



SPECTRACOOOL
SLIM FIT AIR CONDITIONERS
ALL MODELS

INSTRUCTION MANUAL

DESIGN WITH CONFIDENCE

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PENTAIR COOLING SALES AND SERVICE CONTACTS

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|----------------------------|-----------------------|
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| Polska (Poland) | +48 22 209 98 37 |
| Россия (Russia) | +7 495 926 18 85 |
| Sverige (Sweden) | +46 (0) 8 683 6100 |
| United Kingdom | +44 (0) 1442 240 471 |
| MIDDLE EAST: | |
| UAE | +971 4 378 1700 |
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| US and Canada | +1 763 421 2240 |
| SOUTH AMERICA: | |
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| ASIA/SOUTH PACIFIC: | |
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| India | +91 80 2845 4640 |
| 日本 (Japan) | +81 (0) 45 476 02 81 |
| Singapore | +65 6768 5800 |

Or visit PentairProtect.com

WARRANTY AND RETURN POLICY

Visit www.pentairprotect.com/en/hoffman/warranty-information for Product warranty and return policy.

GENERAL INFORMATION STANDARDS, CE, DECLARATION OF CONFORMITY



PENTAIR TECHNICAL SOLUTIONS
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Declaration of Conformity

Issued by Manufacturer

Pentair Technical Products China dba Hoffman
Air Port Industrial Zone
Shuangyuan Road South
Chengyang District
Qingdao,
Shandong 266108 China

declare at our sole responsibility, that these devices are designed and constructed according to the fundamental safety and health requirements of the relevant EC directives.

Equipment Description: S0603X6GXXX, S0605X6GXXX, S1010X6GXXX, S1015X6GXXX, S1620X6GXXX, S1625X6GXXX, S1640X6GXXX

Product Name: "SpectraCool SLIM Fit" Control Cabinet Air-Conditioner
First Year of CE Marking: 2014

Ingress Protection: IP 34 – Ambient Side, IP 54 Enclosure Side

Applicable Directives: Directive /95/EC Low Voltage Directive
Laws for electrical equipment within certain voltage limits
Directive /108/EC EMC Directive relating to
Electromagnetic compatibility
Directive /65/EU on the restriction of the use of certain hazardous substances in
electrical and electronic equipment

Applicable Standards: EN 378-1 and -2 Refrigerating systems and heat pumps-safety and environmental requirements
EN 12100-1 and -2 Safety of machinery, equipment and facilities
EN ISO 13857 Safety of machinery-safety distances to prevent hazard zones being reached by upper and lower limbs
EN 60335-1 and -2-40 Appliances-Safety, Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
DIN EN 14511-2 (4) Air conditioner, Test conditions
DIN EN 14511-3 (4) Air Conditioner, Test methods
DIN EN 14511-4 (4.2, 4.5, 4.6) Air Conditioner, operating requirements
DIN 3168-4.5 Coolers for distribution boxes, concepts testing, marking
EN 61000-6-2 Electromagnetic compatibility (EMC)- Part 6-2: Generic standards - Immunity for industrial environments
EN 61000-6-3 Electromagnetic compatibility (EMC)- Part 6-3: Generic standards – Emission standard for residential, commercial, and light industrial environments
EN 60529, IEC 60529 Degrees of protection provided by enclosures (IP code)
EN 50581: Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
DIN 45635 Measurement of noise emitted by machines, airborne noise emission

For official DoC, go to <http://www.pentairprotect.com/en/na/Compliance>

Authorized by:

7/15/2014

Tom Hurney

Date

Manager, Lab & Certifications

Subject to Change Without Notice

DOC: 00001 -A


RECEIVING THE AIR CONDITIONER

Inspect the air conditioner. Check for concealed damage that may have occurred during shipment. Look for dents, scratches, loose assemblies, evidence of oil, etc. Damage evident upon receipt should be noted on the freight bill. Damage should be brought to the attention of the delivering carrier -- NOT to Pentair Equipment Protection -- within 15 days of delivery. Save the carton and packing material and request an inspection. Then file a claim with the delivering carrier.

Pentair Equipment Protection cannot accept responsibility for freight damages; however, we will assist you in any way possible.

HANDLING AND TESTING THE AIR CONDITIONER

If the air conditioner has been in a horizontal position, be certain it is placed in an upright, vertical or mounting position for a minimum of five (5) minutes before operating.

| |
|---|
|  CAUTION |
| Do not attempt to operate the air conditioner while it is horizontal or on its side, back or front. The refrigeration compressor is filled with lubricating oil. This will cause permanent damage to the air conditioner and also voids the warranty. |

TEST FOR FUNCTIONALITY BEFORE MOUNTING THE AIR CONDITIONER TO THE ENCLOSURE.

Refer to the nameplate for proper electrical current requirements, and then wire the unit to a properly grounded power supply using copper conductors only. Power supply wiring should be restrained after field installation to ensure no contact with internal fan. Minimum circuit ampacity should be at least 125% of the amperage shown on the unit nameplate. No other equipment should be connected to this circuit to prevent overloading.

Electrical circuit should be fused with slow blow or heating, air conditioning and refrigeration (HACR) rated circuit breaker. Use a higher ampere rated circuit breaker or time-delay fuse that is closest to the nominal ampere rating of the air conditioner, or sum of the individual component ampere ratings, to protect system electrical circuits from short circuit or overload.

PHASE MONITOR (460V ONLY)

**Note Location: Rear access panel, D-shaped sight port.
Reference S10 Dimensional Drawing on page 37; S16 Dimensional Drawing, 2000/2500W on page 54; S16 Dimensional Drawing, 4000W on page 55**

This product is equipped with Phase/Voltage Protection. Please verify correct phasing and voltage before operating. Note the fans may still operate if phasing is incorrect, but the compressor will not, so the unit will not cool. Illuminated light on Phase Monitor indicates phase is correct.

If the light is not illuminated, disconnect power from the unit and swap any two power leads at the terminal block. This should correct the phasing. The light should now illuminate when power is reapplied.

Immediately after applying power, the evaporator blower (enclosure air) should start running. Operate the air conditioner with the compressor running for five (5) to ten (10) minutes. You will need to set the cooling controller setpoint below the ambient temperature to operate the compressor.

Condenser air temperatures should be warmer than normal room temperatures within a few minutes after the condenser impellers start.

See Sequence of Operation on page 7 for specifics on how the unit operates when powered up.

HOW TO READ MODEL NUMBERS

| | | | | |
|-----|----|---|---|------|
| S10 | 15 | 2 | 6 | G031 |
| 1 | 2 | 3 | 4 | 5 |

1. Identifies the type/family of air conditioner and the approximate height (i.e. S10 = Slim Fit family about 1000mm high (10x100).
2. This is the air conditioner's listed capacity in Watts at rated conditions. (i.e. 15=1500W (15x100) at 35/35 C)
3. 1 = 115 Volt, 2 = 230 Volt, 4 = 400/460 Volt.
4. 5 = 50 Hz only, 6 = 50/60 Hz or 60 Hz only.
5. Unique set of numbers for each air conditioner which identifies the accessories on a model.

GENERAL SAFETY INFORMATION

Please observe the following general safety instructions when assembling and operating the unit:

- Assembly, installation and servicing may only be performed by properly trained specialists.
- When transporting the enclosure with the cooling unit externally mounted, always use an additional shipping brace to support the cooling unit.

GENERAL TECHNICAL INFORMATION

The evaporator outlet sensor monitors the enclosure return air temperature to prevent ice buildup on the evaporator coil. If the air temperature drops below -1°C, the compressor and condenser air mover(s) shut off. They turn back on when the temperature rises above 15°C.

The compressor and the air movers are equipped with overload protection to guard against excess current and temperatures.

SEQUENCE OF OPERATION

The air conditioner comes standard with smart controller. During cooling modes, the evaporator fan will be running.

COOLING

When the enclosure temperature is above the cooling setpoint, power is applied to the compressor and condenser air mover(s).

Operating the air conditioner below the minimum ambient temperature or above the maximum ambient temperatures indicated on the nameplate voids all warranties. DO NOT adjust the setpoint to a temperature lower than 20°C. Doing so can increase the likelihood of frost buildup on the evaporator coil.

The moisture that the sealed enclosure air can contain is limited. If moisture flows from the drain tube continuously this can only mean that ambient air is entering the enclosure. Be aware that frequent opening of the enclosure's door admits humid air that the air conditioner must then dehumidify.

COMPONENT OPERATION

NOTE: Do not reduce the time delay setting on the controller to less than 120 seconds. This may cause the compressor to cycle too rapidly, shortening the life of the compressor.

SMART CONTROLLER (GENERAL ALARMS)

See Smart Controller on page 12

REMOTE ACCESS CONTROL (OPTIONAL)

See Remote Access Control on page 18

DOOR SWITCH

If a door switch is available, connect it to the terminals marked WHT/DS1 and WHT/DS2. The switch circuit should be open when the door is closed, and closed when the door is open. Several door switches may be connected in parallel and operated on one cooling unit. The door switch only supports a floating connection with no external voltages.

ACTIVE CONDENSATE MANAGEMENT

At low temperatures and high humidity levels inside the enclosure, condensation may form on the evaporator coil.

Slim Fit air conditioners continuously evaporate the water that may be in the drain pan due to condensation from the evaporator coil into the external air stream. Excess condensate is routed downwards out of the air conditioner via a barbed fitting at the bottom of the condenser side of the unit. A 10 mm (.40) inside diameter tube can be attached to the fitting and routed to a nearby drain.

MOUNTING

TOOLS REQUIRED FOR INSTALLATION:

- #2 Phillips screwdriver
- 6.5 mm slotted screwdriver
- 13 mm wrench or socket

EXTERNAL MOUNTING

1. Using the mounting gasket kit provided with the unit, install gasket to the air conditioner, see Figure 1.
2. Screw the supplied grub screws into the blind nuts on the rear of the unit, see Figure 2.
3. Secure the unit to the enclosure using the supplied washers and nuts. Use caution to avoid damaging the gasket while positioning the unit.

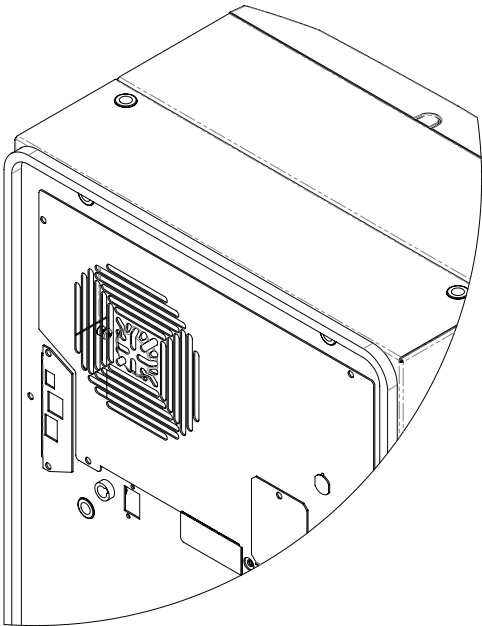


Figure 1

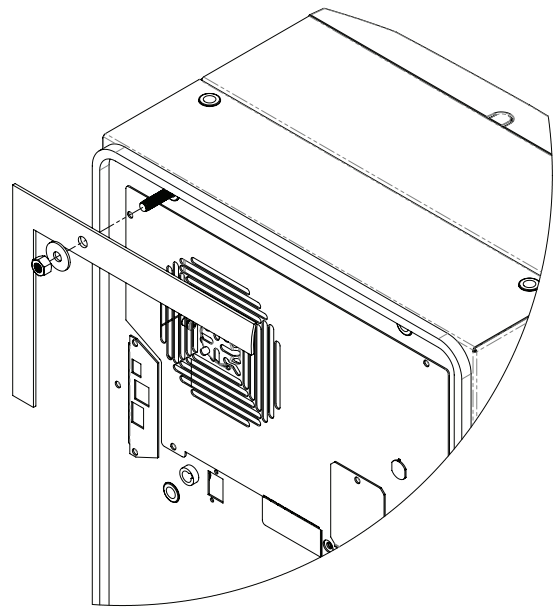


Figure 2

PARTIAL RECESSED MOUNTING (NOT APPLICABLE TO 300W UNIT)

1. Carefully remove the louvered grille, and where applicable, remove the center panel from the enclosure by pulling forwards. See Figure 3 on page 9.
2. Carefully disconnect the connectors from the rear of the smart controller.
3. Remove the two front screws.
4. Remove the four nuts on the front panel and pull the panel assembly forward approximately 5 cm. See Figure 4 on page 9.
5. Disconnect the fan electrical connection.
6. Remove the front panel.
7. Remove the four standoffs, leaving the grub screws in place.
8. Push the rear enclosure half into the mounting cutout and secure it with the four standoffs. See Figure 5 on page 9.
9. Push the smart controller cables through the rectangular hole in the front panel.
10. Reconnect the fan electrical connector.
11. Mount the front panel using the nuts removed in step 4.
12. Install two front screws.
13. Carefully reconnect the smart controller connectors .
14. Push the louvered grille and, where applicable, the center panel, onto the front panel. See Figure 6 on page 9.

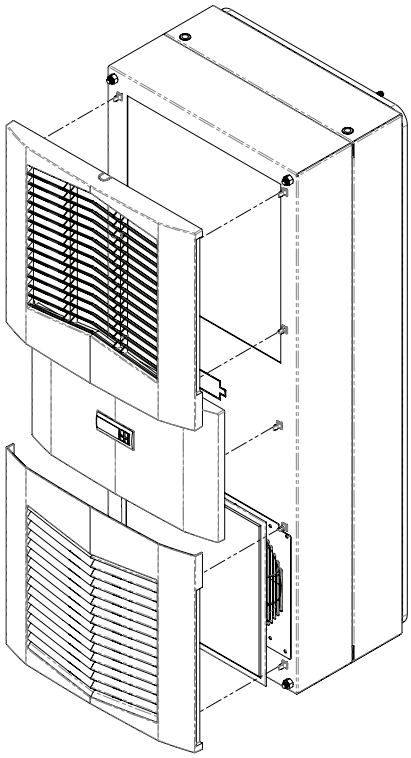


Figure 3

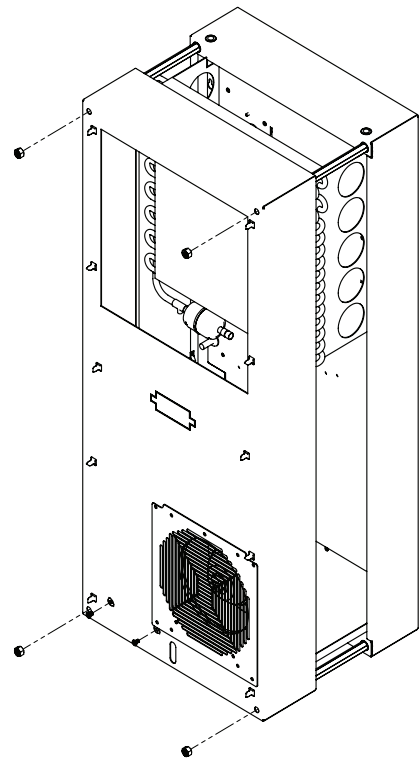


Figure 4

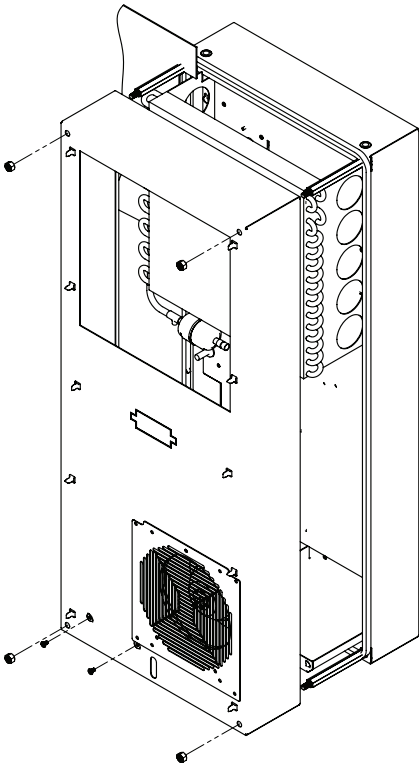


Figure 5

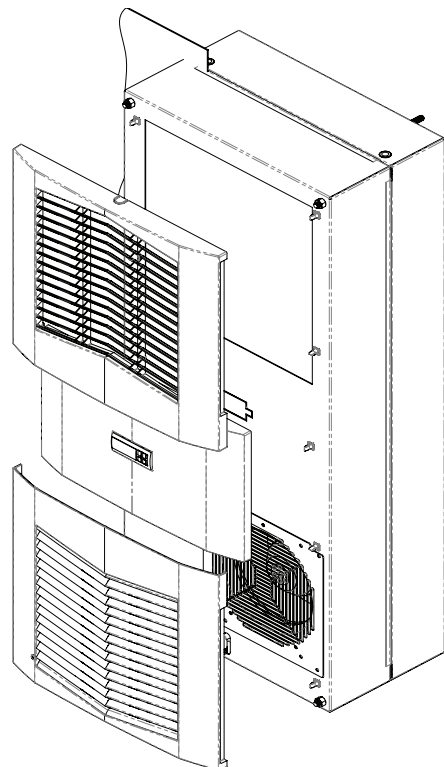


Figure 6

FULL RECESSED MOUNTING

1. Carefully remove the louvered grille, and where applicable, remove the center panel from the enclosure by pulling forwards.
2. Carefully disconnect the connectors from the rear of the smart controller.
3. Using the mounting gasket kit provided with the unit, install gasket to the air conditioner front panel. See Figure 7.
4. Remove the four nuts on the front panel.
5. Push the unit into the mounting cutout and secure it using the nuts removed in step 4.
6. Carefully reconnect the smart controller.
7. Push the louvered grille and, where applicable, the center panel, onto the front panel. See Figure 8.

