



Installation, Start-Up and Configuration Instructions

Part Number 33CSPREMLK

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SAFETY CONSIDERATIONS

SAFETY NOTE

Air-conditioning equipment will provide safe and reliable service when operated within design specifications. The equipment should be operated and serviced only by authorized personnel who have a thorough knowledge of system operation, safety devices and emergency procedures.

Good judgement should be used in applying any manufacturer's instructions to avoid injury to personnel or damage to equipment and property.

⚠ WARNING

Disconnect all power to the unit before performing maintenance or service. Unit may automatically start if power is not disconnected. Electrical shock and personal injury could result.

⚠ CAUTION

An individual field-supplied 24-vac power transformer is recommended for each PremierLink controller. If the unit transformer is used but does not have enough power, damage to equipment may result. The field-supplied transformer must be less than 100 VA to meet UL (Underwriters Laboratories) Class 2.

GENERAL

The PremierLink™ controller, version 3.x, is a field retrofit rooftop control compatible with the Carrier Comfort Network® (CCN) system. This control is designed to allow users the access and ability to change factory-defined settings, thus expanding the function of the standard unit control board. The complete PremierLink package (part number 33CSPREMLK) consists of a rooftop control circuit board with plastic cover and label, wire harnesses, spade connectors, wire nuts and 4 mounting screws.

IMPORTANT: PremierLink part number 33CSPREMLK should only be used in applications where the integrity of the Underwriters Laboratories rating will be maintained.

Access is available via an RJ-11 connection or a 3-wire connection to the communication bus. User interfaces available for use with the CCN system are PCs equipped with Carrier user interface software such as Service Tool, ComfortVIEW™, or ComfortWORKS® software. When used as part of the CCN system, other devices such as the CCN data transfer, System Pilot™, Touch Pilot™, or Comfort Controller can read data from or write data to the PremierLink retrofit controller. The PremierLink controller default address is 0,31.

The PremierLink controller is available as a factory-installed option on some units. Additional terminal board(s) are provided for field wiring. Sensors and input devices added in the field should be wired to the terminal board(s) instead of directly to the PremierLink controller. Refer to the unit installation and service manuals for terminal locations and details. For typical factory wiring details, see Factory-Installed Controller section on page 19. Refer to unit's label wiring diagram for specific unit wiring.

INSTALLATION

Inspection — Inspect package contents for visual defects that may have occurred during shipping. If there is any damage, contact your local representative before proceeding.

PremierLink Controller Hardware — The PremierLink package consists of the following hardware:

- control module (with plastic cover and label)
- 7 wire harnesses
- 10 spade connectors
- wire nuts
- 4 no. 6x1-in. self-drilling Phillips pan head mounting screws

Field-Supplied Hardware — The PremierLink controller is configurable with the following field-supplied sensors:

- space temperature sensor (33ZCT55SPT, 33ZCT56SPT, 33ZCT59SPT, or 33PILOT-01) in sensor mode or thermostat mode for economizer control
- supply air temperature sensor (33ZCSENSAT) required for all applications
- indoor air quality sensor (33ZCSENCO2, 33ZCT55CO2, 33ZCT56CO2) required only for demand control ventilation. A dedicated 24-vac transformer is required.
- outdoor air quality sensor (33ZCTSENCO2) required only for demand control ventilation
- outdoor air temperature sensor (33ZCSENSOAT)
- outdoor air enthalpy switch (33CSENTHSW)
- filter switch (third party differential airflow)
- return air enthalpy sensor (33CSENTSEN)
- indoor relative humidity sensor (33ZCSENSRH-01), required only for dehumidification

For specific details about sensors, refer to the literature supplied with the sensor.

SPACE TEMPERATURE (SPT) SENSOR — A field-supplied Carrier space temperature sensor is required to maintain space temperature in sensor mode. There are four sensors available for this application:

- 33ZCT55SPT, space temperature sensor with override button
- 33ZCT56SPT, space temperature sensor with override button and set point adjustment
- 33ZCT59SPT, space temperature sensor with LCD (liquid crystal display) screen, override button, and set point adjustment
- 33PILOT-01, System Pilot communicating room sensor with LCD display screen, override button, setpoint adjustment, temperature and setpoint display and system time clock

If controlling an economizer in the thermostat mode, a duct sensor must be mounted in the return air duct and wired to SPT input.

SUPPLY AIR TEMPERATURE (SAT) SENSOR — The PremierLink controller must be connected to a field-supplied supply air temperature (SAT) sensor (part number 33ZCSENSAT) to monitor the temperature of the air delivered.

The SAT consists of a thermistor encased within a stainless steel probe. The probe is 6 in. nominal length. The SAT sensor has 114 in. of unshielded, plenum-rated cable (2 conductors, 22 AWG [American Wire Gauge]). The sensor range is -40 to 185 F with a nominal resistance of 10,000 ohms at 77 F. The sensor measures temperature with an accuracy of ± 0.36 F.

Ideally, the SAT sensor should be located inside the unit under the heat exchanger. The SAT sensor can also be installed in the supply air duct downstream from unit heat source to control.

INDOOR AIR QUALITY CO₂ SENSOR — An indoor air quality sensor is required for CO₂ level monitoring. Three different CO₂ sensors are available for this application:

- 33ZCSENCO2 sensor is an indoor, wall-mounted sensor with an LCD (liquid-crystal display) screen
- 33ZCT55CO2 sensor is an indoor, wall-mounted sensor without display. The CO₂ sensor also includes a space temperature sensor with override button
- 33ZCT56CO2 sensor is an indoor, wall-mounted sensor without display. The CO₂ sensor also includes a space temperature sensor with override button and temperature offset

OUTDOOR AIR QUALITY CO₂ SENSOR — The outdoor air CO₂ sensor (33ZCSENCO2) is designed to monitor carbon dioxide (CO₂) levels found in diesel exhaust and control ventilation systems. It comes with an outdoor enclosure. This sensor provides an outdoor baseline for differential DCV (demand controlled ventilation) control.

NOTE: The relative humidity sensor and the outdoor air CO₂ sensor cannot both be used on the controller at the same time.

RELATIVE HUMIDITY SENSOR — The 33ZCSENSRH-01 relative space humidity sensor is required for dehumidification control on a rooftop unit equipped with a dehumidification device. Otherwise, the relative humidity sensor is used for monitoring only.

NOTE: The relative humidity sensor and the outdoor air CO₂ sensor cannot both be used on the controller at the same time.

OUTDOOR AIR TEMPERATURE SENSOR — The outdoor air temperature sensor (33ZCSENSOAT) monitors the temperature of the outside air. If the sensor is to be installed in the outdoor air duct instead of an outdoor location, sensor 33ZCSENPAT should be used.

OUTDOOR AIR ENTHALPY SWITCH/RECEIVER (33CSENTHSW) — This device measures both temperature and humidity and converts the data into a relay output dependent on the sensor mode. Mode 1 is designed to energize the relay at a fixed set point of 28 Btu/lb or 75 F. Mode 2 is used in

conjunction with the return air enthalpy sensor (33CENTSEN) to measure both indoor and outdoor enthalpy and to determine which is greater. The enthalpy switch output can be normally open or normally closed.

FILTER SWITCH — A field-supplied third-party differential air flow switch with normally open contacts is required for detection of dirty filters. The switch must be rated for a minimum of 5 va at 24 vac.

Mount PremierLink™ Control

LOCATION — The PremierLink controller should be located inside one of the available service access panels of the unit. Be sure the location selected prevents moisture and rain from coming into contact with the circuit board.

IMPORTANT: Do not install in indoor fan section of unit.

Select a location which will be safe from water damage and allow sufficient access for service and wiring. For service access, there should be at least 6 in. of clearance between the front of the PremierLink controller and adjacent surfaces. Be sure to leave 1/2-in. clearance in front of RJ-14 connector for attaching RJ-14 cable from a CCN interface device. A field-supplied right angle 6-pin RJ-14 connector can be attached if necessary.

NOTE: If the PremierLink controller must be installed in a location where there is not easy access to CCN connectors, a remote connection kit (part number 33CSREMCCN) can be ordered.

MOUNTING — Refer to Mounting Sheet included with controller for additional detailed mounting instructions.

1. Ensure all power to unit is removed.

2. Locate a space in the unit control panel or a space inside the equipment that is free from dirt and dust.
3. Remove plastic cover by gently squeezing the middle of longer sides of the cover and pull away from the board. This will release the locking tabs inside.
4. Mount the PremierLink controller to the desired location by holding the controller firmly in place. Be sure all standoffs are in contact with mounting surface and board DOES NOT flex. Attach controller to unit using 4 screws provided ensuring a secure grip to unit surface. See Fig.1.

NOTE: If PremierLink controller will be installed in same location where Apollo controller was previously installed, simply use 2 of the existing Apollo mounting holes to line up with the board.

5. Provide 24 v power to the circuit board from the unit transformer or an isolated power transformer. Use the appropriate conductors for voltage per base unit nameplate. See Fig. 2-7. Board will require 10 va at 24 vac.
6. Replace plastic cover to protect circuit board.
7. Restore power to unit.

PremierLink Controller Inputs and Outputs —

The PremierLink controller inputs and outputs are shown in Table 1.

⚠ WARNING

Disconnect electrical power before wiring the PremierLink controller. Electrical shock, personal injury, or damage to the PremierLink controller can result.

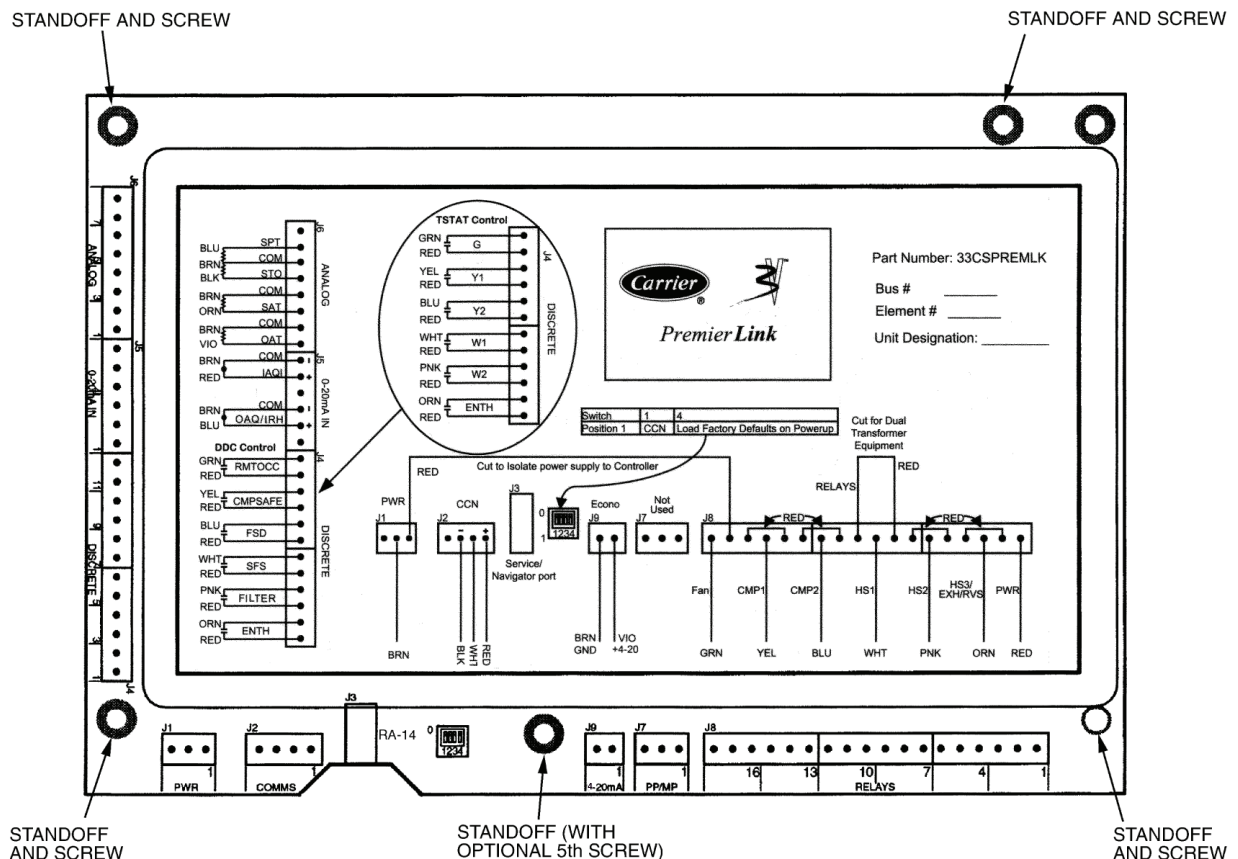
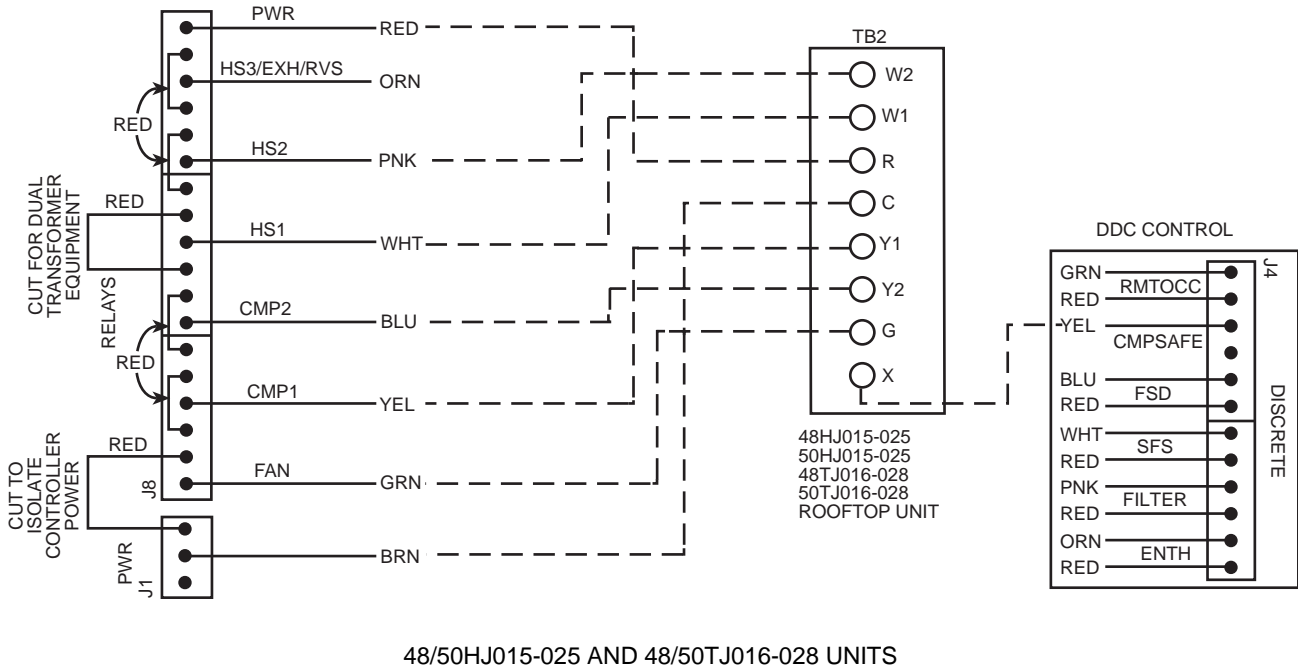
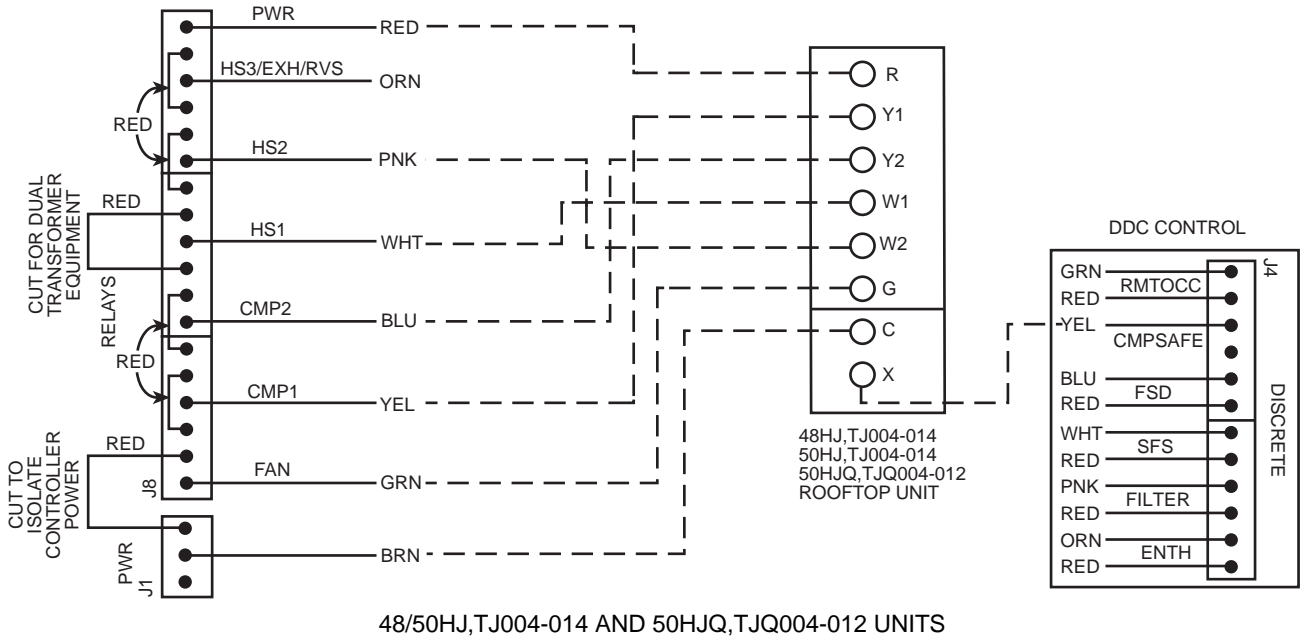
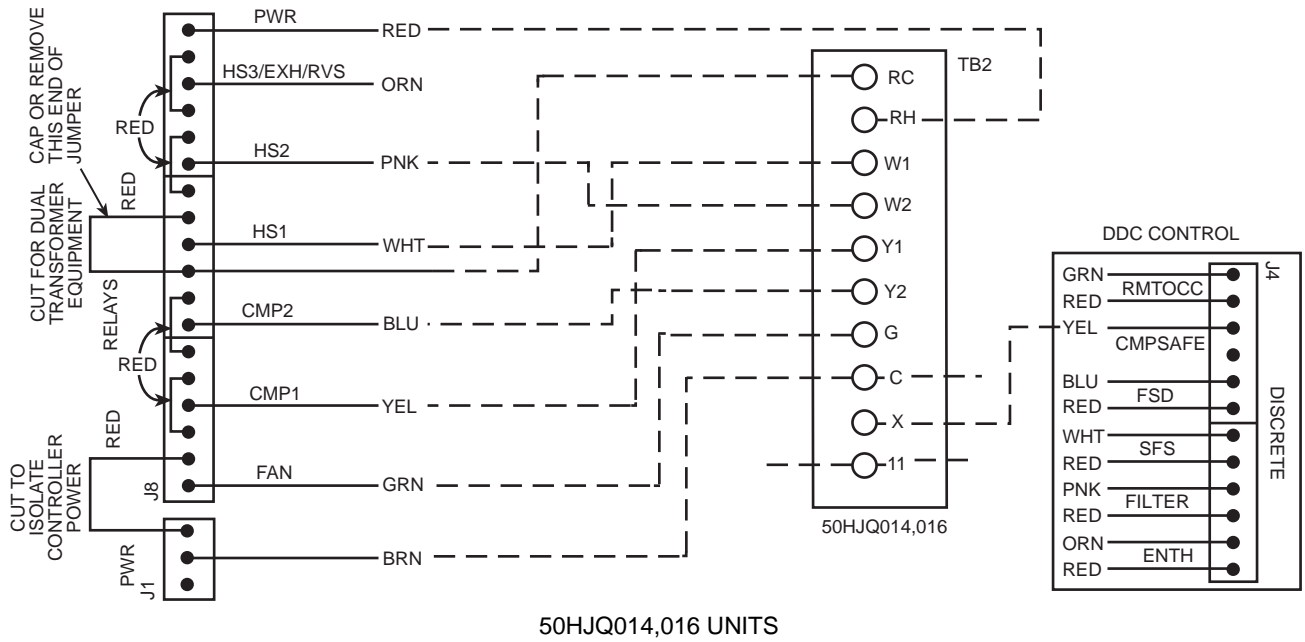


Fig. 1 — PremierLink Control Module



NOTE: Inputs on J4 are 24 VAC; red leads are voltage source.

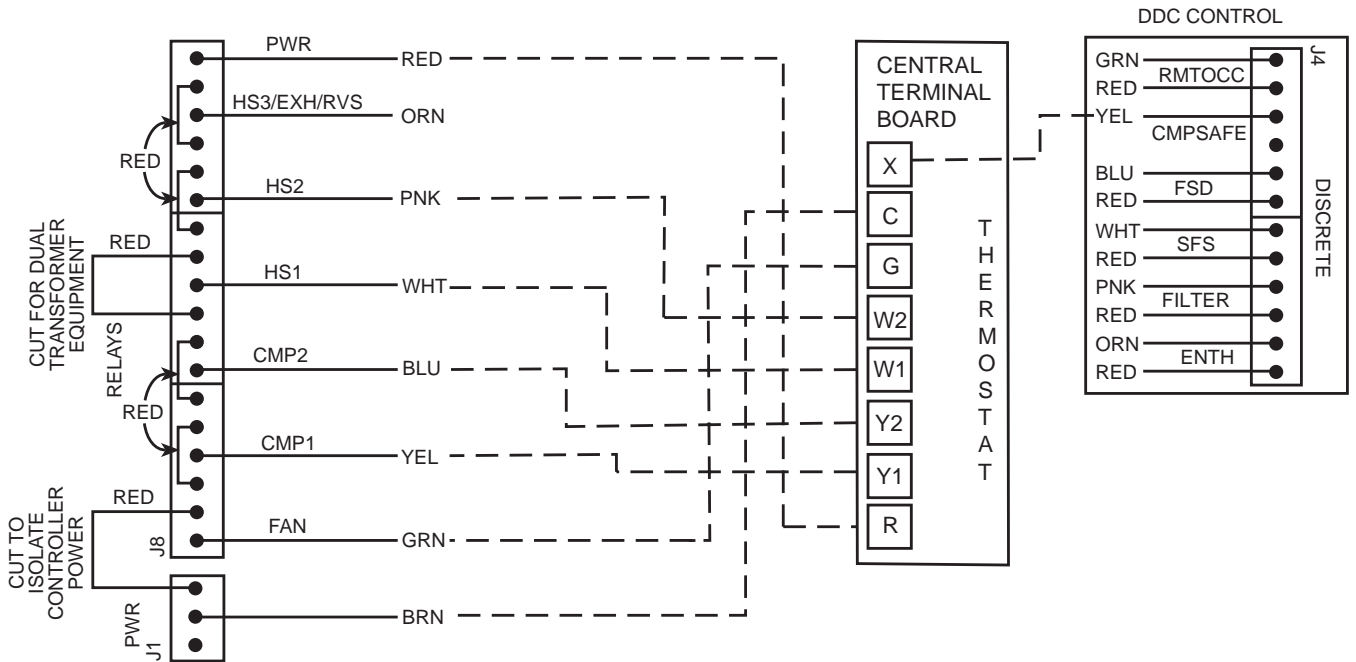
Fig. 2 — Typical PremierLink™ Control Wiring to 48/50HJ,TJ, 50HJQ,TJQ Rooftop Units



50HJQ014,016 UNITS

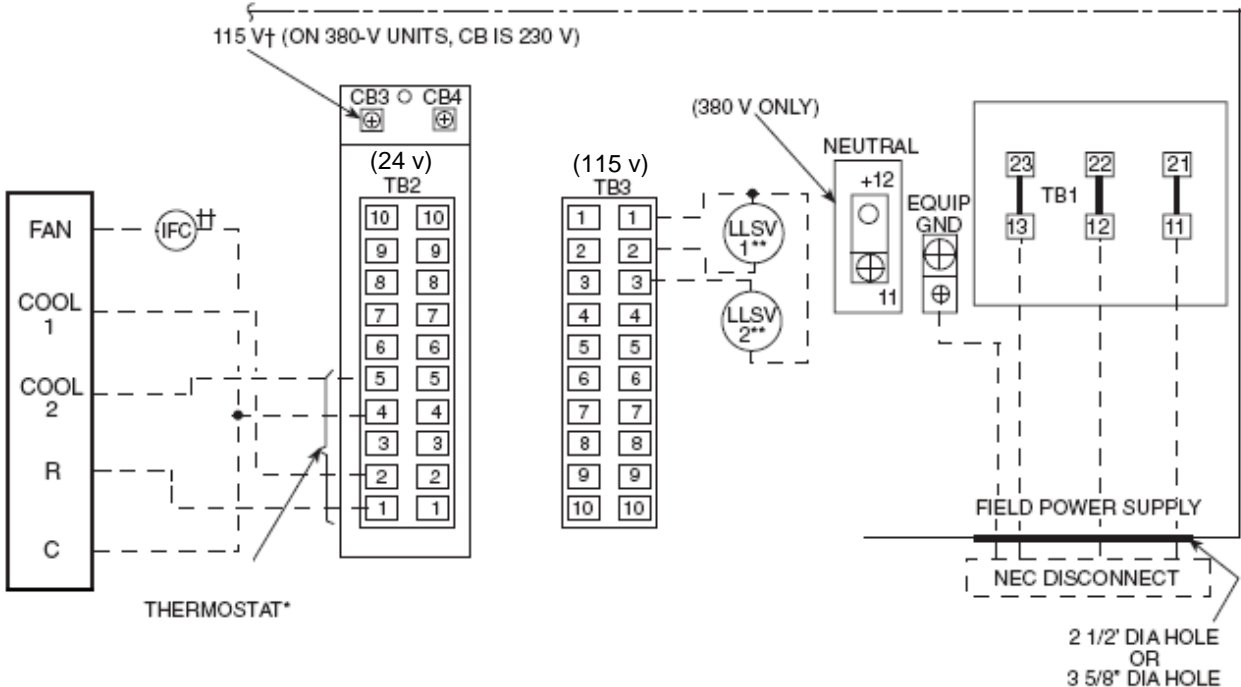
NOTE: Inputs are 24 VAC; red leads are voltage source.

Fig. 2 — Typical PremierLink™ Control Wiring to 48/50HJ,TJ, 50HJQ,TJQ Rooftop Units (cont)



NOTE: Inputs are 24 VAC; red leads are voltage source.

Fig. 3 — Typical PremierLink™ Control Wiring to 48/50HC,TC, 50HCQ,TCQ Rooftop Units



- LEGEND**
- CB** — Circuit Breaker
 - EQUIP** — Equipment
 - GND** — Ground
 - IFC** — Indoor Fan Contactor
 - LLSV** — Liquid Line Solenoid Valve
 - NEC** — National Electrical Code
 - TB** — Terminal Block
 - Field Control Wiring
 - Factory Wiring
 - Field Power Wiring

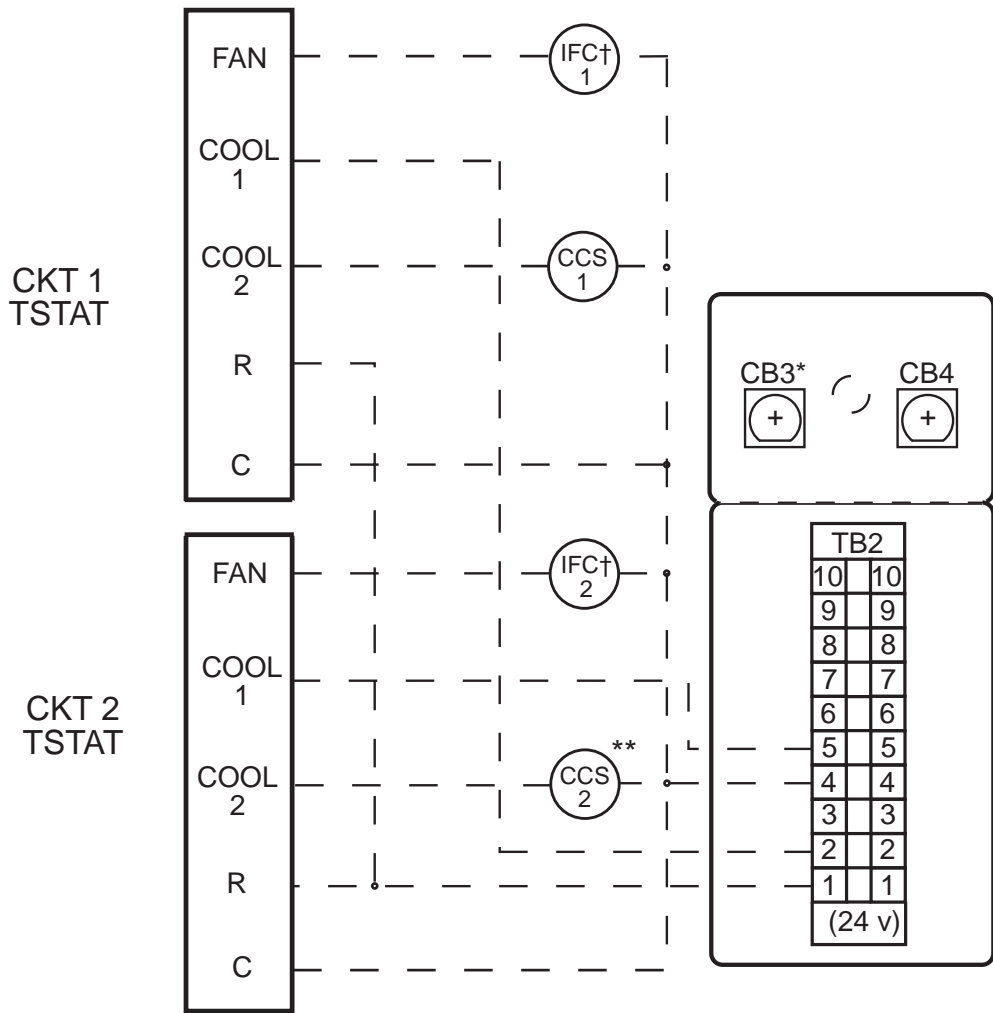
- NOTES:**
1. CB4 protects TB2 circuit; CB3 protects TB3 circuits.
 2. LLSV1 and LLSV2 are field supplied.
 3. TB2 is 24 v and TB3 is 115 v.

*Use thermostat wiring shown here for single air-handler applications.
 †CB3 protects control circuit at the following unit voltages:

CONTROL CIRCUIT PROTECTED AT: (V-Ph-Hz)	UNIT (V-Ph-Hz)
115-1-60	208/230-3-60
	460-3-60
	575-3-60
230-1-60	380-3-60

**For a single air handler, LLSV valve 1 is to be used on the lower (no. 1) evaporator circuit. The LLSV valve 2 is to be used on the upper (no. 2) evaporator circuit.
 ††Only one indoor-fan contactor is required on single air-handler applications. Use Carrier accessory part no. 40RR900181 for indoor-fan contactor.

Fig. 4 — Typical PremierLink™ Control Wiring to 38AH024-034 Units with Single Air Handler



LEGEND
CB — Circuit Breaker
CCS — Capacity Control Solenoid
IFC — Indoor-Fan Contactor
 - - - - Field Control Wiring

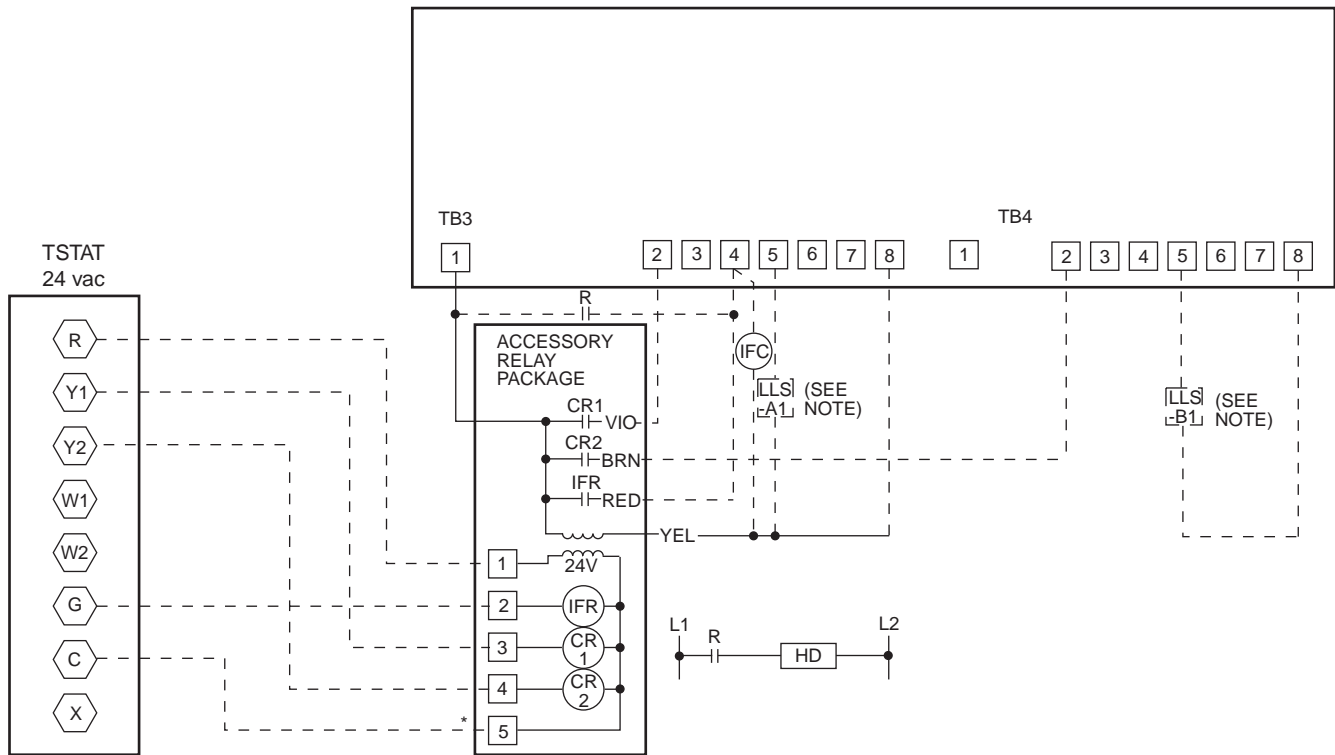
*CB3 protects control circuit as follows:

CONTROL CIRCUIT PROTECTED AT: (V-Ph-Hz)	UNIT (V-Ph-Hz)
115-1-60	208/230-3-60
	460-3-60
	575-3-60
230-1-60	380-3-60

†Use Carrier accessory part no. 40RR900181 for indoor-fan contactor.
 **Do not install CCS2 unless accessory unloader is field-installed on circuit no. 2 compressor.

NOTE: Capacity control solenoid (and liquid line solenoid drop refrigerant control) valves are field supplied.

Fig. 5 — Typical PremierLink™ Control Wiring to 38AH024-034 Units with 2 Air Handlers



LEGEND

- CR** — Control Relay
- HD** — Heating Device
- IFC** — Indoor-Fan Contactor
- IFR** — Indoor-Fan Relay
- LLS** — Liquid Line Solenoid
- R** — Heating Relay (field-supplied 24-v sealed coil, 10 va maximum rating)
- TB** — Terminal Block
- Factory Wiring
- Field Wiring

*To control heating device and provide automatic indoor-fan operation on heating.

