULL output trigger
Signal to pin 6
GND to pin 5

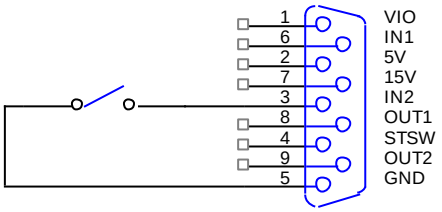
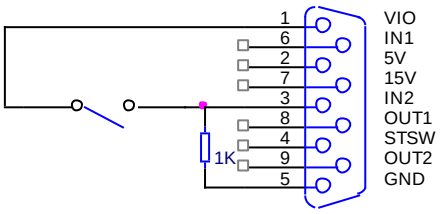
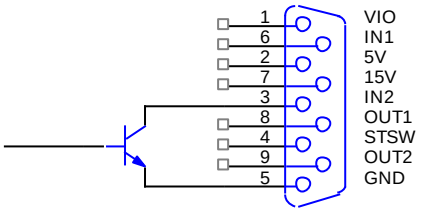
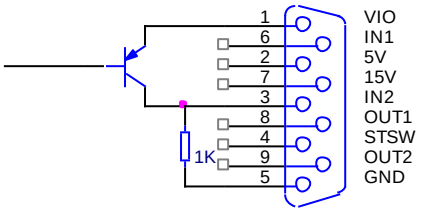


PNP output trigger
VCC to pin 1
Signal to pin 6
1 K resistor between pin 6 and 5



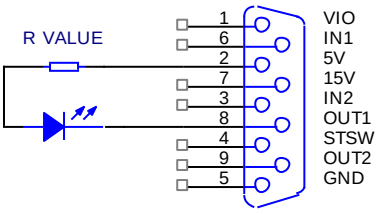
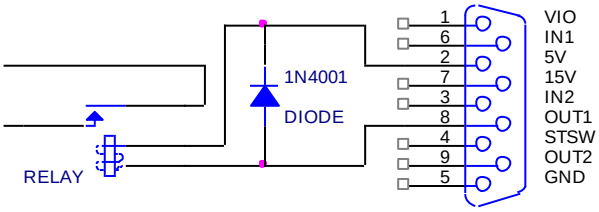
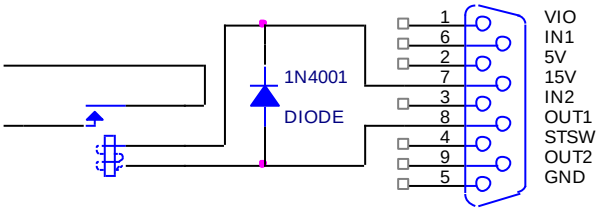
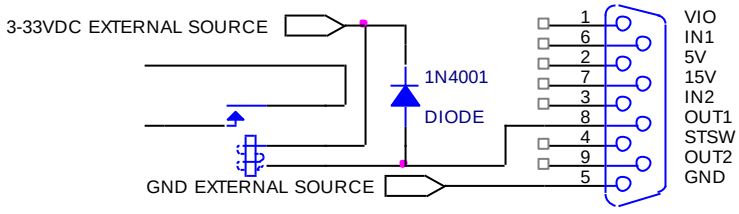
Signal timing and function
The trigger signal must be at least 50 mSec for the input to toggle print mode start/stop.
A = Trigger pulse >50mSec
B = Locked period 50mSec after trigger is released, printing cannot be disabled in this period
C = Trigger pulse >50mSec

Input 2 – Purge active low level trigger

	**N/O normal open mechanical switch or relay** Connect the switch between pins 3 and 5
	**N/C normal closed mechanical switch or relay** Connect the switch between pins 1 and 3 1 K resistor between pin 3 and 5
	**NPN or PUSH/PULL output trigger** Signal to pin 3 GND to pin 5
	**PNP output trigger** VCC to pin 1 Signal to pin 3 1 K resistor between pin 3 and 5

