

NSW sTGC Front-end electronics integration and commissioning

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The ATLAS collaboration at LHC has chosen resistive Micromegas technology and small-strip Thin Gap Chambers (sTGC) for the high luminosity upgrade of the first muon station, New Small Wheel (NSW), in the high-rapidity region. Both technologies provide trigger and precision tracking. A total number of 768 pad Front-end Boards (pFEB), 768 strip Front-end Boards (sFEB) and 512 Level-1 Data Driver Cards equipped with custom-designed radiation tolerance ASICs will be installed on 64 sectors for sTGC. Over 400k channels will be checked on both readout and trigger path with the final front-end link exchange (FELIX) system. Many inter-chip phases, channel-by-channel uniformity and ADC linearity will be scanned to examine the performance of FEBs. The connectivity from FEBs to the back-end trigger electronics will also be checked to ensure the data transmission. The detailed procedure, criteria and results for NSW sTGC Front-end electronics integration and commissioning will be further discussed.

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