NOTES:

1. Field-supplied liquid line solenoid valves installed at the evaporator are required on all units.
2. Internal single zone relay contacts are rated for 1 amp/24 vac.
3. TB3 and TB4 control voltages are as follows:
 115 v for 208/230, 460, and 575 v units
 230 v for 380/415 and 380 v units
 200 v for 346 v units

Fig. 6 — Typical PremierLink™ Control Wiring to 38AH044-104 Units

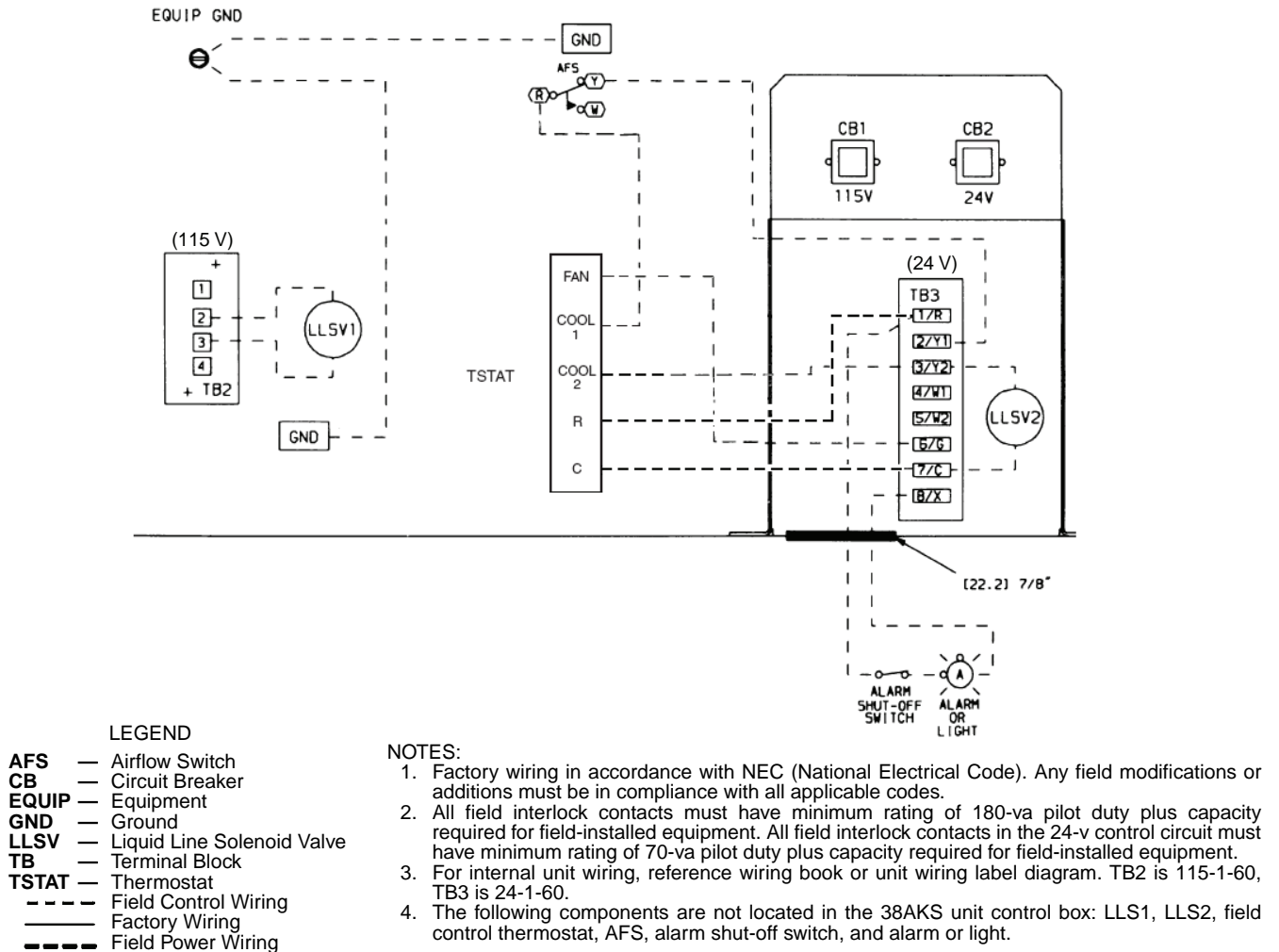


Fig. 7 — Typical PremierLink™ Control Wiring to 38AKS028-044 Units with Single Air Handler

Table 1 — PremierLink Controller Inputs and Outputs

INPUTS	POWER	TERMINAL(S)
SPACE TEMPERATURE (SPT)	AI (10K Thermistor)	J6-7, J6-6
SET POINT ADJUSTMENT (STO)	AI (10K Thermistor)	J6-5, J6-6
SUPPLY AIR TEMPERATURE (SAT)	AI (10 K Thermistor)	J6-3, J6-4
OUTDOOR AIR TEMPERATURE (OAT)	AI (10K Thermistor)	J6-1, J6-2
IAQ SENSOR (IAQI)	(4-20 mA)	J5-5, J5-6
OUTDOOR AQ/INDOOR HUMIDITY SENSOR (OAQ/IRH)	(4-20 mA)	J5-2, J5-3
REMOTE TIME CLOCK/DOOR SWITCH (RMTCC)	DI (24 VAC)	J4-11, J4-12
COMPRESSOR LOCKOUT (CMPSAFE)	DI (24 VAC)	J4-9, J4-10
FIRE SHUTDOWN (FSD)	DI (24 VAC)	J4-7, J4-8
SUPPLY FAN STATUS (SFS)	DI (24 VAC)	J4-5, J4-6
FILTER STATUS (FLTS)	DI (24 VAC)	J4-3, J4-4
ENTHALPY STATUS (ENTH)	DI (24 VAC)	J4-1, J4-2
OUTPUTS	POWER	TERMINALS
ECONOMIZER (ECONPOS)	4-20 mA	J9-1, J9-2
FAN (SF)	DO Relay (24 VAC, 1A)	J8-18
COOL STAGE 1 (CMP1)	DO Relay (24 VAC, 1A)	J8-15
COOL STAGE 2 (CMP2)	DO Relay (24 VAC, 1A)	J8-12
HEAT STAGE 1 (HS1)	DO Relay (24 VAC, 1A)	J8-9
HEAT STAGE 2 (HS2)	DO Relay (24 VAC, 1A)	J8-6
HEAT 3/EXHAUST/REV VALVE/DEH/OCC RELAY (HS3/EXH/RVS)	DO Relay (24 VAC, 1A)	J8-3

LEGEND

AI — Analog Input
 DI — Digital Input
 DO — Digital Output

Control Wiring — The PremierLink controller can be connected to either a Carrier-approved thermostat or CCN compatible temperature sensor.

1. Turn off power to the control box.
2. Strip the ends of the red, white, and black conductors of the communication bus cable.

NOTE: When connecting the communication bus cable, a color code system for the entire network is recommended to simplify installation and checkout. See Table 2 for the recommended color code.

Table 2 — Color Code Recommendations

SIGNAL TYPE	CCN BUS WIRE COLOR	CCN PLUG PIN NUMBER
+	Red	1
Ground	White	2
-	Black	3

3. Use 4-pin Molex harness with red, white and black wires to connect the communication wires. Verify the color codes in Table 2 to ensure the Red (+) wire connects to Terminal 1. Connect the White (ground) wire to Terminal 2. Connect the Black (-) wire to Terminal 3.
4. Secure all connections in Step 3 with wire nuts.
5. Insert the plug into the existing 4-pin mating connector on the base module in the main control box (Terminal J-2).
6. Restore power.

Install Sensors — The PremierLink™ controller can be used with any combination of CO₂ and space temperature sensors. Refer to the instructions supplied with each sensor for electrical requirements.

NOTE: All sensors are field-installed accessories.

SPACE TEMPERATURE (SPT) SENSOR INSTALLATION — There are four types of SPT sensors available from Carrier: The 33ZCT55SPT space temperature sensor with timed override button, the 33ZCT56SPT space temperature sensor with timed override button and set point adjustment, the 33ZCT59SPT space temperature sensor with LCD screen, override button, and set point adjustment, and the 33PILOT-01 System Pilot™ communicating room sensor with LCD display screen, override button, setpoint adjustment, temperature and setpoint display and system time clock.

The space temperature sensors are used to measure the building interior temperature. The System Pilot communicating room sensors measure and maintain room temperature by communicating with the controller. Sensors should be located on an interior building wall. The sensor wall plate accommodates the NEMA (National Electrical Manufacturers Association) standard 2 x 4 junction box. The sensor can be mounted directly on the wall surface if acceptable by local codes.

Do not mount the sensor in drafty locations such as near air conditioning or heating ducts, over heat sources such as baseboard heaters, radiators, or directly above wall-mounted lighting dimmers. Do not mount the sensor near a window which may be opened, near a wall corner, or a door. Sensors mounted in these areas will have inaccurate and erratic sensor readings.

The sensor should be mounted approximately 5 ft from the floor, in an area representing the average temperature in the space. Allow at least 4 ft between the sensor and any corner and mount the sensor at least 2 ft from an open doorway. The SPT sensor wires are to be connected to terminals in the unit main control board.

Install the sensor as follows:

1. Locate the 2 Allen type screws at the bottom of the sensor.
2. Turn the two screws clockwise to release the cover from the sensor wall mounting plate.
3. Lift the cover from the bottom and then release it from the top fasteners.
4. Feed the wires from the electrical box through the opening in the center of the sensor mounting plate.
5. Using two no. 6-32 x 1 mounting screws (provided with the sensor), secure the sensor to the electrical box.

NOTE: Sensor may also be mounted directly on the wall using 2 plastic anchors and 2 sheet metal screws (field-supplied).

6. Use 20 gage wire to connect the sensor to the controller. The wire is suitable for distances of up to 500 ft. Use a three-conductor shielded cable for the sensor and set point adjustment connections. The standard CCN communication cable may be used. If the set point adjustment (slidebar) is not required, then an unshielded, 18 or 20 gage, two-conductor, twisted pair cable may be used. The CCN network service jack requires a separate, shielded CCN communication cable. Always use separate cables for CCN communication and sensor wiring. (Refer to Fig. 8-11 for wire terminations.)
7. Replace the cover by inserting the cover at the top of the mounting plate first, then swing the cover down over the lower portion. Rotate the 2 Allen head screws counter-clockwise until the cover is secured to the mounting plate and locked in position.

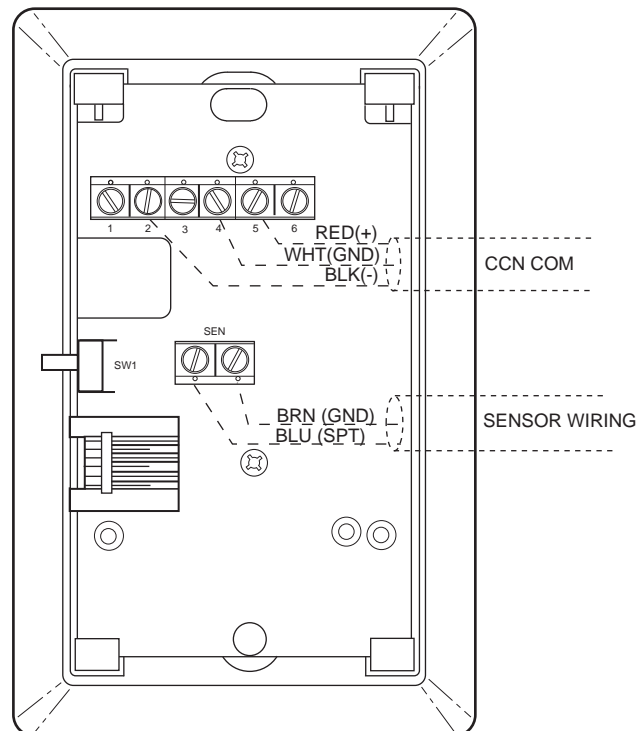


Fig. 8 — Space Temperature Sensor Typical Wiring (33ZCT55SPT)

NOTE: See Table 3 for thermistor resistance vs temperature values.

Table 3 — Thermistor Resistance vs Temperature Values for Space Temperature Sensor, Supply Air Temperature Sensor, and Outdoor Air Temperature Sensor

TEMP (C)	TEMP (F)	RESISTANCE (Ohms)
-40	-40	335,651
-35	-31	242,195
-30	-22	176,683
-25	-13	130,243
-20	-4	96,974
-15	5	72,895
-10	14	55,298
-5	23	42,315
0	32	32,651
5	41	25,395
10	50	19,903
15	59	15,714
20	68	12,494
25	77	10,000
30	86	8,056
35	95	6,530
40	104	5,325
45	113	4,367
50	122	3,601
55	131	2,985
60	140	2,487
65	149	2,082
70	158	1,752

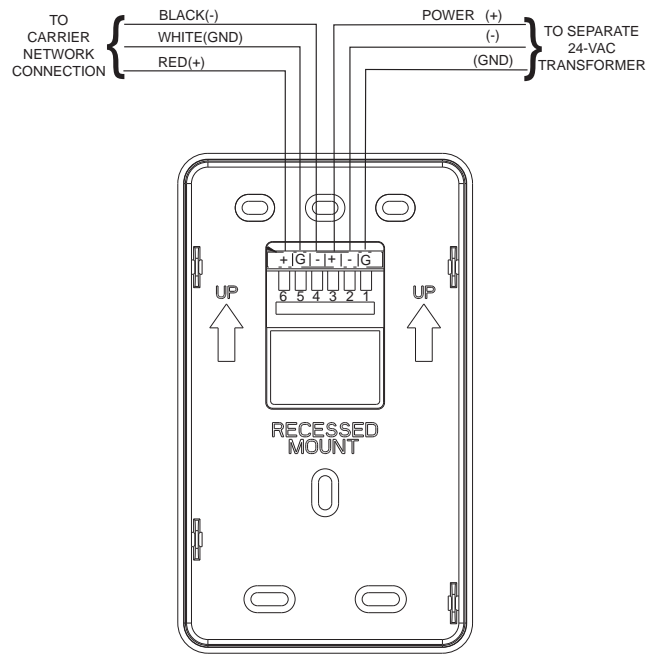


Fig. 10 — System Pilot Wiring

Wiring Space Temperature Sensor or System Pilot™ Device

— To wire sensor, perform following (see Fig. 8-11):

1. Identify which cable is for the sensor wiring.
2. Strip back the jacket from the cables for at least 3 inches. Strip 1/4-in. of insulation from each conductor. Cut the shield and drain wire from the sensor end of the cable.

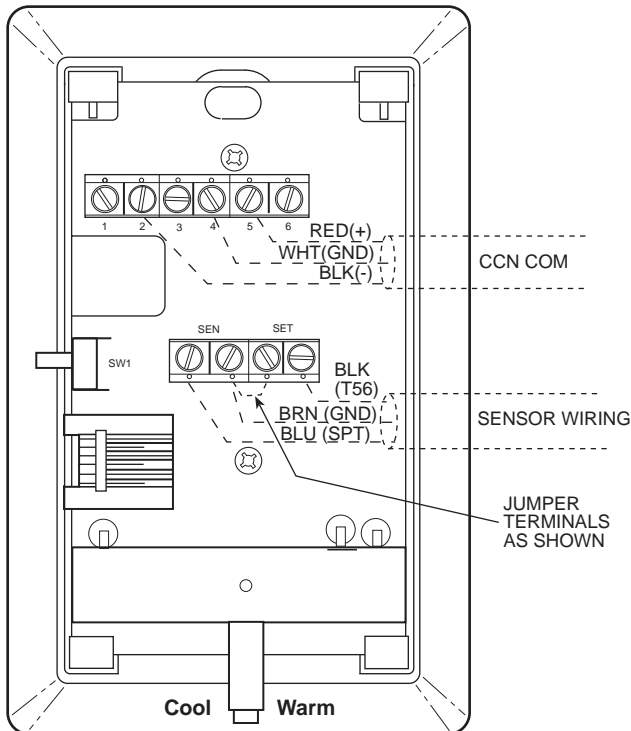
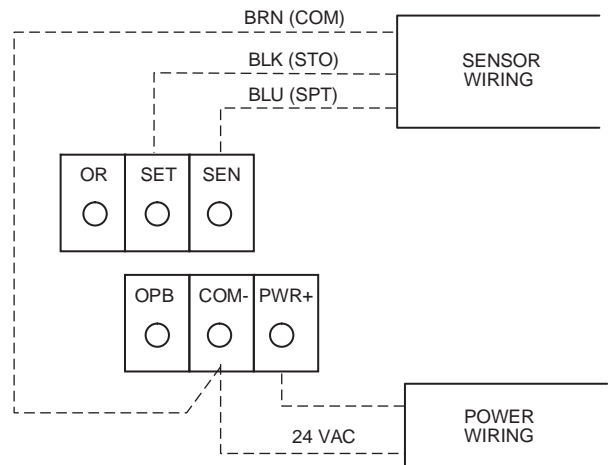


Fig. 9 — Space Temperature Sensor Typical Wiring (33ZCT56SPT)



NOTE: Must use a separate isolated transformer.

Fig. 11 — Space Temperature Sensor Typical Wiring (33ZCT59SPT)

3. Connect the sensor cable as follows:
 - a. Connect one wire from the cable to (BLU) wire on J6-7 analog connector on the controller. Connect the other end of the wire to the left terminal on the SEN terminal block of the sensor. See Fig. 11.
 - b. Connect another wire from the cable to (BRN) J6-6 analog connector on the controller. Connect the other end of the wire to the remaining open terminal on the SEN terminal block. On the 33ZCT59SPT sensor, connect this cable to 24-v COM terminal. A separate 24-vac transformer is required for this sensor. See Fig. 12.
 - c. On 33ZCT56SPT and 33ZCT59SPT sensors, connect the remaining wire to the (BLK) STO on J6-5 connector on the controller. Connect the other end of the wire to the SET terminal on the sensor.

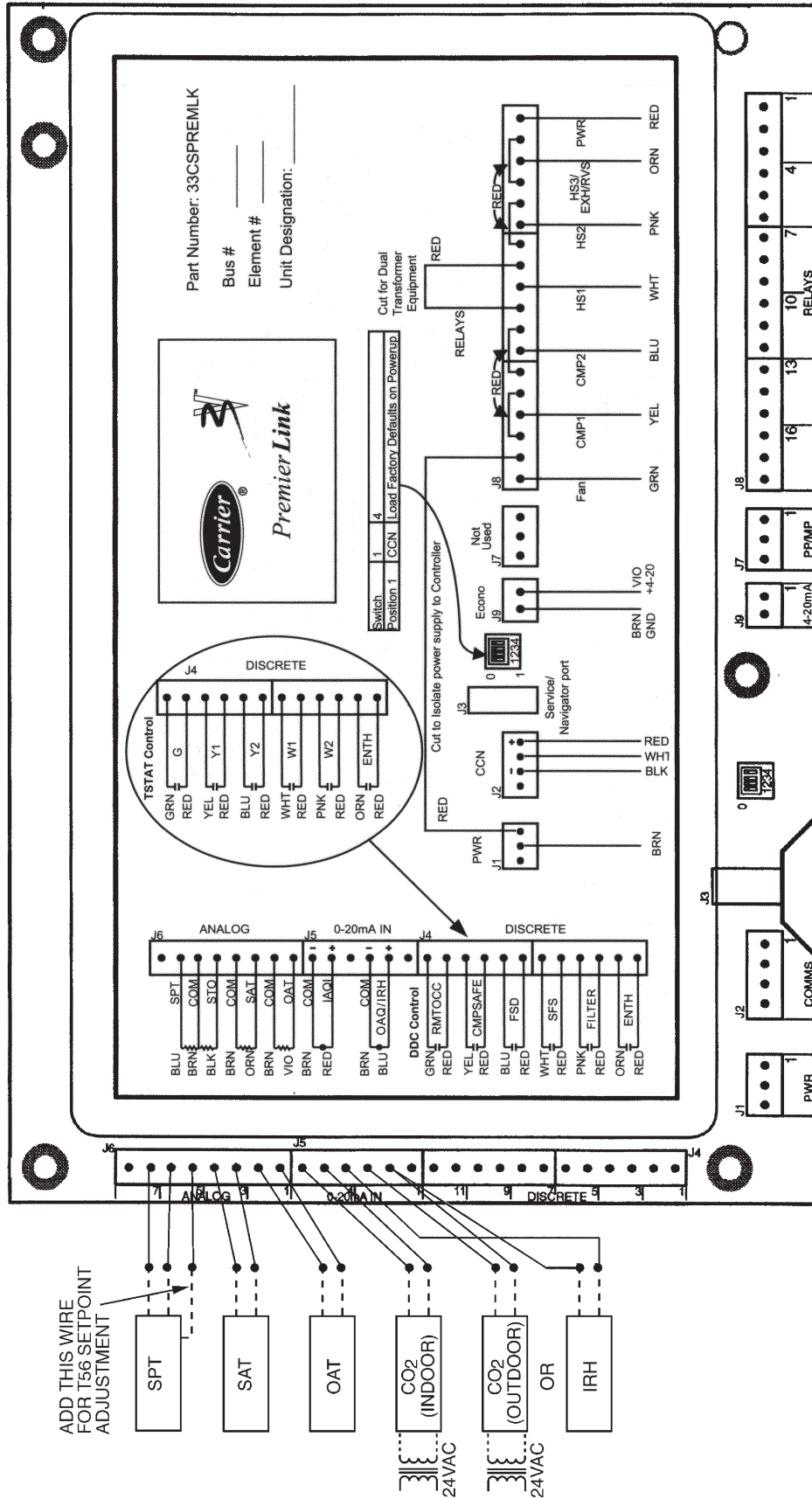


Fig. 12 — PremierLink™ Controller and Sensor Wiring — 33ZCT55SPT and 33ZCT56SPT Space Temperature Sensors; 33ZCENSAT Supply Air Temperature Sensor; Indoor Relative Humidity Sensor (33ZCENSRRH-01) 33ZCENCO2 (Outdoor), and 33ZCT55CO2, 33ZCT56CO2 (Indoor) Air Quality Sensors

- d. In the control box, install a no. 10 ring type crimp lug on the shield drain wire. Install this lug under the mounting screw of the PremierLink controller.
- e. On 33ZCT56SPT sensors, install a jumper between the two center terminals (right SEN and left SET). See Fig. 9.
- f. Refer to Fig 10 for the System Pilot™ device wiring. Once the System Pilot device is powered up, it will display the time of day and space temperature. Refer to the System Pilot Installation and Operation manual for programming to attach the sensor to the PremierLink control.

NOTE: See Fig. 13 for space temperature sensor averaging. SUPPLY AIR TEMPERATURE (SAT) SENSOR INSTALLATION — The 33ZCSENSAT supply air temperature sensor is required for controller operation. The sensor consists of a thermistor encased within a stainless steel probe. The SAT sensor probe is 6-in. nominal length with 114 in. of unshielded, 2-conductor 18 AWG twisted-pair cables. The sensor temperature range is -40 to 245 F with a nominal resistance of 10,000 ohms at 77 F. The sensor measures accuracy of

±0.36 F. The SAT sensor is supplied with a gasket and 2 self-drilling mounting screws.

NOTE: The sensor must be mounted in the discharge of the unit, downstream of the cooling coil and heat exchanger. Be sure the probe tip does not come in contact with any of the unit surfaces. See Fig. 14 and 15 for mounting location.

Do not run sensor or relay wires in the same conduit or raceway with Class 1 AC service wiring. Do not abrade, cut, or nick the outer jacket of the cable. Do not pull or draw cable with a force that may harm the physical or electrical properties. Avoid splices in any control wiring.

Perform the following steps to connect the SAT sensor to the PremierLink™ controller:

1. Locate the opening in the control box. Pass the sensor probe through the hole.
2. Drill or punch a 1/2-in. hole in the unit.
3. Use two field-supplied, self-drilling screws to secure the sensor probe to the unit.
4. Connect the sensor leads to the PremierLink controller's wiring harness J6-3,4 board at the terminals labeled SAT (ORN) and GND (BRN). See Fig. 12.

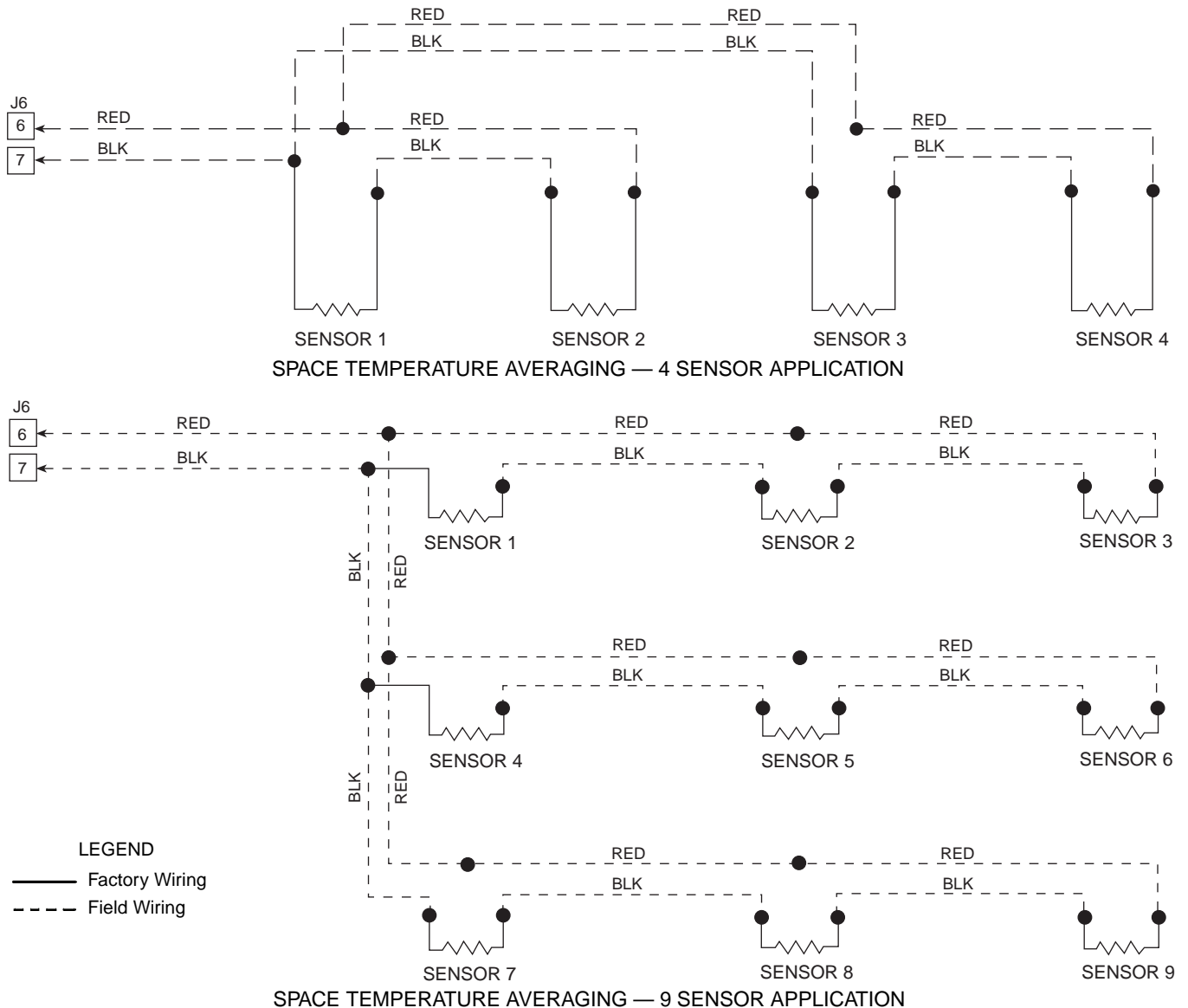


Fig. 13 — Space Temperature Averaging

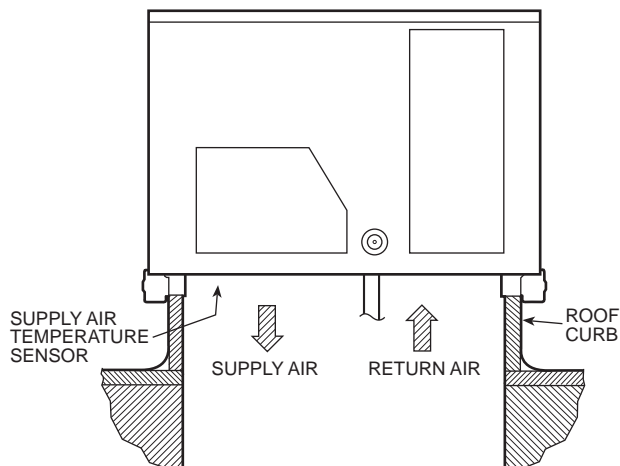
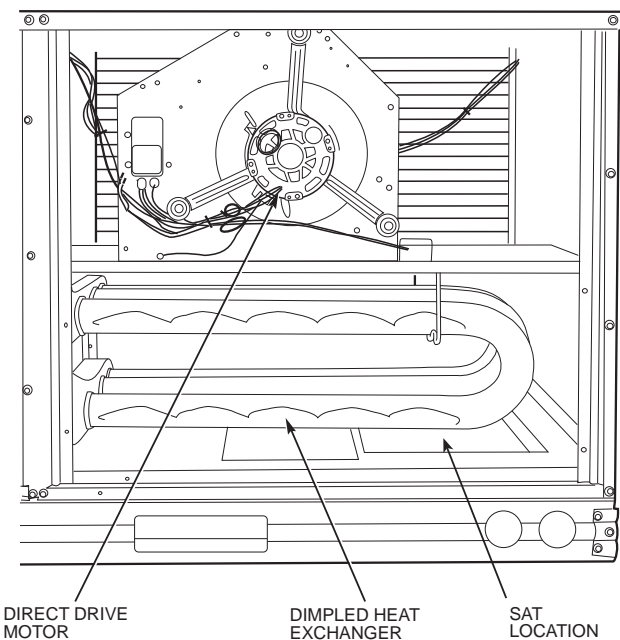


Fig. 14 — Typical Mounting Location for Supply Air Temperature (SAT) Sensor On Small Rooftop Units



IMPORTANT: Be certain SAT does not come in contact with heat exchanger tubes.

Fig. 15 — Typical Mounting Location for Supply Air Temperature (SAT) Sensor in Heat Exchanger

Perform the following steps if state or local code requires the use of conduit, or if the installation requires a cable length of more than 8 ft:

1. Secure the probe to the unit with two field-supplied self-drilling screws.
2. If extending cable length beyond 8 ft, use plenum rated, 20 AWG, twisted pair wire.
3. Connect the sensor leads to the PremierLink controller's wiring harness terminal board at the terminals labeled SAT (ORN) and GND (BRN).
4. Neatly bundle and secure excess wire.

INDOOR AIR QUALITY CO₂ SENSOR INSTALLATION (IAQ) — The indoor air quality sensor accessory monitors carbon dioxide (CO₂) levels. This information is used to monitor IAQ levels. Three types of sensors are provided. The wall sensor can be used to monitor the conditioned air space. Sensors use infrared technology to measure the levels of CO₂ present in the air. The wall sensor is available with or without an LCD readout to display the CO₂ level in ppm.

The CO₂ sensors are all factory set for a range of 0 to 2000 ppm and a linear mA output of 4 to 20. Refer to the instructions supplied with the CO₂ sensor for electrical requirements and terminal locations.

To accurately monitor the quality of the air in the conditioned air space, locate the sensor near a return-air grille (if present) so it senses the concentration of CO₂ leaving the space. The sensor should be mounted in a location to avoid direct breath contact.

Do not mount the IAQ sensor in drafty areas such as near supply ducts, open windows, fans, or over heat sources. Allow at least 3 ft between the sensor and any corner. Avoid mounting the sensor where it is influenced by the supply air; the sensor gives inaccurate readings if the supply air is blown directly onto the sensor or if the supply air does not have a chance to mix with the room air before it is drawn into the return airstream.

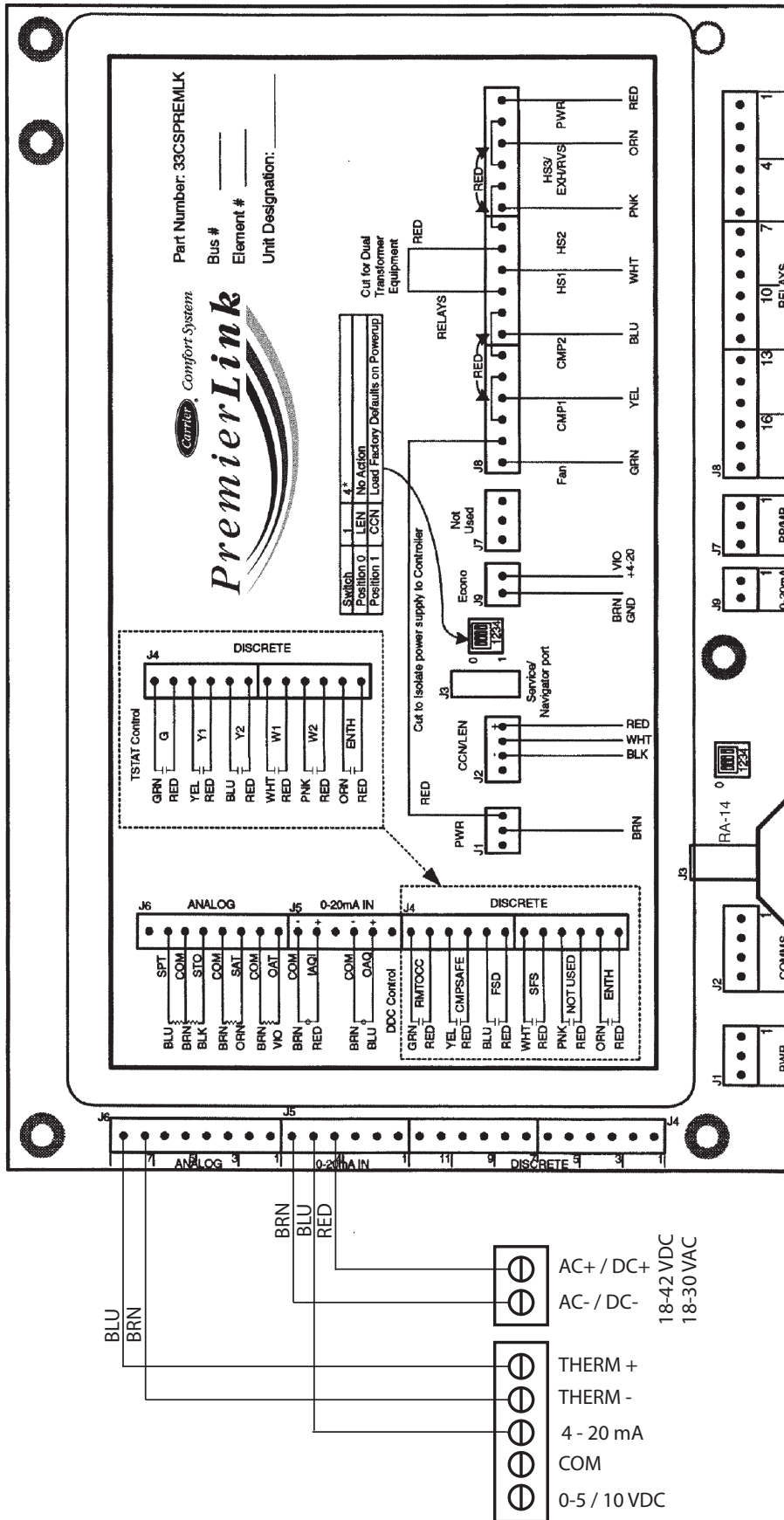
Wiring the Indoor Air Quality Sensor — To wire the sensors after they are mounted in the conditioned air space or outdoor location, see Fig. 12 and the instructions shipped with the sensors. For each sensor, use two 2-conductor 18 AWG (American Wire Gage) twisted-pair cables (unshielded) to connect the separate isolated 24 vac power source to the sensor and to connect the sensor to the control board terminals. To connect the sensor to the control, identify the positive (4 to 20 mA) and ground (SIG COM) terminals on the sensor. Connect the 4-20 mA terminal to terminal IAQ (RED) and connect the SIG COM terminal to terminal GND (BRN).