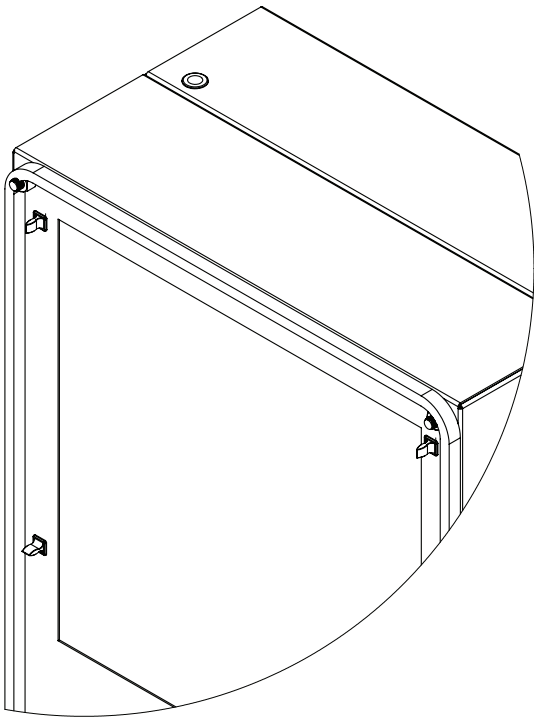


Figure 7

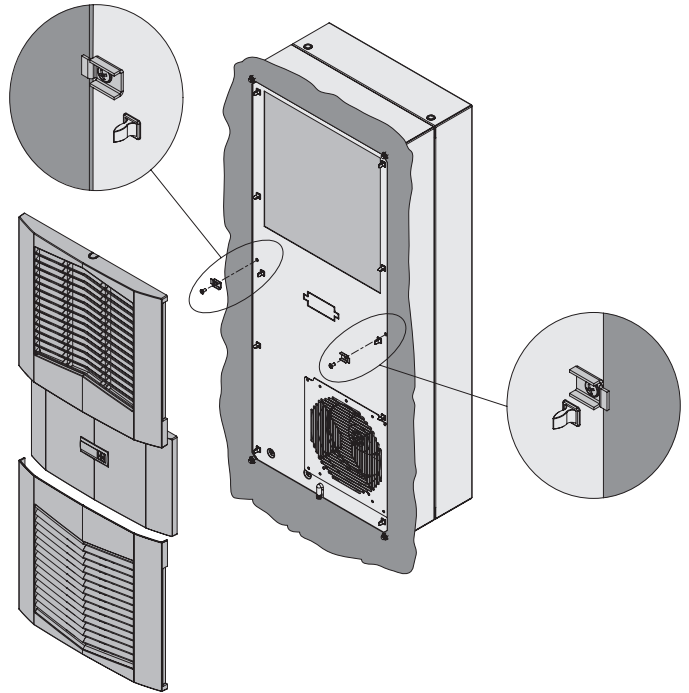


Figure 8

ELECTRICAL INSTALLATION

1. Loosen the screw on the evaporator access panel and remove the power access panel. See Figure 9.
2. Push the power supply wire through the strain relief.
3. Connect the wire to the terminal block per the label.
4. Reinstall the power access panel and screw.
5. Tighten the screw on the strain relief to secure the supply wire, see Figure 10.

NOTE: Use a higher ampere rated circuit breaker, or time-delay fuse, that is closest to the nominal ampere rating of the air conditioner, or sum of the individual component ampere ratings, to protect the system electrical circuits from short circuit or overload.

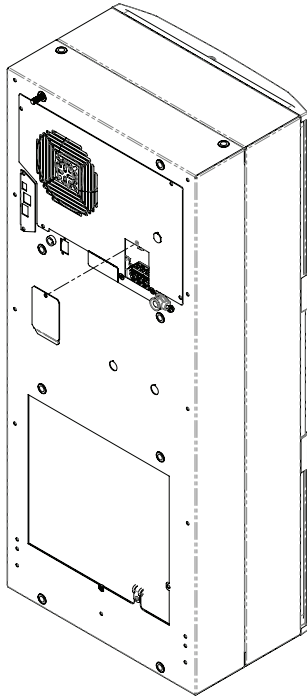


Figure 9

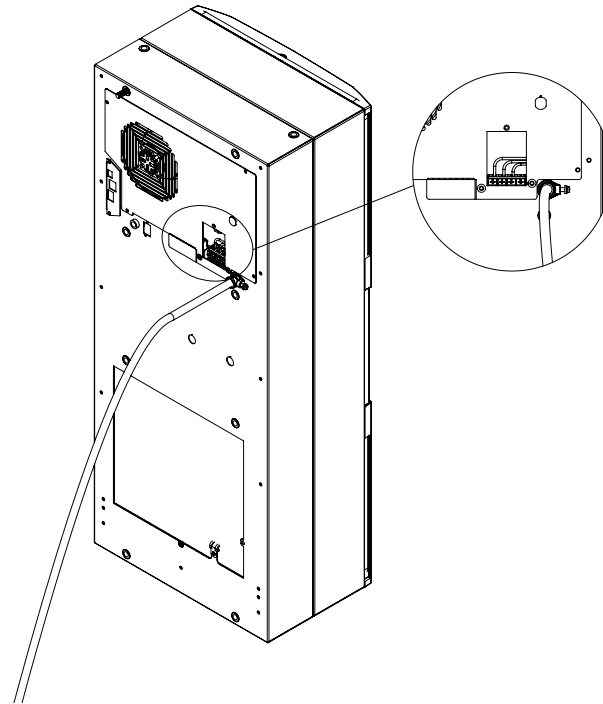


Figure 10

PRINCIPLES OF OPERATION

If electrical power to the air conditioner is interrupted and reapplied, the compressor may take up to five (5) minutes to restart due to the high back pressure of the compressor.

NOTE: The controller includes a nominal time delay setting of 5 minutes. Do not decrease the time delay setting to less than 2 minutes, as this may cause rapid cycling of the compressor, which may reduce the life of the compressor.

SMART CONTROLLER

INTRODUCTION

The smart controller is a parametric controller for the complete management of air conditioners. All settings are pre-programmed at the factory. Cooling setpoint, cooling differential, high/low temperature alarm setpoints, and door open and/or smoke detected switch can be adjusted by the user. Alarms are outputted through a relay contact.

NOTE: The polyester tape on the topside and the neoprene seal around the connectors assure IP34 rating protection for the controller. DO NOT REMOVE.

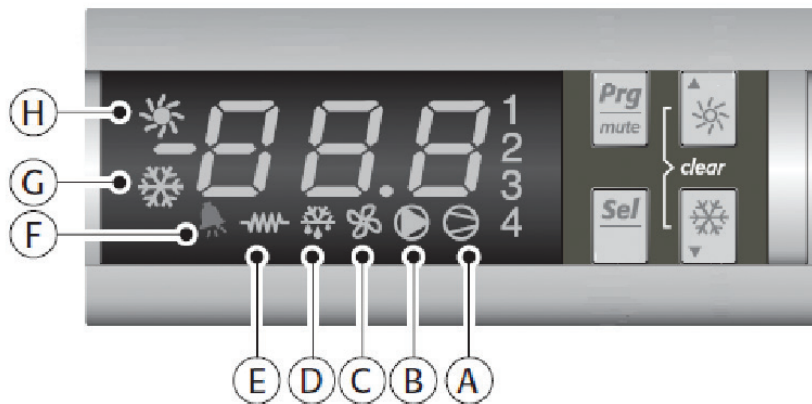
ENERGIZING THE CONTROLLER

The controller is wired and pre-programmed at the factory to be energizing when power is applied to the air conditioner. The controller will default to the standalone operating mode when initially powered on. Master/Slave operating mode is optional and will require additional setup.

CONTROL STATUS INDICATION

The display has numerous symbols that indicate if the controller is heating, cooling, alarming; if the compressor is enabled and if the ambient fan is enabled. The 3 alpha-numeric characters further describe alarms and show the cabinet temperature by default.

NOTE: The Slim Fit air conditioners DO NOT come standard with a heating option.



| SYMBOL | COLOR | ICON ON | ICON FLASHING |
|---------|-------|---------------------------------------|--|
| 1,2,3,4 | AMBER | 1. Compressor On 2. TLAN Device ID | 1. Flashing at startup request in standalone mode. 2. Master/Slave Mode: 1: TLAN Master. 2,3,4: TLAN Slave. Device ID 2,3,4 are not active in standalone mode. |
| A | AMBER | Compressor On | Active when compressor is ON |
| B | AMBER | Evaporator Fan On | Active when evaporator fan is ON |
| C | AMBER | Not Used | Not used and always OFF |
| D | AMBER | Master Unit | Active when this is the TLAN Master |
| E | AMBER | Electric Heater | Not used (always OFF) |
| F | RED | Alarm Active | Active if there is an alarm condition |
| G | AMBER | Controller Active | ON indicates power and activates all functions. OFF indicates controller is in standby mode and all functions are OFF. |
| H | AMBER | Not Used | Not used (always OFF) |

NOTE: On the smart controller, the display symbols for “H” and “E” are always OFF. If they turn ON, simply hold the ☀️ “sun” button greater than 5 seconds to turn OFF. The electric heater “E” symbol is required to minimize the heating setpoint (parameter A04) and/or defrost setpoint (parameter A01). Then, hold the ❄️ “Cooling” button greater than 5 seconds to turn ON the snowflake symbol (“G”).

DISPLAYING AND CHANGING PROGRAM VARIABLES

Access: To view and/or change parameters, press and hold the “Prg” and “Sel” buttons for greater than 5 seconds. Press the “up” or “down” arrow buttons until “22” is displayed, then press “Sel”. When “S-P” is displayed, press “Sel”.

Navigation: Press “up” or “down” arrow to display sub-menu, then press “Sel” to select the desired sub-menu. In the sub-menu, use “up” or “down” to display parameters for viewing or changing and press “Sel”. Use “Prg” button to back out or exit the menu levels as desired.

Adjust: Use the “up” or “down” arrow to change the parameter value, then press “Sel” button to save the setting. If the “Sel” button is NOT pressed, the updated setting will not be saved. Navigate to and change other parameters as desired. When finished, press “Prg” button to back out or exit the sub-menu to the main menu.

NOTE: The display will revert to normal temperature display mode if no buttons are pressed for 60 seconds.

MODELS WITH °C CONTROLLER

Cooling turns ON at r01 (setpoint) and OFF at r01 (setpoint) – r02 (differential).

For example, using default values from the table below, cooling will turn ON at 35 °C (setpoint) and turn OFF at 30 °C (setpoint – differential).

OPERATING PARAMETERS

| Parameter | Description | Default Value | Range |
|-----------|---------------------------------|---------------|--------------|
| r01 | Cooling set-point | 35°C | 20°C to 55°C |
| r02 | Cooling differential | 5°C | - |
| P08 | Door Open and/or smoke detected | 28 | 4 or 28 |

ALARM PARAMETERS

| Parameter | Description | Default Value | Range |
|-----------|------------------------|---------------|-------|
| P16 | High Temperature Alarm | 55°C | - |
| P19 | Low Temperature Alarm | 14°C | - |

MODELS WITH °F CONTROLLER

Cooling turns ON at r01 (setpoint) + r02 (differential), and OFF at r01 (setpoint)

For example, using default values from the table below, cooling will turn ON at 87 °F (setpoint) + (differential), and turn OFF at 80 °F (setpoint).

OPERATING PARAMETERS

| Parameter | Description | Default Value | Range |
|-----------|---------------------------------|---------------|---------------|
| r01 | Cooling set-point | 80°F | 72°F to 120°F |
| r02 | Cooling differential | 7°F | - |
| P08 | Door Open and/or smoke detected | 28 | 4 or 28 |

ALARM PARAMETERS

| Parameter | Description | Default Value | Range |
|-----------|------------------------|---------------|-------|
| P16 | High Temperature Alarm | 125°F | - |
| P19 | Low Temperature Alarm | 40°F | - |

OPERATING REAL-TIME CLOCK (RTC) PARAMETERS

| Parameter | Description | Default Value | Range |
|-----------|-------------|---------------|---------|
| t01 | Hour | 0 | 0 to 23 |
| t02 | Minute | 0 | 0 to 59 |
| t03 | Day | 0 | 1 to 31 |
| t04 | Month | 0 | 1 to 12 |
| t05 | Year | 0 | 6 to 99 |

DISPLAYING TEMPERATURE SENSORS

Both the air inlet sensor (b01) and outlet or evaporator coil sensor (b02), can be viewed at any time by pressing the “up” or “down” arrow button on the front panel of the controller display. The display will revert to the temperature sensor number b01 (air inlet temperature) or b02 (air outlet temperature) after 60 seconds. Both sensors can also be read through the Ethernet and USB connections with the optional remote access communication board.

COMPRESSOR RESTART TIME DELAY

A factory set 5-minute (300 second) restart delay exists to reduce residual back pressure before allowing the compressor to restart. The compressor will stay OFF for the entire restart duration after the compressor is disabled. A flashing 1 on the controller display will indicate the unit is in a compressor restart delay while calling for cooling. If the time delay is reduced to less than 5 minutes, this may cause reduced compressor life.

ALARM OUTPUT CONTACT

The smart controller has a normally open dry contact alarm output with a resistive load rating of 250 VAC to 3 Amp. The 6-POS connector terminals 3 and 4 (marked YEL/ALARM) located on the enclosure side of the unit provides connection to this output.

ALARM INPUT CONNECTION

The smart controller can accept a dry contact/switch input via the 6-POS connector terminals 1 and 2 (marked WHT/DS1 and WHT/DS2), located on the enclosure side of the unit. This input is associated with the controller display alarm mnemonic “tP” (door open and/or smoke detected). Note that the door open and/or smoke detected is pre-programmed at the factory as “Normally Open”.

To use the door open and/or smoke detected feature, simply connect the customer supplied wires from the enclosure door switch to DS1 and DS2.

ALARM CONDITION DISPLAY

There are eleven possible on-latching alarm conditions detectable by the controller that are indicated on the controller display. All alarms can also be accessed through the Ethernet and USB connections with the optional remote access communication board.

| Alarm Mnemonic | Description | Cause | Result | Alarm Relay |
|----------------|--|---|--|----------------------|
| tP | General Alarm | Door open and/or smoke detected | Unit turns off for duration of alarm | Relay Contact Closed |
| LA | High Pressure Warning | MALF high pressure switch opens (See Note 3 below) | No effect on function | N/A |
| LP | Low Pressure Alarm | Low pressure switch open (see note 4 below) | No effect on function | Relay Contact Closed |
| E1 | Air Inlet Temperature Sensor Alarm | Sensor Failure | See Note 1 below | Relay Contact Closed |
| E2 | Air Outlet Temperature Sensor Alarm | Sensor Failure | See Note 2 below | Relay Contact Closed |
| Ht | High Temperature Alarm Default = 55°C | Air inlet temperature greater than 55°C | No effect on function | Relay Contact Closed |
| Lt | Low Temperature Alarm Default = 14°C | Air inlet temperature less than 14°C | No effect on function | Relay Contact Closed |
| A1 | Frost Alarm | Air outlet temperature less than or equal to -1.0°C | Compressor and Condenser fan off for duration of alarm | Relay Contact Closed |
| HP/HP1 | High Pressure Serious Alarm | High pressure switch open (see note 5 below) | Unit turns OFF for duration of alarm | Relay Contact Closed |
| LC | Lost Communication Alarm | The Master cannot communicate with any Slave, or the Slave cannot communicate with the Master | No effect on function. Unit will enter standalone mode | N/A |
| LC1 | Lost Communication Alarm | The Master cannot communicate with one of the Slaves | No effect on function. Unit will enter standalone mode | N/A |

NOTE 1: Air inlet temperature sensor will default to air outlet temperature sensor. Cooling setpoint defaults to 10°C.

NOTE 2: Unit continues to operate without evaporator freeze protection.

NOTE 3: The MALF high pressure switch is optional.

NOTE 4: The Low pressure switch is optional.

NOTE 5: The High Pressure (HP) or High Pressure Serious (HP1) switch is optional.

MASTER/SLAVE CAPABILITY (OPTIONAL)

The Master/Slave capability is included as standard and can accommodate up to four (4) air conditioners in a single cabinet. In the Master/Slave operating mode, there is a delay period of 20 seconds between startup of each unit during the startup. For example, the master unit number 1 starts first, unit number 2 will start after 20 seconds, followed by unit number 3 after another 20 seconds, and so on....

Note the controller default operating mode is single or standalone. To initiate the Master/Slave operating mode, parameters h24 and h25 require reconfiguration as described below and a TLAN communication cable is also required to interconnect the air conditioners.

- Connect the door open and/or smoke detected harness to the DS1 and DS2 terminals on the enclosure side of the air conditioner unit in parallel. The maximum length of the door switch harness between two air conditioners is 3.33 meters (10 feet). This harness is NOT included with the Master/Slave option. It is offered separately as an accessory.
- Connect the TLAN harness to the MS1 and MS2 terminals on the enclosure side of the air conditioner unit in parallel. The maximum length of the TLAN communication cable is 10 meters (30 feet) and 3.33 meters (10 feet) between the two air conditioners. This harness is NOT included with the Master/Slave option. It is offered separately as an accessory.
- Select one of the units in the group to be the master unit. This is indicated unit number 1.
- Select the slave units, numbers 2, 3 and 4 in sequence.

MASTER/SLAVE OPERATING PARAMETERS

| Parameter | Description | Default Value | Range |
|-----------|-----------------|---------------|--------|
| h24 | Device unit ID | 0 | 0 to 4 |
| h25 | Number of units | 4 | 2 to 4 |

NOTE 6: To initiate Master/Slave operating mode, set parameter h24 (device unit ID) of master unit to 1. Set parameter h24 of slave units as applicable. Set parameter h24 (Unit number 2) to 2, set parameter h24 (Unit number 3) to 3, and set parameter h24 (Unit number 4) to 4.

NOTE 7: Set parameter h25 (number of units) of each unit to the same value, for example, h25 = 2 if only two units are connected in a group, h25 = 3 if three units are in a group and h25=4 if 4 units are in a group.

ALARM INPUT CONNECTION

The smart controller can accept a TLAN communication via the 6-POS connector terminals 5 and 6 marked MS1 and MS2 located on the enclosure side of the unit. This TLAN communication is associated with the controller display alarm "LC" and "LC1", lost communication.

To use the TLAN communication feature, simply connect the TLAN harness to MS1 and MS2 terminals and to MS1 and MS2 of each unit in parallel.

The smart controller can accept a dry contact switch input via the 6-POS connector terminals 1 and 2 marked WHT/DS1 and WHT/DS2 located on the enclosure side of the unit. This input is associated with the controller display alarm mnemonic "tP" door open and/or smoke detected.

To use the door open and/or smoke detected feature, simply connect door switch harness to DS1 and DS2 and to DS1 and DS2 of each unit in parallel.

