[Replacement text & pictures for user guide: ILS Automation Kit]

Automation Kit

The Automation Kit allows external remote control of the engraver by up to six different input events, and provides two selectable status signal outputs. The ILS Automation kit is a circuit board that is mounted inside the ILS.

Note: The ILS Class 4 Module *requires* the Automation Kit to be installed. The Class 4 external interlock loop is physically located on the Automation Kit connector J8. This should be connected to any user-added external safety interlock switches in a series loop. If the Class 4 Module is not installed, then J8 may be left unconnected.

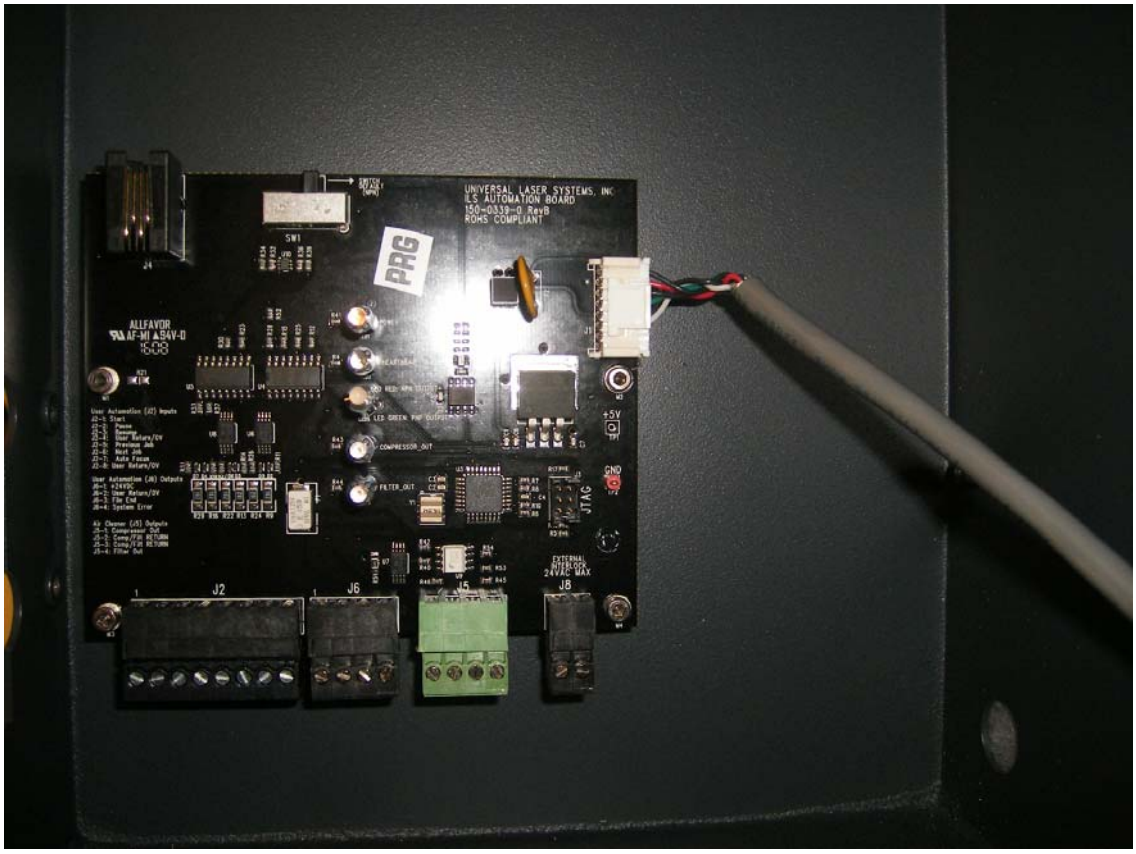
Auto-Detection: The automation kit is automatically detected upon engraver power-up, and is configured from the System Tab. **If the automation kit is not present, the controls for the automation kit on the systems tab will not be visible.**

CAUTION: ULS does not authorize or support third party safety devices via the Automation Kit. Outputs are intended to be used for informational purposes such as to indicate error conditions; they are not intended to drive external devices.

Installation (ILS)

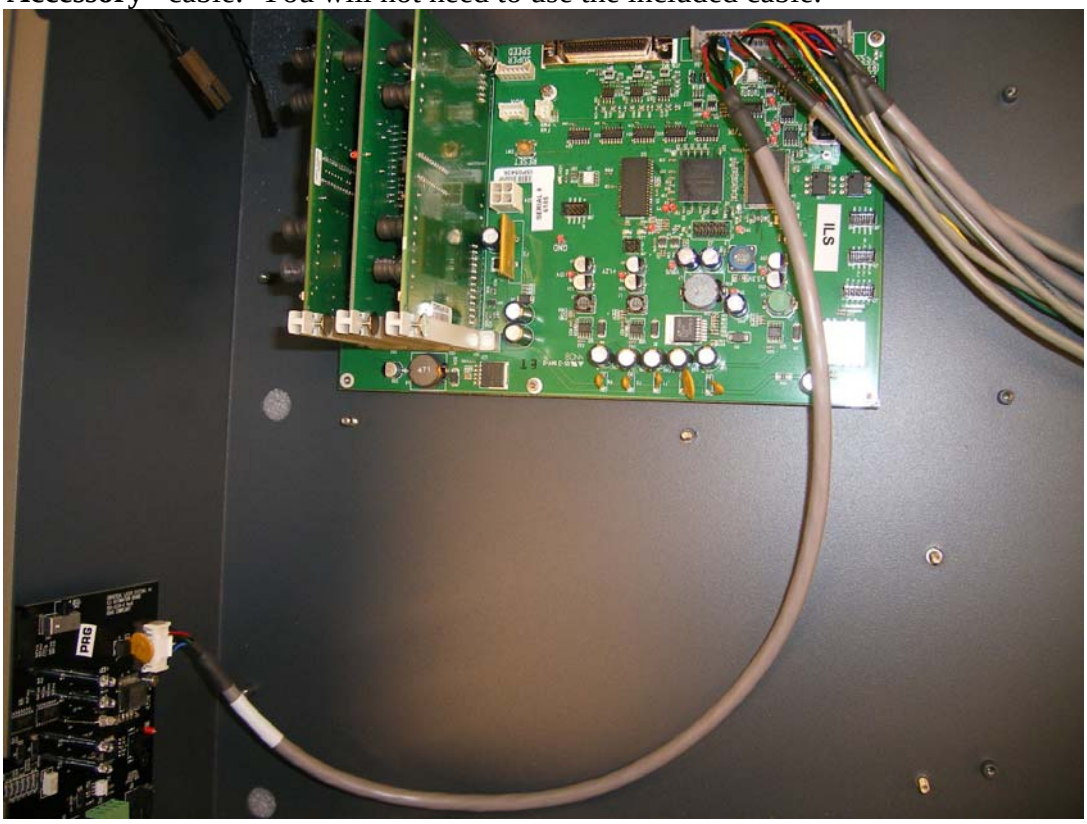
1. Insure AC power is off to engraver and any accessories such as the compressor.
2. Mount the Automation board inside the CPU cabinet with the four screws provided.

