

APPENDIX A

Panel 104 Chiller & HW Controls

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Exhaust Fan Control, Boiler Alarms ————— Page 2

Cooling Control ————— Page 3

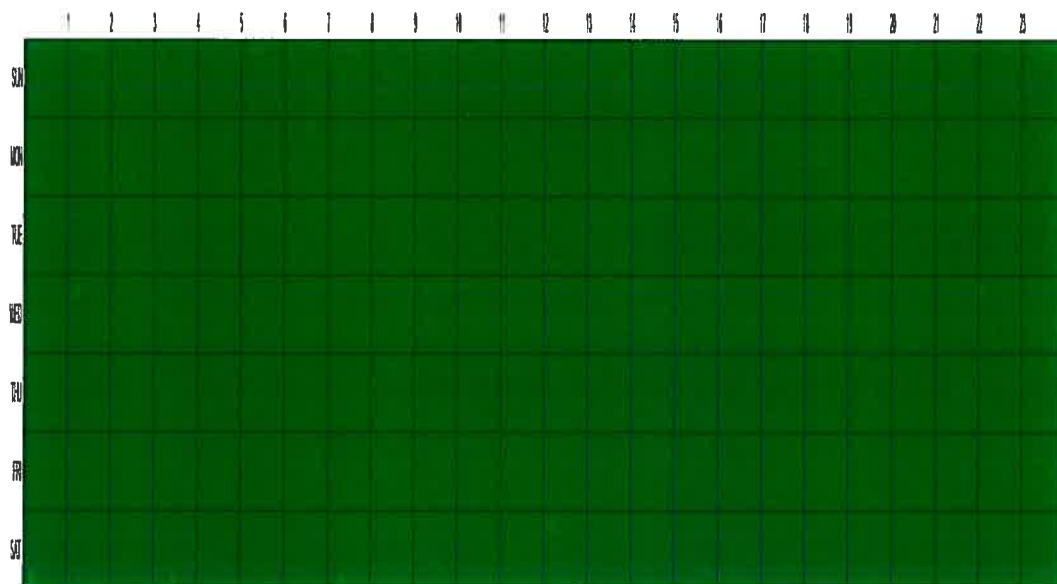
Glycol Hot Water Pump Control ————— Page 4
Glycol Hot Water Temperature Control

Hot Water Radiant Pump 9/10 Control ————— Page 5

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Pump Status's for 3,4,5,6 / Alarm Collection ————— Page 8



Block: EF6 schedule

Schedule 1: Sunday 0:00 to Sunday 24:00

Schedule 2: Monday 0:00 to Monday 24:00

Schedule 3: Tuesday 0:00 to Tuesday 24:00

Schedule 4: Wednesday 0:00 to Wednesday 24:00

Schedule 5: Thursday 0:00 to Thursday 24:00

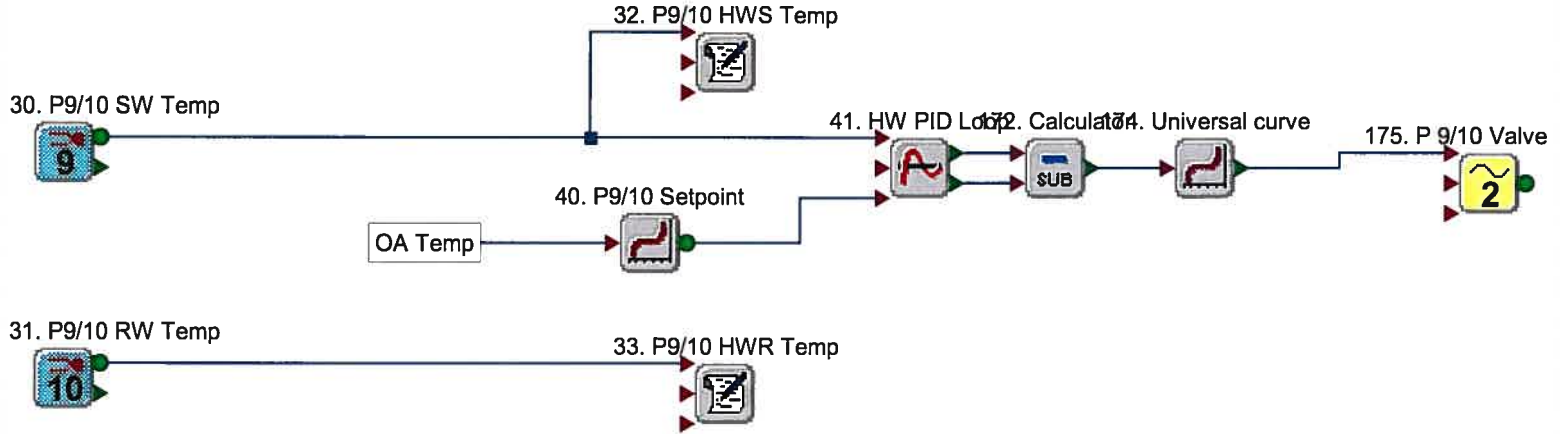
Schedule 6: Friday 0:00 to Friday 24:00

Schedule 7: Saturday 0:00 to Saturday 24:00

Page 1

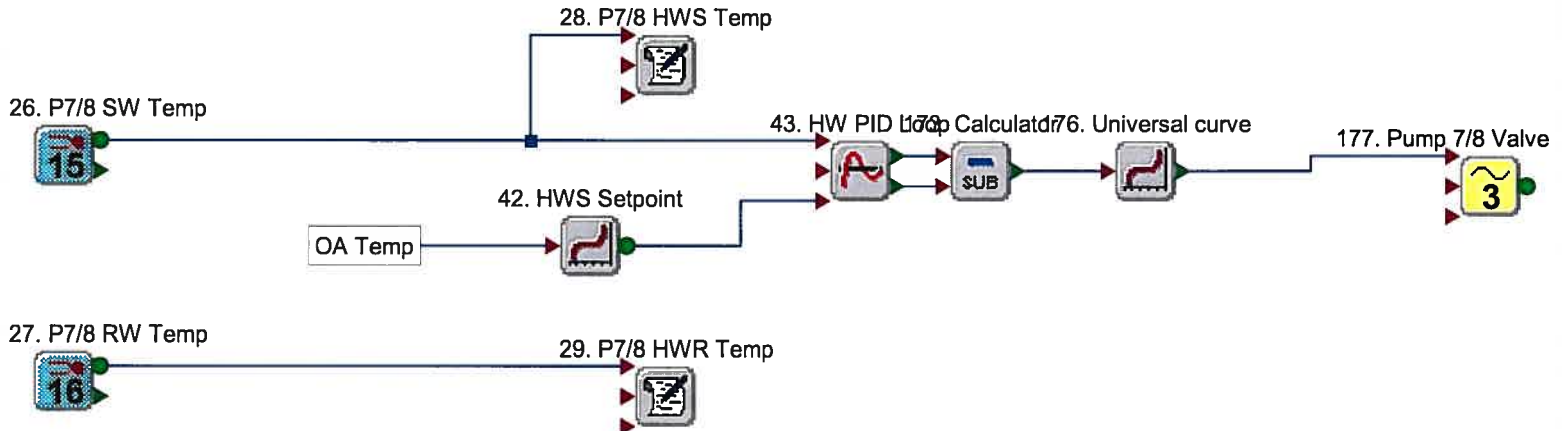
Pumps 9/10 Hot Water Radiation Temperature Control

The three way P 9/10 Valve will modulate to maintain the HW supply temperature at P9/10 Setpoint.
This setpoint is determined from the outside air temperature



Pumps 7/8 Hot Water Reheat Temperature Control

The three way HW Valve will modulate to maintain the HW supply temperature at setpoint.
This setpoint is determined from the outside air temperature

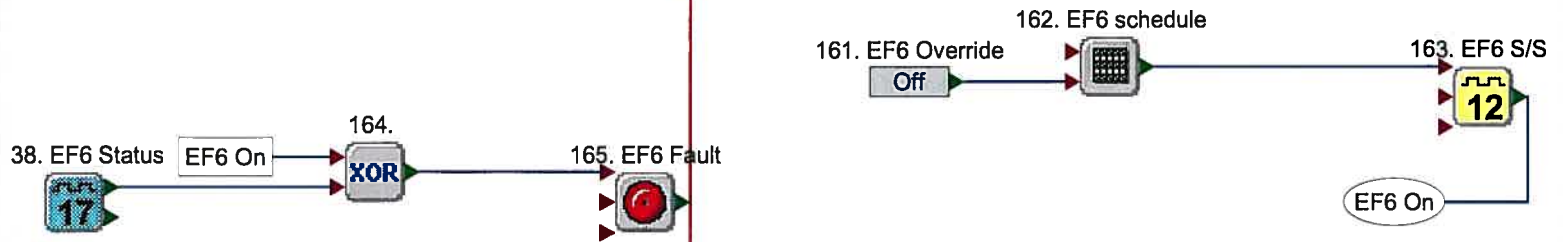


75. Pump Reset

Off Pump Reset

Page 2

Exhaust Fan 6



58. CHW Return Temp

61. CHWR Temp Log



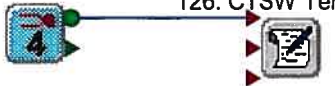
85. CHW Supply Temp

86. CHWS Temp Log



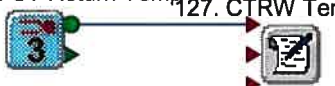
60. CT Supply Temp

126. CTSW Temp Log

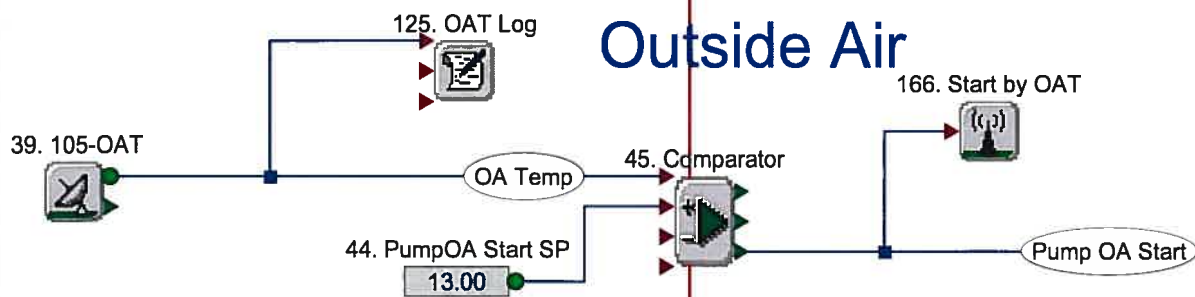


59. CT Return Temp

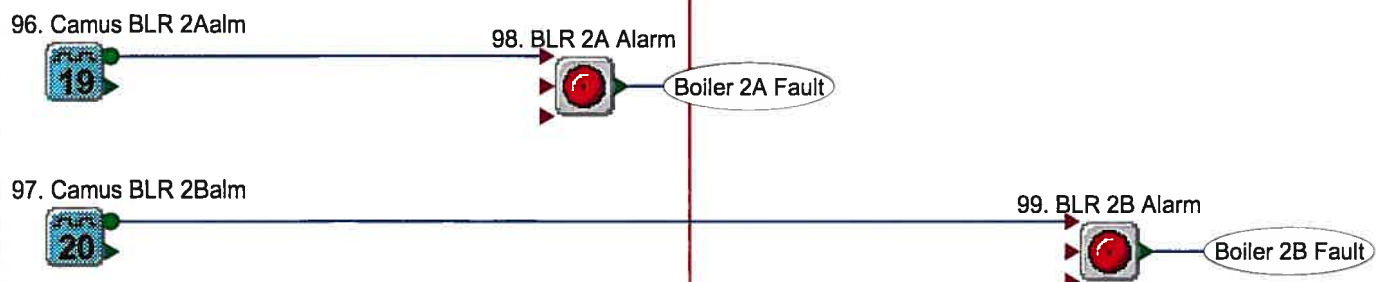
127. CTRW Temp Log



Outside Air



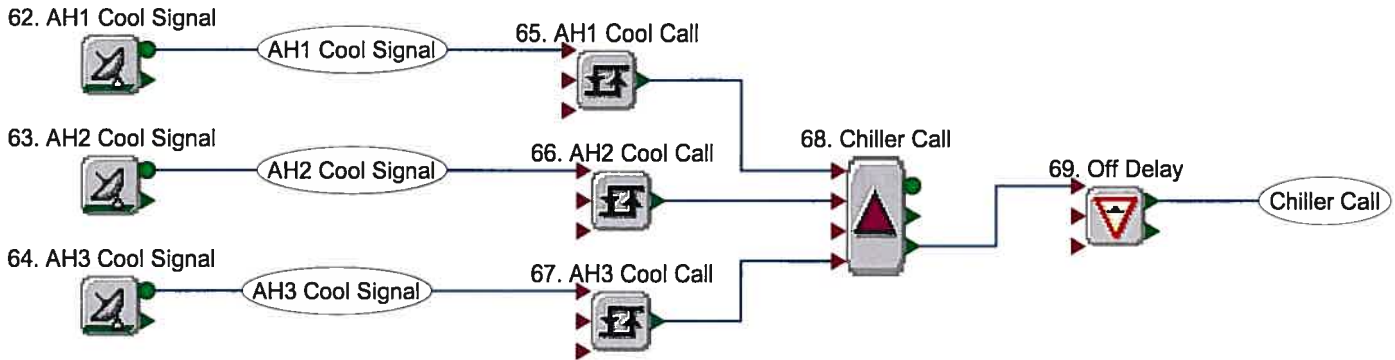
Camus Boiler Alarms



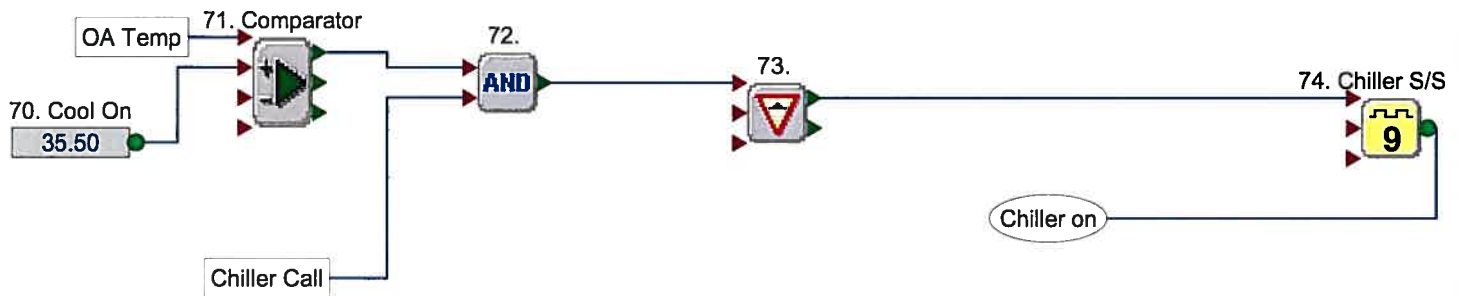
Cooling Control

Cooling Calls

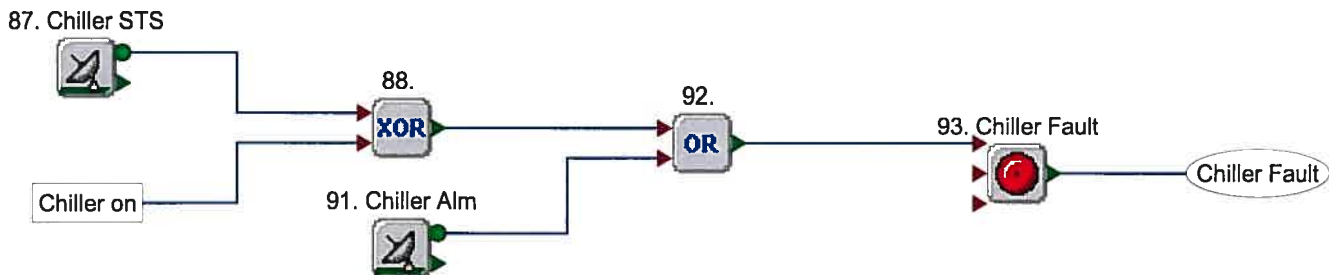
If any cool signal rises above a set value the lead pumps will turn on. After the lead pumps accumulated runtime exceeds the Change Time, the standby pump will become the lead pump.



If OAT greater than "cool on" user variable and AH 1-3 call for cooling chiller is enabled



