OXYGEN8

NOVA

Operations & Maintenance

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1.0 GENERAL INFORMATION

This manual includes important instructions for safe connection of the Energy Recovery Ventilator (ERV). Before connecting the unit, please read carefully and follow the instructions.

The manufacturer reserves the right to make changes, including changes in the technical documentation, without previous notification. Please keep this manual for future reference. Consider this manual a permanent part of the product.

This manual will show the manufacturers' recommended installation method. Please note that local codes and regulations may override these recommendations. The installation must follow local codes and standards.

The National Electric Code (NEC), the National Fire Protection Agency (NFPA), and the Canadian Electrical Code (CEC) must be followed. Installation of this product must be performed by a qualified and accredited professional in conformance with local and national codes, standards and licensing requirements.

Caution: This sign indicates apotentially hazardous situation, which may result in minor or moderate injury if not avoided. It may also alert against unsafe practices.

Warning: This sign indicates a situation that may result in equipment or property damage accidents.

Danger: This sign indicates a potentially hazardous situation, which could result in death or serious injury if not avoided.

2.0 CONFIGURATION CHART

The following is a complete description of the packaged model numbers and nomenclature.

Main Code:
NOVA_XXX_XXX_X_X_X_X_XX_X_XX_XX_XX_XX_XXX_XX_XX_X_X_X

NOVA_A16_ERV_B_I_R_H_S1_ND_01_02_3A_04_2401_13_08_2_1_A

Sales Drawings:
NOVA_A16_ERV_B_I_R_H_S1_ND_01_02_3A_04_A

Size
A16, A18, B20, C20, C22, C24, C26, C30, C32, C40, C48, C58, C70

Heat Exchanger
Latent - ERV

Location
Indoor - I
Outdoor - O

Bypass
Bypass - B
Standard - S

Handing
Right Hand - R
Left Hand - L

Installation Orientation
Horizontal - H
Vertical - V

Fan Position
FP1 [Supply Fan - Top] - S1
FP2 [Supply Fan - Bottom] - S2

Condensate Drain Pan in Exhaust Air Path
Not Included - ND
Included - DP - Only available with Bypass & S1
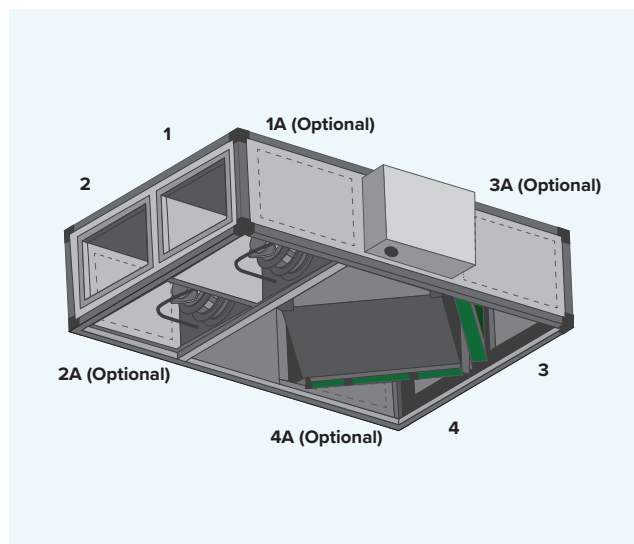
Upper Outlet Air Connection
Straight - 01
Perpendicular - 1A - Not available with
outdoor units
Straight-Coupled Coil - 1B - Not available
with S2

Lower Outlet Air Connection
Straight - 01
Perpendicular - 1A - Not available with
outdoor or vertical
Straight-Coupled Coil - 2B - Not available
for outdoor or S1
Downshot - 4D - Not available for indoor units

Power
240/60/1 - 2401
208/60/1 - 2081
208/60/3 - 2083
460/60/3 - 4603

Outdoor Air Filter
MERV8 - 08
MERV11 - 11
MERV13 - 13
MERV14 - 14

Return Air Filter
MERV8 - 08
MERV11 - 11
MERV13 - 13
MERV14 - 14

Mounting Included
None - 0
Hanging Brackets - 1
Base Rails - 2

Controls Included
No - 0
Yes - 1

Version (Generation)
A, B, C....

3.0 SPECIFICATIONS

3.1 System Overview

Standard units come complete with energy recovery option, EC fans, 2" filters, fully integrated controls and casing as outlined in the spec below.

3.2 General Specifications

Standard Features
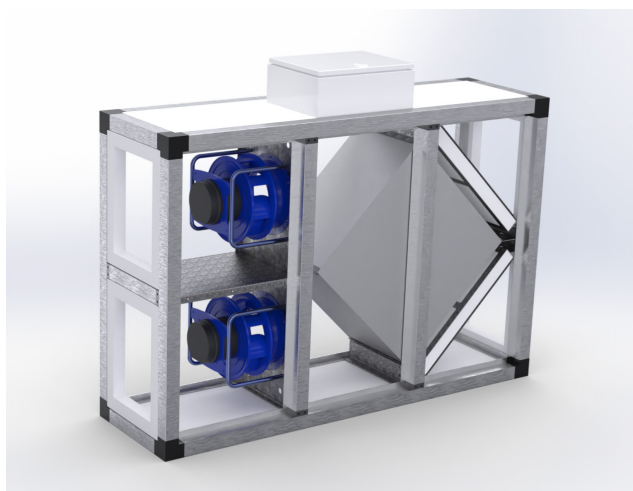
Certification
AHRI and UL Certified

Casing
Double-wall 1" insulation for compact indoor models

22 gauge galvanized steel inner panel with 20 gauge pre-painted white outer panel

Electrical and Controls
Configurable integrated controller with BACNet compatibility

Single point power for electric heater and motors

Filters
2" pleated OA MERV 13, RA MERV 8

Blowers and Motors

High-efficiency variable speed EC direct drive motor
Backward inclined fan

Warranty
Unit - 2 years from shipment date

Mounting
Ceiling, wall*, or floor-mount

   *Hardware and Engineering by Others

Options

Integrated Heating and Cooling
Hydronic, Electric, DX Coils (using EEV kit) and pre-heat available

Bypass Damper
Bypass economizer, bypass defrost

Shut Off Damper
Outdoor and exhaust air dampers (unit or duct mounted)

Frost Control
Electric Preheat

Warranty
Extended parts warranty - 5 years from shipment date.

3.3 Electrical DOAS/ERV

SIZE	AIRFLOW	NOM. V	PHASES	MOTOR (KW)	SA FAN QTY	SA FAN FLA	UNIT FLA	MCA	MOP (A)	SCCR (KA)*
A16/A18	775	208/240	1	0.5	1	2.5	5.3	5.6	15	5
B20/B22	1300	208/240	1	0.78	1	3.9	8.1	8.8	15	5
B20/B22	1300	208	3	2.0	1	6.0	12.3	13.5	15	5
B20/B22	1300	460	3	2.5	1	4.0	8.1	9.0	15	5
C20/C22	2200	208	3	2.0	1	6.0	12.3	13.5	15	5
C20/C22	2200	460	3	2.5	1	4.0	8.1	9.0	15	5
C24/C26	2700	208	3	2.7	1	8.6	17.5	19.4	25	5
C24/C26	2700	460	3	3.7	1	5.8	11.7	13.1	15	5
C30/C32	3500	208	3	3	1	9.0	18.3	20.3	25	5
C30/C32	3500	460	3	3.3	1	5.4	10.9	12.2	15	5
C40	4400	208	3	2.0	2	6.0	24.3	25.5	30	5
C40	4400	460	3	2.5	2	4.0	16.1	17.0	20	5
C48	5400	208	3	2.7	2	8.6	34.7	36.6	45	5
C48	5400	460	3	3.7	2	5.8	23.3	24.7	35	5
C58	6600	208	3	2.0	3	6.0	36.3	37.5	45	5
C58	6600	460	3	2.5	3	4.0	24.1	25.0	25	5
C70	8100	208	3	2.7	3	8.6	51.9	53.8	60	5
C70	8100	460	3	3.7	3	5.8	34.9	36.3	45	5
C90	8100	208	3	2.7	3	8.6	54.3	56.3	60	5
C90	8100	460	3	3.7	3	5.8	32.5	33.8	35	5

*Standard SCCR without modifying disconnect switch; additional fusing to increase SCCR may be requested.
MCA Minimum Circuit Ampacity
MOP Maximum Over Current Protective Device / Recommended Fuse Size data is relevant for all units except single-point power units with 1 or 2 electric heaters; in this case, please refer to the project-specific submittal.

3.4 Fan and Core Performance

ERV Performance

MODEL	AIRFLOW (CFM)	SRE	LRE	TRE	PD (SUPPLY, RETURN)
1" INSULATION / INDOOR UNITS					
A16	400 775	69% 61%	54% 43%	60% 50%	0.36, 0.72 0.62, 1.26
B20	700 1300	68% 60%	55% 44%	60% 50%	0.33, 0.55 0.6, 1.05
C20	700 1300	68% 60%	55% 44%	60% 50%	0.33, 0.55 0.6, 1.05
C24	1550 2700	68% 60%	55% 44%	60% 50%	0.45, 0.79 0.86, 1.64
C30	2000 3500	68% 60%	55% 44%	60% 50%	0.45, 0.79 0.87, 1.66
2" INSULATION / OUTDOOR UNITS					
A18	400 775	69% 61%	54% 43%	60% 50%	0.36, 0.72 0.62, 1.26
B22	700 1300	68% 60%	55% 44%	60% 50%	0.33, 0.55 0.6, 1.05
C22	1225 2200	68% 60%	55% 44%	60% 50%	0.44, 0.78 0.88, 1.68
C26	1550 2700	68% 60%	55% 44%	60% 50%	0.45, 0.79 0.86, 1.64
C32	2000 3500	68% 60%	55% 44%	60% 50%	0.45, 0.79 0.87, 1.66
C40*	2450 4400	68% 60%	55% 44%	60% 50%	0.44, 0.78 0.88, 1.68
C48*	3100 5400	68% 60%	55% 44%	60% 50%	0.45, 0.79 0.86, 1.64
C58*	3675 6600	68% 60%	55% 44%	60% 50%	0.44, 0.78 0.88, 1.68
C70	4650 8100	68% 60%	55% 44%	**60%** **50%**	0.45, 0.79 0.86, 1.64

Fan Data

| MODEL	CFM	NOM. VOLTAGE/ FLA (A)	FLA (A)	KW	SP "Wg
A16/A18	775	208/1/30 / 1.8	2.5	0.5	3
A16/A18	775	240/1/60 / 1.8	2.5	0.5	3
B20/B22	1300	208/1/30 / 2.8	3.9	0.78	3.1
B20/B22	1300	240/1/60 / 2.8	3.9	0.78	3.1
B20/B22	1300	208/3/60 / 2.8	6.0	2.0	5.9
B20/B22	1300	460/3/60 / 2.8	4.0	2.5	7.0
C20/C22	2200	208/3/60 / 5.0	6.0	2.0	5.9
C20/C22	2200	460/3/60 / 3.2	4.0	2.5	7.0
C24/C26	2700	208/3/60 / 7.2	8.6	2.7	5.4
C24/C26	2200	460/3/60 / 4.6	5.8	3.7	7.0
C30/C32	3500	208/3/60 / 7.6	9.0	3.0	4.6
C30/C32	3500	460/3/60 / 4.2	5.4	3.3	5.1
C40	4400	208/3/60 / 6.4	6.0	2.0	7.0
C40	4400	460/3/60 / 6.4	4.0	2.5	5.0
C48	5400	208/3/60 / 9.2	8.6	2.7	7.0
C48	5400	460/3/60 / 9.2	5.8	3.7	5.0
C58	6600	208/3/60 / 9.6	6.0	2.0	5.1
C58	6600	460/3/60 / 9.6	4.0	2.5	5.0
C70	8100	208/3/60 / 13.8	8.6	2.7	5.0
C70	8100	460/3/60 / 13.8	5.8	3.7	5.0

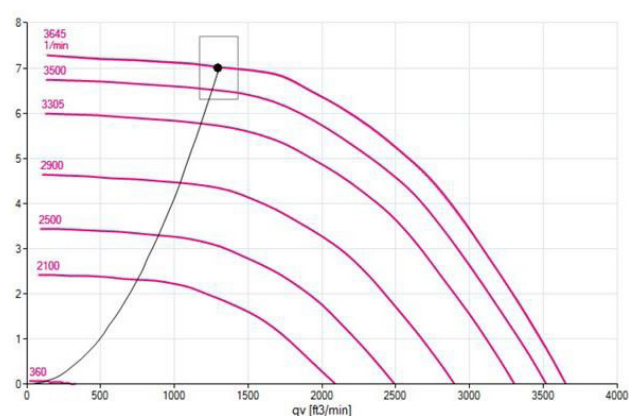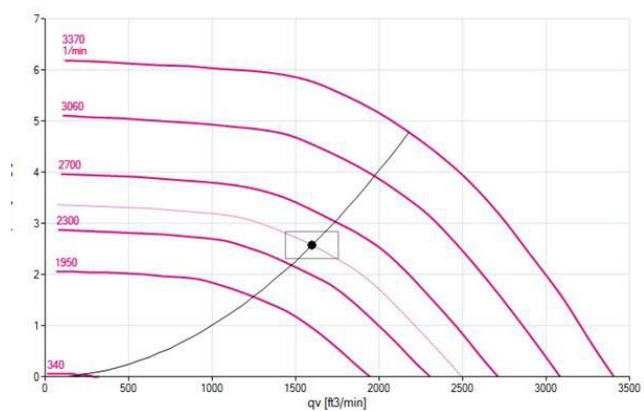# Air Performance
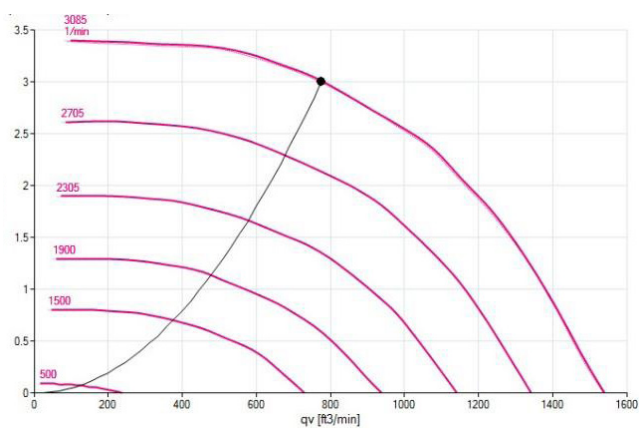
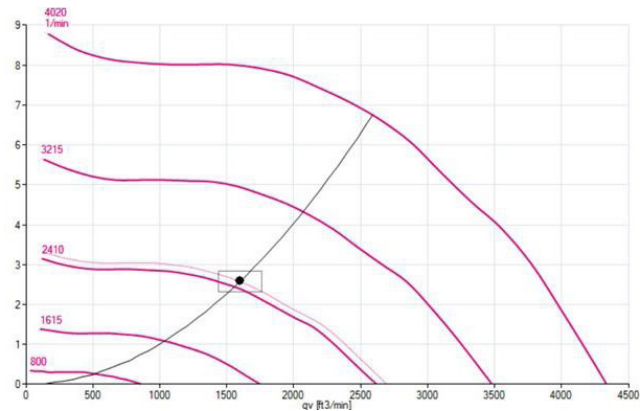A16 – 775 cfm – 240/1
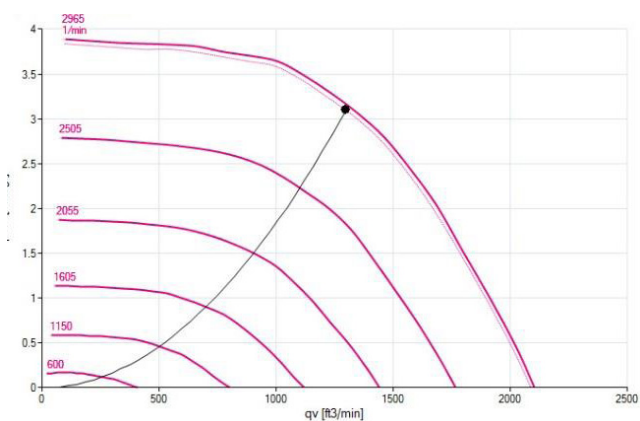
B20 – 775 cfm – 240/1
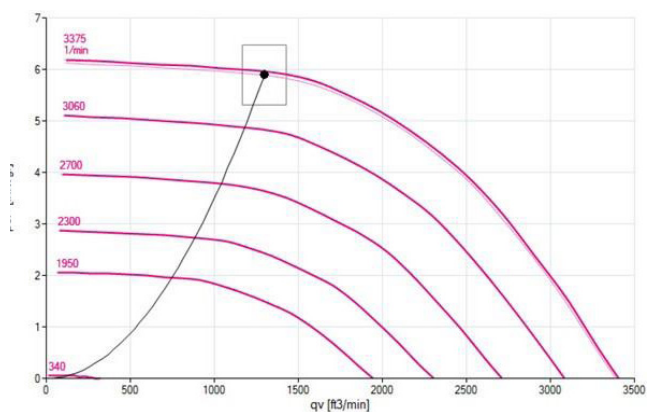
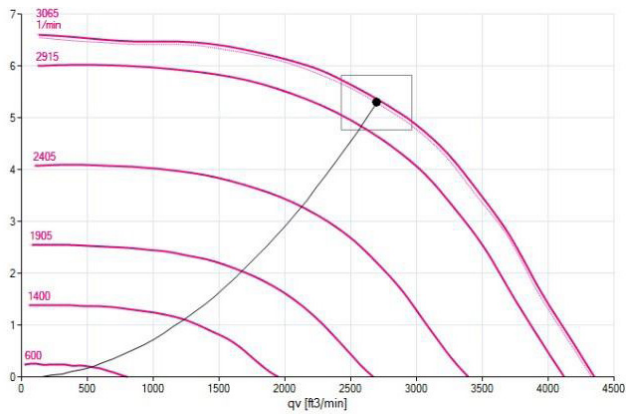B20 – 1300 cfm – 208/3

