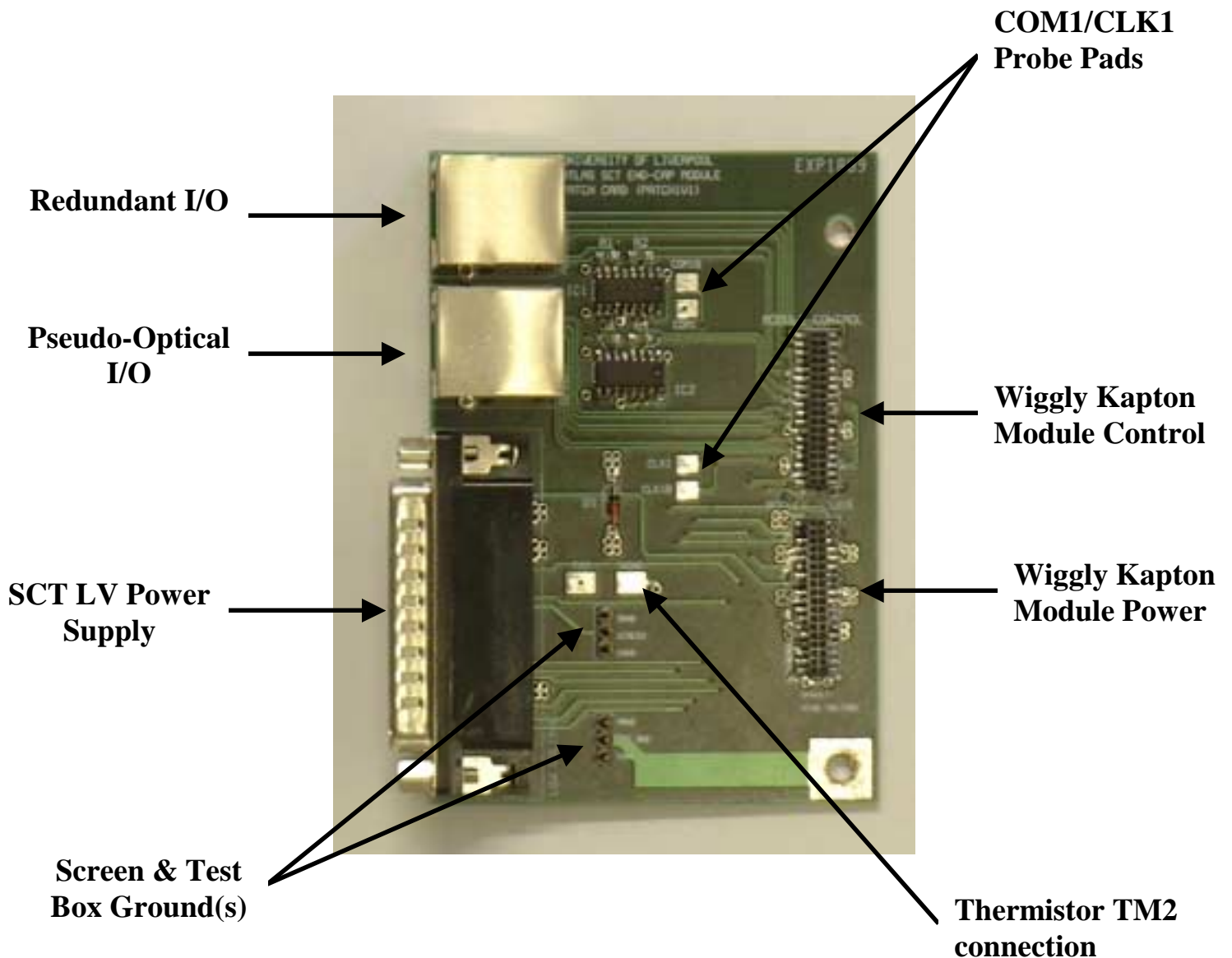


ATLAS SCT AERO

PATCH CARD



The Patch Card is designed to interface the VME Driver Board AERO (ATLAS Endcap ReadOut) to an Endcap Module using the Wiggly Kaptons. It provides the necessary connections for the module to be:

- Powered and Silicon Detectors biased using SCT LV-3 & SCT-HV.
- Module configuration and data Readout using either the Pseudo-Optical or Redundancy I/O schemes.

Notes

- The Redundant & Pseudo-Optical I/O connections should be made using **Shielded Twisted Pair (STP) CAT5(E)* Ethernet cables (fitted with 8 way shielded RJ45 connector's)**
(The maximum cable length for the Pseudo-Optical I/O is 5m).
- A screened cable can be used for the SCT LV Power Supply – Jumpers are provided to allow the screen to be either connected to AGND or DGND or alternatively floating.
- Jumpers are also provided to allow the module test box to be either connected to AGND or DGND or alternatively floating.
- Two solder pads have been provided to allow an additional thermistor (Semitec 103KT-1608-1P-0052) to be added. SCTDAQ has provision for 2 thermistors – Endcap modules only use 1 – thus one could take advantage of adding another thermistor (for example to monitor the module box temperature) with automatic temperature monitoring using SCTDAQ.
- Probe pads, CLK1 and COM1, have been added so that one can check the continuity of these lines to the module via the Wiggly Kaptons. With an Ohmmeter one would expect to measure 100Ω across COM1-COM1B (and likewise CLK1-CLK1B). A high impedance reading would indicate a break between the Patch Card and the Module.