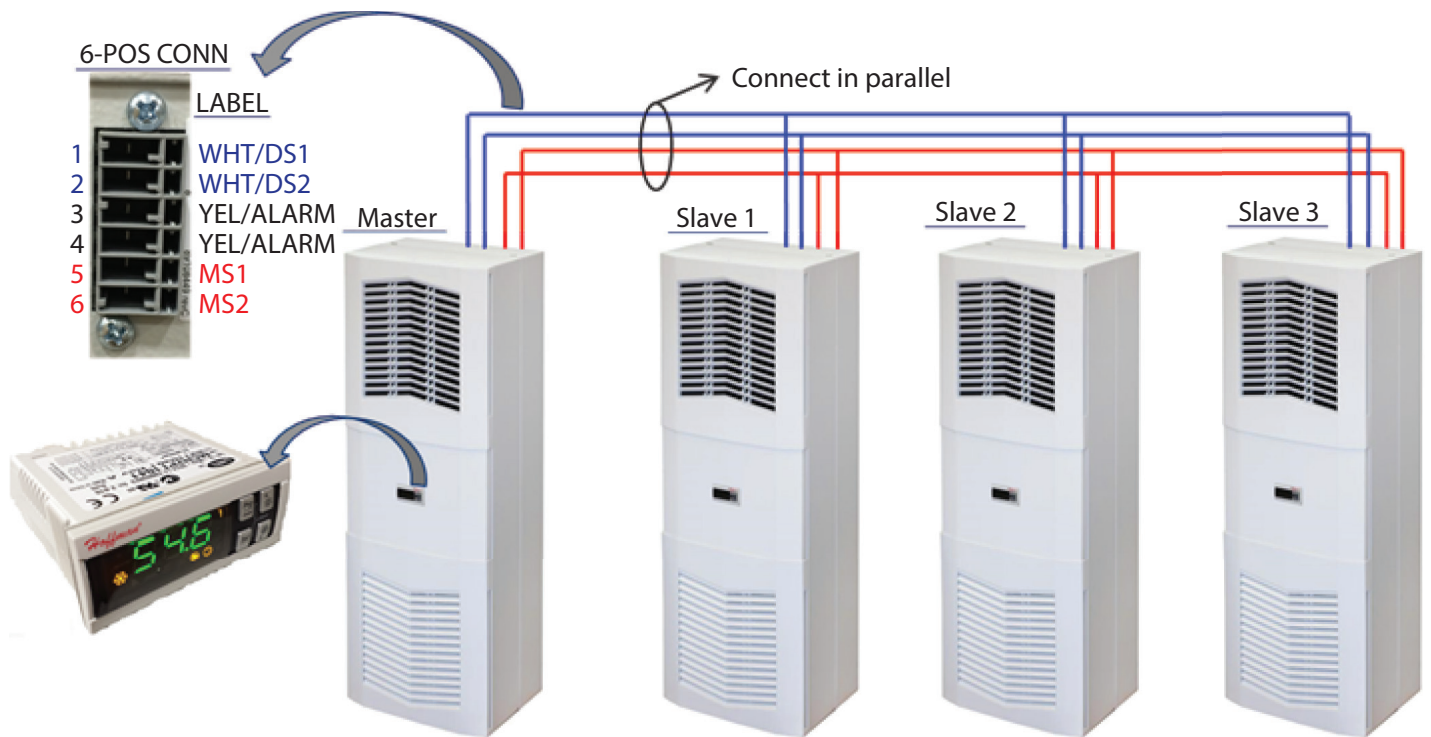


Figure 11
Master/Slave Wiring

REMOTE ACCESS CONTROL

AIR CONDITIONER UNIT COMMUNICATION FEATURES (OPTIONAL)

An optional communication board offers capabilities that include Profinet, EtherNet/IP, Modbus TCP, and SNMP protocols through Ethernet and Modbus RTU protocol via USB. Pentair has a PC Interface Tool available for download that can utilize either mode to communicate with the air conditioner unit.

USB COMMUNICATION

This communication mode allows direct connection of a PC to the air conditioner unit. The protocol supported is Modbus RTU. Use the Pentair AC monitor to communicate with the air conditioner unit. A MINI-b USB connection is included with this option.

ETHERNET COMMUNICATION

This communication mode allows remote connection to the air conditioner unit using SNMP, EtherNet/IP and Modbus/TCP, and Profinet protocols. Customers using their own software can download a MIB file for SNMP, EDS file or EtherNet/IP Object file for EtherNet/IP, Coil Register file for Modbus TCP, and GSDML file for Profinet.

Note: The ACU has a default IP Address of 192.168.1.2

Both Ethernet and USB communication modes allow the ability to:

- Read ACU inlet and outlet air temperature
- Read and change Cooling Setpoint and Cooling Differential
- Read and change High and Low Temperature Alarm Settings
- Read and change Gateway IP Address, Device IP Address, Subnet Mask, Trap IP Address and SNMP Community
- Read and change Unit Identification
- Read and change the type of IP addressing (static or dynamic)
- Read current Alarm Status
- Read MAC Address
- Read and change the door open and/or smoke detected switch functionality

MASTER/SLAVE CAPABILITY (OPTIONAL)

In the Master/Slave application, only one Remote Access Communication board is required. All the alarms are communicated through the TLAN serial connection, except the door open and/or smoke detected alarm. Door open and/or smoke detected function can be remotely changed from Normally Open to Normally Close if needed.

Note: If the door open and/or smoke detected harness is not used, and the door switch is wired to only one of the units, for instance, the master unit. If the power of the master unit is OFF, the slave units will not detect the door open alarm and they will continue operating in standalone mode even if the door is open.

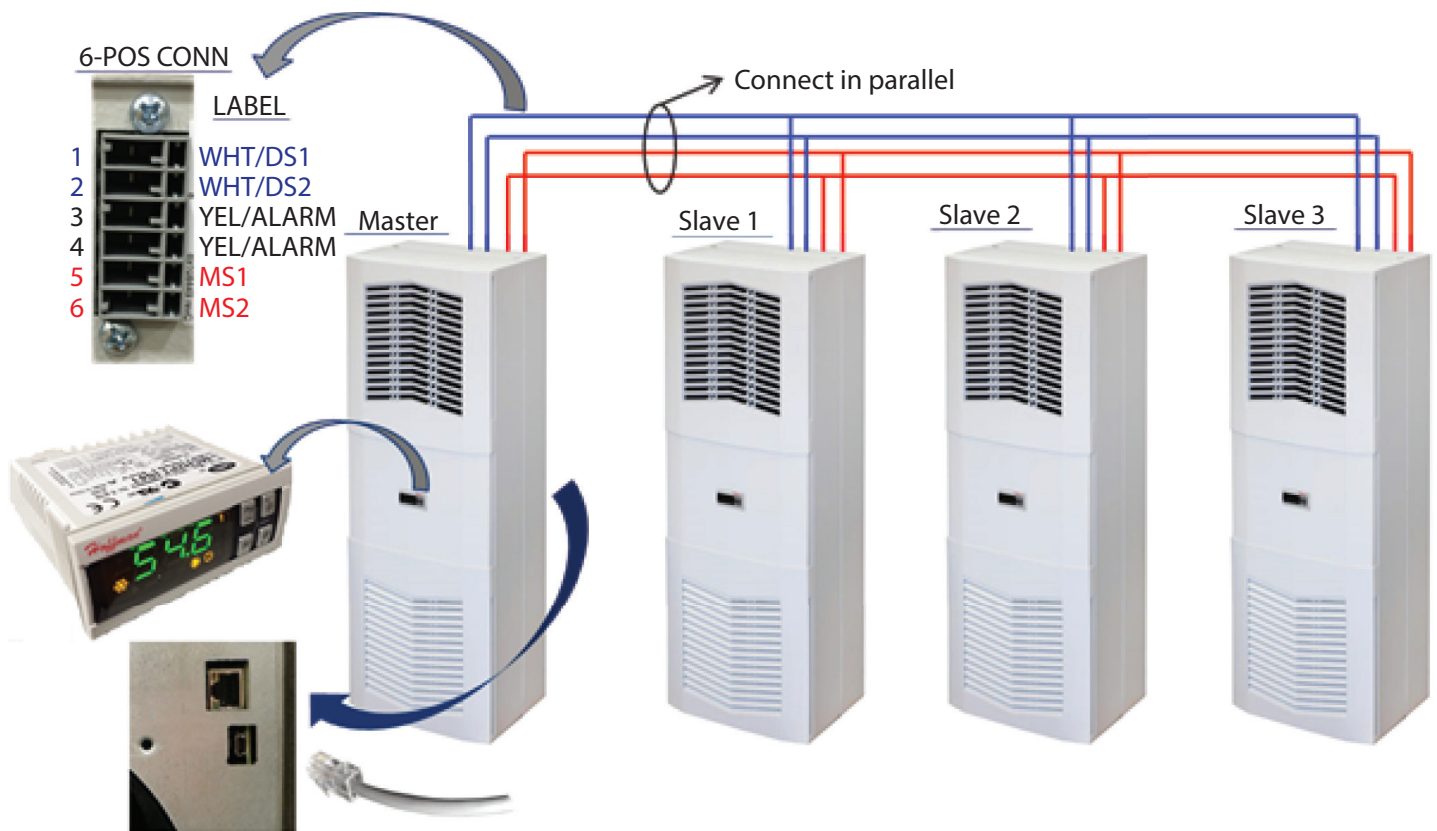




Figure 12
Master/Slave with Remote Access

SOFTWARE AND CONFIGURATION FILE DOWNLOADS

The Pentair AC monitor, MIB file, EDS file, EtherNet_IP Object file, Coil Register file, and GSDML file for Profinet can be downloaded from: www.pentairprotect.com/en/hoffman/thermal-management

Scroll down to "Relevant Downloads and search under Remote Access Control".

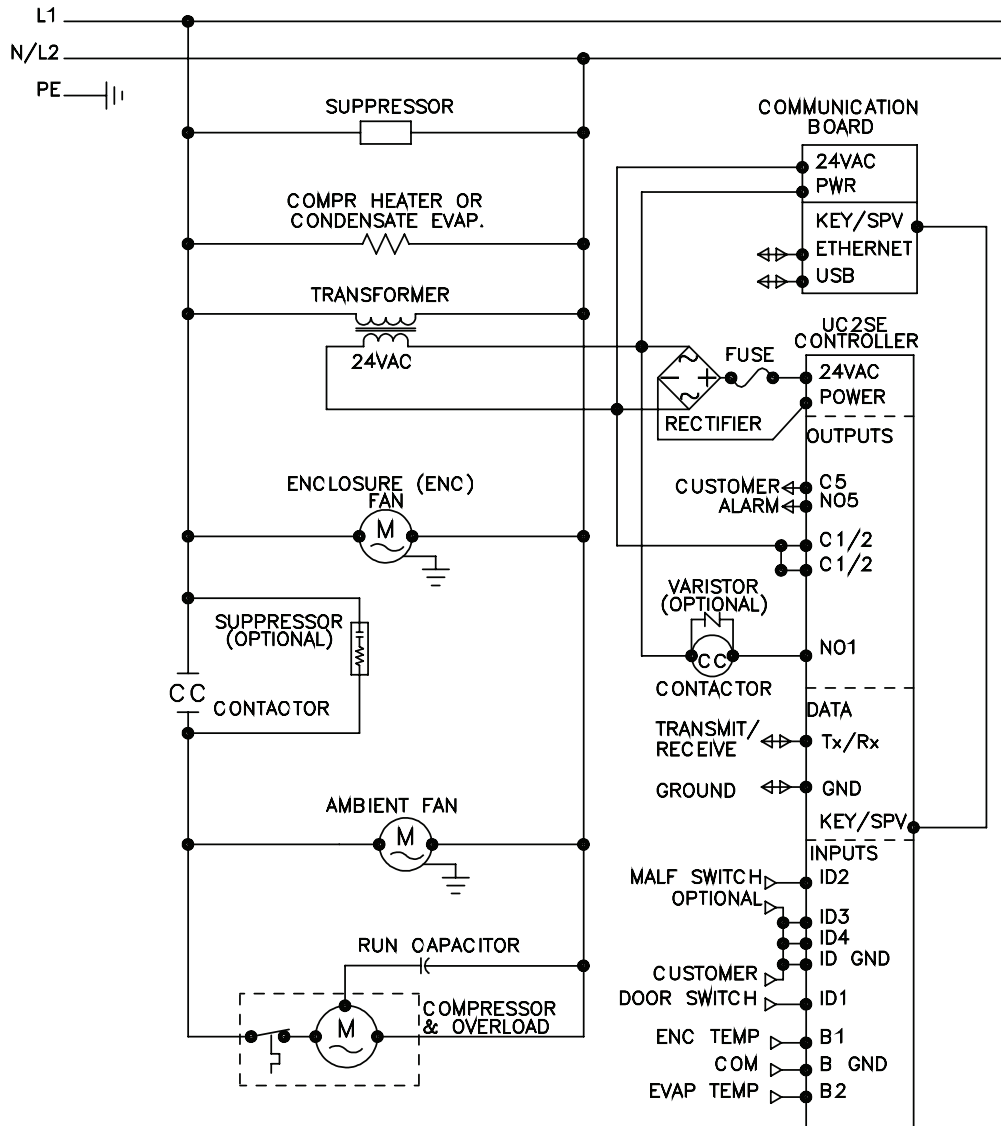
| | |
|---|---|
|  | <p>RELEVANT DOWNLOADS</p> <ul style="list-style-type: none"> Thermal Management Specifier's Guide Cooling Brochure Hoffman Cooling EasySpec Guide Hoffman Cooling GOST Certificate <p>→ REMOTE ACCESS CONTROL</p> <ul style="list-style-type: none"> Instruction Manual V3.0.5 Remote Access Set Up Remote Access (MIB) SNMP Sample Commands EtherNet IP Objects EtherNet IP Download Modbus TCP Registers and Coils Profinet Data Points |
|  | <p>RELATED LINKS</p> <ul style="list-style-type: none"> Cooling Selection Tool Hoffman Distributor Locator Maintenance and Repair Hoffman Cooling Easy Swap APP <p>Note: Hoffman Cooling User Manuals can be found under the Downloads Tab in product information.</p> |

REMOTE ACCESS CONTROL PIN-OUT

| | FUNCTION | NAME | PIN # |
|------------|----------------------------|----------|-------|
| U1 OUTPUTS | COOL | No1 | 1 |
| | | C1/2 | 2 |
| | | C1/2 | 3 |
| | ALARM RELAY OUTPUT | No5 | 15 |
| | | C5 | 6 |
| U2 INPUTS | ENCLOSURE DOOR "NO" SWITCH | ID1 | 8 |
| | MALFUNCTION "NC" SWITCH | ID2 | 1 |
| | NA | DI3 (na) | 9 |
| | NA | DI4 (na) | 2 |
| | DIGITAL INPUT GROUND | DI GND | 3 |
| | T1, EVAP IN THERMISTOR | B1 | 13 |
| | T2, EVAP OUT THERMISTOR | B2 | 12 |
| | T1, T2 GND | GND | 6 |
| | NA | B3 | 11 |
| | CONTROLLER POWER | G | 7 |
| | CONTROLLER POWER | G0 | 14 |
| U3 DATA | POWER | | 1 |
| | GROUND | | 2 |
| | DIRECTION | | 3 |
| | DATA | | 4 |
| U4 DATA | TRANSMIT/RECEIVE | TX/RX | 1 |
| | GROUND | DI GND | 2 |

NOTES

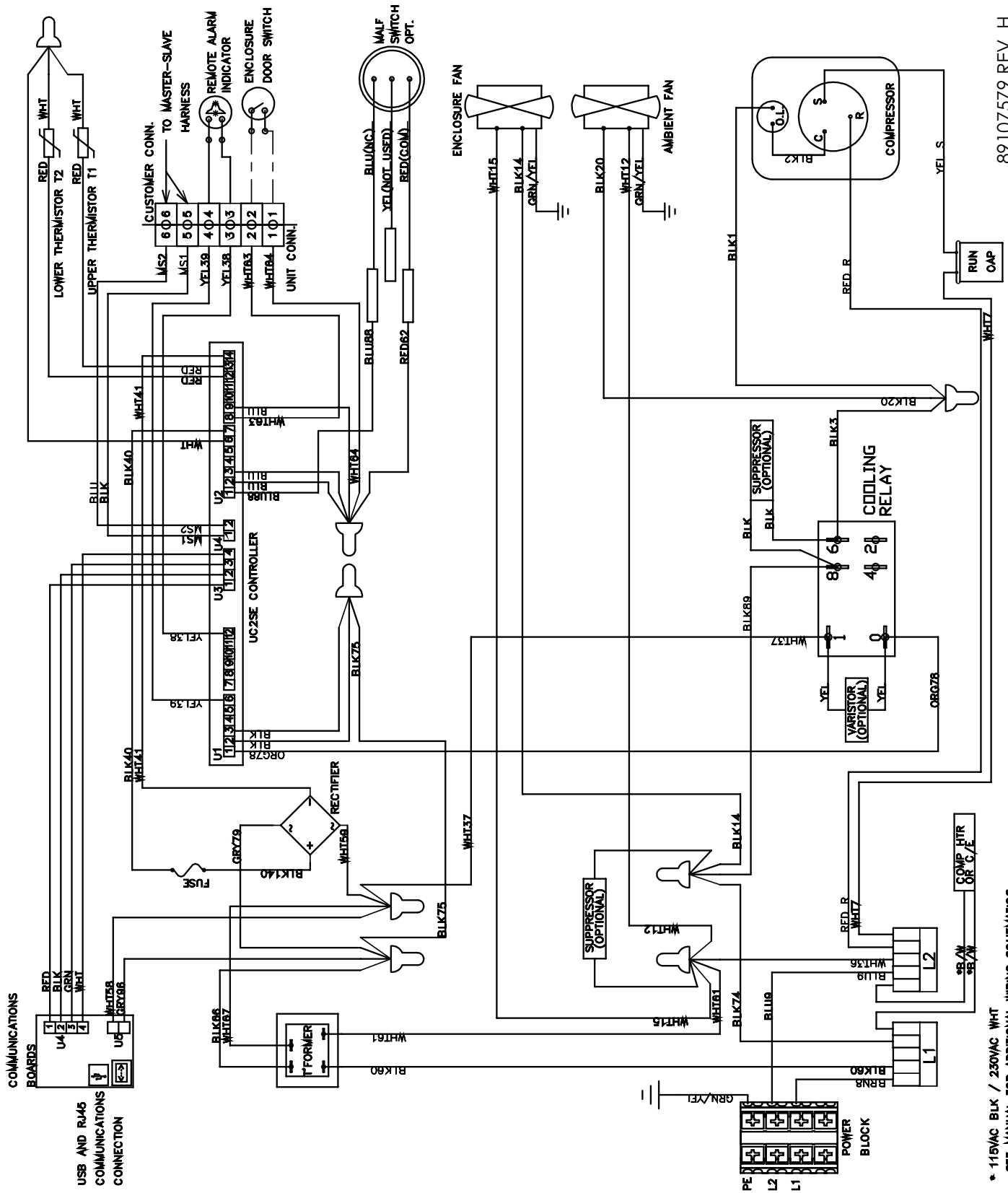
TECHNICAL INFORMATION
S06 MODELS 300/500W
S06 SCHEMATIC 300/500W