CPU Cabinet where automation kit is to be installed



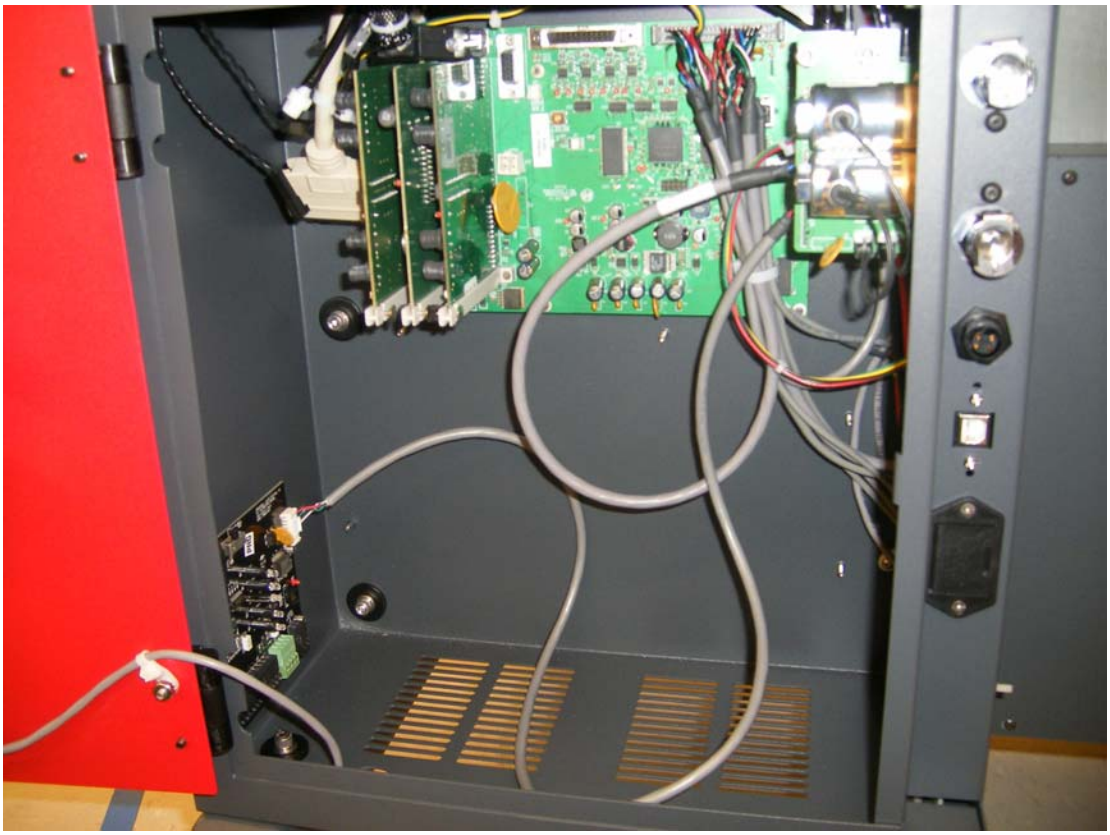
Mounting of automation kit with 4 screws

3. If the Standard Air Assist is installed, connect **Automation Kit J1** to the **CPU J1 "Accessory"** cable. You will not need to use the included cable.

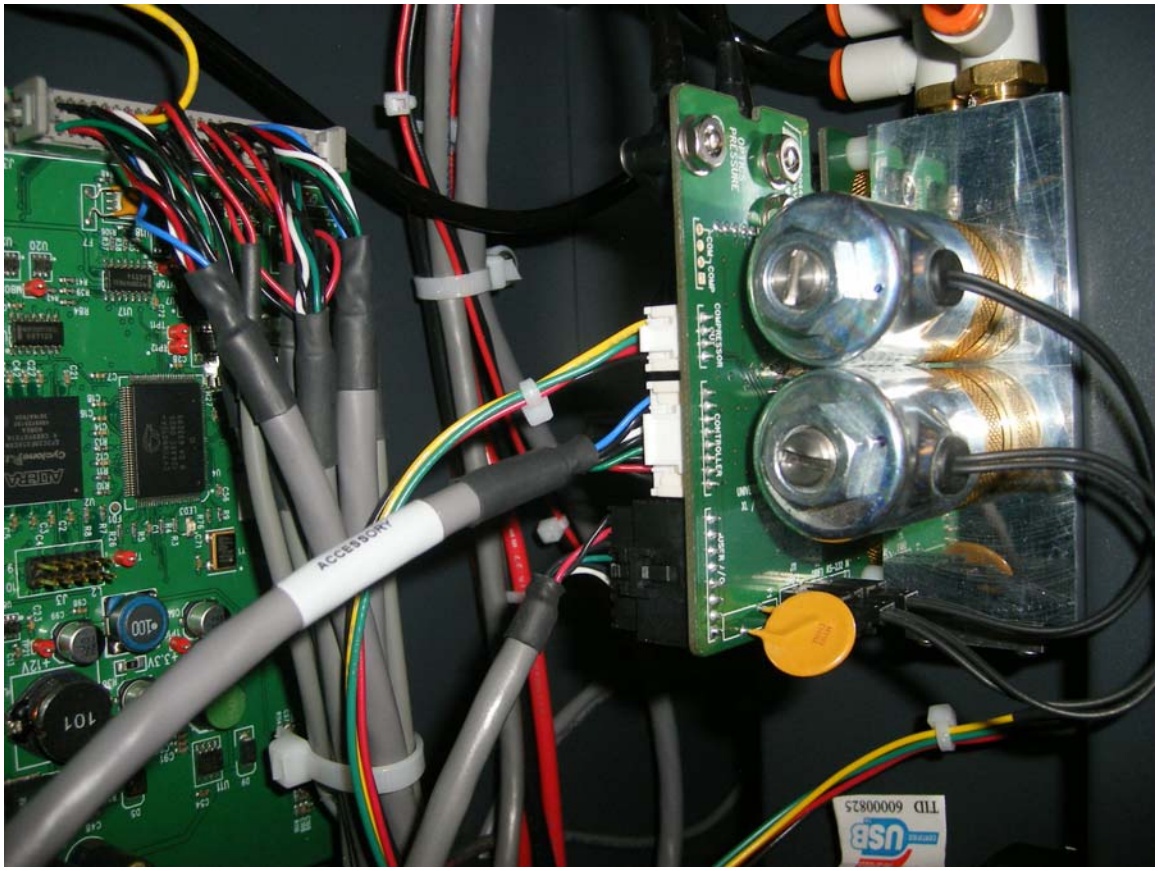


With Standard Air Assist:
Connect **Automation Kit J1** to **CPU J1 "Accessory" cable**

4. If the Computer Controlled Air Assist is installed: The CPU J1 “Accessory” cable is already connected to the Computer Controlled Air Assist J1 “Controller”. Use the included cable to connect **Automation Kit J1** to **Computer Controlled Air Assist J6 “USER I/O”**.