Located in Pnl 106/2



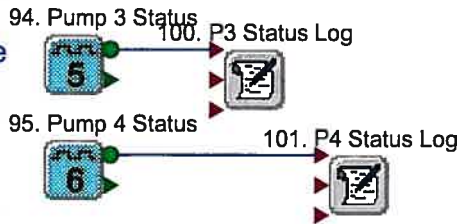
Located in Pnl 106/2



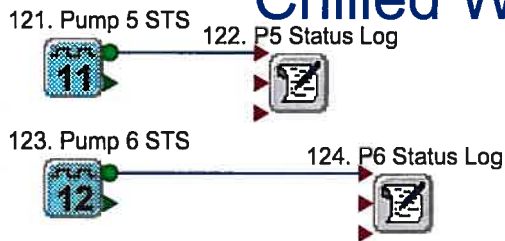
Out to control OP in 106 AO-2

Page 8

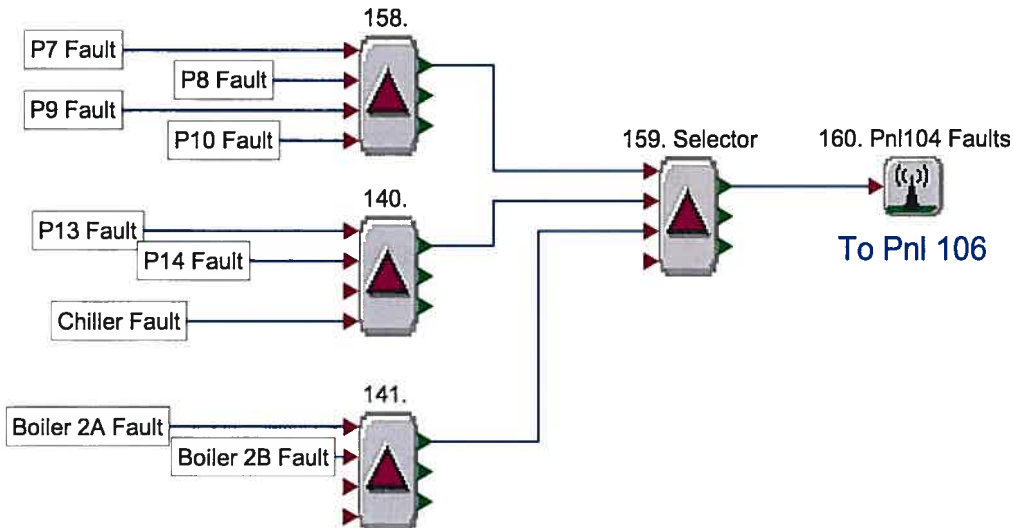
Condenser Pumps 3/4 Status



Chilled Water Pumps 5/6 Status

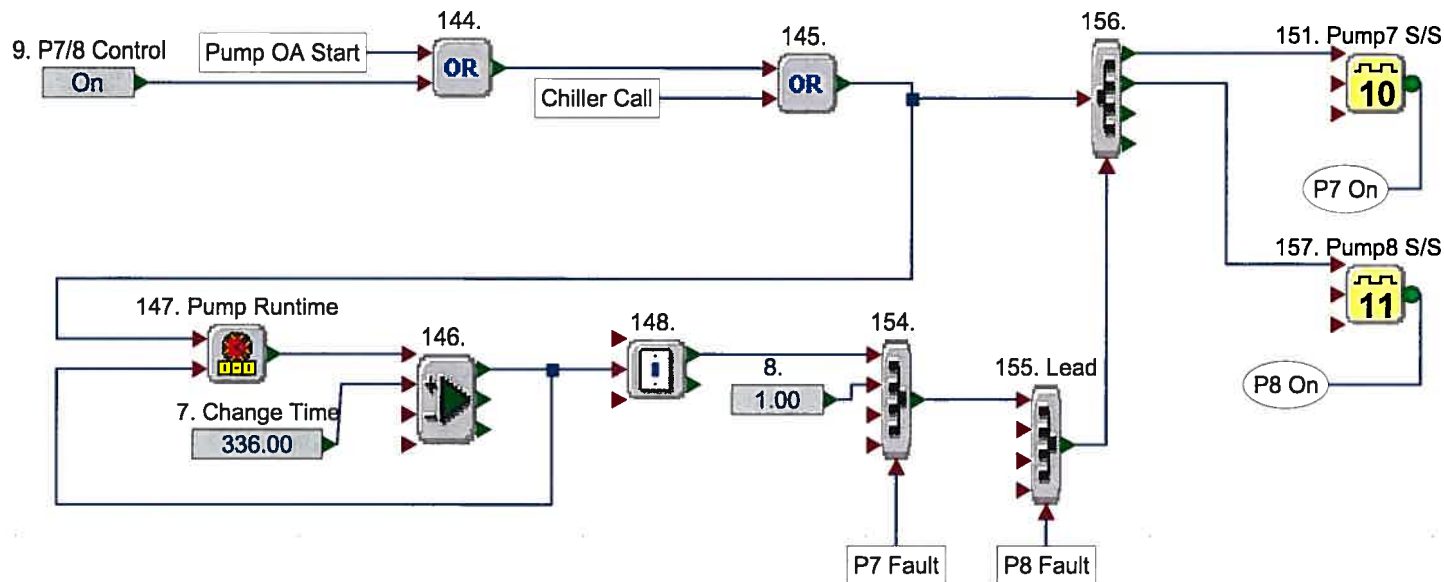


Alarm Collection

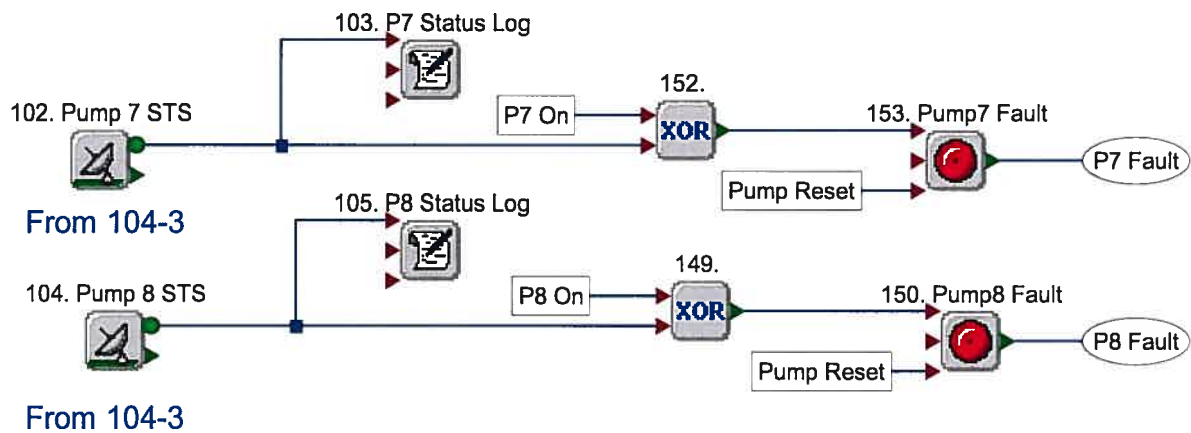


Hot Water Reheat Pump 7/8 Control

If either AH1 or AH3 HW pumps are on or there is a chiller call, the lead pump will turn on. After the lead pump accumulated runtime exceeds the Change Time, the standby pump will become the lead pump.



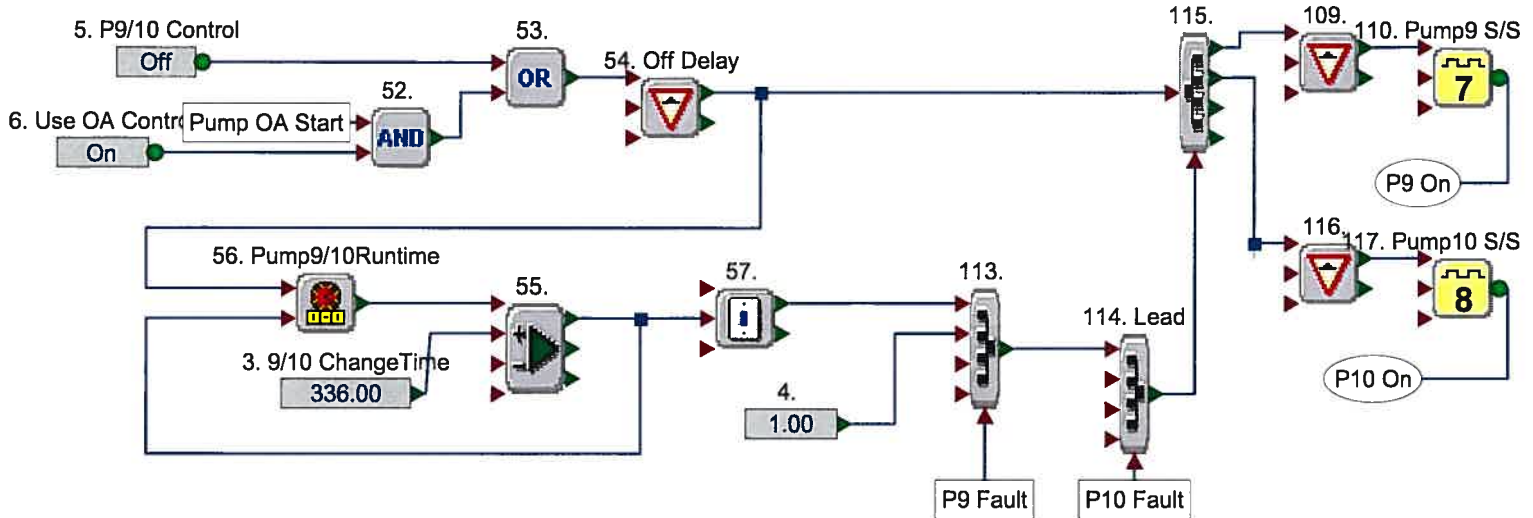
If the lead pump is on and its status has been off for more 60 seconds, the pump will indicate a fault and the standby pump will become lead. It will remain off until the user turns the Reset Pumps on.



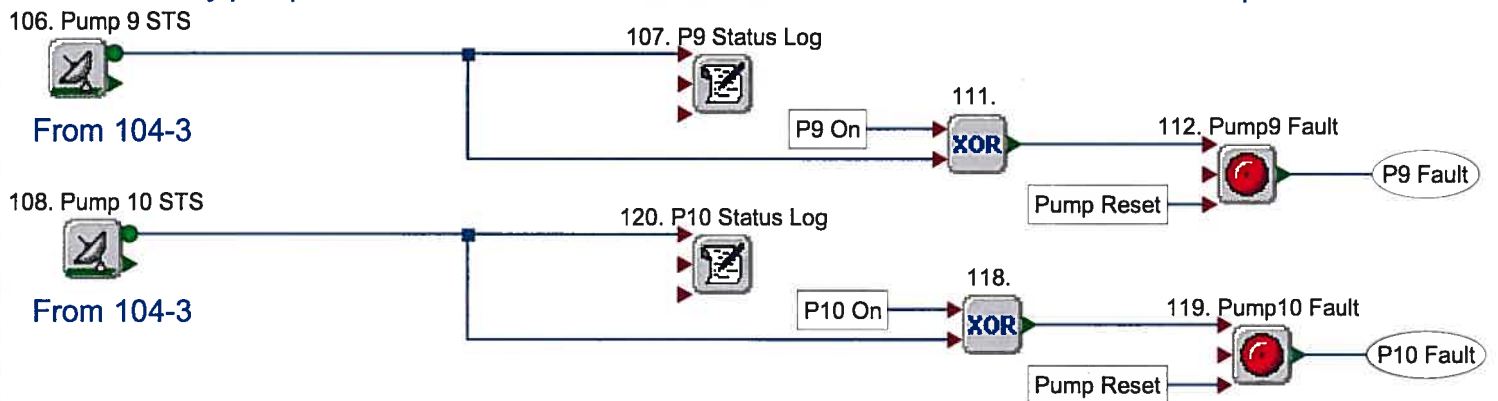
Page 5

Hot Water Radiation Pump 9/10 Control

If outside temp is less than OA setpoint the lead pump will turn on. After the lead pumps accumulated runtime exceeds the Change Time, the standby pump will become the lead pump.



If the lead pump is on and its status has been off for more 60 seconds, the pump will indicate a fault and the standby pump will become lead. It will remain off until the user turns the Reset Pumps on.



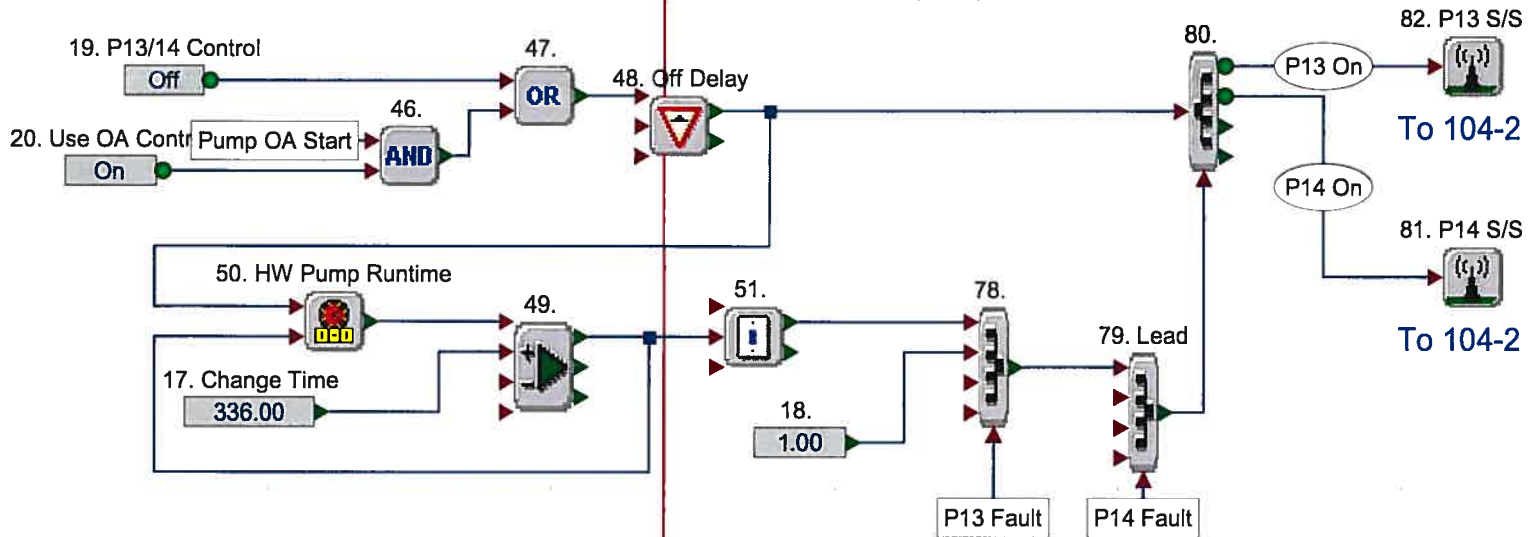
Pumps 11/12 Global Points

These points transferred here from 104-1
for watch page convenience

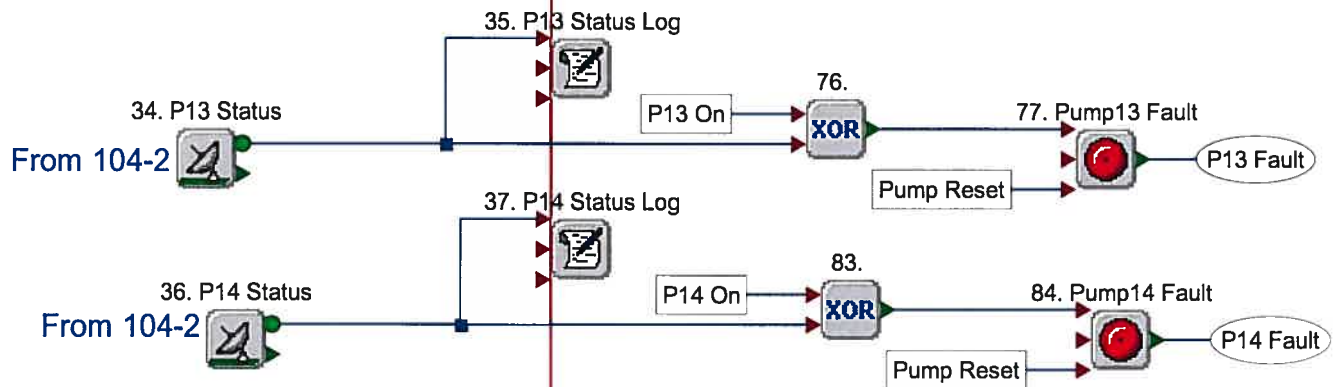


Hot Water Radiation 13/14 Pump Control

If outside temp is less than OA setpoint the lead pump will turn on. After the lead pumps accumulated runtime exceeds the Change Time, the standby pump will become the lead pump.



If the lead pump is on and its status has been off for more 60 seconds, the pump will indicate a fault and the standby pump will become lead. It will remain off until the user turns the Reset Pumps on.



128. 13/14SWT 130. 13/14VLV



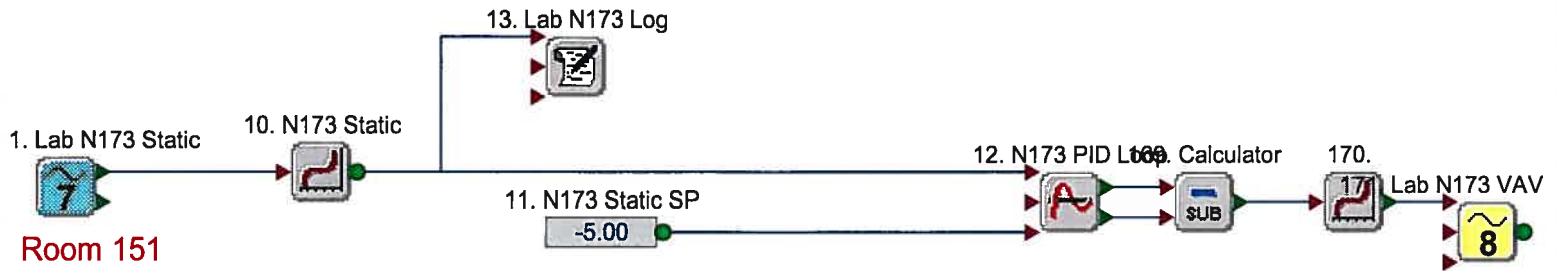
129. 13/14RWT 131. 13/14SP



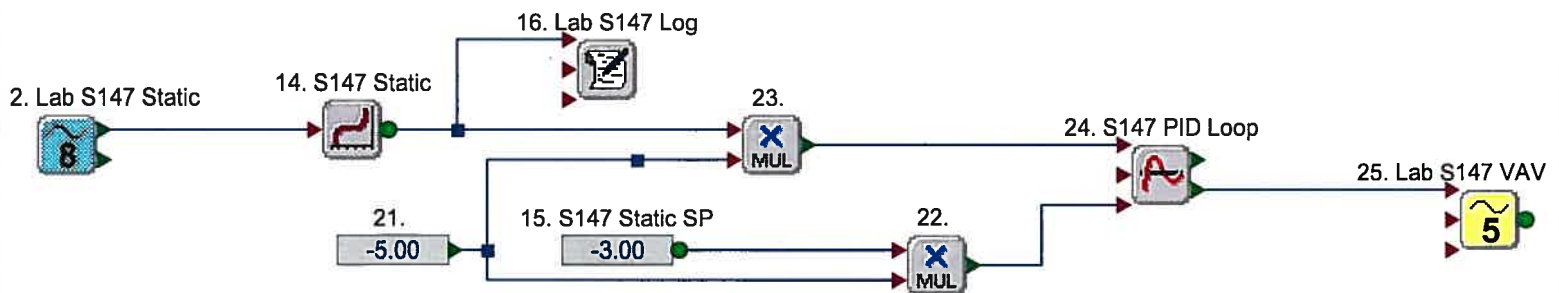
These points transferred here from 102-1
for watch page convenience