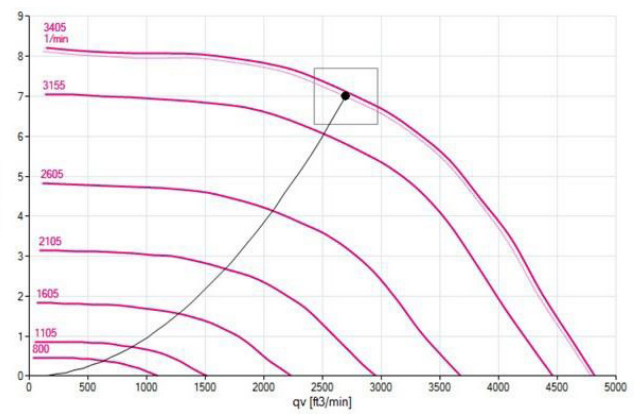B20 – 1300 cfm – 460/3

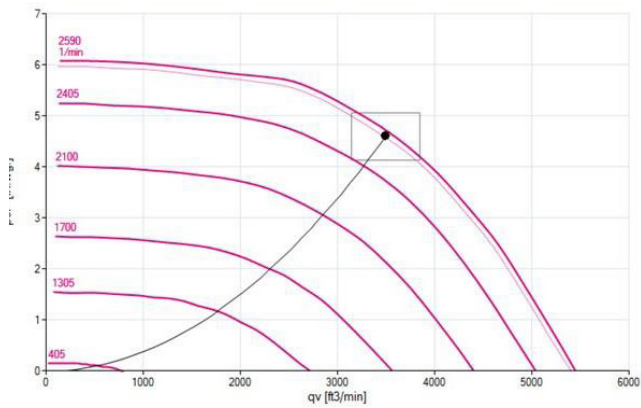C20 – 1600 cfm – 208/3

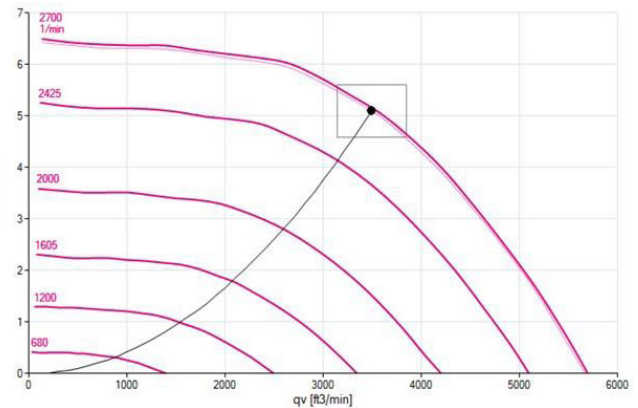C20 – 1600 cfm – 460/3

Air Performance
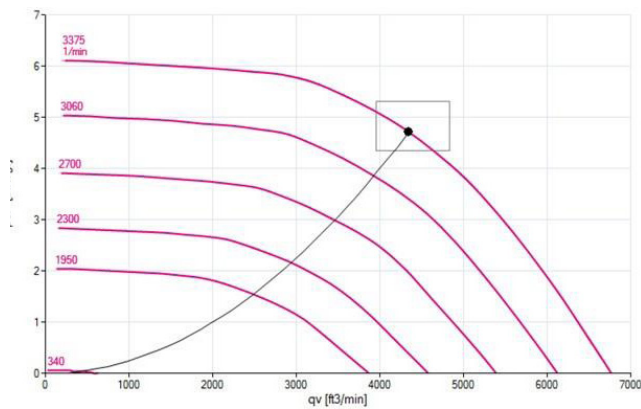

C24 – 2700 cfm – 208/3
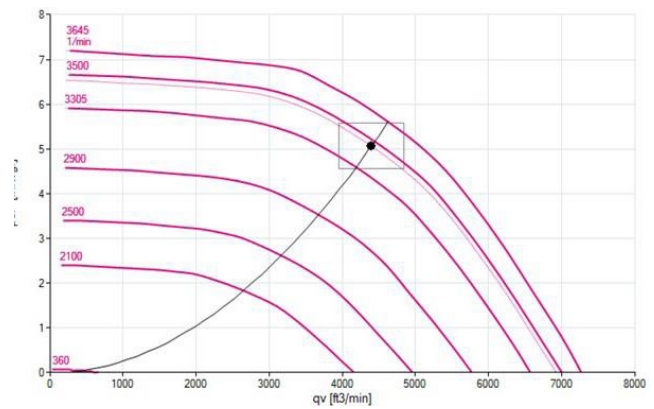

C24 – 2700 cfm – 460/3

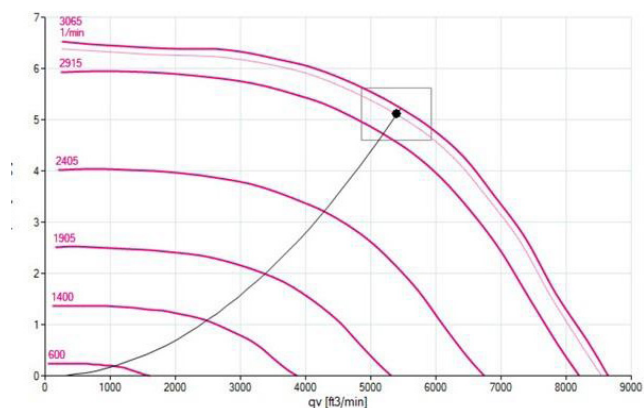
C30 – 3500 cfm – 208/3

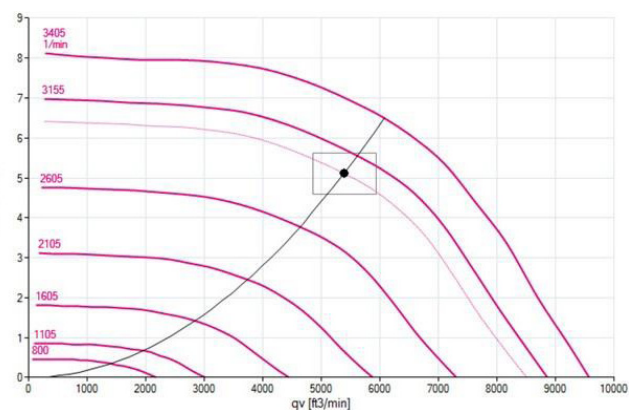C30 – 3500 cfm – 460/3

C40 – 4400 cfm – 208/3

C40 – 4400 cfm – 460/3

Air Performance

C48 – 5400 cfm – 208/3

C48 – 5400 cfm – 460/3
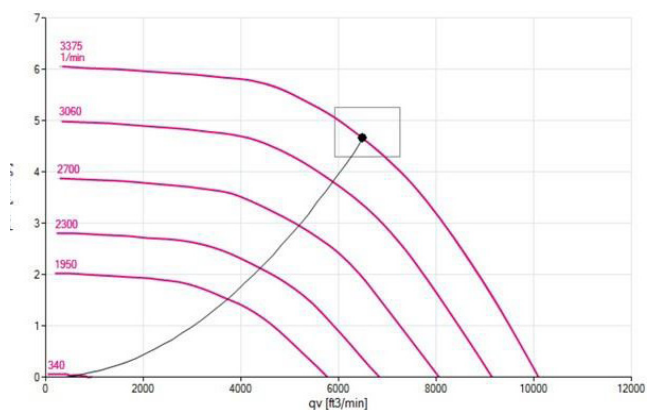
C58 – 6600 cfm – 208/3
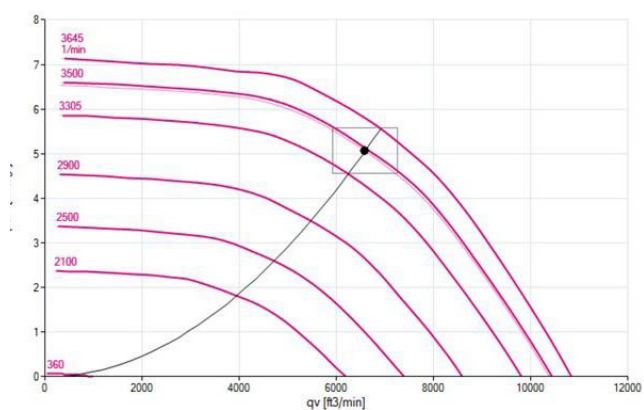
C58 – 6600 cfm – 460/3
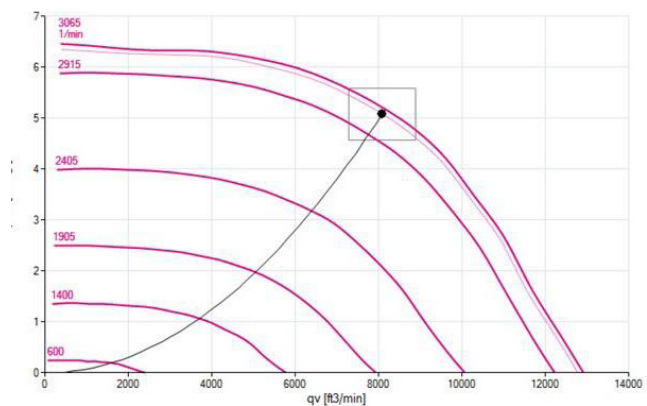
C70 – 8100 cfm – 208/3
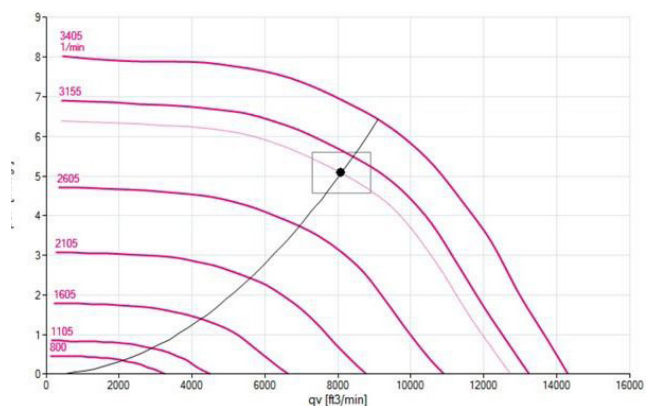
C70 – 8800 cfm – 460/3

3.5 Dimensions
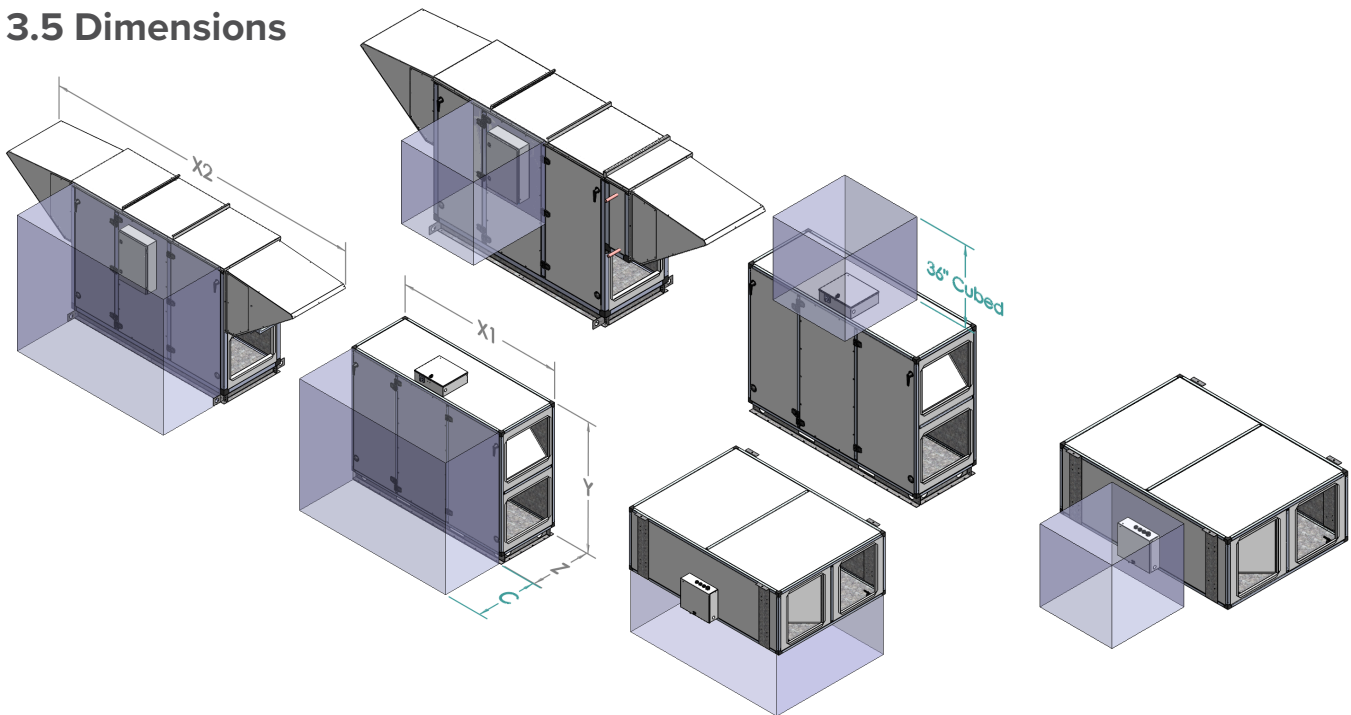
MODEL	X1 (INDOOR WIDTH)	X2 (OUTDOOR WIDTH)	Y (HEIGHT)	Z (DEPTH)	C (DOOR CLEAR-ANCE)
A16	60		40	16	21
A18	62	109	42	18	22
B20	72		48	20	25
B22	74	136	50	22	26
C20	84		60	20	29
C20 - BYPASS	84		60	30	29
C22	86	162	62	22	30
C22 - BYPASS	86		62	32	30
C24	84		60	24	29
C26	86	162	62	26	30
C26 - BYPASS	86		62	40	30
C30	84		60	30	29
C32	86	162	62	32	30
C32 - BYPASS	86	162	62	48	30
C40	86	162	62	40	30
C40 - BYPASS	86	162	62	58	30
C48	86	162	62	48	30
C48 - BYPASS	86	162	62	70	30
C58	86	162	62	58	30
C70	86	162	62	70	30

* All dimensions are in inches
* If a unit has a baserail, add 4 inches to Y (OVERALL HEIGHT)

4.0 CONFIGURING CONTROLS

4.1 Setting the Fan Operating Points

Under the "Fan Configuration" and "Fan Settings" screens, you can set the way in which fans and air volumes are to be controlled and regulated. Fans and air volumes can be controlled according to the following operating modes.

Start-Up Sequence

When the system is activated, the following start-up sequence is followed regardless of the selected control type (constant pressure, constant flow, CO2, VOC, etc.).

1. The outdoor/exhaust air dampers are opened.

2. The exhaust fan is started with the delayed time.

3. The supply fan is started with the delayed time.

4. Heat recovery is overridden to 100% (rotary, cross-flow, counter-flow or fluid coupled heat exchanger).

5. The heating valve is overridden to the value (Startup heating: default 50%) set under "Preheat & Heat Configuration" – only applies in the case of a water-based heating battery.

6. Exhaust/Supply fans speed are increased until it reaches the setpoint for air quantity/duct pressure.

7. When the exhaust or supply fan has passed 95% of the setpoint for air quantity/duct pressure, the override signals for heat recovery and heating valves are discontinued.
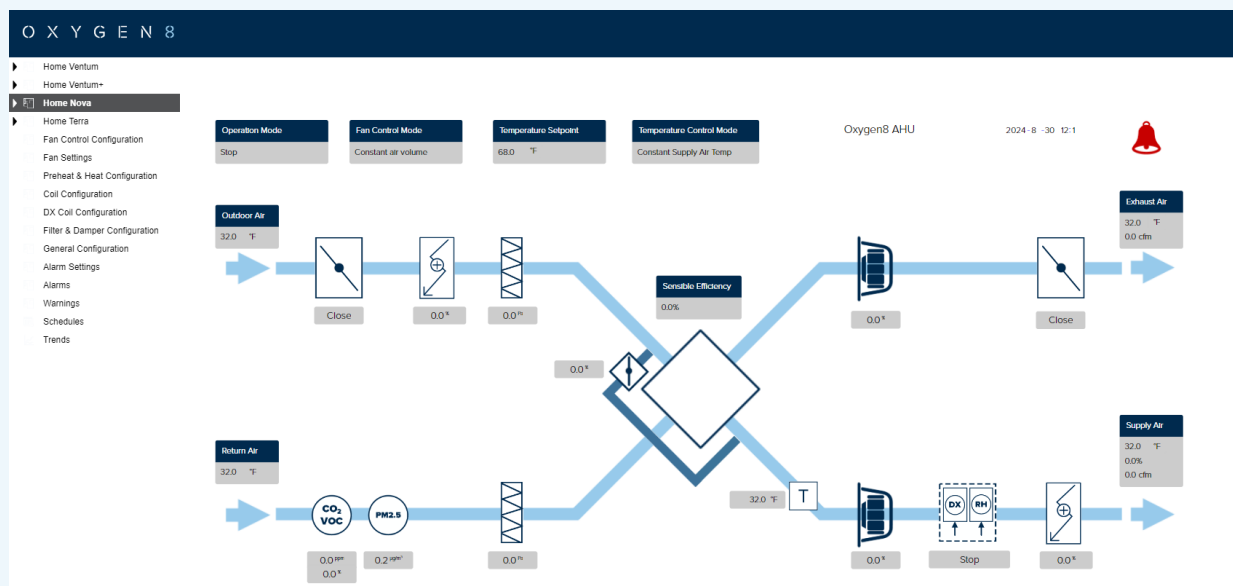
Start-up procedure
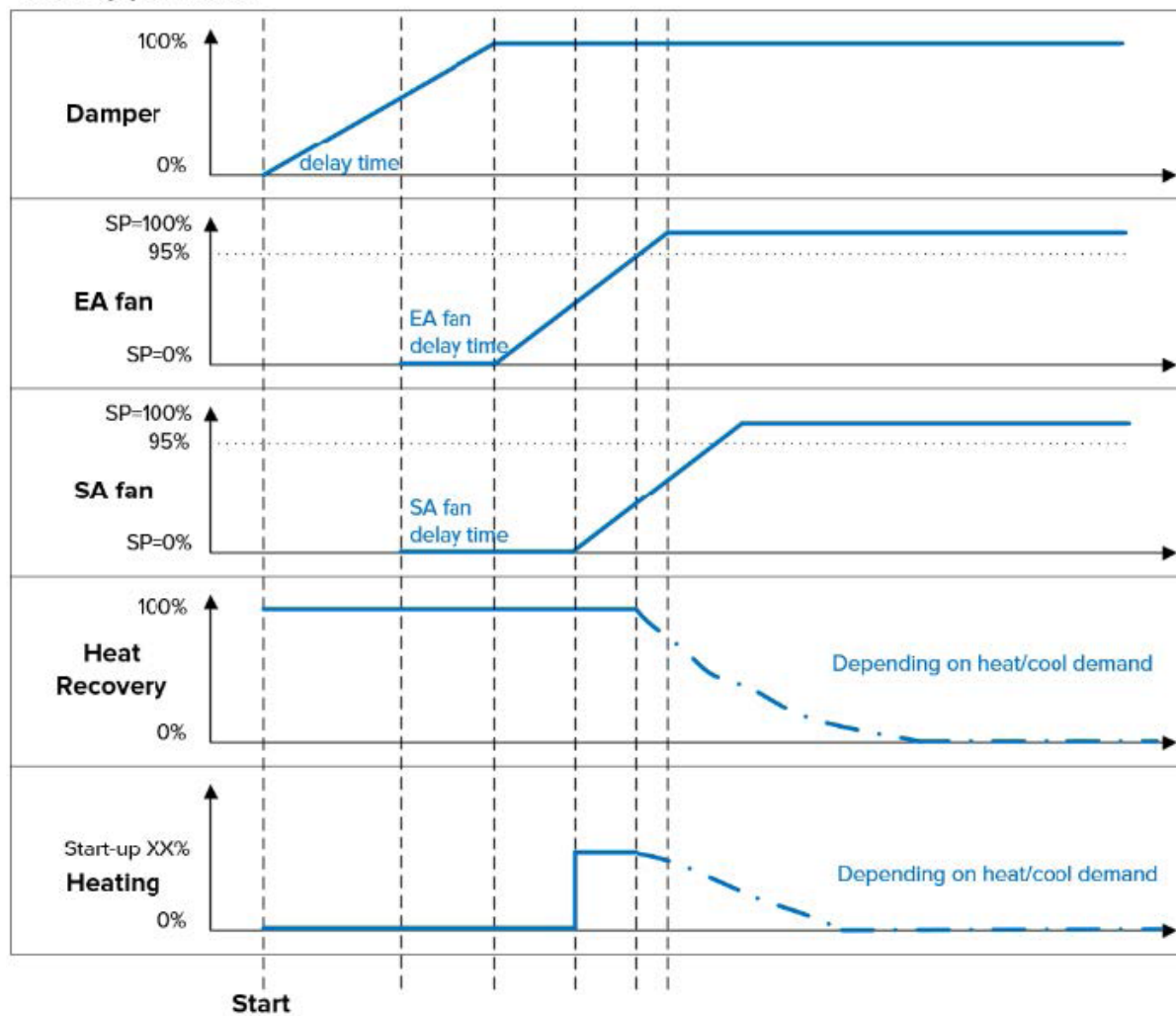
4.1.1 Constant Air Volume

- Supply and return fans are controlled in relation to flow/air volumes in the Supply and return ducts respectively.

- Air volumes are measured/calculated by measuring the difference between static and dynamic pressure across the fan.

- The difference between static and dynamic pressure is measured by means of pressure transmitters, built into the Huba Type 699M pressure sensor.

4.1.2 Constant Pressure Return Slave

- The Supply fan is controlled in relation to the pressure in the Supply duct while the return fan is controlled as a slave of the Supply fan with a freely selected offset

- The system need only be equipped with pressure transmitters in the Supply duct. Pressure transmitter of Huba Type 699M is suitable.

- Pressure transmitters used to measure pressure differences across the fans cannot be omitted as these are used to control the air flow.

4.1.3 Constant CO2

- The system must be configured with a CO2 sensor.

- The CO2 sensor can either be positioned in the room as a room sensor or in the return duct as a duct sensor.

- Irrespective of whether the CO2 sensor is a room or duct sensor, the CO2 sensor must be configured under "Fan Configuration – Parameter 1.43".

- Air volumes are measured/calculated by measuring the difference between static and dynamic pressure across the fan.

- The difference between static and dynamic pressure is measured by means of pressure transmitters, built into the Huba Type 699M pressure sensor.

4.1.4 VOC/CO2 Control

- The CO2 concentration in the room is controlled by regulating air volume via fan speed.

- If the CO2 or VOC level in the room rises, fan speed is increased, thus increasing air volume/air turnover towards the return air fan high speed air volume setting "Fan Configuration – Parameter 1.22".

- If the CO2 or VOC level in the room falls, fan speed is decreased, thus reducing air volume/air turnover towards the return air fan low speed air

4.1.5 External 0-10V Control

- Supply air fans speed will follow the external 0-10V analog input signal as 0-100% speed.

- External 0-10V signal can be adjusted with offset setting "Fan Configuration – Parameter 1.60"

- If 0V is maintained for over 60 seconds, fans will proceed to stop.

		Constant CO2 Mode
1.40	Return Air CO2 Setpoint	1000.0 ppm
1.41	Supply Air Fan Speed Offset	0.0%
1.42	Min. Runtime	600.0 sec
1.43	Sensor Selection	RAductCO2

		Constant VOC Mode
1.50	Return Air VOC Setpoint	70.0%
1.51	Supply Air Fan Speed Offset	0.0%
1.52	Min. Runtime	600.0 sec

4.2 Fan Control: Constant Air Volume

Supply

1.10 Supply Air Fan Low Speed
Set the required setpoint for supply flow at "Low" speed

1.11 Supply Air Fan Mid Speed
Set the required setpoint for supply flow at "Medium" speed

1.12 Supply Air Fan High Speed
Set the required setpoint for supply flow at "High" speed

Return

1.20 Supply Air Fan Low Speed
Set the required setpoint for return flow at "Low" speed

1.21 Supply Air Fan Mid Speed
Set the required setpoint for return flow at "Medium" speed

1.22 Supply Air Fan High Speed
Set the required setpoint for return flow at "High" speed

O X Y G E N 8

- ▶ Home Ventum
- ▶ Home Ventum+
- ▶ Home Nova
- ▶ Home Terra
- **Fan Control Configuration**
- Fan Settings
- Preheat & Heat Configuration
- Coil Configuration
- DX Coil Configuration
- Filter & Damper Configuration
- General Configuration
- Alarm Settings
- Alarms
- Warnings
- Schedules
- Trends

1.1	Fan Speed Control Mode
1.2	Supply Fan Max Airflow
1.3	Return Fan Max Airflow
1.4	Reduce Air Flow Option
1.5	ГB Alarm Auto Reset Time

1.10	Supply Air Fan Low Speed
1.11	Supply Air Fan Mid Speed
1.12	Supply Air Fan High Speed

1.20	Return Air Fan Low Speed
1.21	Return Air Fan Mid Speed
1.22	Return Air Fan High Speed

Fan Speed Control
Constant air volume
1700.0 cfm
1700.0 cfm
No
300.0 sec

Constant Flow Supply Air Fan
300.0 cfm
1200.0 cfm
1500.0 cfm

Constant Flow Return Air Fan
300.0 cfm
1200.0 cfm
1500.0 cfm

4.3 Fan Control: Constant Pressure Return Slave

Supply

1.31 Supply Air Fan Low Speed
Set the required setpoint for Supply flow at "Low" speed

1.31 Supply Air Fan Mid Speed
Set the required setpoint for Supply flow at "Medium" speed

1.33 Supply Air Fan High Speed
Set the required setpoint for Supply flow at "High" speed

1.2 Supply Fan Max. Airflow
Set the required setpoint for maximum air volume in the supply duct.

1.3 Return Fan Max. Airflow
Set the required setpoint for maximum air volume in the return duct.

Air volume has higher priority than the ressure setpoint, i.e., if the pressure setpoint is not achieved before the maximum air volume is reached, the air volume setting will prevent further increases in the fan speed.