With Computer Controlled Air Assist:
Connect **Automation Kit J1** to Computer **Controlled Air Assist J6 “USER I/O”**



Then connect to Computer Controlled Air Assist J6 “USER I/O”

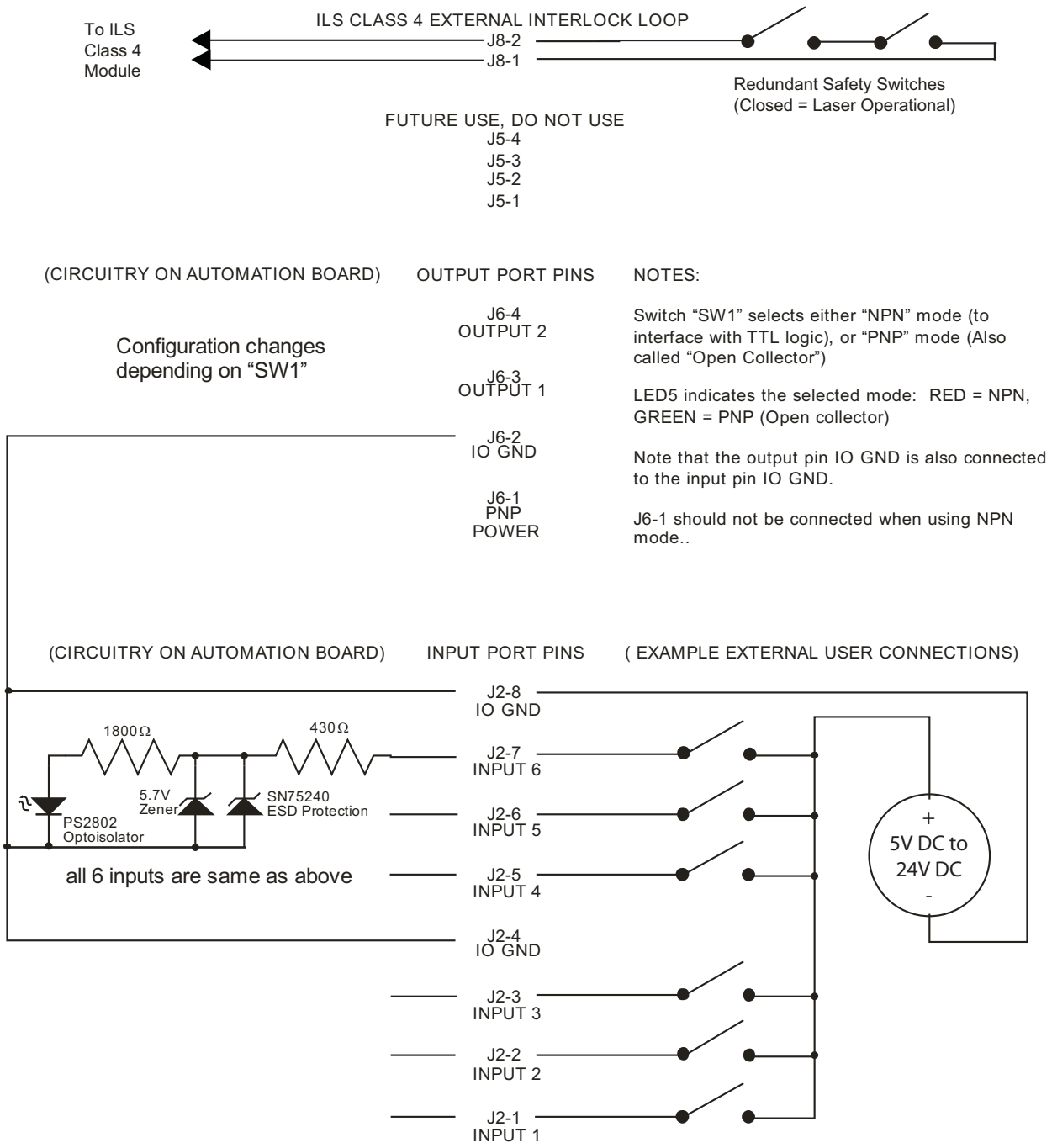
5. Close the cabinet door, and turn on engraver. Verify in the “Diagnostics” tab on the UCP that the automation kit is detected

(KEEP EXISTING ILS SECTION OF THE MANUAL LABELED “AVAILABLE AUTOMATION PORT FUNCTIONS)

External Wiring

Pins J8 are only connected if the ILS Class 4 Module is installed. Please see the Class 4 Module section.

The automation kit connector J2 is used to signal six different input events. To trigger an event, supply between 5V DC to 24V DC on one of the input pins as shown below. It is not necessary to limit current with a resistor to the input pins. The pulse on the input pins should be held high longer than 5mS in order to register.