Module and Test Box Grounding

The present configuration, used here in Liverpool, has both the SCT LV Power cable screen and module test box jumpers left out.

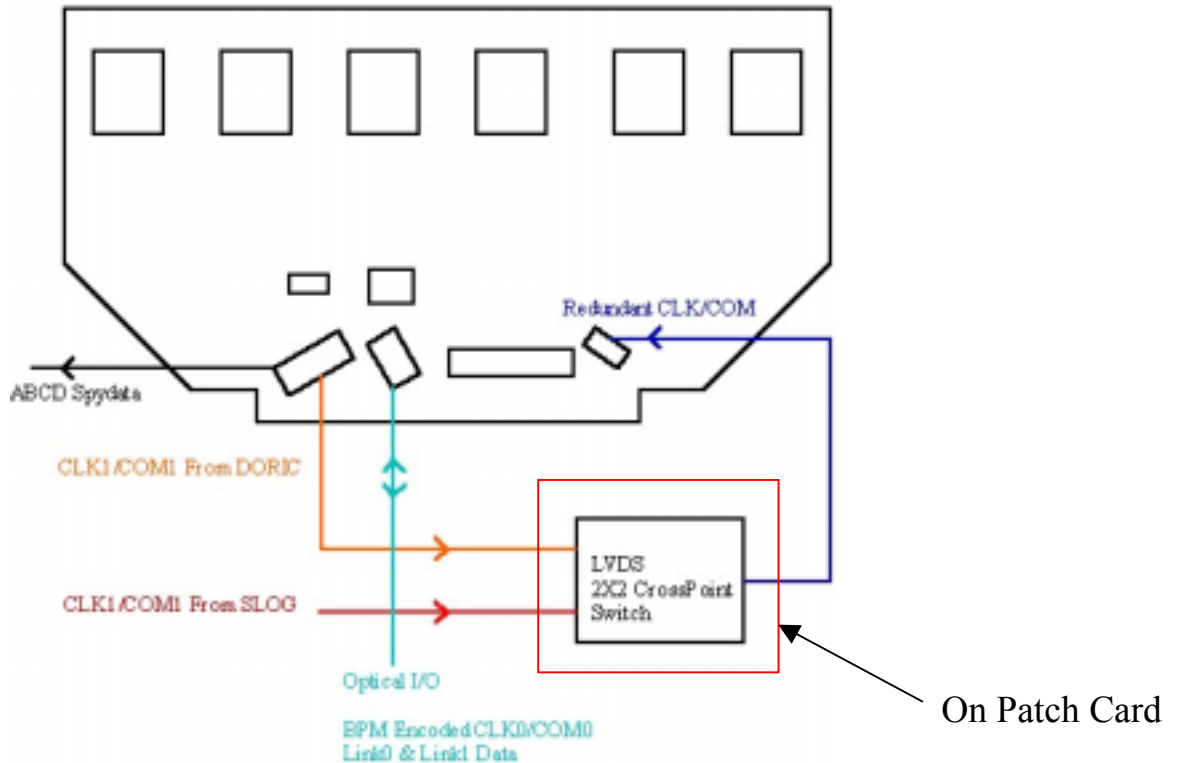
The module test box is grounded via the cooling block, at the point closest to the module. It is important to note that the module must be grounded to the cooling block.

If the Power cable screen is grounded on the Patch Card a tail is observed in the Noise Occupancy plot – for this reason the screen is left floating at the Patch Card, **BUT** the SCT LV-3 screen connections (J30/J40) are left in.

* Ethernet connection can be made either with CAT5 or CAT5E screened cables.

Readout Modes

The diagram below shows the available module configuration and data routes which are accessible using the AERO – Patch Card.



3 Readout modes:

1. Primary Mode (*Select = 0*)

Module is configured & Readout via the Opto devices DORIC/VDC using a pseudo-optical scheme.

Single Pseudo-Optical Ethernet connection required.

2. Redundancy Test mode (*Select = 1*)

Module is configured via the DORIC redundant CLK1/COM1 signals. These are fed back into the module via the Redundant connector. Module data is readout via the VDC. Again the pseudo-optical scheme is used.

Single Pseudo-Optical Ethernet connection required.

3. Redundancy Mode (*Select = 1*)

Module is configured via the Redundant CLK1/COM1 signals provided from SLOG. Module data is readout via the Master ABCDs using the Spy connector.

Both the Redundant & Pseudo-Optical Ethernet connections are required.

Modes 1. and 2. are envisaged to be the only Readout schemes used for the testing of modules during production.