Return

1.30 Return Air Fan Speed Offset
Return air volume follows supply air volume with an offset corresponding to the value set.

	Fan Speed Control	
1.1	Fan Speed Control Mode	Constant pressure-RA slave
1.2	Supply Fan Max Airflow	1700.0 cfm
1.3	Return Fan Max Airflow	1700.0 cfm
1.4	Reduce Air Flow Option	No
1.5	FB Alarm Auto Reset Time	300.0 sec

	Constant Pressure Supply Air Fan	
1.30	Slave RA Fan Speed Offset	0.0%
1.31	Supply Air Fan Low Speed	120.0 Pa
1.32	Supply Air Mid Speed	100.0 Pa
1.33	Supply Air High Speed	150.0 Pa
1.34	Pressure Deadband	3.0%
1.35	High SA Pressure Time	600.0 sec

4.4 Fan Control: Constant CO2

The function is used to maintain a constant/maximum CO2 level in a room or return duct.

If the CO2 level is higher than the setpoint, return volume will be increased in a modulated fashion to "Return Air Fan High Speed" – 1.22. If the CO2 level is lower than the setpoint, return volume will be decreased in a modulated fashion to "Return Air Fan Low Speed" – 1.20 (as long as the minimum run time elapsed). If the actual CO2 level is equal to the setpoint, the fan will keep actual fan speed. Supply air volume follows return air volume with an offset corresponding to the set value.

		Constant CO2 Mode
1.40	Return Air CO2 Setpoint	1000.0 ppm
1.41	Supply Air Fan Speed Offset	0.0%
1.42	Min. Runtime	600.0 sec
1.43	Sensor Selection	RAductCO2

		Constant Flow Return Air Fan
1.20	Return Air Fan Low Speed	1500.0 cfm
1.21	Return Air Fan Mid Speed	1900.0 cfm
1.22	Return Air Fan High Speed	2400.0 cfm

Return Fan

1.40 Return Air CO2 Setpoint
Set the actual scaling factor for the actual connected VOC/CO2 sensor.

1.41 Supply Air Fan Speed Offset
Set the required offset for Supply air volume.

1.42 Min Run Time
Set the minimum time the fan will run at high speed (after exceeding the CO2 setpoint)

1.43 Sensor Selection
Select the location of the CO2 sensor: Duct or Room

1.20 Return Fan Low Speed
Set the required setpoint for return air at low speed.

1.22 Return Fan High Speed
Set the required setpoint for return air fan at high speed.

4.5 Fan Control: Constant VOC

The function is used to maintain a constant/
The function is used to maintain a constant/
maximum VOC level in a return duct.

If the VOC level is higher than the setpoint, return volume will be increased in a modulated fashion "Return Air Fan High Speed" – 1.22. If the CO2 level is lower than the setpoint, return volume will be decreased in a modulated fashion to "Return Air Fan Low Speed" – 1.20 (as long as the minimum run time elapsed). If the actual VOC level is equal to the setpoint, the fan will keep actual fan speed. Supply air volume follows return air volume with an offset corresponding to the set value.

	Constant VOC Mode
1.50 Return Air VOC Setpoint	70.0%
1.51 Supply Air Fan Speed Offset	0.0%
1.52 Min. Runtime	600.0 sec

	Constant Flow Return Air Fan
1.20 Return Air Fan Low Speed	1500.0 cfm
1.21 Return Air Fan Mid Speed	1900.0 cfm
1.22 Return Air Fan High Speed	2400.0 cfm

Return Fan

1.50 Return Air VOC Setpoint
Set the actual scaling factor for the actual connected VOC/CO2 sensor.

1.51 Supply Air Fan Speed Offset
Set the required offset for Supply air volume.

1.52 Min Run Time
Set the minimum time the fan will run at high speed (after exceeding the VO2 setpoint)

1.43 Sensor Selection
Select the location of the CO2 sensor: Duct or Room

1.20 Return Fan Low Speed
Set the required setpoint for return air at low speed.

1.22 Return Fan High Speed
Set the required setpoint for return air fan at high speed.

4.6 Constant Pressure Both Fans

The function is used to maintain pressure setpoints (VAV) at the Supply and Return ducts simultaneously.

Set the desired pressure setpoints using parameters 1.31, 1.32 & 1.33 for the Supply Fan and 1.70, 1.71 & 1.72 for the Return Fan

		External 0-10V Mode
1.60	Supply Air Fan Speed Offset	0.0%
1.61	Return Air Fan Speed Offset	0.0%

External 0-10V Control

- Supply air fans speed will follow the external 0-10V analog input signal as 0-100% speed.

- External 0-10V signal can be adjusted with offset setting "Fan Configuration – Parameter 1.60"

- If 0V is maintained for over 60 seconds, fans will proceed to stop.

4.7 Constant Room

Temperature is controlled in relation to constant room temperature measured by the room sensor located in the room.

The required room temperature setpoint is set under: "General Configuration > General Temperature Settings".

		General Temperature Settings
5.1	Temperature Setpoint	68.0 °F
5.2	Temperature Control Mode	Constant Room Air Temp

4.8 Cooling

The function is only available if active cooling in the form of a cooling element is installed and configured.

The function is used to ensure that active cooling can be used if certain set preconditions are met.

	Cooling Settings	
3.1 Cooling Type	WaterCooling	
3.2 Minimum Supply Air Temp.	59.0	°F
3.3 OA Temp. to Stop Cooling	32.0	°F
3.4 Forced Cooling	Disable	
3.5 Forced Cooling Ramp	25.0%	
3.6 PID Proportional Band	120.0	
3.7 PID Integral Time	5.0 sec	

Cooling Settings

3.1 Cooling Type
Select the type of cooling coil installed.

3.2 Minimum Supply Air Temp.
Setpoint for minimum supply tempeature when cooling is active.

3.3 OA Temperature to Stop Cooling
Cooling is stopped at outdoor temperatures below the setpoint.

3.4 Forced Cooling
When activated, air volume will be increased when cooling is active.

3.5 Forced Cooling Ramp
Determines the rate of change of the air volume when Forced Cooling is active.

3.6 PID Proportional Band
Proportional gain for cooling.

3.7 PID Integral Time
Integral time for cooling.

4.9 Dehumidification

The function is used to lower the relative humidity in the room by dehumidification.

When dehumidification of the room is demanded, the energy content of the air (enthalpy) is measured continuously in the fresh air and exhaust air respectively. The air that is dehumidified and supplied to the room will thus always be the air that requires the least energy for dehumidification.

To obtain optimum control, an RH & Temperature sensor is needed to calculate the actual dew point. This sensor can be in SA, RA duct or Room ("Cooling & DX coil Configuration – Parameter 3.34").

Dehumidification is accomplished by the installed cooling element while the temperature is maintained according to the setpoint by subsequent heating of the supply air by the heating element.

Minimum Configuration
One RH & Temperature sensor and cooling element with post heater.

3.30 Dehumidification Enable
Select whether dehumidification is to be active.

3.31 RH Target
Set setpoint for relative humidity.

3.32 RH Target Margin
Dead band for the RH Target. Defines when the humidity level has been satisfied and cooling returns to normal.

3.33 Dehumidification Cooling Output
When dehumidification is needed, this is the cooling intensity sent to the DX Coil (or other).

3.34 RH Sensor Selection
Selects where is the Humidity Sensor installed (Supply duct, return duct, or room).

		Dehumidification Settings
3.20	Dehumidification Enable	DehumidificationOff
3.21	RH Setpoint	50.0%
3.22	Dewpoint Margin	1.5 °C
3.23	Dehumidification Cooling Output	90.0%
3.24	Sensor Selection	SAductRHsensor

4.10 Summer/Winter Compensation

Under General Temperature Settings, it is possible to set temperature compensation parameters for summer and winter operation.

When selected, compensation offsets the temperature setpoint in relation to outdoor temperature in summer and/or winter.

General Temperature Settings		
5.1 Temperature Setpoint	68.0	°F
5.2 Temperature Control Mode	Constant Supply Air Temp	
5.3 Setpoint Compensation	SP CompensationOff	
5.4 Winter Start Temperature	32.0	°F
5.5 Winter Max. Temperature	-4.0	°F
5.6 Winter Temperature Difference	9.0	°F
5.7 Summer Start Temperature	77.0	°F
5.8 Summer Max. Temperature	95.0	°F
5.9 Summer Temperature Difference	-9.0	°F

5.3 Setpoint Compensation
Enables/Disables Setpoint Conversation

5.4 Winter Start Temperature
Outdoor temp temperature for start of winter compensation

5.5 Winter Max. Temperature
Outdoor temperature for max.winter compensation

5.6 Winter Temperature Difference
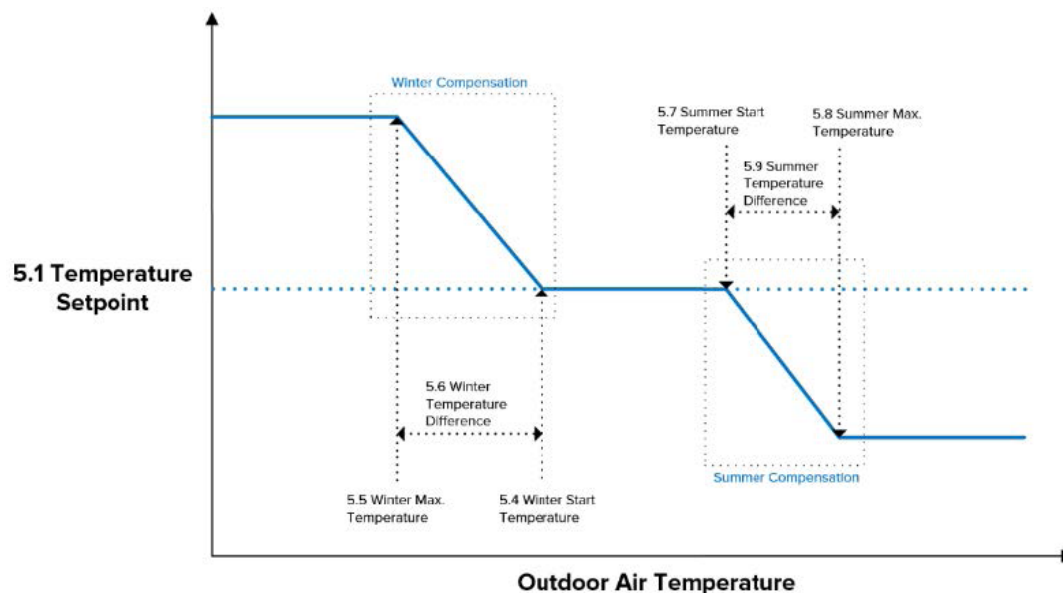Max. winter compensation of setpoint

5.7 Summer Start Temperature
Outdoor temperature for start of summer compensation

5.8 Summer Max. Temperature
Outdoor temperature for max. summer compensation

5.9 Summer Temperature Difference
Max. summer compensation of setpoint

4.11 Locking the Fan Speed

Adjustment

On the Home screen, by clicking on any fan, a popup screen opens. Select Hand on SA Fan Mode (and on RA Fan Mode) and then enter the desired speed on Hand Speed.

The function, which is used for VAV installations, allows the installer to maintain constant air quantity during system adjustment.

The Hand Speed remains until the fans are changed to Auto.

4.12 Communication Protocols External Communication

Setting communication parameters for TCP/IP,
LAN, Web browser and BMS

Set Internet Connection

Static/Dynamic

DHCP = IP address assigned from DHCP
server on local network or from the Internet

Static = the installer must set the following
communication parameters:

- IP address

- NetMask

- Gateway

- Primary DNS

- Secondary DNS

BACnet

### Settings for external BACnet communication

BACnet IP is enabled by default

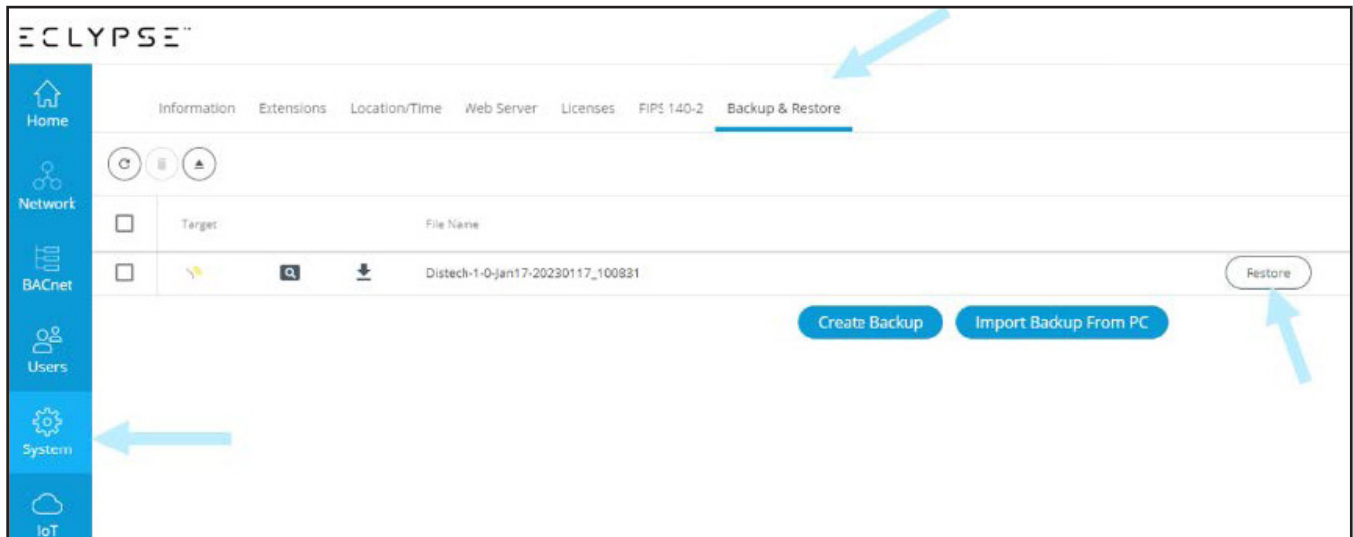On the General Tab, it is possible to edit:

- Controller Name

- Device ID

- Location

- Description

- APDU

- APDU Segment Timeout

- APDU Retries

On Network IP Ports, it is possible to edit:

- Network Number

- BACnet IP UDP Port

- Use a standard RJ45 cable External BACnet TCP/IP connects to plug connector "TCP/IP"
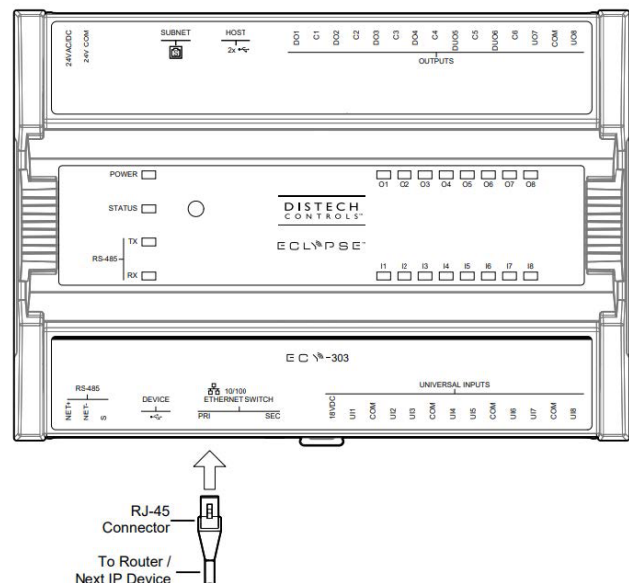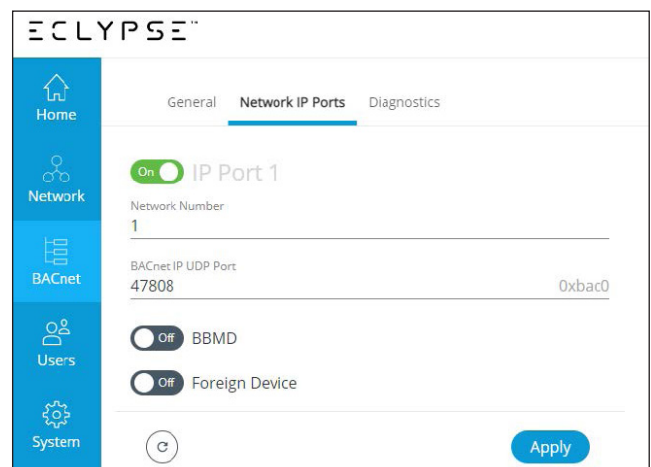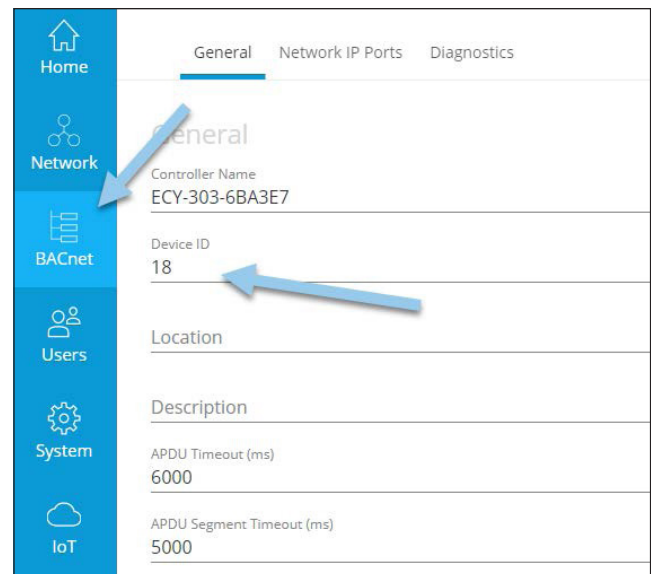
4.13 Restore/Back-up Settings