Page 7

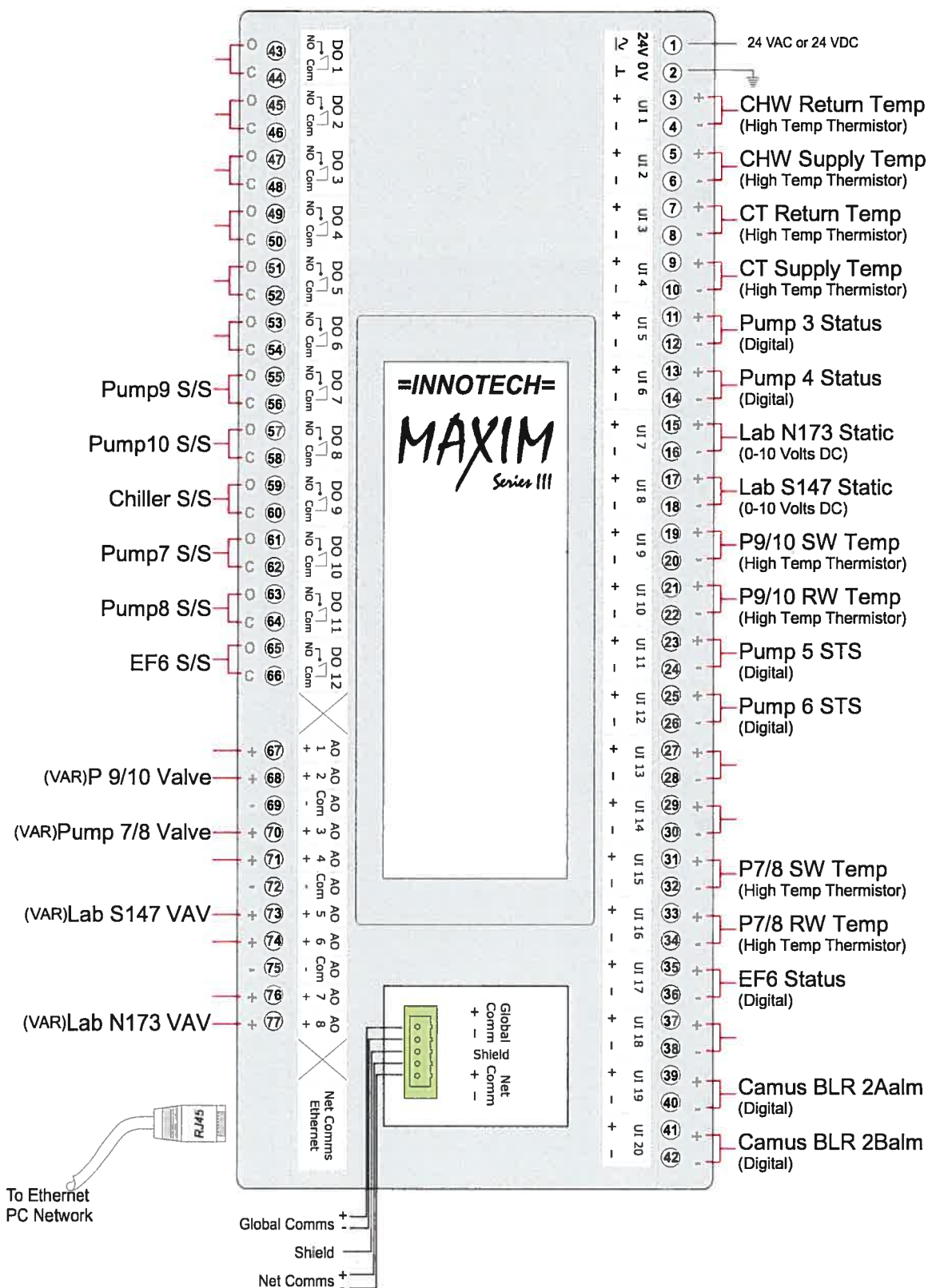
LAB VAV N173, S142, S147



100% = Full open



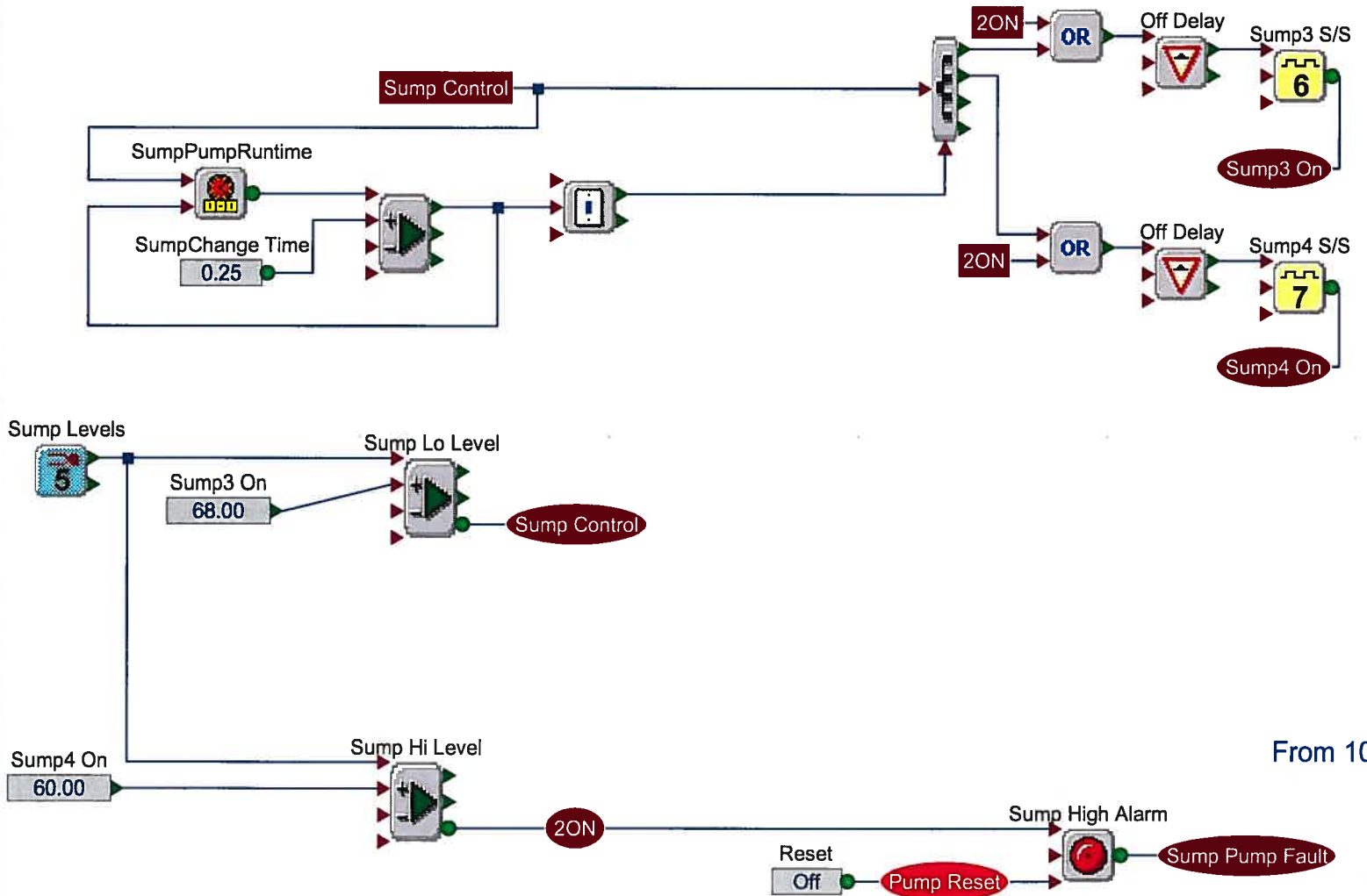
Innotech MAXIM Series III Controller (v6.20)



1. **Block Name:** Lab N173 Static
Block Type: Universal Input
Terminal: 7
Type: Volts
Forced: NO
Alpha: 50 %
Offset: 0.00
Minimum: 0.00
Maximum: 10.00
2. **Block Name:** Lab S147 Static
Block Type: Universal Input
Terminal: 8
Type: Volts
Forced: NO
Alpha: 3 %
Offset: -0.30
Minimum: 0.00
Maximum: 10.00
3. **Block Name:** 9/10 ChangeTime
Block Type: User Variable
Type: Analogue
Value: 336.00
Minimum: 0.00
Maximum: 4000.00
4. **Block Name:**
Block Type: User Variable
Type: Analogue
Value: 1.00
Minimum: 0.00
Maximum: 100.00
5. **Block Name:** P9/10 Control
Block Type: User Variable
Type: Digital
Value: OFF
6. **Block Name:** Use OA Control
Block Type: User Variable
Type: Digital
Value: ON
7. **Block Name:** Change Time
Block Type: User Variable
Type: Analogue
Value: 336.00
Minimum: 0.00
Maximum: 2000.00
8. **Block Name:**
Block Type: User Variable
Type: Analogue
Value: 1.00
Minimum: 0.00
Maximum: 100.00
9. **Block Name:** P7/8 Control
Block Type: User Variable
Type: Digital
Value: ON
10. **Block Name:** N173 Static
Block Type: Universal Curve
Nr. Points 2
Data: FunctX[1]: 0.00 FunctY[1]: -30.00
Data: FunctX[2]: 10.00 FunctY[2]: 30.00

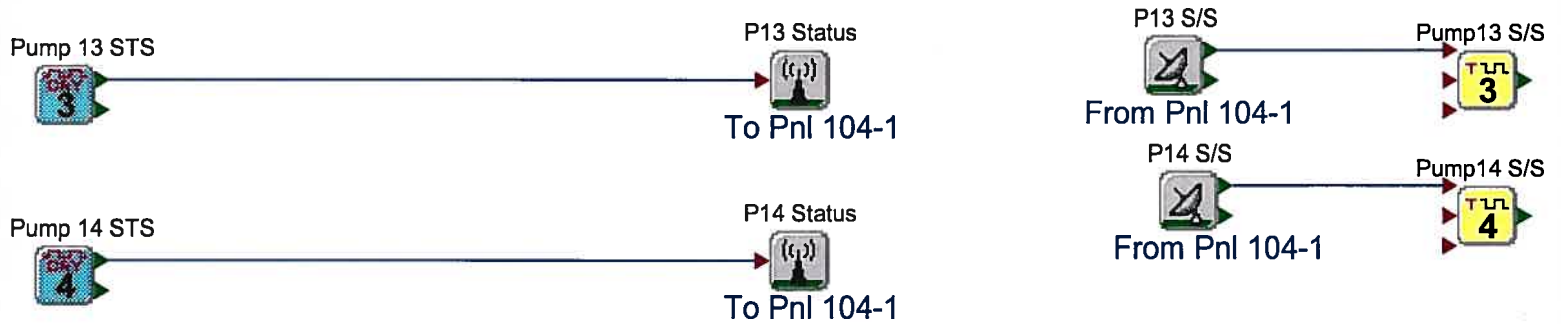
104 Ctrl 2

Sump Pump Control

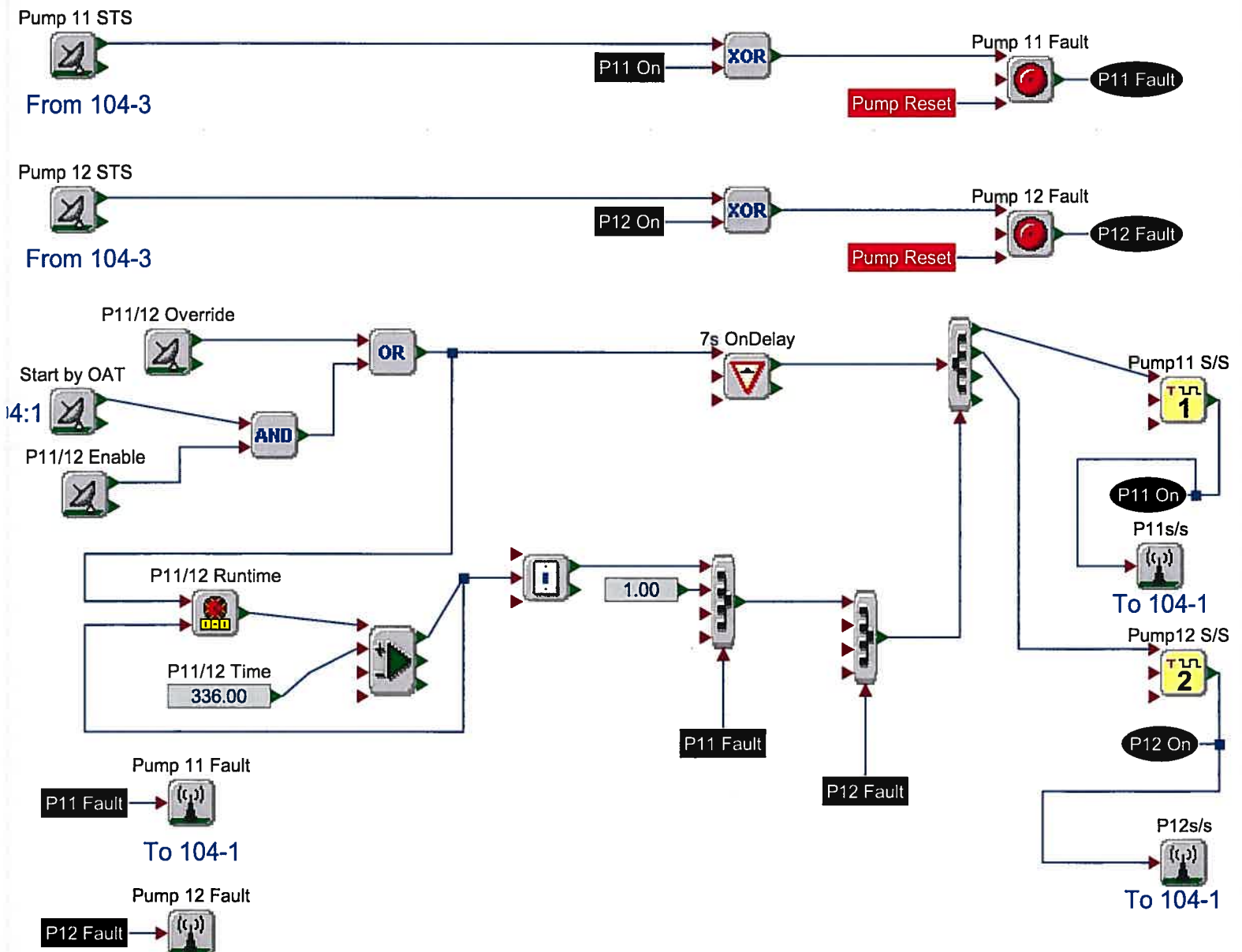


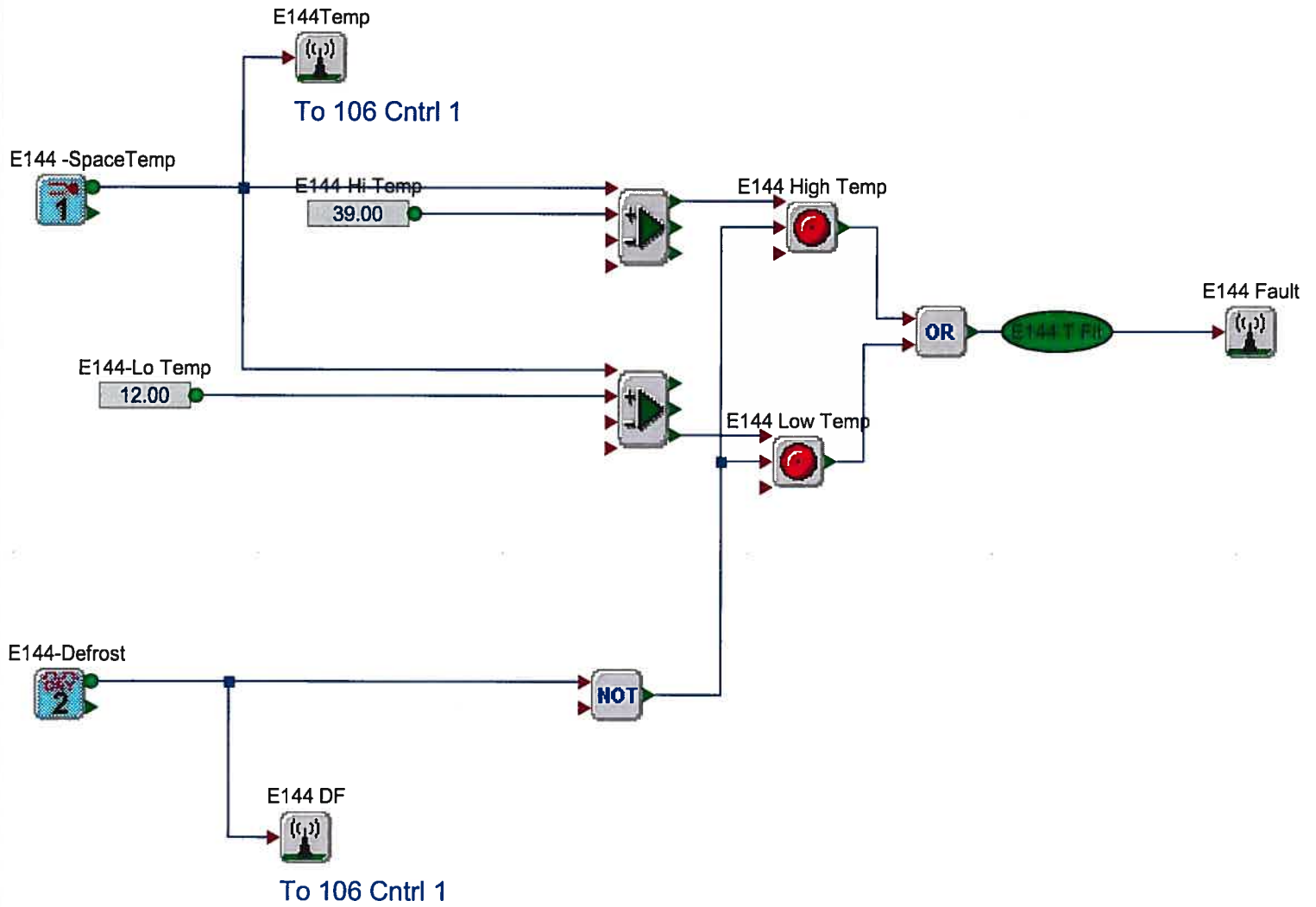
From 10

HW Radiation Pump 13/14 Control

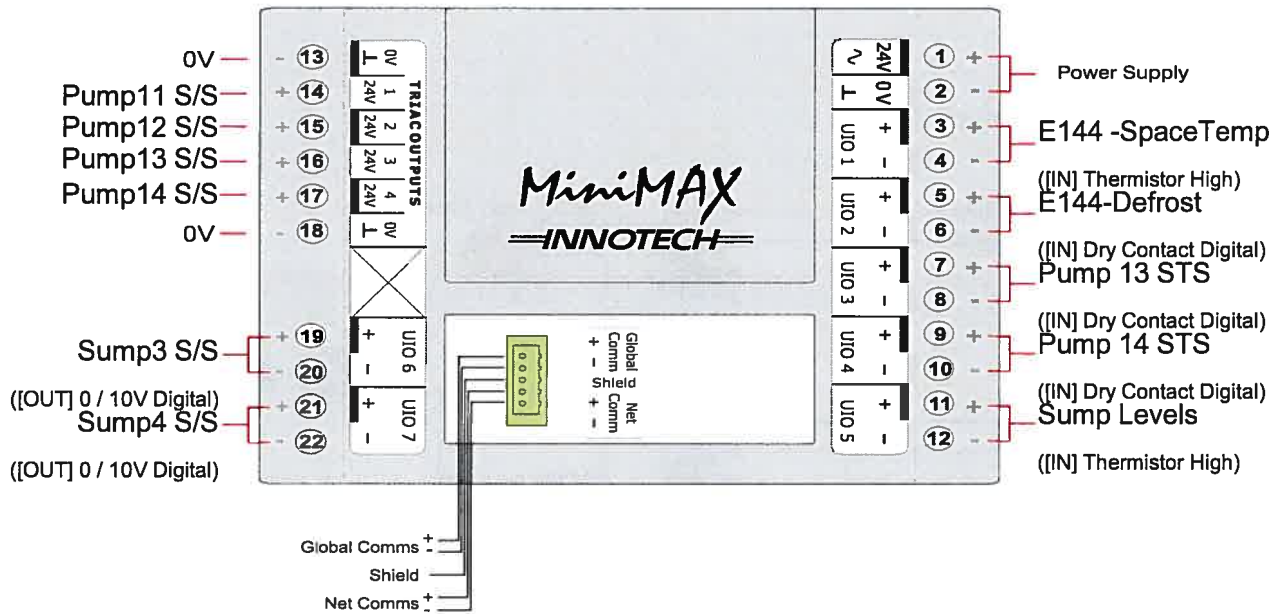


HW Radiation Pump 11/12 Control





Innotech MINIMAX (MM01) Controller (v6.30)



MAXIM Function Pages

Details for MAXIM Function Page 1: "E144"

WATCH NAME	WATCH DETAILS	BLOCK DETAILS
E144 -Space, Temp	Type: Value	Name: E144 -SpaceTemp Seq no: 1 Output name: OUTPUT
E144- Defrost, Mode	Type: Digital	Name: E144-Defrost Seq no: 2 Output name: OUTPUT
* E144-Low Temp, Setpoint	Type: Value	Name: E144-Lo Temp Seq no: 38 Output name: OUTPUT
* E144-Hi Temp, Setpoint	Type: Value	Name: E144-Hi Temp Seq no: 36 Output name: OUTPUT

Details for MAXIM Function Page 2: "Sump Pumps 3&4"

WATCH NAME	WATCH DETAILS	BLOCK DETAILS
Sump4, Enable	Type: Digital	Name: Sump4 S/S Seq no: 31 Output name: OUTPUT
Sump3, Enable	Type: Digital	Name: Sump3 S/S Seq no: 29 Output name: OUTPUT
Sump Hi Level, Float	Type: Digital	Name: Sump Hi Level Seq no: 9 Output name: <
Sump Lo Level, Float	Type: Digital	Name: Sump Lo Level Seq no: 7 Output name: <

Details for MAXIM Function Page 3: "Sump Alarm"