Combination Temperature and CO₂ Sensor — If using the older style combination temperature and CO₂ sensor (33ZCT55CO2 or 33ZCT56CO2), refer to the installation instructions provided with the sensor. See Fig. 16 for wiring. If using the combination temperature and CO₂ sensor 33ZCPTCO2-01 or 33ZCSPTCO2LCD-01, refer to the installation instructions provided with the sensor. See Fig. 17 for wiring.

OUTDOOR AIR QUALITY CO₂ SENSOR INSTALLATION (OAQ) — The outdoor air CO₂ sensor is designed to monitor carbon dioxide (CO₂) levels in the air and interface with the ventilation damper in an HVAC system. The OAQ sensor is packaged with an outdoor cover. See Fig. 18 and 19.

The outdoor air CO₂ sensor must be placed in an area that is representative of the entire conditioned space. A mounting height of 6 ft is recommended. For installation where it is not necessary to reach the control, it may be mounted higher on the wall or on the ceiling, provided the location represents a good sampling of air.

Wiring the Outdoor Air CO₂ Sensor — Power requirements are 18 to 36 VAC RMS 50/60 Hz; 18 to 42 vdc polarity protected/dependent; and 70 mA average, 100 mA peak at 24 vdc. All system wiring must be in compliance with all applicable local and national codes. A dedicated power supply is required for this sensor. A two-wire cable is required to wire the dedicated power supply for the sensor. The two wires should be connected to the power supply and terminals 1 and 2. To connect the sensor to the control, identify the positive (4 to 20 mA) and ground (SIG COM) terminals on the sensor. Connect the 4 to 20 mA terminal OAQ (BLU) terminal J5-2. Connect the SIG COM terminal to terminal GND (BRN) terminal J5-3. See Fig. 16.



NOTES:

1. Remove RED wire from J4-1, J4-3, J4-5, J4-7, J4-9, or J4-11 (whichever is not being used) and insert J5-4.
2. Sensor does NOT have an override button.

Fig. 17 — PremierLink™ Controller Wiring — Combination Temperature and CO₂ Sensor — 33ZCSPTCO2-01, 33ZCSPTCO2LCD-01

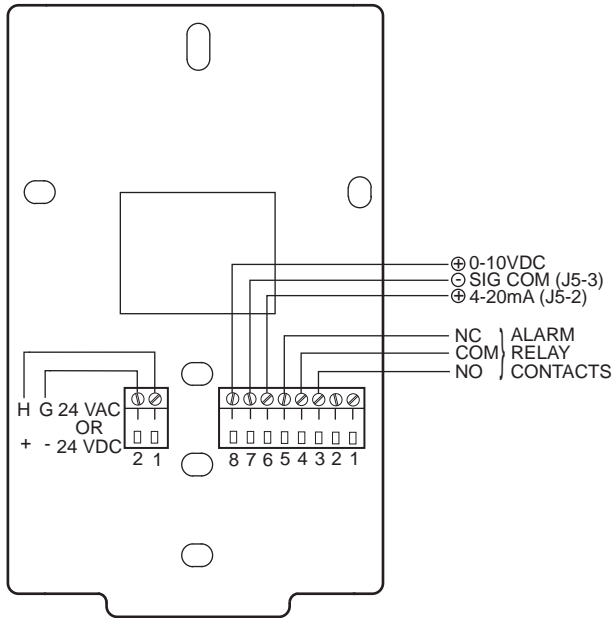


Fig. 18 — Outdoor Air Quality (CO₂) Sensor (33ZCSENC02) — Typical Wiring Diagram

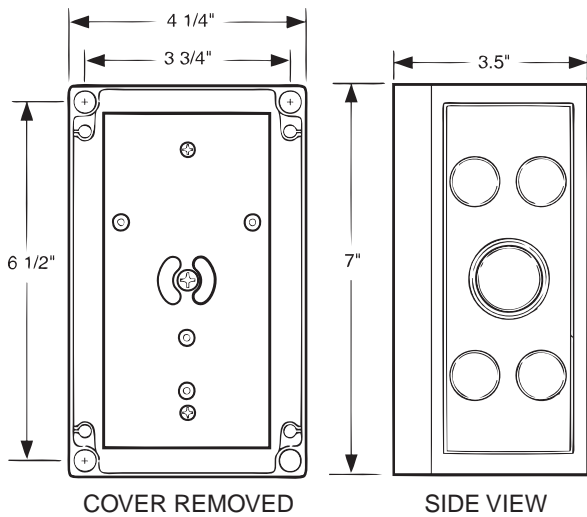


Fig. 19 — Outdoor Air Quality Sensor Cover

HUMIDITY SENSOR (WALL-MOUNTED) INSTALLATION — The accessory space humidity sensor is installed on an interior wall to measure the relative humidity of the air within the occupied space.

The use of a standard 2 x 4-in. electrical box to accommodate the wiring is recommended for installation. The sensor can be mounted directly on the wall, if acceptable by local codes.

CAUTION

Do NOT clean or touch the sensing element with chemical solvents as they can permanently damage the sensor.

DO NOT mount the sensor in drafty areas such as near heating or air-conditioning ducts, open windows, fans, or over heat sources such as baseboard heaters, radiators, or wall-mounted light dimmers. Sensors mounted in those areas will produce inaccurate readings.

If the sensor is installed directly on a wall surface, install the humidity sensor using 2 screws and 2 hollow wall anchors (field-supplied). Do not over tighten screws. See Fig. 20.

The sensor must be mounted vertically on the wall. The Carrier logo should be oriented correctly when the sensor is properly mounted.

Avoid corner locations. Allow at least 4 ft between the sensor and any corner. Airflow near corners tends to be reduced, resulting in erratic sensor readings. The sensor should be vertically mounted approximately 5 ft up from the floor, beside the space temperature sensor.

For wiring distances up to 500 feet, use a 3-conductor, 18 or 20 AWG cable. A CCN communication cable can be used, although the shield is not required. The shield must be removed from the sensor end of the cable if this cable is used. See Fig. 21 for wiring details.

The power for the sensor is provided by the PremierLink controls on terminal J5-4 (+33 to +35vdc). To wire the sensor perform the following:

1. At the sensor, remove 4-in. of jacket from the cable. Strip 1/4-in. of insulation from each conductor. Route the cable through the wire clearance opening in the center of the sensor. See Fig. 20.
2. Connect a field-supplied BLACK wire to the sensor screw terminal marked Vin.
3. Connect a field-supplied RED wire into the sensor screw terminal marked Io.
4. At the PremierLink controller, route the cable away from high voltage wiring and disconnect the power to prevent accidental shorting or grounding of wires when connecting the sensor. Remove the J5 Molex female plug and locate the BROWN wire on pin 3. Using a small, flat blade screwdriver gently press down in the slot on the side of the plug while pulling on the BROWN wire to remove it from slot. Re-insert the BROWN wire in the pin 4 slot making sure it is securely seated. There should now be an empty slot between the BLUE and BROWN wires. See Fig. 21.
5. Connect the field-supplied RED wire from the sensor to the BLUE wire on J5-2.
6. Connect the field-supplied BLACK wire from the sensor to the BROWN wire on J5-4.

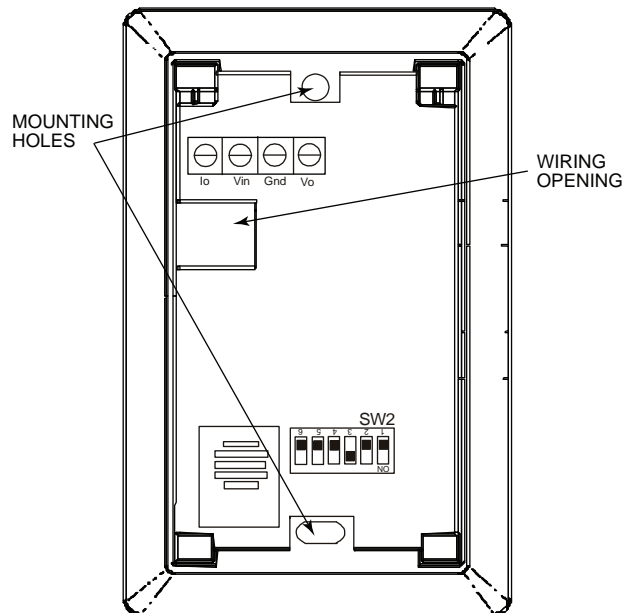


Fig. 20 — Humidity Sensor Installation

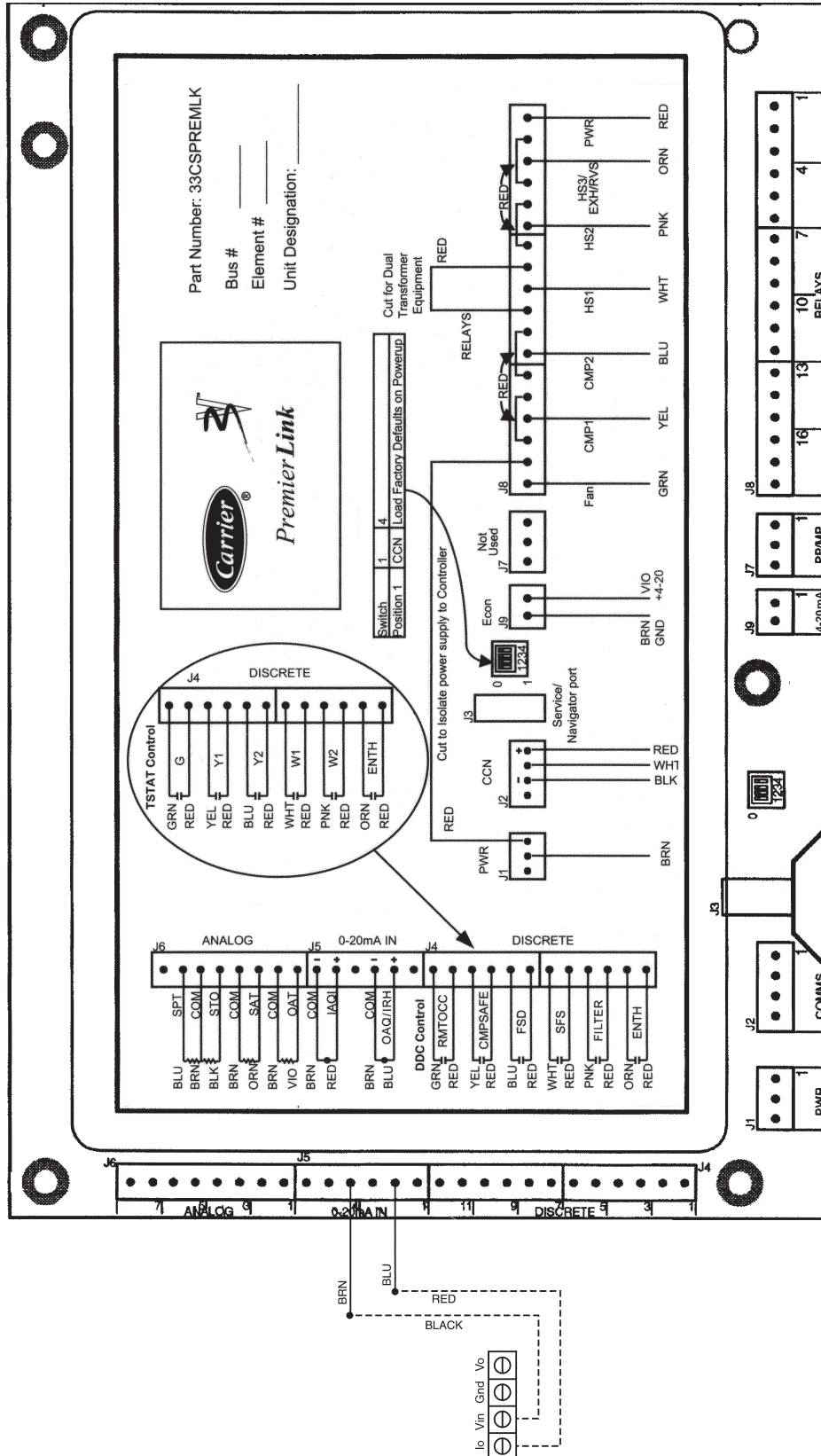


Fig. 21 — Humidity Sensor Wiring

OUTDOOR AIR TEMPERATURE SENSOR (Fig. 22-25) — The OAT sensor must be located properly. For outdoor locations use sensor 33ZCSENOAT. For duct mounting in the fresh air intake, use sensor 33ZCSENPAT. The sensor must be installed immediately upstream from outdoor-air damper where it will accurately sense the temperature of the outdoor air entering the mixing box. See Fig. 22 and 23. For applications without economizer, the sensor may be located in the outdoor air duct near the outdoor-air intake (Fig. 23) or on the exterior of the building (Fig. 22). The thermistor has a range of -40 to 245 F and a resistance of 10,000 ohms at 77 F.

Do not mount the sensor in direct sunlight. Inaccurate readings may result. Do not mount the sensor near the exhaust from air-handling units or compressors, near leakage drafts of indoor air, or near shrubbery or trees, or under direct water runoff.

If the sensor is installed outdoors, perform the following instructions. Install the 1/2-in. conduit connector into the rear opening. Tighten the conduit connector securely to prevent water leakage into the assembly. Mount the assembly onto the 1/2-in. conduit and secure by tightening the conduit nut. After the sensor wiring is completed, secure the gasket and cover in place using the screws provided with the cover. See Fig. 24.

If the sensor is to be mounted in the outdoor air duct, use the 33ZCSENPAT sensor which has a 2 x 4-in. by 1 1/2-in. deep electrical box. Remove the cover and enter the knockout from the rear of the box. Install the sensor through the opening so that the sensor leads are inside the electrical box. Secure the sensor to the electrical box using a field-supplied 1/2-in. conduit nut. Drill a 1/2-in. hole in the outdoor-air duct about a foot upstream of the outdoor-air damper. Apply a 1/4-in. bead of silicone type sealer around the opening and install the sensor through the hole. Secure the electrical box to the duct using 2 field-supplied, no. 10 sheet metal screws. See Fig. 25.

FACTORY-INSTALLED CONTROLLER — The PremierLink™ controller is available as a factory-installed option on some units. Additional terminal boards are provided for wiring. Sensors and input devices are wired to terminal boards instead of directly to the Premierlink controller. See Fig. 26 and 27.

Connect Discrete Inputs — If used, wire the dry contact switches, compressor safety switch, and supply fan status switch to the PremierLink controller. See Fig. 28 for wiring.

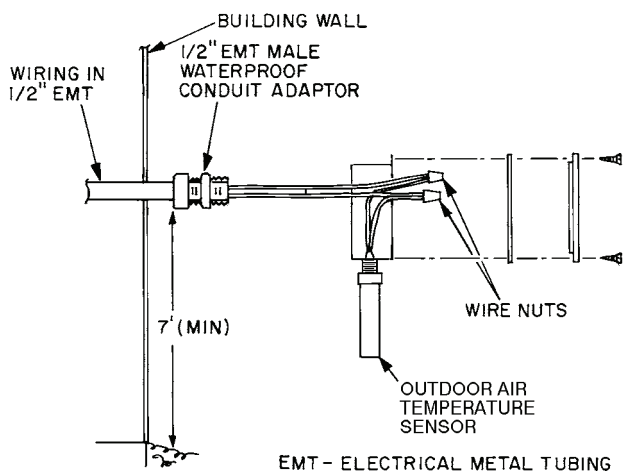


Fig. 22 — Outdoor Air Temperature Sensor Installation — Located on Building Wall (P/N 33ZCSENOAT)

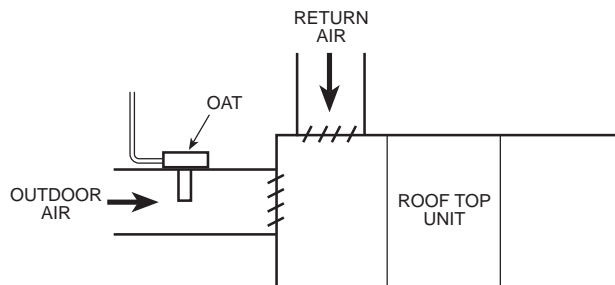


Fig. 23 — OAT Sensor Location in Outside Air Duct (P/N 33ZCSENPAT)

Connect to CCN Communication Bus — The PremierLink™ controller connects to the bus in a daisy chain arrangement. Negative pins on each component must be connected to respective negative pins, and likewise, positive pins on each component must be connected to respective positive pins. The controller signal pins must be wired to the signal ground pins. Wiring connections for CCN must be made at the 3-pin plug.

At any baud (9600, 19200, 38400 baud), the number of controllers is limited to 239 devices maximum. Bus length may not exceed 4000 ft, with no more than 60 total devices on any 1000-ft section. Optically isolated RS-485 repeaters are required every 1000 ft.

NOTE: Carrier device default is 9600 band.

COMMUNICATION BUS WIRE SPECIFICATIONS — The CCN Communication Bus wiring is field-supplied and field-installed. It consists of shielded 3-conductor cable with drain (ground) wire. The cable selected must be identical to the CCN Communication Bus wire used for the entire network. See Table 4 for recommended cable.

Table 4 — Recommended Cables

MANUFACTURER	CABLE PART NO.
Alpha	2413 or 5463
American	A22503
Belden	8772
Columbia	02525

NOTE: Conductors and drain wire must be at least 20 AWG, stranded, and tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon, or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of -20 C to 60 C is required. Do not run communication wire in the same conduit as or next to any AC voltage wiring.

The communication bus shields must be tied together at each system element. If the communication bus is entirely within one building, the resulting continuous shield must be connected to ground at only one single point. If the communication bus cable exits from one building and enters another building, the shields must be connected to the grounds at a lightning suppressor in each building (one point only).

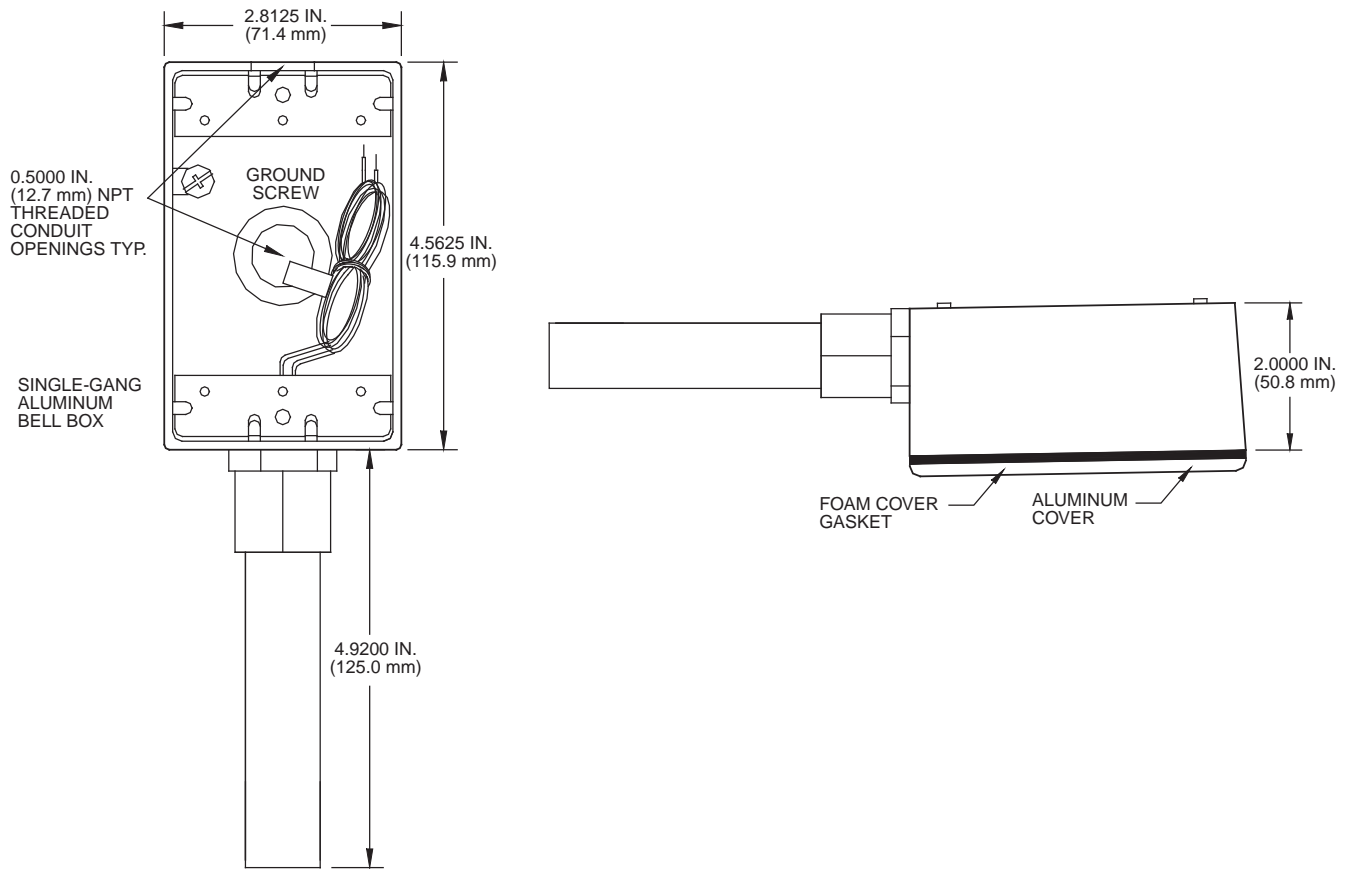
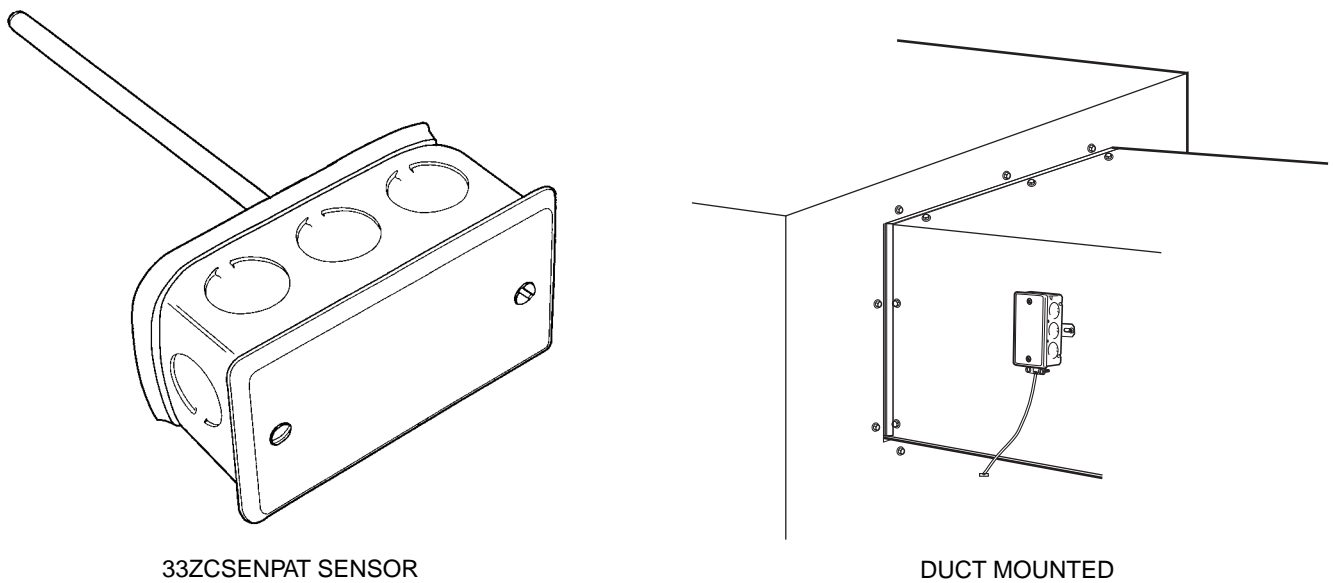


Fig. 24 — Outdoor Air Temperature Sensor (P/N 33ZCSENOAT)



- LEGEND**
OA — Outdoor Air
OAT — Outdoor Air Temperature

Fig. 25 — Outdoor Air Temperature Sensor Installation (P/N 33ZCSENPAT)

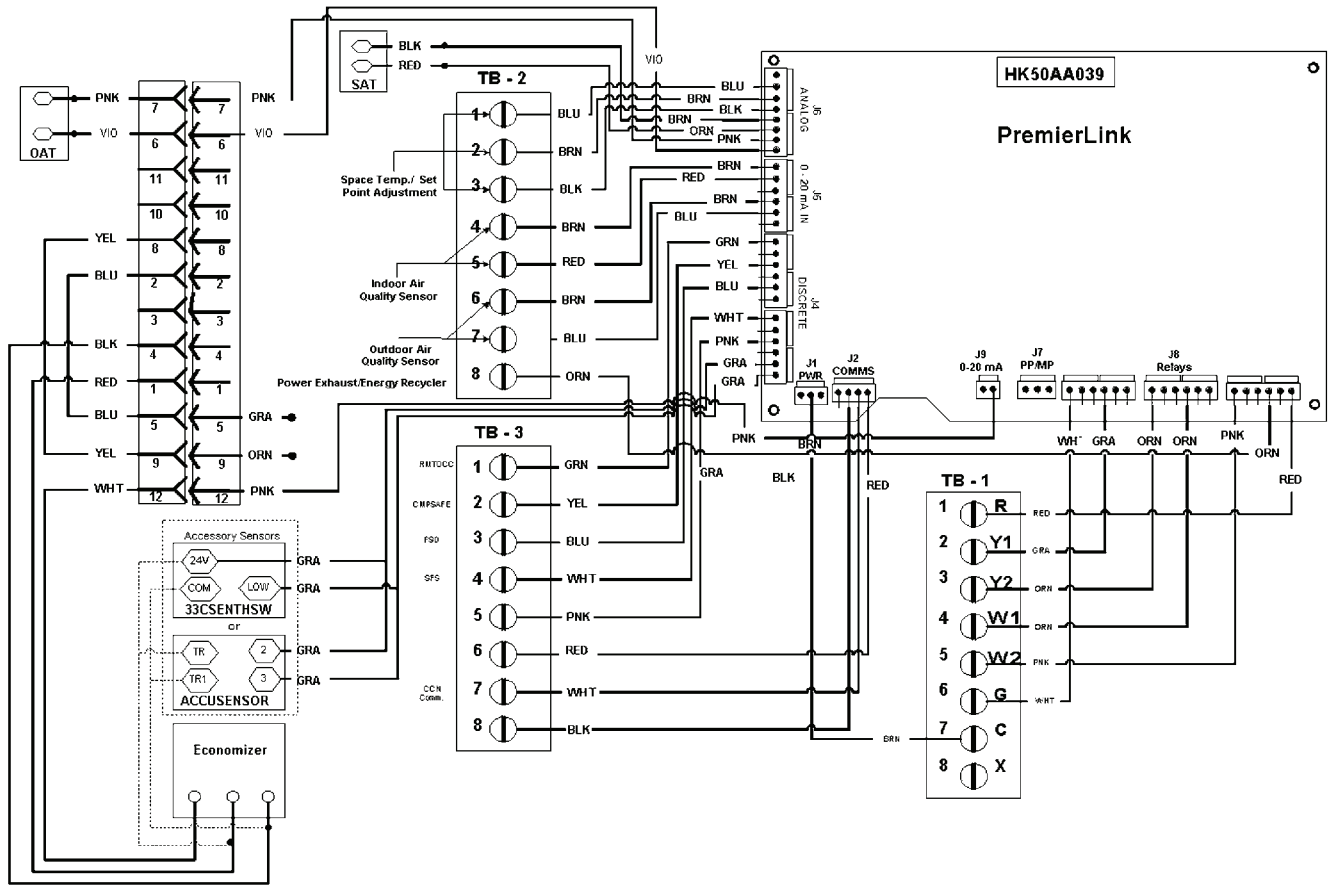


Fig. 26 — PremierLink™ Factory-Installed Controller Wiring for R-22 Units (48/50TM, TF, HJ, HE003-014 and 50TFQ, HJQ, HEQ003-012)

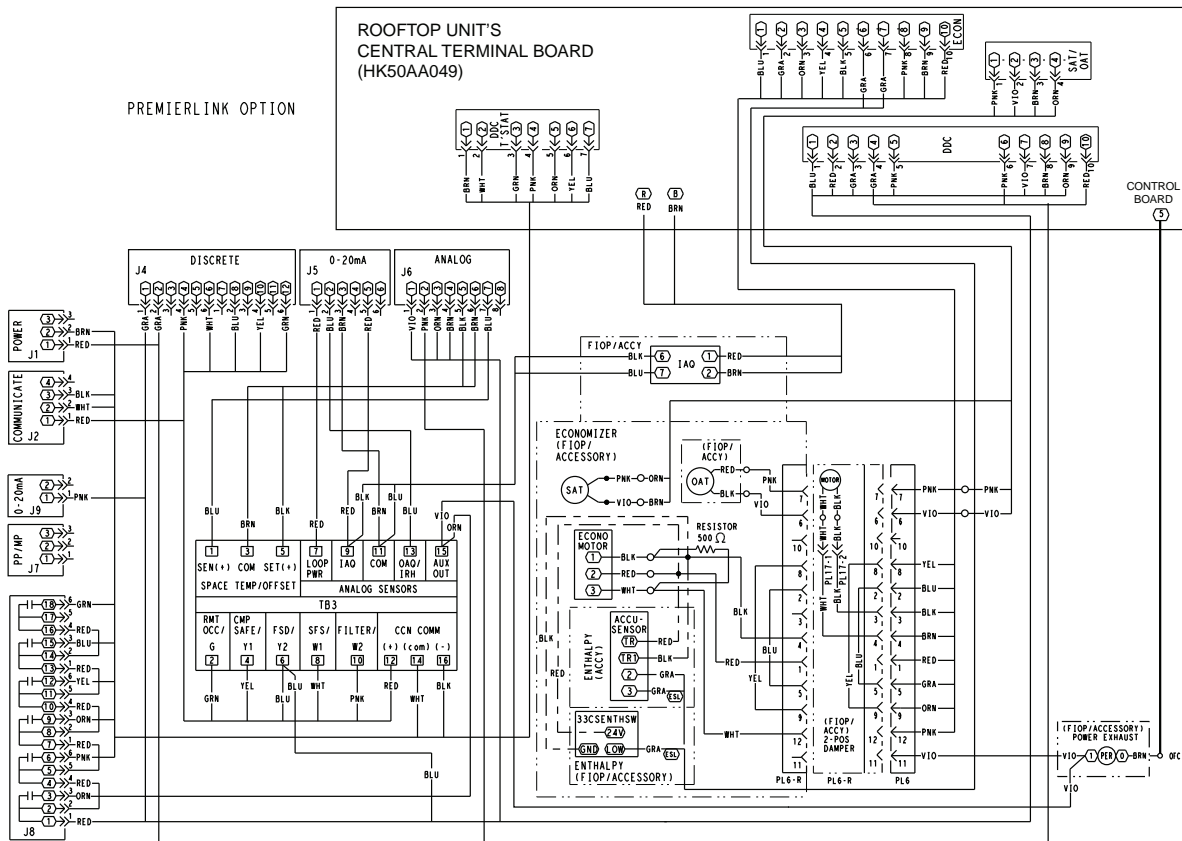


Fig. 27 — PremierLink™ Factory-Installed Controller Wiring for R-410A Units (48/50TC, HC004-028 and 50TCQ, HCQ004-028)

Enthalpy Switch/Receiver — The accessory enthalpy switch/receiver (33CSENTHSW) senses temperature and humidity of the air surrounding the device and calculates the enthalpy when used without an enthalpy sensor. The relay is energized when enthalpy is high and deenergized when enthalpy is low (based on ASHRAE [American Society of Heating, Refrigerating, and Air Conditioning Engineers] 90.1 criteria). If an accessory enthalpy sensor (33CSENSEN) is attached to the return air sensor input, then differential enthalpy is calculated. The relay is energized when the enthalpy detected by the return air enthalpy sensor is less than the enthalpy at the enthalpy switch/receiver. The relay is deenergized when the enthalpy detected by the return air enthalpy sensor is greater than the enthalpy at the enthalpy switch/receiver (differential enthalpy control). See Fig. 29 and 30.

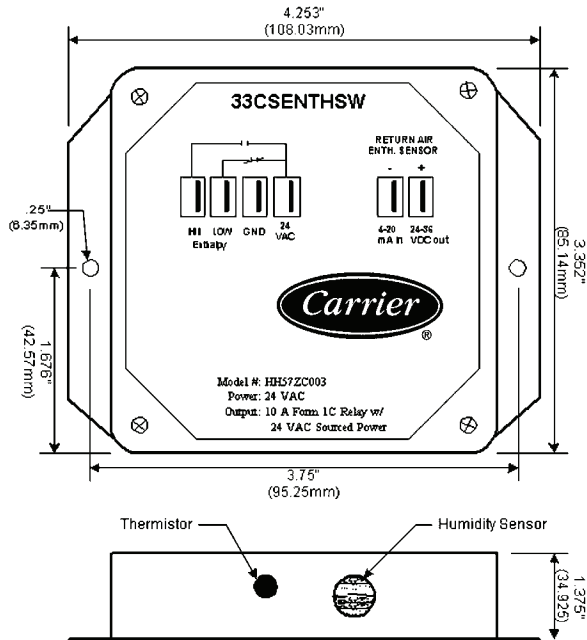


Fig. 29 — Enthalpy Switch/Receiver Dimensions (33CSENTHSW)

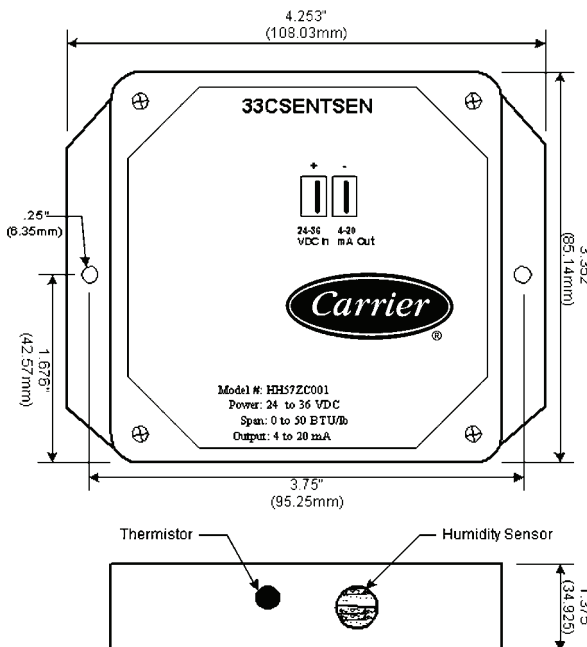


Fig. 30 — Enthalpy Sensor Dimensions (33CSENSEN)

OUTDOOR ENTHALPY CONTROL (Fig. 30) — Outdoor enthalpy control requires only an enthalpy switch/receiver (33CSENTHSW). The enthalpy switch/receiver is mounted in the outdoor air inlet and calculates outdoor air enthalpy. The enthalpy switch/receiver energizes the relay output when the outdoor enthalpy is above 28 BTU/lb **OR** dry bulb temperature is above 75 F and is deenergized when the outdoor enthalpy is below 27 BTU/lb **AND** dry bulb temperature is below 74.5 F. The relay output is wired to the unit economizer which will open or close depending on the output of the switch.

