

# NOvA Far Detector Electronics Racks

Proposed Interlock Signal Interrupt  
Interface between Cooling System PLC  
and Rack Protection / Interlock  
Interface Chassis

# Interlock Interrupt Implementation

The Interlock signal (24Vdc) for a given rack is generated in the Rack Protection / Interlock Interface Chassis when the integrated smoke detector is powered and not in alarm. Inside the PR / II Chassis the Normally Closed contacts of a reed relay are placed in series with the Interlock signal. Supplying 10mA to the relay opens the contacts, interrupting the Interlock signal and dropping power in the rack.

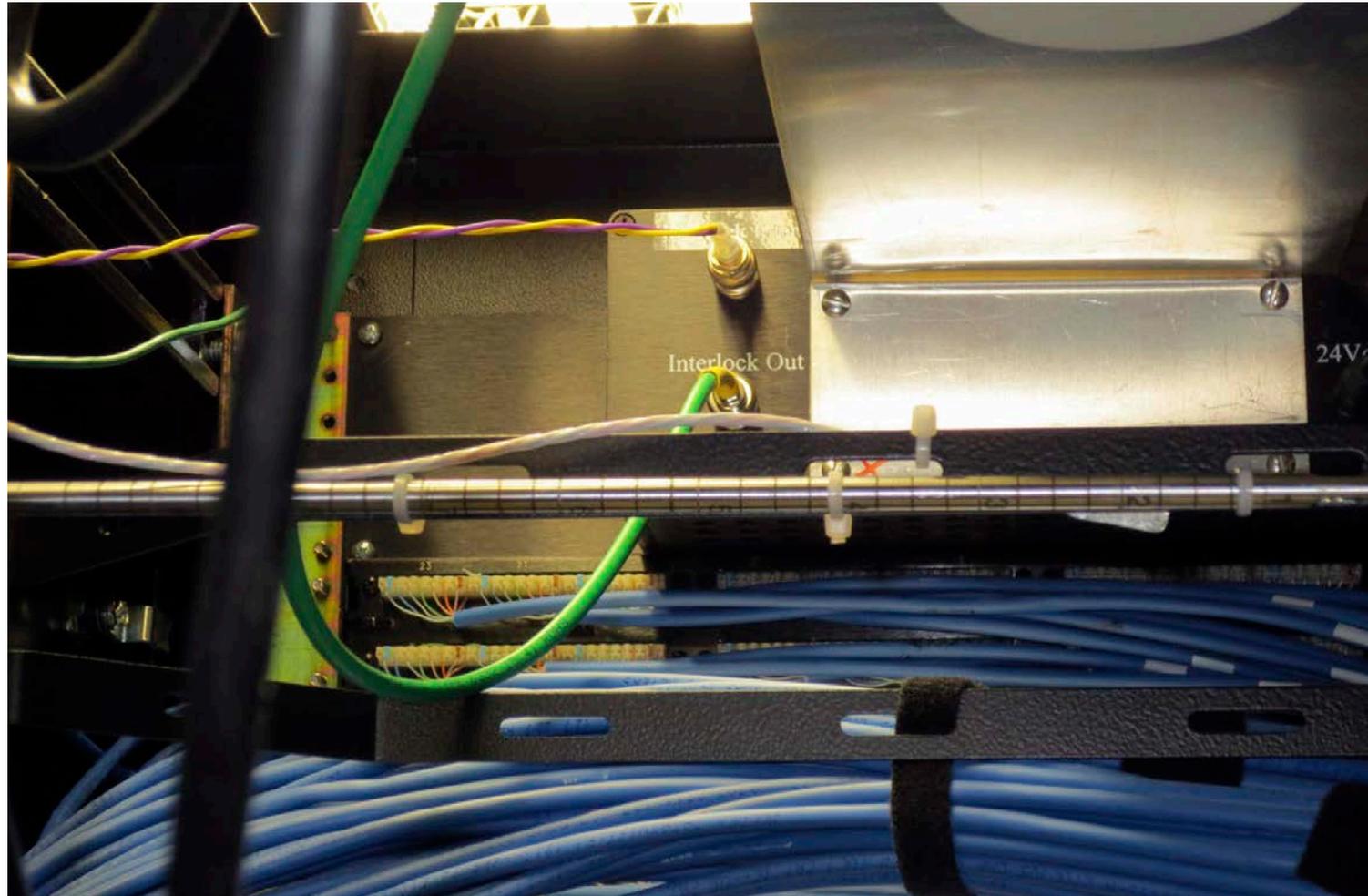
# Interlock Interrupt Implementation

The source of the 10mA to operate the relay in a given rack will be the NOvA Cooling System. When operating conditions warrant that power in a given rack should be dropped, an output from the PLC System will supply 24Vdc to a connection to the rack. A 2k $\Omega$  series resistor included in the connection, in conjunction with the 500 $\Omega$  relay coil resistance, will allow sufficient current to operate the relay – dropping the Interlock in the rack.

