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The Liquid Hydrogen Target for MUSE[1] HALEY REID, University of Michigan - Ann Arbor, MUSE COLLABORATION — The Muon Scattering Experiment (MUSE) at the Paul Scherrer Institute was built to measure elastic scattering of muons and electrons from a liquid hydrogen target in order to explore the proton radius puzzle and two photon exchange effects. MUSE performs measurements with both positively and negatively charged leptons with high precision. To accomplish this goal, MUSE employs a vertically movable target with five different target positions relative to the mixed e, μ, and π beam. The main target is a cylindrical Kapton cell with copper end caps that holds 280 mL of liquid hydrogen. In this presentation, we discuss the technical design, implementation, and performance of the target system and its support infrastructure, presenting data to demonstrate the successful operation of the LH_2 target.

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