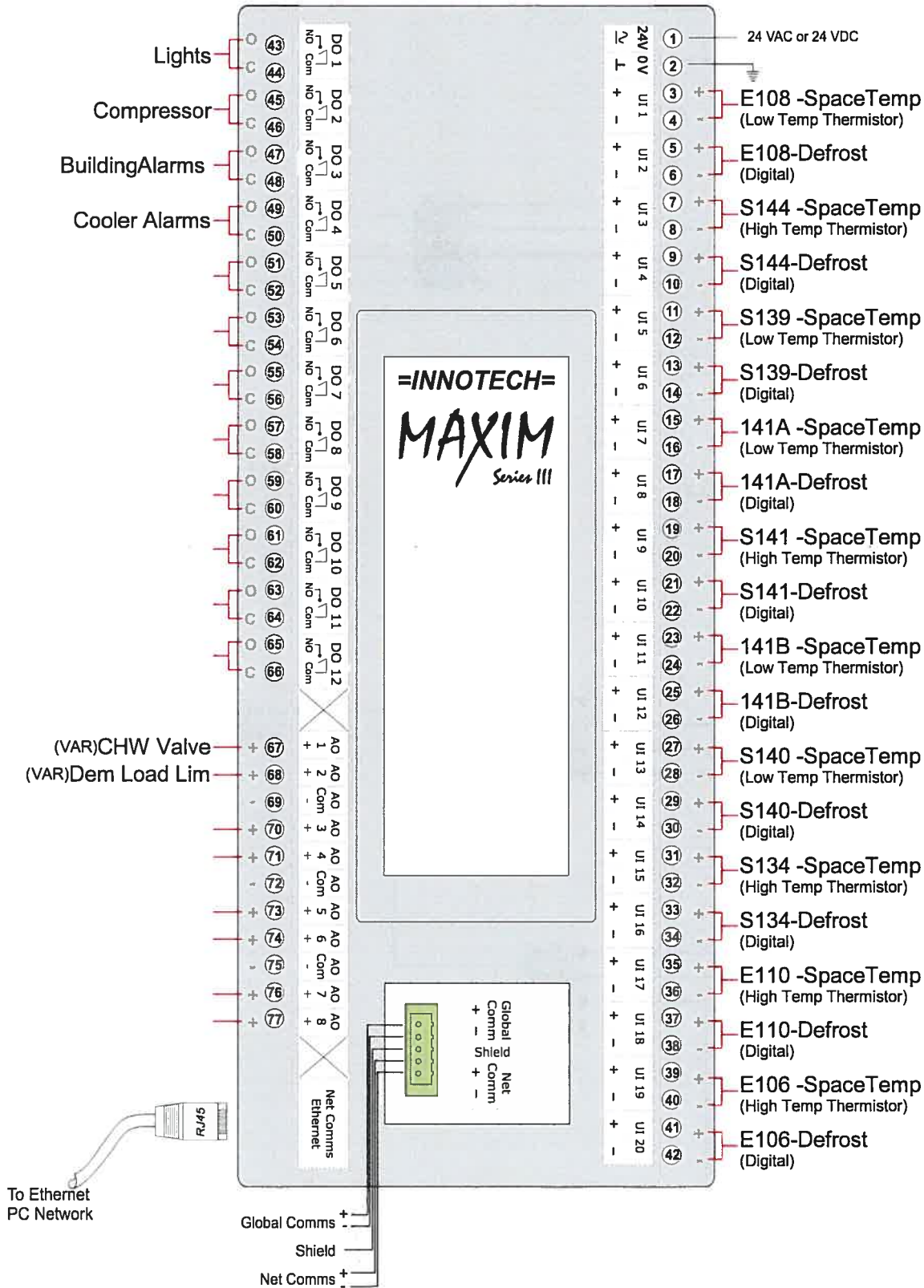
WATCH NAME	WATCH DETAILS	BLOCK DETAILS
Sump High, Alarm	Type: Digital	Name: Sump High Alarm Seq no: 11 Output name: OUTPUT
* Sump 3&4 Alarm, Reset	Type: Digital	Name: Reset Seq no: 10 Output name: OUTPUT
Sump Runtime, Accum.	Type: Value	Name: SumpPumpRuntime Seq no: 23 Output name: ACC.VALUE
* SumpChange, Time	Type: Value	Name: SumpChange Time Seq no: 5 Output name: OUTPUT

Details for MAXIM Function Page 4: ""
No watches associated with this page

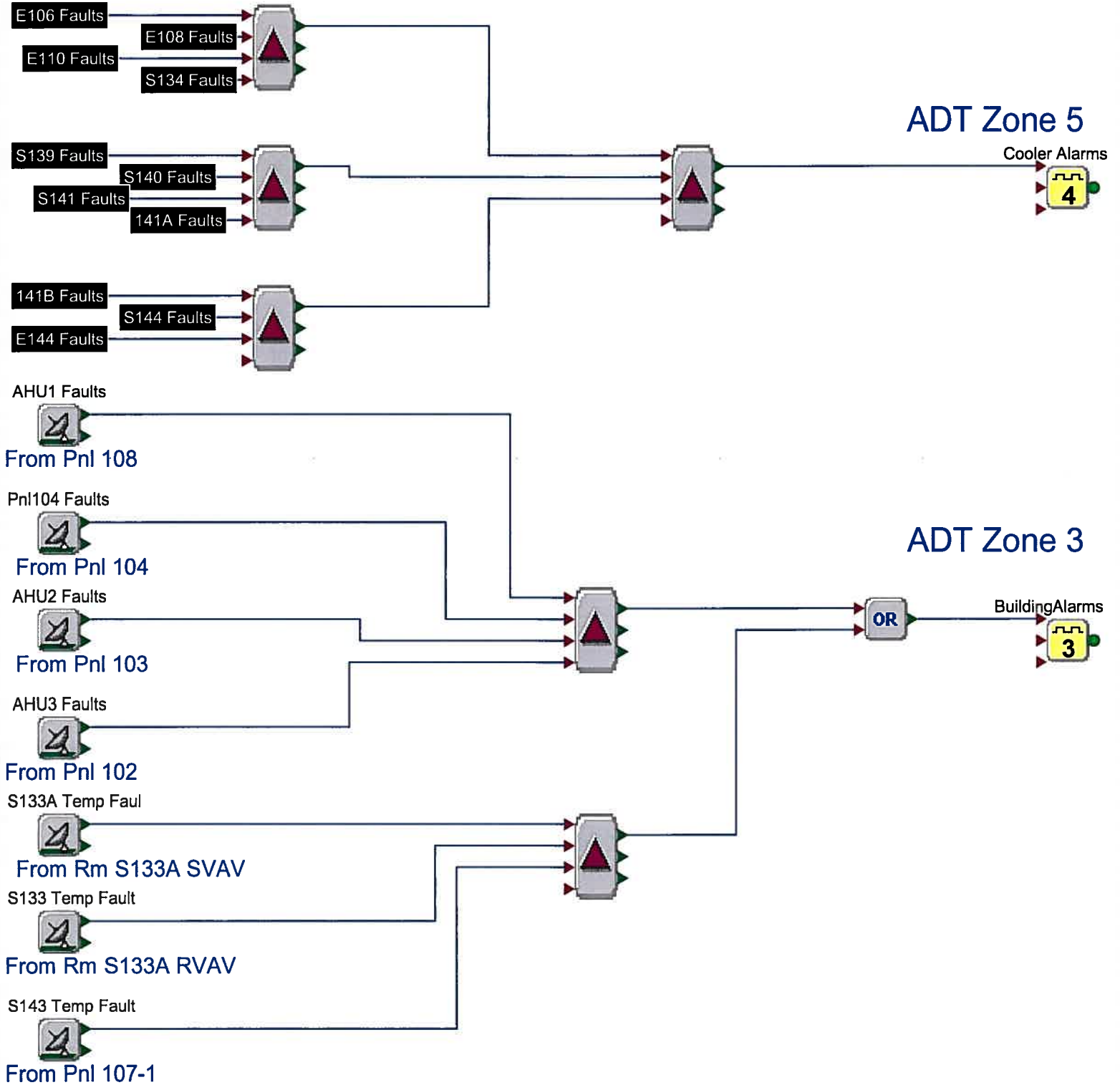
Details for MAXIM Function Page 5: ""
No watches associated with this page

Details for MAXIM Function Page 6: "Flash Page"
No watches associated with this page

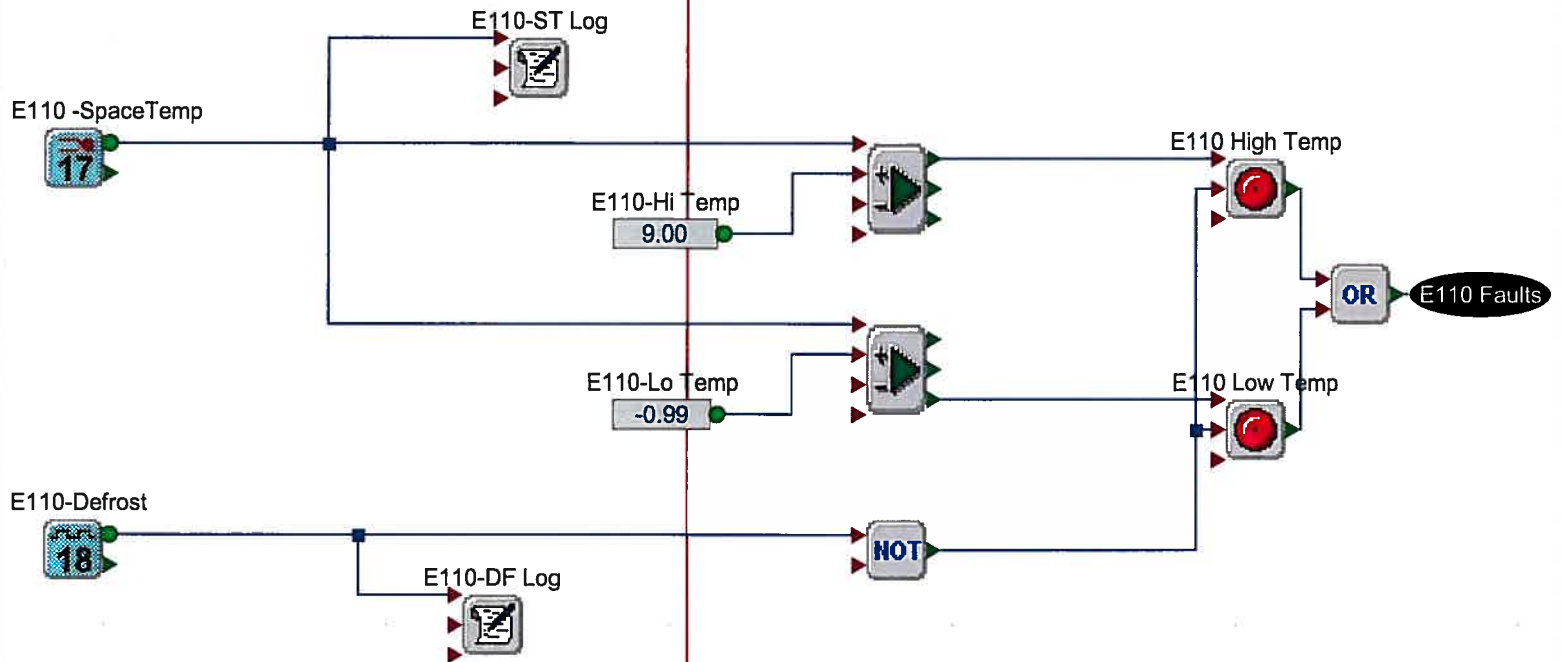
Innotech MAXIM Series III Controller (v6.20)