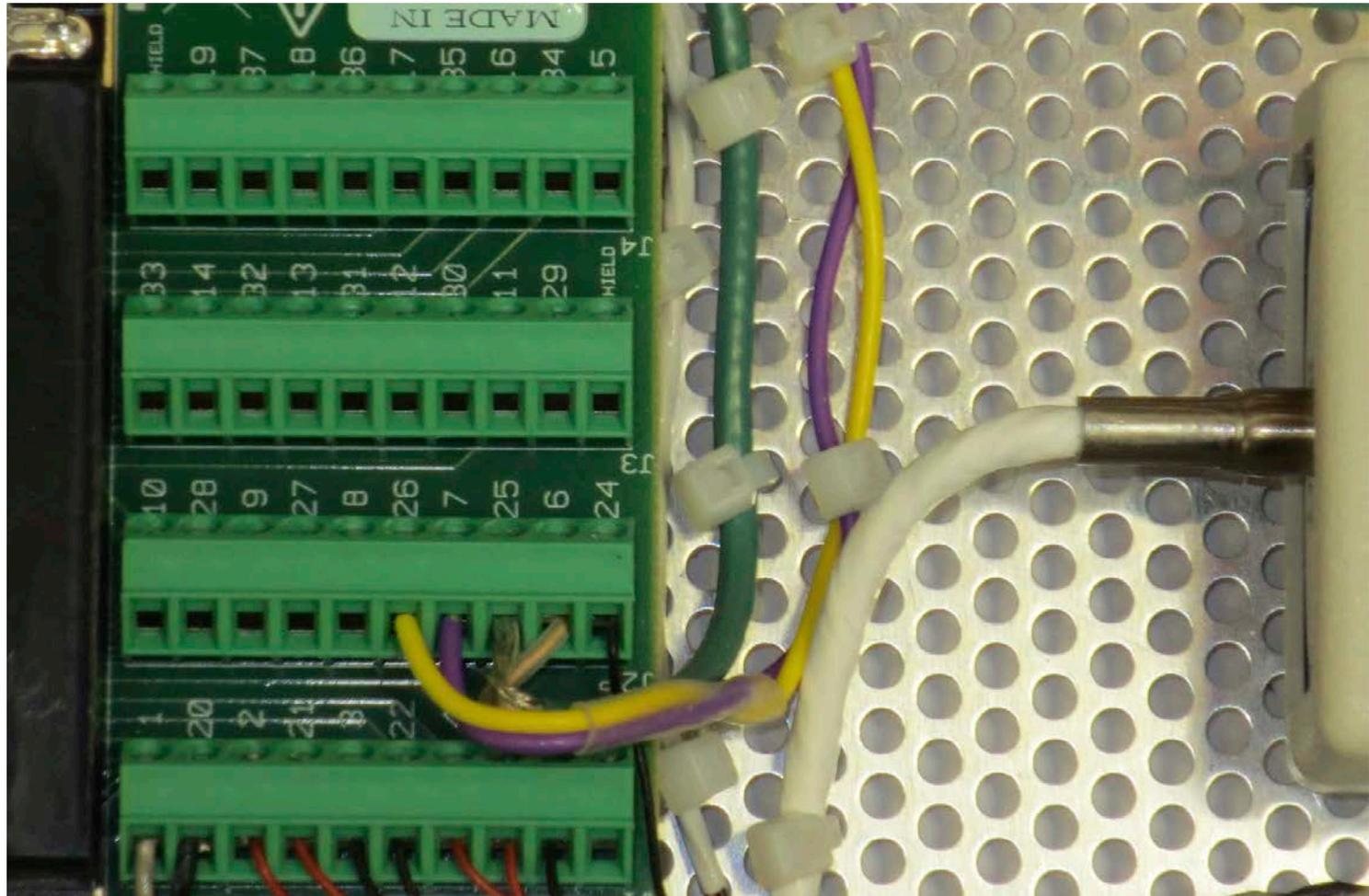
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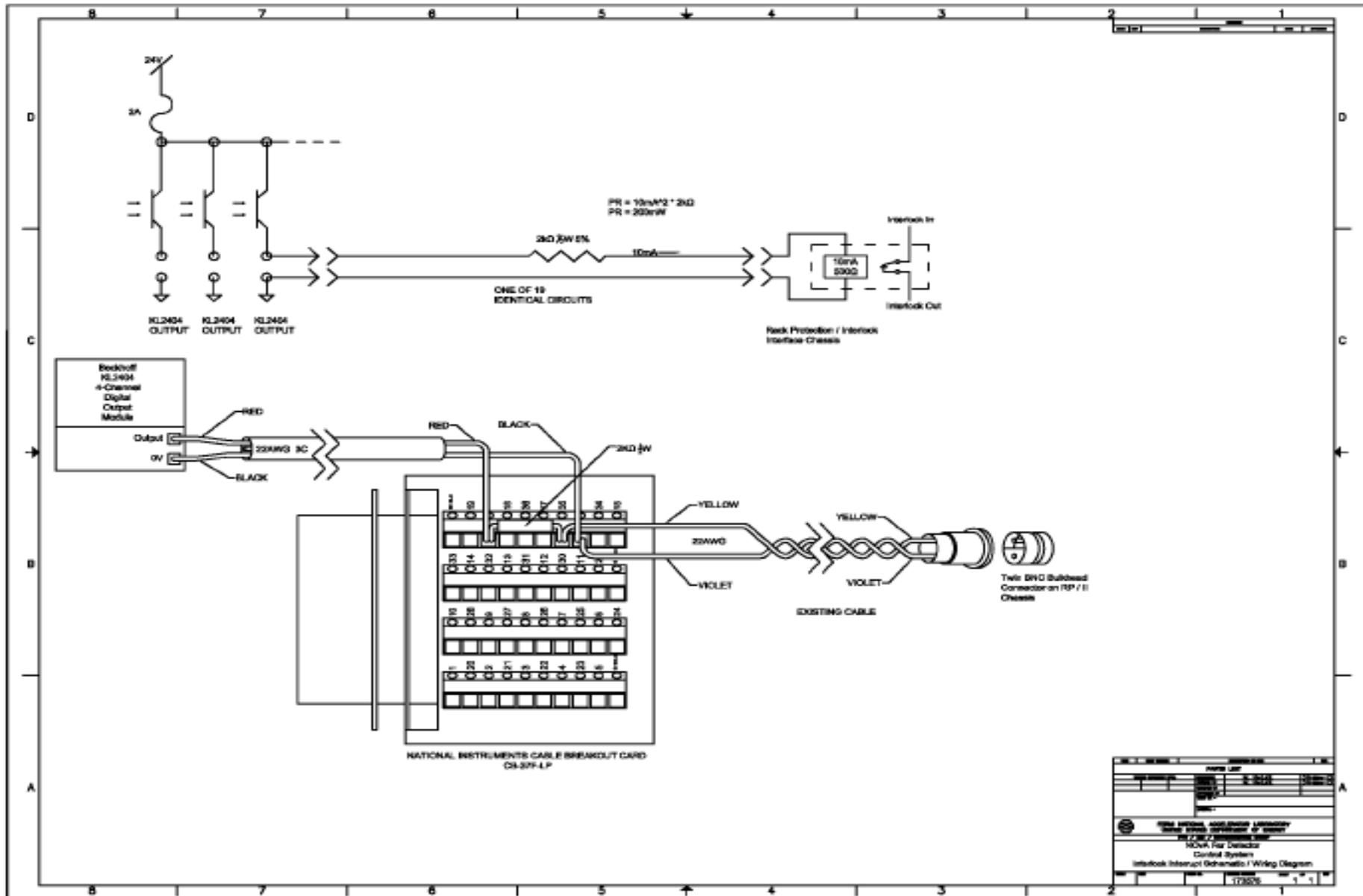
Unused screw terminals on a National Instruments Cable Break Out Card (already installed on a Rack Monitor Panel located in each rack) will be used to facilitate the connection between the PLC system and the RP / II chassis. An existing connection to the Twin-BNC connector used for the Interlock Interrupt input will be re-located, the required 2k $\Omega$  resistor will be installed and the cable to the PLC system attached.

# Interlock Interrupt Connection to Rack Protection / Interlock Interface



# Current Cable Breakout Card Connections on Rack Monitor Panel





# Proposed Cable Breakout Card Connections

