

G4HUP Panoramic Adaptor Installation – FT1000MP

These instructions cover installation of the PAT board in the 1st IF of the FT1000MP – 70.455MHz – this gives access to all receiver options on the main receiver. There are many variants of this rig, but hopefully the information given here should enable PAT installation in any one of the family.

The Rx and Tx signal paths are separate within the rig. It is recommended that PAT is powered from the Rx8 line, which will automatically mute it on transmit (unless you want to see your Tx signal...)

Basic instructions are given for installing the PAT as an IF Panoramic Adaptor Tap – used in this mode your SDR must be tuned to the 1st IF of the radio, and then your display will track the tuning of your rig – however, the displayed frequency will be that of the IF, not the radio. Because the connection point on the FT1000 is after the IF filter, the bandwidth available to display is restricted by the filter.

- 1 Build and test the PAT kit – use a 9v supply and you should measure a gain of approx 1dB at 70MHz.
- 2 Remove bottom cover from the FT1000
- 3 It is easy on this rig to mount a suitable connector (SMA) on the rear panel – there is plenty of space.

Mark the rear panel, and centre punch for drilling – be careful to keep swarf out of the rig! Mount the SMA between the DVS-2 DIN socket and the CAT sub-D connector, as shown in Fig 1. The centre of the SMA is 30mm from the centre of the DVS-2 connector, and 15mm below the edge of the case, to keep it in line with the other connectors.



Fig 1 – position of SMA connector on rear panel

- 4 The FT1000 has a location for an optional filter PCB on the AF unit. In the example shown an Inrad filter board had been fitted. The ideal place to mount the PAT is under that board - see Fig 2. It does not obstruct anything, and can be positioned to minimise the length of the input wire.
- 5 The PAT board is held in place by double sided tape, so can easily be removed should it become necessary

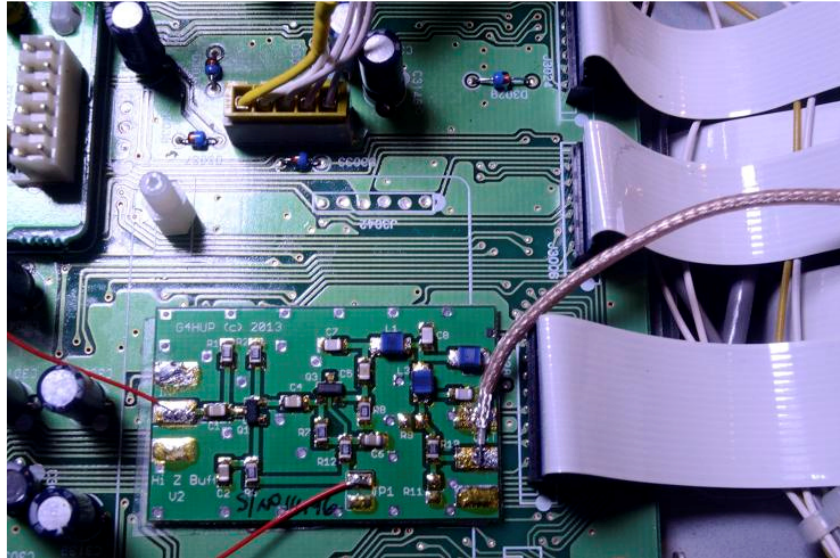


Fig 2 – Location of PAT inside FT1000MP

- 6 The IF signal at 70.455MHz is amplified on the RF board before passing to the IF board. If the Inrad filter PCB is fitted, then the PAT input can be tapped off the input connector of this board. Where there is no Inrad optional filter PCB, then the PAT input can be picked up at J2003 on the IF board. See Fig 3. Use an 80mm (max) length of fine wire to link PAT input and the tapping point – keep the wire as short as is reasonably possible.