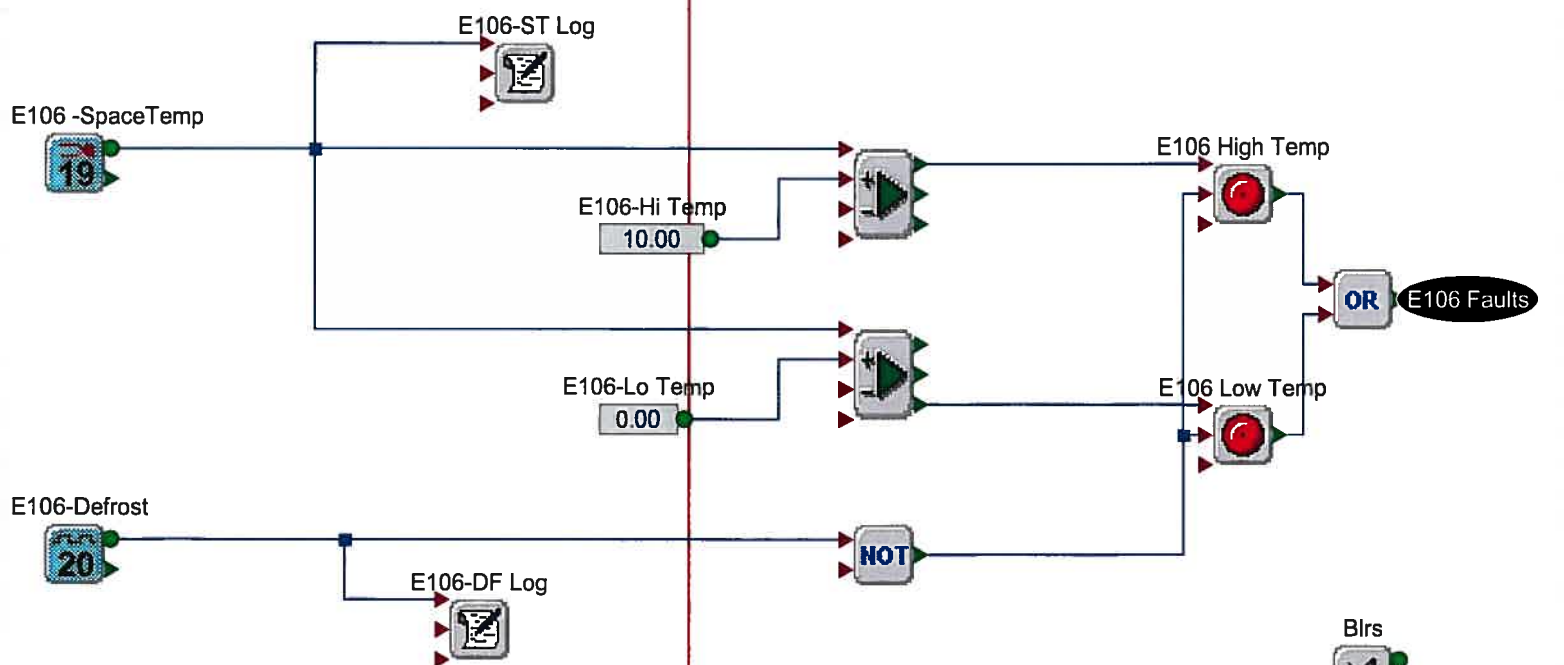
Alarm Collection



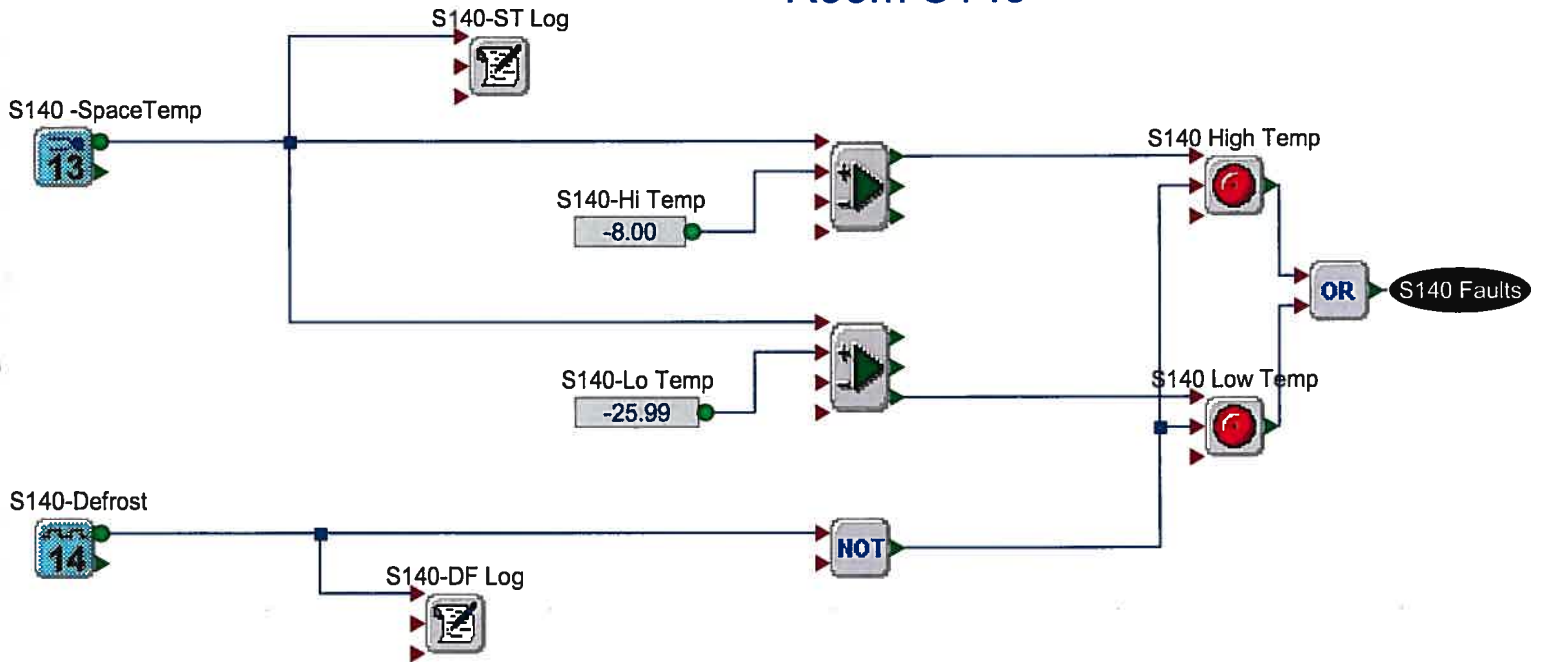
Room E110



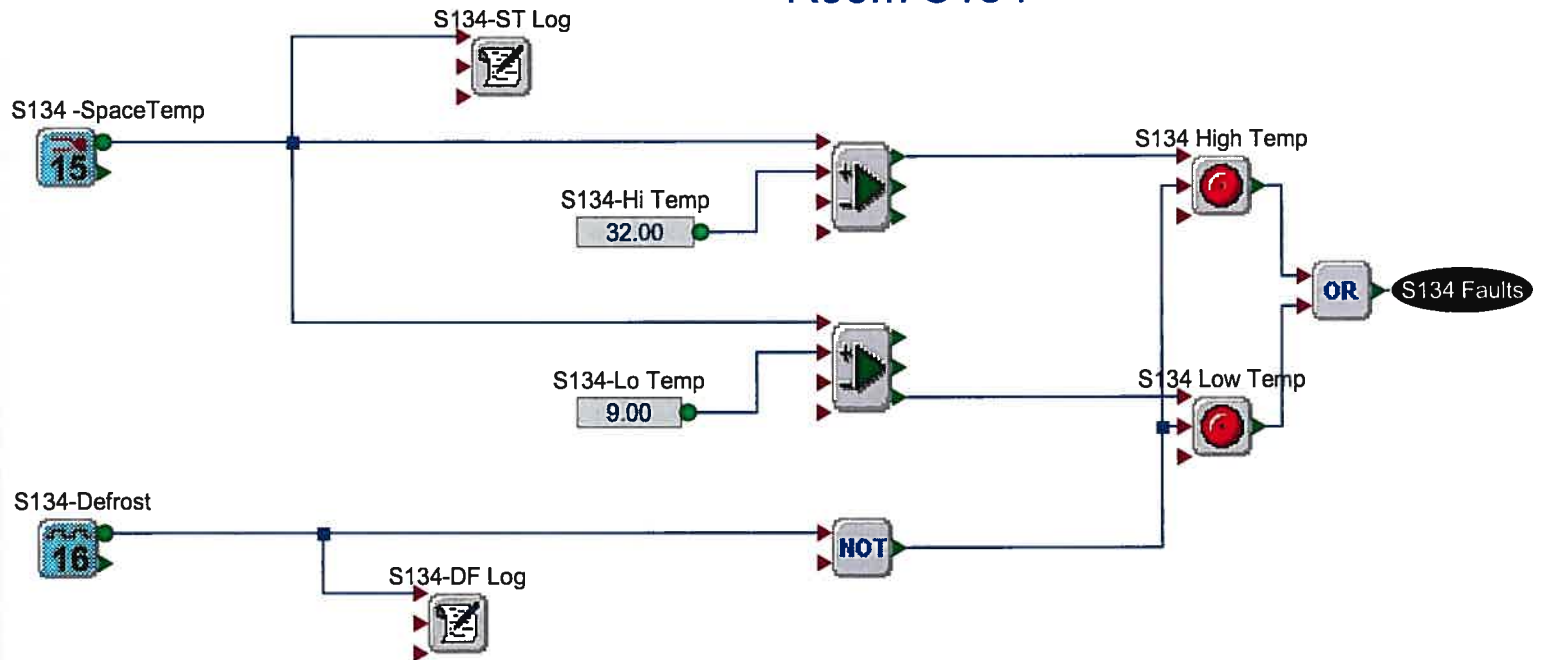
Room E106



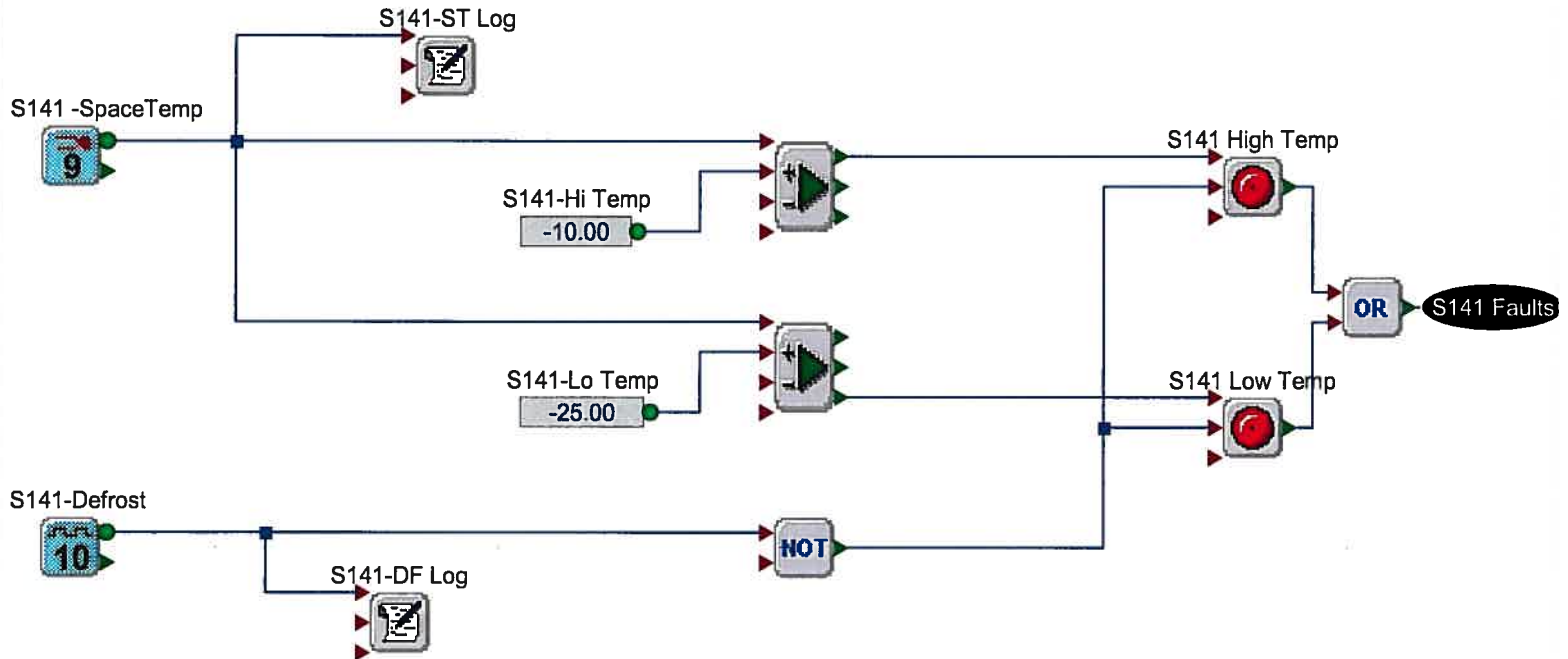
Room S140



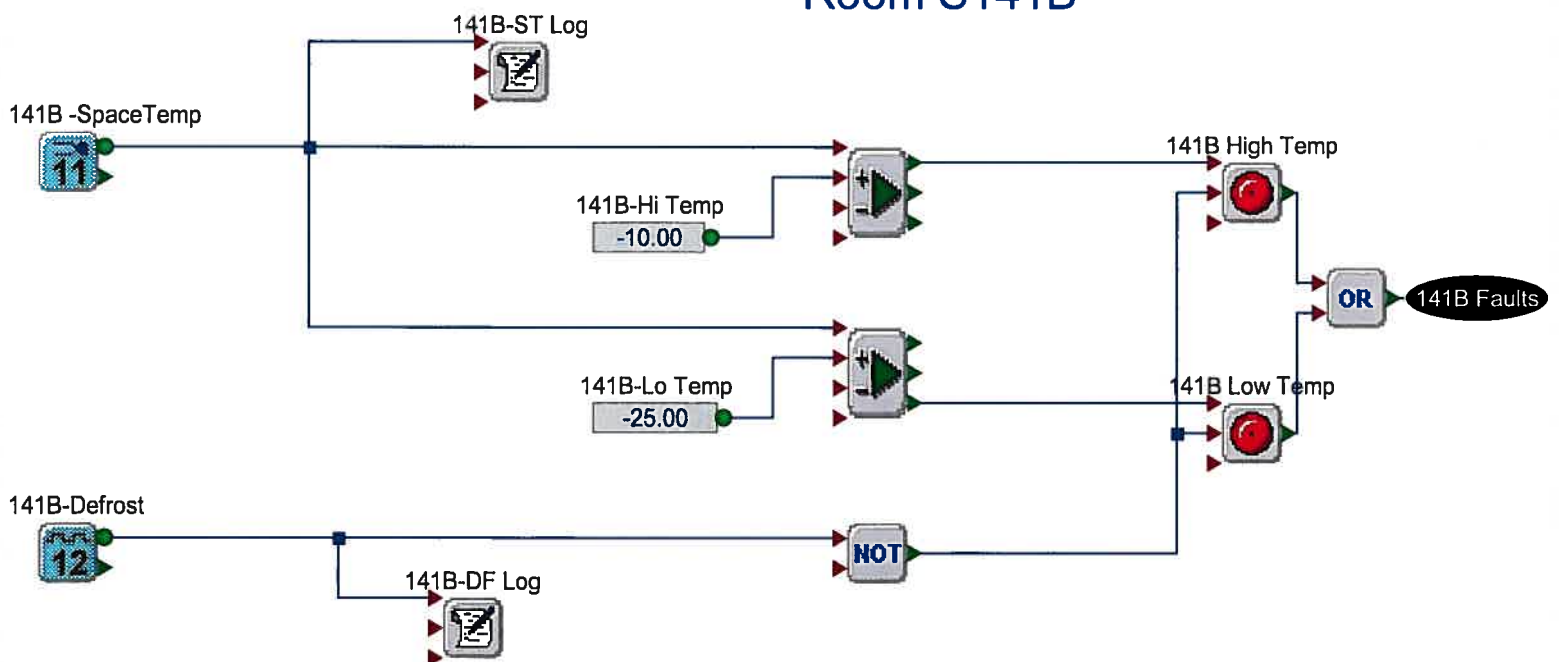
Room S134



Room S141



Room S141B



S146 Temp
From 106 Ctrl-2



S146 Def
From 106 Ctrl-2



S148-STlog
From 106 Ctrl-2



S148-DFlog
From 106 Ctrl-2



E138 Temp
From 106 Ctrl-2



E144Temp
From 104 Ctrl-2



E144 DF
From 104 Ctrl-2

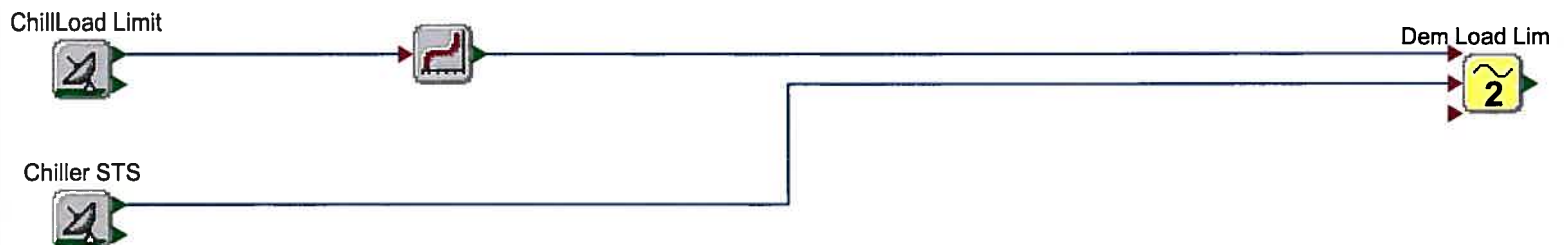


E144 Fault
From 104-2

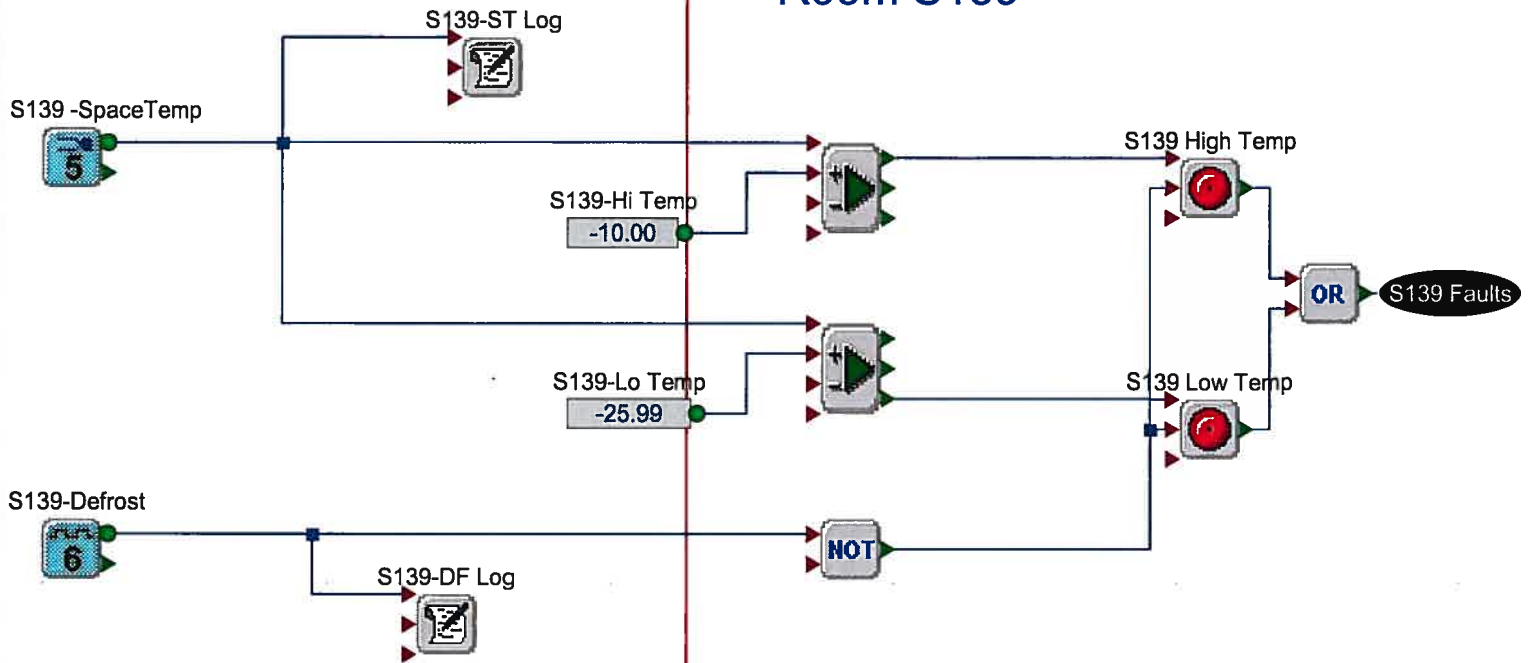


Chiller Load Limit

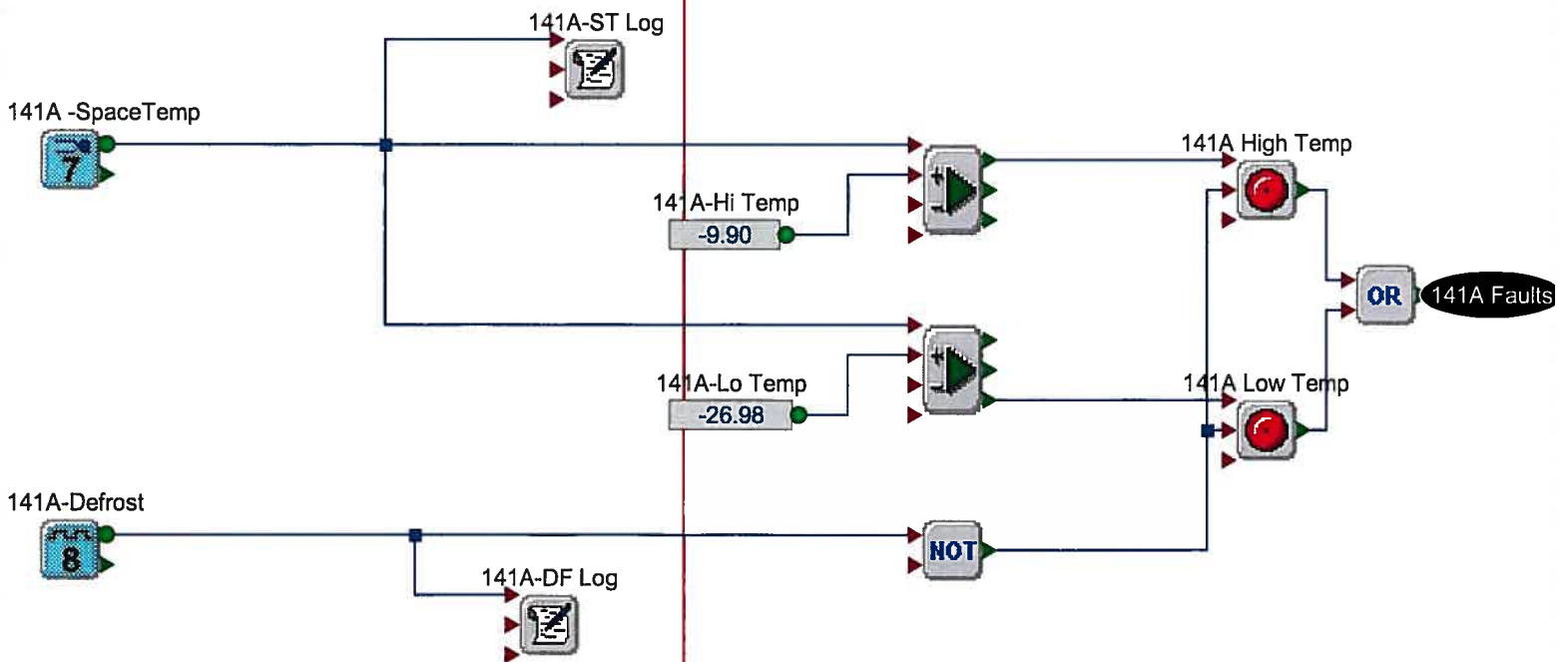
Controlled from CHILLER program in Pnl 104-1



Room S139



Room S141A



Room S144 Control

Day Mode:

Space temperature is maintained at 12 degrees C (user definable).

DO1 turns ON the lights for duration of day mode.

DO2 turns ON which enables the compressor for duration of day mode

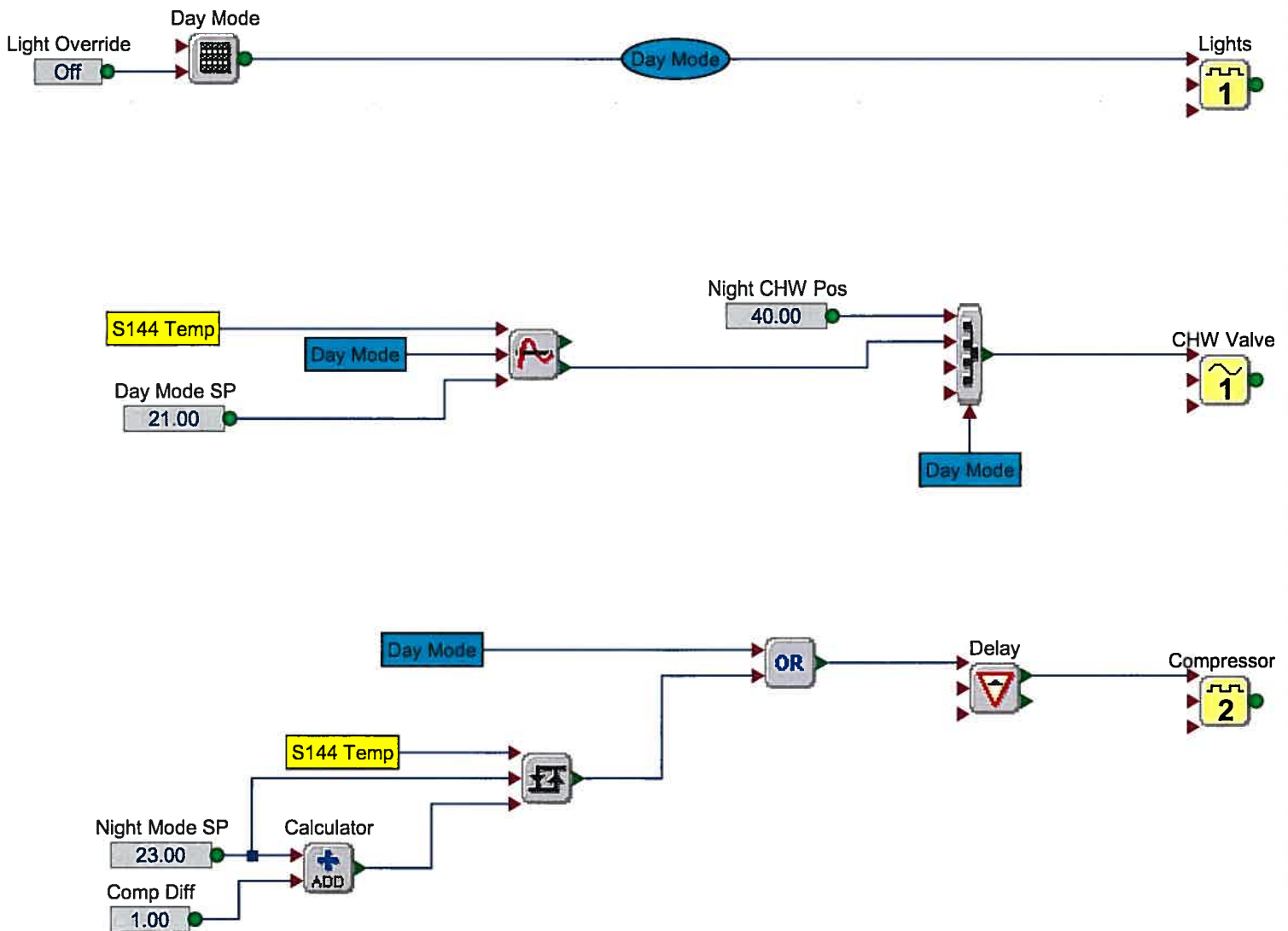
AO1 operates the 0-10V 3-way valve on the chilled water line to maintain space temperature setpoint.

Night Mode:

DO1 is turned OFF.