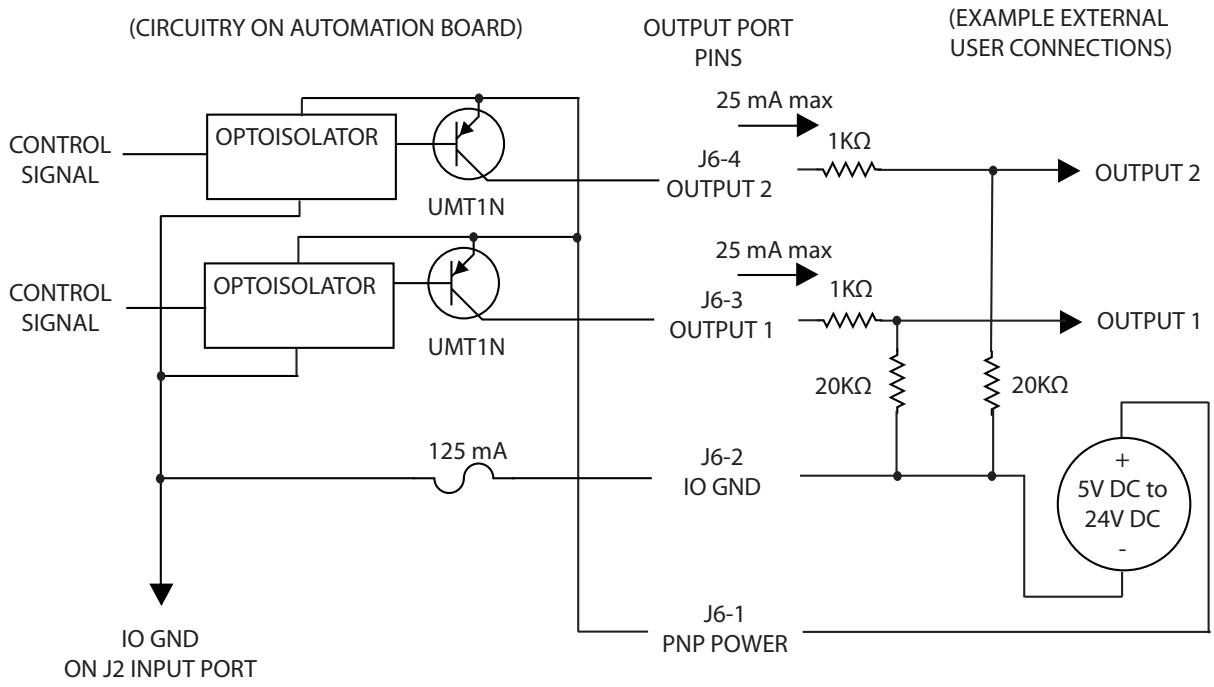


Automation Kit I/O Connections

The automation kit connector J6 is used to signal two output events. It can be used in two modes, selectable by the "PNP/NPN" switch on the top of the board. LED 5 indicates the position of this switch, lighting up green for PNP, or red for NPN mode. Two example diagrams are shown below to indicate the difference between the modes. PNP (also known by the name "open-collector") mode is recommended is most cases. **In both modes, the user must supply correct value resistors to limit the current to 25mA or less. The voltage used should not exceed 32V DC.**

Note: Connectors J5 & J6 both have 4 pins. Please make sure to only use port J6, or the automation board could be damaged.

SW1 SET TO "PNP" MODE

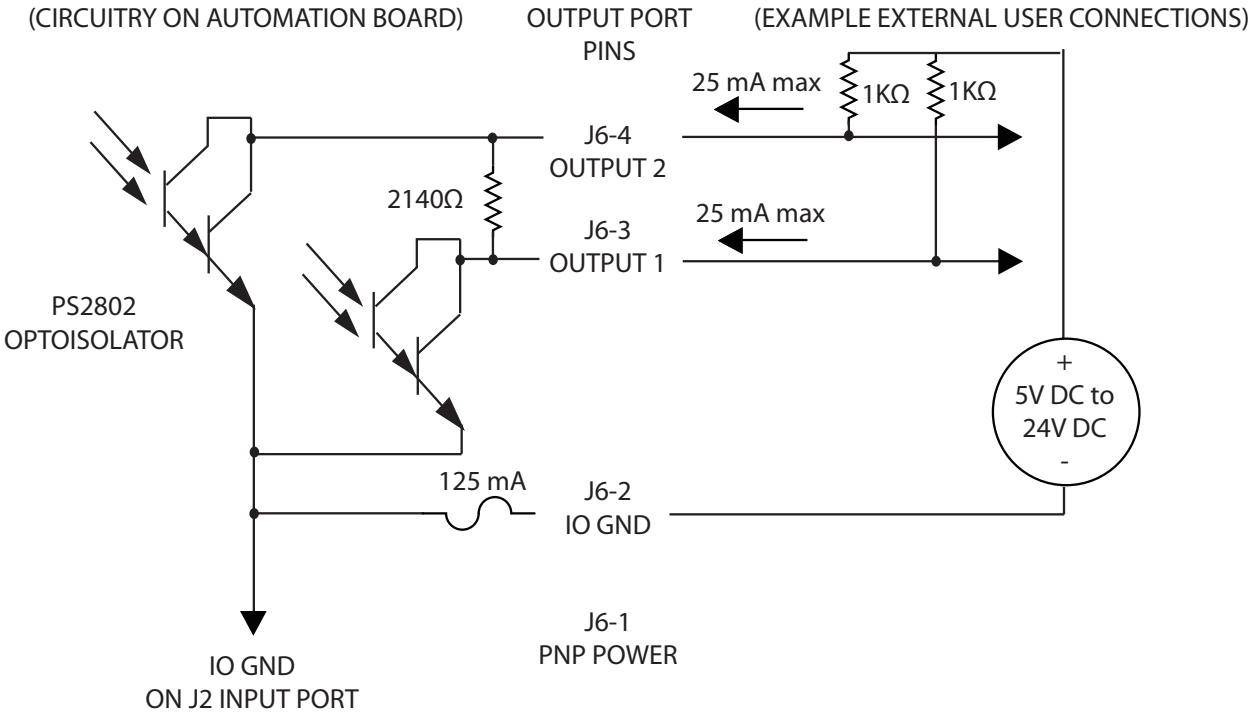


NOTES:

1. CURRENT SOURCED ON OUTPUT1 AND OUTPUT2 MUST BE LIMITED BY EXTERNAL RESISTORS TO 25mA MAX
2. VOLTAGE MUST BE $\leq$ 32VDC.
3. OUTPUT1 AND OUTPUT2 SOURCE CURRENT IN PNP MODE

Example Connection for PNP mode

SW1 SET TO "NPN" MODE



NOTES:

1. EXTERNAL PULLUPS MUST LIMIT CURRENT TO 25 mA MAX.
2. VOLTAGE MUST BE ≤ 32VDC.
3. OUTPUT 1 AND OUTPUT 2 SINK CURRENT IN NPN MODE.

Example Connection for NPN mode

[NEW SECTION: **PLS Automation Kit** (probably after Air Assist Cone, like ILS)]

Automation Kit

The Automation Kit allows external remote control of the engraver by up to six different input events, and provides two selectable status signal outputs. The PLS Automation kit is an external box that is plugged into the Computer Controlled Air Assist Compressor Port.

NOTE: The PLS Automation kit option requires that the Computer Controlled Air Assist option is installed first.