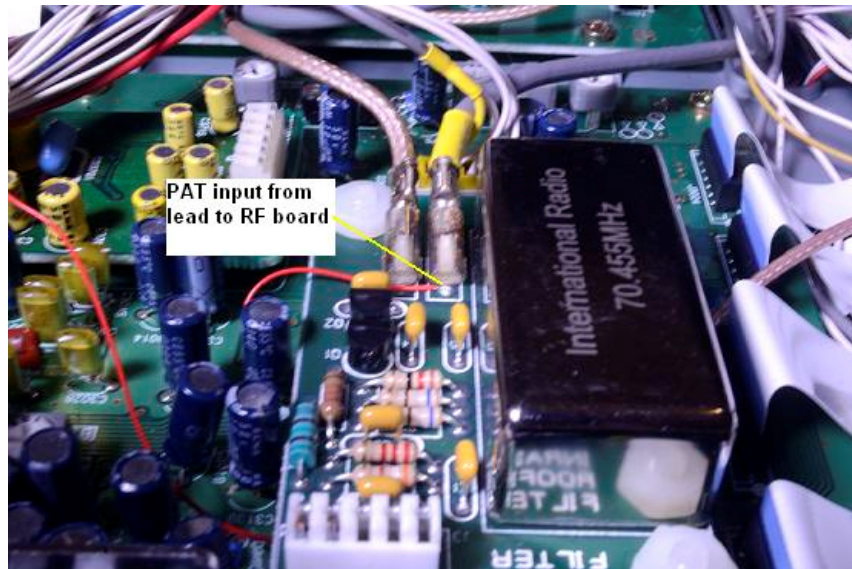


Fig 3 – PAT input connection from Inrad filter PCB

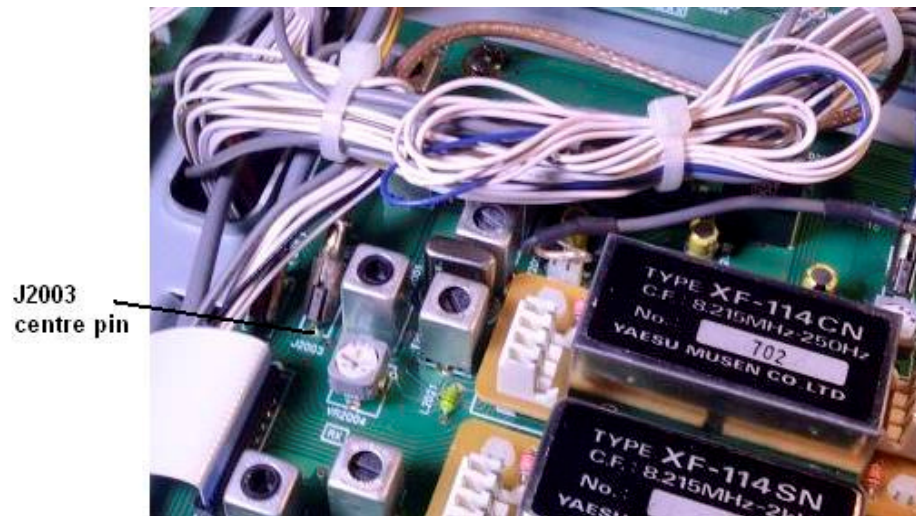


Fig 4 – J2003 connection for PAT

- 7 The output connection from PAT to the rear panel will need approx 200mm of RG178A miniature coax. This can loop neatly round to the output connection. Dimensions for preparing the ends of the cables are given in Table 1 and Fig 9. Do not pigtail the ends of the coax, but make them off as in Fig 2. See also details at the end of this note.



Fig 5 – Power (Vcc) connection at J3003

- 8 Vcc for PAT is picked up from the wire attached to pin 4 of J3003. This is a switched supply that is only on during Rx, so the PAT is unpowered during Tx. You will need approx 160mm of wire, to reach the PAT location. 0V is brought from the rear panel connector via the coax, so no separate 0v connection is needed. Be careful when looking at J3003, as the pin numbering is not obvious – see Fig 5. It was easier to carefully strip some of the insulation from the wire in the cable form and attach to it, rather than to try and make a connection directly on to J3003 – you can see the

green PVC tape in Fig 5 where the joint was protected.

- 9 Replace the cover, connect and test.

Terminating PTFE Coax cables

These instructions could be used, with suitable modification, to correctly terminate any of the PTFE coax cables, such as RG142, RG178, RG188, RG196, RG316, etc. The termination method ensures good quality RF connections up to higher microwave frequencies

- Using a scalpel, cut the sheath back at the required length.
- With a hot iron, tin the exposed braid fully.
- With the scalpel, score around the point where the braid must end.
- Use long-nose pliers to bend the end of the coax outside the score line – the braid will crack on the score line and the excess can be slid off the dielectric.
- Strip the dielectric to reveal the inner.

Fig 6 shows a correctly terminated cable installed in the FT1000; other examples may be seen in the other instruction sheets posted.

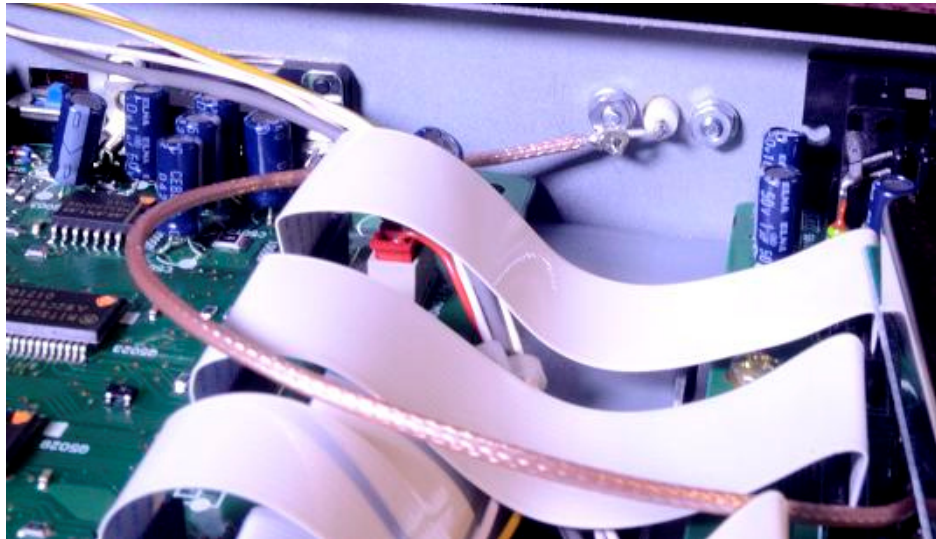


Fig 6 – Routing and termination for the RG178 cable

Table 1 below shows the measurements recommended for the cable end preparation for the FT1000 installation and Fig 7 below gives further clarification.

Cable	FT1000 Connection	Sheath	Braid	Dielectric	Inner
Output	PAT	9mm	3.5mm	2mm	3.5mm
Output	SMA	9mm	3.5mm	2mm	3.5mm

Table 1 – Cable stripping details for FT1000 installation

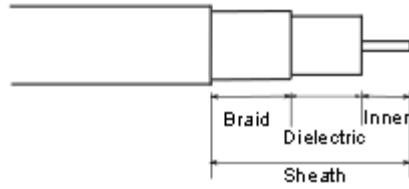


Fig 7 – Cable termination preparation details