System > Backup & Restore tab > Import Backup From PC
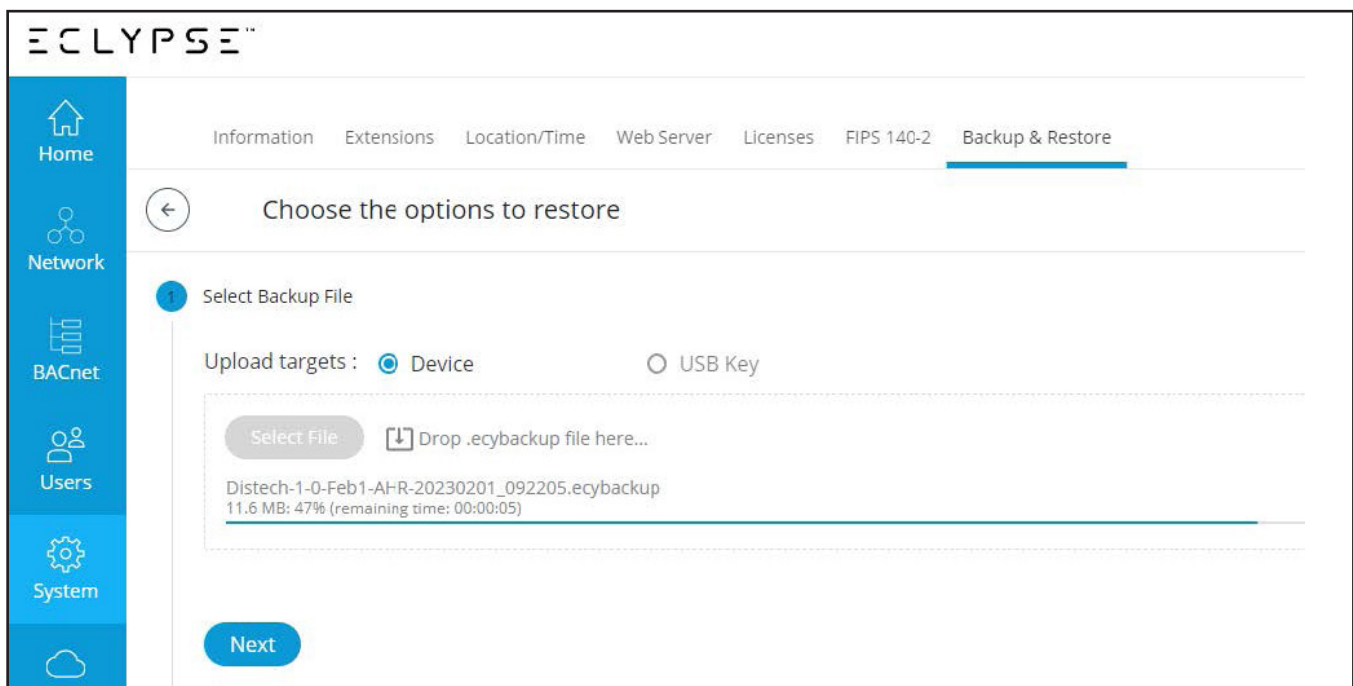
Select Backup File > Locate the saved file and select it > Next
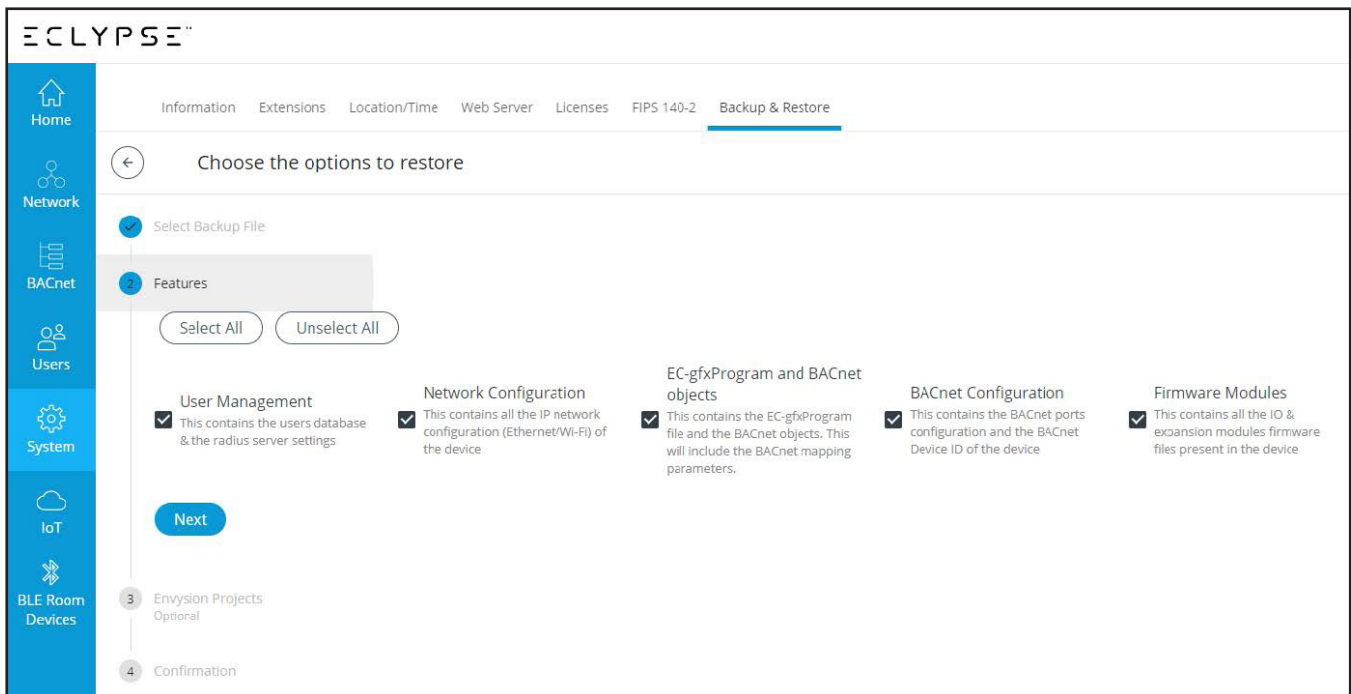
Select "User Management", "Network Configuration", "EC-gfxProgram and BACnet objects", "BACnet Configuration and Firmware Modules" boxes > Next
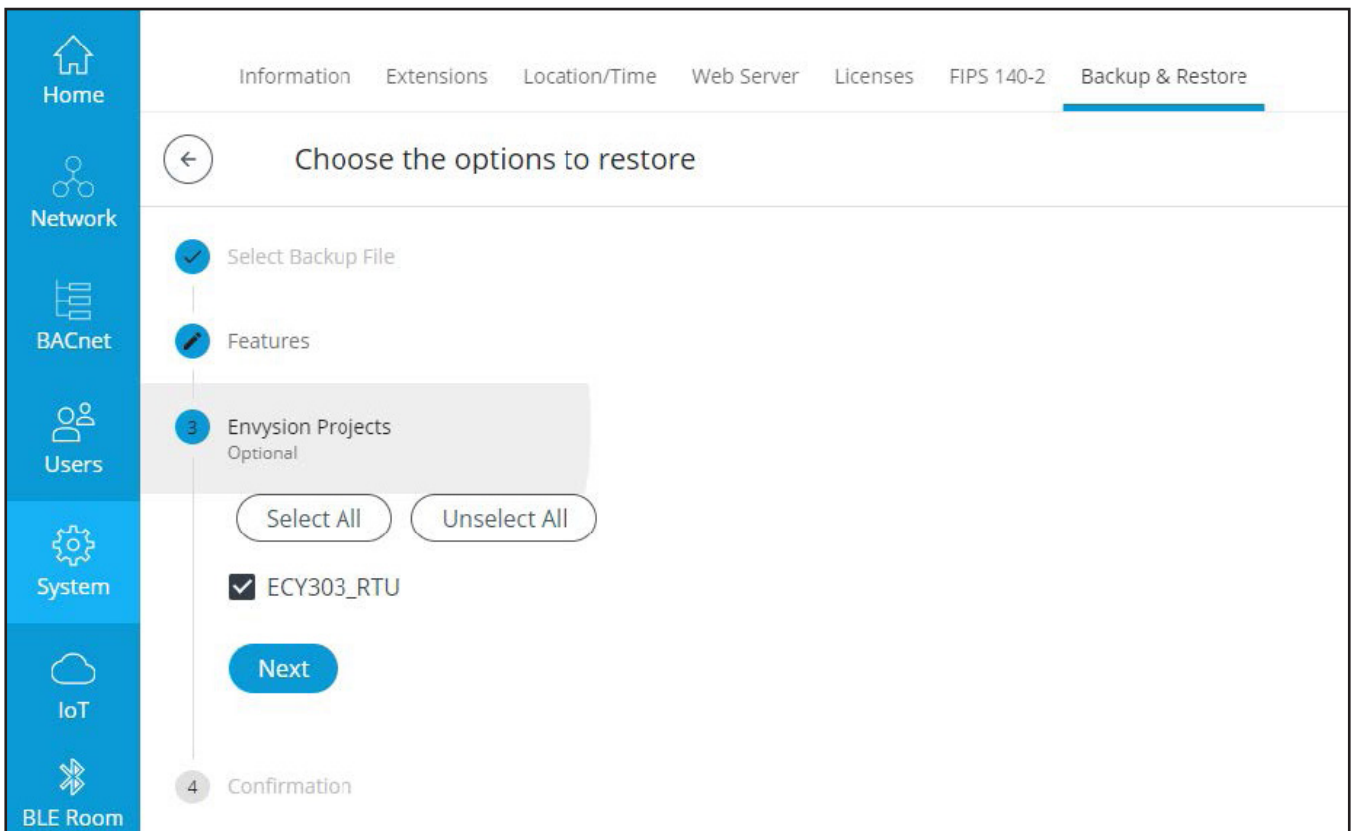
Select "ECY303_RTU" box > Next

Select "Remove backup file after restore" box > Finish

The controller is now restoring the files and rebooting. This process takes about 3 minutes.

5.0 OPERATION

Setting operating modes and weekly programs.
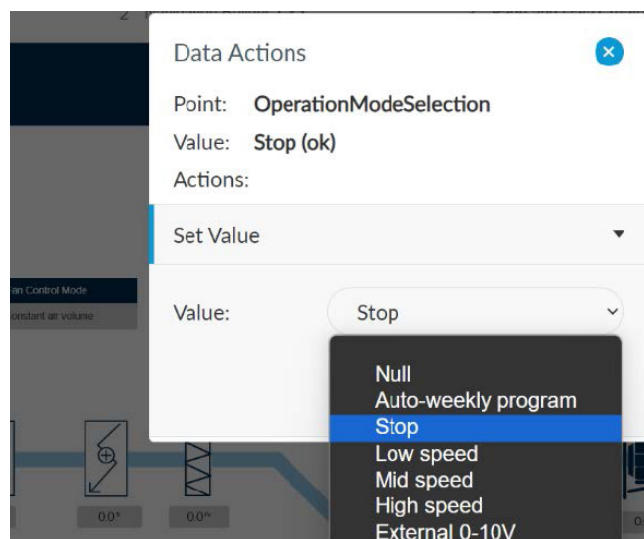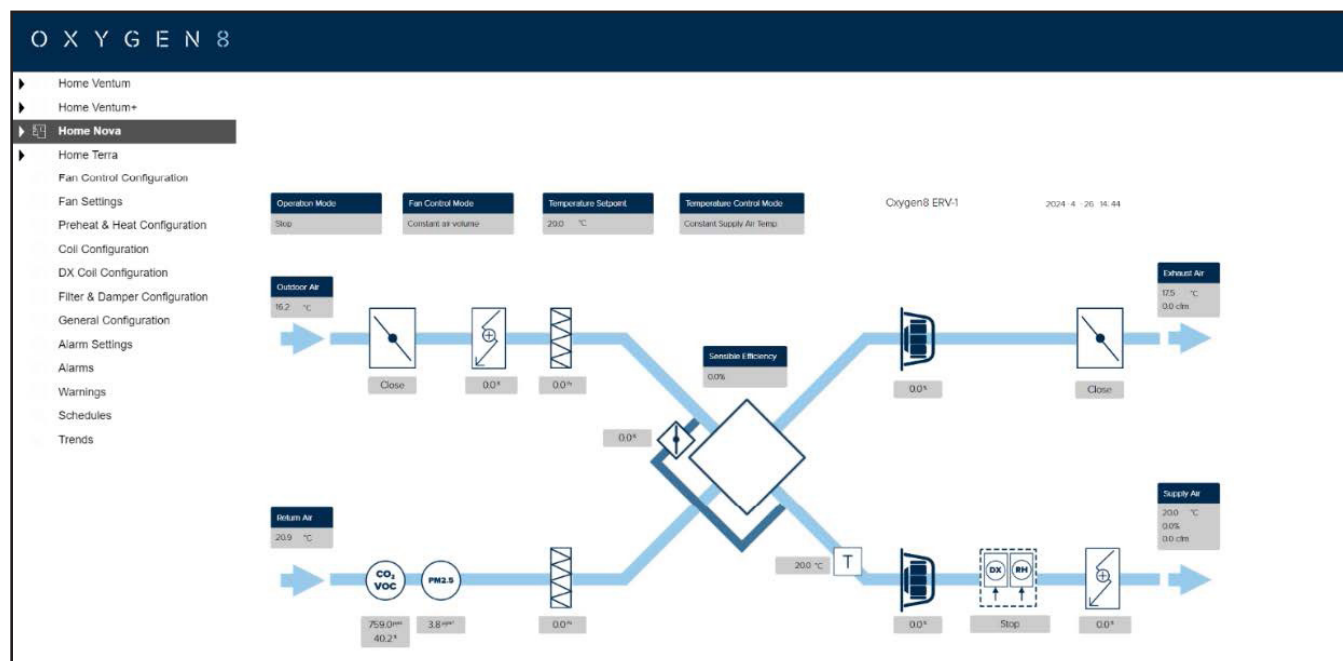
5.1 Operation Mode

On the Home screen, by clicking on any fan,
Select Fan Speed

"Stop" = the system is stopped

- Safety functions are active
- Outdoor and exhaust air dampers are closed

"Low speed" = the system runs constantly according to the parameter settings for low speed
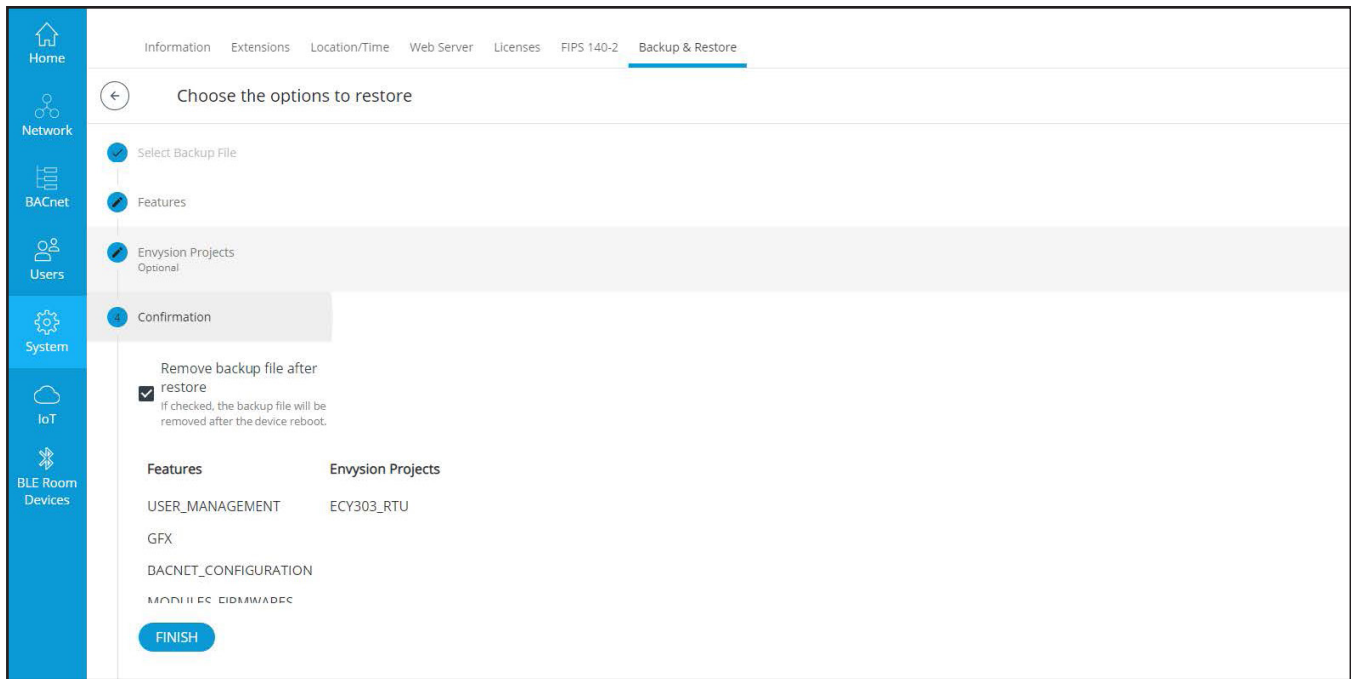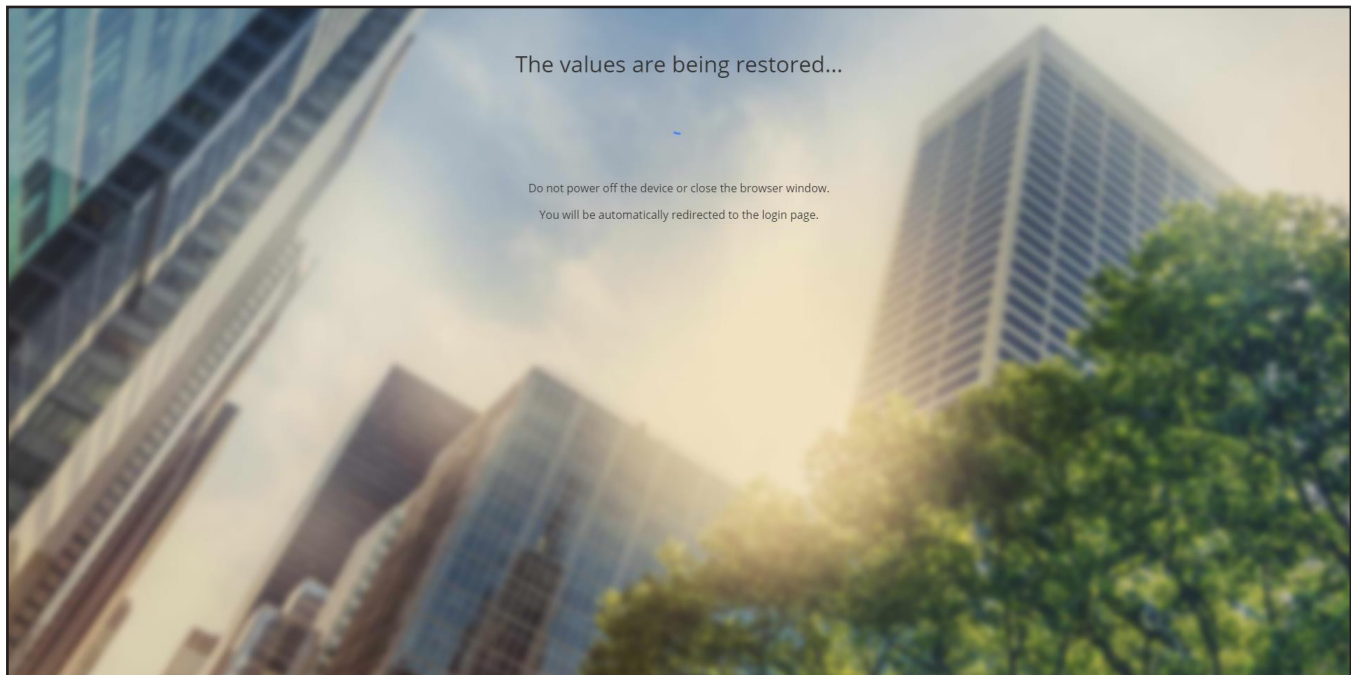
- Operating times for the weekly program cannot be accessed

"High speed" = the system runs constantly according to the parameter settings for high speed

- Operating times for the weekly program cannot be accessed

"Auto-Weekly program" = the system runs according to the weekly program settings

- Operating times for the weekly program cannot be accessed and set.

5.2 Scheduling Operating Times

Schedules are used to define different weekly events (weekly schedule) and special events also referred to as exceptions.

The different options used to configure a schedule are displayed by right-clicking on the Schedule. One menu is displayed when adding a new event and another menu is displayed when editing an existing event.


The following pop-up menu options are available:

OPTION	USED TO
CREATE EVENT	ADD A NEW EVENT
APPLY M-F	COPY ALL EVENTS IN THE SELECTED DAY TO MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY (AND OVERWRITES AND EXISTING EVENTS ON THOSE DAYS)
COPY DAY	COPY ALL EVENTS IN THE SELECTED DAY, TO USE WITH PASTE DAY OPTION, WHICH APPEARS ONLY IF COPY DAY WAS USED FIRST.
CLEAR DAY	CLEAR ALL EVENTS IN THE SELECTED DAY.
CLEAR WEEK	CLEAR ALL EVENTS IN THE ENTIRE WEEKLY SCHEDULE.
EDIT VALUE	EDIT AN EXISTING EVENT.
DELETE EVENT	DELETE THE SELECTED EVENT.
ALL DAY EVENT	MAKE CURRENTLY SELECTION (OR LAST ENTERED) EVENT EXTENDED TO THE ENTIRE DAY.
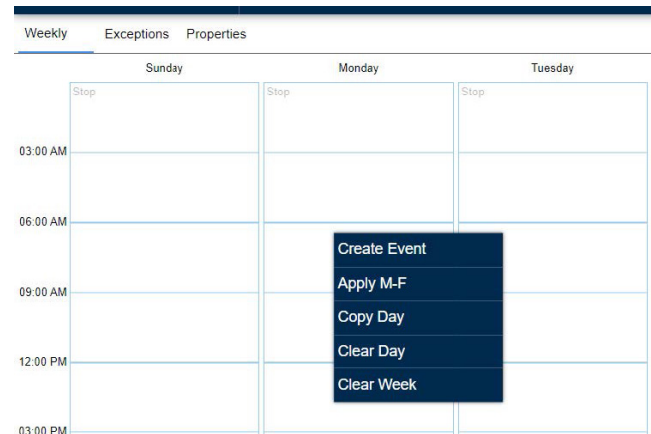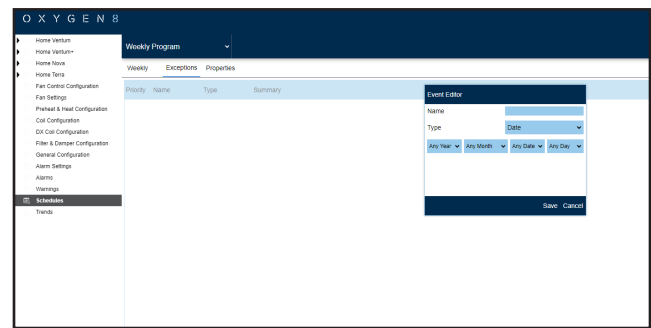
5.2.1 Adding a Schedule Event

1. Drag and drop the Schedule widget into a document window.

2. In the Weekly tab (in Edit mode), right-click on the weekday in the schedule and from the pop-up menu, select Create Event. A shaded bar appears at the top of the weekday.

3. Drag the edge of the shaded bar upwards and/or downwards to obtain the exact time frame you wish to assign to that weekday or to be more precise you can also enter the exact time in the Start Time and Finish Time parameters located at the bottom of the schedule.

5.2.2 Adding an Exception

Exceptions are special events or special days in the currently selected schedule instance. Typically, you use them to define days with scheduling exceptions (for example, holidays).

1. In the Exceptions tab, click Add. The Event Editor pop-up is displayed.

2. In the Name, enter the name of the event (e.g., New Year's, Thanksgiving, etc.) for your schedules.

3. In Type, select the type of special event:

DATE	SELECTS A DAY OR A SERIES OF WEEKDAYS, DATES, MONTHS, OR YEARS
DATE RANGE	SELECTS A RANGE OF DAYS
WEEK & DAY	SELECTS A SERIES OF WEEKDAYS, WEEK IN A CALENDAR MONTH OR MONTHS.
REFERENCE	SELECT A CALENDAR THAT WILL BE USED AS A 'SPECIAL EVENT REFERENCE' IN THIS SCHEDULE

4. Depending on your selection, related parameters will be displayed accordingly. Define the event as needed.

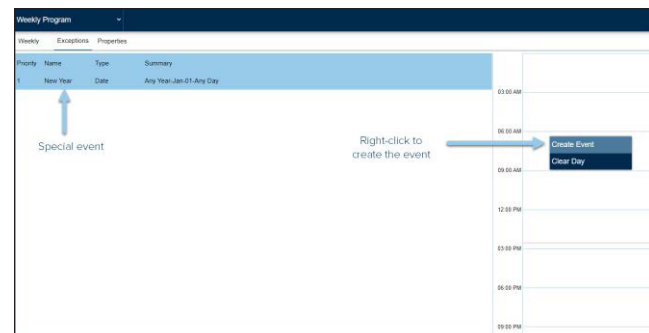**5.** Click Save. The pop-up is closed, and the event is displayed.

6. Once the exception is created, right-click on the schedule on the right side of the window and select Create Event.

7. Drag the edge of the shaded bar upwards and/or downwards to obtain the exact time frame you wish to assign to that special event

Note: To edit the special event, click Edit. To delete it, click Delete. To change the order of multiple events in the list, click Shift Up or Shift Down.