NOTE: The enthalpy calculation is done using an average altitude of 1000 ft above sea level.

Mounting — Mount the enthalpy switch/receiver in a location where the outdoor air can be sampled (such as the outdoor air intake). The enthalpy switch/receiver is not a NEMA 4 enclosure and should be mounted in a location that is not exposed to outdoor elements such as rain or snow. Use two field-supplied no. 8 x 3/4-in. TEK screws. Insert the screws through the holes in the sides of the enthalpy switch/receiver.

Wiring — Carrier recommends the use of 18 to 22 AWG twisted pair or shielded cable for all wiring. All connections must be made with 1/4-in. female spade connectors.

A 24-vac transformer is required to power the enthalpy switch/receiver; as shown in Fig. 30, the PremierLink™ board provides 24 vac. Connect the GND and 24-vac terminals on the enthalpy switch/receiver to the terminals on the transformer. On some applications, the power from the economizer harness can be used to power the enthalpy switch/receiver. To power the enthalpy switch/receiver from the economizer harness, connect power of the enthalpy switch/receiver to the red and brown wires (1 and 4) on the economizer harness.

For connection to rooftop units with PremierLink™ control, connect the LOW Enthalpy terminal on the enthalpy switch/receiver to J4 — pin 2 of the PremierLink control on the HVAC (Heating, Ventilation, and Air Conditioning) unit. The switch can be powered through the PremierLink control board if desired. Wire the 24-vac terminal on the enthalpy switch/receiver to J4 — pin 1 on the PremierLink control. Wire the GND terminal on the enthalpy switch/receiver to J1 — pin 2 on the PremierLink control. The HI Enthalpy terminal is not used. See Fig. 31.

DIFFERENTIAL ENTHALPY CONTROL (Fig. 32) — Differential enthalpy control requires both an enthalpy switch/receiver (33CSENTHSW) and an enthalpy sensor (33CSENSEN). The enthalpy switch/receiver is mounted in the outdoor air inlet and calculates outdoor air enthalpy. The enthalpy sensor is mounted in the return airstream and calculates the enthalpy of the indoor air.

The enthalpy switch/receiver energizes the HI Enthalpy relay output when the outdoor enthalpy is greater than the indoor enthalpy. The LOW Enthalpy terminal is energized when the outdoor enthalpy is lower than the indoor enthalpy. The relay output is wired to the unit economizer which will open or close depending on the output of the switch.

NOTE: The enthalpy calculation is done using an average altitude of 1000 ft above sea level.

Mounting — Mount the enthalpy switch/receiver in a location where the outdoor air can be sampled (such as the outdoor air intake). The enthalpy switch/receiver is not a NEMA 4 enclosure and should be mounted in a location that is not exposed to outdoor elements such as rain, snow, or direct sunlight. Use two field-supplied no. 8 x 3/4-in. TEK screws. Insert the screws through the holes in the sides of the enthalpy switch/receiver.

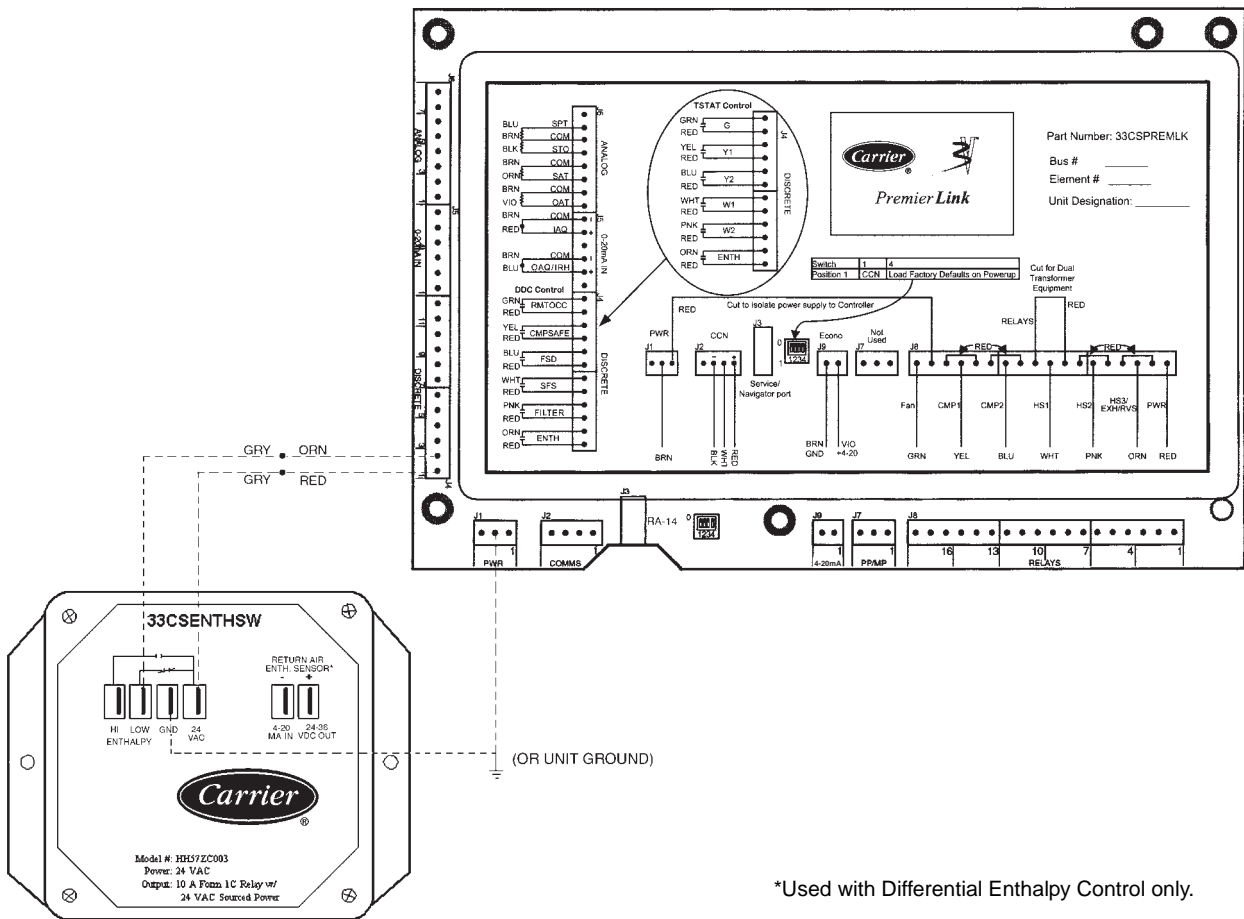


Fig. 31 — Typical Wiring Schematic — Carrier Rooftop Unit with PremierLink™ Controls

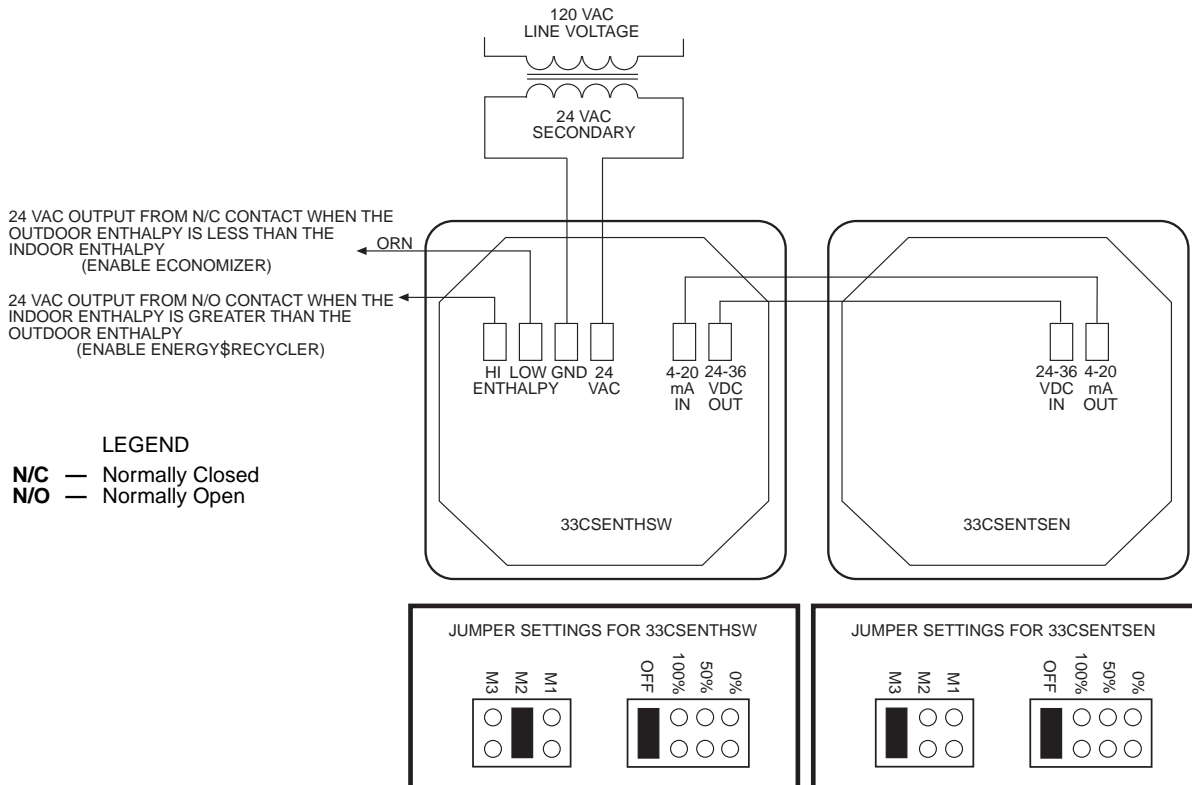


Fig. 32 — Differential Enthalpy Control Wiring

Mount the enthalpy sensor in a location where the indoor air can be sampled (such as the return air duct). The enthalpy sensor is not a NEMA 4 enclosure and should be mounted in a location that is not exposed to outdoor elements such as rain or snow. Use two field-supplied no. 8 x 3/4-in. TEK screws. Insert the screws through the holes in the sides of the enthalpy sensor.

Wiring — Carrier recommends the use of 18 to 22 AWG twisted pair or shielded cable for all wiring. All connections must be made with 1/4-in. female spade connectors.

The PremierLink™ board provides 24-vac to power the enthalpy switch/receiver. Connect the GND and 24-vac terminals on the enthalpy switch/receiver to the terminals on the transformer. On some applications, the power from the economizer harness can be used to power the enthalpy switch/receiver. To power the enthalpy switch/receiver from the economizer harness, connect power of the enthalpy switch/receiver to the red and brown wires (1 and 4) on the economizer harness.

Connect the LOW Enthalpy terminal on the enthalpy switch/receiver to J4 — pin 2 of the PremierLink control on the HVAC unit. The switch can be powered through the PremierLink control board if desired. Wire the 24 vac terminal on the enthalpy switch/receiver to J4 — pin 1 on the PremierLink control. Wire the GND terminal on the enthalpy switch/receiver to J1 — pin 2 on the PremierLink control. The HI Enthalpy terminal is not used. See Fig. 31.

Connect the 4-20 mA In terminal on the enthalpy switch/receiver to the 4-20 mA Out terminal on the return air enthalpy sensor. Connect the 24-36 VDC Out terminal on the enthalpy switch/receiver to the 24-36 VDC In terminal on the return air enthalpy sensor. See Fig. 32.

Enthalpy Switch/Receiver Jumper Settings — There are two jumpers. One jumper determines the mode of the enthalpy switch/receiver. The other jumper is not used. To access the jumpers, remove the 4 screws holding the cover on the enthalpy switch/receiver and then remove the cover. The factory settings for the jumpers are M1 and OFF.

The mode jumper should be set to M2 for differential enthalpy control. The factory test jumper should remain on OFF or the enthalpy switch/receiver will not calculate enthalpy.

Enthalpy Sensor Jumper Settings — There are two jumpers. One jumper determines the mode of the enthalpy sensor. The other jumper is not used. To access the jumpers, remove the 4 screws holding the cover on the enthalpy sensor and then remove the cover. The factory settings for the jumpers are M3 and OFF.

The mode jumper should be set to M3 for 4 to 20 mA output. The factory test jumper should remain on OFF or the enthalpy sensor will not calculate enthalpy.

Enthalpy Sensors and Control — The enthalpy control (HH57AC077) is supplied as a field-installed accessory to be used with the economizer damper control option. The outdoor air enthalpy sensor is part of the enthalpy control. The separate field-installed accessory return air enthalpy sensor (HH58AC078) is required for differential enthalpy control. See Fig. 33.

NOTE: The enthalpy control must be set to the “D” setting for differential enthalpy control to work properly.

The enthalpy control receives the indoor and return enthalpy from the outdoor and return air enthalpy sensors and provides a dry contact switch input to the PremierLink controller. Locate the controller in place of an existing economizer controller or near the actuator. The mounting plate may not be needed if existing bracket is used. See Fig. 34.

A closed contact indicates that outside air is preferred to the return air. An open contact indicates that the economizer should remain at minimum position.

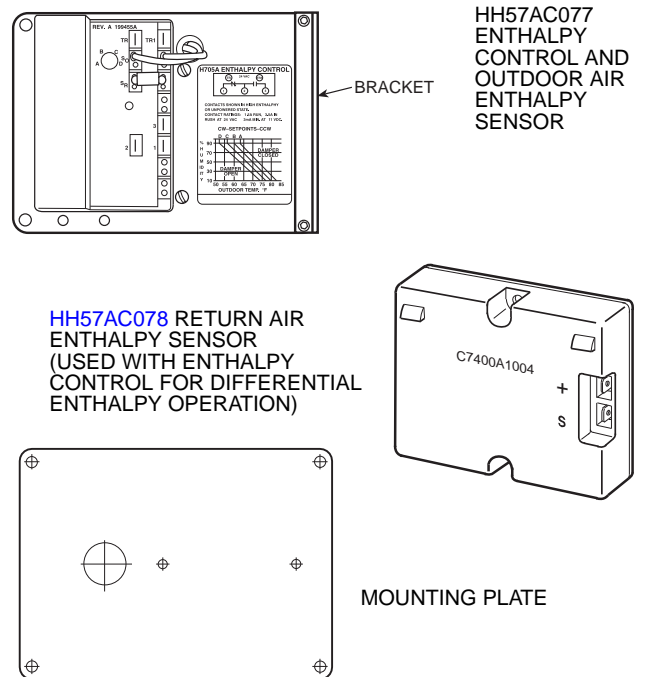


Fig. 33 — Enthalpy Control, Sensor, and Mounting Plate

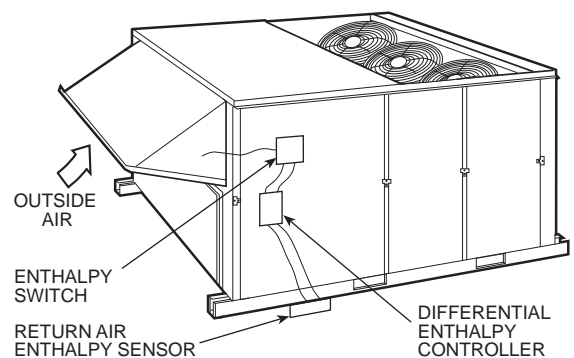


Fig. 34 — Location of Differential Enthalpy Controller and Return Air Enthalpy Sensor on 50TJ Rooftop Unit

OUTDOOR AIR ENTHALPY SENSOR/ENTHALPY CONTROLLER (HH57AC077) — To wire the outdoor air enthalpy sensor, perform the following (see Fig. 35 and 36):

NOTE: The outdoor air sensor can be removed from the back of the enthalpy controller and mounted remotely.

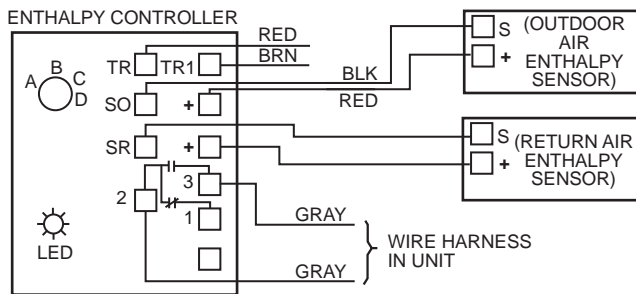
1. Use a 4-conductor, 18 or 20 AWG cable to connect the enthalpy control to the PremierLink controller and power transformer.
2. Connect the following 4 wires from the wire harness located in rooftop unit to the enthalpy controller:
 - a. Connect the BRN wire to the 24 vac terminal (TR1) on enthalpy control and to pin 1 on 12-pin harness.
 - b. Connect the RED wire to the 24 vac GND terminal (TR) on enthalpy sensor and to pin 4 on 12-pin harness.
 - c. Connect the ORN/GRAY wire to J4-2 on PremierLink controller and to terminal (3) on enthalpy sensor.
 - d. Connect the RED/GRAY wire to J4-1 on PremierLink controller and to terminal (2) on enthalpy sensor.

NOTE: If installing in a Carrier rooftop, use the two gray wires provided from the control section to the economizer to connect PremierLink™ controller to terminals 2 and 3 on enthalpy sensor. If NOT using Carrier equipment, wires may need to be field supplied and installed.

RETURN AIR ENTHALPY SENSOR — Mount the return-air enthalpy sensor (HH57AC078) in the return-air duct. The return air sensor is wired to the enthalpy controller (HH57AC077). See Fig. 35. The outdoor enthalpy changeover set point is set at the controller.

To wire the return air enthalpy sensor, perform the following (see Fig. 35):

1. Use a 2-conductor, 18 or 20 AWG, twisted pair cable to connect the return air enthalpy sensor to the enthalpy controller.
2. At the enthalpy control remove the factory-installed resistor from the (SR) and (+) terminals.
3. Connect the field-supplied RED wire to (+) spade connector on the return air enthalpy sensor and the (SR+) terminal on the enthalpy controller. Connect the BLK wire to (S) spade connector on the return air enthalpy sensor and the (SR) terminal on the enthalpy controller.



NOTES:

1. Remove factory-installed jumper across SR and + before connecting wires from return air sensor.
2. Switches shown in high outdoor air enthalpy state. Terminals 2 and 3 close on low outdoor air enthalpy relative to indoor air enthalpy.
3. Remove sensor mounted on back of control and locate in outside airstream.

Fig. 35 — Outside and Return Air Enthalpy Sensor Wiring

See Fig. 36 for enthalpy controller to PremierLink controller wiring.

Economizer — The PremierLink controller will interface with an economizer in some applications. Most common economizers will contain a Honeywell actuator (Honeywell part number M7415).

An adapter (Honeywell part number Q769B or Q769C) must be used to enable the 4 to 20 mA signal from the PremierLink controller to control the position of the economizer. Refer to Honeywell Q769B and Q769C accessory installation instructions for wiring details.

⚠ CAUTION

Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.

Q769B ADAPTER — Because the Honeywell adapter is designed for a negative 4 to 20 mA input instead of a positive signal, the Q769B adapter requires a separate transformer and a current loop isolator to perform properly. Connecting the adapter directly to the PremierLink controller could cause the 4

to 20 mA output on the controller to be permanently damaged. This condition is followed by a constant 36 VDC output from the PremierLink economizer output (J-9).

⚠ CAUTION

To avoid permanent damage to the PremierLink 4 to 20 mA connection, a signal loop isolator must be installed when using the Q769B adapter.

The Q769B adapter is supplied with female quick-connect terminal that fits over the male quick-connect P1 and P on the actuator.

To connect the Q769B adapter to the actuator, follow these steps and refer to Fig. 37:

1. Remove power from unit.
2. Mount the adapter on the actuator by gently pushing the adapter onto the P1 and P terminals on actuator.

NOTE: Be sure the plus (+) terminal on the adapter connects to P1 on the actuator and the minus (–) terminal on the adapter connects to P terminal on the actuator. See Fig. 37.

3. Using field-supplied wire, connect the plus (+) terminal on the adapter to the plus (+) terminal on the loop isolator. Connect the minus (–) terminal on the adapter to the minus (–) terminal on the loop isolator.
4. Connect 24 vac to actuator terminals TR and TR1.
5. Connect the plus (+) terminal from the loop isolator to J9-1 terminal on the PremierLink controller. Connect the minus (–) terminal from the loop isolator to J9-2 terminal on the PremierLink controller.
6. Restore power to unit.

Q769C ADAPTER — The Q769C adapter incorporates a female quick-connect terminal that attaches to P1 and P male quick-connects on the actuator.

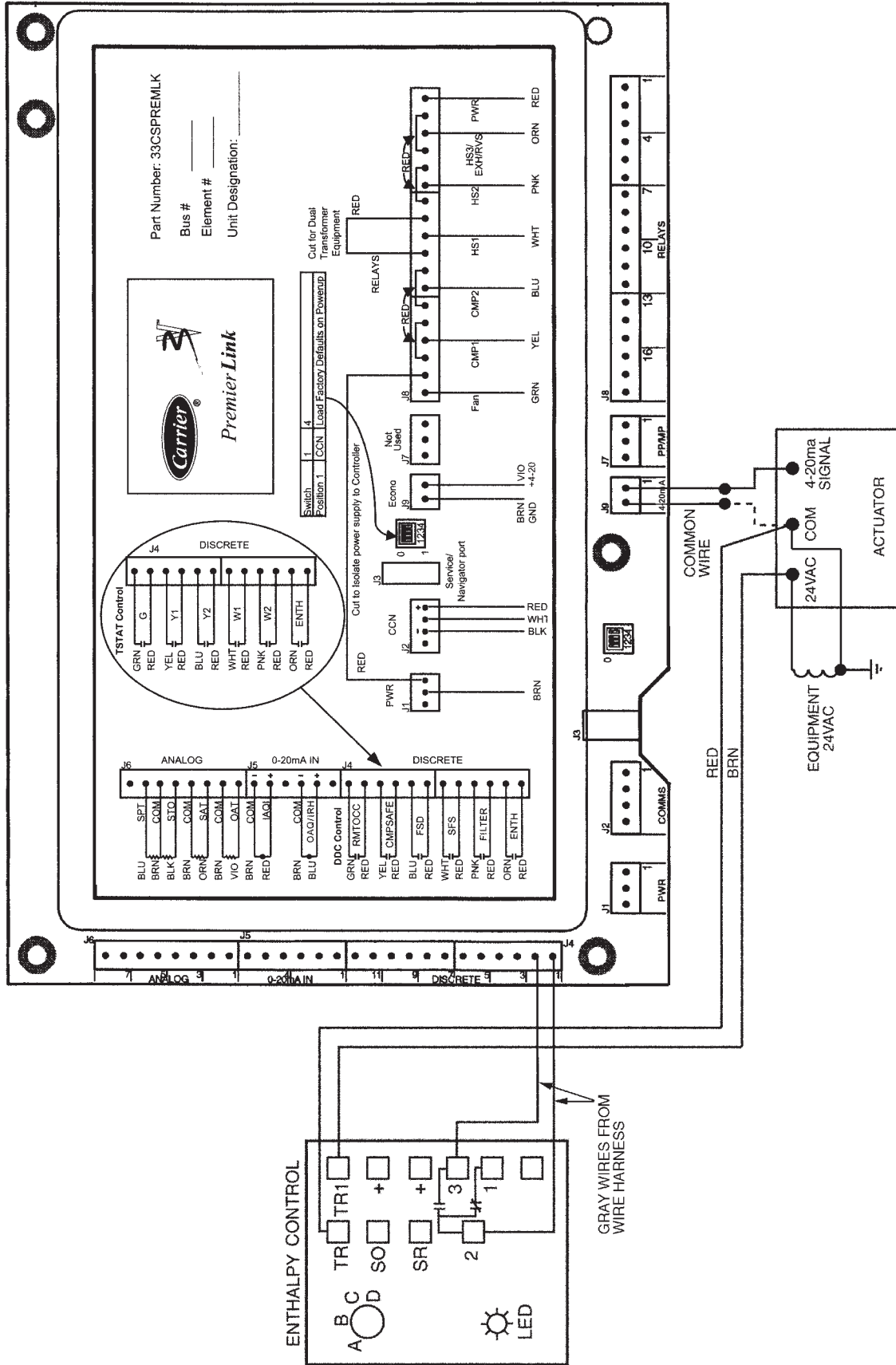
IMPORTANT: It is recommended that the Q769C adapter be used with a field-supplied 500-ohm resistor across the terminals.

Using the Q769C and actuator requires a separate, field-supplied transformer because the actuator with a Q769C is a positive ground device. The PremierLink controller is a negative ground device.

The positive P1 terminal on the Q769C goes to ground. See Fig. 38.

To connect the Q769C adapter to the actuator, follow the steps below and refer to Fig. 38:

1. Remove power from unit.
2. Mount the adapter onto the actuator by gently pushing the adapter onto terminals P1 and P of actuator.
3. NOTE: Be sure the plus (+) terminal on the adapter connects to P1 on the actuator and the minus (–) terminal on the adapter connects to P terminal on the actuator. See Fig. 38.
4. Connect 24 vac to actuator terminals TR and TR1.
5. Connect 500-ohm resistor (field supplied) to the plus (+) and minus (–) terminals on adapter.
6. Connect the plus (+) terminal from the adapter to J9-1 terminal on the PremierLink controller. Connect the minus (–) terminal from the adapter to J9-2 terminal on the PremierLink controller.
7. Restore power to unit.



NOTE: If PremierLink™ controller is grounded and actuator is grounded on common side, then common wire from PremierLink controller J9-2 is not needed.

Fig. 36 — PremierLink Controller Wiring — Enthalpy Control (HH57AC077)

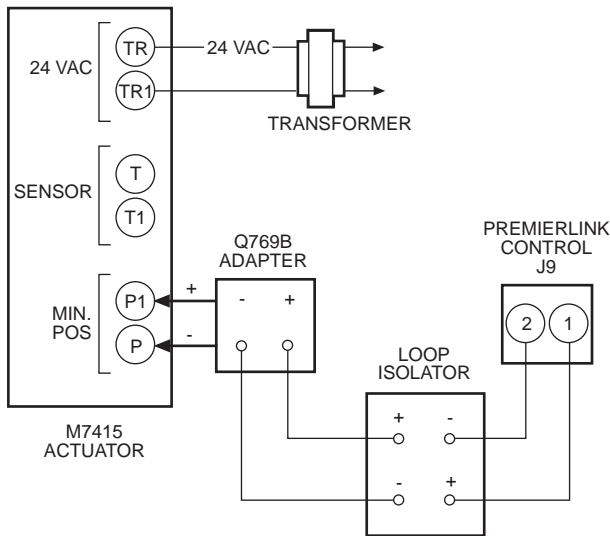


Fig. 37 — PremierLink™ Control Wiring to Q769B Adapter and Actuator

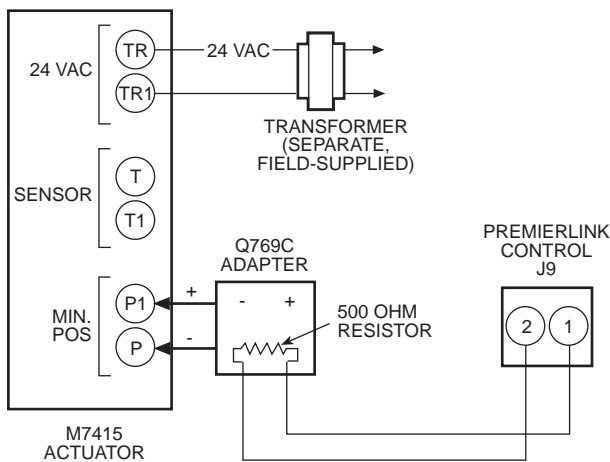


Fig. 38 — PremierLink Control Wiring to Q769C Adapter and Actuator

Economizer with 4 to 20 mA Actuator — The PremierLink controller can be connected to an economizer. The economizer features a Johnson 4 to 20 mA actuator.

IMPORTANT: The actuator that comes with the economizer is a stepper-type actuator and is NOT compatible with PremierLink control. This actuator should be replaced with a 4 to 20 mA actuator.

DRIVE DIRECTION — The actuator drive direction is dependent upon the position of Switch 3 and the spring return direction. See Table 5. The actuator is factory set for Direct Acting (DA) operation with Switch 3 in the DA position. An increasing control signal drives the actuator away from the spring return position in DA mode. The actuator should be

installed in the DA mode so damper will close automatically on power shut down.

If Reverse Acting (RA) operation is desired, move Switch 3 to the RA position. An increasing control signal drives the actuator toward the spring return position in RA mode.

SWITCH SELECTION — The type of input control signal is determined by the position of Switch 5. With Switch 5 in the VDC position (factory setting), the signal is DC voltage. With Switch 5 in the mA position, the input signal changes to current input. See Fig. 39 and Table 6. The switch should be set to mA for use with PremierLink controller.

NOTE: To change the factory setting, use a 1/8-in. (3-mm) flat-blade screwdriver to position the mode switch to the alternate setting.

Table 5 — Actuator Drive Direction Settings

POSITION OF SWITCH 3 AND THE DIRECTION OF SPRING RETURN DRIVE	DRIVE DIRECTION WITH A MINIMUM INPUT SIGNAL	DRIVE DIRECTION WITH A MAXIMUM INPUT SIGNAL
DA/CCW	CCW	CW
RA/CCW	CW	CCW
DA/CW	CW	CCW
RA/CW	CCW	CW

LEGEND

- CCW** — Counterclockwise
- CW** — Clockwise
- DA** — Direct Action
- RA** — Reverse Action

Table 6 — Mode Selection Information

MODE SWITCHES	SWITCH FUNCTIONS	FACTORY SETTINGS
5	VDC or mA	VDC
4	0 to 10 VDC (0 to 20 mA or 2 to 10 VDC (4 to 20 mA)	0 to 10
3	Direct Acting (DA) or Reverse Acting (RA)	DA
2	FIXED or AUTO	FIXED
1	— or 6 to 9 VDC	—

NOTE: The 6 to 9 VDC setting of Switch 1 overrides Switch 4.

WIRING (See Fig. 40-41B) — The wires for power and signal transmission from PremierLink controller to economizer are provided in the 12-pin harness that is standard on all Carrier equipment. To connect the economizer actuator (installed on Belimo or Johnson Controls actuators) to PremierLink controller, connect the pink wire on actuator to purple wire on PremierLink J9-1. See Fig. 41A and 41B.

NOTE: To retrofit PremierLink controller to older 4 to 20 mA actuator, connect the red wire on the actuator wire harness to the purple wire on the PremierLink J9-1. Connect the yellow and white wires from the actuator wire harness to the 24-volt AC transformer on equipment. See Fig. 40.

IMPORTANT: Make sure the common side is grounded for both the PremierLink power and the actuator power. This is especially important if separate transformers are used.

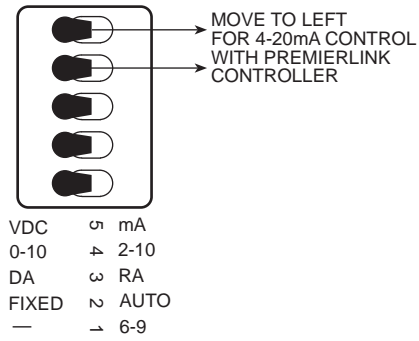


Fig. 39 — Position of Actuator Mode Switches (Factory Default)

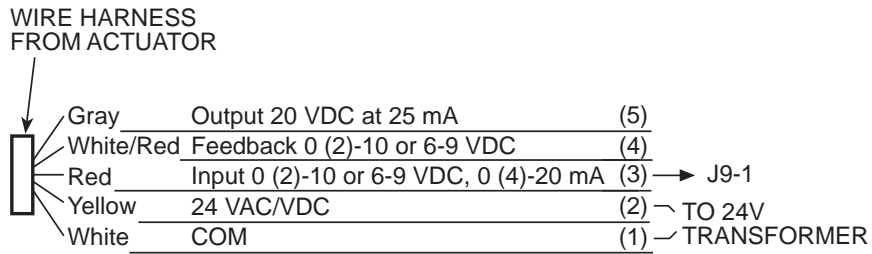


Fig. 40 — PremierLink™ Controller Wiring to Economizer Actuator with Wire Harness (M9206-GGC-2)

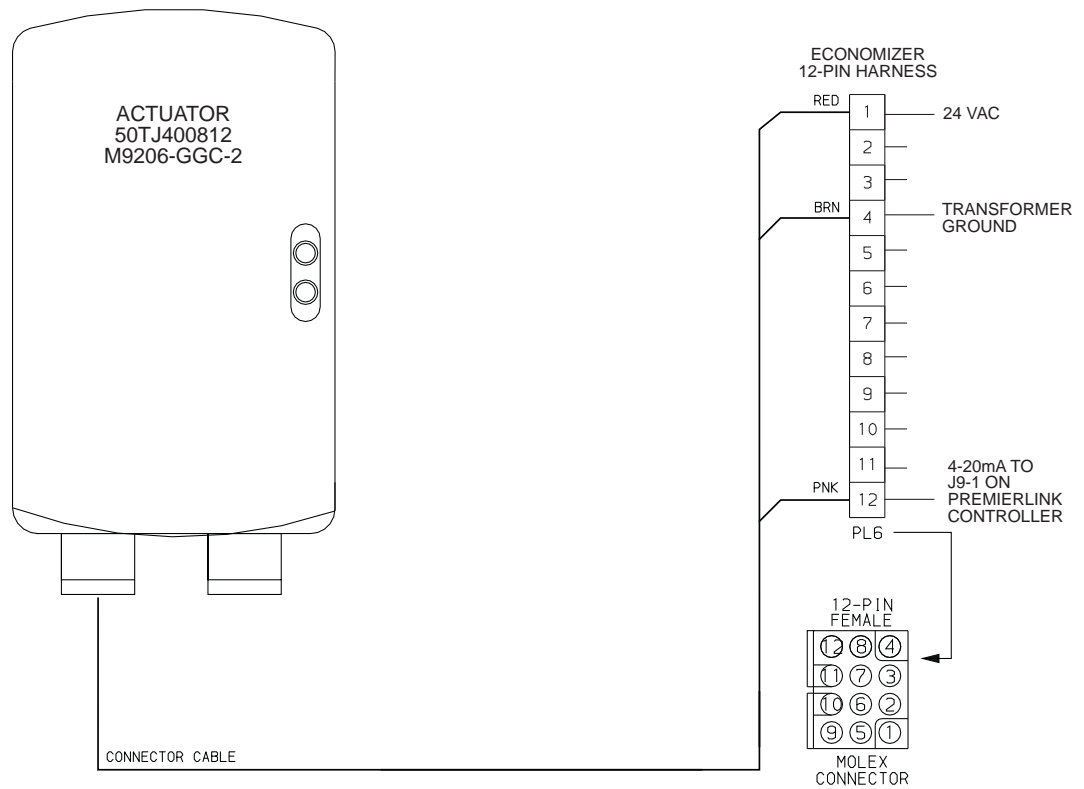
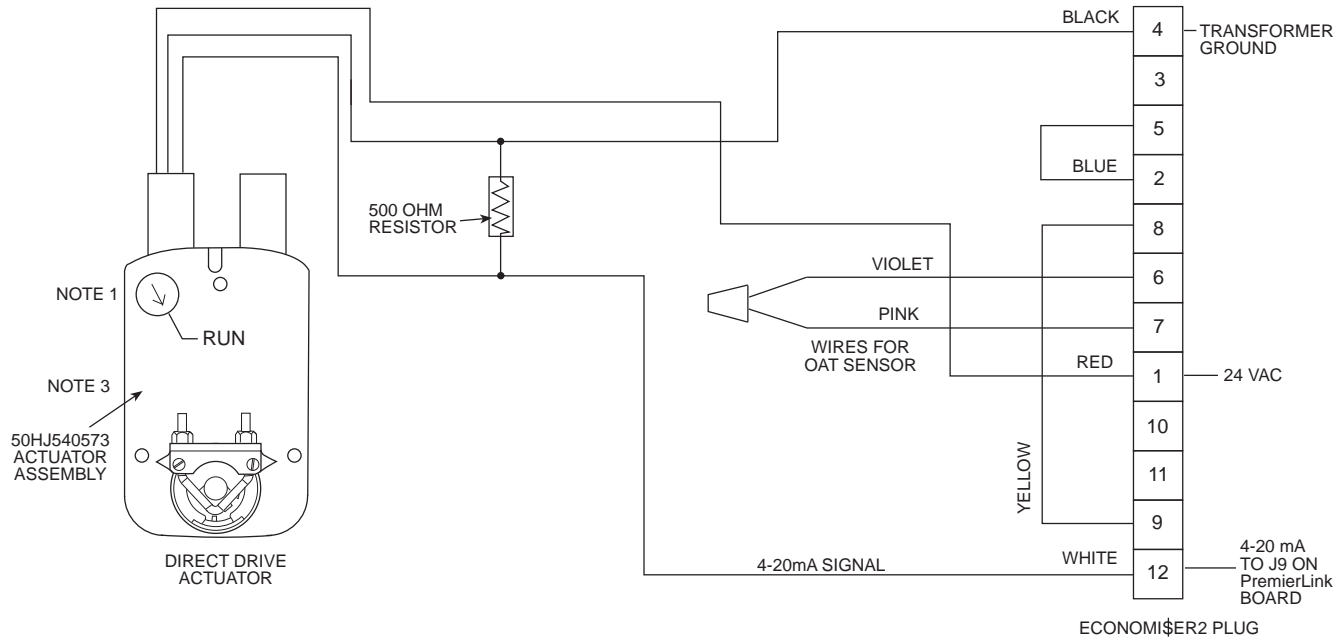


Fig. 41A — PremierLink Control Wiring to Johnson Actuator Economizer Harness



NOTES:

1. Switch on actuator must be in run position for economizer to operate.
2. PremierLink™ control requires that the standard 50HJ540569 outside-air sensor be replaced by either the CROASENR001A00 dry bulb sensor or HH57A077 enthalpy sensor.
3. 50HJ540573 actuator consists of the 50HJ540567 actuator and a harness with 500-ohm resistor.