89107580 REV. F

ELECTRICAL SCHEMATIC

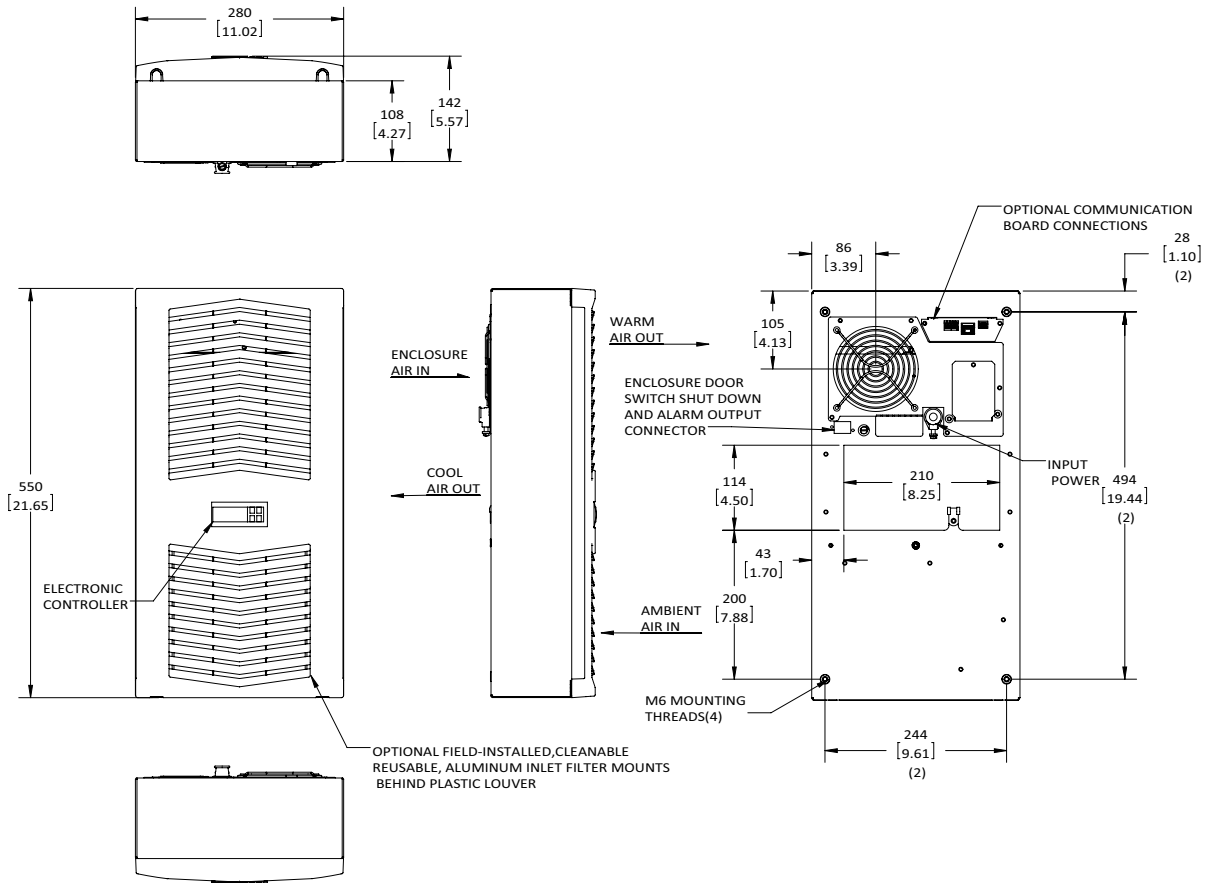
S06 WIRE DIAGRAM 300/500W



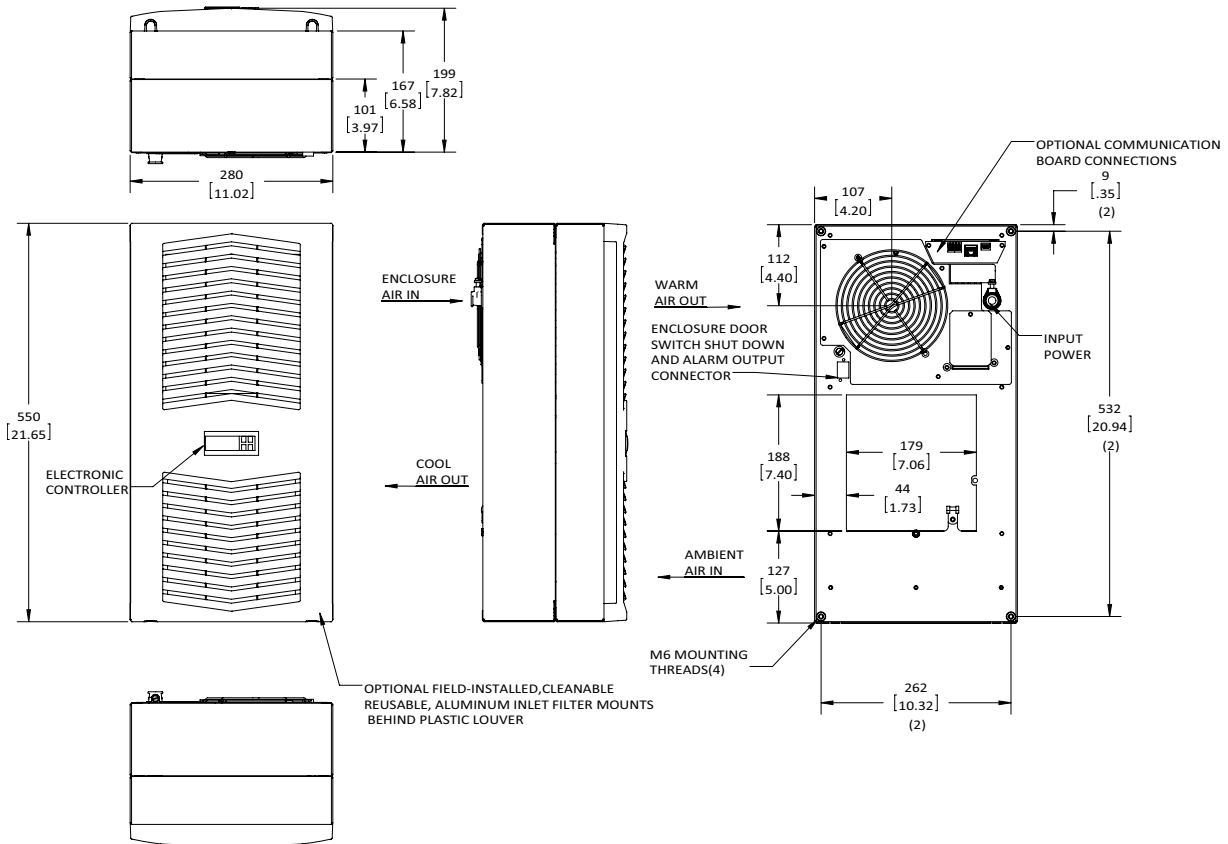
89107579 REV. H

* 115VAC BLK / 230VAC WHT
 --SEE MANUAL FOR ADDITIONAL WIRING SCHEMATICS

S06 DIMENSIONAL DRAWINGS 300W



500W



S06 INSTALLATION INSTRUCTION

1. See Receiving The Air Conditioner and Handling and Testing The Air Conditioner on page 6.
2. Using the cutout template provided with the unit, prepare the enclosure. See Figure 13 and Figure 14. The front of the unit requires a half meter clearance for proper airflow. Five centimeters is required on each side of the unit. To avoid condensate overflow, unit must be mounted within 3° of level.
3. Refer to mounting instructions on page 8.
4. Adjust controller to desired cabinet temperature. Refer to Displaying and Changing Program Variables on page 13 for controller adjustment and operation.

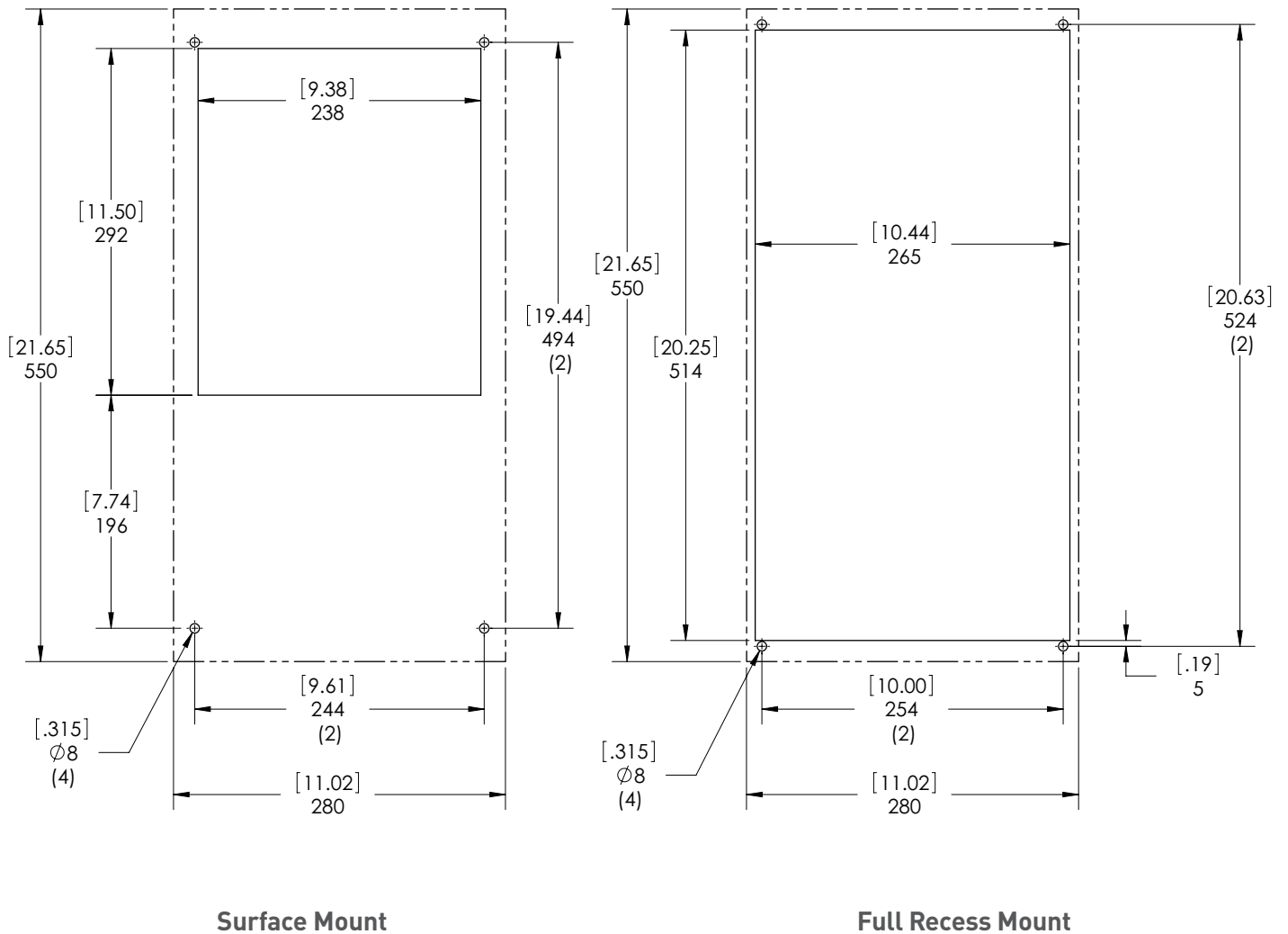


Figure 13
S06 300W Cutout Drawing
 Dashed Lines Represent The Air Conditioner

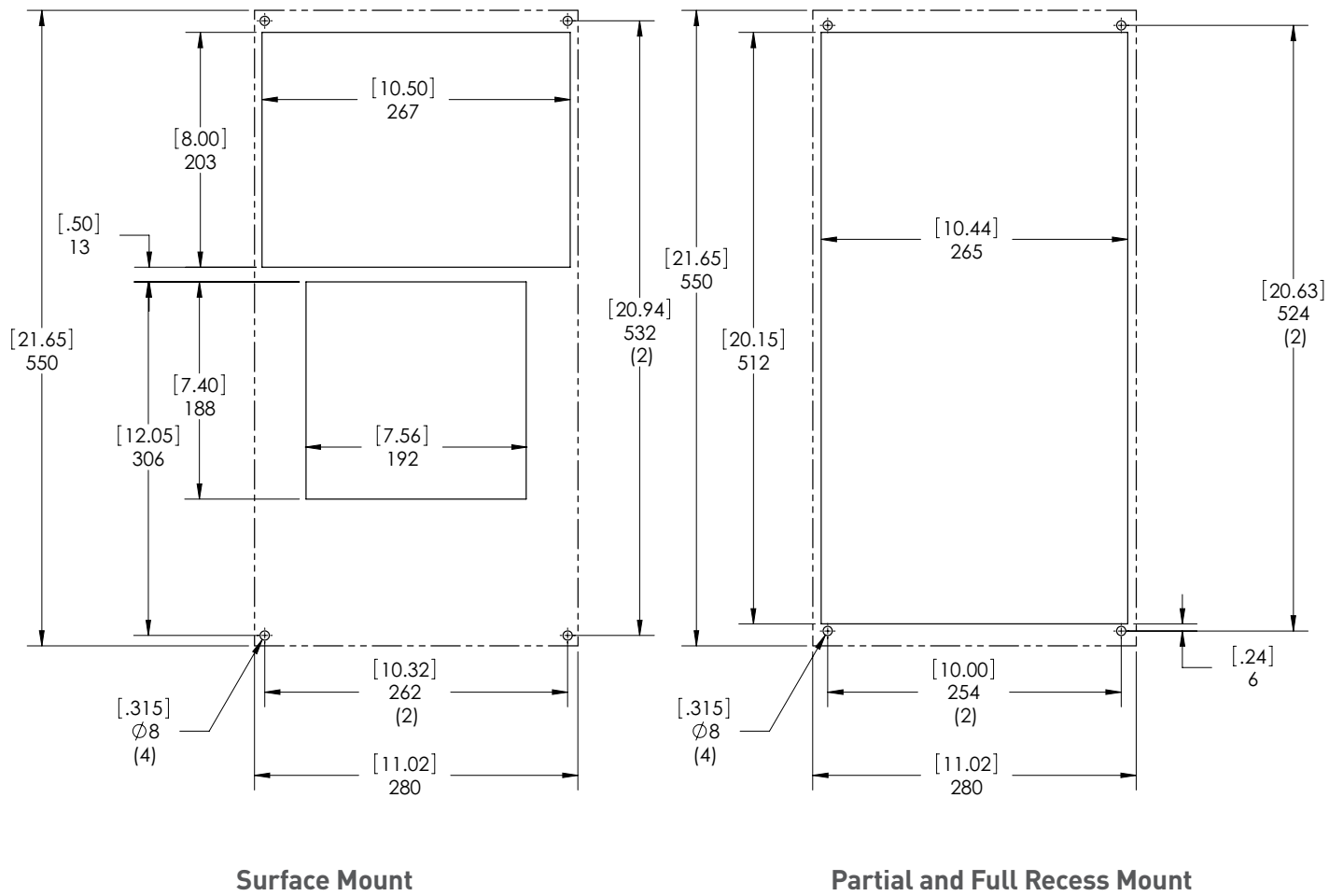


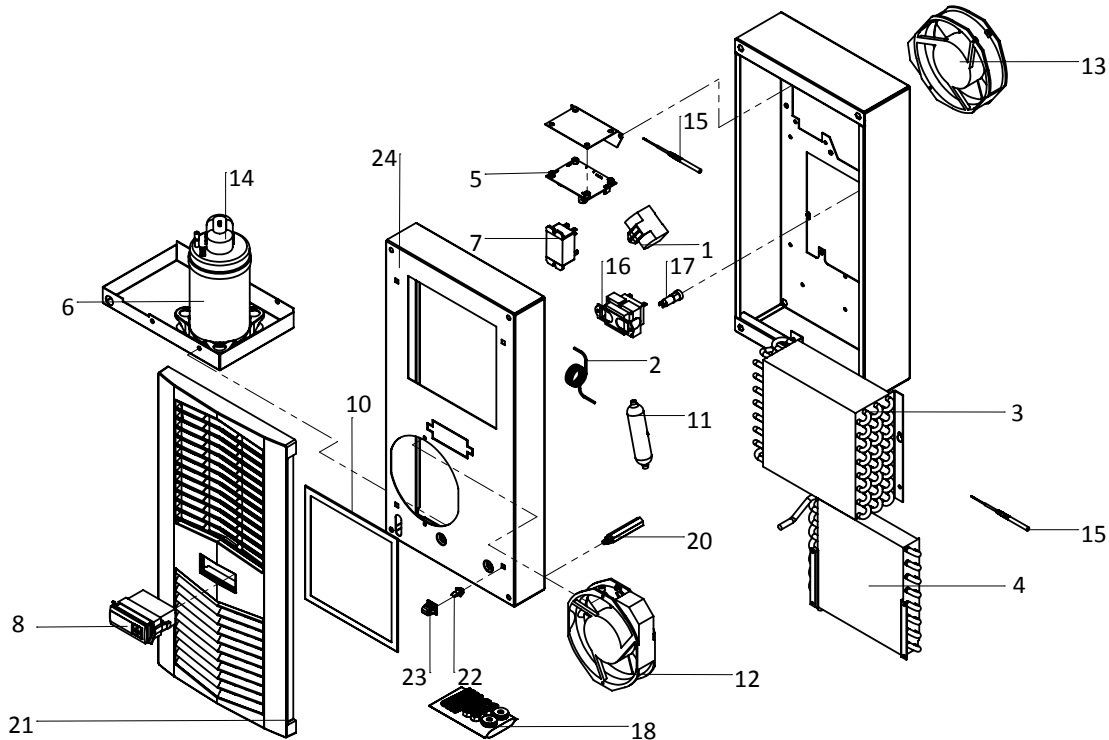
Figure 14
S06 500W Cutout Drawing
 Dashed Lines Represent The Air Conditioner