8. Once you are done setting up the schedule, hit the save button. Use the reload button to refresh the schedule.

Save button (left), reload button (right)

5.3 Temperature Setpoint

The setpoint described in this section is always the temperature setpoint for the control type selected.

The options are:

- Constant Supply Air Temp

- Constant Return Air Temp

- Constant Room Air Temp

The selected control type is displayed above.

Control Type is Selected Under

Home > Temperature Control Mode and can be selected to:

Changing the Temperature Setting (Temperature Setpoint)

Values can be changed by entering a new value in the data-entry field or by moving the mouse onto the slider below the setpoint.

5.4 Time and Date

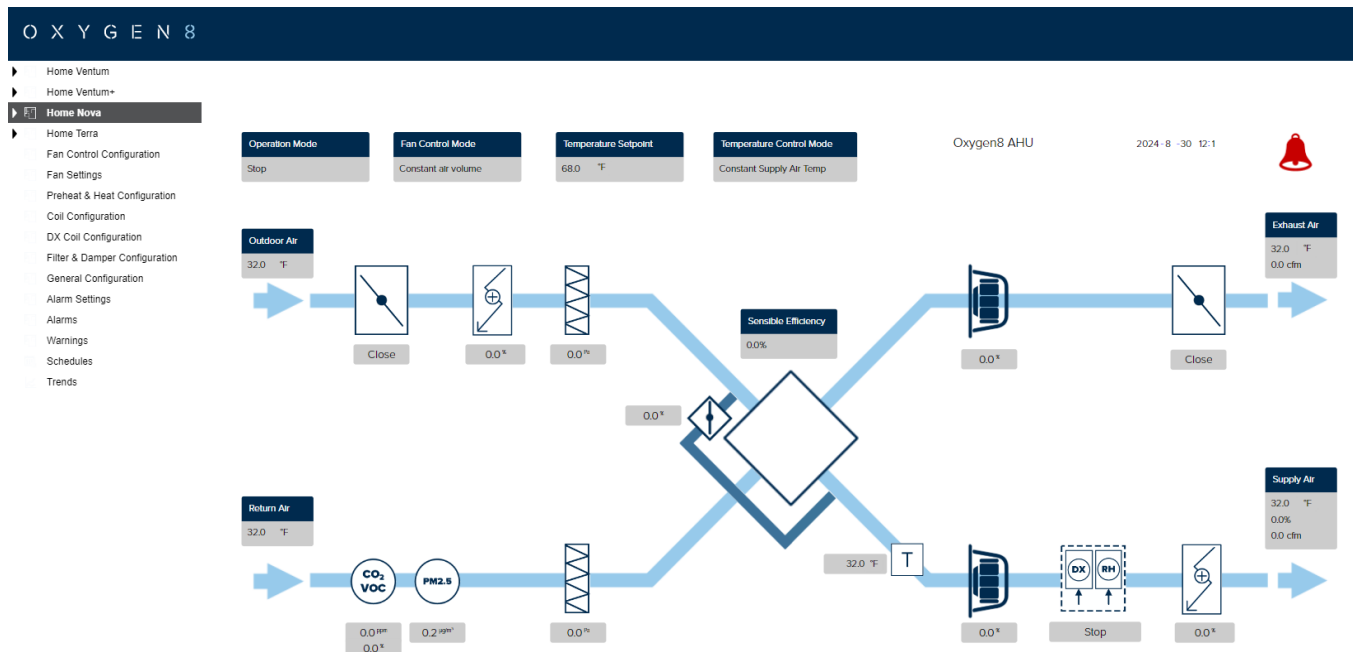- Go to System and select the Locatime/ Time tab .

- Set the "Set time automatically" button to ON, or enter the date and time manually.

- If you wish to use the computer time, select the "Get Current Computer Date Time" button.

- Press "Apply."

5.5 Alarm Console

The Alarm Console allows you to view and reset active alarms. The Alarm Console has two sections: Critical Alarms and Alarms Auto Reset. which will make a system stop procedure.

Critical Alarms need to manual reset after they are triggered (with the exception of External Stop Digital Input which can be configured to auto reset).

Critical Alarms:

• External stop digital input activated:

• Unit inside fire

• Preheater return water frost

• Reheater return water frost

• Outdoor air damper feedback

• Exhaust air damper feedback

• Low supply air temperature: 6.3 Enable

• High supply air pressure

• High return air pressure

• BPD Core defrost

Auto Reset alarms:

• All IO faults

• All Modbus device reliability and communication alarm

• All fans' faults and communication alarm

• All fans' feedback alarm

• External stop digital input activated: 6.13 Enable

Warning Console: The Warning Console allows you to view active warning. All warnings are auto reset.

Custom Display

Filter

5.6 Trends

The Trends screen contains the Trend Builder, which the operator can use to view all trend log objects that reside in the data tree of the controller by plotting the data of the selected trend on the chart, along the x and y axes. A list of available trends is provided, and you can select a color for each trend that you wish to plot on the graph to facilitate the viewing of many trends at the same time.

The Trend Builder provides additional functions such as exporting to a csv file, selecting a time range, default intervals, selecting format and typing text in a filter field.

Export to .csv
Click on it and a csv file of the selected trends will be downloaded by your browser.

Time Range
Select a time parameter option from the list (today, last week, etc.)

Interval
Select a default interval of time that is used to determine what and how data is presented in your trend chart. For example, an interval value of 1 hour will present data at a granularity level of every one hour, while an interval value of 15 minutes will show data for every 15 minutes of logged data.
In addition, you can also select other interval options such Avg (average value for the selected interval period), Min or Max (minimum or maximum value for the selected interval period), Sum (total of the values in the selected interval period), etc.

Filter
The filter field allows you to filter through a list of trends based on the text that you typed in the field.
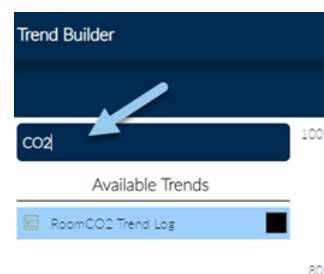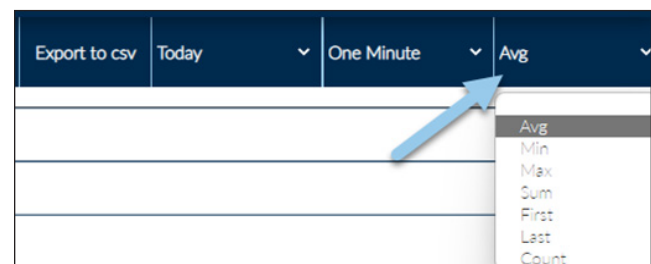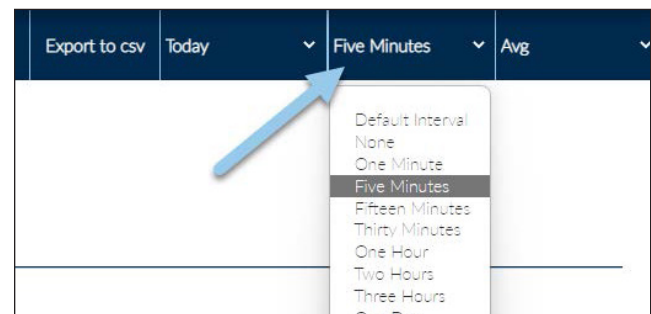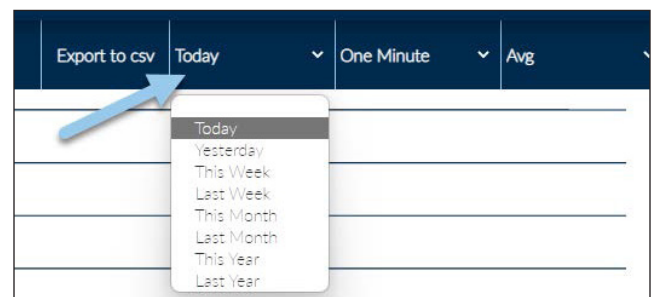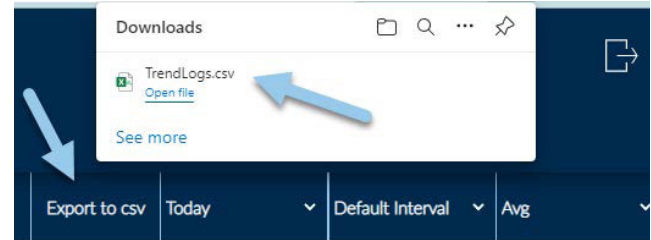
6.0 MAINTENANCE

⚠️ **Warning:**
During all work on fan in the hazardous area:

Maintenance operation is only to be performed by trained service personnel.

Observe the safety and labor regulations (DIN EN 50110, IEC 364).

No maintenance work on running fan!

Open the electrical circuit and secure against being switched back on.

Verify the absence of voltage.

The rotor must be standing still!

Always wear the appropriate PPE (safety shoes and gloves for handling).

Regular inspection, if necessary with cleaning, is required to prevent imbalance due to ingestion of particles.

⚠️ **Danger:**
Clean the fan's flow area:

Wet cleaning under voltage may lead to an electric shock - danger to life!

Do not use any aggressive, paint solventcleaning agents when cleaning.

Never use a high-pressure cleaner or spray jet to clean.

Avoid letting water permeate into the motor and the electrical installation.

After cleaning, the motor must be operated for 30 minutes at 80-100% of the max. rpm to let it dry out. This will allow any possibly penetrated water to evaporate.

Ball-bearings service life

6.1 Fans

The fan or motor is maintenance-free due to the use of ball bearings with "lifetime lubrication". Once the grease operating life F10h has been reached, it may be necessary to replace the bearing. The bearing service life expectation may change compared to the specified value, if operating conditions such as increased vibrations or shocks, increased or too low temperatures, humidity, dirt in the ball bearing or unfavorable control modes are present. A service life calculation for special applications can be provided on request.

6.2 DX Coil

Operation and Maintenance for First Time Use

Air Distribution

- Uniform air flow is crucial to coil performance and should not vary significantly across the coil face

- Air velocities should be maintained between 200 and 550 feet per minute without a mist eliminator and between 200 and 700 feet per minute with a mist eliminator

- The drain pan should be designed and installed such that there is no standing water

- The maximum operating temperature is 350°F for any Direct Coil coils.

Cleaning

- Coils must be cleaned periodically to obtainmaximum performance. Soiled fins reduce the capacity of the coil, and demand more energy from the fan.

- Periodic inspection of the coil for signs of damage, leaks or corrosion is also recommended. Any repair or replacement of parts should be performed by a qualified professional.

- Any fluid passing through the coil should be free of any sort of contaminants. Periodic testing and correction will enable the coil to last longer.

- Fins can be cleaned using spray washers or using commercial cleaners. Care must be taken not to damage the coils and to not allow water to touch any electrical equipment. However, caution should be exercised when working with the fins as the sharp edges can cause serious personal injury.

Note: When the coil surface itself needs cleaning, ensure an appropriate solution and equipment are selected to avoid damage to the coil and/or enabling any health hazards. Cleaning should be done inwards from the airflow exit so any contaminant will later be pushed out of the coil. Follow the manufacturer's instructions with any cleaning solution or equipment

6.3 Hydronic Coil

Operation and Maintenance

First Use Recommendation

- The air vent (at the uppermost point on theassembly) should be opened during set-up toexhaust any air from the coil. To maintain heat transfer capacity, periodically vent the air in the coil.

Air Distribution

- Uniform air flow is crucial to coil performance and should not vary significantly across the coil face

- The drain pan and its piping should be arranged such that there is not still water in the pan to be blown by the passing flow of air

- The fluid and air velocity should be kept to near the specifications for the coil

- The maximum operating temperature is 350°F for any Direct Coil coils

Winterizing Coils

- During the winter, if the coil is not in use all water should be drained from the coil. The coil should then be thoroughly flushed with a glycol solution.

Cleaning

- Coils must be cleaned periodically to obtainmaximum performance. Soiled fins reduce the capacity of the coil, and demand more energy from the fan

- Periodic inspection of the coil for signs of damage, leaks or corrosion is also recommended. Any repair or replacement of parts should be performed by a qualified professional.

- Any fluid passing through the coil should be free of any sort of contaminants. Periodic testing and correction will enable the coil to last longer.

- Fins can be cleaned using spray washers or using commercial cleaners. Care must be taken not to damage the coils and to not allow water to touch any electrical equipment. However, caution should be exercised when working with the fins as the sharp edges can cause serious personal injury.

- When the coil surface itself needs cleaning, ensure an appropriate solution and equipment are selected to avoid damage to the coil and/or enabling any health hazards. Cleaning should be done inwards from the airflow exit so any contaminants will later be pushed out of the coil. Follow the manufacturer's instructions with any cleaning solution or equipment

- Drain-pans in any air conditioning unit contain moisture and must be cleaned regularly

6.4 Core

We recommend washing our exchanger at least once per year, using tap water. If the exchanger becomes heavily soiled, a mild detergent such as Dawn®, Palmolive® or equivalent dish soap may be used. While cleaning other adjacent components in the HVAC system, it is possible for our exchanger to come in contact with harsher detergents. The following is a list of coil cleaners and all-purpose cleaners that have been tested with our exchangers and their compatibility. Generally, contact with any coil cleaning product is not recommended and specifically hydroxide-based cleaners should be avoided. If contact does occur, our exchanger should be rinsed immediately as it may void the warranty.

CLEANER	RECOMMENDATION
VIPER EXPANDING FOAM	OK
CALSPRAY-NU-BRITE	AVOID CONTACT
CALSPRAY-EVAP FOAM	OK
HD CALCLEAN 1:40	OK
HD CALCLEAN 1:5	AVOID CONTACT
FANTASTIK W/ BLEACH	AVOID CONTACT
FANTASTIK ORIGINAL	AVOID CONTACT

Core Cleaning Instructions

1. Obtain access to a source of regular tap water. Do not use a high-pressure water source (pressure washer).

2. Remove our exchanger from the system if possible, to facilitate access to all exchanger faces, otherwise wash in place. Ensure adequate drainage is available for waste water.

3. ONLY if the exchanger is heavily soiled, prepare a solution of less than 1:100 parts water to dish soap. Otherwise, clean water is sufficient.

4. Orient the plates vertically for drainage and pour solution (or clean water) through our exchanger, both supply and exhaust paths, ensuring exposure of all layers.

5. Thoroughly rinse with clean tap water if a soapy solution was used until no more bubbles appear in the exiting water.

6. Allow our exchanger to dry (with plates still oriented vertically) until there is no more water\dripping out, then return to service. Cleaner Recommendation

6.5 Filters

After dirty filter alarm has been initiated, check filter for obstructions. If there are no obstructions than the filter high limit pressure has been reach and the filter is considered to have reached the end of life and needs to be replaced.

Filter Sizing

NOVA UNIT MODEL(S)	WIDTH (IN)	HEIGHT (IN)	QTY OA (MERV 13)	QTY RA (MERV 8)	FACE AREA VELOCITY
A16, A18	13.500	21.375	1	1	387
B20, B22	17.500	26.625	1	1	402
C20, C22	17.375	17.375	2	2	525
C20B, C22B	17 3/8	27 3/8	2	2	333
C24, C26	17.375	21.375	2	2	523
C26B	17.375	17.375	4	4	322
C30, C32	17.375	27.375	2	2	530
C32B	17.375	21.375	4	4	339
C40	17.375	17.375	4	4	525
C40B	17.375	17.375	6	6	350
C48	17.375	21.375	4	4	523
C48B	17.375	21.375	6	6	349
C58	17.375	17.375	6	6	525
C70	17.375	21.375	6	6	523
SPECIALS					
C58B	17.375	17.375	6	6	525
C70B	17.375	21.375	6	6	523
C90	17.375	21.375	10	10	419
C90B	17.375	21.375	10	10	419

All Nova filters are 2" thickness.

6.6 Fuse Replacement

The table on the right summarizes the low voltage transformer protection and current based on unit voltage and phases.

24V TRANSFORMER RATINGS		
Fan power [V/Ph]	Fuse Size	FLA
208/1	3/4	0.29
240/1	3/4	0.29
208/3	3/4	0.33
460/3	3/10	0.14

6.7 Control Unit Status Display

The display shows an overview of the system's actual status and operating conditions.

The menu on the left allows navigation to the different screens:

- Home Nova (System Overview)

- Configuration screens (more details on section 6.8)

- Schedules

- Alarms

- Trends

There are 4 control options at the top left:

- Operation Mode

- Fan Control Mode

- Temperature Setpoint and

- Temperature Control Mode

If there is an active alarm, a red bell appears on the top right. Click on it to navigate to the Alarm Console.

If there is an active warning, a yellow bell appears on the top right. Click on it to navigate to the Alarm Console.

Clicking on the system components (fans, heaters, dampers) opens a pop-up screen with dedicated controls and more information.

Values in the grey boxes below the system components indicate their current status (i.e. 76.2% below the Supply Air fan indicates its current speed).

There are fields indicating the current system values such as temperatures, air flow, relative humidity, etc.
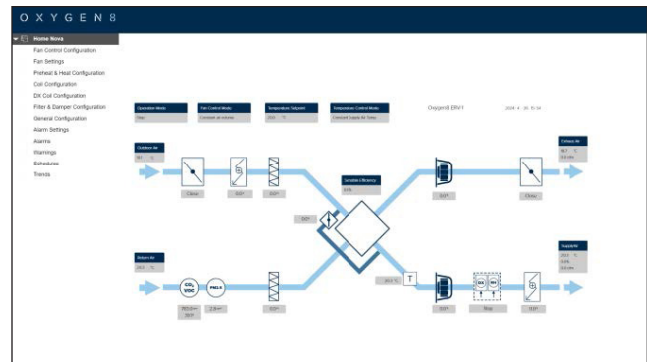
Hand Mode Operation

Setting equipment in Hand Mode can be used during service and maintenance to test that the outputs work as intended.

To use Hand Mode, from the Home screen, click on the desired system component and in the pop up screen that opens, select Hand Mode.

The examples below illustrate the Hand Mode Operation of the supply fan speed.

1. On the Home Nova screen, click on the Supply Air Fan icon.

2. Set SA Fan Mode to "Hand"

3. Then below on Supply Air Fan Hand Speed, enter the desired speed in %.

4. The SA Fan will now operate at the speed set.

5. Set SA Fan Mode back to "Auto" for normal operation.

Note: after maintenance and testing, make sure to set all components back to Auto for proper operation. Use the Master Auto button on General Configuration.

6.8 Configuration Screens

The Configuration screens display and allow modification of all the program settings. They are organized into groups: Fan Configuration, Preheat and Heat Configuration, Cooling and DX Coil Configuration and General Configuration.

6.8.1 Fan Configuration

This screen allows configuration of the fans with the following settings:

1.1 Fan Speed Control Mode
Selects the fan speed control strategy: Constant Air Volume, Constant Pressure RA Slave, Constant CO2, or Constant VOC

1.2 Supply Fan Max Airflow
Sets the absolute maximum Supply Fan flow for safety. This only applies to Constant Pressure RA control mode.

1.3 Return Fan Max Airflow
Sets the absolute maximum Return Fan flow for safety. This only applies to Constant Pressure RA control mode.

1.4 Reduced Air Flow Option
Safety feature to reduce fan flow if the temperature is below setpoint for 10 minutes. Select if no fan, Supply Air fan or both fans should react to the feature.

1.5 FB Alarm Auto Reset Time
Feedback Alarm auto reset time. If the controller does not detect the expected RPMs when the fan is commanded to run, a Feedback (FB) alarm is triggered. This timer determines the auto reset wait time

1.10 Supply Air Fan Low Speed
Set the required setpoint for Supply flow at "Low" speed during Constant Air Volume control.

1.11 Supply Air Fan Mid Speed
Set the required setpoint for Supply flow at "Medium" speed during Constant Air Volume control.

1.12 Supply Air Fan High Speed
Set the required setpoint for Supply flow at "High" speed during Constant Air Volume control.

1.20 Return Air Fan Low Speed
Set the required setpoint for Return flow at "Low" speed during Constant Air Volume control.

1.21 Return Air Fan Mid Speed
Set the required setpoint for Return flow at "Medium" speed during Constant Air Volume control.

1.22 Return Air Fan High Speed
Set the required setpoint for Return flow at "High" speed during Constant Air Volume control.

1.30 Slave RA Fan Speed Offset
Return air fan follows Supply Fan speed with an offset corresponding to the value set during Constant Pressure-RA Slave.

1.31 Supply Air Fan Low Speed
Set the required setpoint for Return flow at "Low" speed during Constant Pressure-RA Slave control,

1.32 Supply Air Fan Mid Speed
Set the required setpoint for Return flow at "Medium" speed during Pressure-RA Slave control.

1.33 Supply Air Fan High Speed
Set the required setpoint for Return flow at "High" speed during Pressure-RA Slave control.

1.34 Pressure Deadband
Set the pressure percentage above setpoint at which the Supply High Pressure Alarm will be triggered

1.35 High SA Pressure Alarm Time
Set the time to wait to trigger the Supply High Pressure Alarm when the pressure exceeds the deadband (1.34 above)

1.40 Return Air CO2 Setpoint
Set the required setpoint for return duct CO_2 concentration to run Return Air Fan at the speed set on parameter 1.22.

1.41 Supply Air Fan Speed Offset
Set the required offset for the Supply Air Fan.

1.42 Minimum Runtime
Set the minimum time the fan stays at high speed once it exceeds the setpoint (1.40), once this time elapses and the CO2 concentration is below 1.40, the fan resumes operation at the speed set on 1.20.

1.43 Sensor Selection
Select what sensor is used to measure CO2: RAductCO2 (in the duct) or RoomCO2.

1.50 Return Air VOC Setpoint
Set the required setpoint for return duct VOC concentration to run Return Air Fan at the speed set on parameter 1.22.

1.51 Supply Air Fan Speed Offset
Set the required offset for the Supply Air Fan.

1.52 Minimum Runtime
Set the minimum time the fan stays at high speed once it exceeds the setpoint (1.50), once this time elapses and the VOC concentration is below 1.50, the fan resumes operation at the speed set on 1.20.

