

SPIRE CX-1030 Mount

Wed, 5 Feb. 2003

To:

Chris Brockley-Blatt (MSSL)
John Coker (MSSL)
Ian Pain (ATC)
John Delderfield (RAL)
Eric Sawyer (RAL)
Roy Blake (Tekdata)

From: Doug Griffin

Re: Bespoke mounts for CX-1030 thermistors mounted on:

CQM/PFM BSM,
STM, PFM and FS Structure,
STM, PFM and FS RF Filters
STM JFET Units

Background:

- The SPIRE consortium has taken the decision to use the Lakeshore CX-1030 for temperature sensing.
- The SPIRE consortium has assumed that the CU package for this thermistor would be suitable.
- The standard CX-1030 has a maximum shelf temperature of 52°C. Temperatures above this temperature will change the calibration.
- The instrument has to be baked out at 80°C and therefore the HT version of the thermistor is required¹.
- Unfortunately, the CX-1030 does not come in the CU package! We have to therefore provide a bespoke packaging for the CX-1030-SD-HT thermistor, which is compatible with the CU interface mount.
- The mount needs to provide termination for the EMI Shield on the STQ that biases and reads out the thermistor
- I need to have confirmation from ATC, MSSL and RAL that the mounts are acceptable before production drawings can be made

Description

- The mount is made from three pieces of Gold plated Aluminium Alloy as shown in Figure 1.
- A screw with a spring washer retains the thermistor in an identical fashion to the Lakeshore CU package
- The sensor is bonded to the Centre Spindle with Stycast 2850.
- The sensor leads are soldered to a solder tab that has been bonded to the Centre Spindle. This solder tab provides a good heat sink for the lead wires.

¹ There is conflicting anecdotal evidence from the Cooler and the BSM programmes as to the severity of the loss of calibration

- The Spindle is inserted into the Bobbin and glued in place
- The four wires from the Screen Twisted Quad are soldered onto the terminal
- The Protection Sleeve is slipped over the Centre Spindle and glued in place
- A length of braid is used to complete the EMI shielding of the lead wires and to provide strain relief on the STQ conductors. (See Figure 2) An extra length of heat shrink may be advantageous to assist in the strain relief.
- In some cases there will not be holes pre-drilled in the hardware to mount the thermistors (STM Thermometry, RF Filter). In these cases, another adaptor will have to be made up.

Actions for Ian Pain, Chris B-B and John Delderfield

- Confirm that the mounts will fit in the existing hardware
- Determine where extra adaptors will need to be made up to attach the thermistors to SPIRE.

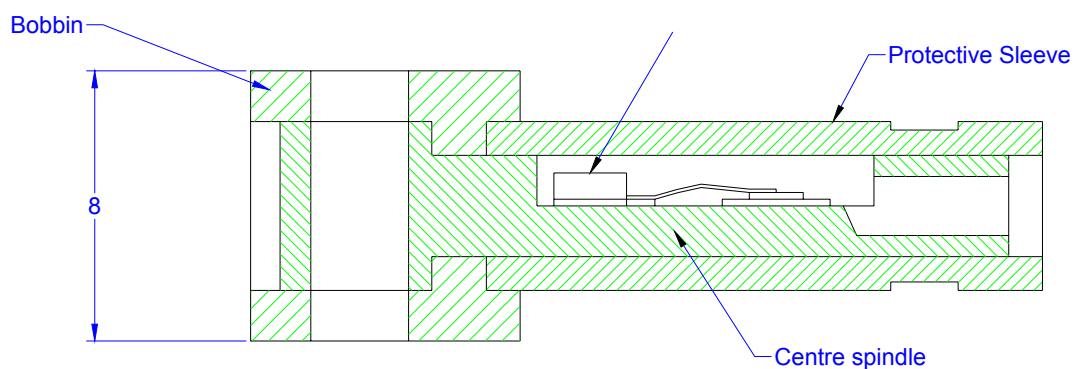


Figure 1 - Section through CX-1030 mount

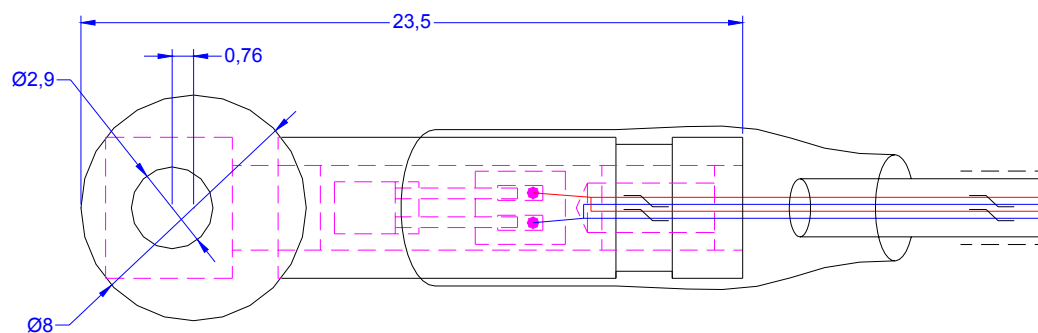


Figure 2 - Top view of mount including schematic view of EMI/Strain Relief Braid