S06 UNIT CHARACTERISTICS

| UNIT | 300W 115V | 300W 230V | 500W 115V | 500W 230V |
|---|------------------------------------|-------------|-------------|-------------|
| CATALOG NUMBER | | | | |
| Indoor Model without Communications Board (°C Controller) | S060316G031 | S060326G031 | S060516G031 | S060526G031 |
| Indoor Model with Communications Board (°C Controller) | S060316G041 | S060326G041 | S060516G041 | S060526G041 |
| Indoor Model without Communications Board (°F Controller) | S060316G050 | S060326G050 | S060516G050 | S060526G050 |
| Indoor Model with Communications Board (°F Controller) | S060316G060 | S060326G060 | S060516G060 | S060526G060 |
| COOLING PERFORMANCE | | | | |
| Total L35 L35, 50Hz, according to DIN EN 14511 (Watt) | 370 | 370 | 550 | 550 |
| Cooling performance L35 L35 (Watt) 50/60Hz | 370 / 420 | 370 / 420 | 550 / 640 | 550 / 640 |
| Cooling performance L35 L50 (Watt) 50/60Hz | 190 / 230 | 190 / 230 | 320 / 380 | 320 / 380 |
| Refrigerant | R134a | R134a | R134a | R134a |
| Refrigerant Charge (g) | 133 | 128 | 162 | 162 |
| Max. allowable operating pressure (p. max.) bar | 28 | 28 | 28 | 28 |
| Operating Temperature Range (Min/Max °C) | 10 / 52 (50Hz) 10 / 55 (60Hz) | 10 / 55 | 10 / 55 | 10 / 55 |
| Operating Temperature Range (Min/Max °F) | 50 / 126 (50Hz) 50 / 131 (60Hz) | 50 / 131 | 50 / 131 | 50 / 131 |
| Setting Temperature Range (Min. / Max. °C Controller) | 20 / 55 | 20 / 55 | 20 / 55 | 20 / 55 |
| Setting Temperature Range (Min. / Max. °F Controller) | 72 / 120 | 72 / 120 | 72 / 120 | 72 / 120 |
| Airflow at 0 Static Pressure: | | | | |
| Internal loop (m³/h) | 109 / 124 | 109 / 124 | 197 / 233 | 197 / 233 |
| External loop (m³/h) | 129 / 156 | 129 / 156 | 189 / 219 | 189 / 219 |
| Duty Cycle | 100% | 100% | 100% | 100% |
| ELECTRICAL DATA | | | | |
| Rated Voltage (Volt) | 100 / 115 | 230 | 115 | 230 |
| Phase | 1~ | 1~ | 1~ | 1~ |
| Frequency (Hz) | 50/60 | 50/60 | 50/60 | 50/60 |
| Operating Range | +/- 10% | +/- 10% | +/- 10% | +/- 10% |
| Max power Consumption 50/60Hz L35 L35 (Watt) | 270 / 300 | 300 / 320 | 450 / 470 | 450 / 480 |
| Max power Consumption 50/60Hz L35 L50 (Watt) | 280 / 320 | 330 / 350 | 490 / 540 | 510 / 540 |
| Max. Nominal Current (Amps) | 4.0 / 3.8 | 1.8 / 1.7 | 6.5 / 6.1 | 2.6 / 2.9 |
| Starting Current (Amps) | 13 / 13 | 6.0 / 6.0 | 21 / 20 | 9.0 / 10.0 |
| Pre-fuse T (Amps) | 15 | 15 | 15 | 15 |
| Agency Approvals | UL listed, cUL listed, GOST, CE | | | |
| Power Input Description | Terminal Block | | | |
| PERFORMANCE FACTOR (EER), 50Hz, DIN EN 14511 | | | | |
| Cooling Performance L35 / L35 | 1.37 / 1.40 | 1.23 / 1.31 | 1.22 / 1.36 | 1.24 / 1.35 |
| Cooling Performance L35 / L50 | 0.68 / 0.70 | 0.58 / 0.65 | 0.64 / 0.70 | 0.62 / 0.70 |
| ENCLOSURE PROTECTION | | | | |
| IP Code (External loop / Internal loop) | IP34 / IP54 | IP34 / IP54 | IP34 / IP54 | IP34 / IP54 |
| CONTROLLER | | | | |
| Description | Smart controller with display | | | |
| Controller Location | Ambient side | | | |
| Factory Default Setpoint (°C Controller) | 35 | 35 | 35 | 35 |
| Factory Default Setpoint (°F Controller) | 80 | 80 | 80 | 80 |
| SOUND LEVEL | | | | |
| At 1 M (dBA) | 66 | 66 | 68 | 68 |
| UNIT CONSTRUCTION | | | | |
| Material | Steel | | Steel | |
| Finish | RAL 7035 | | RAL 7035 | |
| UNIT DIMENSIONS | | | | |
| Height (mm) | 550 | 550 | 550 | 550 |
| Width (mm) | 280 | 280 | 280 | 280 |
| Depth (mm) | 140 | 140 | 206 | 206 |
| Weight (kg) | 13 | 13 | 15 | 15 |

S06 COMPONENTS

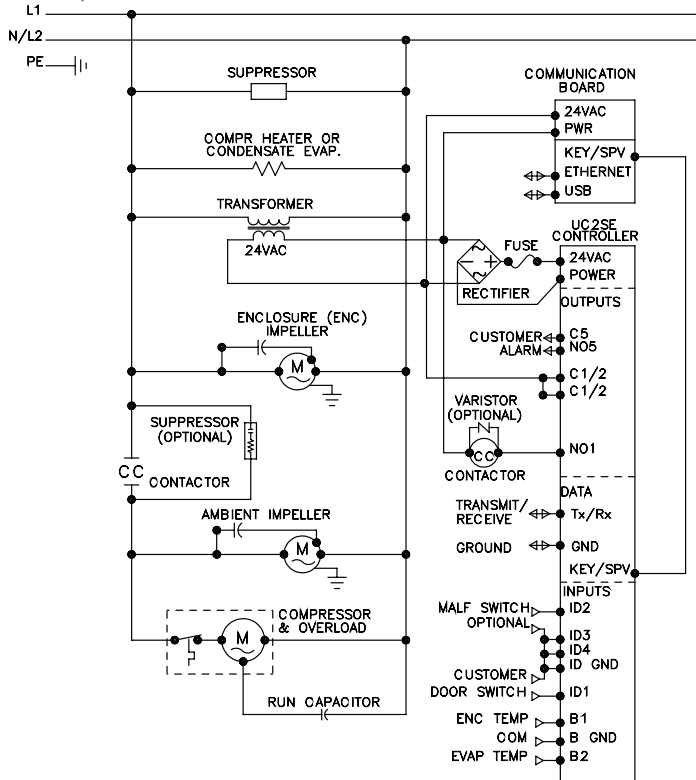
| Item | Model Series | 300W 115V | 300W 230V | 500W 115V | 500W 230V |
|-------------------------|---------------------------------|----------------|----------------|----------------|----------------|
| Part Descriptions | | Part Numbers | | | |
| 1 | Capacitor, Compressor, Run | 52603209SP | 52603210SP | 89107709SP | 89106525SP |
| 2 | Capillary Tube | 99042047SP | 99042047SP | 99054030SP | 99054030SP |
| 3 | Coil, Condenser | 89110804SP | 89110804SP | 89107198SP | 89107198SP |
| 4 | Coil, Evaporator | 89107600SP | 89107600SP | 89107023SP | 89107023SP |
| 5 | Communication Board (optional) | 89109039SP | 89109039SP | 89109039SP | 89109039SP |
| 6 | Compressor | 10101682SP | 101026101SP | 89109026SP | 89108369SP |
| 7 | Contacting Compressor | 10100536SP | 10100536SP | 10100536SP | 10100536SP |
| 8 | Smart Controller °C | 89123540SP | 89123540SP | 89123540SP | 89123540SP |
| | Smart Controller °F | 90272220SP | 90272220SP | 90272220SP | 90272220SP |
| 9 | Drain Tube Kit (optional) | 101027177SP | 101027177SP | 101027177SP | 101027177SP |
| 10 | Filter Air, Reusable (optional) | 89106978SP | 89106978SP | 89106978SP | 89106978SP |
| 11 | Filter/Dryer | 52602803SP | 52602803SP | 52602803SP | 52602803SP |
| 12 | Fan, Condenser | 89117829SP | 89117830SP | 89117829SP | 89117830SP |
| 13 | Fan, Evaporator | 13101501SP | 13101502SP | 12101201SP | 12101202SP |
| 14 | Thermal Overload, Compressor | 10100767SP | 10100768SP | 89109877SP | 89112627SP |
| 15 | Thermistor | 89075654SP (2) | 89075654SP (2) | 89075654SP (2) | 89075654SP (2) |
| 16 | Transformer, 24V | 10100694SP | 10100693SP | 10100694SP | 10100693SP |
| 17 | Fuse (Controller) | 89085114SP | 89085114SP | 89085114SP | 89085114SP |
| Accessories | | | | | |
| 18 | Installation Kit | 90221634QDSP | 90221634QDSP | 90221634QDSP | 90221634QDSP |
| 19 | Unit Mounting Gasket | 90241618SP | 90241618SP | 90241618SP | 90241618SP |
| 20 | Mounting standoffs | NA | NA | 89105488SP (4) | 89105488SP (4) |
| Structural Parts | | | | | |
| 21 | Louvered Grill Panel | 89105442SP | 89105442SP | 89105442SP | 89105442SP |
| 22 | Panel Strike Clip (Pkg. 4) | 90245472SP | 90245472SP | 90245472SP | 90245472SP |
| 23 | Body Catch Clip (Pkg. 4) | 89105486SP | 89105486SP | 89105486SP | 89105486SP |
| 24 | Body Front Shell | NA | NA | 89104023SP | 89104023SP |