Output 1 = Active low in Print mode (open collector)

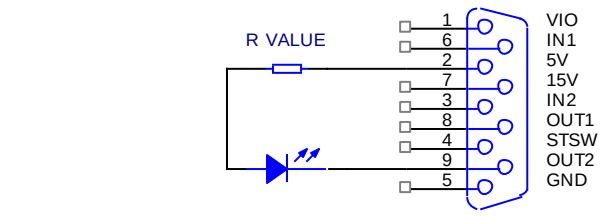
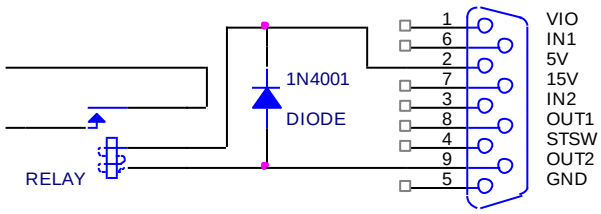
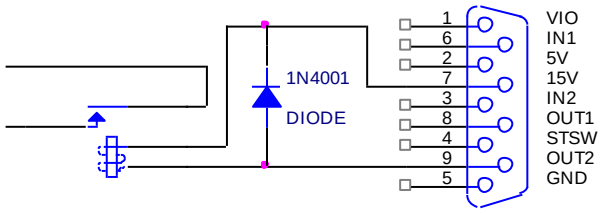
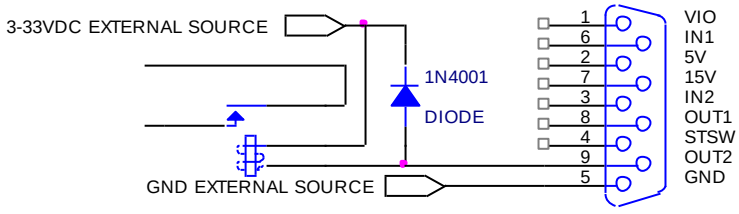
Warning: Do not connect a relay with a higher voltage than the voltage already connected to the VIO pin1 you will damage the unit.

	**LED indicator** Connect the components between pins 2 and 8 The R value can be calculated using the equation below $R = \frac{5 - Ud}{Id}$ Where Ud is diode voltage and Id is diode current
	**5V DC relay** Connect the relay coil between pins 2 and 8 Some relays have a built in diode, if not please also mount the protection diode on the coil connections.
	**15V DC relay** Connect the relay coil between pins 7 and 8 Some relays have a built in diode, if not please also mount the protection diode on the coil connections.
	**3-33V DC relay with external power source** Connect the relay coil between external VCC and pin 8 Connect external GND to pin 5 Some relays have a built in diode, if not please also mount the protection diode on the coil connections.

Warning: Do not connect a relay with a higher voltage than the voltage already connected to the VIO pin1 you will damage the unit.

Output 2 = Active low on low ink warning (open collector)

Warning: Do not connect a relay with a higher voltage than the voltage already connected to the VIO pin1 you will damage the unit.

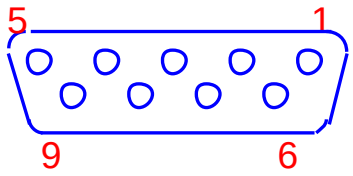
<table>
<tr>
<td> 
</td>
<td>LED indicator
Connect the components between pins 2 and 9
The R value can be calculated using the equation below
$R = \frac{5 - Ud}{Id}$
Where Ud is diode voltage and Id is diode current</td>
</tr>
<tr>
<td> 
</td>
<td>5V DC relay
Connect the relay coil between pins 2 and 9
Some relays have a built in diode, if not please also mount the protection diode on the coil connections.</td>
</tr>
<tr>
<td> 
</td>
<td>15V DC relay
Connect the relay coil between pins 7 and 9
Some relays have a built in diode, if not please also mount the protection diode on the coil connections.</td>
</tr>
<tr>
<td> 
</td>
<td>3-33V DC relay with external power source
Connect the relay coil between external VCC and pin 9
Connect external GND to pin 5
Some relays have a built in diode, if not please also mount the protection diode on the coil connections.</td>
</tr>
</table>

Warning: Do not connect a relay with a higher voltage than the voltage already connected to the VIO pin1 you will damage the unit.

