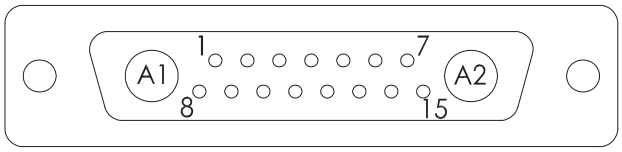
# 5.0 OEM Laser Installation and Operation

## 5.1 Laser Mounting

There are threaded holes used for mounting located in the laser base-plate, as shown in the figures in **Section 2**. The laser can be mounted in any orientation including vertical. Single-tube lasers should be mounted using a three point arrangement to avoid warping or bowing the assembly. If the laser is mounted on a flat surface it should be flat to within .025 inches [.65 mm].

## 5.2 Electrical Connections, ULR Lasers

All electrical and communication connections for the laser are made through one 15 + 2-pin connector located on the back of the laser. The mating connector will accommodate up to 8 AWG [8.35 $mm^2$] wire for power and 22 AWG [0.33 $mm^2$] wire for signals. Figure 10 details the electrical characteristics of each of the pins in the connector. Figure 11 details the circuits inside the laser attached to the pins.




WIRE HARNESS MATING CONNECTOR:
POSITRONIC: CBD17W2F20000
(POWER PINS: FS40080)

Figure 10 – Laser Connector Pin Diagram

| Pin Number | Input Name | Laser Input/Output | Wire Size | Description |
|---|---|---|---|---|
| 1 | -D | RS485 - | 22 AWG [0.33$mm^2$] | Half- duplex communication port. Use twisted-pair with +D(pin 2). |
| 2 | +D | RS485 + | 22 AWG [0.33$mm^2$] | Half- duplex communication port. Use twisted-pair with -D(pin 1). |
| 3 | Modulation - | Optically isolated return signal | 22 AWG [0.33$mm^2$] | Optically isolated return signal for "modulation +" (pin 4). *See note 1* |
| 4 | Modulation + | Optically isolated input | 22 AWG [0.33$mm^2$] | Laser modulation signal is connected between pins 3 and 4. |
| 5 | Key + | +12 volt source (only use for external key) | 22 AWG [0.33$mm^2$] | Internally switched for use in Class IV mode. Not available in OEM mode. 50mA output. *See note 2* |
| 6 | Key - | Key + Return | 22 AWG [0.33$mm^2$] | Return pin for key. |

| | | | | |
|---|---|---|---|---|
| 7 | Status 1 Out | TTL Output | 22 AWG [0.33mm$^2$] | HI= Normal<br>Low= Fault<br>*See note 3* |
| 8 | N.C | No internal connection. | | |
| 9 | Laser Diode Input | Optically isolated input | 22 AWG [0.33mm$^2$] | +5 V signal on pin 9 will turn on the red laser pointer (when available). |
| 10 | Laser Diode Return | Optically isolated return signal | 22 AWG [0.33mm$^2$] | Optically isolated return signal for "Laser Diode" (pin 9). *See note 1* |
| 11 | Emission Status Output | Output to external LED (10mA) | 22 AWG [0.33mm$^2$] | Not available in OEM mode. |
| 12 | Emission Status Return | Emission Status Return | 22 AWG [0.33mm$^2$] | Power Ground. |
| 13 | Interlock - | Interlock return | 22 AWG [0.33mm$^2$] | See description for Pin 14. 50mA output. *See note 2* |
| 14 | Interlock + | 12 volt source (only use for interlock) | 22 AWG [0.33mm$^2$] | Connect safety switches between pins 14 and 13 to enable laser. Do not use this pin as a power source for other purposes. |
| 15 | Temperature Warning | TTL Output | 22 AWG [0.33mm$^2$] | HI= Normal<br>Low= Fault<br>*See note 3* |
| A1 | Power Ground | Power input | 8 AWG [8.35 mm$^2$] | Power ground. *See note 4.* |
| A2 | +48V | Power input | 8 AWG [8.35 mm$^2$] | +48 volt power; do not swap polarity. *See note 4.* |

Notes:

1. Pins 3 & 10 are internally connected. This ground is capacitively coupled to chassis ground and is provided as an isolated ground for the customer and as a return for the customer supplied +5V.
2. 50mA is available for the interlock and key circuits. This current is shared between the two circuits and it is not recommended that external loads be placed inline.
3. 50mA is available on TTL outputs (total).
4. The solder cups for A1 and A2 can be used with up to 8AWG wire. See *Section 5.3 Power Requirements* for recommended power wiring.