S10 MODELS 1000/1500W

S10 SCHEMATICS

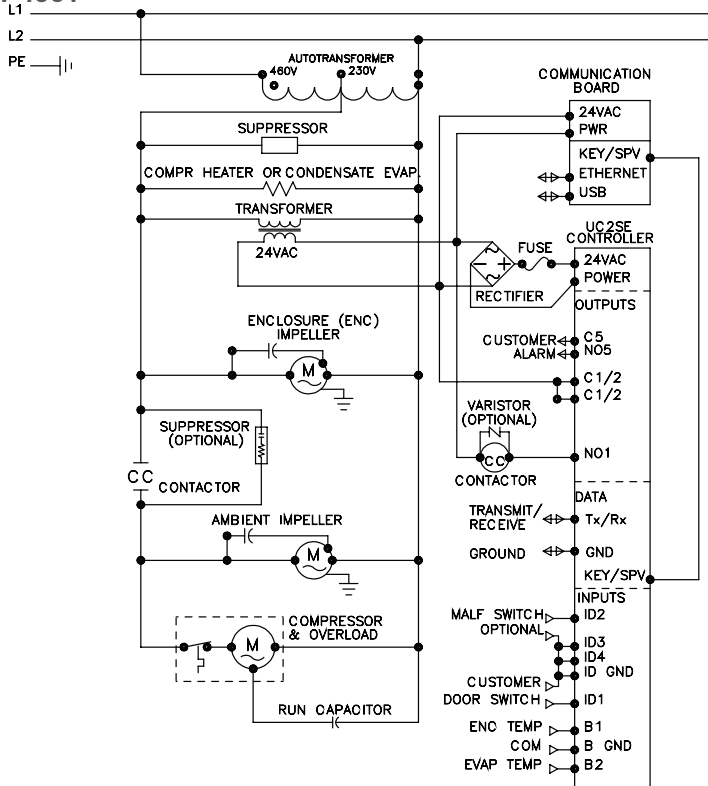
1000W 115V, 230V



ELECTRICAL SCHEMATIC

89107582 REV. F

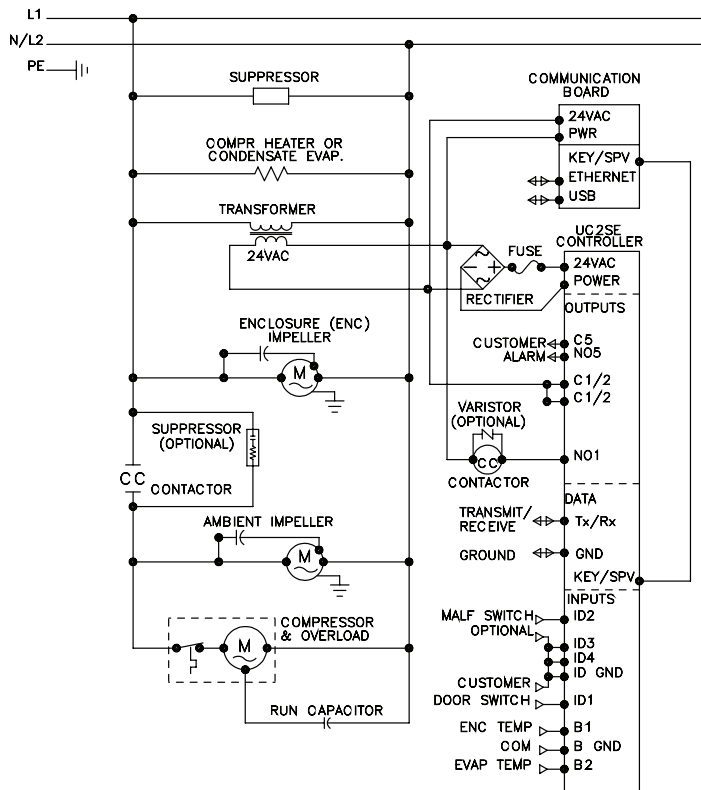
1000W 460V



ELECTRICAL SCHEMATIC

89107584 REV. D

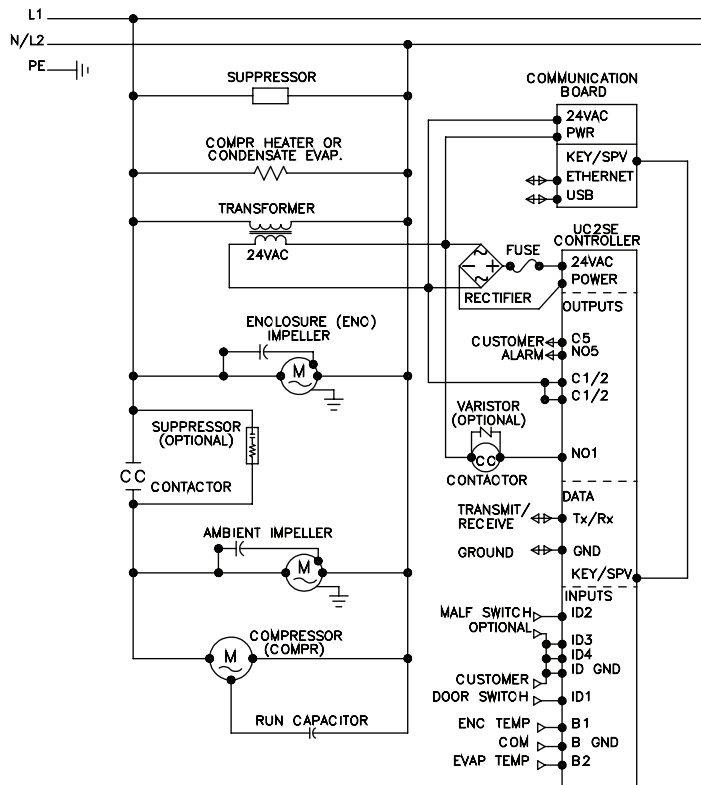
1500W 115V



ELECTRICAL SCHEMATIC

89107582 REV. F

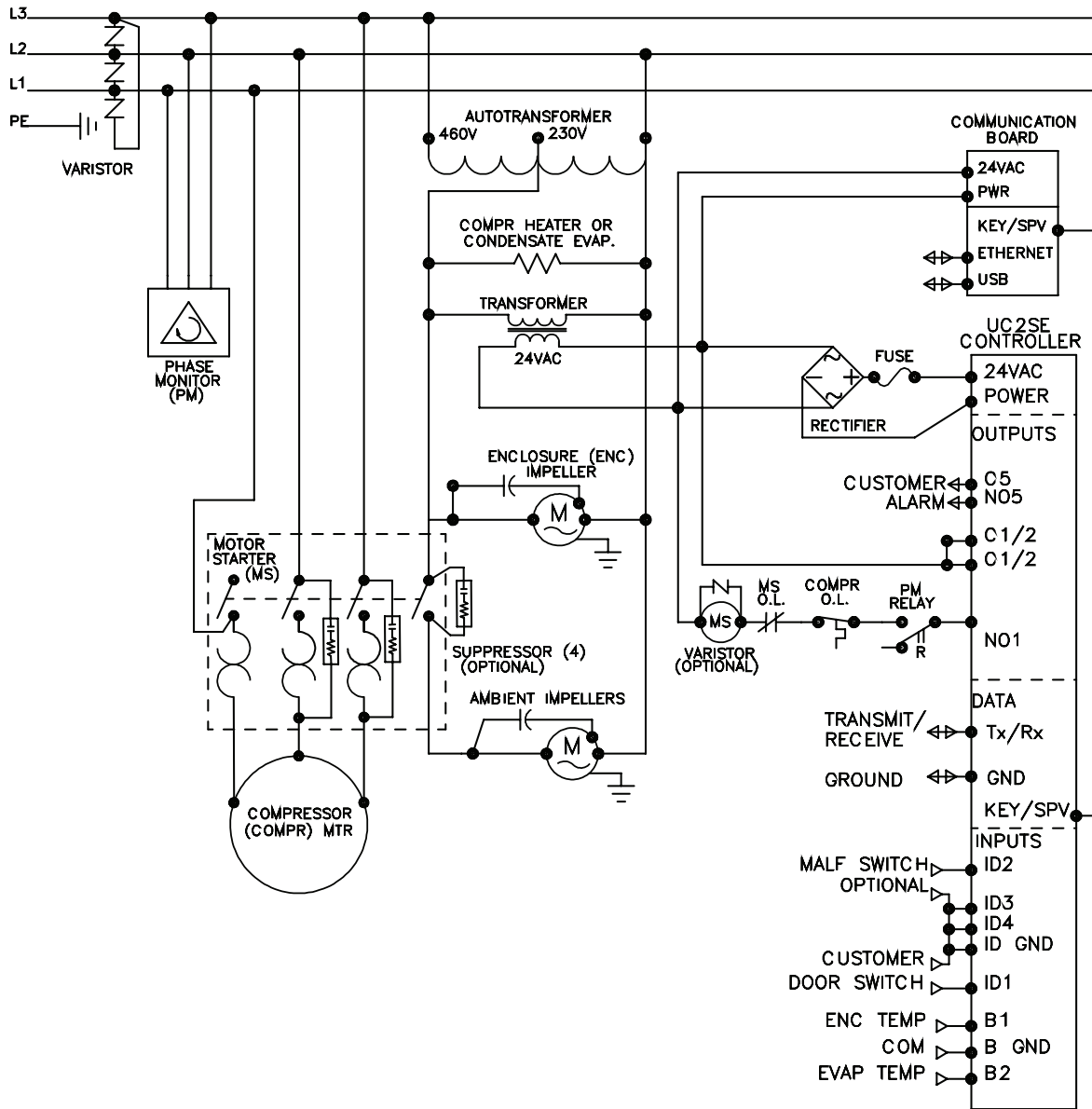
1500W 230V



ELECTRICAL SCHEMATIC

89107586 REV. G

1500W 460V

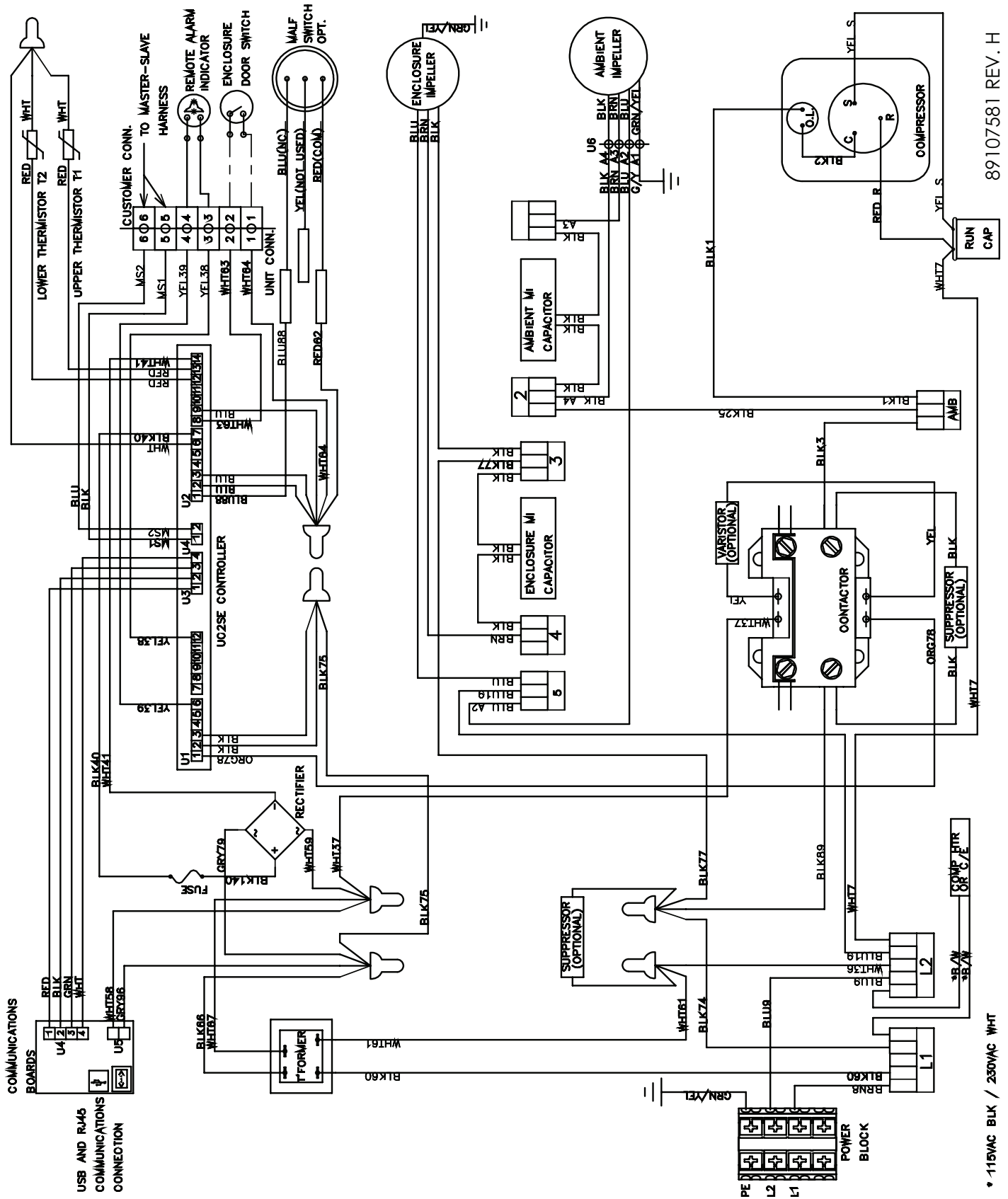


89107589 REV. H

ELECTRICAL SCHEMATIC

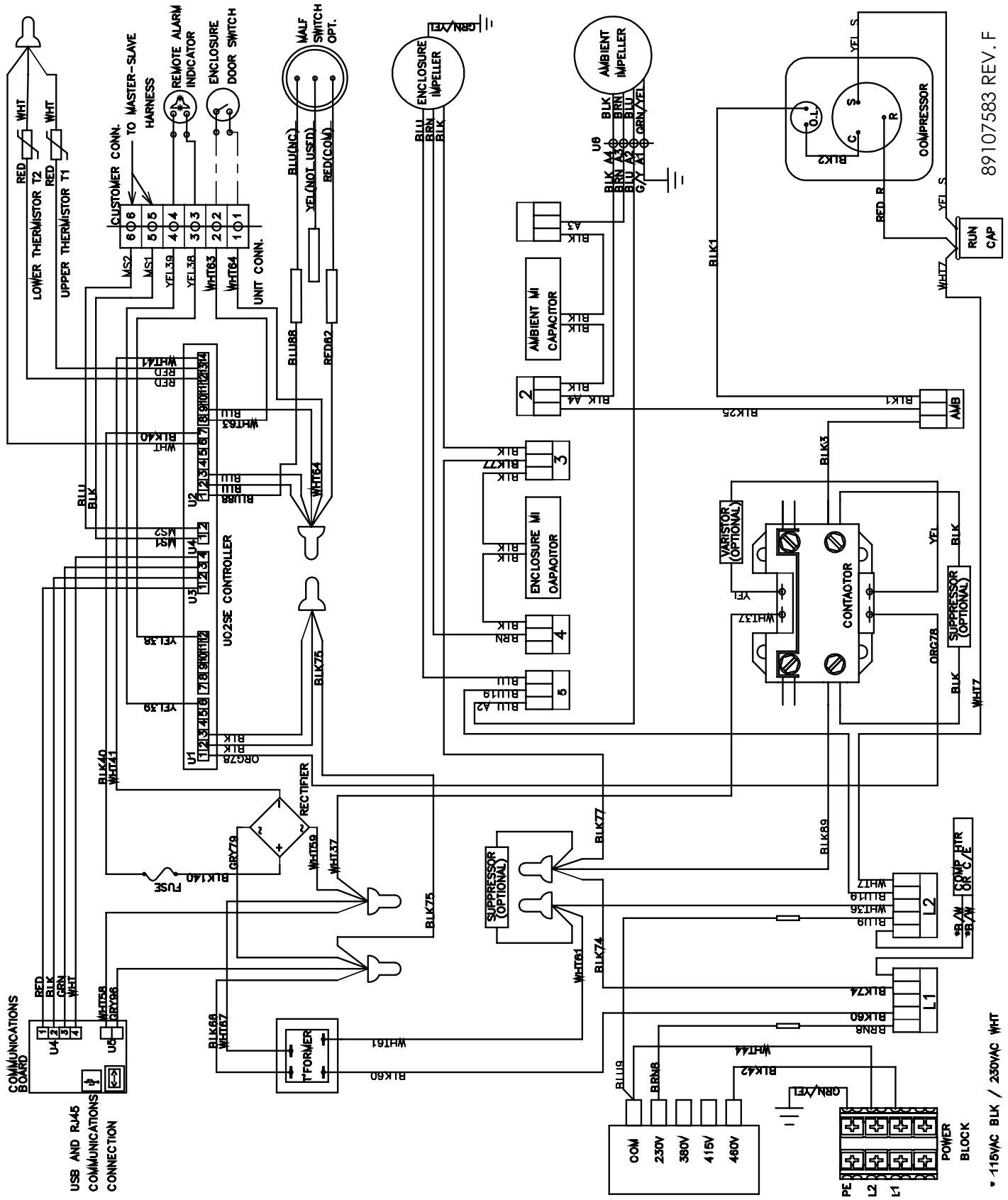
S10 WIRE DIAGRAMS

1000W 115V, 230V



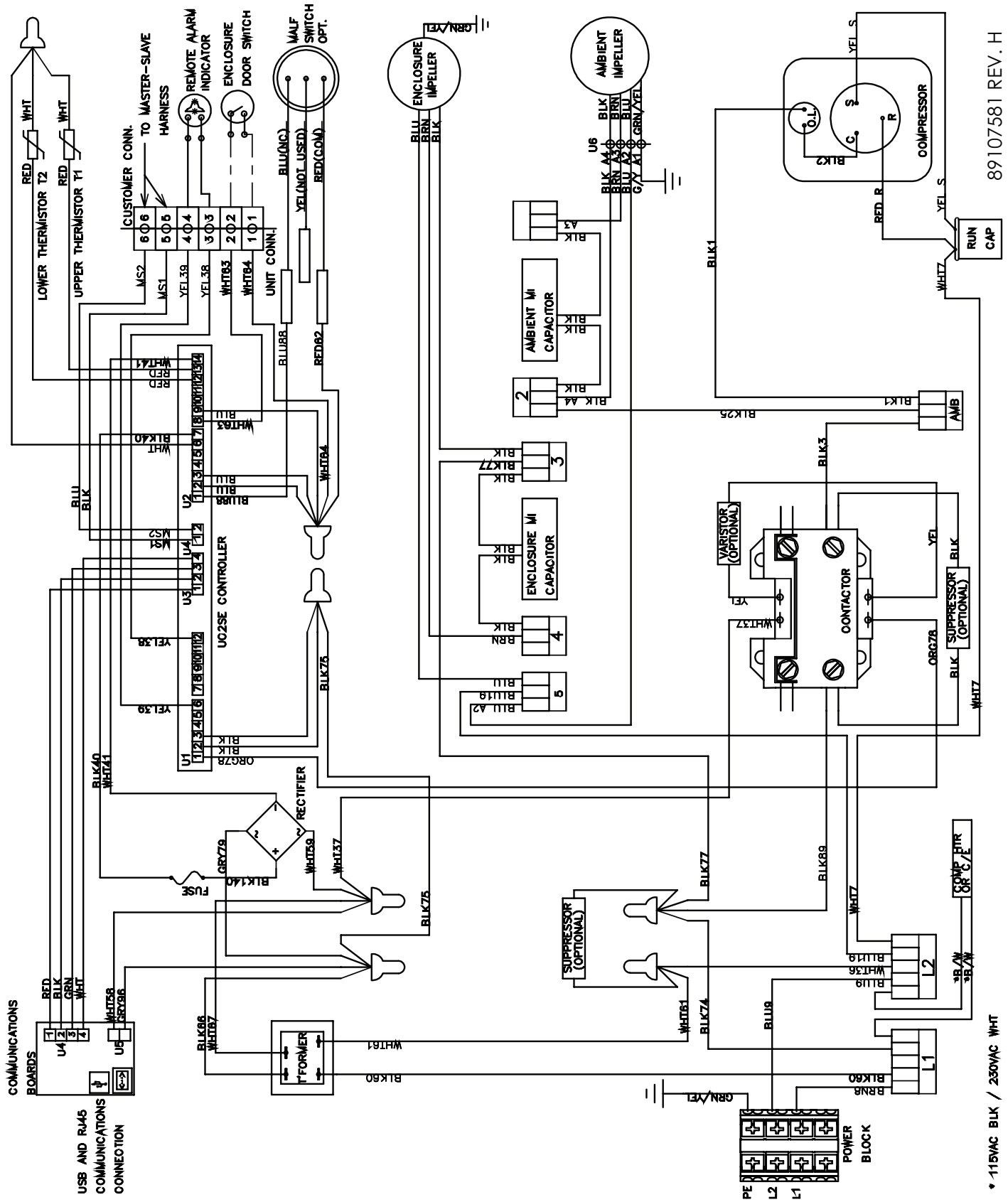
89107581 REV. H

• 115VAC BLK / 230VAC WHT



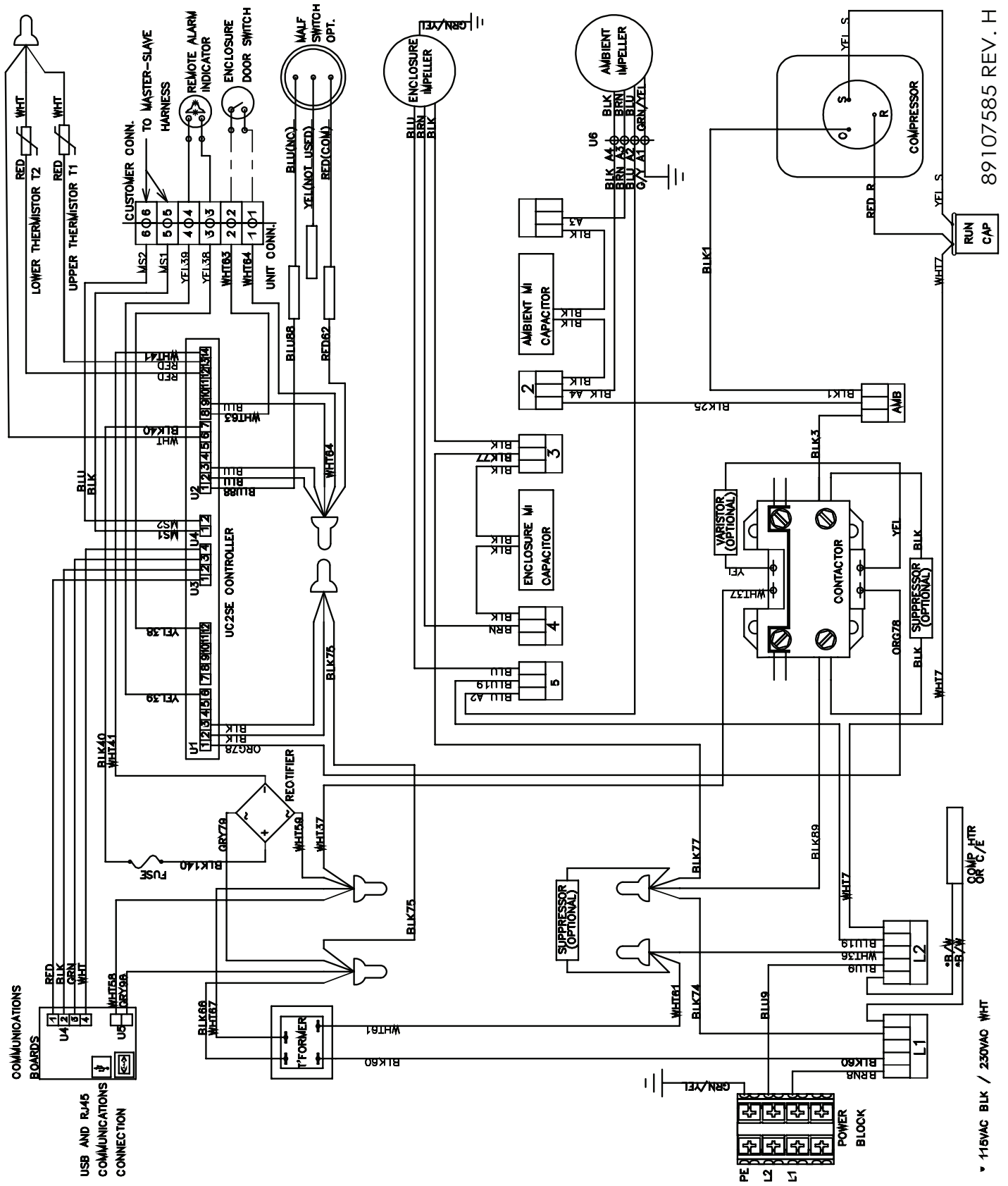
89107583 REV. F

~ 115VAC BLK / 230VAC WHT



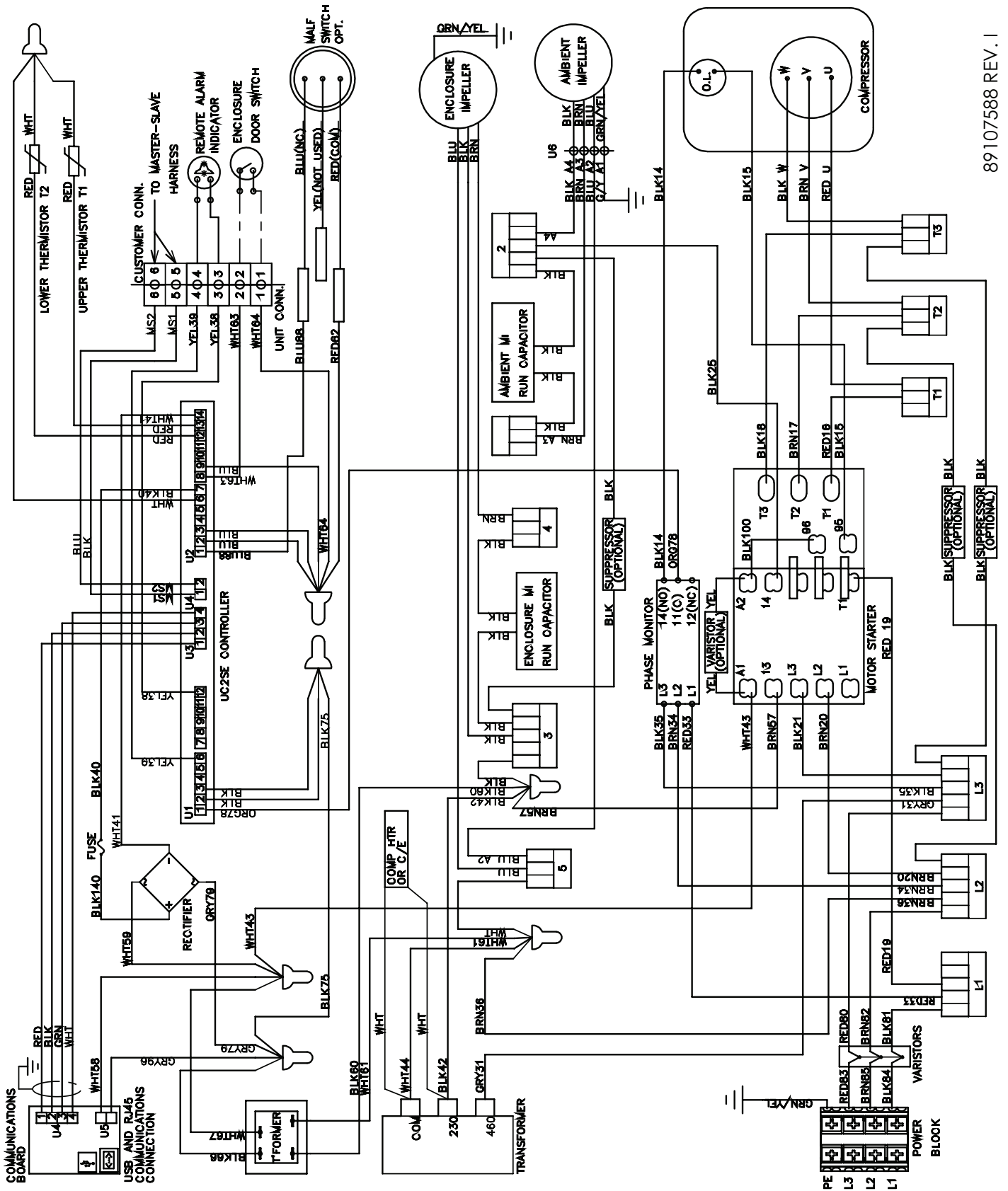
89107581 REV. H

• 115VAC BLK / 230VAC WHT

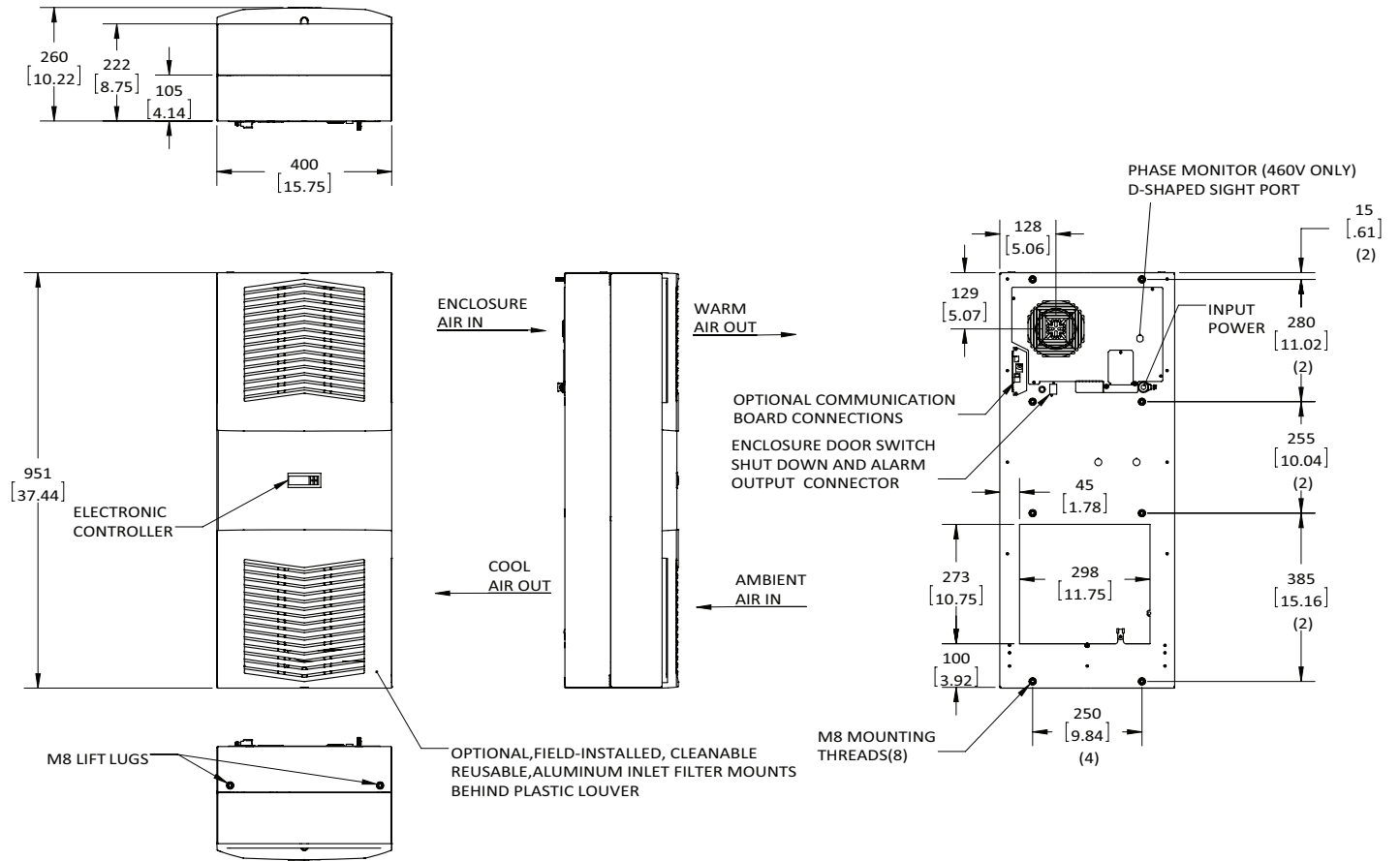


89107585 REV. H

115VAC BLK / 230VAC WHT



S10 DIMENSIONAL DRAWING 1000/1500W



S10 INSTALLATION INSTRUCTION

1. See Receiving The Air Conditioner and Handling and Testing The Air Conditioner on page 6.
2. Using the cutout template provided with the unit, prepare the enclosure. See Figure 15. The front of the unit requires a half meter clearance for proper airflow. Five centimeters is required on each side of the unit. To avoid condensate overflow, unit must be mounted within 3° of level.
3. Refer to mounting instructions on page 8.
4. Adjust controller to desired cabinet temperature. Refer to Displaying and Changing Program Variables on page 13 for controller adjustment and operation.