Auto-Detection: The automation kit is automatically detected upon engraver power-up, and is configured from the System Tab. **If the automation kit is not present, the controls for the automation kit on the systems tab will not be visible.**

CAUTION: ULS does not authorize or support third party safety devices via the Automation Kit. Outputs are intended to be used for informational purposes such as to indicate error conditions; they are not intended to drive external devices.

Installation (PLS)

1. Insure power is off to the engraver and any accessories such as the compressor.
2. Using the supplied patch cable, plug the round end into the PLS Computer Controlled Air Assist, “COMPRESSOR” jack.

Connect to PLS Computer Controlled Air Assist “Compressor” jack

Then connect to the PWR/COM IN RJ9 connector at top of Automation Kit.

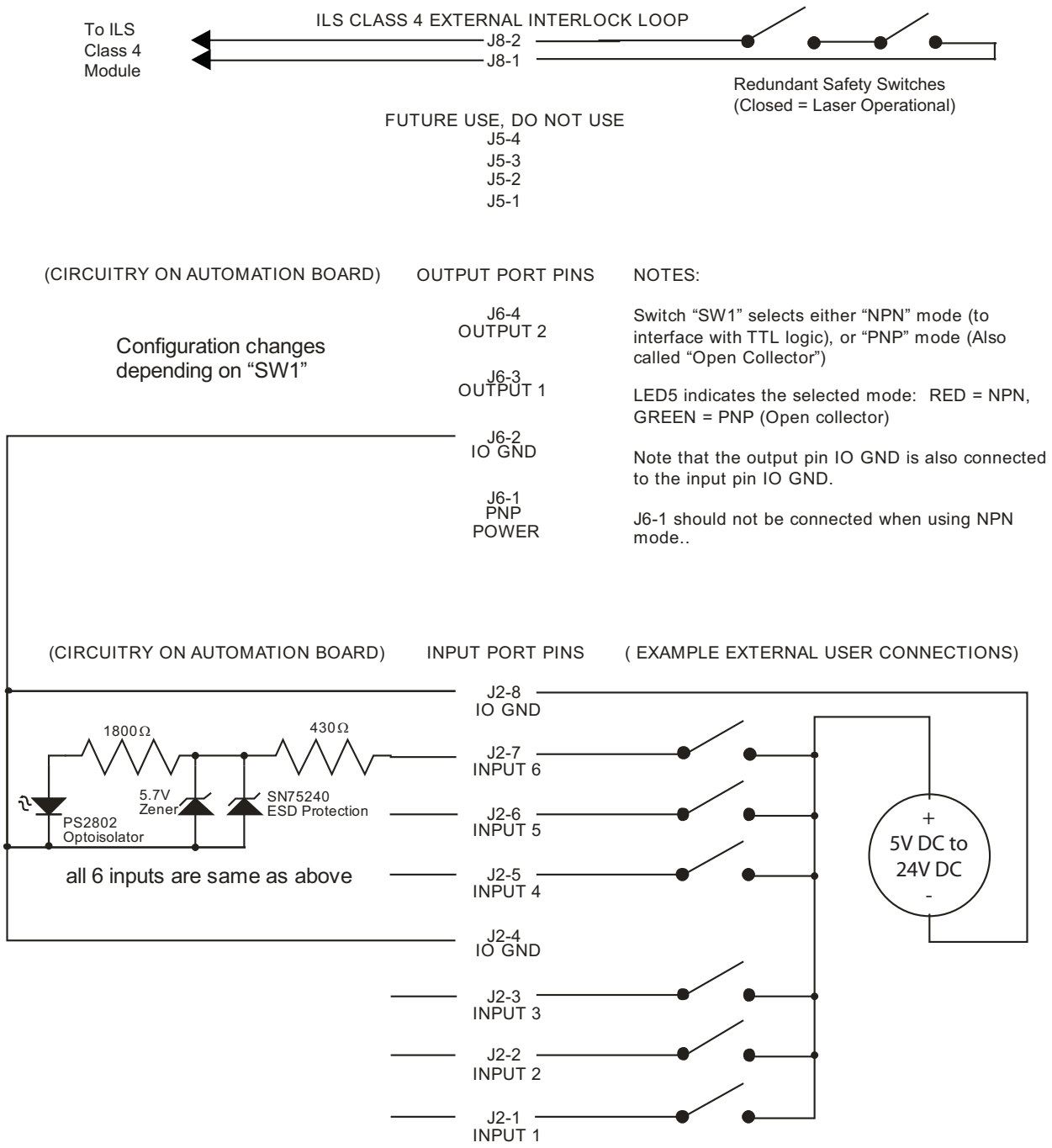
3. (Optional) If you are using a Computer Controlled Compressed Air Unit, use the include RJ9-to-RJ9 cable to connect the compressor to the unused RJ9 PWR/COM OUT jack on the Automation kit.

[COPY ILS SECTION "AVAILABLE AUTOMATION PORT FUNCTIONS]

External Wiring

Note: Do not connect or use J5 or J8 for the VLS.

The automation kit connector J2 is used to signal six different input events. To trigger an event, supply between 5V DC to 24V DC on one of the input pins as shown below. It is not necessary to limit current with a resistor to the input pins. The pulse on the input pins should be held high longer than 5mS in order to register.

