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C3Or2B-04: Reengineering the RHIC superconducting magnet current leads for EIC

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The Electron Ion Collider (EIC) Hadron Storage Ring (HSR) will reuse most of the existing superconducting magnets from the RHIC storage ring. However, for some sectors of the machine, a modification of the accelerators optics will be required. To do this, the existing RHIC magnet electrical circuits will have to be modified and some superconducting current leads will need to be used at higher current. A work was initiated to understand the current leads design parameters and their operational flexibility around these parameters, in particular for use at higher current.

This paper details the study of the existing RHIC current leads, their potential for use at higher current and where required the modifications to extend their operational range.

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