Fig. 41B — PremierLink™ Control Wiring to Belimo-Style Actuator EconoMi\$er2 Harness

START-UP

⚠ WARNING

The unit must be electrically grounded in accordance with local codes and NEC ANSI/NFPA 70 (American National Standards Institute/National Fire Protection Association).

Use the Carrier network communication software to start up and configure the PremierLink controller.

Changes can be made using the ComfortWORKS® software, ComfortVIEW™ software, Network Service Tool, System Pilot™ device, or Touch Pilot™ device. The System Pilot and Touch Pilot devices are portable interface devices that allow the user to change system setup and set points from a zone sensor or terminal control module. During start-up, the Carrier software can also be used to verify communication with PremierLink controller.

NOTE: All set-up and set point configurations are factory-set and field-adjustable.

For specific operating instructions, refer to the literature provided with user interface software.

Perform System Check-Out

1. Check correctness and tightness of all power and communication connections.
2. At the unit, check fan and system controls for proper operation.
3. At the unit, check electrical system and connections of any optional electric reheat coil.
4. Check to be sure the area around the unit is clear of construction dirt and debris.
5. Check that final filters are installed in the unit. Dust and debris can adversely affect system operation.

6. Verify that the PremierLink controls are properly connected to the CCN bus.

Initial Operation and Test — Perform the following procedure:

1. Apply 24 vac power to the control.
2. Connect the service tool to the phone jack service port of the controller.
3. Using the Service Tool, upload the controller from address 0, 31 at 9600 baud rate. The address may be set at this time. Make sure that Service Tool is connected to only one unit when changing the address.

MEMORY RESET — DIP switch 4 causes an E-squared memory reset to factory defaults after the switch has been moved from position 0 to position 1 and the power has been restored. To enable the feature again, the switch must be put back to the 0 position and power must be restored; this prevents subsequent resets to factory defaults if the switch is left at position 1.

To cause a reset of the non-volatile memory (to factory defaults), turn the controller power off if it is on, move the switch from position 1 to position 0, and then apply power to the controller for a minimum of 5 seconds. At this point, no action occurs, but the controller is now ready for the memory to reset. Remove power to the controller again and move the switch from position 0 to position 1. This time, when power is applied, the memory will reset to factory defaults. The controller address will return to bus 0 element 31, indicating that memory reset occurred.

Sequence of Operation

THERMOSTAT MODE — If the PremierLink™ controller is configured for Thermostat mode (TSTAT), it will control only to the thermostat inputs on J4. These inputs can be overridden through CCN communication via the CV_TSTAT points display table. When in this mode, the fire safety shutdown (FSD)

input cannot be used, so any fire/life safety shutdown must be physically wired to disable the 24 vac control circuit to the unit.

Indoor Fan — The indoor fan output will be energized whenever there is 24 vac present on the G input. The indoor fan will be turned on without any delay and the economizer damper will open to its minimum position if the unit has a damper connected to the controller. This will also occur if the Premier-Link™ controller has been configured for electric heat or heat pump operation.

Cooling — For cooling operation, there must be 24 vac present on G. When G is active, the PremierLink controller will then determine if outdoor conditions are suitable for economizer cooling when an economizer damper is available. A valid OAT, SPT (CCN space temperature) and SAT (supply air temperature) sensor MUST be installed for proper economizer operation. It is recommended that an outdoor or differential enthalpy sensor also be installed. If one is not present, then a jumper is needed on the ENTH input on J4, which will indicate that the enthalpy will always be low. Economizer operation will be based only on outdoor air dry bulb temperature. The conditions are suitable when: enthalpy is low, OAT is less than OATL High Lockout for TSTAT, and OAT is less than OATMAX, the high set point for free cooling. The default for OATL is 65 F. The default for OATMAX is 75 F.

When all of the above conditions are satisfied and all the required sensors are installed, the PremierLink controller will use the economizer for cooling. One of three different control routines will be used depending on the temperature of the outside air. The routines use a PID loop to control the SAT to a supply air set point (SASP) based on the error from set point (SASP-SAT). The SASP is determined by the routine.

If an economizer is not available or the conditions are not met for the following economizer routines below, the compressors 1 and 2 will be cycled based on Y1 and Y2 inputs respectively.

Any time the compressors are running, the PremierLink controller will lock out the compressors if the SAT becomes too low. These user configurable settings are found in the SERVICE configuration table:

Compressor 1 Lockout at $SAT < SATLO1$ (40 to 60 F) (default is 55 F)

Compressor 2 Lockout at $SAT < SATLO2$ (40 to 60 F) (default is 50 F)

After a compressor is locked out, it may be started again after a normal time-guard period and the supply-air temperature has increased above the lockout set point.

Routine No. 1: If the $OAT \leq DXLOCK$ (OAT DX lockout temperature) and DX Cooling Lockout is enabled when Y1 input is energized, the economizer will be modulated to maintain SAT at the Supply Air Setpoint (SASP) = $SATLO1 + 3^\circ F$ (Supply Air Low Temp lockout for compressor 1). When Y2 is energized, the economizer will be modulated to control to a lower $SASP = SATLO2 + 3^\circ F$ (Supply Air Low Temp lockout for compressor no. 2). Mechanical cooling is locked out and will not be energized.

Routine No. 2: If DXLOCK (or DX Cooling Lockout is disabled) $< OAT \leq 68 F$ when Y1 input is energized, the economizer will be modulated to maintain SAT at $SASP = SATLO1 + 3^\circ F$. If the $SAT > SASP + 5^\circ F$ and the economizer position $> 85\%$ then the economizer will close the to minimum position for three minutes or until the $SAT > 68 F$. The economizer integrator will then be reset and begin modulating to maintain the SASP after stage one has been energized for 90 seconds.

When Y2 is energized, the economizer will be modulated to control to a lower supply air setpoint $SASP = SATLO2 + 3^\circ F$. If the $SAT > SASP + 5^\circ F$ it will close the economizer to minimum position for 3 minutes, reset the integrator for the economizer, then start modulating the economizer to maintain the

SASP after the stage two has been on for 90 seconds. This provides protection for the compressor against flooded starts and allow refrigerant flow to stabilize before modulating the economizer again. By using return air across the evaporator coil just after the compressor has started allows for increased refrigerant flow rates providing better oil return of any oil washed out during compressor start-up.

Routine No. 3: If the $75F > OAT > 68 F$ and the enthalpy is low and the $OAT < SPT$ then the economizer will open to 100% and compressors 1 and 2 will be cycled based on Y1 and Y2 inputs respectively. If any of these conditions are not met the economizer will go to minimum position.

If there is no call for heating or cooling, the economizer, if available, will maintain the SASP at 70 F.

Heating — For gas or electric heat, HS1 and HS2 outputs will follow W1 and W2 inputs respectively. The fan will also be turned on if it is configured for electric heat.

If the PremierLink controller is configured for heat pump operation with the Auxiliary Out relay for Reversing Valve (AUXOUT = 3 in the CONFIG configuration table), the indoor fan will be turned on, compressors 1 and 2 turned on and the reversing valve relay (HS3) will be energized on a call from the W1 input. On a call from the W2 input, heat outputs HS1 and HS2 will be energized. If only W2 input is detected, then it will be determined as call for emergency heat and HS1 and HS2 will be energized. The reversing valve relay will stay energized until there is a call for cooling at which time it will be deenergized.

Heating may also be energized when an IAQ sensor installed and has overridden the minimum economizer damper position. If the $OAT < 55 F$ and an IAQ sensor is installed and the IAQ minimum position $>$ minimum damper position causing the SAT to decrease below the $SPT - 10^\circ F$, then the heat stages will be cycled to temper the SAT to maintain a temperature between the SPT and the $SPT + 10^\circ F$.

Auxiliary Relay configured for Exhaust Fan — If the Auxiliary Relay is configured for exhaust fan (AUXOUT = 1) in the CONFIG configuration table and Continuous Power Exhaust (MODPE) is enable in the SERVICE configuration table then the output (HS3) will be energized whenever the G input is on. If the MODPE is disabled then output will be energized based on the Power Exhaust Setpoint (PES) in the SETPOINT table.

Indoor Air Quality — If the optional indoor air quality (IAQI) sensor is installed, the PremierLink™ controller will maintain indoor air quality within the space at the user-configured differential set point (IAQD) in the CONFIG configuration table. The set point is the difference between the IAQI and an optional outdoor air quality sensor (OAQ). If the OAQ is not present then a fixed value of 400 ppm is used. The actual space IAQ setpoint (IAQS) is calculated as follows:

$$IAQS = IAQD + OAQ \text{ (} OAQ = 400 \text{ ppm if not present)}$$

As air quality within the space changes, the minimum position of the economizer damper will be changed also thus allowing more or less outdoor air into the space depending on the relationship of the IAQI to the IAQS. The IAQ algorithm runs every 30 seconds and calculates IAQ minimum position value using a PID loop on the IAQI deviation from the IAQS. The IAQ minimum position is then compared against the user configured minimum position (MDP) and the greatest value becomes the final minimum damper position (IQMP). If the calculated IAQ Minimum Position is greater than the IAQ maximum damper position (IAQMAXP) decision in the SERVICE configuration table, then it will be clamped to IAQMAXP value.

If IAQ is configured for low priority, the positioning of the economizer damper can be overridden by comfort requirements. If the $SAT < SASP - 8^\circ F$ and both stages of heat are on for more then 4 minutes or the $SAT > SASP + 5^\circ F$ and both stages of cooling on for more then 4 minutes then the IAQ

minimum damper position will become 0 and the IQMP = MDP. IAQ mode will resume when the SAT > SASP – 8° F in heating or the SAT < SASP + 5° F in cooling. If the PremierLink™ controller is configured for 1 stage of heat and cool or is only using a single stage thermostat input, this function will not work as it requires the both Y1 and Y2 or W1 and W2 inputs to be active. In this application, it is recommended that the user configure IAQ priority for high.

If IAQ is configured for high priority and the OAT < 55 F and the SAT < (SPT – 10° F), the algorithm will enable the heat stages to maintain the SAT between the SPT and the SPT + 10° F.

CCN SENSOR MODE — When the PremierLink controller is configured for CCN control, it will control the compressor, economizer and heating outputs based its own space temperature input and set points or those received from Linkage. An optional CO₂ IAQ sensor mounted in the space or received through communications can also influence the economizer and heating outputs. The PremierLink controller does not have a hardware clock so it must have another device on the CCN communication bus broadcasting time. The controller will maintain its own time once it has received time as long as it has power and will send a request for time once a minute until it receives time when it has lost power and power is restored. The controller will control to occupied set points if the Remote Cont/Door Switch decision (RC_DC in the SERVICE configuration table) is set to 1 (default) until it has received a valid time. The controller must have valid time in order to perform any broadcast function, follow an occupancy schedule, perform IAQ pre-occupancy purge and many other functions as well. The following sections describe the operation for the functions of the PremierLink controller.

Indoor Fan — The indoor fan will be turned on whenever any one of the following conditions are met:

- If the PremierLink controller is in the occupied mode and ASHRAE 90.1 Supply Fan is configured for Yes in the CONFIG table. This will be determined by its own internal occupancy schedule if it is programmed to follow its local schedule or broadcast its local schedule as a global schedule, or following a global schedule broadcast by another device.
- If PremierLink controller is in the occupied mode and ASHRAE 90.1 Supply Fan is configured for No and there is a heat or cool demand (fan auto mode). The fan does have an internal on/off time delay between 60 and 90 seconds based on the PremierLink controller's address.
- If the PremierLink controller is in the occupied mode and ASHRAE 90.1 Supply Fan is configured for Yes when Linkage is active and the Linkage Coordinator device is sending an occupied mode flag
- When Temperature Compensated Start is active
- When Free Cool is active
- When Pre-Occupancy Purge is active
- Whenever there is a demand for cooling or heating in the unoccupied mode
- Whenever the Remote Contact input is configured for Remote Contact (RC_DC=1 in SERVICE table) and it is closed or the point is forced Closed via communications in the STATUS01 points display table (remote contact closed = occupied, remote contact open = follow local occupancy) and the PremierLink controller is not under Linkage control.
- Whenever the H3_EX_RV point is configured for Dehumidification (AUXOUT=5 in CONFIG table) and it is in the unoccupied mode and the indoor RH exceeds the unoccupied humidity set point
- Whenever the Supply Fan Relay point is forced On in the STATUS01 points display table

The fan will also continue to run as long as compressors are on when transitioning from occupied to unoccupied with the exception of Fire Shutdown mode. If the Fire Shutdown input

point is closed or forced in the STATUS01 points display table, the fan will be shutdown immediately regardless of the occupancy state or demand.

The PremierLink controller has an optional Supply Fan Status input to provide proof of airflow. If this is enabled, the point will look for a contact closure whenever the Supply Fan Relay is on. If the input is not enabled, then it will always be the same state as the Supply Fan Relay. The cooling, economizer and heating routines will use this input point for fan status.

Cooling — The compressors are controlled by the Cooling Control Loop that is used to calculate the desired SAT needed to satisfy the space. It will compare the SPT to the Occupied Cool Setpoint (OCSPT) + the T56 slider offset (STO) when occupied and the Unoccupied Cool Setpoint (UCSPT + Unoccupied Cooling Deadband) if unoccupied to calculate a Cooling Submaster Reference (CCSR) that is then used by the staging algorithm (Cooling submaster loop) to calculate the required number of cooling stages. The economizer, if available, will be used as the first stage of cooling in addition to the compressors. This loop runs every minute. The following conditions must be met in order for this algorithm to run:

- indoor fan has been ON for at least 30 seconds
- heat mode is not active and the time guard between modes equals zero.
- mode is occupied or the Temperature Compensated Start or Cool mode is active
- SPT reading is available and > (OCSPT + STO + 0.25° F)
- If mode is unoccupied and the SPT > (UCSPT + Unoccupied Cooling Deadband). The indoor fan will be turned on by the staging algorithm.
- OAT > DXLOCK or OAT DX Lockout is disabled

If all of the above conditions are met, the CCSR will be calculated, otherwise it is set to its maximum value and DX stages is set to 0. If only the last condition is not true and an economizer is available, it will be used to cool the space.

The submaster loop uses the CCSR compared to the actual SAT to determine the required number of capacity stages to satisfy the load. There is a programmable minimum internal time delay of 3 to 5 minutes on and 2 to 5 minutes off for the compressors to prevent short cycling. There is also a 3-minute time delay before bringing on the second stage compressor. If the PremierLink controller is configured for Heat Pump and AUXOUT is configured for Reversing Valve Cool, the H3_EX_RV output will energize 2 seconds after the first compressor is energized and stay energized until there is a demand for heat. If AUXOUT is configured for Reversing Valve Heat, then the H3_EX_RV contact will be deenergized when there is a demand for cooling. An internal 5 to 10-minute user-programmable time guard between modes prevents rapid cycling between modes when used in a single zone application. The Time Guard is lowered to 3 minutes when Linkage is active to allow the 3V™ linkage coordinator to have better control of the PremierLink controller when used as the air source for the 3V control system.

Table 7 indicates the number of stages available. The staging algorithm looks at the number of stages available based the number of cool stages configured in the SERVICE configuration table. The algorithm will skip the economizer if it is not available and turn on a compressor.

Any time the compressors are running, the PremierLink controller will lock out the compressors if the SAT becomes too low. These user configurable settings are found in the SERVICE configuration table:

Compressor 1 Lockout at SAT < SATLO1 (40 to 60 F) (default is 55 F)

Compressor 2 Lockout at SAT < SATLO2 (40 to 60 F) (default is 50 F)

Table 7 — Available Cooling Stages

Number of Stages	0	1 (Economizer*)	2	3
Compressor 1	Off	Off	On	On
Compressor 2	Off	Off	Off	On

* If conditions are suitable for economizer operation.

After a compressor is locked out, it may be started again after a normal time-guard period and the supply-air temperature has increased above the lockout set point.

Dehumidification — The PremierLink controller will provide occupied and unoccupied dehumidification control when AUXOUT = 5 in the CONFIG table and is installed on HVAC units that are equipped with additional controls and accessories to accomplish this function. This function also requires a space relative humidity sensor be installed on the OAQ/IRH input.

When in the occupied mode and the indoor relative humidity is greater than the Occupied High Humidity set point, then the H3_EX_RV output point will be energized. When in the unoccupied mode and indoor relative humidity is greater than the Unoccupied High Humidity set point, then the H3_EX_RV output point and supply fan output will be energized. There is a fixed 5% hysteresis that the indoor relative humidity must drop below the active set point to end the dehumidification mode and deenergize the H3_EX_RV output. If the Premierlink controller is in the unoccupied mode, then the fan relay will deenergize if there is no other mode requiring to the fan to be on. This function will not energize mechanical cooling as a result of the indoor relative humidity exceeding either set point.

A high humidity alarm will be generated if the indoor relative humidity exceeds the high humidity set point by the amount configured in the Control Humidity Hysteresis in the ALARMS table for 20 minutes. The alarm will return to normal when the indoor relative humidity drops 3% below the active humidity set point.

Economizer — The economizer dampers are used to provide free cooling and indoor air quality if optional CO₂ sensor is installed and when the outside conditions are suitable. Temperature control is accomplished by controlling the SAT to a certain level determined by the Economizer PID Loop by calculating a submaster reference (ECONSR) value. This algorithm will calculate the submaster reference temperature (ECONSR) based on OAT and enthalpy conditions and cooling requirements. The ECONSR value is then passed to the Economizer Submaster Loop, which will modulate dampers to maintain SAT at ECONSR level.

The following conditions are required to determine if economizer cooling is possible:

- Indoor fan has been on for at least 30 seconds
- Enthalpy is low
- SAT reading is available
- OAT reading is available
- SPT reading is available
- $OAT \leq SPT$
- $OAT < OATMAX$ (OATMAX default is 75 F)
- Economizer position is NOT forced

If any of the above conditions are not met, the ECONSR will be set to its MAX limit of 120 F and the damper will go to its configured minimum position. The minimum damper position can be overridden by the IAQ routine described later in this section.

The calculation for ECONSR is as follows:

$ECONSR = PID \text{ function on } (\text{set point} - SPT)$, where:

set point = $((OCSP+STO) + (OHSP+STO))/2$ when NTLO (Unoccupied Free Cool OAT Lockout) < OAT < 68 F

setpoint = $(OCSP+STO) - 1$ when $OAT \leq NTLO$

setpoint = $(OHSP+STO) + 1$ when $OAT \geq 68 F$

The actual damper position (ECONPOS) is the result of the following calculation. Values represented in the right side of the equation can be found in the SERVICE configuration table descriptions in this manual. Note that the OAT is taken into consideration to avoid large changes in damper position when the OAT is cold:

$$ECONPOS = SubGain \times (ECONSR - SAT) + CTRVAL$$

$$\text{where } SubGain = (OAT - TEMPBAND) / (ESG + 1)$$

If the OAT < DXLOCK (DX Cool Lockout set point) then the damper will be modulated to maintain the SAT at the ECONSR value.

If the OAT is between DXLOCK and 68 F (DXLOCK < OAT < 68 F) and additional cooling is required, the economizer will close the to minimum position for three minutes, the economizer integrator will then be reset to 0 and begin modulating to maintain the SASP after the compressor has been energized for about 90 seconds. This will allow the economizer to calculate a new ECONSR that takes into account the cooling effect that has just been turned on and not return to the value require before the cooling was added. This will prevent the economizer from causing premature off cycles of compressors while maintaining the low SAT temperature set point for the number of stages active. In addition to preventing compressor short cycling, by using return air across the evaporator coil just after the compressor has started, it allows for increased refrigerant flow rates providing for better oil return of any oil washed out during compressor start-up.

If the OAT > 68 F and OAT < SPT and the number of DX stages requested is > 0 by the staging algorithm, then ECONSR is set to its minimum value of 48 F and the damper will go to 100% open.

If the Auxiliary Relay is configured for exhaust fan (AUXOUT = 1) in the CONFIG configuration table and Continuous Power Exhaust (MODPE) is Enable in the SERVICE configuration table, then the AUXOUT output (HS3) will be energized whenever the PremierLink controller is in the occupied mode. If the MODPE is disabled then AUXOUT output will be energized based on the Power Exhaust Setpoint (PES) in the SETPOINT table.

Heating — The heat stages are controlled by the Heating Control Loop, which is used to calculate the desired SAT needed to satisfy the space. It will compare the SPT to the Occupied Heat Setpoint (OHSP) + the T56 slider offset (STO) when occupied and the Unoccupied Heat Setpoint (UHSP - Unoccupied Heating Deadband) if unoccupied to calculate a Staged Heat Submaster Reference (SHSR). The heat staging algorithm compares the SHSR to the actual SAT to calculate the required number of heating stages to satisfy the load. This loop runs every 40 seconds. The following conditions must be met in order for this algorithm to run:

- Indoor fan has been ON for at least 30 seconds.
- Cool mode is not active and the time guard between modes equals zero.
- Mode is occupied or the Temperature Compensated Start or Heat mode is active.
- SPT reading is available and $< (OHSP + STO + 0.25^\circ F)$.
- If it is unoccupied and the $SPT < (UHSP - \text{Unoccupied Heating Deadband})$. The indoor fan will be turn on by the staging algorithm.

When all of the above conditions are met, the SHSR is calculated and up to 3 stages of heat will turned on and off to maintain the SAT = SHSR. If any of the above conditions are not met, the SHSR is set to its minimum value of 35 F.

The Staged Heat Submaster Reference (SHSR) is calculated as follows:

$$SHSR = \text{Heating PID function on } (\text{error}) \text{ where}$$

$$\text{error} = (OHSP + STO) - \text{Space Temperature}$$

The Maximum SHSR is determined by the SATHI configuration. If the supply-air temperature exceeds the SATHI configuration value, then the heat stages will turn off. Heat staging will resume after a delay to allow the supply-air temperature to drop below the SATHI value.

The maximum number of stages available is dependent on the type of heat and the number of stages programmed in the CONFIG and SERVICE configuration tables. Staging will occur as follows for gas electric units, Carrier heat pumps with a defrost board, or cooling units with electric heat:

For Heating PID STAGES = 2

HEAT STAGES = 1 (50% capacity) - energize HS1.

HEAT STAGES = 2 (100% capacity) - energize HS2.

For Heating PID STAGES = 3 and AUXOUT = HS3

HEAT STAGES = 1 (33% capacity if) - energize HS1

HEAT STAGES = 2 (66% capacity) - energize HS2

HEAT STAGES = 3 (100% capacity) - energize HS3

Staging will occur as follows For heat pump units with AUXOUT configured as reversing valve:

For Heating PID STAGES = 2 and AUXOUT = Reversing Valve Heat (the H3_EX_RV output will stay energized until there is a cool demand)

HEAT STAGES = 1 (50% capacity) shall energize CMP1, CMP2, RVS.

HEAT STAGES = 2 (100% capacity) shall energize HS1 and HS2.

Heating PID STAGES = 3 and AUXOUT = Reversing Valve Heat (the H3_EX_RV output will stay energized until there is a cool demand)

HEAT STAGES = 1 (33% capacity if) shall energize CMP1, CMP2, RVS

HEAT STAGES = 2 (66% capacity) shall energize HS1

HEAT STAGES = 3 (100% capacity) shall energize HS2

If AUXOUT is configured for Reversing Valve Cool, then the H3_EX_RV contact will be deenergized when there is a demand for heating. The heat stages will be cycled to temper the SAT so that it will be between the SPT and the $SPT + 10^\circ\text{F}$ ($SPT < SAT < (SPT + 10^\circ\text{F})$) if:

- the number of heat stages calculated is zero
- the $OAT < 55\text{ F}$
- an IAQ sensor is installed
- the IAQ Minimum Damper Position > minimum damper position
- and the $SAT < SPT - 10^\circ\text{F}$.

There is also a SAT tempering routine that will act as SAT low limit safety to prevent the SAT from becoming too cold should the economizer fail to close. One stage of heating will be energized if it is not in the Cooling or Free Cooling mode and the OAT is below 55 F and the SAT is below 40 F. It will deenergize when the $SAT > (SPT + 10^\circ\text{F})$.

Indoor Air Quality — If the optional indoor air quality (IAQI) sensor is installed, the PremierLink™ controller will maintain indoor air quality within the space at the user configured differential set point (IAQD) in the CONFIG configuration table. The set point is the difference between the IAQI and an optional outdoor air quality sensor (OAQ). If the OAQ is not present then a fixed value of 400 ppm is used. The actual space IAQ setpoint (IAQS) is calculated as follows:

$IAQS = IAQD + OAQ$ (OAQ = 400 ppm if not present)

As air quality within the space changes, the minimum position of the economizer damper will be changed also thus allowing more or less outdoor air into the space depending on the relationship of the IAQI to the IAQS. The IAQ algorithm runs every 30 seconds and calculates IAQ minimum position value using a PID loop on the IAQI deviation from the IAQS. The

IAQ minimum position is then compared against the user configured minimum position (MDP) and the greatest value becomes the final minimum damper position (IQMP). If the calculated IAQ minimum position is greater than the IAQ maximum damper position (IAQMAXP) decision in the SERVICE configuration table, then it will be clamped to IAQMAXP value.

If IAQ is configured for low priority, the positioning of the economizer damper can be overridden by comfort requirements. If the $SPT > OCSP + 2.5$ or the $SPT < OHSP - 2.5$ then IAQ minimum position becomes 0 and the IQMP = MDP. The IAQ mode will resume when the $SPT \leq OCSP + 1.0$ and $SPT \geq OHSP - 1.0$.

If IAQ is configured for high priority and the $OAT < 55\text{ F}$ and the $SAT < (SPT - 10^\circ\text{F})$, the algorithm will enable the heat stages to maintain the SAT between the SPT and the $SPT + 10^\circ\text{F}$.

IAQ Pre-Occupancy Purge — This function is designed to purge the space of airborne contaminants that may have accumulated 2 hours prior to the beginning of the next occupied period. The maximum damper position that will be used is temperature compensated for cold whether conditions and can be pre-empted by Temperature Compensated Start function. For pre-occupancy to occur, the following conditions must be met:

- IAQ Pre-Occupancy Purge option is enabled in the CONFIG configuration table
- Unit is in the unoccupied state
- Current Time is valid
- Next Occupied Time is valid
- Time is within 2 hours of next Occupied period
- Time is within Purge Duration (user-defined 5 to 60 minutes in the CONFIG configuration table)
- OAT Reading is available

If all of the above conditions are met, the economizer damper IQMP is temporarily overridden by the pre-occupancy damper position (PURGEMP). The PURGEMP will be set to one of the following conditions based on atmospheric conditions and the space temperature:

- If the $OAT \geq NTLO$ (Unoccupied OAT Lockout Temperature) and $OAT < 65\text{ F}$ and OAT is less than or equal to OCSP and Enthalpy = Low then PURGEMP = 100%.
- If the $OAT < NTLO$ then PURGEMP = LTMP (Low Temperature Minimum Position – defaults to 10%)
- If the $OAT > 65\text{ F}$ or ($OAT \geq NTLO$ and $OAT > OCSP$) or Enthalpy = High then PURGEMP = HTMP (High Temperature Minimum Position defaults to 35%).

The LTMP and HTMP are user adjustable values from 0 to 100% in the SETPOINT table. Whenever PURGEMP results in a number greater than 0%, the IAQ pre-occupancy purge mode will be enabled turning on the Indoor Fan Relay and setting the economizer IQMP to the PURGEMP value. When IAQ pre-occupancy mode is not active PURGEMP = 0%.

Unoccupied Free Cooling — Unoccupied free cool function will start the indoor fan during unoccupied times in order to cool the space with outside air. This function is performed to delay the need for mechanical cooling when the system enters the occupied period. Depending on how Unoccupied Free Cooling is configured, unoccupied mode can occur at any time in the unoccupied time period or 2 to 6 hours prior to the next occupied time. Once the space has been sufficiently cooled during this cycle, the fan will be stopped. In order to perform unoccupied free cooling all of the following conditions must be met:

- NTEN option is enabled in the CONFIG configuration table
- Unit is in unoccupied state
- Current time of day is valid
- Temperature Compensated Start mode is not active
- COOL mode is not active
- HEAT mode is not active

- SPT reading is available
- OAT reading is available
- Enthalpy is low
- OAT > NTLO (with 1 degree F hysteresis) and < Max Free Cool set point

If any of the above conditions are not met, Unoccupied Free Cool mode will be stopped, otherwise, the mode will be controlled as follows:

The NTFC set point (NTSP) is determined as $NTSP = (OCSP + OHSP) / 2$

The Unoccupied Free Cool mode will be started when:

$SPT > (NTSP + 2^\circ F)$ and $SPT > (OAT + 8^\circ F)$

The Unoccupied Free Cool mode will be stopped when:

$SPT < NTSP$ or $SPT < (OAT + 3^\circ F)$

Temperature Compensated Start — This function will run when the controller is in unoccupied state and will calculate early start bias time (SBT) based on space temperature deviation from occupied set points in minutes per degree. The following conditions will be met for the function to run:

- Unit is in unoccupied state
- Next occupied time is valid
- Current time of day is valid
- Valid space temperature reading is available (from sensor or thermostat)
- Cool Start Bias (KCOOL) and Heat Bias Start (KHEAT) > 0 in the CONFIG configuration table

The SBT is calculated by one of the following formulas depending on temperature demand:

If $SPT > OCSP$ then $SBT = (SPT - OCSP) * KCOOL$

If $SPT < OHSP$ then $SPT = (OHSP - SPT) * KHEAT$.

The calculated start bias time can range from 0 to 255 minutes. When SBT is greater than 0 the function will subtract the SBT from the next occupied time to calculate a new start time. When a new start time is reached, the Temperature Compensated Start mode is started. This mode energizes the fan and the unit will operate as though it is in occupied state. Once set, Temperature Compensated Start mode will stay on until the unit returns to occupied state. If either Unoccupied Free Cool or IAQ Pre-Occupancy mode is active when Temperature Compensated Start begins, their mode will end.

Door Switch – The Door Switch function is designed to disable mechanical heating and cooling outputs when the REMOCC contact input is closed (in the ON state) after a programmed time delay. The fan will continue to operate based on the current mode and the ASHRAE 90.1 Supply Fan setting. The delay is programmable from 2 to 20 minutes by setting the Remote Cont/Door Switch decision in the SERVICE table to a value equal to the number of minutes desired. When the contact is open (in the OFF state), the PremierLink controller will resume normal temperature control.

This application is designed for use in schools or other public places where a door switch can be installed to monitor the opening of a door for an extended period of time. The controller will disable mechanical cooling and heating after the door is open for the programmed amount of time.

This function can also be used to monitor a high condensate level switch when installed on a water source heat pump to disable mechanic cooling in case of a plugged evaporator condensate pan drain.

If it is configured for 1 (Disable), the PremierLink controller will control to the occupied set points if it does not have valid time.

Fire Shutdown — The Fire Shutdown input is a 24-vac input that will cause the PremierLink controller to halt fan operation

and close the damper immediately in case of a fire. This input can be programmed for normally open or closed contact. All heat operation will turn off immediately after the fan shuts off.

When the fan output goes off, the compressors can be programmed to turn off after their minimum runtime delay has elapsed. This is to protect the compressors in case the shutdown command would cause compressor short cycling. This systematic shutdown is acceptable with nationally adopted fire codes. The compressors can also be programmed to go off immediately if it is required by the local inspectors.

Linkage — The Linkage function in the PremierLink™ controller is available for applications using the 3V™ control system. When used as the air source for a 3V control system, the PremierLink controller is not required to be on the same CCN bus but it is recommended. Linkage will be active when it is initiated from the 3V Linkage Coordinator through CCN communications and requires no configuration. Only one device can be linked to the PremierLink controller.

Once Linkage is active, the PremierLink controller's own SPT, temperature set points, and occupancy are ignored and the controller will use the information provided by the remote linkage device. The following information will be received from the remote linked device and can be viewed in the maintenance display table:

- Supervisory Element
- Supervisory Bus
- Supervisory Block
- Average Occupied Heat Setpoint
- Average Occupied Cool Setpoint
- Average Unoccupied Heat Setpoint
- Average Unoccupied Cool Setpoint
- Average Zone Temp
- Average Occupied Zone Temp
- Occupancy Status

In return, the PremierLink controller will provide its SAT and operating mode to the linked device.

It will convert its operating modes to Linkage modes. See Table 8.

Table 8 — Linkage Modes

ROOFTOP MODE	VALUE	LINKAGE MODE
Demand Limit	N/A	N/A
Heat	3	Heating
Cool or Free Cooling	4	Cooling
IAQ Control	N/A	N/A
Temp. Compensated Start Heat	2	Warm-up
Temp. Compensated Start Cool	4	Cooling
IAQ Purge	6	Pressurization
Occupied (Indoor Fan ON)	4	Cooling
Unoccupied Free Cool	5	Unoccupied Free Cooling
Fire Shutdown	7	Evac
Factory/Field Test	1	Off
Off	1	Off

The PremierLink controller will generate a Linkage Communication Failure alarm if a failure occurs for 5 consecutive minutes once a Linkage has previously been established. It will then revert back to its own SPT, set points and occupancy schedule for control. For this reason, Carrier strongly recommends that an SPT be installed in the space on open plenum systems or in the return air duct of ducted return air systems to provide continued backup operation. When Linkage communication is restored, the controller will generate a return to normal.

For more information on how the PremierLink controller is used in conjunction with the Carrier 3V control system, contact your CCN controls representative.