DO2 is turned ON when space temperature rises above the Night Setpoint of 8 C (user definable) plus the compressor differential setpoint of 1 C (user definable)

AO1 = 70% signal (user definable)

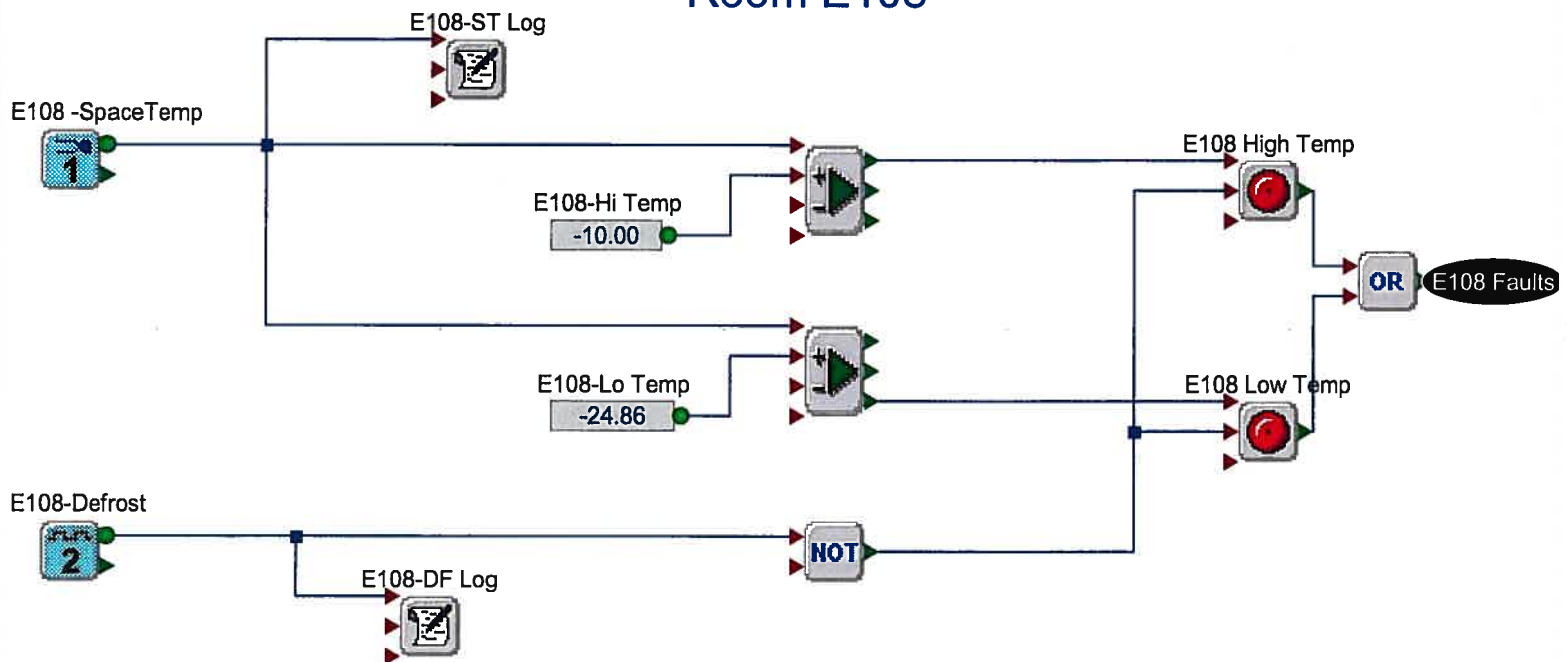


PANEL 106 CONTROL

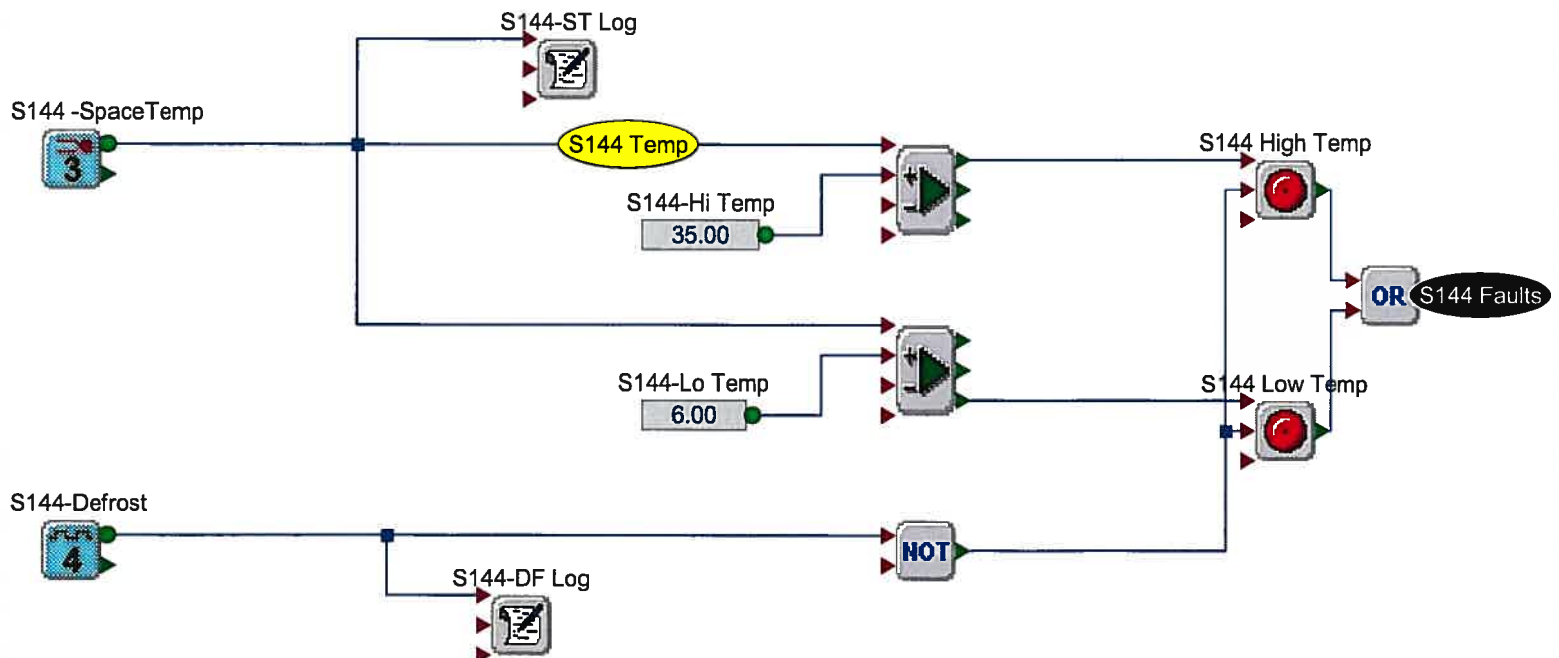
When the space temperature rises or falls below a user defined setpoint, an alarm is generated.

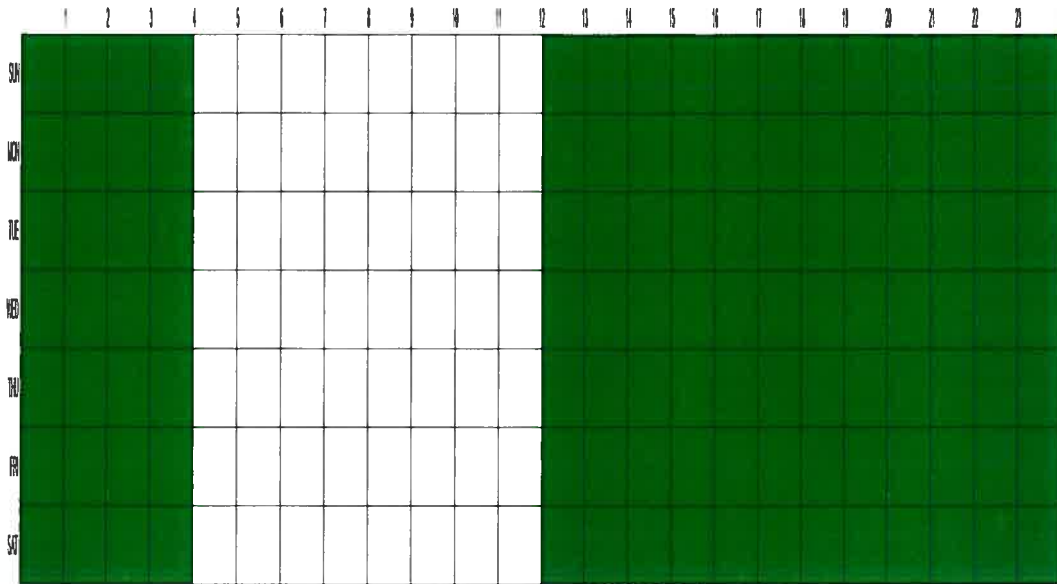
If the refrigeration unit in a particular room is in Defrost Mode, as determined from the digital status input, the alarm is ignored until the refrigeration unit leaves Defrost Mode and resumes normal operation.

Room E108



Room S144





Block: Day Mode

Schedule 1: Sunday 0:00 to Sunday 4:00

Schedule 2: Sunday 12:00 to Sunday 24:00

Schedule 3: Monday 0:00 to Monday 4:00

Schedule 4: Monday 12:00 to Monday 24:00

Schedule 5: Tuesday 0:00 to Tuesday 4:00

Schedule 6: Tuesday 12:00 to Tuesday 24:00

Schedule 7: Wednesday 0:00 to Wednesday 4:00

Schedule 8: Wednesday 12:00 to Wednesday 24:00

Schedule 9: Thursday 0:00 to Thursday 4:00

Schedule 10: Thursday 12:00 to Thursday 24:00

Schedule 11: Friday 0:00 to Friday 4:00

Schedule 12: Friday 12:00 to Friday 24:00

Schedule 13: Saturday 0:00 to Saturday 4:00

Schedule 14: Saturday 12:00 to Saturday 24:00

104-Ctrl3

Pump 7 STS



Pump 7 STS



To 104-1

Pump 8 STS



Pump 8 STS



To 104-1

Pump 9 STS



Pump 9 STS



To 104-1

Pump 10 STS



Pump 10 STS



To 104-1

Pump 11 STS



Pump 11 STS



To 104-2

Pump 12 STS

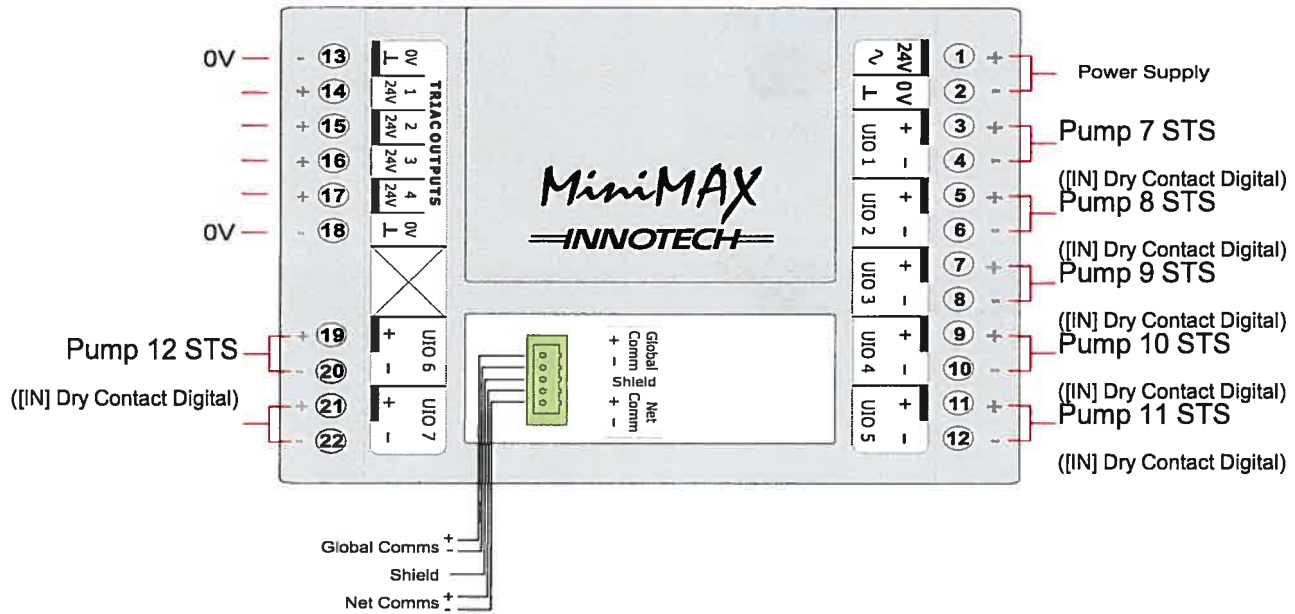


Pump 12 STS



To 104-2

Innotech MINIMAX (MM01) Controller (v6.30)

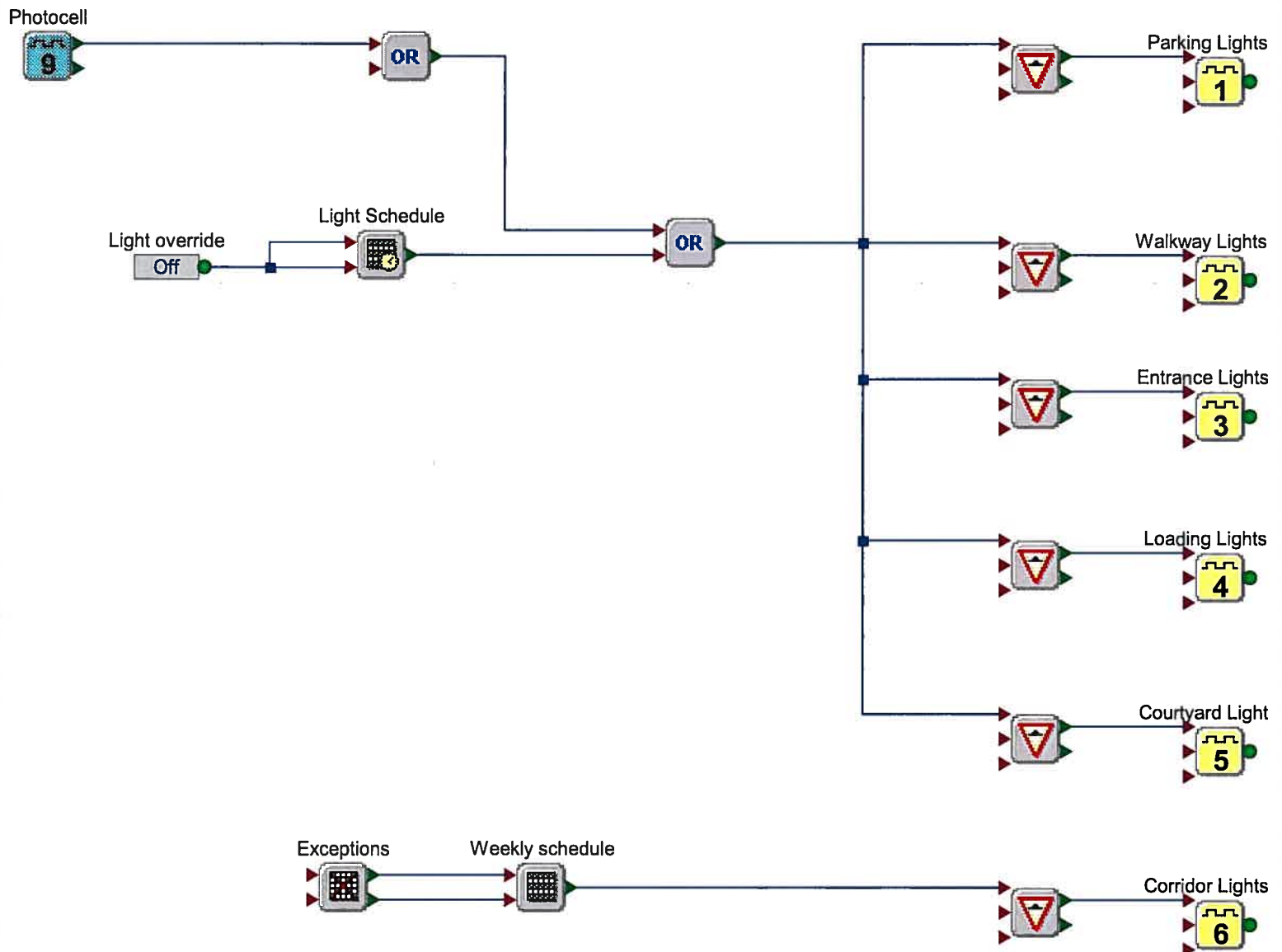


Panel 105

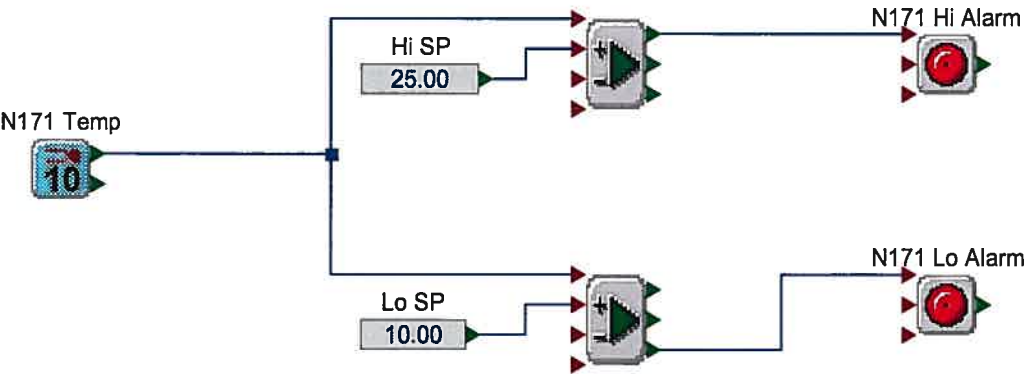
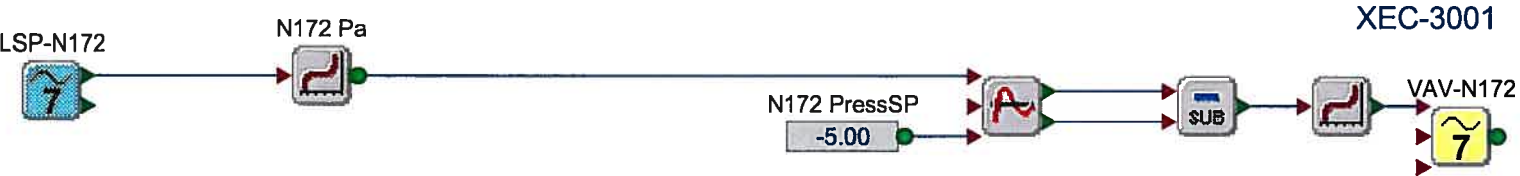
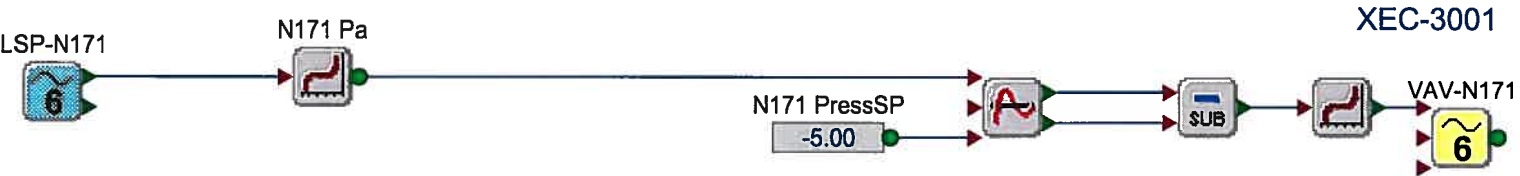
VAV Control



