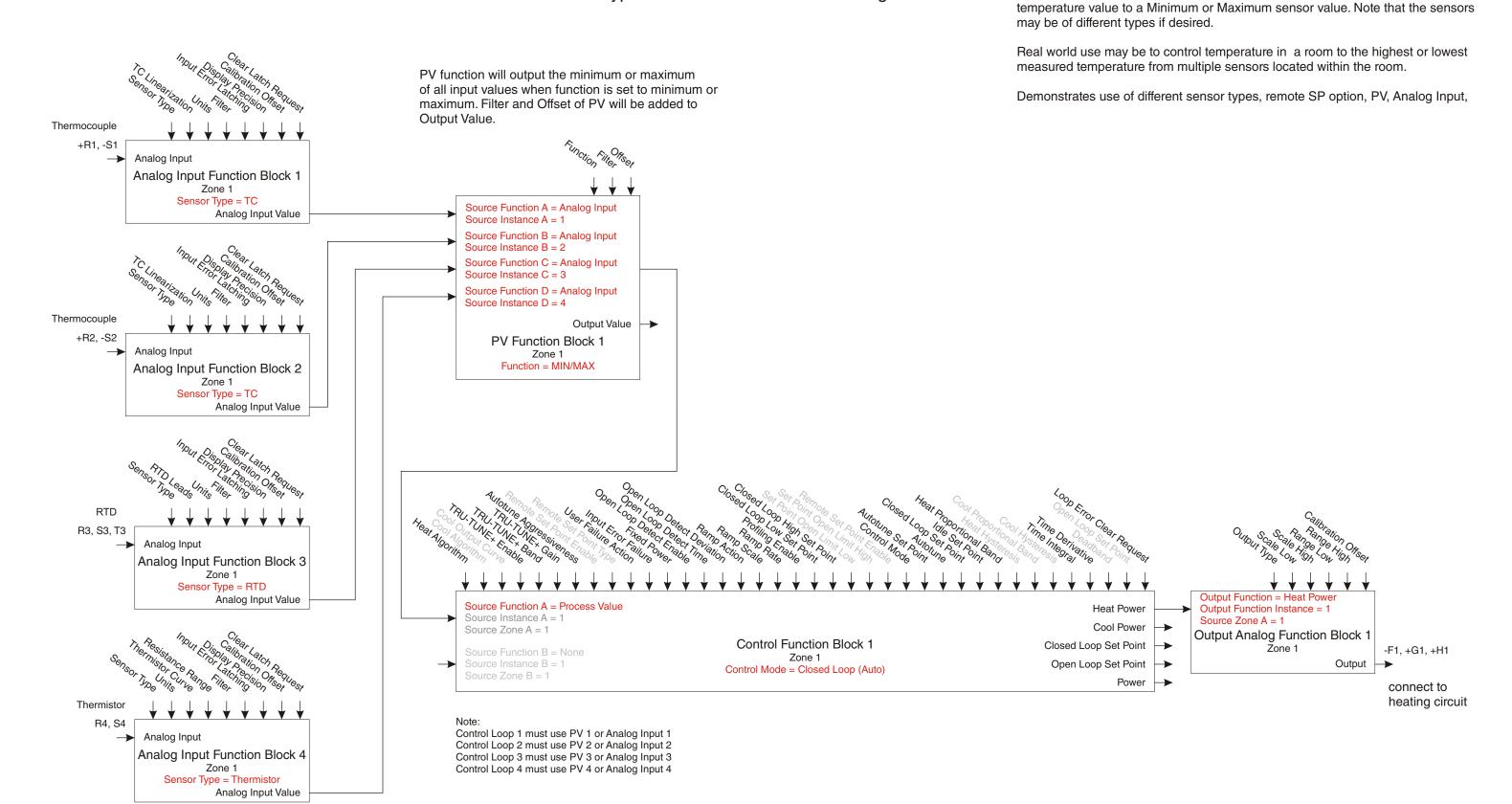# Typical MAX or MIN of Sensors diagram

Example 14 & 15 - Heat, closed loop, PID control without remote SP controlling temperature value to a Minimum or Maximum sensor value. Note that the sensors may be of different types if desired.

Real world use may be to control temperature in a room to the highest or lowest measured temperature from multiple sensors located within the room.

Demonstrates use of different sensor types, remote SP option, PV, Analog Input,

PV function will output the minimum or maximum of all input values when function is set to minimum or maximum. Filter and Offset of PV will be added to Output Value.

Thermocouple

+R1, -S1

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

Source Function C = Analog Input
Source Instance C = 3

Source Function D = Analog Input
Source Instance D = 4

Output Value

PV Function Block 1
Zone 1
Function = MIN/MAX

Thermocouple

+R2, -S2

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

Analog Input

Analog Input Function Block 2
Zone 1
Sensor Type = TC

Analog Input Value

RTD

R3, S3, T3

RTD Leads
Sensor Type
Input Error Latching
Display Precision
Calibration Offset
Units
Filter
Clear Latch Request

Analog Input

Analog Input Function Block 3
Zone 1
Sensor Type = RTD

Analog Input Value

Thermistor

R4, S4

Resistance Range
Thermistor Curve
Sensor Type
Input Error Latching
Display Precision
Calibration Offset
Units
Filter
Clear Latch Request

Analog Input

Analog Input Function Block 4
Zone 1
Sensor Type = Thermistor

Analog Input Value

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 Low
Set Point
Remote Set Point
Open Limit Low
Open Limit High
Control Mode
Autotune
Closed Loop Set Point
Idle Set Point
Autotune Set Point
Heat Proportional Band
Cool Heat Hysteresis
Cool Proportional Band
Cool Hysteresis
Deadband
Open Loop Set Point
Time Integral
Time Derivative
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

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

Information Flow

EZ-ZONE RM Application Example - using function blocks
Print on 11" x 17" landscape paper for best viewing

User parameter settings in RED

Revision A