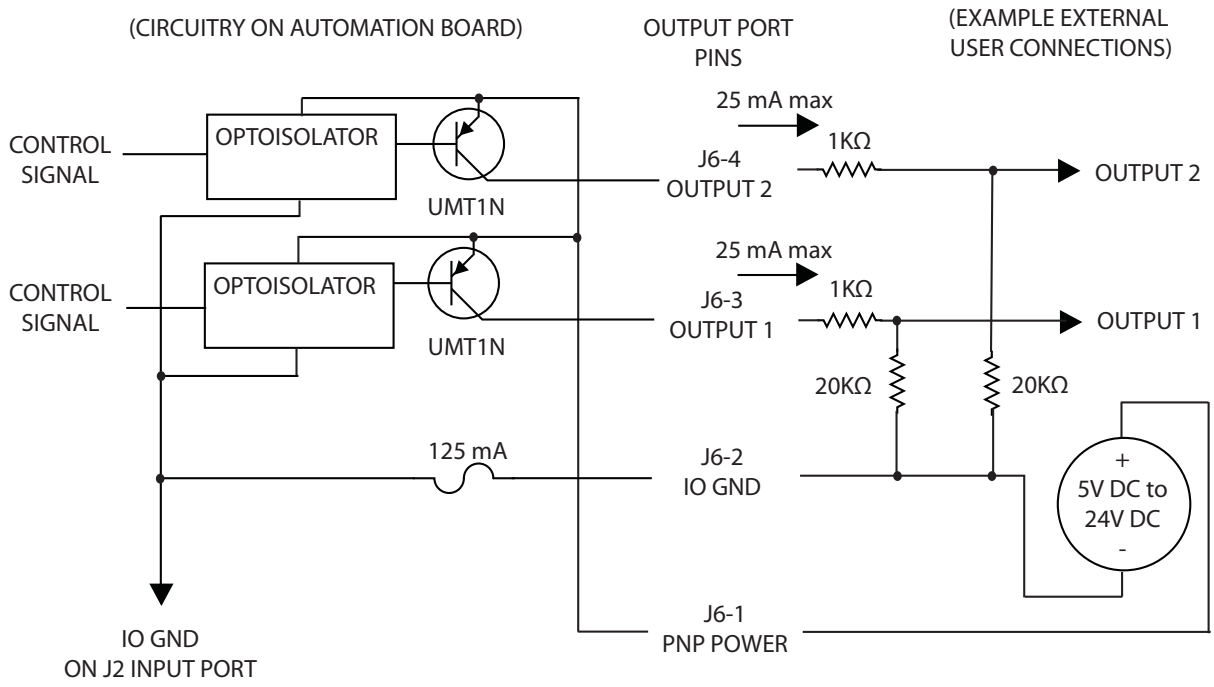


Automation Kit I/O Connections

The automation kit connector J6 is used to signal two output events. It can be used in two modes, selectable by the "PNP/NPN" switch on the top of the board. LED 5 indicates the position of this switch, lighting up green for PNP, or red for NPN mode. Two example diagrams are shown below to indicate the difference between the modes. PNP (also known by the name "open-collector") mode is recommended is most cases. In both modes, the user must supply correct value resistors to limit the current to 25mA or less. The voltage used should not exceed 32V DC.

Note: Connectors J5 & J6 both have 4 pins. Please make sure to only use port J6, or the automation board could be damaged.

SW1 SET TO "PNP" MODE

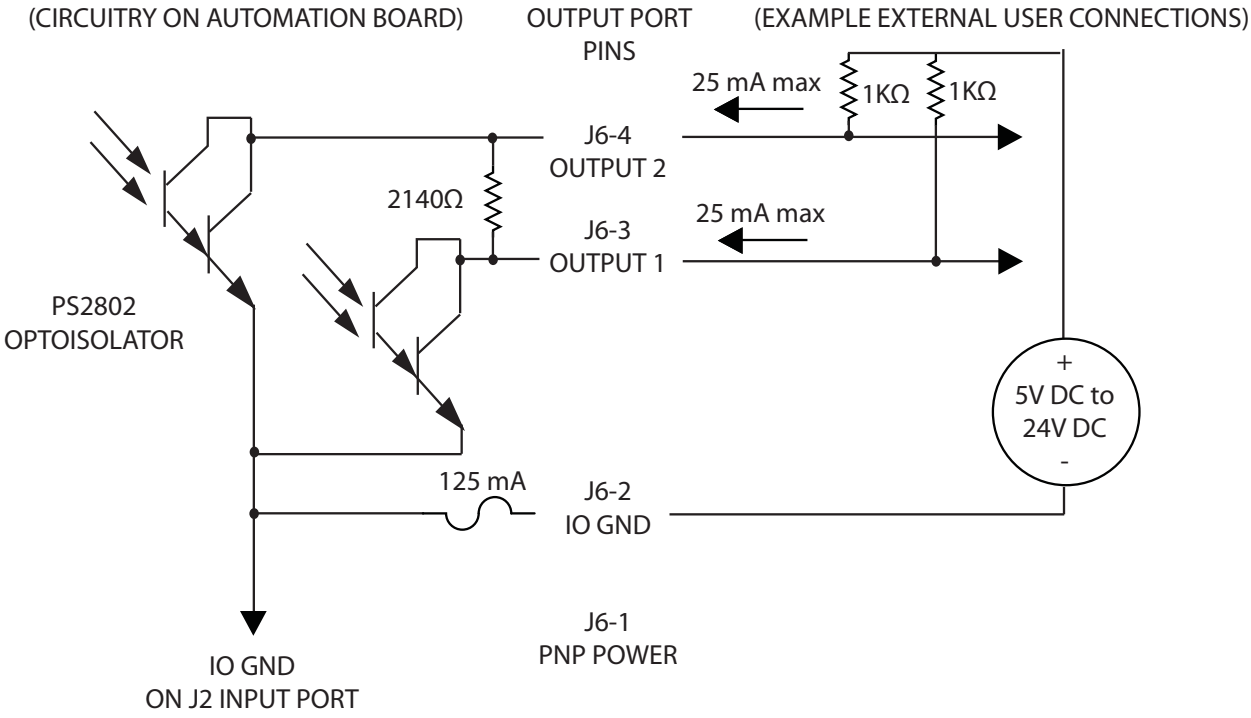


NOTES:

1. CURRENT SOURCED ON OUTPUT1 AND OUTPUT2 MUST BE LIMITED BY EXTERNAL RESISTORS TO 25mA MAX
2. VOLTAGE MUST BE $\leq$ 32VDC.
3. OUTPUT1 AND OUTPUT2 SOURCE CURRENT IN PNP MODE

Example Connection for PNP mode

SW1 SET TO "NPN" MODE



NOTES:

1. EXTERNAL PULLUPS MUST LIMIT CURRENT TO 25 mA MAX.
2. VOLTAGE MUST BE ≤ 32VDC.
3. OUTPUT 1 AND OUTPUT 2 SINK CURRENT IN NPN MODE.

Example Connection for NPN mode

[NEW SECTION: VLS 230,350 Automation Kit (probably after Air Assist Cone, like ILS) only difference on VLS's is pics]

Automation Kit

The Automation Kit allows external remote control of the engraver by up to six different input events, and provides two selectable status signal outputs. The VLS Automation kit is an external box that is plugged into one of the RJ9 ports on the VLS.

Auto-Detection: The automation kit is automatically detected upon engraver power-up, and is configured from the System Tab. **If the automation kit is not present, the controls for the automation kit on the systems tab will not be visible.**

CAUTION: ULS does not authorize or support third party safety devices via the Automation Kit. Outputs are intended to be used for informational purposes such as to indicate error conditions; they are not intended to drive external devices.

Installation (VLS)

1. For the VLS models, unplug the USB port. Insure power is off to the engraver and any accessories such as the compressor.
2. Using the supplied RJ9-to-RJ9 patch cable, connect the Automation Kit to the engraver. You may use either RJ9 port on the engraver, and you may use either RJ9 port ("COM IN", or "COM OUT") on the automation kit; they are all the same.

