Typical Sensor Backup diagram

Example 12 - Heat, closed loop, PID control without remote set point controlling to a working sensor. If sensor A fails, sensor B is used.

Real world use is to ensure redundant sensors are available to ensure the process continues even when a sensor fails.

Demonstrates use of 2 sensors, Analog Input, PV, Control, and Output Analog Function Blocks

Thermocouple
Primary Sensor

+R1, -S1

TC Linearization
Sensor Type
Input Error Latching
Units
Display Precision
Filter
Calibration Offset
Clear Latch Request

Analog Input

Analog Input Function Block 1
Zone 1
Sensor Type = TC

Analog Input Value

Function
Filter
Offset

Source Function A = Analog Input
Source Instance A = 1

Source Function B = Analog Input
Source Instance B = 2

Output Value

PV Function Block 1
Zone 1
Function = Sensor Backup

When sensor 1 fails, use sensor 2.

Thermocouple
Backup Sensor

+R2, -S2

TC Linearization
Sensor Type
Input Error Latching
Units
Display Precision
Filter
Calibration Offset
Clear Latch Request

Analog Input

Analog Input Function Block 2
Zone 1
Sensor Type = TC

Analog Input Value

Note:
Control Loop 1 must use PV 1 or Analog Input 1
Control Loop 2 must use PV 2 or Analog Input 2
Control Loop 3 must use PV 3 or Analog Input 3
Control Loop 4 must use PV 4 or Analog Input 4

Heat Algorithm
Cool Algorithm
Cool Output Curve
TRU-TUNE+ Enable
TRU-TUNE+ Band
TRU-TUNE+ Gain
Autotune Aggressiveness
Remote Set Point Enable
Remote Set Point Type
User Failure Action
Input Error Failure
Fixed Power
Open Loop Detect Enable
Open Loop Detect Time
Open Loop Detect Deviation
Ramp Action
Ramp Scale
Ramp Rate
Profiling Enable
Closed Loop Low Set Point
Closed Loop High Set Point
Set Point Open Limit Low
Set Point Open Limit High
Remote Set Point
Control Mode
Autotune
Autotune Set Point
Closed Loop Set Point
Idle Set Point
Heat Proportional Band
Cool Proportional Band
Heat Hysteresis
Cool Hysteresis
Time Integral
Time Derivative
Open Loop Set Point
Deadband
Loop Error Clear Request

Source Function A = Process Value
Source Instance A = 1
Source Zone A = 1

Source Function B = None
Source Instance B = 1
Source Zone B = 1

Control Function Block 1
Zone 1
Control Mode = Closed Loop (Auto)

Heat Power
Cool Power
Closed Loop Set Point
Open Loop Set Point
Power

Calibration Offset
Range High
Range Low
Scale High
Scale Low
Output Type

Output Function = Heat Power
Output Function Instance = 1
Source Zone A = 1

Output Analog Function Block 1
Zone 1

Output

-F1, +G1, +H1

connect to
heating circuit

Information Flow