Encoder connector

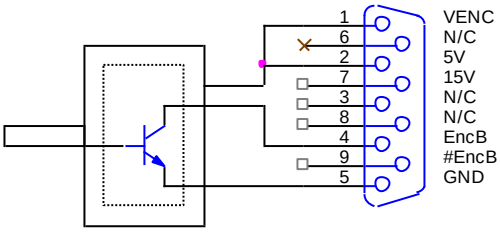
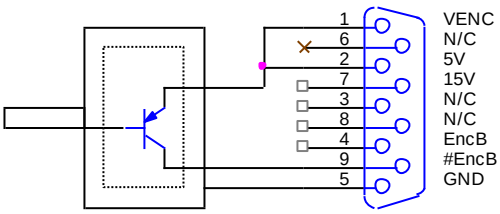
This connector is where the signals for the encoder are coming in.

The encoder connector can supply 5V and 15V DC for the encoder but you can use any encoder in the 3-33V range if you connect an external power source.

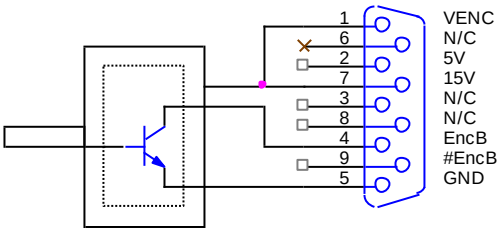
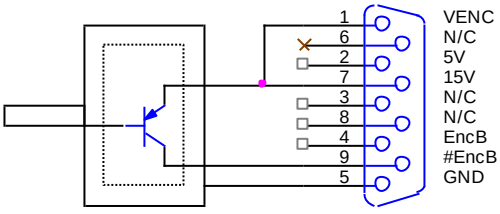


PIN	Description
1	V ENC
2	5 V
3	Not used
4	EncB
5	GND
6	Not used
7	**15 V**
8	Not used
9	/EncB

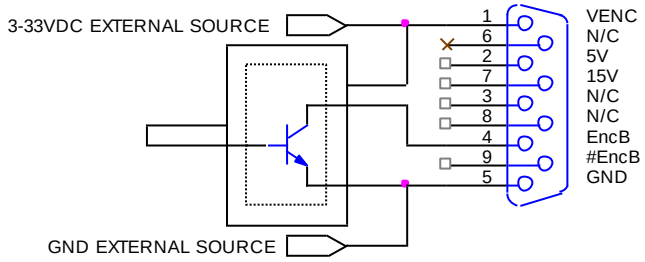
5V DC Encoder

	**5V DC NPN or PUSH/PULL** VCC to pins 1, 2 Signal to pin 4 GND to pin 5
	**5V DC PNP** VCC to pins 1, 2 Signal to pin 9 GND to pin 5

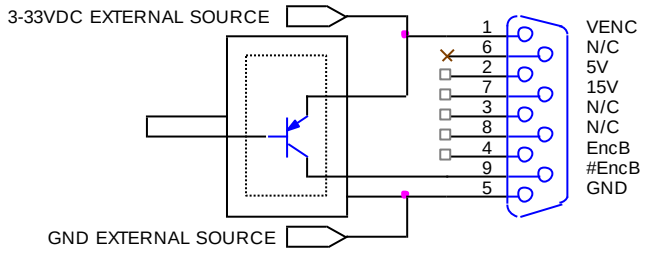
15V DC Encoder

	**15V DC NPN or PUSH/PULL** VCC to pins 1, 7 Signal to pin 4 GND to pin 5
	**15V DC PNP** VCC to pins 1, 7 Signal to pin 9 GND to pin 5

