

1. The various screen command buttons, gate release or Resets, are mapped to individual bits in the RHIC Firewall machine(Peer 21) input registers. The solution is, after a predetermined period of time, a zero will be forced into the input register in Peer 21, which will override the screen input command to Peer 21 from the screen server. Peer 21, the master peers and field peers will be continuously scanning and detect the changes in state in the input register in Peer 21, all the way down the communications path to the field peer. There is a watchdog timer that is monitored by each plc processors, which will cause a major fault if the scan time exceeds the watchdog timer setting. This will be done for both gate release commands and reset commands. Mode commands are handled differently and have immediate direct feedback from the field peer to the HMI screen
2. An alarm bit will be latched if a bit is stuck for longer than the predetermined time, to inform Operations of the stuck bit. This will be displayed on the Operations screen page for RHIC. Operators will be able to attempt a reset of the stuck command bit warning alarm via the Hardware Reset Button which already exists on the various screens.