IMPORTANT: The PremierLink controller should not be used as a linked air source in a ComfortID™ VAV system. The ComfortID VAV system will NOT function correctly when applied with a PremierLink controller as the air source, resulting in poor comfort control and possible equipment malfunction.

NOTE: The PremierLink controller can be used as an air source in a 3V Pressure Independent (PI) System (a 3V Linkage Coordinator with ComfortID PI Zone Controllers), but it should not be used as an air source with ComfortID controllers unless a 3V zone controller is used as the Linkage Coordinator. Contact your Carrier CCN controls representative for assistance.

Demand Limit — If the demand limit option is enabled, the control will receive and accept Redline Alert and Loadshed commands from the CCN load shed controller. When a redline alert is received, the control will set the maximum stage of capacity equal to the stage of capacity that the unit is operating at when the redline alert was initiated.

When load shed command is received the control will reduce capacity as shown in Tables 9 and 10.

Table 9 — Load Shed Command — Gas and Electric Heat Units

CURRENT CAPACITY	NEW CAPACITY
CMP1	DX Cooling OFF
CMP1+CMP2	CMP1
HS1	Heat OFF
HS1+HS2 (+HS3)	HS1

Table 10 — Load Shed Command — Heat Pump Units

CURRENT CAPACITY	NEW CAPACITY
Cooling:	
CMP1	DX Cooling OFF
CMP1+CMP2	CMP1
Heating:	
CMP1+CMP2+RV	Heat OFF
CMP1+CMP2+RV+HS1+HS2	CMP1+CMP2+RV

The controller will have a maximum demand limit timer of 1 hour that prevents the unit from staying in load shed or redline alert longer than 1 hour in the event the controller loses communication with the network load shed module. Should the maximum demand limit timer expire prior to receiving the unshed device command from CCN, the control will stop demand limit mode and return to normal operation.

Alarms — The following alarms will be generated depending on options installed.

SPACE TEMPERATURE LIMIT ALARM — A CCN alarm message will be generated if the value of a point deviates from the range defined by the high or low set points by a configurable amount. A return to normal will be generated when the value of the point returns within the set point range. Set point alarms will be applicable to the controlling temperature.

The controlling temperature can be either the value of the space temperature (non-linked systems) or the average zone temperature (AZT) if the control is used with a 3V control system. The Controlling Temperature alarm will utilize the Heating and Cooling Master References and a configurable hysteresis value to determine the alarm set points during the occupied periods (this includes any adjustment that may be introduced by a T56 or T59 sensor). During Unoccupied periods, the unoccupied alarm set points will be configured values.

The alarm persistence time is fixed at 5 minutes unless there is a change in set point due to user input or change of occupancy status.

FIRE SHUTDOWN ALARM — When the unit detects an input to the fire shutdown terminal, the fire shutdown alarm will be initiated. An alarm will be generated. All outputs will be turned off starting with the supply fan. The economizer damper will close. The following functions will be disabled: Unoccupied Cooling and Heating; Economizer; Cooling; Heating; Temperature Compensated Start; IAQ Space Temp Override and Unoccupied Free Cool. When the fire shutdown mode is ON, an alarm will be issued. When fire shutdown mode is OFF, the alarm will return to normal. The reset method is automatic.

SUPPLY FAN STATUS ALARM — The supply fan status will be compared to the supply fan output. When the two statuses are not equal for longer than the predetermined time, an alarm will be issued. Once the two are in agreement a return to normal status will be issued.

IAQ LIMIT ALARM — An IAQ alarm message will be generated if air quality is higher or lower than set point for 2 minutes. A return to normal status will be generated when the input returns to the limit plus a fixed hysteresis value.

COMPRESSOR LOCKOUT ALERT — This alert will occur if compressor lockout safety input is sensed for 3 seconds. This will initiate a discrete state alarm. There is no need to lock out compressor stages with this fault. This alert is intended to send out a message indicating that compressor lockout has occurred and to satisfy the space load. The safeties will reset automatically after a call for the compressor is deenergized.

DIRTY FILTER STATUS ALERT — A dirty filter alert will be initiated based on the filter status switch closing or the accumulated fan hours exceeding the configured allowable value. If the total accumulated hours exceeds this value, then an alert will be generated. The point will return to normal when the timer is cleared. The timer is cleared by forcing the FLTS point to CLEAN and then removing the force.

HIGH HUMIDITY ALARM — When the indoor humidity exceeds the occupied or unoccupied high set point by 2% for 20 minutes an alarm will be issued. A return to normal will be issued with the indoor humidity is 3% less than the set point.

LINKAGE FAILURE — When the unit is operating under Linkage control and the control has not been updated for 5 minutes, the alarm activates and the unit will return to stand-alone operation. The reset method for this alarm is automatic.

SENSOR FAILURE ALARMS — The controller will monitor various sensor inputs and alert to sensor failures.

Space Temperature (SPT) Sensor Failure — A flashing asterisk near the sensor value in the display will indicate a space temperature sensor failure. If the unit is not in Linkage mode, then the following functions will be disabled:

- Unoccupied cooling and heating
- Economizer
- Cooling
- Heating
- Temperature Compensated Start
- IAQ Space Temp Override
- Unoccupied Free Cool

The reset method for this alarm is automatic.

Supply Air Temperature (SAT) Sensor Failure — A flashing asterisk near the sensor value in the display table. The following functions will be disabled:

- Heating
- Cooling
- Economizer
- IAQ SAT Override

The reset method for this alarm is automatic.

Outside Air Sensor Failure — A flashing asterisk near the sensor value in the display table. The following functions will be disabled:

- Unoccupied free cool
- IAQ pre-occupancy purge
- Economizer
- Low ambient DX cooling lockout

The reset method for this alarm is automatic.

Thermostat Failure — A thermostat failure alarm is generated when a thermostat connected to a unit calls for heating and cooling at the same time. An alarm will also be sent when second stage of cooling or heating (if configured for gas or electric heat) is called for before the first stage. The system will be automatically reset.

Indoor Air Quality Sensor Failure — This alarm is generated when IAQ sensor is reading less than or greater than the defined range. A flashing asterisk near the sensor value in the display table. The reset method for this alarm is automatic.

Outdoor Air Quality (OAQ) Sensor Failure — This alarm is generated when OAQ sensor is reading less than or greater than the defined range. A flashing asterisk near the sensor value in the display table. The reset method for this alarm is automatic.

Indoor Humidity Sensor Failure — This alarm is indicated by a flashing asterisk near the sensor value in the display table. The Dehumidification function will be disabled. The reset method for this alarm is automatic.

CONFIGURATION

The following sections describe the computer configuration screens which are used to configure the PremierLink™ controller. The screens shown may be displayed differently when using different Carrier software.

Points Display Screen — The Points Display screen is used to monitor and change the PremierLink controller set points. See Table 11.

SPACE TEMPERATURE — This point displays the space temperature from the 10K thermistor (Type II) located in the space.

Space Temperature:	Display Units	degrees F (degrees C)
	Default Value	-40.0
	Display Range	-40.0 to 245.0
	Network Access	Read/Write

SUPPLY AIR TEMPERATURE — The Supply Air Temperature point displays the temperature of the air leaving the unit, downstream of any cool or heat sources. Temperature is measured by a 10K thermistor (Type II). This sensor is required for proper function of the heating, cooling, and the economizer.

Supply Air Temperature:	Display Units	degrees F (degrees C)
	Default Value	0.0
	Display Range	-40.0 to 245.0
	Network Access	Read/Write

OUTDOOR AIR TEMPERATURE — Temperature of the air entering the rooftop is measured by a 10K thermistor (Type II). This sensor is required for proper function of the cooling mode and the economizer.

Outdoor Air Temperature:	Display Units	degrees F (degrees C)
	Default Value	0.0
	Display Range	-40.0 to 245.0
	Network Access	Read/Write

CONTROL SET POINT — This point displays the current controlling set point when a heat or cool mode is active. If there is not an active heat or cool set point, the cool set point is displayed, depending on occupancy. In the thermostat mode, this point is not used for equipment control.

Control Set Point:	Display Units	degrees F (degrees C)
	Default Value	Unoccupied Cool Setpoint
	Display Range	35 to 110
	Network Access	Read Only

ROOFTOP MODE — This point displays the current mode of the PremierLink controller based on active space temperature, set points, and occupancy. Equivalent numeric value for data transfer and BEST++ is shown in parenthesis.

Rooftop Mode:	Display Units	ASCII
	Default Value	Off
	Display Range	OFF (1), COOL (2), HEAT (3), FAN ONLY (4), UNOCOOL (5), UNOCHEAT (6), WARMUP (7), FREECOOL (8), PRESS (9), EVAC (10)
	Network Access	Read Only

COOLING PERCENT TOTAL CAPACITY — The Cooling Percent Total Capacity point is used to display the current Cooling Capacity. When cooling is enabled, the percent of cooling being delivered is determined by the following formula for the number of compressor stages confirmed:

$$\% \text{ Output Capacity} = (\text{no. of active stages} / \text{Total stages}) * 100.$$

Cooling Percent

Total Capacity:	Display Units	% output capacity
	Default Value	0
	Display Range	0 to 100
	Network Access	Read Only

HEATING PERCENT TOTAL CAPACITY — The Heating Percent Total Capacity point is used to display the current Heating Capacity.

When heat is enabled, the percent of heat being delivered is determined by the following formula for gas or electric heat:

$$\% \text{ Output Capacity} = (\text{no. of active stages} / \text{Total stages}) * 100$$

Heating Percent

Total Capacity:	Display Units	% output capacity
	Default Value	0
	Display Range	0 to 100
	Network Access	Read Only

ECONOMIZER ACTIVE — The Economizer Active point displays the status of the economizer for free cooling. When the outdoor conditions match the desired indoor conditions, the economizer will be enabled for outdoor air assisted cooling.

Economizer Active:	Display Units	Discrete ASCII
	Default Value	No
	Display Range	No/Yes
	Network Access	Read Only

SUPPLY FAN RELAY — This point displays the commanded state of the Supply Fan Relay.

Supply Fan Relay:	Display Units	Discrete ASCII
	Default Value	Off
	Display Range	Off/On
	Network Access	Read/Write

Table 11 — Points Display (STATUS1)

DESCRIPTION	VALUE	UNITS	STATUS	FORCE	NAME
Space Temperature	72.2	dF			SPT
Supply Air Temperature	67.1	dF			SAT
Outdoor Air Temperature	48.8	dF			OAT
Control Setpoint	70.0	dF			CLSP
Rooftop Mode	COOL				MODE
Cooling % Total Capacity	0	%			CCAP
Heating % Total Capacity	0	%			HCAP
Economizer Active	Yes				ECOS
Supply Fan Relay	On				SF
Supply Fan Status	On				SFS
Economizer Position	26.2	%			ECONPOS
Current Min Damper Pos	20	%			IQMP
Filter Status	Clean				FLTS
Remote Occupied Mode	Off				RMTOCC
Heat Stage 1	Off				HS1
Heat Stage 2	Off				HS2
Ht 3/Exhaust/Rev Valv/DH	Off				H3_EX_RV
Enthalpy	Low				ENTH
Indoor Air Quality	367.9				IAQI
Indoor Air Quality Setpt	1050.0				IAQS
Outdoor Air Quality	0.0		Sensor failure		OAQ
Indoor RH	0	%			IRH
Fire Shutdown	Normal				FSD
SPT Offset	0.0	^F			STO
Compressor 1	Off				CMP1
Compressor 2	Off				CMP2
Compressor Safety	Off				CMPSAFE
Rooftop Mode	2				RTU_MODE
LON Setpoint	72	dF			LON_SP
Alarm Status	Normal				ALARM

NOTE: **Bold** values indicate points that can be forced through communications.

SUPPLY FAN STATUS — This point displays the Supply Fan status if controller is configured to receive input from the Supply Fan. Otherwise this point will display the output state of the Supply Fan Relay. This mode can only be used when the controller is in sensor control mode.

Supply Fan Status:	Display Units	Discrete ASCII
	Default Value	Off
	Display Range	Off/On
	Network Access	Read Only

ECONOMIZER DAMPER POSITION — This point displays the current commanded damper position of the economizer 4 to 20 mA on the J-9 connector. The 4 to 20 mA signal is scaled linearly over the range of 0 to 100% of the Supply Fan Relay.

Economizer Position:	Display Units	% Open
	Default Value	0
	Display Range	0 to 100
	Network Access	Read/Write

CURRENT MINIMUM DAMPER POSITION — This point displays the current minimum damper position if an Indoor Air Quality routine is not active. If an Indoor Air Quality sensor is installed and the differential air quality set point has been exceeded, this point will display the current calculated minimum position deemed necessary to maintain the air quality in the space.

Current Minimum Damper Position:	Display Units	% Open
	Default Value	0
	Display Range	0 to 100
	Network Access	Read Only

FILTER STATUS — The filter status point will be shown as “CLEAN” until the run time of the fan exceeds the configured Filter Timer Hours or the filter switch is closed. When the user-configured Filter Timer Hours has been exceeded, the Filter Status will display “DIRTY” and a CCN alarm will be generated. Forcing the point to “CLEAN” will clear the alarm condition and will reset the timer. (Setting the configured filter timer value to zero will provide the same function.) The value of the timer is stored in EEPROM to protect it in the event of a power failure. This is done periodically every 24 hours. The filter timer function only operates if the configured filter timer value (FLTTMR) is a non-zero number. If a filter switch is used, then “CLEAN” will be shown when the switch is open.

Filter Status:	Display Units	Discrete ASCII
	Default Value	Clean
	Display Range	Clean/Dirty
	Network Access	Read/Write

REMOTE OCCUPIED MODE — This point displays the status of the remote timeclock input or a remote door switch contact. This input is only available when the controller is being used in sensor control mode. When configured for Remote Contact, if the point is ON and the controller is not controlled by a 3V™ Linkage, the controller will function in an occupied mode. When the point is OFF, the controller will revert to its own occupancy schedule.

When configured for a remote door switch, if the point is ON, then the heating and cooling outputs will be turned off after a configured time delay. When the point is OFF, the controller will resume control of the heating and cooling outputs based normal temperature control.

Remote

Occupied Mode:	Display Units	Discrete ASCII
	Default Value	Off
	Display Range	Off/On
	Network Access	Read/Write

HEAT STAGE 1 — The Heat Stage 1 point provides the state of the Heating 1 output.

Heating Stage 1:	Display Units	Discrete ASCII
	Default Value	Off
	Display Range	Off/On
	Network Access	Read Only

HEAT STAGE 2 — The Heat Stage 2 point provides the state of the Heating 2 output.

Heating Stage 2:	Display Units	Discrete ASCII
	Default Value	Off
	Display Range	Off/On
	Network Access	Read Only

HEAT STAGE 3, EXHAUST FAN, REVERSING VALVE, OR DEHUMIDIFICATION — This point displays the commanded state of auxiliary output. This output can be configured to control a third stage of heat, an exhaust fan, a reversing valve on some heat pump units, dehumidification, or an occupied output. The output energizes for Heat mode when configured as Reversing Valve Heat and will energize in Cool mode when configured for Reversing Valve Cool.

In the exhaust fan mode with continuous exhaust configured, this point may control a bank of lights or another indicator that should remain ON whenever the controller is in the occupied mode.

If configured for Dehumidification, the output will energize when the indoor relative humidity exceeds the occupied or unoccupied humidity set point.

If configured for Occupancy Schedule, the output will follow schedule OCCPC63 only.

Ht 3, Exhaust,

Rev Valv, DH:	Display Units	Discrete ASCII
	Default Value	Off
	Display Range	Off/On
	Network Access	Read Only

ENTHALPY — This point displays the current status of an outdoor air or differential enthalpy input. This point may be broadcast to other controllers or received from a controller which supports global broadcast of the ENTH variable.

Enthalpy:	Display Units	Discrete ASCII
	Default Value	High
	Display Range	High/Low
	Network Access	Read/Write

INDOOR AIR QUALITY (IAQ) — The Air Quality point displays the indoor air quality reading from a CO₂ sensor installed in the space. The CO₂ sensor maintains differential indoor air quality for demand control ventilation per ASHRAE Standard 62-1999. The controller can be configured to generate an alarm when the control is in occupied mode and the CO₂ level exceeds the high or low limit set.

Indoor Air

Quality (ppm):	Display Units	None shown (parts per million implied)
	Default Value	0
	Display Range	0 to 5000
	Network Access	Read/Write

INDOOR AIR QUALITY SET POINT — This point displays the current Indoor Air Quality set point. The set point is determined by the configured Indoor Air Quality differential and the current outdoor air quality value. If an outdoor air quality value is not received, the controller will assume a default outdoor level of 400 ppm and calculate the set point using that value.

Indoor Air Quality Set Point:	Display Units	None shown (parts per million implied)
	Default Value	1050.0
	Display Range	0 to 5000
	Network Access	Read Only

OUTDOOR AIR QUALITY — This point displays the reading from an outdoor air quality sensor. This point supports global broadcast of outdoor air quality on a network.

Outdoor Air Quality

Set Point:	Display Units	None shown (parts per million implied)
	Default Value	0
	Display Range	0 to 5000
	Network Access	Read/Write

INDOOR RELATIVE HUMIDITY — This point displays the value from the optional space relative humidity sensor. It is used in the dehumidification function if it is installed.

NOTE: The OAQ/RH High Reference must be set to ≤ 100 to view the value of the connected relative humidity sensor.

Indoor RH:	Display Unit	% Humidity
	Default Value	0%
	Display Range	0 to 100%
	Network Access	Read/Write

FIRE SHUTDOWN — While in sensor control mode, this point can be used to receive a signal from a smoke detector or fire panel to shut down the Supply Fan, all heating and cooling stages, and to close the economizer.

Fire Shutdown:	Display Units	Discrete ASCII
	Default Value	Normal
	Display Range	Normal/Alarm
	Network Access	Read/Write

SPT OFFSET — This point displays the value of the Space Temperature offset calculated from the input of a T56 sensor slide bar.

SPT Offset:	Display Units	delta degrees F (C)
	Default Value	0.0
	Display Range	-15 to 15
	Network Access	Read/Write

COMPRESSOR 1 — This point displays the commanded state of the compressor 1 output.

Compressor 1:	Display Units	Discrete ASCII
	Default Value	Off
	Display Range	Off/On
	Network Access	Read Only

COMPRESSOR 2 — This point displays the commanded state of the compressor 2 output.

Compressor 2:	Display Units	Discrete ASCII
	Range	Off/On
	Default Value	Off
	Network Access	Read Only

COMPRESSOR SAFETY — When the controller is in sensor mode, this point can be used to monitor the status of the compressor trouble output supplied with some equipment. When the input is detected, the controller will issue a compressor trouble alert on the communications network. Staging will operate as normal.

Compressor Safety:

Display Units	Discrete ASCII
Display Range	Off/On
Default Value	Off
Network Access	Read Only

ROOFTOP MODE — This point displays the numeric value of the Rooftop Mode ASCII point and is used with the LON Translator for interfacing into third party LON systems.

Rooftop Mode:

Display Units	Numeric
Default Value	1
Display Range	1-10 (1=OFF, 2=COOL, 3=HEAT, 4=FAN ONLY, 5=UNOCOOL, 6=UNOCHEAT, 7=WARMUP, 8=FREECOOL, 9=PRESS, 10=EVAC)
Network Access	Read Only

LON SETPOINT — This point displays the midpoint between the configured Occupied Low Setpoint and the Occupied High Setpoint. It is used to display the LON Setpoint when the PremierLink™ controller is used with a LON translator for interfacing into third party LON Systems.

IMPORTANT: Forcing this point will cause the configured Occupied Low and Occupied High set points to change by equal amounts.

LON Setpoint:

Display Unit	degrees F (degrees C)
Default Value	72.0 F
Default Range	-40.0 to 245.0 F
Network Access	Read/Write

ALARM STATUS — This point displays the alarm status of the PremierLink controller if there is an active alarm. It is primarily used to display the alarm status when used with the LON translator for interfacing into third party LON systems.

ALARM STATUS:

Units	Discrete ASCII
Default Value	Normal
Default Range	Normal/Alarm
Network Access	Read Only

Thermostat Control Input Screen — The Thermostat Control Input Display is used to display the input status of equipment requests from the thermostat (TSTAT). See Table 12.

Alarm Service Configuration Screen — The Alarm Service Configuration (ALARMS) is used to configure the alarms used on the PremierLink™ controller. See Table 13.

ALARM ROUTING CONTROL — The Alarm Routing Control indicates which CCN system software or devices will receive and process alarms sent by the PremierLink controller. This decision consists of 8 digits which can be set to zero or one. A setting of one indicates alarms should be sent to this device. A setting of zero disables alarm processing for that device. Currently the corresponding digits are configured for the following devices: first digit is for user interface software (ComfortWORKS®, ComfortVIEW™, BACnet/Modbus Translator, etc.); second digit is for Autodial Gateway or Telink; fourth digit is for Alarm Printer Interface Module, DataLINK™ module; digits 3 and 5 through 8 are unused.

Alarm Routing Control:

Range	00000000 to 11111111
Default Value	00000000

ALARM RE-ALARM TIME — This decision is used to configure the number of minutes that will elapse between re-alarms. A re-alarm occurs when the condition that caused the initial alarm continues to persist for the number of minutes specified. Re-alarms continue to occur at the specified interval until the alarm condition no longer exists.

Re-Alarm Time:

Display Units	minutes
Display Range	0 to 1440
Default Value	0 (Disabled)

CONTROL TEMPERATURE HYSTERESIS — This configuration defines the range above the high set point and below the low set point the space temperature must exceed for an alarm condition to exist during occupied hours.

For example, if the current setpoint is 75 F and the hysteresis value is 5° F, an alarm will be generated if space temperature exceeds the low limit of 70 F or the high limit of 80 F.

Control Temperature Hysteresis:

Display Units	delta degrees F (delta degrees C)
Range	1.0 to 100.0
Default Value	5.0

CONTROL HUMIDITY HYSTERESIS — This configuration defines the range above the dehumidification set point that the humidity must exceed to generate an alarm condition. This value is added to the both the occupied and unoccupied dehumidification set points.

Control Humidity Hysteresis:

Range	-5 to 10 %
Default Value	5 %

SUPPLY AIR TEMPERATURE — LOW LIMIT — The Supply Air Temperature Low Limit alarm is used to monitor the value of the supply-air temperature within a specified range. If the supply-air temperature becomes too low, an alarm condition will exist.

Supply Air Temperature Low Limit:

Display Units	degrees F (degrees C)
Display Range	-40.0 to 245.0
Default Value	45.0

SUPPLY AIR TEMPERATURE — HIGH LIMIT — The Supply Air Temperature High Limit alarm is used to monitor the value of the supply-air temperature within a specified range. If the supply-air temperature becomes too high, an alarm condition will exist.

Supply Air Temperature High Limit:

Display Units	degrees F (degrees C)
Display Range	-40.0 to 245.0
Default Value	150.0

INDOOR AIR QUALITY ALERT LIMIT — The Indoor Air Quality Alert Limit alarm defines the allowable CO₂ levels during occupied periods. If the CO₂ levels become too low or too high during occupied periods, an alarm condition will exist.

Indoor Air Quality Low Limit:

Display Units	PPM (parts per million)
Display Range	0.0 to 5000.0
Default Value	0.0

Indoor Air Quality High Limit:

Display Units	PPM (part per million)
Display Range	0.0 to 5000.0
Default Value	1200.0

Table 12 — Thermostat Control Input Display (CV_STAT)

DESCRIPTION	VALUE	UNITS	STATUS	FORCE	NAME
Y1 - Call for Cool 1	On				Y1
Y2 - Call for Cool 2	On				Y2
W1 - Call for Heat 1	Off				W1
W2 - Call for Heat 2	Off				W2
G - Call for Fan	On				G

NOTE: **Bold** values indicate points that can be forced through communications.

Table 13 — Alarm Service Configuration (ALARMS)

DESCRIPTION	VALUE	UNITS	NAME
Alarm Control			
Alarm Routing Control	00000000		ALRMCNT
Realarm Time	0	min	REALARM
Control Temp Hysteresis	5.0	^F	SPTHYS
Control Humid Hysteresis	5	%	RHHYS
Supply Air Temperature			
Low Limit	45.0	dF	LOWLIM
High Limit	150.0	dF	HIGHLIM
IAQ High Alert Limit			
Low Limit	0.0	ppm	LOWLIM
High Limit	1200.0	ppm	HIGHLIM
Fire Inp Alm Conditn	Normal		FIAC

NOTE: **Bold** values indicate points that can be forced through communications.

FIRE INPUT ALARM CONDITION — This configuration defines the condition of the Fire Shutdown input point that will generate an alarm and turn off the fan. If set to Normal (for normally open contact), the alarm condition will occur when the contact is closed. If set to Invert (for normally closed contact), the alarm condition will occur when the contact opens.

Fire Inp Alm

Conditn: Range Invert/Normal
 Default Value Normal

Controller Identification Screen — The controller identification screen contains reference information used to identify the PremierLink™ controller. See Table 14.

DESCRIPTION — The Description point displays the type of device.

LOCATION — The Location point shows the location of the device.

SOFTWARE PART NUMBER — The Software Part Number indicates the part number of the software being used.

MODEL NUMBER — The Model Number indicates the model number of the device being used.

SERIAL NUMBER — The Serial Number indicates the serial number of the device being used.

REFERENCE NUMBER — The Reference Number indicates the version of the software being used.

Table 14 — Controller Identification

DESCRIPTION	VALUE	UNITS	NAME
Description:	Rooftop Control		DevDesc
Location:			Location
Software Part Number:	CESR131269-12		PartNum
Model Number:			ModelNum
Serial Number:			SerialNo
Reference Number:	Version 3.x		RefNum

NOTE: **Bold** values indicate points that can be forced through communications.

Holiday Configuration Screen — The Holiday Configuration screen is used by the PremierLink controller to store configuration fields for up to 12 holidays. See Table 15.

START MONTH — The Start Month field is used to configure the month that the holiday will start. The numbers 1 through 12 are used to indicate which month is specified.

Start Month: Range 1 to 12
 Default Value 1 (January)

START DAY — The Start Day field is used to determine which day the holiday will start.

Start Day: Range 1 to 31
 Default Value 1

DURATION — The Duration field indicates how long the holiday will last (in days).

Duration: Range 0 to 365
 Default Value 0

As an example, if a Holiday is configured for Month 2, Day 5, Duration 2, then the Holiday will start February 5 and end February 7.

Table 15 — Holiday Configuration (HOLIDAYS)

DESCRIPTION	VALUE	UNITS	NAME
Start Month	1		MONTH
Start Day	1		DAY
Duration	0		DURATION

NOTE: **Bold** values indicate points that can be forced through communications.

Occupancy Configuration Screen — The Occupancy Configuration Screen is used to configure the occupancy schedule for the PremierLink controller. Occupancy schedule OCCPC64 is used by the controller for heating and cooling. Occupancy schedule OCCPC63 is only used by the H3_EX_RV output when it is configured for type 6 Occupied Schedule. See Table 16.

MANUAL OVERRIDE HOURS — The Manual Override Hours point is used to command a timed override by entering the number of hours the override will be in effect. If the occupancy schedule is occupied when this number is downloaded, the current occupancy period will be extended by the number of hours downloaded.

If the current occupancy period is unoccupied when the occupancy override is initiated, the mode will change to occupied for the duration of the number of hours downloaded. If the occupancy override is due to end after the start of the next occupancy period, the mode will transition from occupancy override to occupied without becoming unoccupied and the occupancy override timer will be reset.

An active occupancy override or a pending occupancy override may be canceled by downloading a zero to this configuration. Once a number other than zero has been downloaded to this configuration, any subsequent downloads of any value other than zero will be ignored by the controller.

Manual Override

Hours: Units hours
 Range 0 to 4
 Default Value 0

OCCUPANCY SCHEDULE — For flexibility of scheduling, the occupancy programming is broken into 8 separate periods. For each period the schedule contains the following fields: Day of Week, Occupied From, and Occupied To.

DAY OF WEEK — The Day of Week configuration consists of 8 fields corresponding to the 7 days of the week and a holiday field in the following order: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, Holiday.

It is displayed as:

M T W Th Fr Sa Su Hol
 0 0 0 0 0 0 0 0

If a 1 is configured in the corresponding place for a certain day of the week, the related “Occupied from” and “Occupied to” times for that period will take effect on that day of the week. If a 1 is placed in the holiday field, the related times will take effect on a day configured as a holiday. A zero means the schedule period will not apply to that day.

Day of week: Range 0 or 1
 Default Values 1111111 for period 1,
 0000000 for the rest of the periods

OCCUPIED FROM — This field is used to configure the hour and minute, in military time, that the mode for the PremierLink™ controller will switch to occupied.

Occupied From: Units Hours:Minutes
 Range 00:00 to 24:00
 (Minutes 00 to 59)
 Default Value 00:00

Table 16 — Occupancy Configuration

DESCRIPTION	VALUE	UNITS	NAME
Manual Override Hours	0	hours	OVRD
Period 1: Day of Week	11111111		DOW1
Period 1: Occupied from	00:00		OCC1
Period 1: Occupied to	24:00		UNOCC1
Period 2: Day of Week	00000000		DOW2
Period 2: Occupied from	00:00		OCC2
Period 2: Occupied to	24:00		UNOCC2
Period 3: Day of Week	00000000		DOW3
Period 3: Occupied from	00:00		OCC3
Period 3: Occupied to	24:00		UNOCC3
Period 4: Day of Week	00000000		DOW4
Period 4: Occupied from	00:00		OCC4
Period 4: Occupied to	24:00		UNOCC4
Period 5: Day of Week	00000000		DOW5
Period 5: Occupied from	00:00		OCC5
Period 5: Occupied to	24:00		UNOCC5
Period 6: Day of Week	00000000		DOW6
Period 6: Occupied from	00:00		OCC6
Period 6: Occupied to	24:00		UNOCC6
Period 7: Day of Week	00000000		DOW7
Period 7: Occupied from	00:00		OCC7
Period 7: Occupied to	24:00		UNOCC7
Period 8: Day of Week	00000000		DOW8
Period 8: Occupied from	00:00		OCC8
Period 8: Occupied to	24:00		UNOCC8

NOTE: **Bold** values indicate points that can be forced through communications.

OCCUPIED TO — This field is used to configure the hour and minute, in military time, that the mode for the PremierLink controller switches from occupied to unoccupied.

Occupied To: Units Hours:Minutes
 Range 00:00 to 24:00
 (Minutes 00 to 59)
 Default Value 24:00

Set Point Screen — The Set Point screen is used to configure the occupied and unoccupied set points. See Table 17.

OCCUPIED LOW — The Occupied Low set point describes the low temperature limit of the space during Occupied mode.

Occupied Low: Units degrees F (degrees C)
 Range 40.0 to 90.0
 Default Value 70.0

OCCUPIED HIGH — The Occupied High set point describes the high temperature limit of the space during Occupied mode.

Occupied High: Units degrees F (degrees C)
 Range 45.0 to 99.9
 Default Value 74.0

UNOCCUPIED LOW — The Unoccupied Low set point describes the low temperature limit of the space during Unoccupied mode. The cooling mode will be turned on when the space temperature achieves this value plus the unoccupied cooling deadband. The cooling mode will be turned off when the space temperature goes below this value.

Unoccupied Low: Units degrees F (degrees C)
 Range 40.0 to 90.0
 Default Value 69.0

UNOCCUPIED HIGH — The Unoccupied High set point describes the high temperature limit of the space during Unoccupied mode. The heating mode will be turned on when the space temperature achieves this value minus the unoccupied heating deadband. The heating mode will be turned off when the space temperature goes above this value.

Unoccupied High: Units degrees F (degrees C)
 Range 45.0 to 99.9
 Default Value 75.0

HIGH OAT LOCKOUT FOR TSTAT — This is the high outdoor air lockout temperature for thermostat mode. In thermostat mode, the OAT must be below this value and below OAT max for free cooling from the economizer.

Hi OAT Lckout for TSTAT: Units degrees F (degrees C)
 Range 55.0 to 75.0
 Default Value 65.0

UNOCCUPIED OAT LOCKOUT TEMPERATURE — The Unoccupied OAT Lockout Temperature describes the lowest outdoor-air temperature allowed for Unoccupied Free Cooling operation. This function is also used by IAQ Pre-Occupancy Purge control to determine the minimum damper position for IAQ purge.

Unoccupied OAT Lockout: Units degrees F (degrees C)
 Range 40.0 to 70.0
 Default Value 50.0

UNOCCUPIED HEATING DEADBAND — The Unoccupied Heating Deadband describes the value that is subtracted from the unoccupied heating set point that the space temperature must achieve before unoccupied heating mode will be turned on.

Unoccupied Heating Deadband:	Units	delta degrees F (delta degrees C)
	Range	0.0 to 10.0
	Default Value	1.0

UNOCCUPIED COOLING DEADBAND — The Unoccupied Cooling Deadband describes the value that is added to the unoccupied cooling set point that the space temperature must achieve before unoccupied cooling mode will be turned on.

Unoccupied Cooling Deadband:	Units	delta degrees F (delta degrees C)
	Range	0.0 to 10.0
	Default Value	1.0

LOW TEMPERATURE MINIMUM POSITION — The Low Temperature Minimum Position describes the low temperature limit for low outdoor-air temperature conditions. This value is only used with the pre-occupancy purge.

The IAQ Pre-Occupancy Purge Algorithm will use this value whenever Outdoor Air Temperature is below Unoccupied OAT Lockout Temperature.

Low Temperature Minimum Position:	Units	% damper open
	Range	0 to 100%
	Default Value	10.0%

HIGH TEMPERATURE MINIMUM POSITION — The High Temperature Minimum Position specifies the value for Purge Minimum Damper Position for High Outdoor Air temperature conditions. This value is only used with the pre-occupancy purge.

IAQ Pre-Occupancy Purge Algorithm will use this value whenever Outdoor Air Temperature is above or at Unoccupied OAT Lockout Temperature, and also OAT is above Occupied Cool Set Point or Enthalpy is High. Whenever OAT is greater than or equal to NTLO and OAT is less than or equal to OCSP and Enthalpy is Low, the Purge algorithm will set Purge Minimum Damper Position to 100%.

High Temperature Minimum Position:	Units	% damper open
	Range	0 to 100%
	Default Value	35.0%

POWER EXHAUST SET POINT — The Power Exhaust Set Point describes the minimum damper position that the Economizer Damper must be before the power exhaust fan will be energized.

Power Exhaust Set Point:	Units	% damper open
	Range	0 to 100%
	Default Value	50.0%

OCCUPIED RELATIVE HUMIDITY SET POINT — The Occupied Relative Humidity set point describes the high space relative humidity limit that will be maintained during the Occupied mode.

Occupied High:	Units	% Humidity
	Range	40 to 99 %
	Default	50 %

UNOCCUPIED RELATIVE HUMIDITY SET POINT — The Unoccupied Relative Humidity set point describes the high space relative humidity limit that will be maintained during the Unoccupied mode.

Unoccupied High:	Units	% Humidity
	Range	40 to 99 %
	Default	99 %

Table 17 — Set Point Configuration

DESCRIPTION	VALUE	UNITS	NAME
Setpoints			
Occupied Low Setpoint	70.0	dF	OHSP
Occupied High Setpoint	74.0	dF	OCSP
Unoccupied Low Setpoint	69.0	dF	UHSP
Unoccupied High Setpoint	75.0	dF	UCSP
Hi OAT Lckout for TSTAT	65.0	dF	OATL
Unocc. OAT Lockout TEMP	50.0	dF	NTLO
Unocc. Heating Deadband	1.0	^F	UHDB
Unocc. Cooling Deadband	1.0	^F	UCDB
Low Temp. Min. Position	10	%	LTMP
Hi Temp. Min. Position	35	%	HTMP
Power Exhaust Setpoint	50	%	PES
Occ Rel Hum Setpoint	50	%	ORHS
Unocc Rel Hum Setpoint	99	%	URHS

NOTE: **Bold** values indicate points that can be forced through communications.