3-33V DC Encoder with external power source

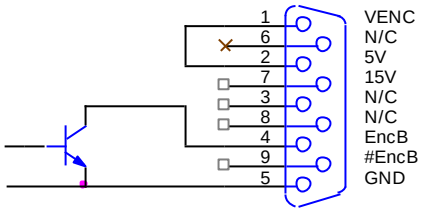


3-33V DC NPN or PUSH/PULL with external power source
VCC to pin 1
Signal to pin 4
GND to pin 5

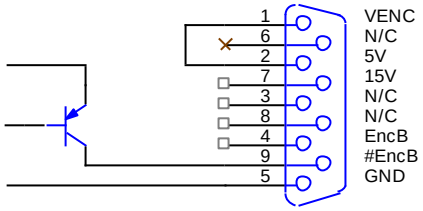


3-33V DC PNP with external power source
VCC to pin 1
Signal to pin 9
GND to pin 5

5V DC simulated encoder with external power source

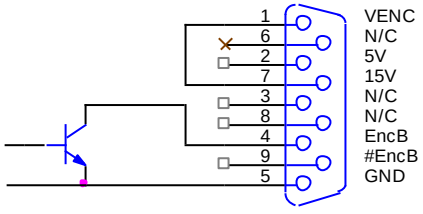


5V DC NPN or PUSH/PULL with external power source
Loop pins 1-2
Signal to pin 4
GND to pin 5

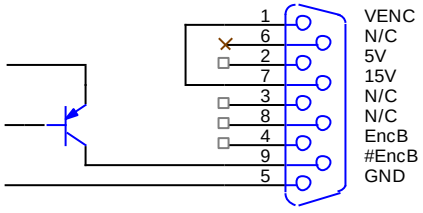


5V DC PNP with external power source
Loop pins 1-2
Signal to pin 9
GND to pin 5

15V DC simulated encoder with external power source

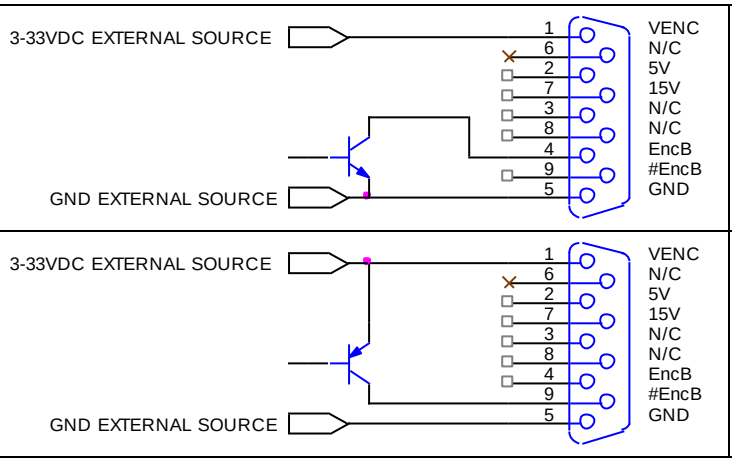


15V DC NPN or PUSH/PULL with external power source
Loop pins 1-7
Signal to pin 4
GND to pin 5



15V DC PNP with external power source
Loop pins 1-7
Signal to pin 9
GND to pin 5

3-33V DC simulated encoder with external power source



3-33V DC NPN or PUSH/PULL with external power source
VCC to pin 1
Signal to pin 4
GND to pin 5

3-33V DC PNP with external power source
VCC to pin 1
Signal to pin 9
GND to pin 5

Support

For support please contact your local distributor or HSA Systems customer service

E-mail: techsupport@hsasystems.com

Phone: +45 66 10 34 01