

Connect FEC with PAF frontend

The ninth Multiple-Fiber Push-On/Pull-off (MTP, mtp-9) inside the red MTP model, on the side of Phased Array Feed (PAF) frontend, is used for control signal. There are 12 fibers for one MTP, but we only need six fibers for control. **We have to make sure that the right fibers are connected with right order; otherwise the connection will not work.**

Inside the PAF frontend, the fibers used for control are in the order as T1, T2, T3, T4, T5 and R1, T for transmission and R for receiving at frontend. These fibers are P1 to P6 or P12 to P7 of the ribbon fiber used for the connection, (depending on if the ribbon fiber are flipped by the MTP used to connect PAF frontend). On the Front End Controller (FEC) backend side, from left to right of the first six Little Connectors (LC), the fibers should be connected with the order of T2, T1, T4, T3, R1 and T5.

In order to simplify the ordering of fibers at the FEC side, the order of fibers inside the PAF frontend is P2, P1, P4, P3, P6 and P5, **not** P1, P2, P3, P4, P5 and P6. **In that way, the order of fibers on the FEC side from left to right should be P1, P2, P3, P4, P5 and P6, or P12, P11, P10, P9, P8 and P7, depending on if the ribbon fiber is flipped by the MTP or not.**

If we have problem on the connection, we can use a power meter to check the order of fibers and we should be able to detect signal from T1 to T5 fibers at the FEC side, but not from R1 fiber, and we should be able to detect signal from R1 fiber, not from T1 to T5 fibers at the frontend side. Be ware that when we check the power level at the frontend side, make sure that the fibers are plugged back with their original order. We can change the order there, but it is not recommended, it will make the ordering at FEC side much more complicated.

There is also a possibility that the connection does not work because the temperature of backend system is too low. We calibrated the system to make it works at 20 degrees and a couple of degrees temperature drop may make the system does not work. We fixed the problem by installing 2 dB LC attenuators at the frontend LC connectors, but it is worth to check that their attenuators are there before we move forward.

It is also possible that the connection does not work because the temperature of the frontend is too low. The control module inside the PAF frontend is good to work around 20 degrees, but not at the temperature below 10 degrees. We need to be careful when we bring up the frontend under 10 degrees.

If the connection is working, follow the procedure in Figure 1, you will see that the PAF can be startup and the “Fail Count” is 0.

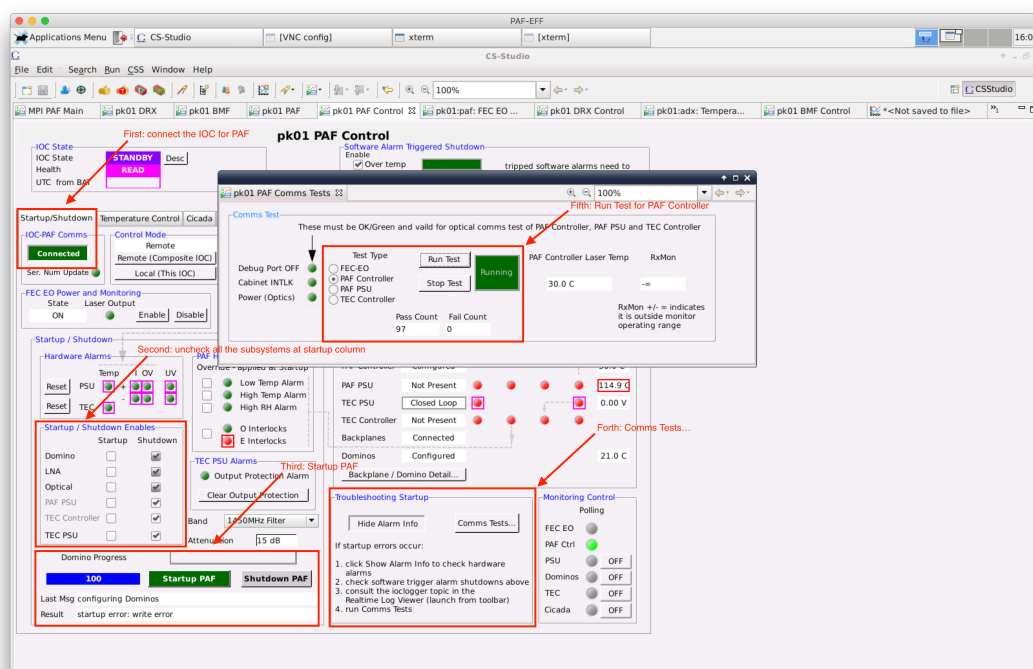


Figure 1 Procedure to check the connection between FEC and PAF frontend