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The front-end for the new focal plane detector of the NUMEN experiment

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The design of the front-end electronics for the new tracker of the NUMEN Focal Plane Detector is presented. The front-end is based on the VMM chip, developed for ATLAS experiment at CERN. The architecture of the front-end electronics is thought to be modular and scalable to the final dimensions of the detector. The segmented anode board was designed in order to take advantage of the unique performances of the VMM chip, allowing a digital reconstruction of the track at high event rate. This anode board is connected to front-end by mean of flexible printed circuits and does not make use of vacuum connectors. The front-end boards will be placed in air, facilitating in this way the heat dissipation and the connection to the read-out electronics. An innovative anode read-out strategy allows the reduction of the total number of channels to about 2000 and the measurement of the track at different depth in the detector with 500 micron spatial resolution.

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