1.60 Supply Air Fan Speed Offset
Set the fan offset to be subtracted from the external 0 to V signal. Example: If offset is 30% and the external voltage is 10V, the supply fan would run at 70%

1.61 Return Air Fan Speed Offset
Set the fan offset to be subtracted from the external 0 to V signal. Example: If offset is 25% and the external voltage is 8V, the return fan would run at 55%

1.70 Return Air Fan Low Speed
Set the required setpoint for Return flow at "Low" speed during Constant Pressure-RA Salve or Constant Pressure-Both control

1.71 Return Air Mid Speed
Set the required setpoint for Return flow at "Medium" speed during Pressure-Both Slave or Constant Pressure-Both control

1.72 Return Air High Speed
Set the required setpoint for Return flow at "High" speed during Pressure-Both Slave or Constant Pressure-Both control

1.73 Pressure Deadband
Set the pressure percentage above setpoint at which the Return High Pressure Alarm will be triggered

1.74 High RA Pressure Time
Set the time to wait to trigger the Supply High Pressure Alarm when the pressure exceeds the deadband (1.73 above)

6.8.2 Fan Settings

This screen allows configuration of the fans with the following settings:

	Supply Air Fan Settings	
1.80 Supply Air Fan Enable	Enable	
1.81 Supply Air Fan Start Delay	30.0 sec	
1.82 Supply Air Fan K Factor	71.0	
1.83 SA Fan PID Proportional Gain	250.0	
1.84 SA Fan PID Integral Time	8.0 sec	

	Return Air Fan Settings	
1.90 Return Air Fan Enable	Enable	
1.91 Return Air Fan Start Delay	15.0 sec	
1.92 Return Air Fan K Factor	71.0	
1.93 RA Fan PID Proportional Gain	250.0	
1.94 RA Fan PID Integral Time	8.0 sec	

1.80 Supply Air Fan Enable
This screen allows configuration of the heating coils (pre and post)

1.81 Supply Air Fan Start Delay
Set delayed start time for the fan. The set time is used for damper opening

1.82 Supply Air Fan K Factor
Set the fan k-factor. Fan k-factor is specified by the fan manufacturer and is used to calculate air volume (CFM) according to the following formula:

$V=\sqrt{\Delta P}\cdot k$

ΔP = difference between stationary pressure and dynamic pressure across the fan; k= fan k-factor

1.83 Supply Air Fan PID Proportional Gain
Set the fan PID proportional gain

1.84 Supply Air Fan PID Integral Time
Set the fan PID integral time

1.90 Return Air Fan Enable
Determines if the Return Fan is present or not

1.91 Return Air Fan Start Delay
Set delayed start time for the fan. The set time is used for damper opening

1.92 Return Air Fan K Factor
Set the fan k-factor. Fan k-factor is specified by the fan manufacturer and is used to calculate air volume (CFM) according to the following formula:

$V=\sqrt{\Delta P}\cdot k$

ΔP = difference between stationary pressure and dynamic pressure across the fan; k= fan k-factor

1.93 Return Air Fan PID Proportional Gain
Set the fan PID proportional gain

1.94 Return Air Fan PID Integral Time
Set the fan PID integral time

6.8.3 Preheat & Post Heat Configuration

This screen allows configuration of the heating coils (pre and post).

2.1 Preheater Type
Selects whether there is no preheater installed or if it is electric or hydronic.

2.2 Temperature Setpoint
Sets the preheater temperature setpoint.

2.3 PID Proportional Band
Set the preheater PID proportional gain.

2.4 PID Integral Time
Set the preheater PID integral time.

2.10 Min/Max Air Flow Protection
Enables or disables flow monitoring to protect the preheater.

2.11 Minimum Air Flow for 0% Heating
If 2.10 is set to Enable, sets the minimum supply flow to engage the preheater.

2.12 Flushing Time
Minimum time to run the fan after the preheater is disengaged to flush any remnant heat.

2.20 Return Water Temp. Control
Enables or disables return water frost protection of the hydronic preheater.

2.21 Startup Heating Percentage
During the system start-up, sets the hydronic preheater output after starting the supply air fan.

2.22 Standby Temperature
When the system is stopped and 2.20 is enabled, if the water temperature falls below this setpoint, heating will be modulated to maintain the temperature above this setpoint.

2.23 Frost Protection Temperature
When the system is running and 2.20 is enabled, frost protection activates on a linear relationship defined by parameters 2.23 & 2.24. This setpoint represents the return water temperature at which the heating will be activated at 100%.

2.24 Frost Protection P-Band
When the system is running and 2.20 is enabled, frost protection activates on a linear relationship defined by parameters 2.23 & 2.24. This setpoint represents the return water temperature at which the heating will be activated at 0%.

2.25 Frost Protection Alarm Temperature
Sets the hydronic return water temperature frost protection alarm setpoint. This alarm stops the unit.

2.30 Post Heater Type
Selects whether there is no post heater installed or if it is electric or hydronic.

2.31 PID Proportional Band
Set the post heater PID proportional gain.

2.32 PID Integral Time
Set the post heater PID integral time.

2.40 Min/Max Air Flow Protection
Enables or disables flow monitoring to protect the post heater.

2.41 Minimum Air Flow for 0% Heating
If 2.40 is set to Enable, sets the minimum supply flow to engage the post heater.

2.42 Flushing Time (All Electric Heaters)
Minimum time to run the fan after the preheater is disengaged to flush any remnant heat.

2.50 Return Water Temp. Control
Enables or disables return water frost protection of the hydronic preheater.

2.51 Startup Heating Percentage
During the system start-up, sets the hydronic preheater output after starting the supply air fan.

2.52 Stanby Temperature
When the system is stopped and 2.50 is enabled, if the water temperature falls below this setpoint, heating will be modulated to maintain the temperature above this setpoint.

2.53 Frost Protection Temperature
When the system is running and 2.50 is enabled, frost protection activates on a linear relationship defined by parameters 2.53 & 2.54. This setpoint represents the return water temperature at which the heating will be activated at 100%.

2.54 Frost Protection P-Band
When the system is running and 2.50 is enabled, frost protection activates on a linear relationship defined by parameters 2.53 & 2.54. This setpoint represents the return water temperature at which the heating will be activated at 0%.

2.55 Frost Protection Alarm Temperature
Sets the hydronic return water temperature frost protection alarm setpoint. This alarm stops the unit.

6.8.4 Coil Configuration

This screen allows configuration of the cooling & DX Coils (Heat Pump) and HGRH

3.1 Cooling Type
Selects whether there is no cooling coil installed or if it is a DX coil, Hydronic or HGRH.

3.2 Minimum Supply Air Temp.
Setpoint for minimum supply temperature when cooling is active.

3.3 OA Temp. to Stop Cooling
Cooling is stopped at outdoor temperatures below the setpoint.

3.4 Forced Cooling
When activated, air volume will be increased when cooling is active.

3.5 Forced Cooling Ramp
When Forced Cooling is Active, the total air volume increases at this rate. If the max. air flow is reached, it will be maintained while cooling is active.

3.6 PID Proportional Band
Set the cooling coil PID proportional gain.

3.7 PID Integral Time
Set the cooling coil PID integral time.

3.10 Startup Heating Percentage
During the start-up sequence of the ventilation system, the heating valve will be overridden to the value set. Heating valve override will be terminated once the start-up sequence has been completed and the inlet fan has reached its air volume setting of the hydronic preheater.

3.20 Temperature Deadband
Sets the deadband to switch from heating to cooling and vice versa when operating DX and HGRH coils.

3.21 Dehumidification Sensor Selection
Selects the sensor to use as reference for dehumidification when operating DX and HGRH coils.

3.30 Dehumidification Enable
Select whether dehumidification is to be active.

3.31 RH Target
Sets the desire Relative Humidity target. Above this value the dehumidification sequence starts.

3.32 RH Target Margin
Dead band for the RH Target. Defines when the humidity level has been satisfied and cooling returns to normal.

3.33 Dehumidification Cooling Output
Sets the cooling output during dehumidification.

3.34 RH Sensor Selection
Selects what sensor to use for dehumidification: SA Duct, RA Duct or Room.

3.40 Temperature Deadband
Used for Condensing units. Sets the deadband from Setpoint to enable the Condensing unit. If SA > SP + Deadband Enable Condensing Units. If SA < SP – Deadband Disable Condensing Unit

3.41 Cooling Stage 1
Enables/disables a Condensing unit with 1 Stage of cooling. It will be activated as per 3.40 above

3.42 Cooling Stage 1 Stable Time
Minimum time to run Stage 1. After this time expires the controller looks at the deadband as per 3.40 above to decide the state of Stage 1. If Stage 2 is enabled and SA > SP + Deadband, Stage 2 will be activated

3.43 Cooling Stage 2
Enables/disables a Condensing unit with 2 Stages of cooling. It will be activated if Stage 1 can't keep the SA inside the deadband after the timer expires (3.42)

3.44 Cooling Stage 2 Stable Time
Minimum time to run Stage 2

6.8.5 DX Coil Configuration

This screen allows configuration of the DX
Coil when a W controller is used

3.50 Control Mode Selection
Set the DX coil W-controller mode as Step or
PI Control Mode

3.51 Mode Switch Time
Set the mode switch time for heating or cool-
ing mode changing conditions

3.52 Mode Restart Time
Set the time to wait after the mode (Heating
or Cooling) has changed before allowing
another change

3.53 Cooling Upper 1 Step DB
Set the cooling step 1 start deadband

3.54 Cooling Upper 2~4 Steps DB
Set the cooling steps 2~4 start deadband

3.55 Cooling Lower Temp. Deadband
Set the cooling overshoot deadband

3.56 Cooling Step 1 Stable Time
Set the cooling step 1 elapse time before
step 2 starts. If during the stable time, the
current temperature meets the deadband,
time will expire immediately

3.57 Cooling Step 2 Stable Time
Set the cooling step 2 elapse time before
step 3 starts. If during the stable time, the
current temperature meets the deadband,
time will expire immediately

3.58 Cooling Step 3 Stable Time
Set the cooling step 3 elapse time before
step 4 starts. If during the stable time, the
current temperature meets the deadband,
time will expire immediately

3.59 Cooling Step 4 Stable Time
Set the cooling step 4 elapse time. If during
the stable time, the current temperature
meets the deadband, time will expire
immediately

3.60 Heating Upper Temp. Deadband
Set the heating overshoot deadband

3.61 Heating Lower 1 Step DB
Set the heating step 1 start deadband

3.62 Heating Lower 2~4 Steps DB
Set the heating steps 2~4 start deadband

3.63 Heating Step 1 Stable Time
Set the heating step 1 elapse time before step 2 starts. If during the stable time, the current temperature meets the deadband, time will expire immediately

3.64 Heating Step 2 Stable Time
Set the heating step 2 elapse time before step 3 starts. If during the stable time, the current temperature meets the deadband, time will expire immediately

3.65 Heating Step 3 Stable Time
Set the heating step 3 elapse time before step 4 starts. If during the stable time, the current temperature meets the deadband, time will expire immediately

3.66 Heating Step 4 Stable Time
Set the heating step 4 elapse time. If during the stable time, the current temperature meets the deadband, time will expire immediately

3.67 DX Coil Operation Mode
Set the DX Coil W-Controller operation mode (Both: heating/cooling, Cooling: only cooling)

3.68 Step Overshoot Time
Set the step overshoot time. When above the deadband, maintain the current step during the time before stepping down

3.69 Step Undershoot Time
Set the step undershoot time. When under the deadband, maintain the current step during the time before stepping up

3.70 Step 1 Voltage
Set the step 1 voltage signal

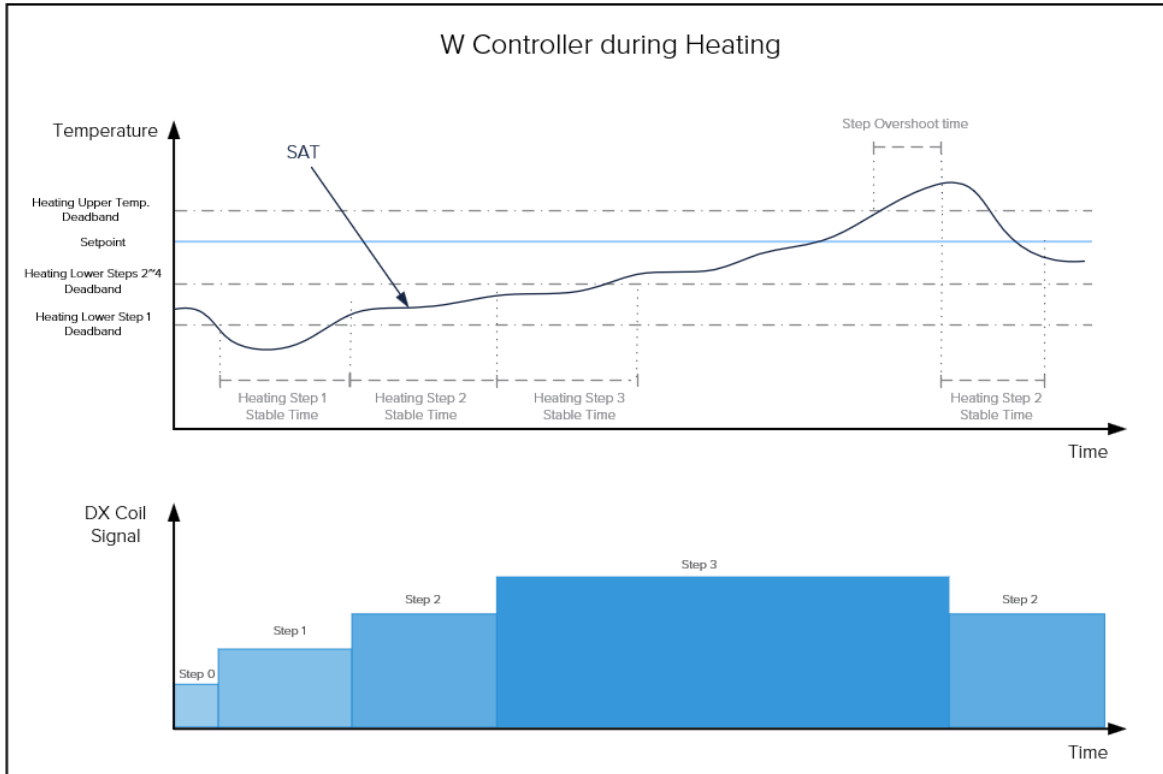### 3.71 Step 2 Voltage
Set the step 2 voltage signal

3.72 Step 3 Voltage
Set the step 3 voltage signal

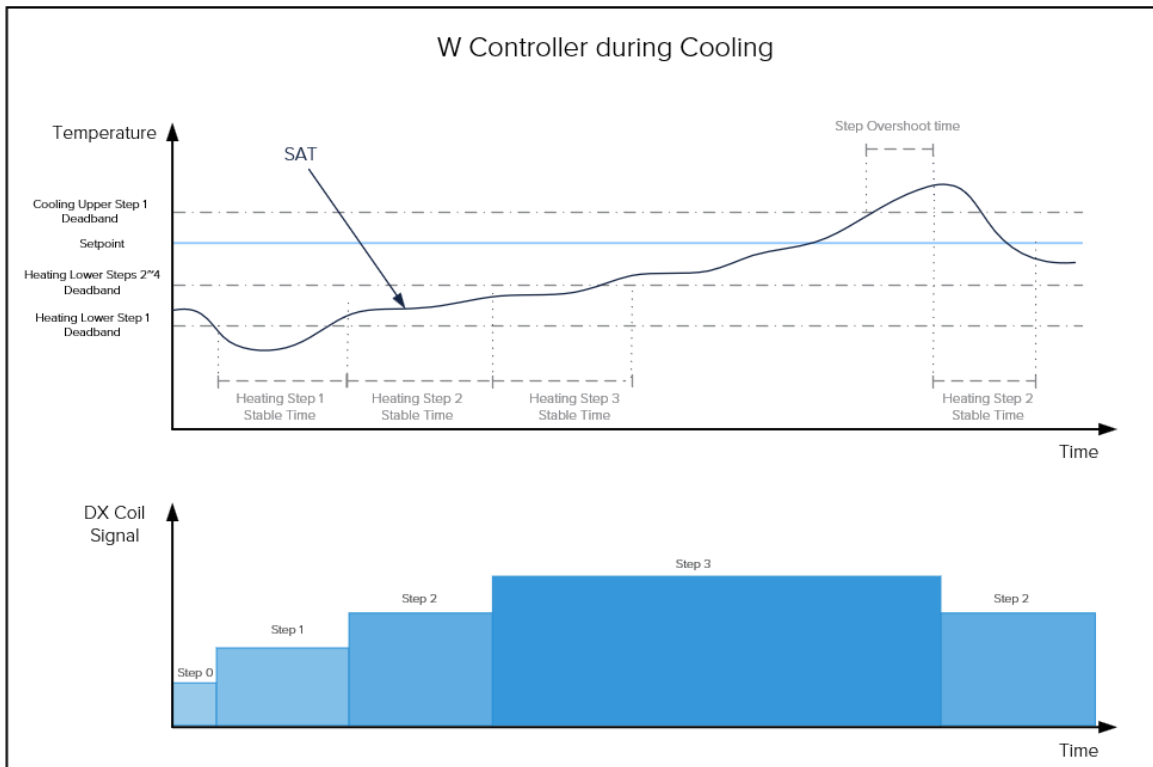### 3.73 Step 4 Voltage
Set the step 4 voltage signal

DX Coil W-Controller heating mode

DX Coil W-Controller cooling mode

6.8.6 Filter & Damper Configuration

This screen allows configuration of the filters and dampers.

4.1 Outdoor Air Damper
Selects whether the outdoor damper is present or not.

4.2 Outdoor Air Damper Delay Time
Set the time the damper takes to open.

4.3 Exhaust Air Damper
Selects whether the outdoor damper is present or not.

4.4 Exhaust Air Damper Delay Time
Set the time the damper takes to open.

4.5 OA Damper Feedback
Enables/Disabled damper feedback. If enabled, after the open signal is sent and the delay expires (4.2 above) if the feedback is not detected an alarm is triggered and the fans stop

4.6 EA Damper Feedback
Enables/Disabled damper feedback. If enabled, after the open signal is sent and the delay expires (4.4 above) if the feedback is not detected an alarm is triggered and the fans stop

4.10 Outdoor Air Filter
Selects whether the outdoor air filter is present or not.

4.11 Alarm Type
Select Static Pressure or Time Based for the outdoor air filter.
Static Pressure: A filter warning is activated if the Static Pressure Limit (4.12) is exceeded.
Time Based: A filter warning is activated when the filter operation time limit (4.13) is exceeded.

4.12 Static Pressure Limit
Set the static pressure limit for pressure drops across the outdoor air filter. Alarm Type must be set to "Static Pressure".

4.13 Filter Operation Time Limit
Set the operation time limit for the outdoor air filter. Alarm Type must be set to "Time Based".

4.14 Reset
Set the method to reset the outdoor air filter operation time.
Time Interval Off: Time based alarm (set by 4.13) is disregarded.
Time Interval ON: Resets the alarm timer.

4.20 Exhaust Air Filter
Selects whether the exhaust air filter is present or not.

4.21 Alarm Type
Select Static Pressure or Time Based for the exhaust air filter.
Static Pressure: A filter warning is activated if the Static Pressure Limit (4.12) is exceeded.
Time Based: A filter warning is activated when the filter operation time limit (4.13) is exceeded.

4.22 Frost Protection Alarm Temperature
Set the static pressure limit for pressure drop across the exhaust air filter. Alarm Type must be set to "Static Pressure".

4.23 Filter Operation Time Limit
Set the operation time limit for the exhaust air filter. Alarm Type must be set to "Time Based".

4.24 Reset
Set the method to reset the exhaust air filter operation time.
Time Interval Off: Time based alarm (set by 4.13) is disregarded.
Time Interval ON: Resets the alarm timer.

4.30 Bypass Damper
Selects whether the bypass damper is present or not.

4.31 HR Core Pressure Sensor
Selects if a pressure sensor is installed across the core.

4.32 PID Proportional Band
Set the bypass damper PID proportional gain.

4.33 PID Integral Time
Set the bypass damper PID integral time.

4.34 Efficiency Correction Factor
Sensible efficiency percent correction between ±5%.

4.35 Efficiency Warning
Enables or disables monitoring of core sensible efficiency.

4.36 Efficiency Warning Level
Sets the sensible efficiency setpoint under which a warning is issued. 4.35 has to be set to Enable.

4.40 Frost Protection Type
Selects what methodology of frost protection is used.
"No Selection": There is no frost protection.
"Only EA Temperature": Use exhaust temperature to trigger frost protection, when it drops below 4.43.
"BPD with EA Temperature": Use exhaust temperature to trigger frost protection (when it drops below 4.44 + 4.45) and the bypass damper to modulate.
"BPD with HR Core Pressure": Use core pressure to trigger frost protection (when it climbs above 4.46) and the bypass damper to modulate.

4.41 Time to Stop SA Fan
When the frost protection is active this is the time the SA Fan stops while the EA Fan runs to pass warm air through the core. Parameter 4.40 must be set to "Only EA Temperature".

4.42 Frost Protection Cycle Time
Sets the time to wait to check again the SA temperature after the SA fan completed the stop time determined by 4.43 above. Parameter 4.40 must be set to "Only EA Temperature".

4.43 Temperature Setpoint
Sets the exhaust air temperature to trigger frost protection, when it falls below this value the sequence set by parameters 4.41 & 4.42 begins. Parameter 4.40 must be set to "Only EA Temperature".

4.44 Ice Protection Temperature
Sets the exhaust air temperature to trigger ice protection. When the exhaust air temperature falls below this setpoint plus Deadband (parameter 4.45). The bypass damper is open at 100%.

If the exhaust air temperature remains below this setpoint for 10 minutes, the "HR core defrost" alarm is triggered, and the unit stops. Parameter 4.40 must be set to "Only EA Temperature".