Lighting Control



Alarms





INNOTECH MAXIM Series III

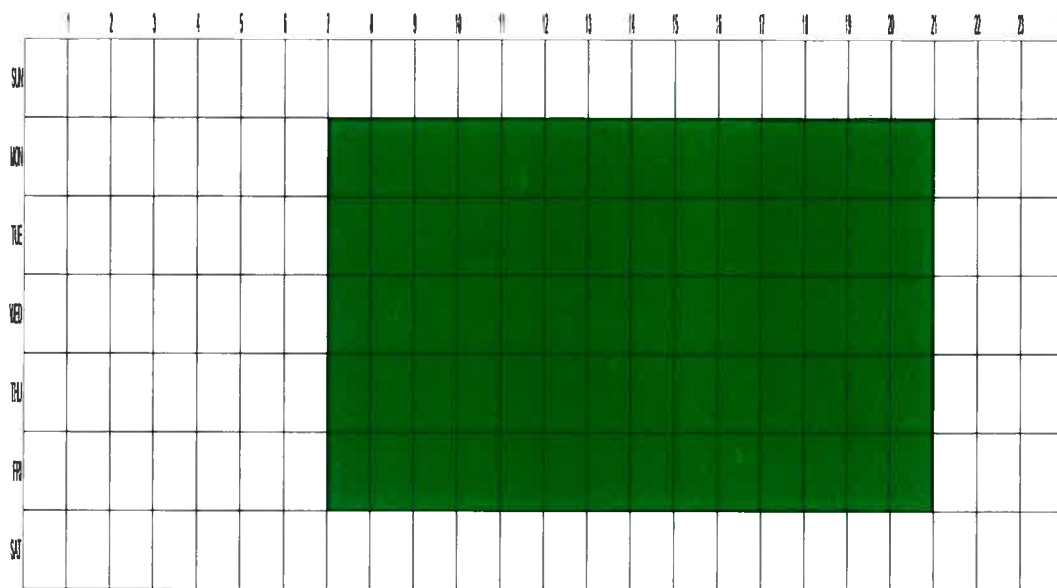
Terminal Block Connections:

- Left Side (Outputs):**
 - DO 1: Parking Lights
 - DO 2: Walkway Lights
 - DO 3: Entrance Lights
 - DO 4: Loading Lights
 - DO 5: Courtyard Light
 - DO 6: Corridor Lights
 - DO 7: DIAL ZONE 3
 - DO 8: (Unused)
 - DO 9: (Unused)
 - DO 10: (Unused)
 - DO 11: (Unused)
 - DO 12: (Unused)
 - AO 1: (VAR)VAV-N161
 - AO 2: (VAR)VAV-N162
 - AO 3: (PWM)VAV-N166
 - AO 4: (VAR)VAV-N169
 - AO 5: (VAR)VAV-N170
 - AO 6: (VAR)VAV-N171
 - AO 7: (VAR)VAV-N172
 - AO 8: (Unused)
- Right Side (Inputs):**
 - DI 1: LSP-N161 (0-10 Volts DC)
 - DI 2: LSP-N162 (0-10 Volts DC)
 - DI 3: LSP-N166 (0-10 Volts DC)
 - DI 4: LSP-N169 (0-10 Volts DC)
 - DI 5: LSP-N170 (0-10 Volts DC)
 - DI 6: LSP-N171 (0-10 Volts DC)
 - DI 7: LSP-N172 (0-10 Volts DC)
 - DI 8: (Unused)
 - DI 9: Photocell (Digital)
 - DI 10: N171 Temp (High Temp Thermistor)
 - DI 11: (Unused)
 - DI 12: (Unused)
 - AI 1: (Unused)
 - AI 2: (Unused)
 - AI 3: (Unused)
 - AI 4: (Unused)
 - AI 5: (Unused)
 - AI 6: (Unused)
 - AI 7: (Unused)
 - AI 8: (Unused)

Power and Communication:

- 24V AC or 24V DC
- 24V 0V
- Net Comms Ethernet
- Global Comms
- Shield
- Net Comms

To Ethernet PC Network



Block: Weekly schedule

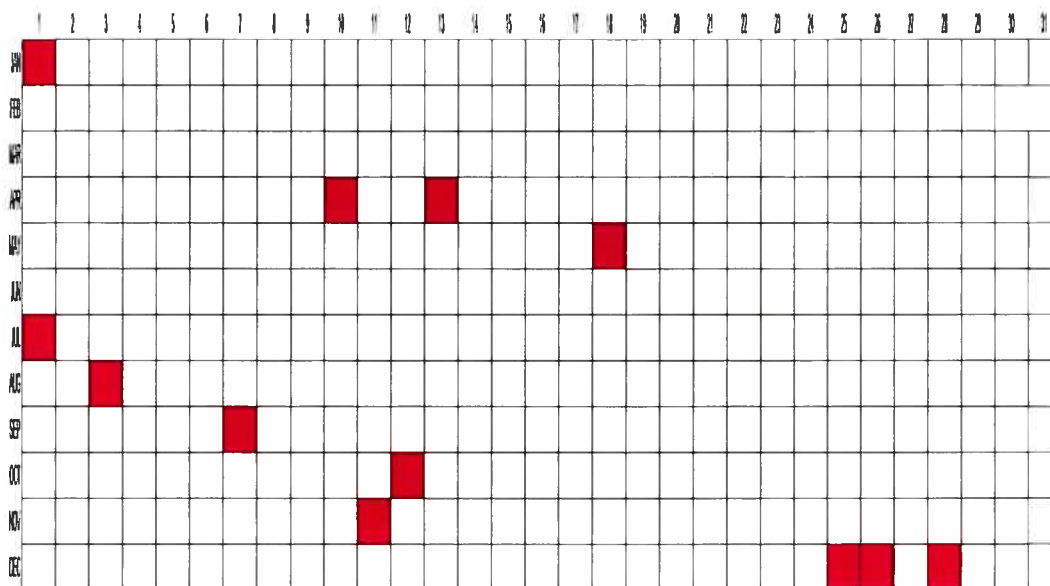
Schedule 1: Monday 7:00 to Monday 21:00

Schedule 2: Tuesday 7:00 to Tuesday 21:00

Schedule 3: Wednesday 7:00 to Wednesday 21:00

Schedule 4: Thursday 7:00 to Thursday 21:00

Schedule 5: Friday 7:00 to Friday 21:00



Block: Exceptions

Exception 1: OFF - January 1 @ 0:00 to January 1 @ 24:00

Exception 2: OFF - April 10 @ 0:00 to April 10 @ 24:00

Exception 3: OFF - April 13 @ 0:00 to April 13 @ 24:00

Exception 4: OFF - May 18 @ 0:00 to May 18 @ 24:00

Exception 5: OFF - July 1 @ 0:00 to July 1 @ 24:00

Exception 6: OFF - August 3 @ 0:00 to August 3 @ 24:00

Exception 7: OFF - September 7 @ 0:00 to September 7 @ 24:00

Exception 8: OFF - October 12 @ 0:00 to October 12 @ 24:00

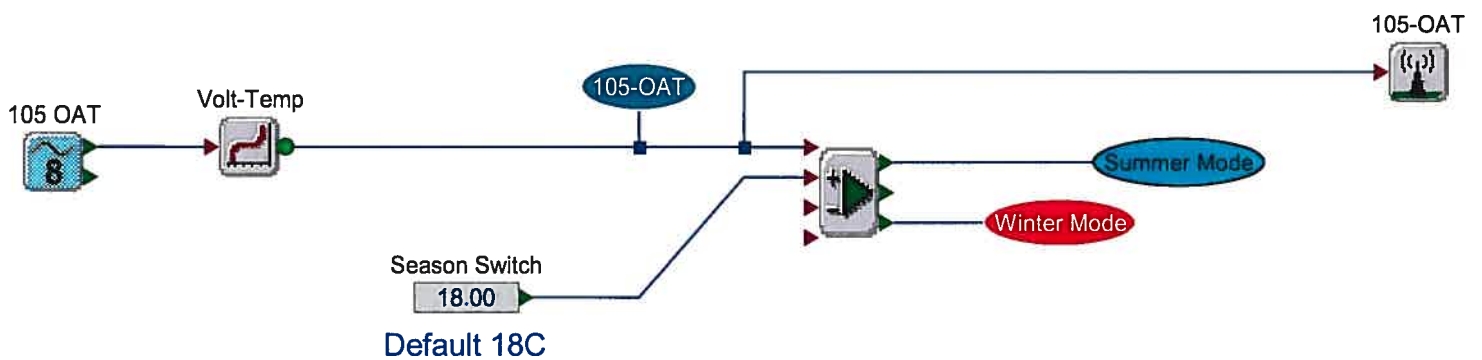
Exception 9: OFF - November 11 @ 0:00 to November 11 @ 24:00

Exception 10: OFF - December 25 @ 0:00 to December 26 @ 24:00

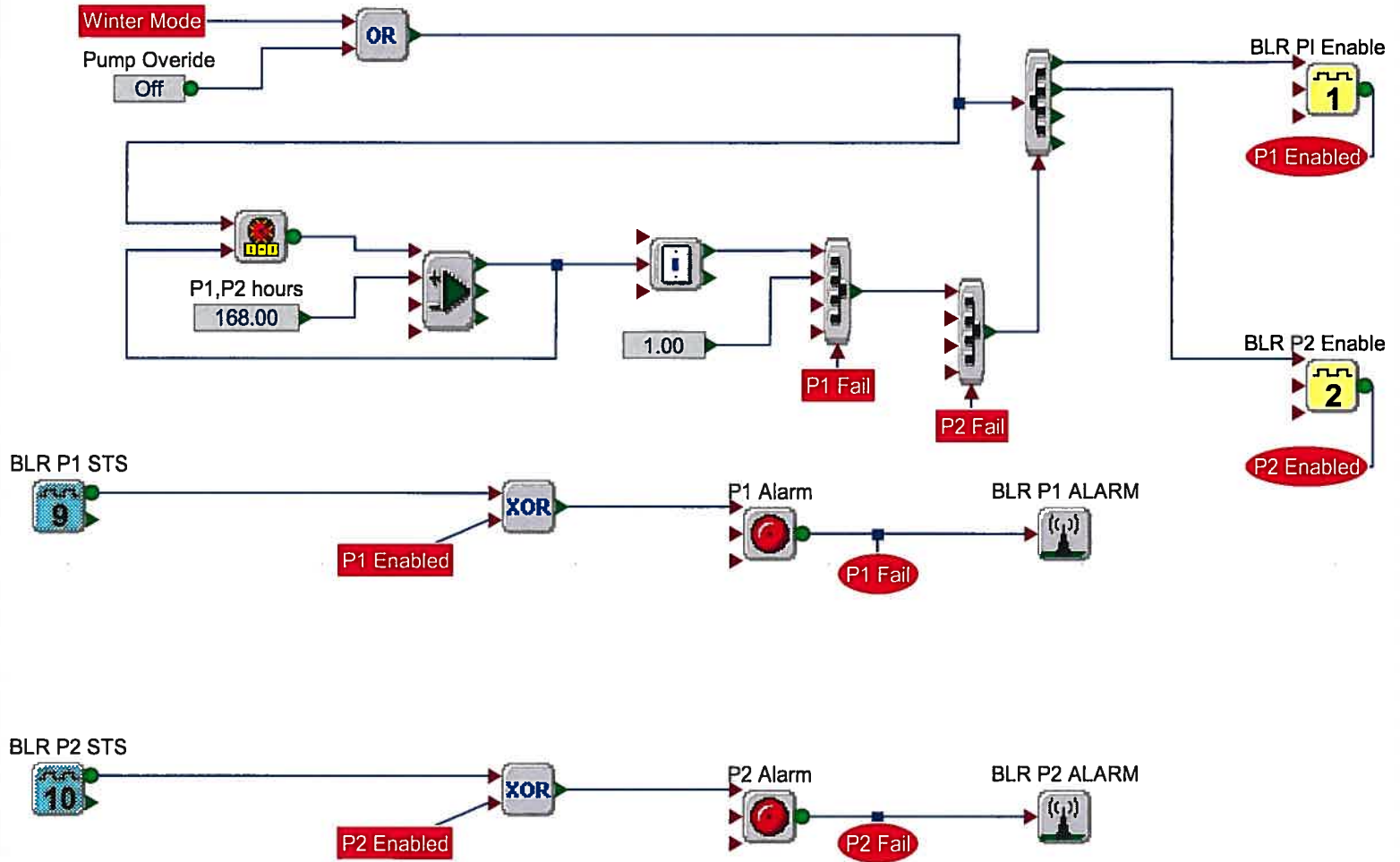
Exception 11: OFF - December 28 @ 0:00 to December 28 @ 24:00

