

Bear Fail Safe System: 24VDC Reference Design

FSC Principles of Operation

The FSC (Fail Safe Controller) will shutdown and move valves to their fail positions, for the following reason:

- Main Battery voltage is low
- Backup Battery voltage is low
- RTU watchdog timer has expired (optional)
- Auxiliary input on the FSC has tripped (optional)

All actuator control lines from the RTU are routed through the FSC. Once the FSC detects a fault all the actuator control lines are open-circuited. As long as the actuator is configured to move to the fail position on loss of signal, like most 4-20mA control lines, the actuator will move to the fail position automatically.

Designed and Manufactured
in Alberta By



www.calscan.net
"Keeping the Sky Blue"

Zone 1
Zone 2

FSC Shutdown Response

"ESD Out" then "Outputs 1 to 8" are open-circuited in sequence, once every 1/2 second.

Outputs/Inputs 5 to 8 not shown

UPS Failure Response

Upon main power failure the UPS will run from backup power for 1 hour before disconnecting the load to prevent deep discharge of the backup battery

RTU Failure Detection

FSC can optionally detect RTU failure by monitoring the RTU's heartbeat signal. If the heartbeat does not toggle at least once every 10 seconds, the FSC will shutdown.

FSC Fault Status

The RTU monitors the FSC's Fault Status using these connections.