4.45 Ice Protection Deadband
Adding temperature with 4.44, before the reaching frost alarm limit, starting frost protection active. 4.40 "BPD with EA Temperature" option.

4.46 Pressure Setpoint
Sets the core pressure to trigger frost protection, when the pressure exceeds this value, the bypass damper is open at 100% for the duration specified by 4.47 below. Parameter 4.40 must be set to "BPD with HR Core Pressure" option.

4.47 Pressure Timer
Sets the time the bypass damper is kept open at 100% when frost protection is triggered due to high core pressure (see parameter 4.46). Parameter 4.40 must be set to "BPD with HR Core Pressure" option.

6.8.7 General Configuration

This screen allows configuration of general settings including fire alarms and temperature settings.

5.2 Temperature Control Mode
Selects the temperature control mode, depending on the location of the temperature sensor used for control: Constant Supply Air Temp, Constant Return Air Temp or Constant Room Air Temp

5.3 Setpoint Compensation (See graph)
When Setpoint Compensation is ON, it offsets the temperature setpoint in relation to outdoor temperature in summer and/or winter. Settings 5.4 to 5.9 only apply when Setpoint Compensation is set to ON

5.4 Winter Start Temperature
Outdoor temperature for start of winter compensation

5.5 Winter Max. Temperature
Outdoor temperature for max. winter compensation

5.6 Winter Temperature Difference
Max. winter compensation of setpoint

5.7 Summer Start Temperature
Outdoor temperature for start of summer compensation

5.10 Temperature Setpoint Type
Select the type of temperature setpoint: Single (One setpoint for all conditions), Summer/Winter or Occupied/Unoccupied

5.11 Summer/Winter Change Reference
Valid only when 5.10 is set to Summer/Winter. Sets the reference to determine when is its winer or summer: OAT Temperature (uses parameters 5.12 & 5.13 below) or External BACnet signal

5.12 Reference OAT Setpoint
Set the OAT to determine the Winter Summer change over

5.13 Reference OAT Deadband
Set the OAT changeover deadband. If OAT > Reference OAT Setpoint + Deadband the Mode is Summer. If OAT < Reference OAT Setpoint - Deadband the Mode is Winter.

5.14 Summer Temperature Setpoint
Set the summer time setpoint. Summer time is defined based on 5.11 above

5.15 Winter Temperature Setpoint
Set the Winter time setpoint. Winter time is defined based on 5.11 above

5.16 Occupied Temperature Setpoint
Set the Occupied temperature setpoint. Occupancy is determined by the Distech EC-Multi-Sensor-BLE

5.17 Unoccupied Temperature Setpoint
Set the Unoccupied temperature setpoint Occupancy is determined by the Distech EC-Multi-Sensor-BLE

5.18 Occupancy Sensor Min. Run Time
Set the minimum time Occupancy mode will be kept once it is triggered (to avoid excessive cycling)

5.10 External Fire Alarm DI Enable
Enables/Disables the option to monitor an external fire alarm input (NC contact on UI1). When active the fans will run at the speeds specified on 5.11 & 5.12 and keep the dampers open. If the speeds entered on 5.1 & 5.12 are zero, the ERV will stop the fans, close the dampers and heating and cooling systems are shut down

5.11 External Fire Alarm SA Fan Speed
Set the speed the SA Fan runs at when the External Fire alarm input is active.

5.10 has to be set to Enable
If set to zero (and 5.12 is zero as well) the ERV will stop the fans, the dampers are closed and heating and cooling systems are shut down

5.12 External Fire Alarm AA Fan Speed
Set the speed the RA Fan runs at when the External Fire alarm input is active.

5.10 has to be set to Enable
If set to zero (and 5.11 is zero as well) the ERV will stop the fans, the dampers are closed

5.20 Unit Fire Alarm SA Temperature
Set the internal fire Supply Air Temperature. If the temperature exceeds this value, the ERV triggers an alarm, fans stop, dampers are closed and heating and cooling systems are shut down

5.21 Unit Fire Alarm RA Temperature
Set the internal fire Return Air Temperature. If the temperature exceeds this value, the ERV triggers an alarm, fans stop, dampers are closed and heating and cooling systems are shut down

5.30 External Start/Stop Enable
Enables/Disabled monitoring of the external start/stop digital input (UI2). When enabled and the input is active (NO contact) the unit will start. When the input is inactive, the unit will stop. If disabled the digital input is ignored

5.31 External Start/Stop Mode
Selects the kind of contact connect to the External Start/Stop input (UI2). Start On/Stop Off: Normally Open Contact (units runs when contact is closed). Start Off/ Stop On: Normally Closed Contact (Unit runs when contact is open)

5.40 Temperature Unit Selection
Set the desired temperature units: Cº or Fº

> **Note:** Units can only be changed when the system is stopped.

5.41 Temperature Setpoint Source
Select what device determines the Temperature Setpoint: the controller (through its web HMI or myDC Control App) or a Unitouch wall thermostat

5.42 CO2/VOC Sensor Enable
Determines if the CO2/VOC sensor (Siemens QPM2102/MO) is present or not If the Fan Speed Control Mode (1.1) is set to Constant CO2 or VOC this sensor is mandatory**.** If the Fans Speed Mode is another option, the sensor can still be used for the IAQ dashboard

5.43 PM2.5 Sensor Enable
Determines if the PM2.5 sensor (Siemens QSM2100) is present or not. This sensor is used for the IAQ dashboard

5.44 Unitouch Enable
Determines if a Unitouch (Thermostat/room sensor) is present or not

5.45 EC-Smart Enable
Determines if a EC-Smart (room sensor) is present or not

5.46 Dial LCD Enable

Determines if a Distech dial HMI is present or not. If enabled and the HMI is not connected the controller will issue a communication alarm

5.47 Nova Ventum/Terra Fan Config

Determines if the unit is a Nova/Ventum or a Terra. This is to determine if there are Supply & Return Fans or only Supply

5.48 SA Temperature Source

Determines what sensor is used for Supply Air Temperature: Duct Mounted (QFM2150) or Internal to the unit (PT1000)

5.49 RA Temperature Source

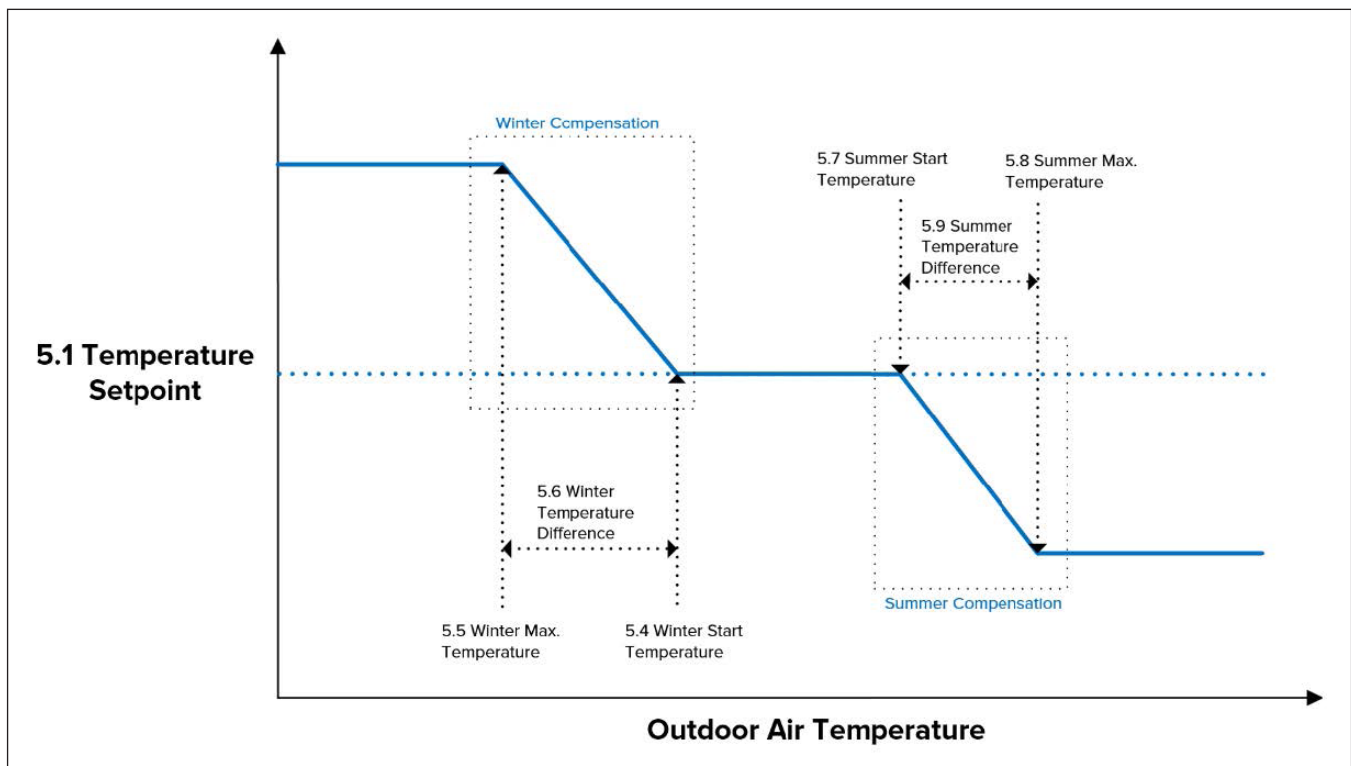Determines what sensor is used for Return Air Temperature: Duct Mounted (QFM2150) or Internal to the unit (PT1000)

Master Auto button

Setting this button to ON changes the mode of every element to AUTO (Fans, Dampers, Heater, Cooling, HGRH)
Use it if during commissioning some elements were tested in HAND to ensure full auto operation

Oxygen8 Software Version

Indicates the software version installed

6.8.8 Alarm Settings
This screen allows configuration of the alarms

6.1 Low SA Temp. Deadband
Set the low supply air temperature alarm deadband. Low supply air temperature = Temperature SP - Deadband

6.2 Low SA Temperature Time
Set the low supply air temperature alarm delay time

6.3 Low SA Temp. Alarm Enable
Set the low supply air temperature alarm enable. This alarm stops system and manual reset

6.10 External Stop Alarm DI Enable
Set the external stop alarm digital input signal (N/C) enable

6.11 External Stop Alarm SA Fan Speed
Set the external stop alarm supply fan speed. When a value above 0% is set, supply fan maintains that speed while the dampers remain opened.

6.12 External Stop Alarm RA Fan Speed
Set the external stop alarm return fan speed When a value above 0% is set, return fan maintains that speed while the dampers remain opened

6.13 Auto Reset
Set the auto reset

- **Disable:** system stop and manual reset

- **Enable:** system stop and auto reset

6.20 Unit Fire Alarm SA Temperature
Set the unit internal fire alarm supply air temperature. System stops and requires manual reset

### 6.20 Unit Fire Alarm RA Temperature
Set the unit internal fire alarm return air temperature. System stops and requires manual reset

6.8.9 myDC Control App

The myDC Control App from Distech allows control and monitoring of the unit from a mobile phone or tablet.

Once connected to the controller via WiFi (refer to 1.1 for instructions on how to connect), open the App and on the REST Network screen, click on the controller icon to open the main menu.

Enter the Role Password: 1111
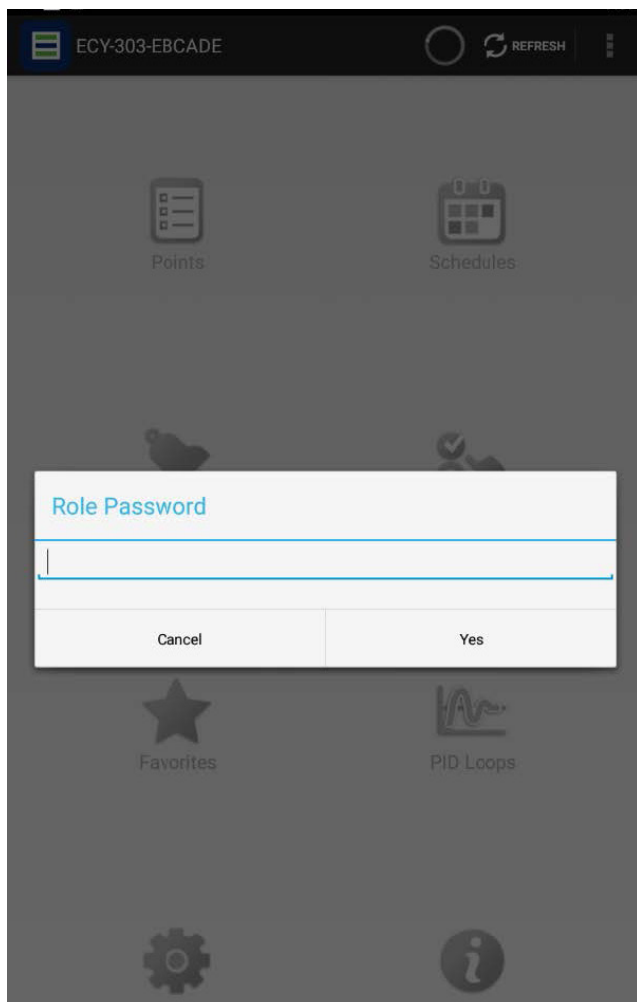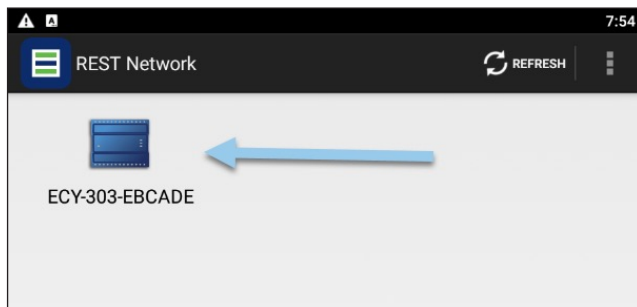
The main menu of the controller appears with the following options:

- Schedules

- Favorites

- Settings

- Device Info.

Schedules

Schedules are used to define different weekly events (weekly schedule) and special events also referred to as exceptions. The app allows review or modification of the schedules set on the web HMI.

Refer to section 2.2.
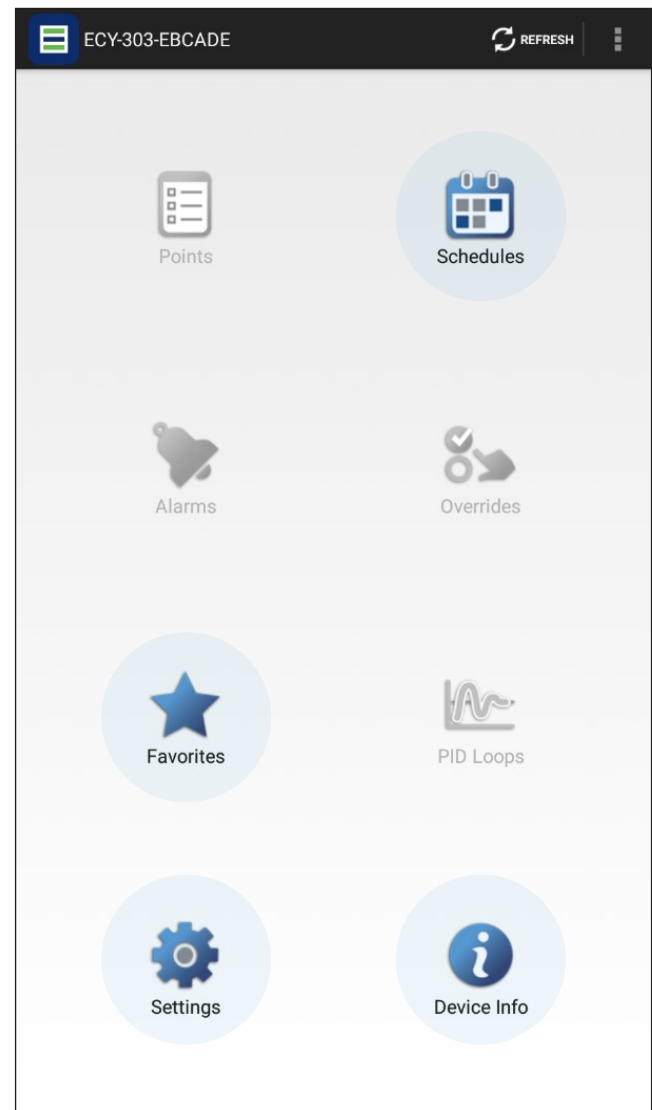
Favourites

The favorites screen allows quick access to the most important settings and data. It has 6 sections: Setpoints, Key Data, Control, Hand/Auto, Alarms and Warnings

Setpoints

TemperatureSetpoint
Set the required Temperature Setpoint (used for the Single Setpoint option)

SAlowSpeedCfm
Set the required setpoint for Supply flow at "Low" speed for Constant Volume control

SAmidSpeedCfm
Set the required setpoint for Supply flow at "Medium" speed for Constant Volume control

SAhighSpeedCfm
Set the required setpoint for Supply flow at "High" speed for Constant Volume control

RAlowSpeedCfm
Set the required setpoint for Return flow at "Low" speed for Constant Volume control

RAmidSpeedCfm
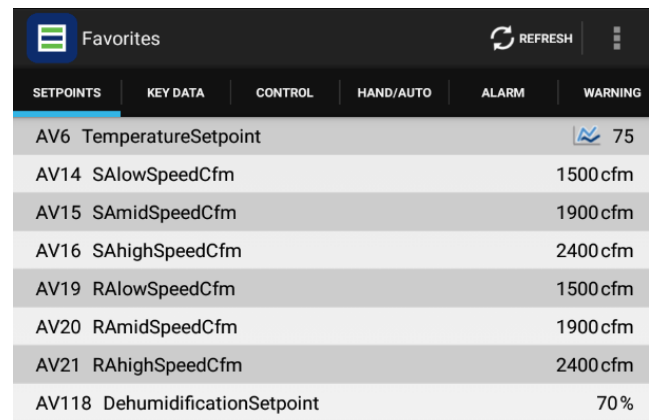Set the required setpoint for Return flow at "Medium" speed for Constant Volume control

RAhighSpeedCfm
Set the required setpoint for Return flow at "High" speed for Constant Volume control

DehumidificationSetpoint
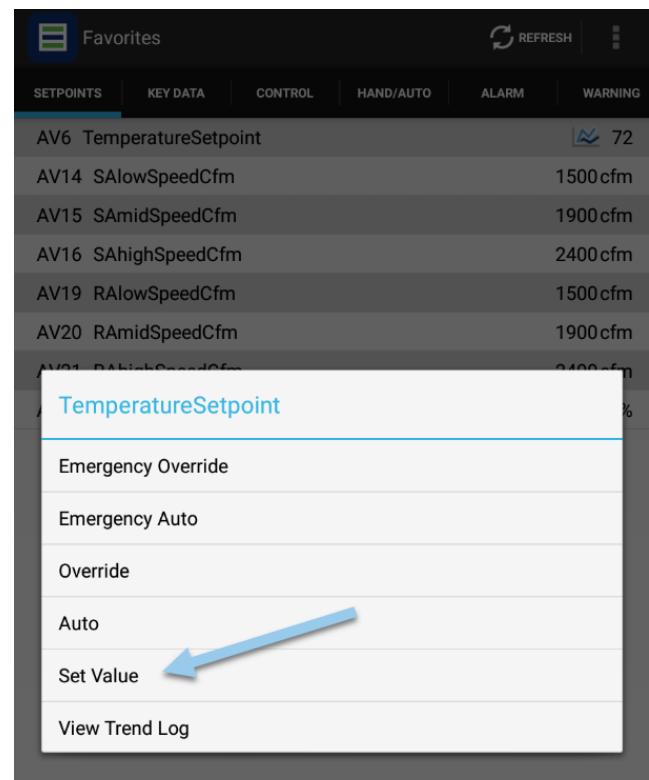Sets the desire Relative Humidity target. Above this value the dehumidification sequence starts.