Panel 105 Controller 2

Boiler Controller

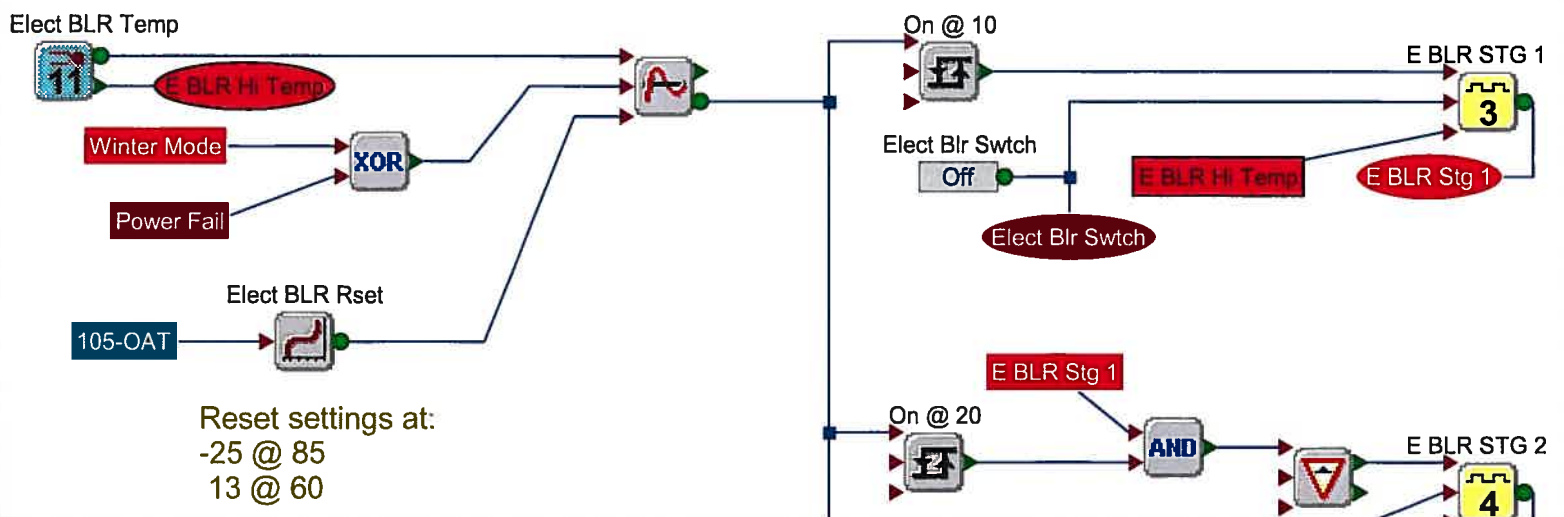


Pump Alternating program

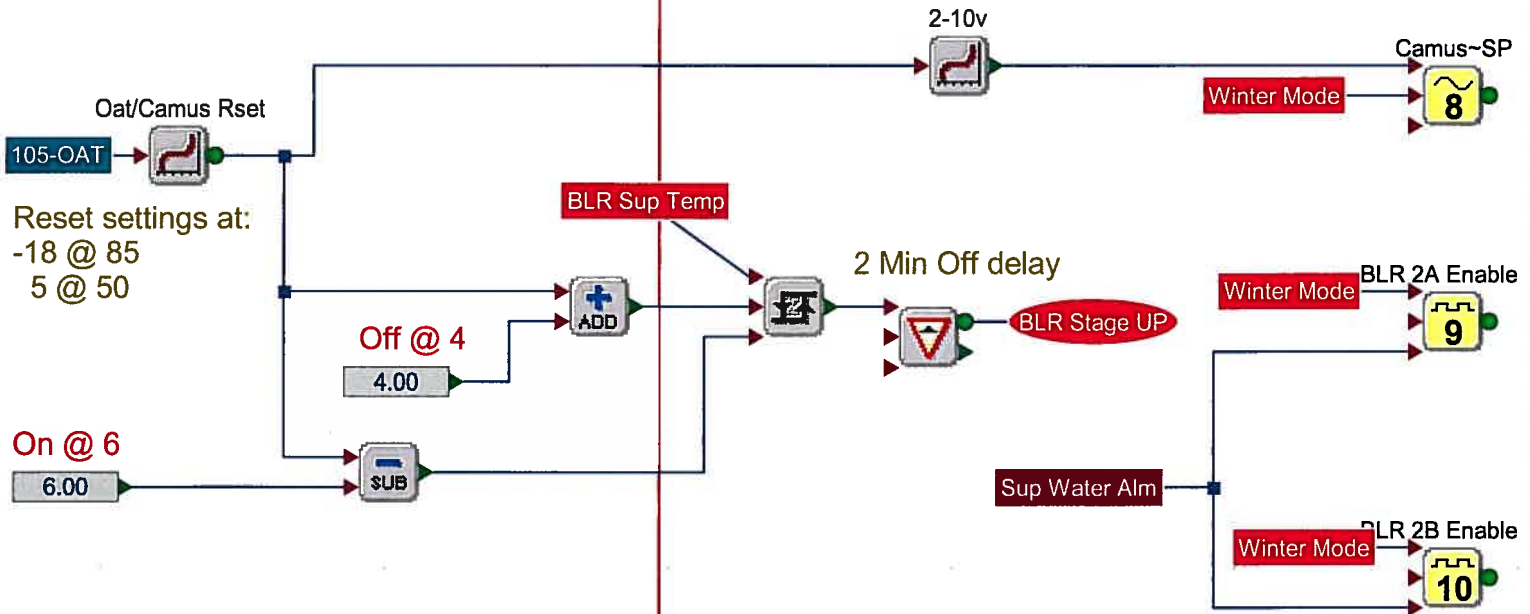


Coates Electric Boiler Staging

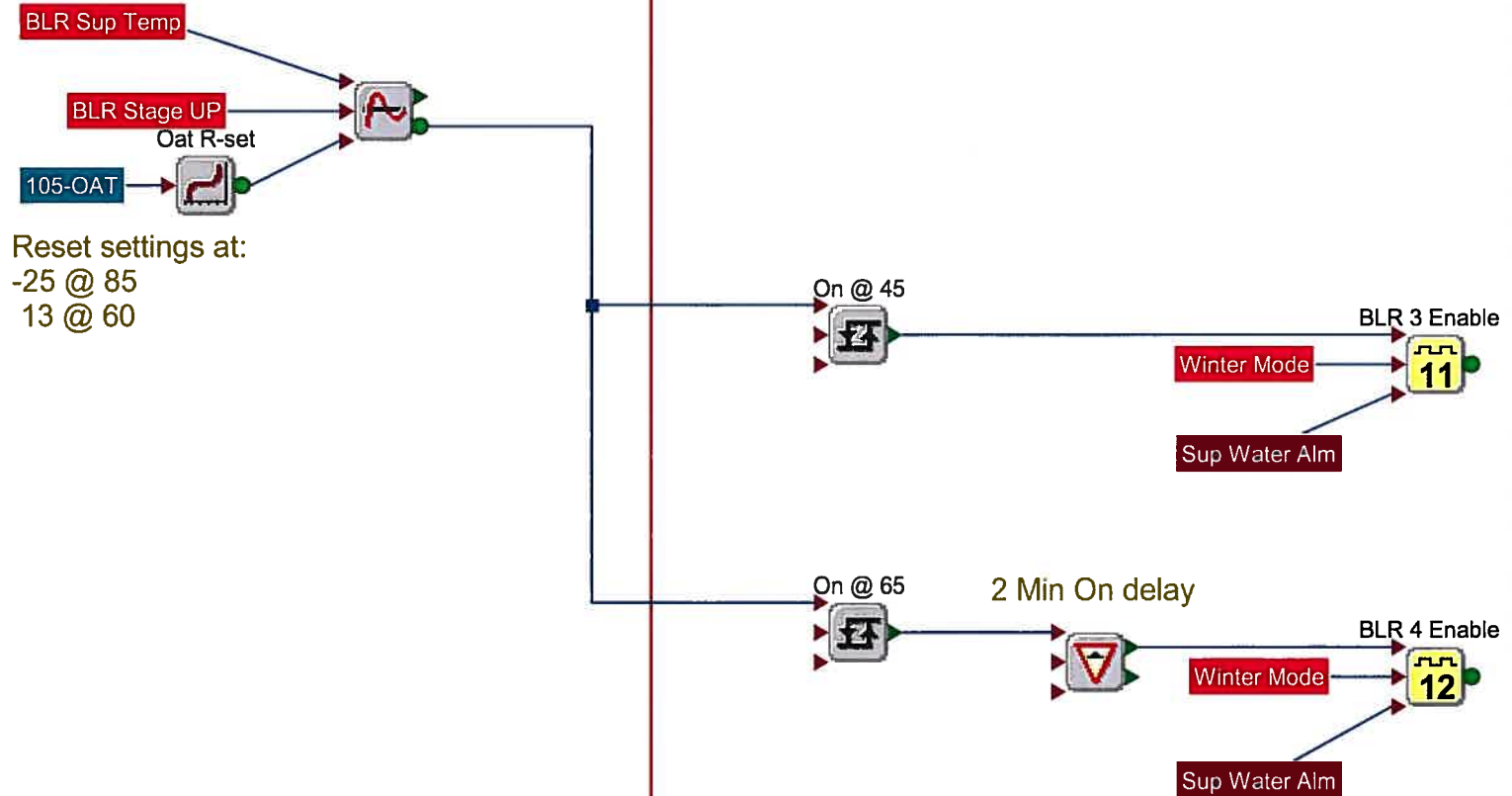
6 Stages Sequential

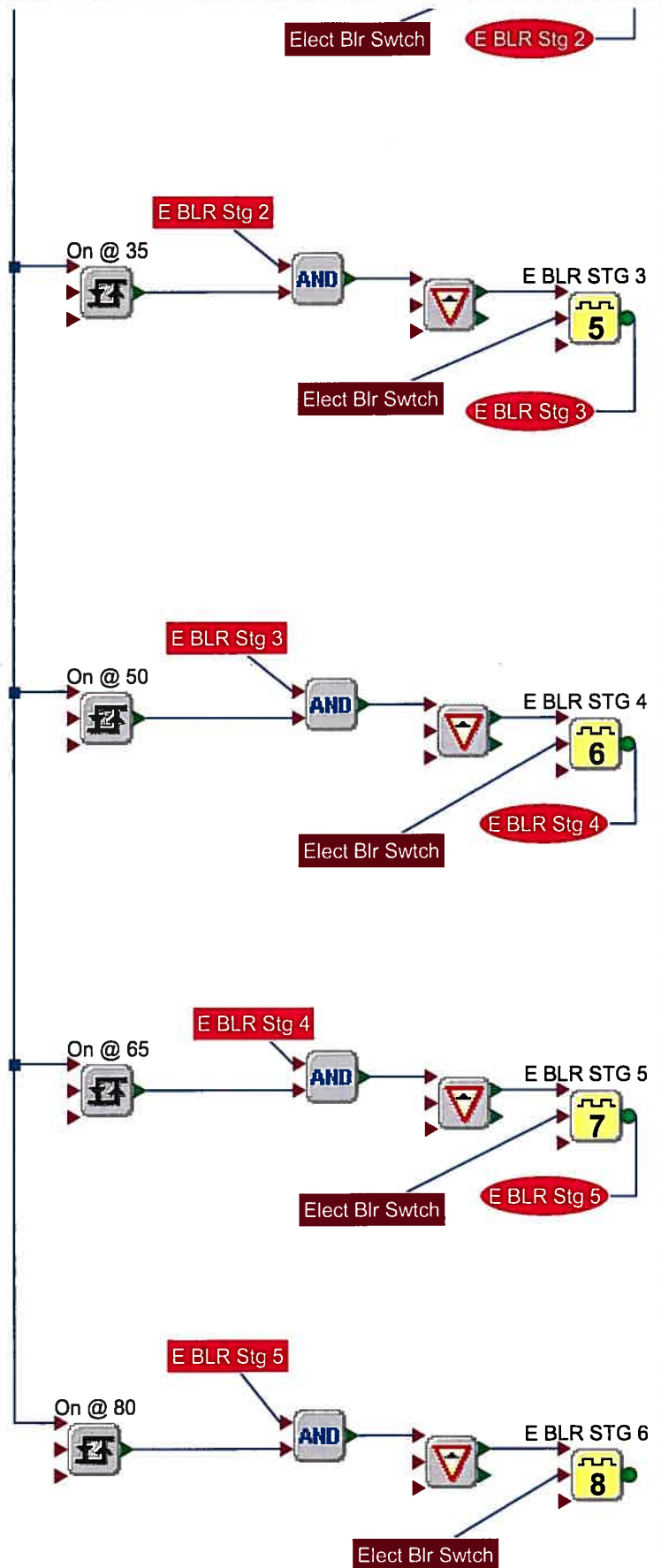
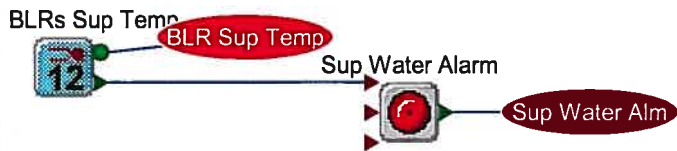


Camus Boilers 2A & 2B Control

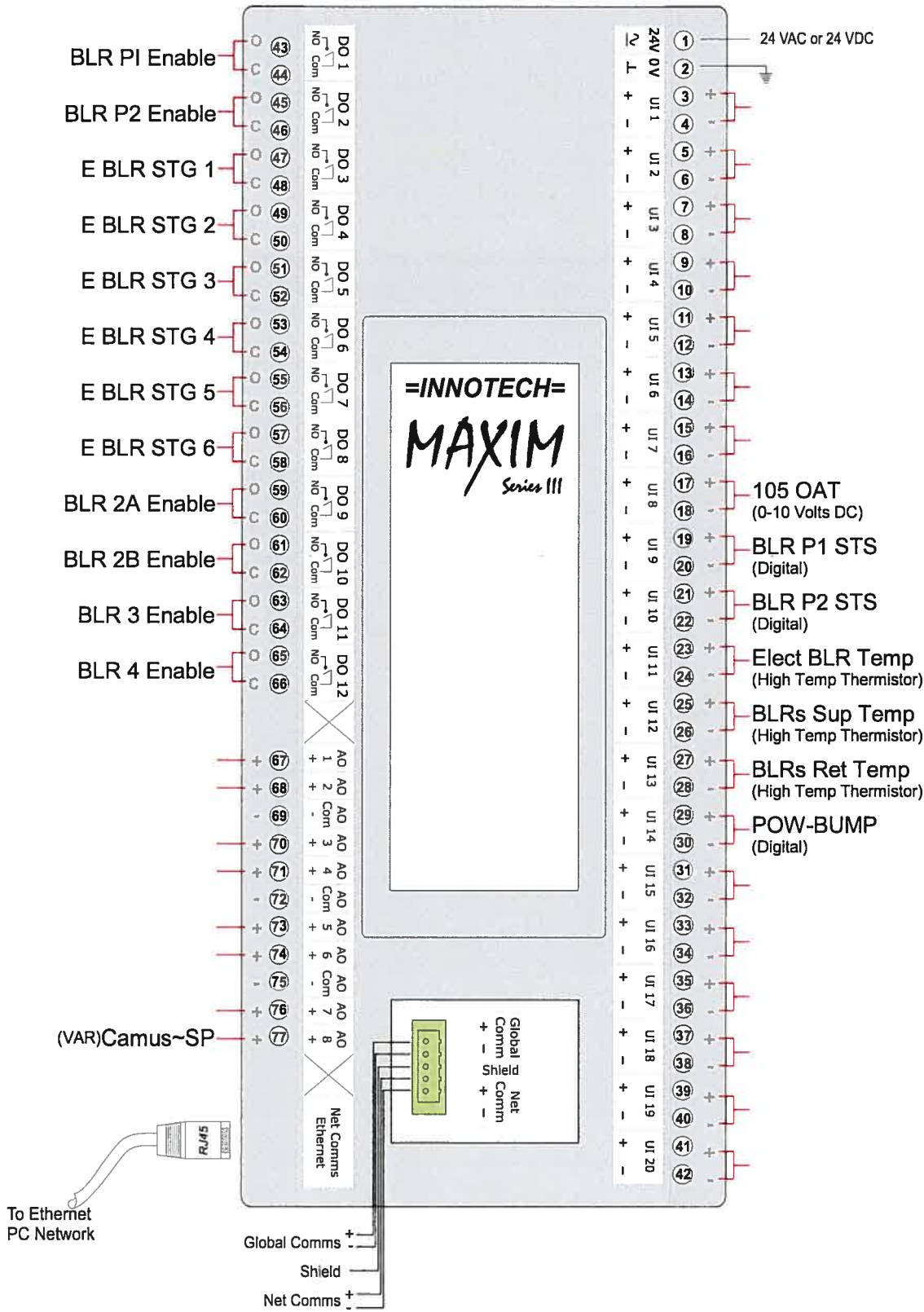


Cleaver Brooks Boilers 3 & 4 Staging



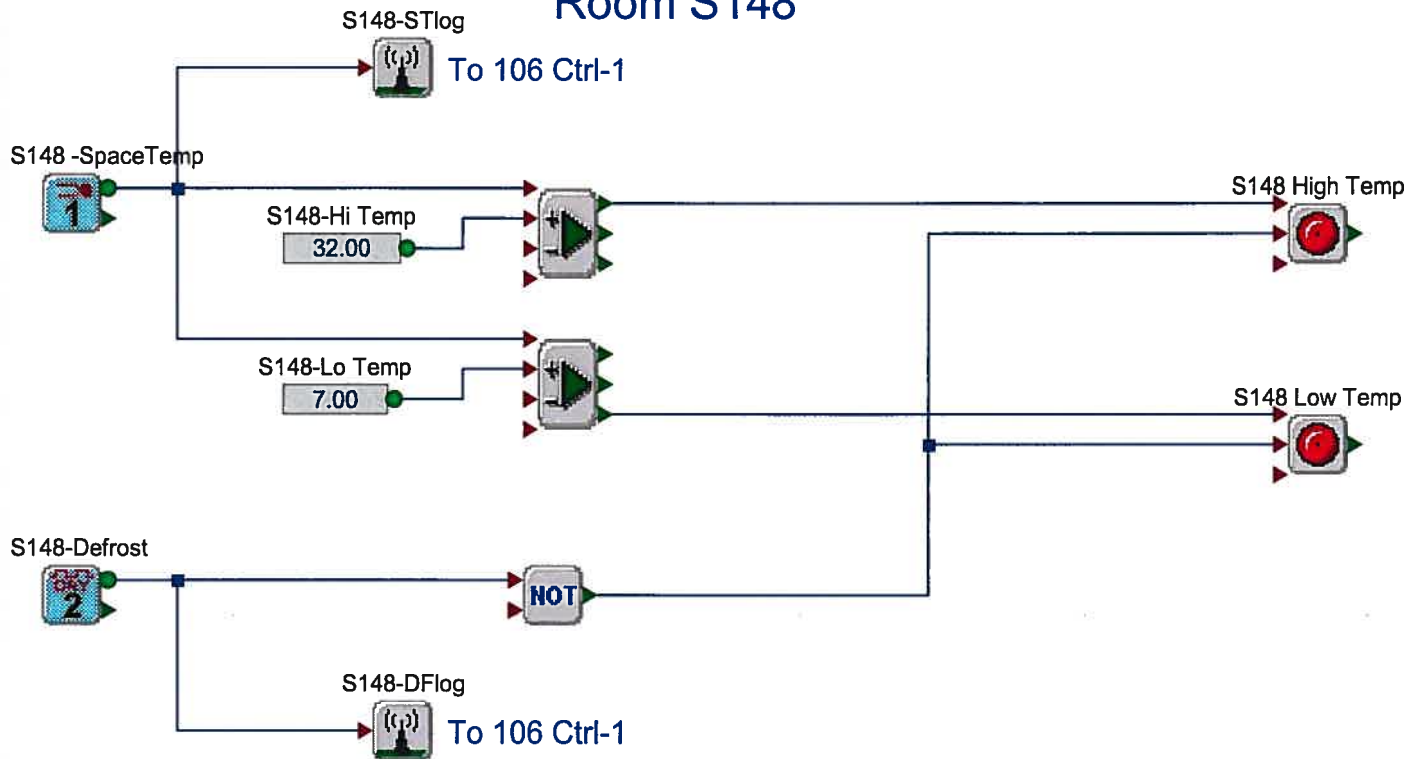


Innotech MAXIM Series III Controller (v6.20)

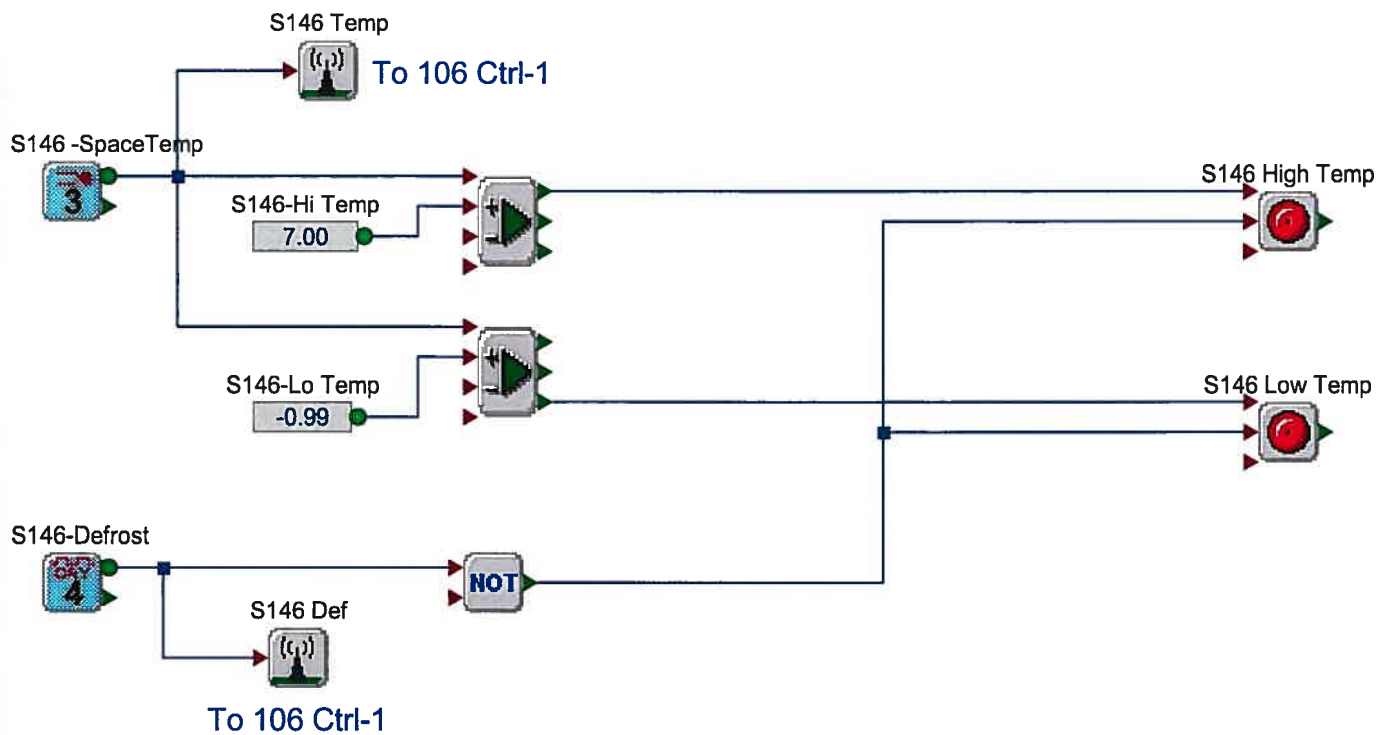


106 Ctrl2

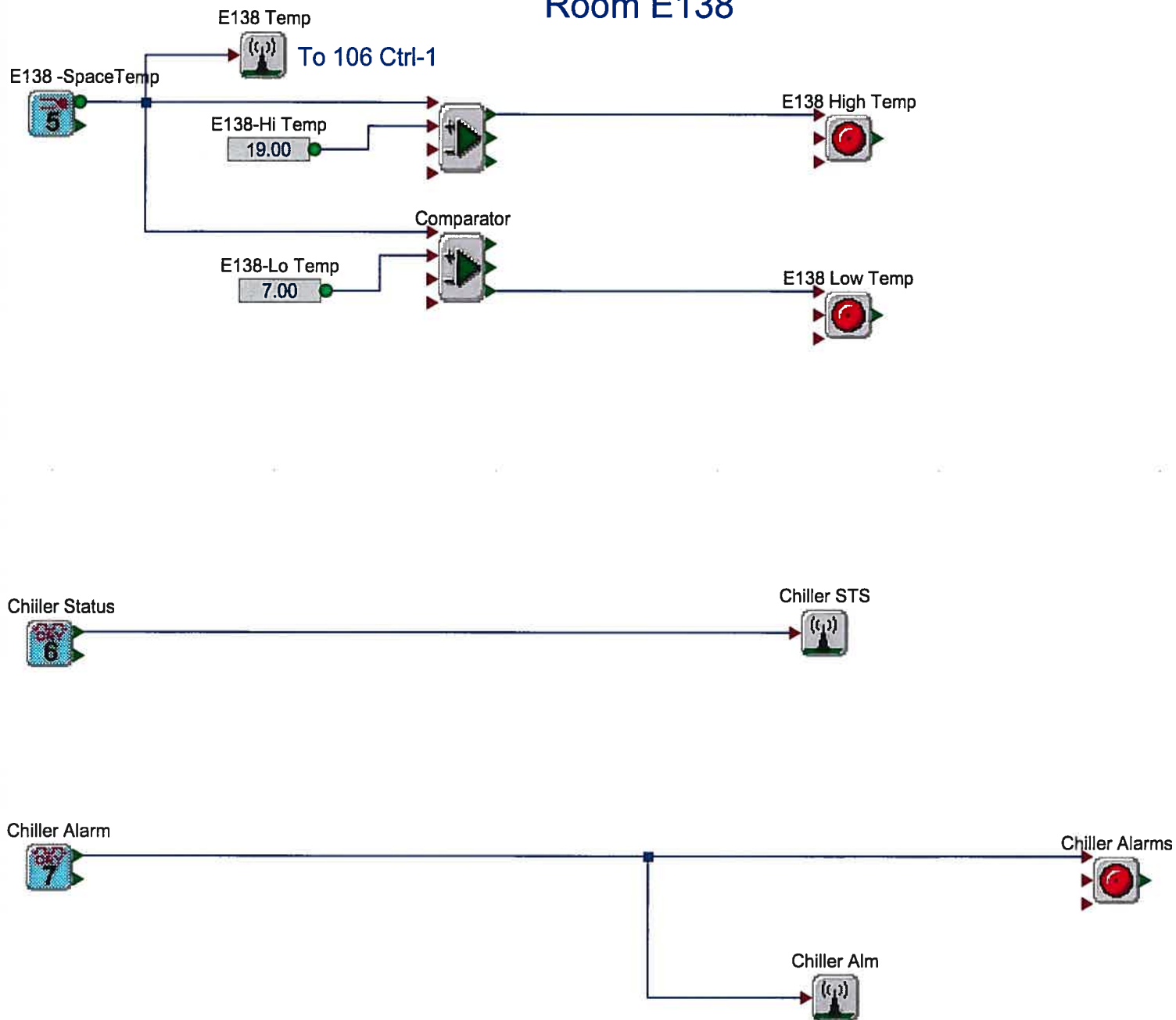
Room S148



Room S146



Room E138



Innotech MINIMAX (MM01) Controller (v6.30)