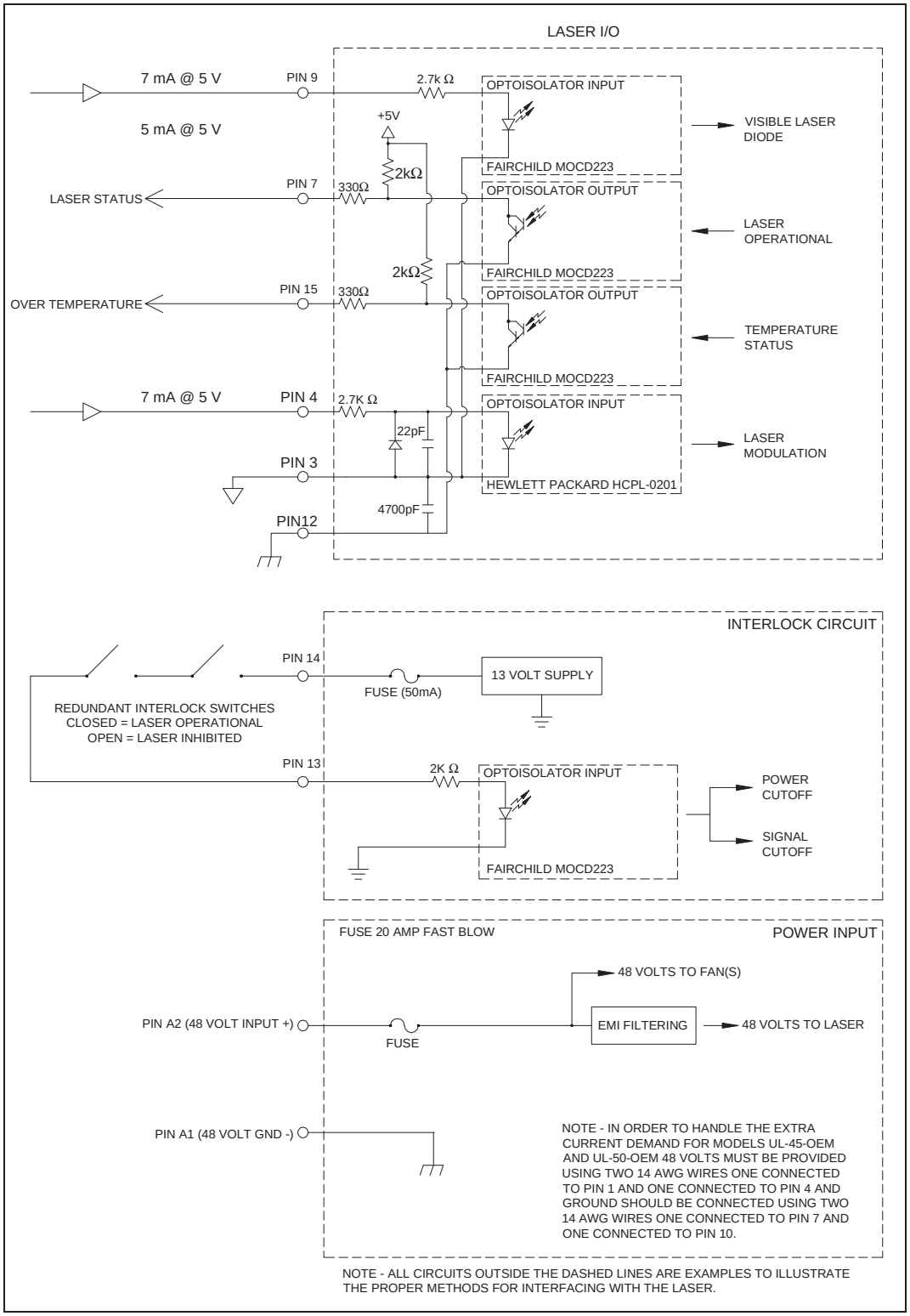



Figure 11 – Laser Interconnect Schematic