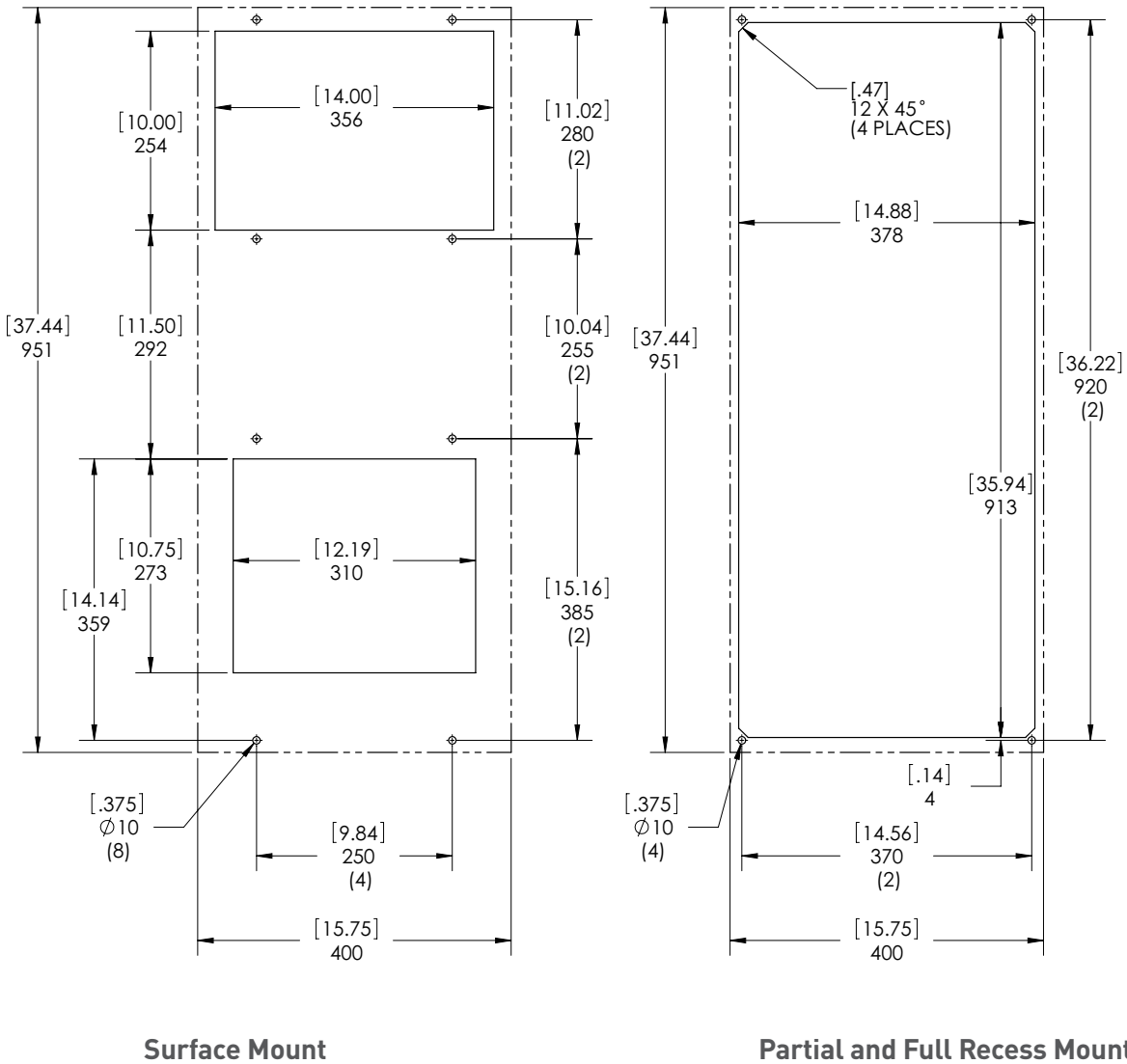


Figure 15
S10 1000/1500W Cutout Drawing
 Dashed Lines Represent The Air Conditioner

S10 UNIT CHARACTERISTICS (115V, 230V)

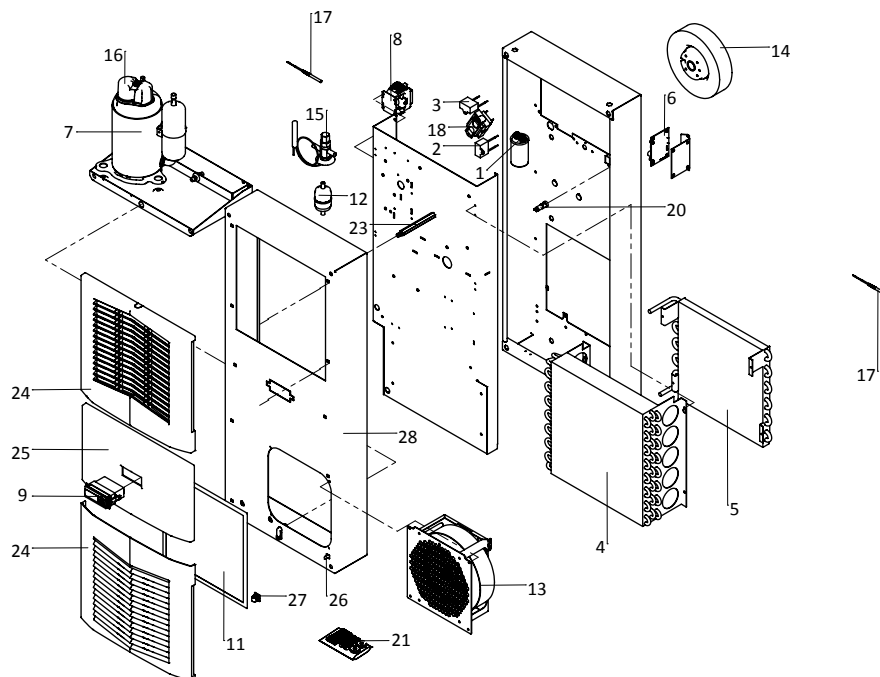
| UNIT | 1000W 115V | 1000W 230V | 1500W 115V | 1500W 230V |
|---|---------------------------------|-------------|-------------|-------------|
| CATALOG NUMBER | | | | |
| Indoor Model without Communications Board (°C Controller) | S101016G031 | S101026G031 | S101516G031 | S101526G031 |
| Indoor Model with Communications Board (°C Controller) | S101016G041 | S101026G041 | S101516G041 | S101526G041 |
| Indoor Model without Communications Board (°F Controller) | S101016G050 | S101026G050 | S101516G050 | S101526G050 |
| Indoor Model with Communications Board (°F Controller) | S101016G060 | S101026G060 | S101516G060 | S101526G060 |
| COOLING PERFORMANCE | | | | |
| Total L35 L35, 50Hz, according to DIN EN 14511 (Watt) | 1300 | 1300 | 1800 | 1800 |
| Cooling performance L35 L35 (Watt) 50/60Hz | 1300 / 1380 | 1300 / 1380 | 1800 / 1880 | 1800 / 1880 |
| Cooling performance L35 L50 (Watt) 50/60Hz | 900 / 1000 | 900 / 1000 | 1300 / 1380 | 1300 / 1380 |
| Refrigerant | R134a | R134a | R134a | R134a |
| Refrigerant Charge (g) | 425 | 283 | 425 | 425 |
| Max. allowable operating pressure (p. max.) bar | 28 | 28 | 28 | 28 |
| Operating Temperature Range (Min/Max °C) | 10 / 55 | 10 / 55 | 10 / 55 | 10 / 55 |
| Operating Temperature Range (Min/Max °F) | 50 / 131 | 50 / 131 | 50 / 131 | 50 / 131 |
| Setting Temperature Range (Min. / Max. °C Controller) | 20 / 55 | 20 / 55 | 20 / 55 | 20 / 55 |
| Setting Temperature Range (Min. / Max. °F Controller) | 72 / 120 | 72 / 120 | 72 / 120 | 72 / 120 |
| Airflow at 0 Static Pressure: | | | | |
| Internal loop (m³/h) | 350 / 391 | 350 / 391 | 342 / 391 | 342 / 391 |
| External loop (m³/h) | 567 / 584 | 567 / 584 | 576 / 579 | 576 / 579 |
| Duty Cycle | 100% | 100% | 100% | 100% |
| ELECTRICAL DATA | | | | |
| Rated Voltage (Volt) | 115 | 230 | 115 | 230 |
| Phase | 1~ | 1~ | 1~ | 1~ |
| Frequency (Hz) | 50/60 | 50/60 | 50/60 | 50/60 |
| Operating Range | +/- 10% | +/- 10% | +/- 10% | +/- 10% |
| Max power Consumption 50/60Hz L35 L35 (Watt) | 810 / 1010 | 670 / 800 | 850 / 1040 | 850 / 1040 |
| Max power Consumption 50/60Hz L35 L50 (Watt) | 950 / 1120 | 780 / 950 | 990 / 1160 | 960 / 1170 |
| Max. Nominal Current (Amps) | 9.6 / 10.2 | 4.1 / 5.5 | 9.6 / 10.2 | 5.1 / 6.7 |
| Starting Current (Amps) | 32 / 34 | 14 / 18 | 32 / 34 | 17 / 22 |
| Pre-fuse T (Amps) | 15 | 15 | 15 | 15 |
| Agency Approvals | UL Listed, cUL Listed, GOST, CE | | | |
| Power Input Description | Terminal Block | | | |
| PERFORMANCE FACTOR (EER), 50Hz, DIN EN 14511 | | | | |
| Cooling Performance L35 / L35 | 1.60 / 1.37 | 1.94 / 1.73 | 2.12 / 1.81 | 2.12 / 1.81 |
| Cooling Performance L35 / L50 | 0.95 / 0.89 | 1.15 / 1.05 | 1.31 / 1.19 | 1.35 / 1.18 |
| ENCLOSURE PROTECTION | | | | |
| IP Code (External loop / Internal loop) | IP34 / IP54 | IP34 / IP54 | IP34 / IP54 | IP34 / IP54 |
| CONTROLLER | | | | |
| Description | Smart Controller with display | | | |
| Controller Location | Ambient Side | | | |
| Factory Default Setpoint (°C Controller) | 35 | 35 | 35 | 35 |
| Factory Default Setpoint (°F Controller) | 80 | 80 | 80 | 80 |
| SOUND LEVEL | | | | |
| At 1 M (dBA) | 71 | 71 | 73 | 73 |
| UNIT CONSTRUCTION | | | | |
| Material | Steel | | Steel | |
| Finish | RAL 7035 | | RAL 7035 | |
| UNIT DIMENSIONS | | | | |
| Height (mm) | 950 | 950 | 950 | 950 |
| Width (mm) | 400 | 400 | 400 | 400 |
| Depth (mm) | 259 | 259 | 259 | 259 |
| Weight (kg) | 39 | 39 | 43 | 43 |

S10 UNIT CHARACTERISTICS (460V)

| UNIT | 1000W 460V | 1500W 460v |
|---|---------------------------------|--------------------|
| CATALOG NUMBER | | |
| Indoor Model without Communications Board (°C Controller) | S101046G031 | S101546G031 |
| Indoor Model with Communications Board (°C Controller) | S101046G041 | S101546G041 |
| Indoor Model without Communications Board (°F Controller) | S101046G050 | S101546G050 |
| Indoor Model with Communications Board (°F Controller) | S101046G060 | S101546G060 |
| COOLING PERFORMANCE | | |
| Total L35 L35, 50Hz, according to DIN EN 14511 (Watt) | 1300 | 1800 |
| Cooling performance L35 L35 (Watt) 50/60Hz | 1300 / 1380 | 1800 / 1880 |
| Cooling performance L35 L50 (Watt) 50/60Hz | 900 / 1000 | 1300 / 1380 |
| Refrigerant | R134a | R134a |
| Refrigerant Charge (g) | 283 | 510 |
| Max. allowable operating pressure (p. max.) bar | 28 | 28 |
| Operating Temperature Range (Min/Max °C) | 10 / 55 | 10 / 55 |
| Operating Temperature Range (Min/Max °F) | 50 / 131 | 50 / 131 |
| Setting Temperature Range (Min. / Max. °C Controller) | 20 / 55 | 20 / 55 |
| Setting Temperature Range (Min. / Max. °F Controller) | 72 / 120 | 72 / 120 |
| Airflow at 0 Static Pressure: | | |
| Internal loop (m³/h) | 350 / 391 | 342 / 391 |
| External loop (m³/h) | 567 / 584 | 576 / 579 |
| Duty Cycle | 100% | 100% |
| ELECTRICAL DATA | | |
| Rated Voltage (Volt) | 400 / 460 | 400 / 460 |
| Phase | 1~ | 3~ |
| Frequency (Hz) | 50/60 | 50/60 |
| Operating Range | +/- 10% | +/- 10% |
| Max power Consumption 50/60Hz L35 L35 (Watt) | 750 / 960 | 930 / 1130 |
| Max power Consumption 50/60Hz L35 L50 (Watt) | 870 / 1090 | 970 / 1210 |
| Max. Nominal Current (Amps) | 2.1 / 2.4 | 2.1 / 2.4 |
| Starting Current (Amps) | 7 / 8 | 7 / 8 |
| Pre-fuse T (Amps) | 15 | 15 |
| Agency Approvals | UL Listed, cUL Listed, GOST, CE | |
| Power Input Description | Terminal Block | |
| PERFORMANCE FACTOR (EER), 50Hz, DIN EN 14511 | | |
| Cooling Performance L35 / L35 | 1.73 / 1.44 | 1.94 / 1.66 |
| Cooling Performance L35 / L50 | 1.03 / 0.92 | 1.34 / 1.14 |
| ENCLOSURE PROTECTION | | |
| IP Code (External loop / Internal loop) | IP34 / IP54 | IP34 / IP54 |
| CONTROLLER | | |
| Description | Smart Controller with display | |
| Controller Location | Ambient Side | |
| Factory Default Setpoint (°C Controller) | 35 | 35 |
| Factory Default Setpoint (°F Controller) | 80 | 80 |
| SOUND LEVEL | | |
| At 1 M (dBA) | 71 | 73 |
| UNIT CONSTRUCTION | | |
| Material | Steel | Steel |
| Finish | RAL 7035 | RAL 7035 |
| UNIT DIMENSIONS | | |
| Height (mm) | 950 | 950 |
| Width (mm) | 400 | 400 |
| Depth (mm) | 259 | 259 |
| Weight (kg) | 45 | 43 |

S10 COMPONENTS (1 PHASE)

| Item | Model Series | 1000W 115V | 1000W 230V | 1000W 460V | 1500W 115V | 1500W 230V |
|-------------------------|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| Part Descriptions | | Part Numbers | | | | |
| 1 | Capacitor, Compressor, Run | 90235721SP | 89107715SP | 89107715SP | 90235721SP | 89107716SP |
| 2 | Capacitor, Condenser Blower | 52603213SP | 52603214SP | 52603214SP | 52603213SP | 52603214SP |
| 3 | Capacitor, Evaporator Blower | 52603215SP | 52603214SP | 52603214SP | 52603215SP | 52603214SP |
| 4 | Coil, Condenser | 89102610SP | 89102610SP | 89102610SP | 89102610SP | 89102610SP |
| 5 | Coil, Evaporator | 89102609SP | 89102609SP | 89102609SP | 89102609SP | 89102609SP |
| 6 | Communication Board (optional) | 89109039SP | 89109039SP | 89109039SP | 89109039SP | 89109039SP |
| 7 | Compressor | 89111874SP | 89107239SP | 89107239SP | 89111874SP | 89105607SP |
| 8 | Contacting Compressor | 89088986SP | 89088986SP | 89088986SP | 89088986SP | 89088986SP |
| 9 | Smart Controller °C | 89123540SP | 89123540SP | 89123540SP | 89123540SP | 89123540SP |
| | Smart Controller °F | 90272220SP | 90272220SP | 90272220SP | 90272220SP | 90272220SP |
| 10 | Drain Tube Kit (optional) | 101027177SP | 101027177SP | 101027177SP | 101027177SP | 101027177SP |
| 11 | Filter Air, Reusable (optional) | 89106977SP | 89106977SP | 89106977SP | 89106977SP | 89106977SP |
| 12 | Filter/Dryer | 52602800SP | 52602800SP | 52602800SP | 52602800SP | 52602800SP |
| 13 | Impeller, Condenser | 89107374SP | 89107375SP | 89107375SP | 89107374SP | 89107375SP |
| 14 | Impeller, Evaporator | 101091121SP | 101091122SP | 101091122SP | 101091121SP | 101091122SP |
| 15 | Thermal Expansion Valve | 89063955SP | 10104042SP | 10104042SP | 89063955SP | 10104042SP |
| 16 | Thermal Overload, Compressor | 90238424SP | 89112628SP | 89112628SP | 90238424SP | NA |
| 17 | Thermistor | 89075654SP (2) | 89075654SP (2) | 89075654SP (2) | 89075654SP (2) | 89075654SP (2) |
| 18 | Transformer, 24V | 10100694SP | 10100693SP | 10100693SP | 10100694SP | 10100693SP |
| 19 | Transformer, 230/460V | NA | NA | 10100611SP | NA | NA |
| 20 | Fuse (Controller) | 89085114SP | 89085114SP | 89085114SP | 89085114SP | 89085114SP |
| Accessories | | | | | | |
| 21 | Installation Kit | 90221633QDSP | 90221633QDSP | 90221633QDSP | 90221633QDSP | 90221633QDSP |
| 22 | Unit Mounting Gasket | 90241618SP | 90241618SP | 90241618SP | 90241618SP | 90241618SP |
| 23 | Mounting standoffs | 89105489SP (4) | 89105489SP (4) | 89105489SP (4) | 89105489SP (4) | 89105489SP (4) |
| Structural Parts | | | | | | |
| 24 | Louvered Grill Panel | 89105410SP (2) | 89105410SP (2) | 89105410SP (2) | 89105410SP (2) | 89105410SP (2) |
| 25 | Controller Bezel Panel | 89105411SP | 89105411SP | 89105411SP | 89105411SP | 89105411SP |
| 26 | Panel Strike Clip (Pkg. 4) | 90245472SP | 90245472SP | 90245472SP | 90245472SP | 90245472SP |
| 27 | Body Catch Clip (Pkg. 4) | 89105486SP | 89105486SP | 89105486SP | 89105486SP | 89105486SP |
| 28 | Body Front Shell | 89102598SP | 89102598SP | 89102598SP | 89102598SP | 89102598SP |