> **Note:** Parameter 3.30 on the web HMI (or BV29 DehumidificationEnable on the Control section) must be set to Enable and the required cooling and post heat coils be configured
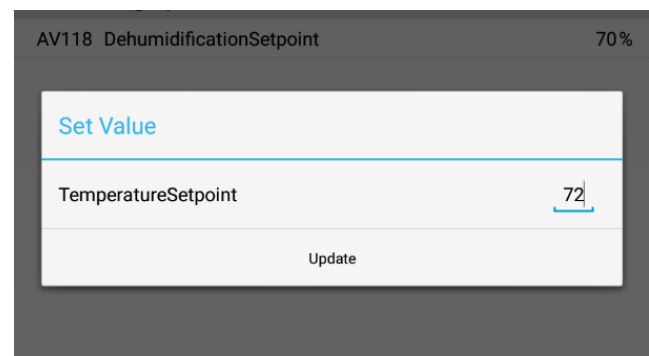

To modify at setpoint, touch it and from the popup menu select "Set Value"

Enter the desire value and select "Update"

Key Data

SAfanAirflowCfmHMI
Current Supply Air Fan flow in CFM

RAfanAirflowCfmHMI
Current Return Air Fan flow in CFM

SAtemperature
Current Supply Air temperature in the selected units

OAfilterPressure
Current Outdoor Air Filter pressure in Pascals

EAfilterPressure
Current Exhaust Air Filter pressure in Pascals

BPDposHMI
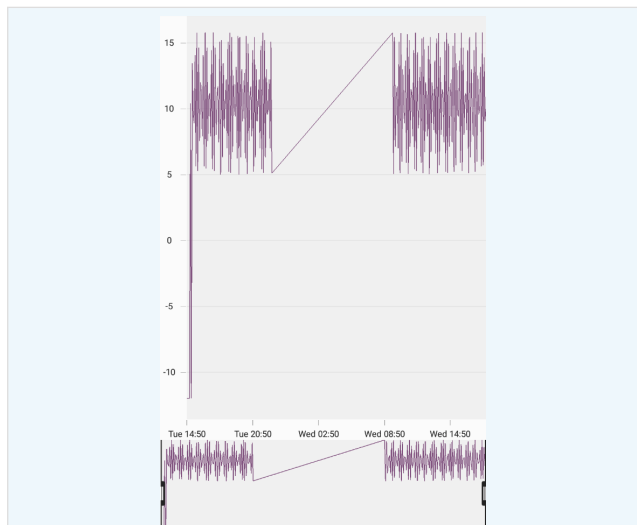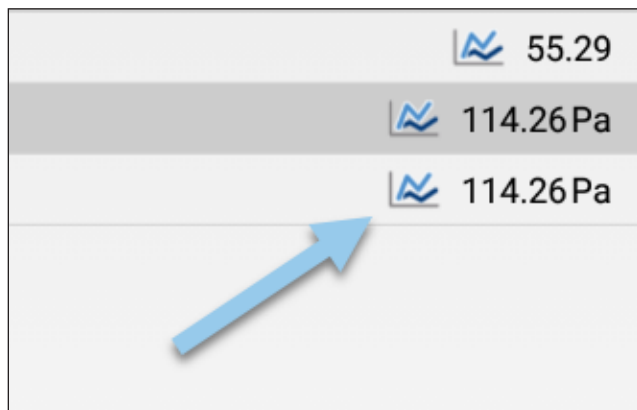Bypass Damper position in %
(0% = fully closed)

HGRHCommandsHMI
The current command being sent to the Daikn HGRH system (Stop, Heating, Cooling, Dehumidification)

VersionInformation
Displays current SW version loaded

To view trends of each value, touch on the trend icon

Control

OperationModeSelection

- **Stop:** The system is stopped

- **Low speed:** The system runs constantly according to the parameter settings for low speed

- **Mid speed:** The system runs constantly according to the parameter settings for mid speed

- **High speed:** The system runs constantly according to the parameter settings for high speed

- **Auto-weekly program:** The system runs according to the weekly program settings

TemperatureControlMode

- **Constant Supply Air Temp:** The system maintains Supply Air temperature

- **Constant Return Air Temp:** The system maintains Return Air temperature

- **Constant Room Air Temp:** The system maintains room temperature

FanSpeedControlMode

- **Constant air volume:** Supply and return fans are controlled in relation to flow/air volumes in the Supply and return ducts respectively.

- **Constant pressure-RA slave:** The Supply fan is controlled in relation to the pressure in the Supply duct while the return fan is controlled as a slave of the Supply fan with a freely selected offset.

- **Constant CO2:** If the CO2 level in the room rises, fan speed is increased, thus increasing air volume/air turnover towards the max. air volume setting. When the CO2 level falls fan speed is decreased.

- **Constant VOC:** If the VOC level in the room rises, fan speed is increased, thus increasing air volume/air turnover towards the max. air volume setting. When the VOC level falls fan speed is decreased.

‹ Back	Control	↻	🗁
MSV1 OperationModeSelection			Stop
MSV3 Temperat...	Constant Supply Air Temp		
MSV4 FanSpeedContr...	Constant air volume		
			3 item(s)

Hand/Auto

This screen allows selecting the operation mode of the unit's elements. In Auto they follow the controller algorithms, in Hand they allow manual commands for commissioning and testing purposes. The elements are the following:

SAfanHandAuto: Supply Air Fan mode

SAfanHandSpeed: Supply Air Fan speed when in Hand mode

RAfanHandAuto: Return Air Fan mode

RAfanHandSpeed: Return Air Fan speed when in Hand mode

PreHeaterHandAuto: Pre heater mode

PreHeaterHandOutput: Preheater output (in percentage) when in Hand mode

ReHeaterHandAuto: Post heater mode

ReHeaterHandOutput: Post heater output (in percentage) when in Hand mode

CoolingHandAuto: Cooling coil or DX coil mode

CoolingHandOutput: Cooling coil or DX coil output (in percentage) when in Hand mode

DamperHandAuto: Damper (both OA and EA) mode

DamperHandOpenClose: Damper (both OA and EA) command to open or close in Hand

BPDamperHandAuto: Bypass Damper mode

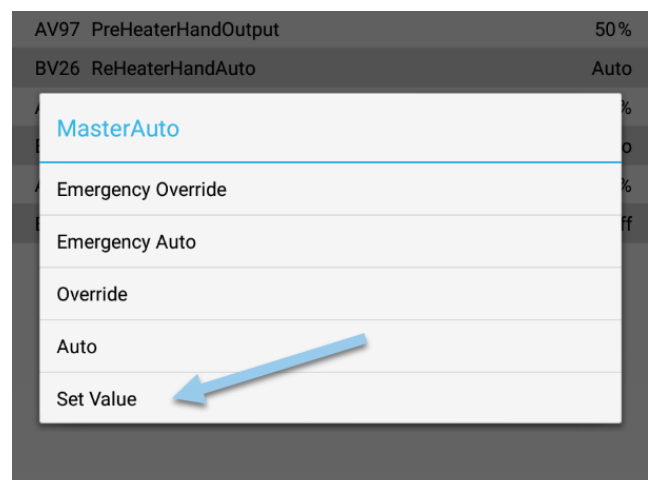**DamperHandOpenClose:** Damper (both OA and EA) command to open or close in Hand

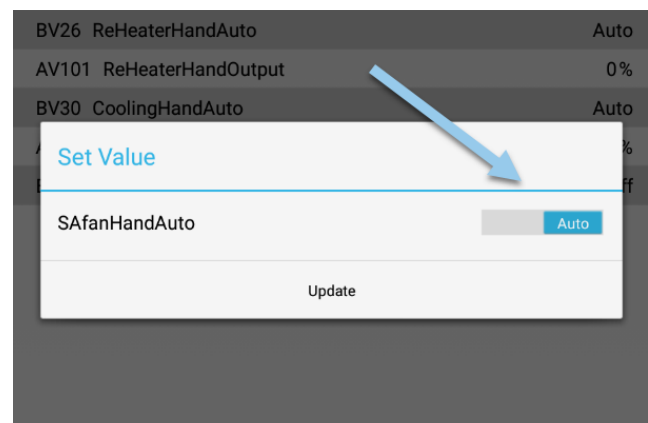**MasterAuto:** Toggle On and Off to set all elements in Auto

To change the mode of a element, touch it and from the popup menu select "Set Value"

Select "Auto"/"Hand" and press "Update"

Alarms
These alarms auto-rest when the
condition that causes them disappears

ALARM	STATE
H101dinFault	External stop alarm io fault
H101doutFault	G-Alarm io fault
H102dinFault	External start stop io fault
H102doutFault	Unit operation and fan run signal io fault
H103ainFault	Preheater return water temprature io fault
H103doutFault	Damper open close signal io fault
H104ainFault	Reheater return water temperature io fault
H104doutFault	Water cooling or Dx heating, cooling signal io fault
H105ainFault	PM2.5 sensor io fault
H105aoutFault	Bypass damper output signal io fault
H106ainFault	W controller 0-10V io fault
H106aoutFault	Cooling or Dx heating, cooling output signal io fault
H107aoutFault	Preheater output signal io fault
H107dinFault	OA damper feedback io fault
H108aoutFault	Reheater output signal io fault
H108dinFault	EA damper feedback io fault
HGRHdewpointSenCommFault	HGRH dewpoint Temp RH sensor fault
HRcoreHuba43CommFault	HR core huba sensor fault
HRcoreHuba43Fault	HR core huba sensor fault
ManualResetAlarmButton	
OAductTempRHfault	OA duct Temp RH sensor fault
RAductCo2VocCommFault	sensor fault
RAductCo2VocFault	sensor fault
RAductHuba45CommFault	RA duct huba sensor fault
RAductHuba45Fault	RA duct huba sensor fault
RAductTempRHcommFault	sensor fault
RAductTempRHfault	sensor fault
RAfan1CommFault	RA fan 1 comm fault
RAfan1Fault	RA fan 1 alarm
RAfan1FBalarm	RA fan 1 FB alarm
RAfan2CommFault	RA fan 2 comm fault
RAfan2Fault	RA fan 2 alarm
RAfan2FBalarm	RA fan 2 FB alarm
RAfan3CommFault	RA fan 3 comm fault
RAfan3Fault	RA fan 3 alarm

ALARM	STATE
RAfan3FBalarm	RA fan 3 FB alarm
RAhuba42CommFault	RA huba sensor fault
RAhuba42Fault	RA huba sensor fault
SAductHuba44CommFault	SA duct huba sensor fault
SAductHuba44Fault	SA duct huba sensor fault
SAductTempRHcommFault	sensor fault
SAductTempRHfault	sensor fault
SAfan1CommFault	SA fan 1 comm fault
SAfan1Fault	SA fan 1 alarm
SAfan1FBalarm	SA fan 1 FB alarm
SAfan2CommFault	SA fan 2 comm fault
SAfan2Fault	SA fan 2 alarm
SAfan2FBalarm	SA fan 2 FB alarm
SAfan3CommFault	SA fan 3 comm fault
SAfan3Fault	SA fan 3 alarm
SAfan3FBalarm	SA fan 3 FB alarm
SAhuba41CommFault	SA huba sensor fault
SAhuba41Fault	SA huba sensor fault
StopAlarmExternalAreset	External stop auto reset alarm

< Back   Alarms

BV80 SAductTempRHfault   normal
BV81 RAductTempRHfault   normal
BV82 RAductCo2VocFault   normal
BV76 SAhuba41Fault   normal
BV77 RAhuba42Fault   normal
BV78 HRcoreHuba43Fault   normal
BV79 SAductHuba44Fault   normal
BV223 RAductHuba45Fault   normal
BV196 OAductTempRHfault   normal
BV199 SAductTempRHcommFault   normal

BV200 RAductTempRHcommFault   normal
BV201 RAductCo2VocCommFault   normal
BV202 SAhuba41CommFault   normal
BV203 RAhuba42CommFault   normal
BV204 HRcoreHuba43CommFault   normal

Manage   Options   About

Critical Alarms

These are the most critical alarms and their state. These alarms stop the unit and require manual reset.

CRITICAL ALARM	STATE
EAdamperFBalarm	Exhaust Air damper no open feedback detected
FireAlarmInside	Intrenal fire alarm
HighRApressureAlarm	High Return Air pressure alarm
HighSApressureAlarm	High Return Air pressure alarm
HRcoreDefrostBPDEAalram	High core pressure sensor alarm
LowSAtemperatureAlarm	Low Supply Air temperature alarm
OAdamperFBalarm	Outdoor Air damper no open feedback detected
PreHWCfrostAlarm	Preheater return water frost alarm
ReHWCfrostAlarm	Post heater return water frost alarm
StopAlarmExternalMreset	External stop manual reset alarm

‹ Back   **Critical Alarms**   ↻   🗀

BV222 ManualResetAlarmButton	Off
BV49 StopAlarmExternalMreset	normal
BV48 FireAlarmInside	normal
BV54 PreHWCfrostAlarm	normal
BV55 ReHWCfrostAlarm	normal
BV151 OAdamperFBalarm	normal
BV152 EAdamperFBalarm	normal
BV57 LowSAtemperatureAlarm	normal
BV56 HighSApressureAlarm	normal
BV101 HighRApressureAlarm	normal
BV51 HRcoreDefrostBPDEAalram	normal
	11 item(s)

Warnings

This is the list of the most critical alarms and their state.

ALARM	STATE
CombiDefrostOnMsg	DX coil OD defrost signal
EAfilterPressWarning	EA filter high pressure
ECsmartWarning	ECSmart sensor disconnected or fault
HGRH1systemCommFault	Daikin D Controller 1 Comm Fault
HGRH1systemFault	Daikin D Controller 1 Fault
HGRH2systemCommFault	Daikin D Controller 2 Comm Fault
HGRH2systemFault	Daikin D Controller 2 Fault
HGRH3systemCommFault	Daikin D Controller 3 Comm Fault
HGRH3systemFault	Daikin D Controller 3 Fault
HGRH4systemCommFault	Daikin D Controller 4 Comm Fault
HGRH4systemFault	Daikin D Controller 4 Fault
HGRHdefrostOnMsg	HGRH OD defrost signal
HighCO2warning	High CO2 level detected
HighIAQwarning	High VOC level detected
HighRAflowWarning	High Return Air flow
HighRAtemperatureWarning	High Return Air temperature
HighSAflowWarning	High Supply Air flow
HighSAtemperatureWarning	High Supply Air temperature
HMIwarning	LCD HMI disconnected or fault
HRcoreDefrostCoreDPmsg	Core sensor high pressure
HRcoreDefrostEAtempMsg	Core sensor EA low temperature
HRcoreDefrostPressureBPDmsg	Core sensor high pressure
HRcoreEfficiencyWarning	Core low efficiency
LowRAflowWarning	Low Return Air flow
LowRApressureWarning	Low Return Air pressure
LowRAtemperatureWarning	Low Return Air temperature
LowSAflowWarning	Low Supply Air flow
LowSApressureWarning	Low Supply Air pressure
OAfilterPressWarning	Outdoor Air pressure
OccupancySenWarning	Occupancy Sensor disconnected or fault
UnitouchWarning	Unitouch sensor disconnected or fault

Favorites		REFRESH	
SETPOINTS	KEY DATA	CONTROL	HAND/AUTO	ALARMS	**WARNINGS**

BV4 ExternalStartMsg	None
BV5 ExternalStopMsg	None
BV87 HRcoreEfficiencyWarning	Normal
BV101 CombiDehumidOnMsg	Normal
BV102 HGRHdehumidOnMsg	Normal
BV88 OAfilterPressWarning	OAFilterNormal
BV89 EAfilterPressWarning	EAFilterNormal
BV90 HighSAtemperatureWarning	Normal
BV91 LowRAtemperatureWarning	Normal
BV92 HighRAtemperatureWarning	Normal
BV93 HighCO2warning	Normal
BV94 HighIAQwarning	Normal
BV95 LowSAflowWarning	Normal
BV96 LowRAflowWarning	Normal
BV97 HighSAflowWarning	Normal
BV98 HighRAflowWarning	Normal
BV99 LowSApressureWarning	Normal
BV83 HGRH1systemFault	Normal
BV115 HGRH2systemFault	Normal
BV116 HGRH3systemFault	Normal

Settings

This screen allows setup of the date, time and time zone. Touch each section, and use the popup to set the desired date, time and zone.

Device Information

Contains information about the controller. The most relevant information is:

- **Version:** This is the firmware installed on the controller. Consult with Oxygen8 for the recommend firmware

- **IP Address:** IP address of the Ethernet adapter for wired communication with the controller

- **Wi-Fi IP Address:** Wi-Fi IP address

- **Device ID:** BACnet Device ID

7.0 ALARM LIST

NO.	TYPE	DELAY SEC.	LIMIT	AUTO RESET	UNIT STOP	ALARM/ WARNING	DESCRIPTION	ALARM NO.
1	A	10	N/A		X	Inside fire alarm	Internal fire alarm	Alarm 1
2	A	10	N/A		X	External fire alarm	External fire alarm	Alarm 2
3	A	600	N/A		X	HR core defrost alarm	Core defrost alarm-by-pass damper with EA temperature	Alarm 3
4	W		N/A	X		HR core defrost - SA fan stop	Core defrost active-EA temperature	Warning 1
5	W		N/A	X		HR core defrost - bypass damper open	Core defrost active-core pressure	Warning 2
6	A	10	N/A		X	Water PreHeater Return water frost alarm	Hydronic preheater return water frost alarm	Alarm 4
7	A	10	N/A		X	Water ReHeater Return water frost alarm	Hydronic post heater return water frost alarm	Alarm 5
8	A	600	SP+10%		X	High supply air pressure alarm	Over 10% of pressure setpoint	Alarm 6
9	A	600	SP-5°C		X	Low supply air temperature alarm	Post heater exist: Less 5°C of temperature setpoint	Alarm 7
10	A	10	N/A	X	X	Hardware Input 101 Alarm	Universal input 1 fault	Alarm 8
11	A	10	N/A	X	X	Hardware Input 102 Alarm	Universal input 2 fault	Alarm 9
12	A	10	N/A	X	X	Hardware Input 103 Alarm	Universal input 3 fault	Alarm 10

NO.	TYPE	DELAY SEC.	LIMIT	AUTO RESET	UNIT STOP	ALARM/ WARNING	DESCRIPTION	ALARM NO.
13	A	10	N/A	X	X	Hardware Input 104 Alarm	Universal input 4 fault	Alarm 11
14	A	10	N/A	X	X	Hardware Input 105 Alarm	Universal input 5 fault	Alarm 12
15	A	10	N/A	X	X	Hardware Input 106 Alarm	Universal input 6 fault	Alarm 13
16	A	10	N/A	X	X	Hardware Input 107 Alarm	Universal input 7 fault	Alarm 14
17	A	10	N/A	X	X	Hardware Input 108 Alarm	Universal input 8 fault	Alarm 15
18	A	10	N/A	X	X	Hardware Output 101 Alarm	Digital Output 1 fault	Alarm 16
19	A	10	N/A	X	X	Hardware Output 102 Alarm	Digital Output 2 fault	Alarm 17
20	A	10	N/A	X	X	Hardware Output 103 Alarm	Digital Output 3 fault	Alarm 18
21	A	10	N/A	X	X	Hardware Output 104 Alarm	Digital Output 4 fault	Alarm 19
22	A	10	N/A	X	X	Hardware Output 105 Alarm	Universal Output 5 fault	Alarm 20
23	A	10	N/A	X	X	Hardware Output 106 Alarm	Universal Output 6 fault	Alarm 21
24	A	10	N/A	X	X	Hardware Output 107 Alarm	Universal Output 7 fault	Alarm 22
25	A	10	N/A	X	X	Hardware Output 108 Alarm	Universal Output 8 fault	Alarm 23
26	A	30	N/A	X	X	SA fan 1 Alarm	Supply air fan 1 Modbus communication fault	Alarm 24
27	A	30	N/A	X	X	RA fan 1 Alarm	Return air fan 1 Modbus communication fault	Alarm 25
28	A	30	N/A	X	X	SA fan 2 Alarm	Supply air fan 2 Modbus communication fault	Alarm 26
29	A	30	N/A	X	X	RA fan 2 Alarm	Return air fan 2 Modbus communication fault	Alarm 27

NO.	TYPE	DELAY SEC.	LIMIT	AUTO RESET	UNIT STOP	ALARM/ WARNING	DESCRIPTION	ALARM NO.
30	A	30	N/A	X	X	SA fan 3 Alarm	Supply air fan 3 Modbus communication fault	Alarm 28
31	A	30	N/A	X	X	RA fan 3 Alarm	Return air fan 3 Modbus communication fault	Alarm 29
32	A	10	N/A	X	X	SA Huba sensor Alarm	SA fan pressure sensor reliability or Modbus communication fault	Alarm 30
33	A	10	N/A	X	X	RA Huba sensor Alarm	RA fan pressure sensor reliability or Modbus communication fault	Alarm 31
34	A	10	N/A	X	X	HR Huba sensor Alarm	HR core pressure sensor reliability or Modbus communication fault	Alarm 32
35	A	10	N/A	X	X	SA duct Huba sensor Alarm	SA duct pressure sensor reliability or Modbus communication fault	Alarm 33
36	A	10	N/A	X	X	SA duct Temp/RH Reliability Alarm	SA duct temperature/ RH sensor reliability or Modbus communication fault	Alarm 34
37	A	10	N/A	X	X	RA duct Temp/RH Reliability Alarm	RA duct temperature/ RH sensor reliability or Modbus communication fault	Alarm 35
38	A	10	N/A	X	X	RA duct CO2/VOC Reliability Alarm	RA duct CO2/ VOC sensor reliability or Modbus communication fault	Alarm 36
39	W	30	N/A	X		HGRH 1 Fault	Daikin D-controller 1 fault	Warning 3
40	W	30	N/A	X		HGRH 2 Fault	Daikin D-controller 2 fault	Warning 4
41	W	30	N/A	X		HGRH 3 Fault	Daikin D-controller 3 fault	Warning 5
42	W	30	N/A	X		HGRH 4 Fault	Daikin D-controller 4 fault	Warning 6
43	W	60	N/A	X		HMI communication warning	Dial LCD communication fault	Warning 7
44	W	30	N/A	X		EC Smart communication warning	EC Smart room sensor communication fault	Warning 8
45	W	30	N/A	X		Unitouch communication warning	Unitouch room sensor communication fault	Warning 9

NO.	TYPE	DELAY SEC.	LIMIT	AUTO RESET	UNIT STOP	ALARM/ WARNING	DESCRIPTION	ALARM NO.
46	W	300	N/A	X		Low efficiency level warning	Core sensible efficiency lower than setpoint	Warning 10
47	W	10	N/A	X		After cooling mode	Electric post heater remnant heat flushing before unit stop	Warning 11
48	W	10	N/A	X		Dehumidification mode	DX coil/ HGRH dehumidification active	Warning 12
49	W	600	N/A	X		Outdoor air filter pressure warning	OA filter pressure higher than setpoint	Warning 13
50	W	600	N/A	X		Exhaust air filter pressure warning	EA filter pressure higher than setpoint	Warning 14
51	W	600	SP+5°C	X		High supply air temperature warning	Supply air temperature higher than SP+5°C	Warning 15
52	W	1200	SP-5°C	X		Low return air temperature warning	Return air temperature lower than SP-5°C	Warning 16
53	W	1200	SP+5°C	X		High return air temperature warning	Return air temperature higher than SP+5°C	Warning 17
54	W	600	SP+10%	X		High return air CO2 warning	Return air CO2 level higher than SP+10%	Warning 18
55	W	600	SP+10%	X		High return air VOC warning	Return air VOC level higher than SP+10%	Warning 19
56	W	600	SP-10%	X		Low supply airflow warning	Supply airflow lower than SP-10%	Warning20
57	W	600	SP-10%	X		Low return airflow warning	Return airflow lower than SP-10%	Warning21
58	W	600	SP+10%	X		High supply airflow warning	Supply airflow higher than SP+10%	Warning22
59	W	600	SP-10%	X		Low supply air pressure warning	Supply air pressure lower than SP-10%	Warning23