Service Configuration Selection Screen — The Service Configuration Selection screen is used to configure the service set points of the PremierLink™ controller. See Table 18.

COOLING PID — The PremierLink controller reads the space temperature sensor and compares the temperature to the current high set point. If it exceeds the set point, and cooling is configured and available, the controller then calculates the required supply air temperature to satisfy the given conditions.

The Cooling PID includes the following set points: Proportional Gain, Integral Gain, Derivative Gain, and Starting Value.

Proportional Gain:	Range	0.0 to 40.0
	Default Value	6.0
Integral Gain:	Range	0.0 to 10.0
	Default Value	3.0
Derivative Gain:	Range	0.0 to 20.0
	Default Value	5.0
Starting Value:	Units	degrees F (degrees C)
	Range	40.0 to 90.0
	Default Value	70.0

SAT CMP1 LOCKOUT TEMP — The SAT CMP1 Lockout Temperature displays the low supply temperature set point for compressor no. 1 supply air during cooling. If compressor no. 1 is on during Cooling mode, the economizer will assist the cooling and work to maintain a discharge air temperature slightly above lockout temperature set point. If the economizer is at minimum and the supply-air temperature goes below Lockout Temperature set point, the compressor will cycle to maintain the supply air set point. The minimum on and off times will still be in effect.

SAT CMP1 Lockout Temp:	Units	degrees F (degrees C)
	Range	40.0 to 60.0
	Default Value	55.0

SAT CMP2 LOCKOUT TEMP — The SAT CMP2 Lockout Temperature displays the low supply temperature set point for compressor no. 2 supply air during cooling. If compressor no. 2 is on during Cooling mode, the economizer will assist the cooling and work to maintain a discharge-air temperature slightly above lockout temperature set point. If the economizer is at minimum and the supply-air temperature goes below Lockout Temperature set point, the compressor will cycle to maintain the supply air set point. The minimum on and off times and stage-up and down timers will still be in effect.

SAT CMP2 Lockout Temp:	Units	degrees F (degrees C)
------------------------	-------	-----------------------

Range	40.0 to 60.0
Default Value	50.0

STAGED COOLING — The staging function is used for DX cooling (1 or 2 stages). The staging function uses the cooling submaster reference from the PID and compares the value to the supply-air temperature to calculate the required number of output stages to energize.

Time Guard delays are provided to allow for up to 2 stages of compression. Also, a DX Lockout will prevent operation of the DX cooling if the outdoor air temperature is below this value.

The cooling algorithm controls the valve or stages of DX cooling to prevent the space temperature from exceeding the current cooling set point (which includes any calculated offset value from a T56 sensor slide bar or T59 sensor during occupied periods). Also, the cooling is controlled so that the supply air temperature does not fall below 50 F when cooling is active.

Number of Stages:	Range	1 to 3
	Default Value	2

The Time Guards must be set to Enable for output to a compressor, and set to Disable for output to a valve or compressor unloader.

When enabled, the staging PID loop will have a minimum delay of 3 minutes before adding the stage and dropping the stage after it is started. This delay will run concurrently with the Compressor Minimum On (C_MIN_ON) and Off (C_MIN_OF) delays found in this table. The actual compressor on/off delays will be the greater of the two functions. When disabled, there will be no delay in adding or dropping the stage other than the Compressor Minimum On and Off Delays.

NOTE: Stage 1 Time Guard cannot be disabled.

Stage 1		
Time Guard:	Range	Disable/Enable
	Default Value	Enable
Stage 2		
Time Guard:	Range	Disable/Enable
	Default Value	Enable
Stage 3 (not used)		
Time Guard:	Range	Disable/Enable
	Default Value	Disable

HEATING PID — The PremierLink™ controller determines if a heating demand exists in the space. The controller reads the space temperature sensor and compares the temperature to the current low set point (including any calculated offset value from a T56 or T59 sensor) during occupied periods. If it is below the set point, and heating is configured and available, it then calculates the required supply-air temperature to satisfy the given conditions. The calculated value (heating submaster reference) is compared to the actual supply-air temperature and the output is then adjusted to satisfy conditions by using a Proportional/Integral/Derivative (PID) loop.

The Heating PID includes the following set points: Proportional Gain, Integral Gain, Derivative Gain, and Starting Value.

Proportional Gain:	Range	-100.0 to 100.0
	Default Value	6.0
Integral Gain:	Range	-5.0 to 5.0
	Default Value	3.0
Derivative Gain:	Range	-20.0 to 20.0
	Default Value	5.0
Starting Value:	Units	degrees F (degrees C)
	Range	40.0 to 120.0
	Default Value	75.0

NOTE: If configured for heat pump operation, the proportional, integral, and derivative gains need to be changed to the following values: proportional gain = 10.0, integral gain = 1.0 to 2.0, derivative gain = 3.0.

SAT HIGH SET POINT — This is the maximum duct temperature value that will be calculated by heating algorithm during the heat mode.

SAT High		
Setpoint:	Display Unit	degrees F (degrees C)
	Range	100.0 to 140.0 F
	Default Value	140.0 F

STAGED HEATING — The Staged Heating function is used for two-position valves or for electric heat (1 to 3 stages). The staging function uses the heating submaster reference value from the PID and compares it to the supply-air temperature to calculate the required number of output stages to energize. The time guard, when enabled, will increase the heat output minimum off time from 3 minutes to 5 minutes.

Number of Stages:	Range	1 to 3
	Default Value	2
Stage 1		
Time Guard:	Range	Disable/Enable
	Default Value	Enable
Stage 2		
Time Guard:	Range	Disable/Enable
	Default Value	Enable
Stage 3		
Time Guard:	Range	Disable/Enable
	Default Value	Enable

IAQ PID — The proportional gain affects the response of PID calculations for staged control. The gain is also used for two position control to establish the hysteresis between on and off. A larger gain speeds response time or reduces the hysteresis, while a smaller gain requires a larger error to generate the same response to changes in Indoor Air Quality. Enter the desired proportional gain for the Indoor Air Quality control algorithm.

The integral gain affects the PID calculation; an increase will make the IAQ submaster reference change greater as the error in indoor air quality increases. The integral gain should be selected to eliminate proportional droop without overshoot. Enter the desired integral gain for the Indoor Air Quality control algorithm.

The Derivative Gain is typically not required for Indoor Air Quality operation and should be left at the default value.

The Starting Value is used to establish the starting value for the IAQ PID calculation.

The IAQ PID includes the following set points: Proportional Gain, Integral Gain, Derivative Gain, and Starting Value.

Proportional Gain:	Range	-100.0 to 40.0
	Default Value	1.0
Integral Gain:	Range	-5.0 to 5.0
	Default Value	0.5
Derivative Gain:	Range	-20.0 to 20.0
	Default Value	0.0
Starting Value:	Units	Percent
	Range	0.0 to 100.0
	Default Value	0.0

ECONOMIZER PID — The proportional gain determines the response of the PID temperature control loop; a larger gain increases the amount of damper movement while a smaller gain requires a larger error to achieve the same results.

The integral gain affects the response of a PID calculation; an increase in gain will compensate more quickly for proportional control droop. Too large of an integral gain will cause excessive damper positioning and instability. Enter the desired integral gain for the damper control algorithm.

The economizer derivative gain has been tested for ideal operation in sensor mode and should be left at the default value.

NOTE: In thermostat mode, the modulation may appear to regularly change. However, it will precisely control leaving-air temperature.

The economizer Starting Value is used to establish the starting value for the damper PID calculation. The Economizer PID includes the following set points: Proportional Gain, Integral Gain, Derivative Gain, and Starting Value.

Proportional Gain:	Range	-100.0 to 100.0
	Default Value	-4.0
Integral Gain:	Range	-5.0 to 5.0
	Default Value	-2.0
Derivative Gain:	Range	-20.0 to 20.0
	Default Value	-3.0
Starting Value:	Units	degrees F (degrees C)
	Range	48.0 to 120.0
	Default Value	70.0

SUBMASTER GAIN LIMIT — The Submaster Gain Limit is used to define the submaster gain limit that is multiplied by the Submaster Error and added to the Submaster Center Value to produce the output value that will be sent to the device. The sign of the submaster gain limit determines the direction in which the output will be driven in response to a given error.

The gain is expressed in percent change in output per degree of error.

Submaster Gain		
Limit Reference:	Range	-20.0 to 20.0
	Default Value	-5.5

SUBMASTER CENTER VALUE — The Submaster Center Value is used to define the submaster loop center value which defines the starting point of the loop. This value typically represents the midpoint of the range of the device being controlled.

Submaster Center		
Value Reference:	Units	% damper open
	Range	0 to 100%
	Default Value	60%

DAMPER MOVEMENT BAND — The Damper Movement Band is used to define what the minimum desired range of change in economizer damper position that is required before the controller will attempt to open/close the economizer.

Damper Movement		
Reference:	Units	% damper open
	Range	0 to 5%
	Default Value	0%

OAT TEMP BAND — The OAT Temp Band is used to slow the response of the economizer damper based on the value of OAT. In other words, the colder OAT gets the slower the rate of change in the economizer.

OAT Temp		
Reference:	Range	0 to 40 delta degrees F (delta degrees C)
	Default Value	25.0

MINIMUM DAMPER POSITION — The minimum damper position (MDP) specifies user configured occupied minimum economizer damper position. The control selects the greatest value between MDP and IAQ calculated Minimum Position. The resulting value is the Current Minimum Damper Position (IQMP) for Occupied mode.

Economizer Damper is limited to IQMP in Occupied mode, or whenever Supply Fan is ON in units with Thermostat control.

Minimum Damper		
Position:	Units	% damper open
	Range	0 to 100%
	Default Value	20.0%

Table 18 — Service Configuration Selection

DESCRIPTION	VALUE	UNITS	NAME
Cooling PID			
Proportional Gain	6.0		KP
Integral Gain	3.0		KI
Derivative Gain	5.0		KD
Starting Value	70.0	dF	STARTVAL
SAT CMP1 Lockout Temp	55	dF	SATLO1
SAT CMP2 Lockout Temp	50	dF	SATLO2
Staged Cooling			
Total Number of Stages	2		STAGES
Stage 1 Time Guard	Enable		TG1
Stage 2 Time Guard	Enable		TG2
Stage 3 Time Guard	Disable		TG3
Heating PID			
Proportional Gain	6.0		KP
Integral Gain	3.0		KI
Derivative Gain	5.0		KD
Starting Value	75.0	dF	STARTVAL
SAT High Setpoint	140	dF	SATHI
Staged Heating			
Total Number of Stages	2		STAGES
Stage 1 Time Guard	Enable		TG1
Stage 2 Time Guard	Enable		TG2
Stage 3 Time Guard	Enable		TG3
IAQ PID			
Proportional Gain	1.0		KP
Integral Gain	0.5		KI
Derivative Gain	0.0		KD
Starting Value	0.0	%	STARTVAL
Economizer PID			
Proportional Gain	-4.0		KP
Integral Gain	-2.0		KI
Derivative Gain	-3.0		KD
Starting Value	70.0	dF	STARTVAL
Submaster Gain Limit	-5.5		ESG
Submaster Center Value	60	%	CTRVAL
Damper Movement Band	0	%	ECONBAND
OAT Temp Band	25	dF	TEMPBAND
Minimum Damper Position	20	%	MDP
Low Temp MDP Override	100	%	LOWMDP
DX Cooling Lockout	On		DXCTLO
DX Cooling Lockout Temp	45.0	dF	DXLOCK
Time Guard Override	Off		TGO
Continuous Power Exhaust	Disable		MODPE
Supply Fan Status Enable	Disable		SFSENL
Remote Cont/Door Switch	1		RC_DS
ASHRAE 90.1 Supply Fan	Yes		CONTFAN
Min Setpoint Deadband	1.5	^F	MIN_DBND
Max OAT for Free Cool	75	dF	OATMAX
Max Offset Adjustment	2.0	^F	LIMIT
Comp Time Gard for Fire	Yes		COMP_TG
Comp Min Off Time	5	min	C_MIN_OF
Comp Min On Time	3	min	C_MIN_ON
Mode Change Time	10	min	M_SELECT
Space Temp Trim	0.0	^F	RATTRIM
Supply Air Temp Trim	0.0	^F	SATTRIM

NOTE: **Bold** values indicate points that can be forced through communications.

LOW TEMP MINIMUM DAMPER POSITION OVERRIDE — The Low Temperature Minimum Damper Position (MDP) specifies the value for purge minimum damper position for low outdoor air temperature conditions.

The IAQ Pre-Occupancy Purge Algorithm shall use this value for the minimum damper position whenever Outdoor Air Temperature is below Unoccupied OAT Lockout Temperature.

The Low Temperature MDP must be lower than the configured Minimum Damper Position. A value of 100 will disable this function.

Low Temperature MDP Override:	Units	% damper open
	Range	0 to 100%
	Default Value	100% (disabled)

DX COOLING LOCKOUT — The DX (direct expansion) Cooling Lockout function enables or disables the Low Ambient DX Cooling Lockout option.

When DX Cooling Lockout is enabled, Cooling control will compare OAT against the DX Cooling Lockout Temperature. Whenever $OAT \leq$ the DX Cooling Lockout Temperature and current DX stages are 0, the control will set Cooling Submaster Reference (CCSR) to 150 F. That will prevent the unit from staging up.

DX Cooling Lockout:	Range	On/Off
	Default Value	On

The DXCTLO should be turned OFF (to ignore the DXLOCK setpoint) in applications where there is no OAT sensor (local or broadcast) or the OAT sensor has failed. If DXCTLO is set to "OFF," compressor cooling will be allowed.

If the OAT sensor is not installed or shorted (OAT point reads below -40 F or above 245 F and "Sensor Failure"), the cooling stages are **NOT** locked out regardless of the setting of DXCTLO.

To ensure that cooling will occur when there is no OAT sensor installed, be sure to short the OAT sensor leads together.

DX COOLING LOCKOUT TEMPERATURE — The DX Cooling Lockout Temperature specifies Low Ambient DX Cooling Lockout Temperature that is compared against OAT to determine if the unit can stage up or not.

DX Cooling Lockout Temp:	Units	degrees F (degrees C)
	Range	40.0 to 60.0
	Default Value	45.0

TIME GUARD OVERRIDE — The Time Guard Override function will reset the Time Guard. Whenever this option is changed from OFF to ON, the control will evaluate the amount of time left in Compressor Time Guards.

If the time in a Time Guard is more than 30 seconds, it will be replaced with 30 seconds.

NOTE: Changing this decision from OFF to ON will only result in one-time Time Guards override.

To perform the override again, the override must be changed from OFF to ON again.

Time Guard Override:	Range	On/Off
	Default Value	Off

CONTINUOUS POWER EXHAUST — The Continuous Power Exhaust function defines the operation of the power exhaust fan.

If disabled, the power exhaust fan will operate during economizer purge cycles when the economizer damper position is above the configured minimum value. If enabled, the power exhaust fan will follow the supply fan's operation.

Continuous Power Exhaust:	Range	Disable/Enable
	Default Value	Disable

SUPPLY FAN STATUS ENABLE — The Supply Fan Status Enable function is enabled when an actual sensor input is used to determine that the supply fan is on. If the status is OFF when the fan should be running, Heat, Cool and Economizer will be disabled.

If this decision is disabled, the Supply Fan Status will follow the state of the Supply Fan Relay in order to allow the algorithms to run that depend on the Supply Fan Status to be ON before executing.

Supply Fan Status Enable:	Range	Disable/Enable
	Default Value	Disable

REMOTE CONTACT/DOOR SWITCH — This function configures the Remote Occupied Mode input point (RE-MOCC) to be used as a remote contact or as a door switch. If set for 0 (Remote Contact) and the PremierLink™ controller is not under Linkage Control, then the PremierLink controller will control to the occupied set points if the input is closed. If set to disable, it will control to the occupied set points if the controller does not have valid time.

If set for 2-20 (Door Switch), the PremierLink will disable heat and cool outputs after the input has been closed for the configured time delay. The time delay is configurable from 2 to 20 minutes.

Remote Cont/Door Switch:	Allowable Entries	0 - Remote Contact, 1 - Disabled, 2-20 - Door Switch
	Default Value	1

ASHRAE 90.1 SUPPLY FAN — This configuration determines the state of the fan operation during the occupied mode. If set to YES, the fan will run continuously in the occupied mode in compliance with ASHRAE 90.1. If set to NO, then the fan will run only when there is a heat or cool demand.

ASHRAE 90.1 Supply Fan	Range	No/Yes
	Default Value	Yes

NOTE: This MUST be set to Yes if the PremierLink controller is used as the air source in a 3V™ zoning system.

MINIMUM SETPOINT DEADBAND — This value determines the minimum deadband between the Occupied Low and Occupied High set points.

Min Setpoint Deadband:	Display Unit	delta degrees F (delta degrees C)
	Range	1.5 to 10.0 F
	Default Value	1.5 F

MAXIMUM OUSTIDE AIR TEMPERATURE FOR FREE COOL — This value determines the maximum outside air temperature that the Unoccupied Free Cool function will be allowed to use. If Free Cool is active and the OAT exceeds this value, the mode will be disabled. If the OAT is greater than this value prior to the start of Free Cool, then the mode it will not be allowed to start. This applies to both sensor and thermostat modes.

Max OAT for Free Cool:	Display Unit	degrees F (degrees C)
	Range	50.0 to 75.0 F
	Default Value	75.0 F

MAXIMUM OFFSET ADJUSTMENT — Maximum Offset Adjustment value determines the degree in which the occupied heating and cooling set points can be adjusted by the setpoint adjustment slide bar on the space temperature sensor.

Max Offset Adjustment:	Units	delta degrees F (delta degrees C)
	Range	0.0 to 15.0

Default Value 2.0

COMPRESSOR TIME GUARD FOR FIRE SHUT-DOWN — When the Fire Shutdown point is active, the supply fan is immediately shut down. The compressors may not turn off immediately due to minimum on time delays. When this function is set to YES, the compressors will be turned off immediately along with the fan.

Comp Time Gard for Fire: Range No/Yes
Default Value Yes

COMPRESSOR MINIMUM OFF TIME — This is the minimum time that compressors will be off once they are deenergized before they can be restarted.

Comp Min Off Time: Display Unit Minutes
Range 2 to 5
Default Value 5

COMPRESSOR MINIMUM ON TIME — This is the minimum time the compressors will run once they have been energized in the cool mode before they can be shut off.

Comp Min On Time: Display Unit Minutes
Range 3 to 5
Default Value 3

MODE CHANGEOVER TIME — This is the minimum amount of time the Premierlink™ controller must wait before changing modes. This value is ignored and automatically set to 3 minutes when Linkage Control is Yes in the MAINT display.

Mode Change Time: Display Unit Minutes
Range 5 to 10
Default Value 10

SPACE TEMPERATURE TRIM — The Space Temperature Trim configuration is used to calibrate the temperature display for a sensor that does not appear to be reading correctly.

Space Temperature Trim: Units delta degrees F (delta degrees C)
Range -9.9 to 9.9
Default Value 0.0

SUPPLY AIR TEMPERATURE TRIM — The Supply Air Temperature Trim configuration is used to calibrate the temperature display for a sensor that does not appear to be reading correctly.

Supply Air Temperature Trim: Units delta degrees F (delta degrees C)
Range -9.9 to 9.9
Default Value 0.0

PremierLink Configuration Screen — The PremierLink Configuration screen allows the user to configure all functions. See Table 19.

OPERATING MODE — The Operating Mode function determines the operating mode of the PremierLink controller. There are two operating modes from which to choose: TSTAT and CCN Sensor.

The TSTAT mode allows PremierLink controller to operate as a stand-alone thermostat control by monitoring Y1 (cooling stage 1), Y2 (cooling stage 2), W1 (heating stage 1), W2 (heating stage 2), and G (indoor fan) inputs.

The CCN mode allows the controller to integrate into a Carrier Comfort Network® system.

Operating Mode: Range 0 for TSTAT
1 for CCN

Default Value 1 (CCN Sensor)*

*Default value for Versions 1.1 and 1.2 is 0 (TSTAT).

HEAT TYPE — The Heat Type mode determines the type of heat equipment the controller uses. There are two choices: gas or electric.

Heat Type: Range 0 for Gas
1 for Electric Heat
Default Value 0 (Gas)

UNIT TYPE — The Unit Type mode determines the type of heating/cooling equipment the controller is attached to. There are two choices: AC or Heat Pump.

The AC mode is primarily used for units using the compressors for cooling only.

The Heat Pump mode is primarily used for units using a heat pump (for example, compressors for heating and cooling).

Unit Type: Range 0 for AC
1 for Heat Pump
Default Value 0 (AC)

AUXILIARY OUTPUT — The Auxiliary Output function is used to define the specific use of the Auxiliary Output on the controller board. The output will be energized or deenergized by the appropriate algorithm that uses that specific output.

Auxiliary Output is displayed as one of the following:

- 0 = None
- 1 = Exhaust Fan
- 2 = Heat Stage
- 3 = Reversing Valve Heat
- 4 = Reversing Valve Cool

Rev Valve	Heat Mode	Cool Mode
Heat	ON	OFF
Cool	OFF	ON

5 = Dehumidification

6 = Separate Schedule (will follow occupancy schedule OCCPC63 only)

Auxiliary Output: Range 0 to 6
Default Value 0

NOTE: When set for a separate schedule, the AUXOUT point may be indirectly forced by forcing the AUXSCHED point in the MAINT table.

UNOCCUPIED FREE COOL — The Unoccupied Free Cool function is used during unoccupied periods to pre-cool the space using outside air when outside conditions are suitable in the unoccupied mode. The mode can be configured for any time during the unoccupied mode or 2 to 6 hours prior to the occupied mode.

Unoccupied Free Cool: Range 0 = Disabled
1 = Always enabled
2-6 = Hours prior to Occupied Mode
Default Value 0

DEMAND LIMITING — The Demand Limiting function is used to limit operating capacity of the unit to prevent system overloads. Both Heating and Cooling capacity is limited.

When Demand Limit option is enabled, the control will respond to the Loadshed Controller commands, such as Redline Alert, Shed, Unshed, and Redline Cancel.

Demand Limiting: Range Disable/Enable
Default Value Disable

LOADSHED GROUP NUMBER — The Loadshed Group Number function defines the Loadshed table number (LDSh-DxxS, where xx is the configured loadshed group number) that

the controller will respond to when a broadcast for Redline/ Loadshed has been detected on the CCN bus.

Loadshed Group

Number: Range 1-16
 Default Value 1

CCN, BROADCAST OAT, ENTHALPY, OAQ — These functions configure the controller to CCN broadcast any or all of the point values for Outside Air Temperature (OAT), Enthalpy (ENTH), and Outdoor Air Quality (OAQ).

CCN Broadcast, OAT, Enthalpy,

OAQ Allowable Entries:

0 — None 5 — OAT and OAQ
 1 — OAT Only 6 — ENTH and OAQ
 2 — ENTH Only 7 — OAT, ENTH and OAQ
 3 — OAT and ENTH
 4 — OAQ Only
 Default Value 0 (disabled, no broadcasts performed)

GLOBAL SCHEDULE BROADCAST — The Global Schedule Broadcast setting configures the controller to broadcast or receive a global schedule. If set to Yes, the controller will act as a global schedule master and its schedule will be broadcast to the CCN. If set to No, the controller will not broadcast a global schedule and it will receive the configured schedule number.

Global Schedule

Master: Range No/Yes
 Default Value No

BROADCAST ACKNOWLEDGER — The Broadcast Acknowledger setting configures the controller to recognize broadcast messages that appear on its CCN bus.

NOTE: For proper CCN bus operation, there should be only one device per CCN bus that is configured as the Broadcast Acknowledger.

Acknowledger: Range No/Yes
 Default Value No

SCHEDULE NUMBER — The Schedule Number determines which Global Occupancy Schedule that the controller will follow. A value of 64 disables global occupancy from CCN and will decide Occupancy from its local schedule. A value between 65 and 99 will allow the controller to follow the global occupancy schedule of the number broadcast over CCN.

Occupancy Schedule

Number Range 64 to 99
 Default Value 64

TIMED OVERRIDE HOURS — The Timed Override Hours function is used to configure a timed override duration by entering the number of hours the override will be in effect. Pressing the override button on a space temperature sensor will cause an override.

Timed Override

Hours: Range 0 to 4
 Default Value 0

GLOBAL OVERRIDE ENABLE — Global Override Enable must be set to NO on all controllers configured for global schedule, including the global schedule broadcaster, for individual override to be enabled. If any controller using a global schedule is set to YES, that controller will send the schedule override message to the global schedule broadcaster and the global schedule will be overridden. This will cause all controllers on that global schedule go into occupancy override.

Global Override

Enable: Range No/Yes
 Default Value Yes

Table 19 — PremierLink™ Control Configuration

DESCRIPTION	VALUE	UNITS	NAME
Operating Mode	1		TSTATCFG
0=TSTAT			
1=CCN Sensor			
Heat Type	0		HEATTYPE
0=Gas			
1=Electric			
Unit Type	0		AC
0=AC Unit			
1=Heat Pump			
Auxiliary Output	0		AUXOUT
0=None			
1=Exhaust Fan			
2=Heat Stage			
3=Reversing Valve Heat			
4=Reversing Valve Cool			
5=Dehumidification			
6=Separate Schedule			
Unnoc Free Cool	0		NTEN
0=Disable			
1=Always enabled			
2-6 Hours prior to OCC			
Demand Limiting	Disable		DLEN
Loadshed Group Number	1		LSGP
CCN Broadcast OAT, ENTH,OAQ	0		OATBC
Global Schedule Broadcast	No		GSBC
Broadcast Acknowledge	No		BCACK
Schedule Number	64		SCHEDNUM
Timed Override Hours	0	hours	TIMOVRID
Global Override Enable	Yes		GLOB_OV
Linkage Thermostat			
Cool Strt Bias(min/deg)	10	min	KCOOL
Heat Strt Bias(min/deg)	10	min	KHEAT
Filter Timer hrs* 100	15		FIL_TIMR
IAQ Priority Level	Low		IAQP
IAQ Pre-Occupancy Purge	Disable		IAQPURGE
IAQ Purge Duration	5	min	IQPD
IAQ Delta Setpoint	650	ppm	IAQD
IAQ Maximum Damper Pos.	50	%	IAQMAXP
Indoor AQ Low Ref.	0.0	ppm	IIAQREFL
Indoor AQ High Ref.	2000.0	ppm	IIAQREFH
Outdoor AQ Low Ref.	0.0	ppm	OIAQREFL
Outdoor AQ High Ref.	2000.0	ppm	OIAQREFH
Outdoor AQ Lockout Point	0		OIAQLOCK

NOTE: **Bold** values indicate points that can be forced through communications.

LINKAGE THERMOSTAT — The Linkage Thermostat start time biases allow the installer to configure the time per degree the space should take to recover in the Heat and Cool modes for optimum start with a 3V™ control system or an attached SPT sensor. These numbers will be used to calculate the Start Bias time. The value entered is determined by the mass of the zone. Typically, a value of 10 (the default), will be adequate for most applications. For higher mass areas, such as a store lobby, the value may be increased to 20 or 25.

Cool Start Bias: Units minutes/degree
 Range 0 to 60
 Default Value 10

Heat Start Bias Units minutes/degree
 Range 0 to 60
 Default Value 10

FILTER TIMER HOURS — The Filter Timer Hours configuration determines when the filter status will display a “Dirty” alarm. When the Filter Timer Hours is configured to a value other than zero and fan run time exceeds the value configured, the filter status will display “Dirty” and a CCN alarm will be generated. Resetting the configured Filter Timer Hours value to zero will disable the alarm condition. The value of the timer is stored in EEPROM to protect it in the event of a power failure. The value is stored every 24 hours.

If configured for 0, an optional normally open filter status switch can be read when connected the Filter Status input. Filter status will display "Clean" when open and "Dirty" when closed.

Filter Timer		
Hours:	Range	0 to 99
	Default Value	15 (where 15*100=1500)

INDOOR AIR QUALITY PRIORITY LEVEL — The Indoor Air Quality Priority Level, when set to Low, ensures that comfort is not being compromised by bringing in too much outdoor air to maintain IAQ set point. When an override condition takes place, IAQ control is disabled, and Economizer Minimum Position is set to the user configured value MDP. When set to High, IAQ control is always active regardless of indoor comfort conditions. The controller will temper cold air (OAT <55 F) to prevent cold blow.

Indoor Air Quality		
Priority Level:	Range	High/Low
	Default Value	Low

INDOOR AIR QUALITY PREOCCUPANCY PURGE — The Indoor Air Quality Preoccupancy Purge brings in fresh outdoor air before the Occupied mode begins. The IAQ Pre-Occupancy Purge is used to lower carbon dioxide levels below the IAQ set point before Occupied mode starts.

The purge is started 2 hours before the occupied time and lasts for the specified duration.

Indoor Air Quality		
Preoccupancy		
Purge:	Range	Disable/Enable
	Default Value	Disable

INDOOR AIR QUALITY PURGE DURATION — The Indoor Air Quality Purge Duration specifies the duration of IAQ Pre-Occupancy purge. The purge is started 2 hours before the occupied time and lasts for the specified duration.

Indoor Air Quality		
Purge Duration:	Display Units	minutes
	Display Range	0 to 60
	Default Value	5

INDOOR AIR QUALITY DELTA SET POINT — The Indoor Air Quality Delta Set Point specifies the highest Indoor Air Quality level (measured in ppm) allowed within the space whenever unit is in Occupied mode (or Supply Fan On for units with Thermostat control) and Indoor Air Quality sensor is installed.

Indoor Air Quality		
Delta Set Point:	Display Units	PPM
		(parts per million)
	Display Range	1 to 5000
	Default Value	650

INDOOR AIR QUALITY MAXIMUM DAMPER POSITION — This point displays upper limit of the Indoor Air Quality minimum damper position calculated by the IAQ control.

For example, if IAQ is calculating 100% Minimum Damper Position, but this decision is set to 50%, then the IAQ Minimum Damper Position will be clamped to 50%.

NOTE: When IAQ priority is set to HIGH, this value must reflect the maximum outdoor air percentage that the equipment can heat or cool at worst conditions.

Indoor Air Quality		
Maximum Damper		
Position:	Display Units	% damper open
	Display Range	0 to 100%
	Default Value	50%

INDOOR AIR QUALITY SENSOR — The indoor air quality sensor defines the value in parts per million (ppm) which correlate to the low and high voltage readings from the sensor.

Low Reference specifies the low point of the Indoor IAQ Sensor range in ppm.

Low Reference:	Units	PPM (parts per million)
	Range	0 to 5000
	Default Value	0

High Reference specifies the high point of the Indoor IAQ Sensor range in ppm.

High Reference:	Units	PPM (parts per million)
	Range	0 to 5000
	Default Value	2000

OUTDOOR AIR QUALITY SENSOR — The outdoor air quality sensor defines the value in parts per million (ppm) which correlate to the low and high voltage readings from the sensor. It also defines the range of the optional Indoor RH sensor if connected.

Low Reference specifies the low point of the Outdoor IAQ Sensor Range in ppm.

Low Reference:	Units	PPM (parts per million)
	Range	0 to 5000
	Default Value	0

High Reference specifies the high point of the Outdoor IAQ Sensor Range in ppm. If the input is using a relative humidity sensor, this value MUST be set to 100 or the maximum upper range of the relative humidity sensor. When set to a value of ≤ 100, the PremierLink will display sensor value as the Indoor RH in the STATUS01 display table.

High Reference:	Units	PPM (parts per million)
	Range	0 to 5000
	Default Value	2000

OUTDOOR AIR QUALITY LOCKOUT POINT — When set to non-zero value, the IAQ algorithm will compare Outdoor IAQ reading against this decision and disable IAQ control whenever the value of OAQ exceeds this configured value.

Outdoor Air		
Quality Lockout		
Point:	Range	0 to 5000
	Default Value	0

Occupancy Maintenance Screen — The Occupancy Maintenance screen (OCCPC63S-64S) is used to check the occupied schedule. Information concerning the current occupied period is displayed. See Table 20. The information shown in the occupancy maintenance screen only applies to the local schedule in the controller. If the controller is a global schedule broadcaster, then this information applies to any device following this schedule. This information can only be viewed on the occupancy maintenance screen of the broadcasting controller.

NOTE: Occupancy schedule OCCPC63 maintenance table only applies to the H3_EX_RV output when configured for type 6 Occupancy Schedule.

MODE — The Mode point displays the current occupied mode for the controller. If the controller is following its own local schedule or broadcasting a global schedule, this is the result of the schedule status.

Mode:	Display Range	0 to 1
	Default Value	0
	Network Access	None

CURRENT OCCUPIED PERIOD — If the controller is configured to determine occupancy locally, the Current Occupied Period point is used to display the current period determining occupancy.

Current Occupied Period:
 Display Range 1 to 8
 Default Value 0
 Network Access None

OVERRIDE IN PROGRESS — The Override in Progress point is used to display if an occupancy override is in progress. The point will display “Yes” if an override is in progress, or “No” if there is no override.

Override In Progress:
 Display Range Yes/No
 Default Value No
 Network Access None

OVERRIDE DURATION — The Override Duration point displays the number of minutes remaining for an occupancy override which is in effect. If the override duration value downloaded is in hours, the value will be converted to minutes. If the occupancy schedule is occupied when override is initiated, the current occupancy period will be extended by the number of hours/minutes requested.

If the current occupancy period is unoccupied when the occupancy override is initiated, the mode will change to occupied for the duration of the number of hours/minutes downloaded. If the occupancy override is due to end after the start of the next occupancy period, the mode will transition from occupancy override to occupied without becoming unoccupied, and the occupancy override timer will be reset.

Override Duration:
 Display Units minutes
 Display Range 0 to 240
 Default Value 0
 Network Access None

OCCUPIED START TIME — The Occupied Start Time point shows the time that the current occupied mode began. If the current mode is unoccupied, the value displayed by this point will remain at default.

Occupied Start Time:
 Display Range 00:00 to 24:00
 Default Value 00:00
 Network Access None

UNOCCUPIED START TIME — The Unoccupied Start Time point shows the time that the current occupied mode will end. This will also be the beginning of the next unoccupied mode. If the current mode is unoccupied, the value displayed by this point will remain at default.

Unoccupied Start Time:
 Display Range 00:00 to 24:00
 Default Value 00:00
 Network Access None

NEXT OCCUPIED DAY — The Next Occupied Day point displays the day of week when the next occupied period will begin. This point is used with the Next Occupied Time so the user will know when the next occupied period will occur.

Next Occupied Day:
 Display Range MON, TUE, WED, THU, FRI, SAT, SUN
 Default Value No display (Blank)
 Network Access None

NEXT OCCUPIED TIME — The Next Occupied Time point displays the time day when the next occupied period will

begin. This point is used with the Next Occupied Day so the user will know when the next occupied period will occur.

Next Occupied Time:
 Display Range 00:00 to 24:00
 Default Value 00:00
 Network Access None

NEXT UNOCCUPIED DAY — The Next Unoccupied Day point displays the day of week when the next unoccupied period will begin. This point is used with the Next Unoccupied Time so the user will know when the next unoccupied period will occur.

Next Unoccupied Day:
 Display Range MON, TUE, WED, THU, FRI, SAT, SUN
 Default Value No display (Blank)
 Network Access None

NEXT UNOCCUPIED TIME — The Next Unoccupied Time point displays the time day when the next unoccupied period will begin. This point is used with the Next Unoccupied Day so the user will know when the next unoccupied period will occur.