Connect to either VLS RJ9 Port

Then connect to the PWR/COM IN RJ9 connector at top of Automation Kit.

4. (Optional) If you are using a Computer Controlled Compressed Air Unit and the computer controlled Air Filtration unit you will not have enough connectors on the machine for all three devices, in this case you can plug either the Compressor or Air filter unit into the unused RJ9 PWR/COM OUT jack on the Automation kit.
3. Reconnect the USB cable to the engraver.

[NEW SECTION: VLS 360,460,660 Automation Kit (probably after Air Assist Cone, like ILS)]

Automation Kit

The Automation Kit allows external remote control of the engraver by up to six different input events, and provides two selectable status signal outputs. The VLS Automation kit is an external box that is plugged into one of the RJ9 ports on the VLS.

Auto-Detection: The automation kit is automatically detected upon engraver power-up, and is configured from the System Tab. **If the automation kit is not present, the controls for the automation kit on the systems tab will not be visible.**

CAUTION: ULS does not authorize or support third party safety devices via the Automation Kit. Outputs are intended to be used for informational purposes such as to indicate error conditions; they are not intended to drive external devices.

Installation (VLS)

1. For the VLS models, unplug the USB port. Insure power is off to the engraver and any accessories such as the compressor.
2. Using the supplied RJ9-to-RJ9 patch cable, connect the Automation Kit to the engraver. You may use either RJ9 port on the engraver, and you may use either RJ9 port ("COM IN", or "COM OUT") on the automation kit; they are all the same.

Connect to either VLS RJ9 Port

Then connect to the PWR/COM IN RJ9 connector at top of Automation Kit.

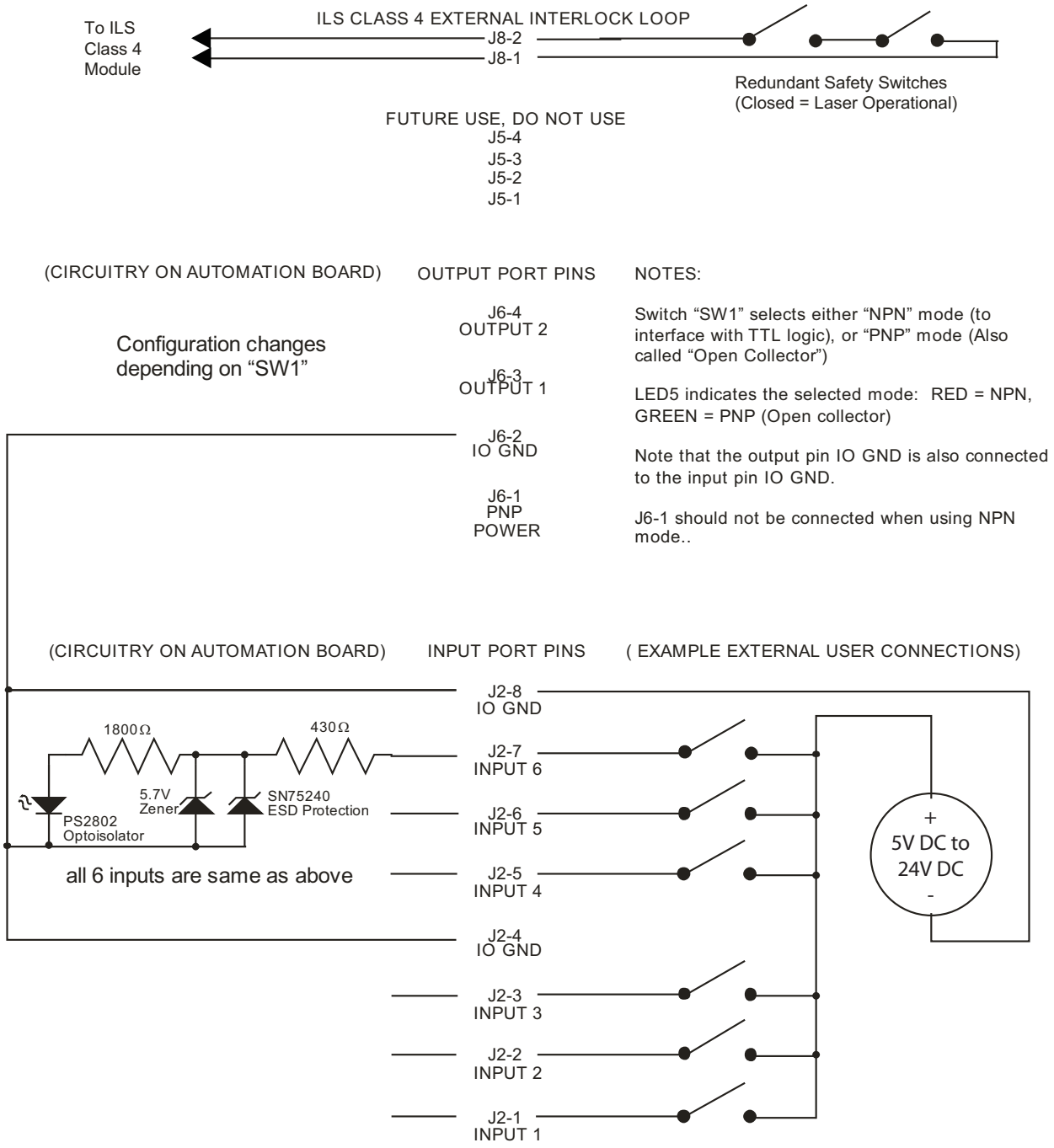
3. (Optional) If you are using a Computer Controlled Compressed Air Unit and the computer controlled Air Filtration unit you will not have enough connectors on the machine for all three devices, in this case you can plug either the Compressor or Air filter unit into the unused RJ9 PWR/COM OUT jack on the Automation kit.
4. Reconnect the USB cable to the engraver.

[COPY ILS SECTION "AVAILABLE AUTOMATION PORT FUNCTIONS]

External Wiring

Note: Do not connect or use J5 or J8 for the VLS.

The automation kit connector J2 is used to signal six different input events. To trigger an event, supply between 5V DC to 24V DC on one of the input pins as shown below. It is not necessary to limit current with a resistor to the input pins. The pulse on the input pins should be held high longer than 5mS in order to register.



