



Muon electronics installation and commissioning

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Cabling and installation

New muon readout electronics

- 148 nODE boards for data readout
- 120 nSB + 8 nPDM for detector configuration/control
- only new spare detectors foreseen

New readout boards should be ready beginning of 2019

Installation step-by-step

- start when muon towers accessible (M2-M5), crate infrastructure reused
- install ribbon cables (=12 fibers) through the cable chains, connecting the 2 main muon patch panels (one per side) with the optical patch panels located on each electronic rack: 4 racks per side, 44+8(spares) ribbon cables per side.
- remove old ODE, SB, PDM boards
- remove Intermediate Boards in some detector regions (increase readout granularity)
- change backplanes for nSB crates (8 crates)
- install nODE, nSB, nPDM boards in their crates, and connect them to the optical patch panel of each rack using fiber patch cords.

Estimated time for new readout installation: 2 months

Commissioning

No new detectors will be installed, but the detector map will change in M2 and part of M5. For this reason we would profit a lot from the possibility of debugging our new readout electronics in local, prior to the installation of the long fibers, foreseen at the end of 2019.

To this purpose, we would need to connect a PC, equipped with a miniDAQ system to the muon patch panel on each side, and debug each of the 4 crates by making a connectivity test of each of the quadrant/station separately.

MiniDAQ2 boards have been ordered to test the boards during production, and should be also available for this test

Of course, we would need to power ON the Maratons which are in apparatus

Permanent test stands

1) After LS2, we would also like to keep operational a test stand at point 8 consisting of a full electronic chain to test the spare boards prior to installation, or to debug them before sending in the INFN labs for repair;

for the above, we'll use one of the available miniDAQ2 boards + we will need a Maraton

2) Spare detectors will be stored and tested at 169, where a test station is being refurbished now to prepare the new spare MPWCs arriving at CERN from Frascati ad PNPI;

also in this case, we would need a Maraton.