Next Unoccupied Time:
 Display Range 00:00 to 24:00
 Default Value 00:00
 Network Access None

LAST UNOCCUPIED DAY — The Last Unoccupied Day point displays the day of week when the controller last changed from occupied to the Unoccupied mode. This point is used in conjunction with the Last Unoccupied Time to know the last time and day when the controller became unoccupied.

Last Unoccupied Day:
 Display Range MON, TUE, WED, THU, FRI, SAT, SUN
 Default Value No display (Blank)
 Network Access None

LAST UNOCCUPIED TIME — The Last Unoccupied Time point displays the time of day when the controller last changed from occupied to the Unoccupied mode. This point is read in conjunction with the Last Unoccupied Day to know the last time and day when the controller became unoccupied.

Last Unoccupied Time:
 Display Range 00:00 to 24:00
 Default Value 00:00
 Network Access None

Table 20 — Occupancy Maintenance Screen (OCCPC63S-64S)

DESCRIPTION	VALUE	UNITS	NAME
Mode	0		MODE
Current Occupied Period	0		PERIOD
Override in Progress	No		OVERLAST
Override Duration	0	min	OVERDURA
Occupied Start Time	00:00		OCCSTART
Unoccupied Start Time	00:00		UNSTART
Next Occupied Day			NXTOCCD
Next Occupied Time	00:00		NXTOCCT
Next Unoccupied Day			NXTUNOD
Next Unoccupied Time	00:00		NXTUNOT
Last Unoccupied Day			PRVUNOD
Last Unoccupied Time	00:00		PRVUNOT

Primary Maintenance Screen — The primary Maintenance Screen (MAINT) is used to service the Premier-Link™ controller. See Table 21.

THERMOSTAT CONTROL — Indicates the result of the configuration decision to control in the thermostat or sensor mode.

Thermostat Control:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

OCCUPIED — The Occupied point indicates whether or not the controller is operating in the Occupied mode.

Occupied:	Display Range	No/Yes
	Default Value	Yes
	Network Access	Read/Write

OVERRIDE TIME REMAINING — If the controller is a global schedule follower and Global Override Enable is set to No, then this point becomes the override timer.

Override Time Remaining:	Display Units	Minutes
	Display Range	0 to 240
	Default Value	0
	Network Access	None

TIMED OVERRIDE IN EFFECT — The Timed Override In Effect point shows if a timed override is currently in effect.

NOTE: For controllers using a global schedule, Global Override Enable must be set to NO on all controllers configured for global schedule, including the global schedule broadcaster, for individual override to be enabled.

Timed Override in Effect:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

START BIAS TIME — The Start Bias Time, in minutes, is calculated during the unoccupied period by the controller as needed to bring the temperature up or down to the set point under the optimum start routine. The start time bias for heat and cool are configurable. This value will be reported to the Linkage Thermostat if it is used. It cannot be used with Global Scheduling.

Start Bias Time:	Display Units	minutes
	Display Range	0 to 180
	Default Value	0
	Network Access	Read Only

HEAT — The Heat point shows if there is a demand for heat in the space. The space temperature must be below the Occupied Low or Unoccupied Low set point.

NOTE: When a control mode ends, “NO” mode must be completed before opposite mode can begin.

Heat:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

COOL — The Cool point shows if there is a demand for cooling in the space. The space temperature must be above the Occupied High or Unoccupied High set point.

NOTE: When a control mode ends, “NO” mode must be completed before opposite mode can begin.

Cool:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

IAQ CONTROL — The IAQ control indicates whether or not IAQ control is active in the controller. IAQ control of the minimum damper position is active whenever the configured parameters for the IAQ PID calculate a minimum position greater than the configured economizer minimum position.

IAQ Control:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

DEMAND LIMIT — Demand limit indicates that a command has been received to limit capacity or reduce capacity of the heating or cooling.

Demand Limit:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

TEMP COMPENSATED START — The temperature compensated start function indicates that the controller has started the equipment prior to occupancy in order to be at the occupied set points at the start of occupancy.

Temp Compensated Start:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

IAQ PRE-OCCUPANCY PURGE — The IAQ pre-occupancy purge indicates that the pre-occupancy purge mode is currently active.

IAQ Pre-occupancy Purge:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

UNOCCUPIED FREE COOLING — The unoccupied free cooling point indicates that unoccupied free cooling is in effect.

Unoccupied Free Cooling:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

FIRE SHUTDOWN — The fire shutdown point indicates in a sensor mode that the Fire shutdown input has been sensed. This will cause the supply fan and heating and cooling to be turned off and will force economizer to 0%.

Fire Shutdown:	Display Range	No/Yes
	Default Value	No
	Network Access	Read Only

LINKAGE CONTROL — Linkage control indicates if the controller is receiving linkage communication.

Linkage Control:	Display Range	No/Yes
	Default Value	No
	Network Access	Read/Write

FIELD/STARTUP TEST — This point is used to enable field test of the controller. When forced to Yes, the controller will perform a test of all outputs and reset to “NO” at end of test. The test may be aborted at any time by forcing value to NO.

Field/Startup Test:	Display Range	No/Yes
	Default Value	No
	Network Access	Read/Write

HEAT SUBMASTER REFERENCE — When in sensor mode, the Heat Submaster Reference point displays the supply air temperature calculated by the heating PID loop. This value is compared to the actual supply-air temperature to determine the number of required stages. When in the thermostat mode, the value displayed is zero.

Heat Submaster Reference:	Display Units	degrees F (degrees C)
	Display Range	35.0 to 140.0
	Default Value	35.0
	Network Access	Read Only

COOL SUBMASTER REFERENCE — The Cool Submaster Reference point displays the supply air temperature calculated by the cooling PID loop when in sensor mode. This value is compared to the actual supply-air temperature to determine

the number of required stages. When in the thermostat mode, the value displayed is zero.

Cool Submaster

Reference:	Display Units	degrees F (degrees C)
	Display Range	45.0 to 150.0
	Default Value	150.0
	Network Access	Read Only

ECONOMIZER SUBMASTER REFERENCE — This point displays the supply-air temperature determined by the Economizer PID calculation.

Economizer Submaster

Reference:	Display Units	degrees F (degrees C)
	Display Range	48 to 120
	Default Value	120
	Network Access	Read Only

ECONOMIZER SUBMASTER GAIN — The Economizer Submaster Gain point displays the current Submaster gain multiplier in use to calculate the economizer damper position. At temperatures below 45 F this number will decrease to slow the rate of movement of the economizer damper.

Economizer Submaster Gain:

Display Range	-20 to 20
Default Value	-5.5
Network Access	Read Only

COMPRESSOR STARTS — This point displays the total number of compressor starts.

Compressor Starts:

Default Value	0
Network Access	None

COMPRESSOR 1 RUN TIME — This point displays the number of run hours of compressor no. 1.

NOTE: The clock must be set for run times to accumulate.

Compressor 1 Run Time:

Display Units	Hours
Default Value	0
Network Access	None

COMPRESSOR 2 RUN TIME — This point displays the number of run hours of compressor 2.

NOTE: The clock must be set for run times to accumulate.

Compressor 2 Run Time:

Display Units	Hours
Default Value	0
Network Access	None

SUPPLY FAN RUN TIME — This point displays the number of run hours of the supply fan.

NOTE: The clock must be set for run times to accumulate. This is not the same timer used for the filter status. A separate timer is used to keep track of the run hours since the last filter change.

Supply Fan Run Time:

Display Units	Hours
Default Value	0
Network Access	None

RESET STATISTICS — When this point is forced to Yes, the Compressor Starts, Compressor 1 Runtime, Compressor 2 Runtime, and Supply Fan Runtime values will be reset to 0. The point will automatically be reset to No after being forced.

Reset Statistics:

Display Range	No/Yes
Default Value	No
Network Access	Read/Write

AUXILIARY OUTPUT SCHEDULE — This point displays the state of the H3_EX_RV point when set to type 6 (Occupied Schedule) in the CONFIG table. The state of the point is

determined by the occupancy state of schedule OCCPC63. If the value is Yes, then the mode is occupied and H3_EX_RV will be ON. If the value is No then the mode is unoccupied and the H3_EX_RV will be OFF.

AUXOUT

Schedule:	Display Range	No/Yes
	Default Value	Yes
	Network Access	Read/Write

NOTE: Read/write access of this point is allowed so that the hardware point may be indirectly controlled via communications from a program in another controller.

LINKAGE THERMOSTAT — The following Linkage points display the standard values received from a linked 3V™ Linkage Coordinator.

Linkage Status

Linkage Status:

Display Range	0 to 3
Default Value	2
Network Access	None

- 0 — Linkage communications successful
- 1 — Linkage communication have failed, will use internal values
- 2 — Linkage has been de-linked, will use internal values
- 3 — Change from last state has been detected, use last good data values (internal or external)

Supervisory Element — The Supervisory Element displays the address of the device sending the linkage supervisory table to the PremierLink™ controller.

Supervisory Element:

Default Value	0
Network Access	Read Only

Supervisory Bus — The Supervisory Bus displays the bus number of the device sending the linkage supervisory table to the PremierLink controller.

Supervisory Bus: Default Value	0
Network Access	Read Only

Supervisory Block — The Supervisory Block displays the block or table number of the linkage table occurrence in the supervisory device. Some linkage supervisory devices may contain more than one linkage table for different air sources.

Supervisory Block:

Default Value	0
Network Access	Read Only

Average Occupied Heat Set Point — The Average Occupied Heat Set Point displays the Occupied Heat set point from the 3V™ Linkage Coordinator.

Average Occupied Heat Set Point:

Display Units	degrees F (degrees C)
Display Range	0.0 to 99.9
Default Value	0.0
Network Access	None

Average Occupied Cool Set Point — The Average Occupied Cool Set Point displays the Occupied Cool set point from the 3V™ Linkage Coordinator.

Average Occupied Cool Set Point:

Display Units	degrees F (degrees C)
Display Range	0.0 to 99.9
Default Value	0.0
Network Access	None

Average Unoccupied Heat Set Point — The Average Unoccupied Heat Set Point displays the Unoccupied heat set point from the 3V Linkage Coordinator.

Average Unoccupied Heat Set Point:

Display Units	degrees F (degrees C)
Display Range	0.0 to 99.9
Default Value	0.0
Network Access	None

Table 21 — Primary Maintenance Screen (MAINT)

DESCRIPTION	VALUE	UNITS	STATUS	FORCE	NAME
Thermostat Control	No				TSTAT
Occupied	Yes				OCCUP
Override Time Remaining	0	min			OVRTIMER
Timed Override in Effect	No				TIMOV
Start Bias Time	0	min			STRTBIAS
Heat	No				HEAT
Cool	No				COOL
IAQ Control	No				IAQCL
Demand Limit	No				DEMLT
Temp Compensated Start	No				TCSTR
IAQ Pre-Occupancy Purge	No				IQPRG
Unoccupied Free Cool	No				NTFCL
Fire Shutdown	No				FIRES
Linkage Control	No				DAVCL
Field/Startup Test	No				FIELD
Heat Submaster Ref	35.0	dF			SHSR
Cool Submaster Ref	150.0	dF			CCSR
Economizer Submaster Ref	120.0	dF			ECONSR
Economizer Submastr Gain	-5.5				ECONGN
Compressor Starts	0				CMPST
Compressor 1 Runtime	0.00	HOURS			CM1RT
Compressor 2 Runtime	0.00	HOURS			CM2RT
Supply Fan Runtime	0	HOURS			FANRT
Reset Statistics	No				STAT_RES
AUXOUT Schedule	Yes				AUXSCHED
Linkage Thermostat					
Linkage Status	2				LINKSTAT
Supervisory Element	0				SUPE-ADR
Supervisory Bus	0				SUPE-BUS
Supervisory Block	0				BLOCKNUM
Average Occ Heat Setpt	0.0	dF			OCCLOSTPT
Average Occ Cool Setpt	0.0	dF			OCHISTPT
Average Unoc Heat Setpt	0.0	dF			UNLOSTPT
Average Unoc Cool Setpt	0.0	dF			UNHISTPT
Average Zone Temp	0.0	dF			AZT
Average Occ Zone Temp	0.0	dF			AOZT
Occupancy Status(1=occ)	0				OCCSTAT

NOTE: **Bold** values indicate points that can be forced through communications.

Average Unoccupied Cool Set Point — The Average Unoccupied Cool Set Point displays the Unoccupied cool set point from the 3V Linkage Coordinator.

Average Unoccupied Cool Set Point: Display Units degrees F (degrees C)
 Display Range 0.0 to 99.9
 Default Value 0.0
 Network Access None

Average Zone Temperature — The Average Zone Temperature displays the space temperature from the 3V Linkage Coordinator. This value will be the same as the Average Occupied Zone Temperature if the 3V system is in the occupied mode.

Average Zone Temperature: Display Units degrees F (degrees C)
 Display Range 0.0 to 99.9
 Default Value 0.0
 Network Access None

Average Occupied Zone Temperature — The Average Occupied Zone Temperature displays the space temperature from the 3V Linkage Coordinator during occupied periods. This value will be 0 if the system is in unoccupied mode.

Average Occupied Zone Temperature: Display Units degrees F (degrees C)
 Display Range 0.0 to 99.9
 Default Value 0.0
 Network Access None

Occupancy Status — The Occupancy Status point displays a 1 if occupancy is reported by the 3V Linkage Coordinator. The Occupancy Status point displays a 0 if occupancy is not reported by the 3V Linkage Coordinator.

Occupancy Status: Display Range 0, 1
 Default Value 0
 Network Access None

System Pilot Maintenance Table — The System Pilot Maintenance Table (SP_MAINT) displays the mode of the controller, the controlling set point, the current space temperature, and occupancy status of the PremierLink™ controller. It also displays PremierLink controller's occupied and unoccupied heat and cool set points which the user may change from this table. See Table 22. This screen can be accessed through the maintenance option on the System Pilot™ device or through Carrier network software.

Table 22 — System Pilot™ Maintenance Table (SP_MAINT)

DESCRIPTION	VALUE	UNITS	NAME
Rooftop Mode	COOL		MODE
Control Setpoint	70	dF	CLSP
Linkage Master	No		LINKMAST
Space Temperature	73	dF	SPT
Occupied	Yes		ZONEOCC
Occupied Heat Setpoint	70	dF	OHSP
Occupied Cool Setpoint	74	dF	OCSP
Unoccupied Heat Setpoint	69	dF	UHSP
Unoccupied Cool Setpoint	75	dF	UCSP

NOTE: **Bold** values indicate points that can be forced through communications.

ROOFTOP MODE — This variable will display the current operating mode of the controller. The variable will be displayed in the attached System Pilot device's default display. Equivalent numeric value for data transfer and BEST++ is shown in parenthesis.

Rooftop Mode: Display Range OFF (1), COOL (2), HEAT (3), FAN ONLY (4), UNOCOOOL (5), UNOCHEAT (6), WARMUP (7), FREECOOL (8), PRESS (9), EVAC (10)
Network Access Read Only

CONTROL SET POINT — This variable will display the current controlling set point of the controller. This variable is not displayed in the System Pilot default display.

Control Setpoint: Display Units degrees F (degrees C)
Display Range: 40.0 to 99.9
Network Access Read only

LINKAGE MASTER — This is not used.

Linkage Master: Display Range No/Yes
Network Access Read Only

SPACE TEMPERATURE — This variable is the current space temperature of the PremierLink controller. The variable will be displayed in the attached System Pilot device's default display.

Space Temperature: Display Units degrees F (degrees C)
Display Range -40.0 to 245.0
Network Access Read/Write

OCCUPIED — This variable displays whether the controller is operating in the occupied mode. The variable will be displayed in the attached System Pilot device's default display.

Occupied: Display Range No/Yes
Network Access Read Only

OCCUPIED HEAT SET POINT — This variable displays the occupied heat set and will be displayed in the attached System Pilot device's default display if the PremierLink controller is in the occupied mode.

Occupied Heat Set Point: Display Units degrees F (degrees C)
Display Range 40.0 to 90.0
Network Access Read/Write

OCCUPIED COOL SET POINT — This variable displays the occupied cool set point and will be displayed in the attached System Pilot device's default display if the Premier-Link controller is in the occupied mode.

Occupied Cool Set Point: Display Units degrees F (degrees C)
Display Range 45.0 to 99.9
Network Access Read/Write

UNOCCUPIED HEAT SET POINT — This variable displays the unoccupied heat set point and will be displayed in the attached System Pilot device's default display if the Premier-Link controller is in the unoccupied mode.

Unoccupied Heat Set Point: Display Units degrees F (degrees C)
Display Range 40.0 to 90.0
Network Access Read/Write

UNOCCUPIED COOL SET POINT — This variable displays the unoccupied cool set point and will be displayed in the attached System Pilot device's default display if the Premier-Link controller is in the unoccupied mode.

Occupied Cool Set Point: Display Units degrees F (degrees C)
Display Range 45.0 to 99.9
Network Access Read/Write

System Pilot Alternate Maintenance Table — The System Pilot Alternate Maintenance Table (ALT_DISP) displays the current supply air temperature, heating and cooling capacity and other information listed in the table. See Table 23.

Table 23 — System Pilot Alternate Maintenance Display Table (ALT_DISP)

DESCRIPTION	VALUE	UNITS	NAME
Supply Air Temperature	66.5	dF	SAT
Cooling % Total Capacity	0	%	CCAP
Heating % Total Capacity	0	%	HCAP
Outdoor Air Temperature	74.8	dF	OAT
Enthalpy	Low		ENTH
Economizer Position	20	%	ECONOS
Indoor Air Quality	0		IAQI
Filter Status	Clean		FLTS
Indoor RH	0	%	IRH

NOTES:

1. This screen can be viewed using the System Pilot device when attached to the PremierLink controller. To view this screen, press the right button on the System Pilot device for 5 seconds while at the default display. This screen can also be viewed using Carrier network software.
2. **Bold** values indicate points that can be forced through communications.

SUPPLY AIR TEMPERATURE — The Supply Air Temperature point displays the temperature of the air leaving the unit located downstream of any cool or heat sources. This sensor is required for proper function of the heating, cooling, and economizer systems.

Supply Air Temperature: Display Units F (C)
Display Range -40.0 to 245.0
Network Access Read/Write

COOLING PERCENT TOTAL CAPACITY — The Cooling Percent Total Capacity point is used to display the current cooling capacity. When cooling is enabled, the percent of cooling being delivered is determined by the following formula for the number of compressor stages confirmed:

$\% \text{ Output Capacity} = (\text{no. of active stages} / \text{total stages}) * 100$
Cooling % Total Capacity: Display Units % output capacity
Display Range 0 to 100%
Network Access Read Only

HEATING PERCENT TOTAL CAPACITY — The Heating Percent Total Capacity point is used to display the current Heating Capacity. When heat is enabled, the percent of heat being delivered is determined by the following formula for gas or electric heat:

$$\% \text{ Output Capacity} = (\text{no. of active stages} / \text{total stages}) * 100$$

Heating % Total Capacity:

Display Units	% output capacity
Display Range	0 to 100%
Network Access	Read Only

OUTDOOR AIR TEMPERATURE — This point displays the temperature of the air entering the rooftop unit. This sensor is required for proper function of the cooling mode and the economizer.

Outdoor Air Temperature:

Display Units	degrees F (degrees C)
Display Range	-40.0 to 245.0
Network Access	Read/Write

ENTHALPY — This point displays the current status of an outdoor air or differential enthalpy input. This point may be broadcast to other controllers or received from a controller which supports global broadcast of the ENTH variable.

Enthalpy:

Display Units	Discrete ASCII
Display Range	High/Low
Network Access	Read/Write

ECONOMIZER DAMPER POSITION — This point displays the current commanded damper position of the economizer.

Economizer Position:

Display Units	% damper open
Display Range	0 to 100%
Network Access	Read/Write

INDOOR AIR QUALITY (IAQ) — The Air Quality point displays the indoor air quality reading from a CO₂ sensor installed in the space. The CO₂ sensor maintains differential indoor air quality for demand control ventilation per ASHRAE Standard 62-1999.

Indoor Air Quality (ppm):

Display Units	None shown (parts per million implied)
Display Range	0 to 5000
Network Access	Read/Write

FILTER STATUS — The filter status point will be shown as CLEAN until the run time of the fan exceeds the configured Filter Timer Hours or the filter switch is closed. When the user-configured Filter Timer Hours has been exceeded, the Filter Status will display DIRTY and a CCN alarm will be generated. Forcing the point to CLEAN will clear the alarm condition and will reset the timer. If a filter switch is used, then CLEAN will be shown when the switch is open.

Filter Status:

Display Units	Discrete ASCII
Display Range	Clean/Dirty
Network Access	Read/Write

INDOOR RELATIVE HUMIDITY — This point displays the Space Relative Humidity value from the optional space relative humidity sensor. It is used in the dehumidification function (if installed).

Indoor RH:

Display Unit	% Humidity
Display Range	0 to 100%
Network Access	Read/Write

APPENDIX A — STATUS, CONFIGURATION AND MAINTENANCE SCREENS

Table A — Points Display

DESCRIPTION	VALUE	UNITS	STATUS	FORCE	NAME
Space Temperature	72.2	dF			SPT
Supply Air Temperature	67.1	dF			SAT
Outdoor Air Temperature	48.8	dF			OAT
Control Setpoint	70.0	dF			CLSP
Rooftop Mode	COOL				MODE
Cooling % Total Capacity	0	%			CCAP
Heating % Total Capacity	0	%			HCAP
Economizer Active	Yes				ECOS
Supply Fan Relay	On				SF
Supply Fan Status	On				SFS
Economizer Position	26.2	%			ECONPOS
Current Min Damper Pos	20	%			IQMP
Filter Status	Clean				FLTS
Remote Occupied Mode	Off				RMTOCC
Heat Stage 1	Off				HS1
Heat Stage 2	Off				HS2
Ht 3/Exhaust/Rev Valv/DH	Off				H3_EX_RV
Enthalpy	Low				ENTH
Indoor Air Quality	367.9				IAQI
Indoor Air Quality Setpt	1050.0				IAQS
Outdoor Air Quality	0.0				OAQ
Indoor RH	0	%			IRH
Fire Shutdown	Normal				FSD
SPT Offset	0.0	^F			STO
Compressor 1	Off				CMP1
Compressor 2	Off				CMP2
Compressor Safety	Off				CMPSAFE
Rooftop Mode	2				RTU_MODE
LON Setpoint	72	dF			LON_SP
Alarm Status	Normal				ALARM

LEGEND

SPT — Space Temperature Sensor

NOTE: **Bold** values indicate points that can be forced through communications.

Table B — Thermostat Control Input Display

DESCRIPTION	VALUE	UNITS	STATUS	FORCE	NAME
Y1 - Call for Cool 1	On				Y1
Y2 - Call for Cool 2	On				Y2
W1 - Call for Heat 1	Off				W1
W2 - Call for Heat 2	Off				W2
G - Call for Fan	On				G

NOTE: **Bold** values indicate points that can be forced through communications.

APPENDIX A — STATUS, CONFIGURATION AND MAINTENANCE SCREENS (cont)

Table C — Alarm Service Configuration

DESCRIPTION	VALUE	UNITS	NAME
Alarm Control			
Alarm Routing Control	00000000		ALRMCNT
Realarm Time	0	min	REALARM
Control Temp Hysteresis	5.0	^F	SPTHYS
Control Humid Hysteresis	5	%	RHHYS
Supply Air Temperature			
Low Limit	45.0	dF	LOWLIM
High Limit	150.0	dF	HIGHLIM
IAQ High Alert Limit			
Low Limit	0.0		LOWLIM
High Limit	1200.0		HIGHLIM
Fire Inp Alm Conditn	Normal		FIAC

LEGEND

IAQ — Indoor Air Quality

NOTE: **Bold** values are configurable through communications.

Table D — Controller Identification

DESCRIPTION	VALUE	UNITS	NAME
Description:	Rooftop Control		DevDesc
Location:			Location
Software Part Number:	CESR131269-12		PartNum
Model Number:			ModelNum
Serial Number:			SerialNo
Reference Number:	Version 3.x		RefNum

NOTE: **Bold** values are configurable through communications.

Table E — Holiday Configuration

DESCRIPTION	VALUE	UNITS	NAME
Start Month	1		MONTH
Start Day	1		DAY
Duration	0		DURATION

NOTE: **Bold** values are configurable through communications.

Table F — Occupancy Configuration

DESCRIPTION	VALUE	UNITS	NAME
Manual Override Hours	0	hours	OVRD
Period 1: Day of Week	11111111		DOW1
Period 1: Occupied from	00:00		OCC1
Period 1: Occupied to	24:00		UNOCC1
Period 2: Day of Week	00000000		DOW2
Period 2: Occupied from	00:00		OCC2
Period 2: Occupied to	24:00		UNOCC2
Period 3: Day of Week	00000000		DOW3
Period 3: Occupied from	00:00		OCC3
Period 3: Occupied to	24:00		UNOCC3
Period 4: Day of Week	00000000		DOW4
Period 4: Occupied from	00:00		OCC4
Period 4: Occupied to	24:00		UNOCC4
Period 5: Day of Week	00000000		DOW5
Period 5: Occupied from	00:00		OCC5
Period 5: Occupied to	24:00		UNOCC5
Period 6: Day of Week	00000000		DOW6
Period 6: Occupied from	00:00		OCC6
Period 6: Occupied to	24:00		UNOCC6
Period 7: Day of Week	00000000		DOW7
Period 7: Occupied from	00:00		OCC7
Period 7: Occupied to	24:00		UNOCC7
Period 8: Day of Week	00000000		DOW8
Period 8: Occupied from	00:00		OCC8
Period 8: Occupied to	24:00		UNOCC8

NOTE: **Bold** values are configurable through communications.

Table G — Service Configuration Selection

DESCRIPTION	VALUE	UNITS	NAME
Cooling PID			
Proportional Gain	6.0		KP
Integral Gain	3.0		KI
Derivative Gain	5.0		KD
Starting Value	70.0	dF	STARTVAL
SAT CMP1 Low Lockout Temp	55	dF	SATLO1
SAT CMP2 Low Lockout Temp	50	dF	SATLO2
Staged Cooling			
Total Number of Stages	2		STAGES
Stage 1 Time Guard	Enable		TG1
Stage 2 Time Guard	Enable		TG2
Stage 3 Time Guard	Disable		TG3
Heating PID			
Proportional Gain	6.0		KP
Integral Gain	3.0		KI
Derivative Gain	5.0		KD
Starting Value	75.0	dF	STARTVAL
SAT High Setpoint	140	dF	SATHI
Staged Heating			
Total Number of Stages	2		STAGES
Stage 1 Time Guard	Enable		TG1
Stage 2 Time Guard	Enable		TG2
Stage 3 Time Guard	Enable		TG3
IAQ PID			
Proportional Gain	1.0		KP
Integral Gain	0.5		KI
Derivative Gain	0.0		KD
Starting Value	0.0	%	STARTVAL
Economizer PID			
Proportional Gain	-4.0		KP
Integral Gain	-2.0		KI
Derivative Gain	-3.0		KD
Starting Value	70.0	dF	STARTVAL
Submaster Gain Limit	-5.5		ESG
Submaster Center Value	60	%	CTRVAL
Damper Movement Band	0	%	ECONBAND
OAT Temp Band	25	dF	TEMPBAND
Minimum Damper Position	20	%	MDP
Low Temp MDP Override	100	%	LOWMDP
DX Cooling Lockout	On		DXCTLO
DX Cooling Lockout Temp	45.0	dF	DXLOCK
Time Guard Override	Off		TGO
Continuous Power Exhaust	Disable		MODPE
Supply Fan Status Enable	Disable		SFSENABL
Remote Cont/Door Switch	1		RC_DS
ASHRAE 90.1 Supply Fan	Yes		CONTFAN
Min Setpoint Deadband	1.5	^F	MIN_DBND
Max OAT for Free Cool	75	dF	OATMAX
Max Offset Adjustment	2.0	^F	LIMIT
Comp Time Gard for Fire	Yes		COMP_TG
Comp Min Off Time	5	min	C_MIN_OF
Comp Min On Time	3	min	C_MIN_ON
Mode Change Time	10	min	M_SELECT
Space Temp Trim	0.0	^F	RATTRIM
Supply Air Temp Trim	0.0	^F	SATTRIM

LEGEND

DX — Direct Expansion
IAQ — Indoor Air Quality
OAT — Outdoor-Air Temperature
PID — Proportional Integral Derivative
SAT — Supply Air Temperature

NOTE: **Bold** values are configurable through communications.

APPENDIX A — STATUS, CONFIGURATION AND MAINTENANCE SCREENS (cont)

Table H — PremierLink™ Control Configuration

NOTE: **Bold** values are configurable through communications.

DESCRIPTION	VALUE	UNITS	NAME
Operating Mode	1		TSTATCFG
0=TSTAT			
1=CCN Sensor			
Heat Type	0		HEATTYPE
0=Gas			
1=Electric			
Unit Type	0		AC
0=AC Unit			
1=Heat Pump			
Auxiliary Output	0		AUXOUT
0=None			
1=Exhaust Fan			
2=Heat Stage			
3=Reversing Valve Heat			
4=Reversing Valve Cool			
5=Dehumidification			
6=Separate Schedule			
Unnoc Free Cool	0		NTEN
0=Disable			
1=Always enabled			
2-6 Hours prior to OCC			
Demand Limiting	Disable		DLEN
Loadshed Group Number	1		LSGP
CCN Broadcast OAT, ENTH,OAQ	0		OATBC
Global Schedule Broadcast	No		GSBC
Broadcast Acknowledge	No		BCACK
Schedule Number	64		SCHEDNUM
Timed Override Hours	0	hours	TIMOVRID
Global Override Enable	Yes		GLOB_OV
Linkage Thermostat			
Cool Strt Bias(min/deg)	10	min	KCOOL
Heat Strt Bias(min/deg)	10	min	KHEAT
Filter Timer hrs* 100	15		FIL_TIMR
IAQ Priority Level	Low		IAQP
IAQ Pre-Occupancy Purge	Disable		IAQPURGE
IAQ Purge Duration	5	min	IQPD
IAQ Delta Setpoint	650	ppm	IAQD
IAQ Maximum Damper Pos.	50	%	IAQMAXP
Indoor AQ Low Ref.	0.0	ppm	IIAQREFL
Indoor AQ High Ref.	2000.0	ppm	IIAQREFH
Outdoor AQ Low Ref.	0.0	ppm	OIAQREFL
Outdoor AQ High Ref.	2000.0	ppm	OIAQREFH
Outdoor AQ Lockout Point	0		OIAQLOCK

LEGEND

- CCN** — Carrier Comfort Network®
- ENTH** — Enthalpy
- IAQ** — Indoor Air Quality
- OAQ** — Outdoor Air Quality
- OAT** — Outdoor Air Temperature

Table I — Set Point Configuration

DESCRIPTION	VALUE	UNITS	NAME
Setpoints			
Occupied Low Setpoint	70.0	dF	OHSP
Occupied High Setpoint	74.0	dF	OCSP
Unoccupied Low Setpoint	69.0	dF	UHSP
Unoccupied High Setpoint	75.0	dF	UCSP
Hi OAT Lckout for TSTAT	65.0	dF	OATL
Unocc. OAT Lockout TEMP	50.0	dF	NTLO
Unocc. Heating Deadband	1.0	^F	UHDB
Unocc. Cooling Deadband	1.0	^F	UCDB
Low Temp. Min. Position	10	%	LTMP
Hi Temp. Min. Position	35	%	HTMP
Power Exhaust Setpoint	50	%	PES
Occ Rel Hum Setpoint	50	%	ORHS
Unocc Rel Hum Setpoint	99	%	URHS

LEGEND

OAT — Outdoor Air Temperature

NOTE: **Bold** values are configurable through communications.

Table J — Occupancy Maintenance Screen (OCCPC63S-64S)

DESCRIPTION	VALUE	UNITS	NAME
Mode	0		MODE
Current Occupied Period	0		PERIOD
Override in Progress	No		OVERLAST
Override Duration	0	min	OVERDURA
Occupied Start Time	00:00		OCCSTART
Unoccupied Start Time	00:00		UNSTART
Next Occupied Day			NXTOCCD
Next Occupied Time	00:00		NXTOCCT
Next Unoccupied Day			NXTUNOD
Next Unoccupied Time	00:00		NXTUNOT
Last Unoccupied Day			PRVUNOD
Last Unoccupied Time	00:00		PRVUNOT

APPENDIX A — STATUS, CONFIGURATION AND MAINTENANCE SCREENS (cont)

Table K — Primary Maintenance Screen (MAINT)

DESCRIPTION	VALUE	UNITS	STATUS	FORCE	NAME
Thermostat Control	No				TSTAT
Occupied	Yes				OCCUP
Override Time Remaining	0	min			OVRTIMER
Timed Override in Effect	No				TIMOV
Start Bias Time	0	min			STRTRBIAS
Heat	No				HEAT
Cool	No				COOL
IAQ Control	No				IAQCL
Demand Limit	No				DEMLT
Temp Compensated Start	No				TCSTR
IAQ Pre-Occupancy Purge	No				IQPRG
Unoccupied Free Cool	No				NTFCL
Fire Shutdown	No				FIRES
Linkage Control	No				DAVCL
Field/Startup Test	No				FIELD
Heat Submaster Ref	35.0	dF			SHSR
Cool Submaster Ref	150.0	dF			CCSR
Economizer Submaster Ref	120.0	dF			ECONSR
Economizer Submastr Gain	-5.5				ECONGN
Compressor Starts	0				COMPST
Compressor 1 Runtime	0.00	HOURS			CM1RT
Compressor 2 Runtime	0.00	HOURS			CM2RT
Supply Fan Runtime	0	HOURS			FANRT
Reset Statistics	No				STAT_RES
AUXOUT Schedule	Yes				AUXSCHED
Linkage Thermostat					
Linkage Status	2				LINKSTAT
Supervisory Element	0				SUPE-ADR
Supervisory Bus	0				SUPE-BUS
Supervisory Block	0				BLOCKNUM
Average Occ Heat Setpt	0.0	dF			OCCLOSTPT
Average Occ Cool Setpt	0.0	dF			OCCHISTPT
Average Unoc Heat Setpt	0.0	dF			UNHLOSTPT
Average Unoc Cool Setpt	0.0	dF			UNHISTPT
Average Zone Temp	0.0	dF			AZT
Average Occ Zone Temp	0.0	dF			AOZT
Occupancy Status(1=occ)	0				OCCSTAT

LEGEND

IAQ — Indoor Air Quality
OCC — Occupancy
UNOC — Unoccupied

NOTE: **Bold** values indicate points that can be forced through communications.

Table L — System Pilot Maintenance Table (SP_MAINT)

DESCRIPTION	VALUE	UNITS	NAME
Rooftop Mode	COOL		MODE
Control Setpoint	70	dF	CLSP
Linkage Master	No		LINKMAST
Space Temperature	73	dF	SPT
Occupied	Yes		ZONEOCC
Occupied Heat Setpoint	70	dF	OHSP
Occupied Cool Setpoint	74	dF	OCSP
Unoccupied Heat Setpoint	69	dF	UHSP
Unoccupied Cool Setpoint	75	dF	UCSP

NOTE: **Bold** values indicate points that can be forced through communications.

Table M — System Pilot Alternate Maintenance Display Table (ALT_DISP)

DESCRIPTION	VALUE	UNITS	NAME
Supply Air Temperature	66.5	dF	SAT
Cooling % Total Capacity	0	%	CCAP
Heating % Total Capacity	0	%	HCAP
Outdoor Air Temperature	74.8	dF	OAT
Enthalpy	Low		ENTH
Economizer Position	20	%	ECONOS
Indoor Air Quality	0		IAQI
Filter Status	Clean		FLTS
Indoor RH	0	%	IRH

NOTE: **Bold** values indicate points that can be forced through communications.