Automation Kit I/O Connections

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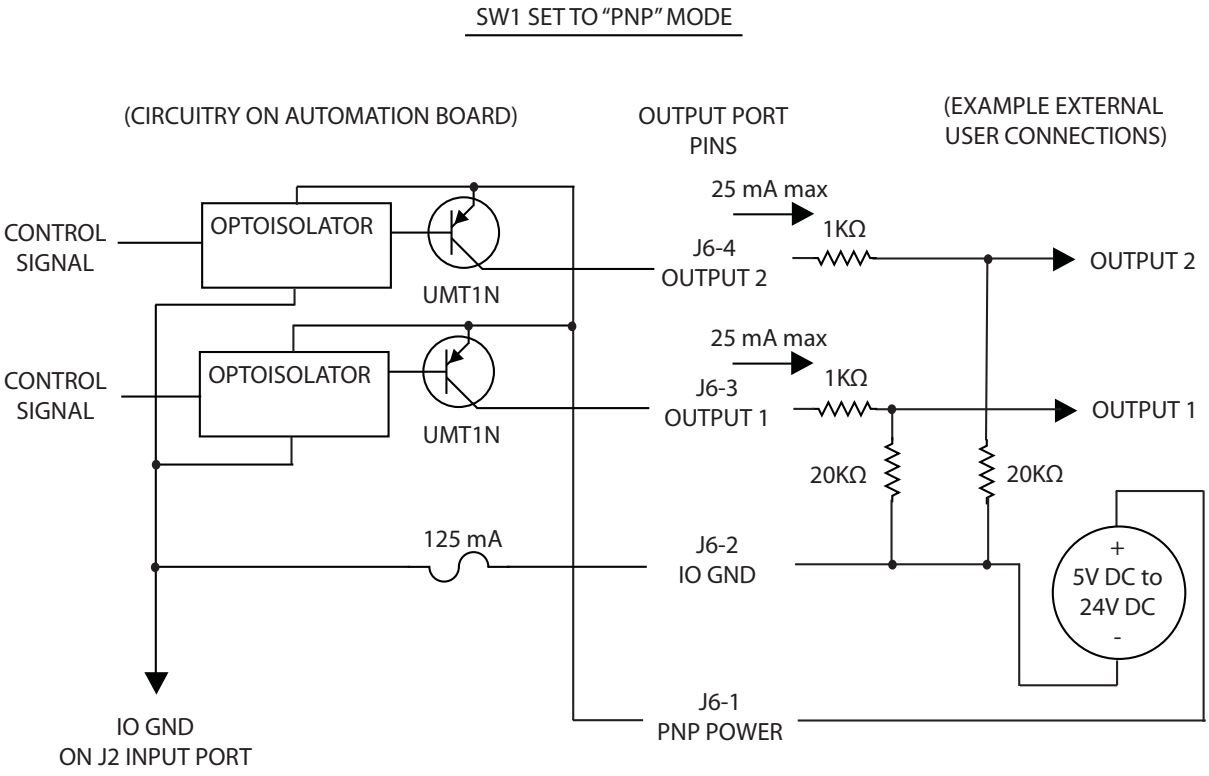
Note: Connectors J5 & J6 both have 4 pins. Please make sure to only use port J6, or the automation board could be damaged.

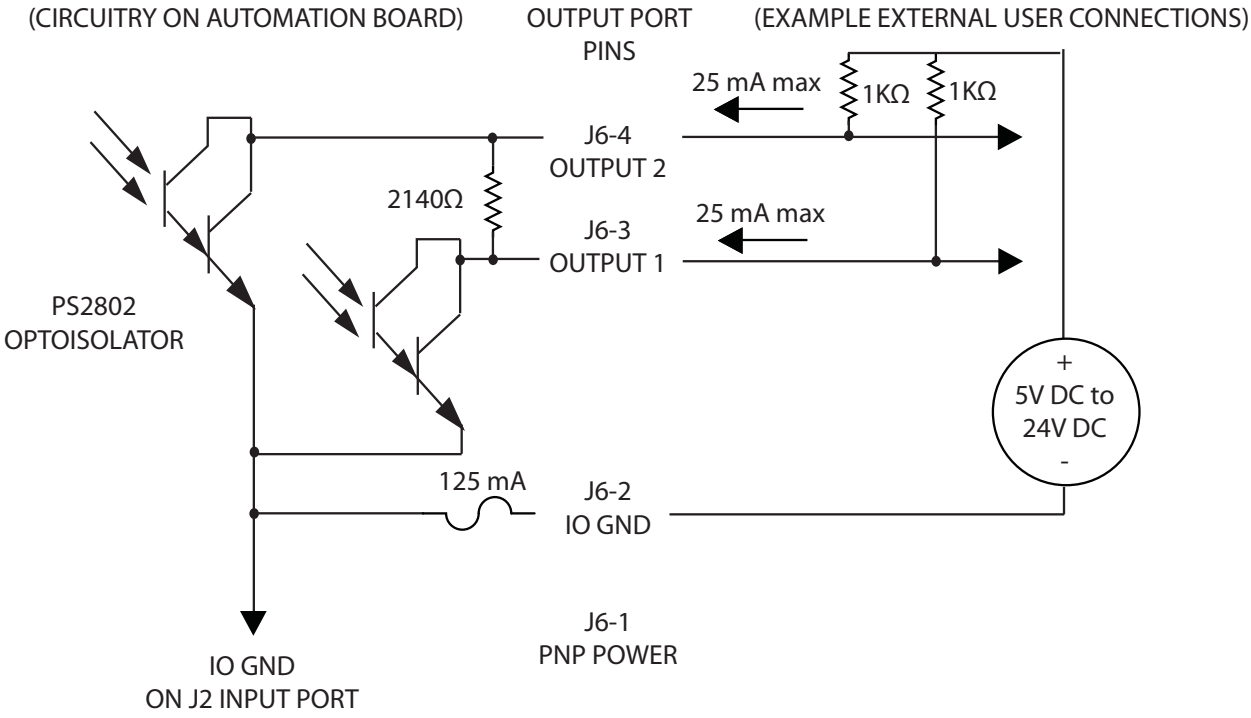


NOTES:

1. CURRENT SOURCED ON OUTPUT1 AND OUTPUT2 MUST BE LIMITED BY EXTERNAL RESISTORS TO 25mA MAX
2. VOLTAGE MUST BE $\leq$ 32VDC.
3. OUTPUT1 AND OUTPUT2 SOURCE CURRENT IN PNP MODE

Example Connection for PNP mode

SW1 SET TO "NPN" MODE



NOTES:

1. EXTERNAL PULLUPS MUST LIMIT CURRENT TO 25 mA MAX.
2. VOLTAGE MUST BE ≤ 32VDC.
3. OUTPUT 1 AND OUTPUT 2 SINK CURRENT IN NPN MODE.

Example Connection for NPN mode