



Fault Conditions

Electronics:

R Linear Hall Effect: $x < G \text{ cm} \parallel x > H \text{ cm}$
L Linear Hall Effect: $x < G \text{ cm} \parallel x > H \text{ cm}$

24V Battery Voltage: $x < 24 \text{ V} \parallel x > 29 \text{ V}$
24V Battery Current: $x < 0 \text{ A} \parallel x > 20 \text{ A}$
24V Battery Temperature : $x < 0 \text{ C} \parallel x > 50 \text{ C}$

Contactor HS1: $x = \text{Closed}$ (while motor is off)
Contactor LS1 : $x = \text{Closed}$ (while motor is off)
Contactor HS2: $x = \text{Closed}$ (while motor is off)
Contactor LS2 : $x = \text{Closed}$ (while motor is off)

BMS1 Pack Voltage: $x < 186 \text{ V} \parallel x > 252 \text{ V}$
BMS1 Pack Current: $x < 0 \text{ A} \parallel x > 400 \text{ A}$
BMS1 Max cell Temp: $x < 0 \text{ C} \parallel x > 80 \text{ C}$
BMS1 Cell Temp (1 -20): $x < 0 \text{ C} \parallel x > 80 \text{ C}$
Isolation: $x = \text{True}$
Fault: $x = \text{True}$

BMS1 Pack Voltage: $x < 148.8 \text{ V} \parallel x > 201.6 \text{ V}$
BMS1 Pack Current: $x < 0 \text{ A} \parallel x > 400 \text{ A}$
BMS1 Max cell Temp: $x < 0 \text{ C} \parallel x > 80 \text{ C}$
BMS1 Cell Temp (1 -20): $x < 0 \text{ C} \parallel x > 80 \text{ C}$
Isolation: $x = \text{True}$
Fault: $x = \text{True}$

Motor Temperature: $x < 0 \text{ C} \parallel x > 120 \text{ C}$
Motor-Controller Temperature: $x < 0 \text{ C} \parallel x > 120 \text{ C}$
Fault: $x = \text{True}$

Piping:

Tank PT: $x < A \text{ psig} \parallel x > 3000 \text{ psig}$
Pump PT: $x < L \text{ psig}$ (while on)
Regulator 1 PT: $x < A - 61 \text{ psig} \parallel x > A + 61 \text{ psig}$
Regulator 2 PT: $x < B - 62 \text{ psig} \parallel x > b + 62 \text{ psig}$

PV1 Temperature $x < 0 \text{ C} \parallel x > 80 \text{ C}$
PV2 Temperature $x < 0 \text{ C} \parallel x > 80 \text{ C}$

Brake PT: $x < 0 \text{ psig} \parallel x > 120 \text{ psig}$
Reservoir Temp: $x < 0 \text{ C} \parallel x > 60 \text{ C}$
Tank Temp: $x < 0 \text{ C} \parallel x > \text{TBD C}$

Structures:

Acceleration $x < -2.1 \text{ g} \parallel x > 0.9 \text{ g}$

Other:

Measurements don't change for 1 Second
Lost of communications

Variables/Signals

24V Power: state of the relay that controls power from the 24V battery to everything except the Compact RIO and the NAP

Tank Valve: state of the relay that allows power to the 2-way solenoid that allows venting of the tank

Brake Valve: state of the relay that allows power to the 3-way solenoid that controls the brake's pneumatic actuators

Pump: state of the signal that is sent to the pump

Ignition: State of the relay that controls power to the motor controller

Forward: signal the motor controller to go forward

Low Side: state of the relay that actuates the contactor to close the low-side contactor

Precharge: state of the relay that actuates the contactor to close the precharge contactor

High Side: state of the relay that actuates the contactor to close the high-side contactor

System Check: User has manual control of sensors and system through User Interface