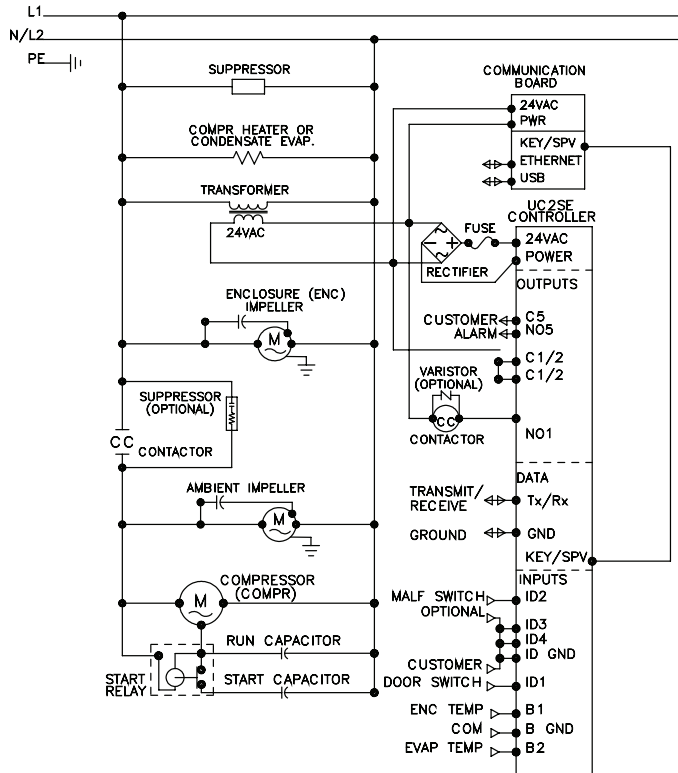
S10 COMPONENTS (3 PHASE)

| Item | Model Series | 1500W 460V |
|-------------------------|---------------------------------|----------------|
| | Part Descriptions | Part Numbers |
| 2 | Capacitor, Condenser Blower | 52603214SP |
| 3 | Capacitor, Evaporator Blower | 52603214SP |
| 4 | Coil, Condenser | 89108399SP |
| 5 | Coil, Evaporator | 89102609SP |
| 6 | Communication Board (optional) | 89109039SP |
| 7 | Compressor | 89107888SP |
| 8 | Contactora Compressor | 89107296SP |
| 9 | Smart Controller °C | 89123540SP |
| | Smart Controller °F | 90272220SP |
| 10 | Drain Tube Kit (optional) | 101027177SP |
| 11 | Filter Air, Reusable (optional) | 89106977SP |
| 12 | Filter/Dryer | 52602800SP |
| 13 | Impeller, Condenser | 89107375SP |
| 14 | Impeller, Evaporator | 101091122SP |
| 15 | Thermal Expansion Valve | 89063955SP |
| 16 | Thermal Overload, Compressor | 90238425SP |
| 17 | Thermistor | 89075654SP (2) |
| 18 | Transformer, 24V | 10100693SP |
| 19 | Transformer, 460/230V | 101006128SP |
| 20 | Fuse (Controller) | 89085114SP |
| Accessories | | |
| 21 | Installation Kit | 90221633QDSP |
| 22 | Unit Mounting Gasket | 90241618SP |
| 23 | Mounting standoffs | 89105489SP (4) |
| Structural Parts | | |
| 24 | Louvered Grill Panel | 89105410SP (2) |
| 25 | Controller Bezel Panel | 89105411SP |
| 26 | Panel Strike Clip (Pkg. 4) | 90245472SP |
| 27 | Body Catch Clip (Pkg. 4) | 89105486SP |
| 28 | Body Front Shell | 89102598SP |
| 29 | Relay, Overload | 89098323SP |
| 30 | Relay, Phase Monitor | 89097986SP |

S16 MODELS 2000/2500W

S16 SCHEMATICS

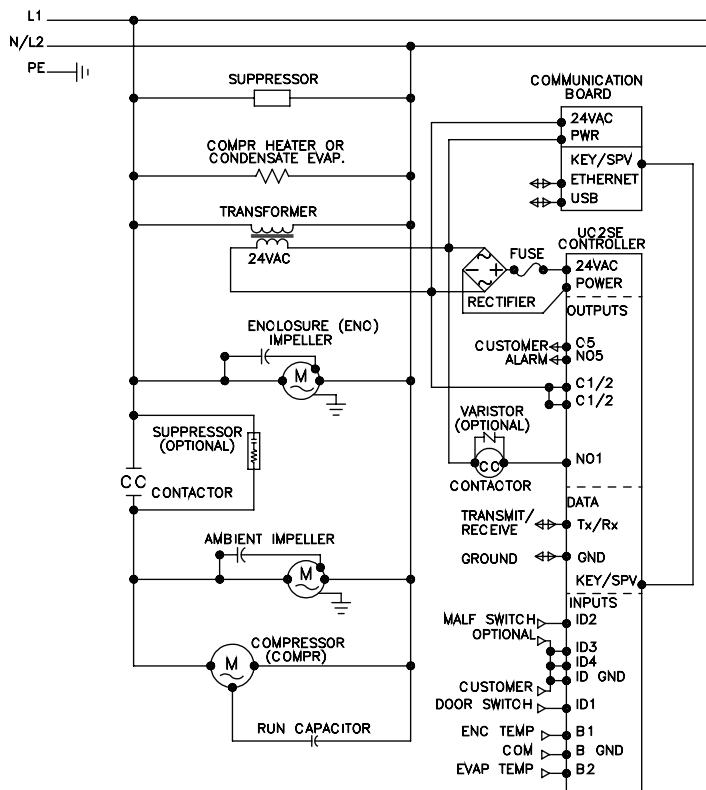
2000W 115V



89116520 REV. B

ELECTRICAL SCHEMATIC

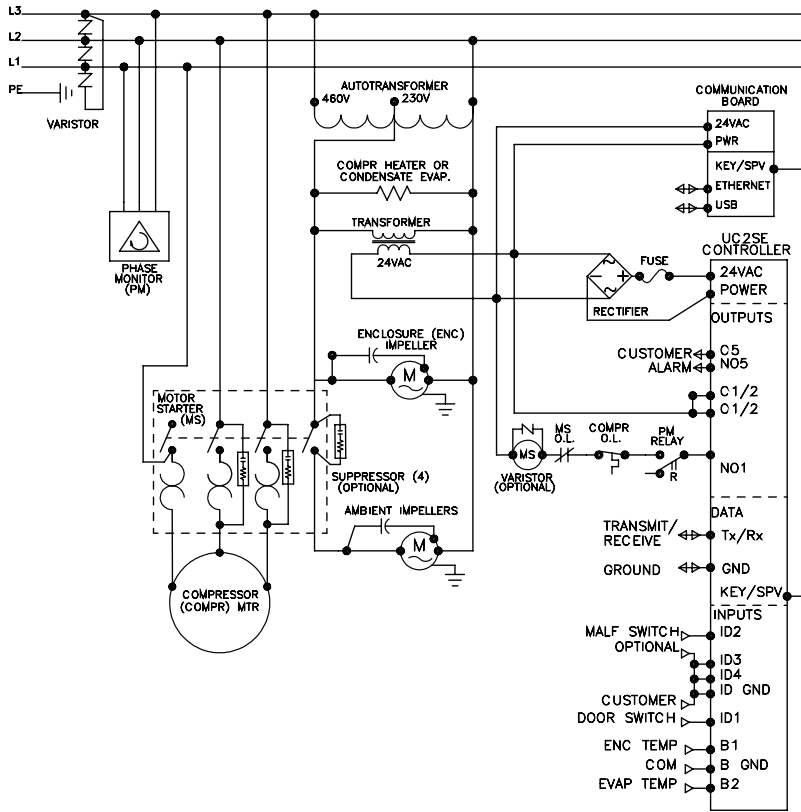
2000W 230V



89107586 REV. G

ELECTRICAL SCHEMATIC

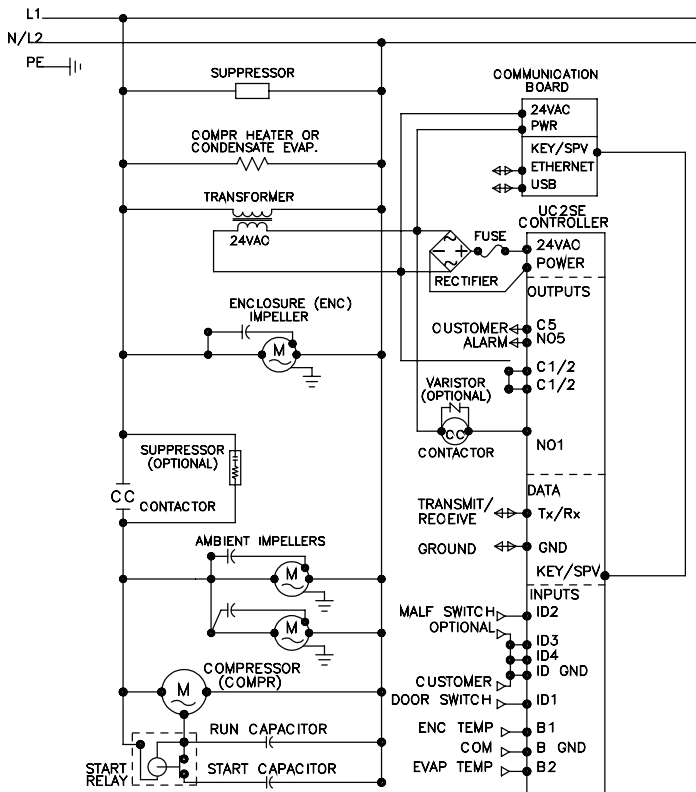
2000W 460V



89107589 REV. H

ELECTRICAL SCHEMATIC

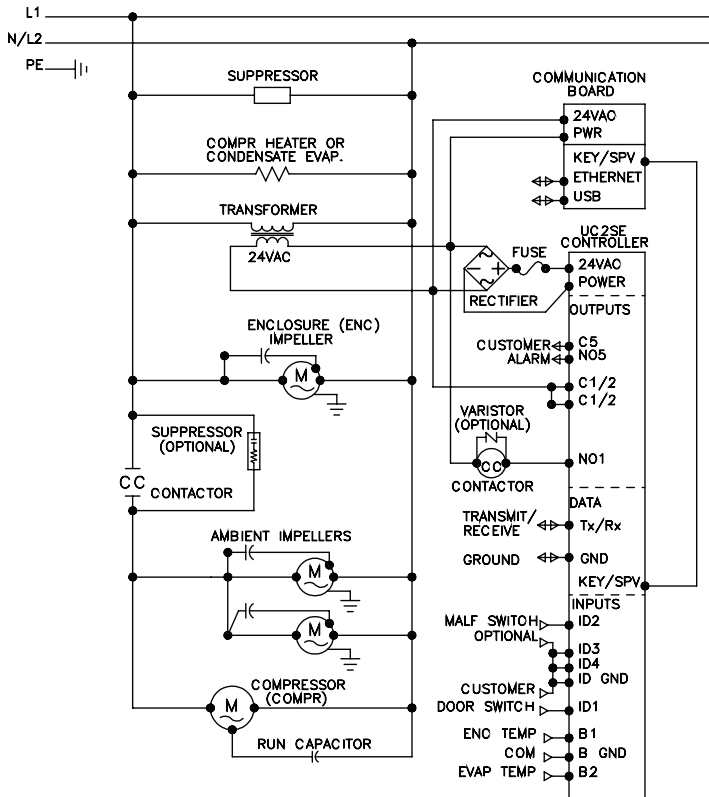
2500W 115V



89116522 REV. B

ELECTRICAL SCHEMATIC

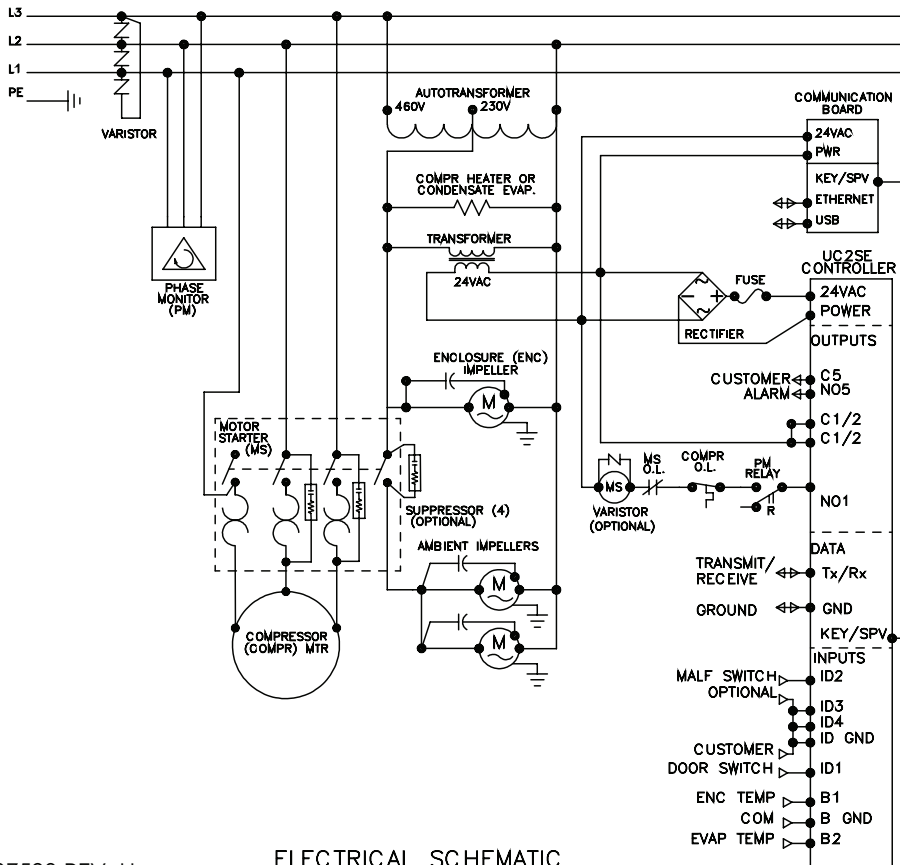
2500W 230V



89107591 REV. G

ELECTRICAL SCHEMATIC

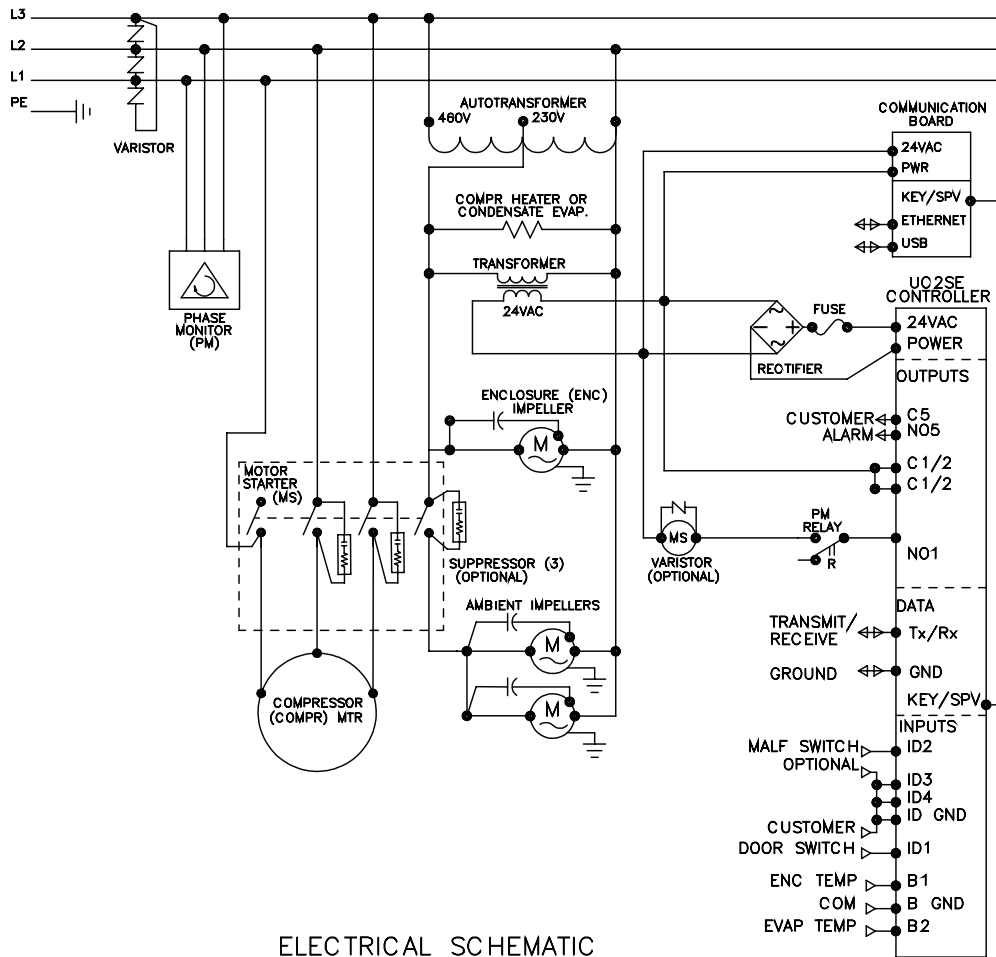
2500W 460V



89107593 REV. H

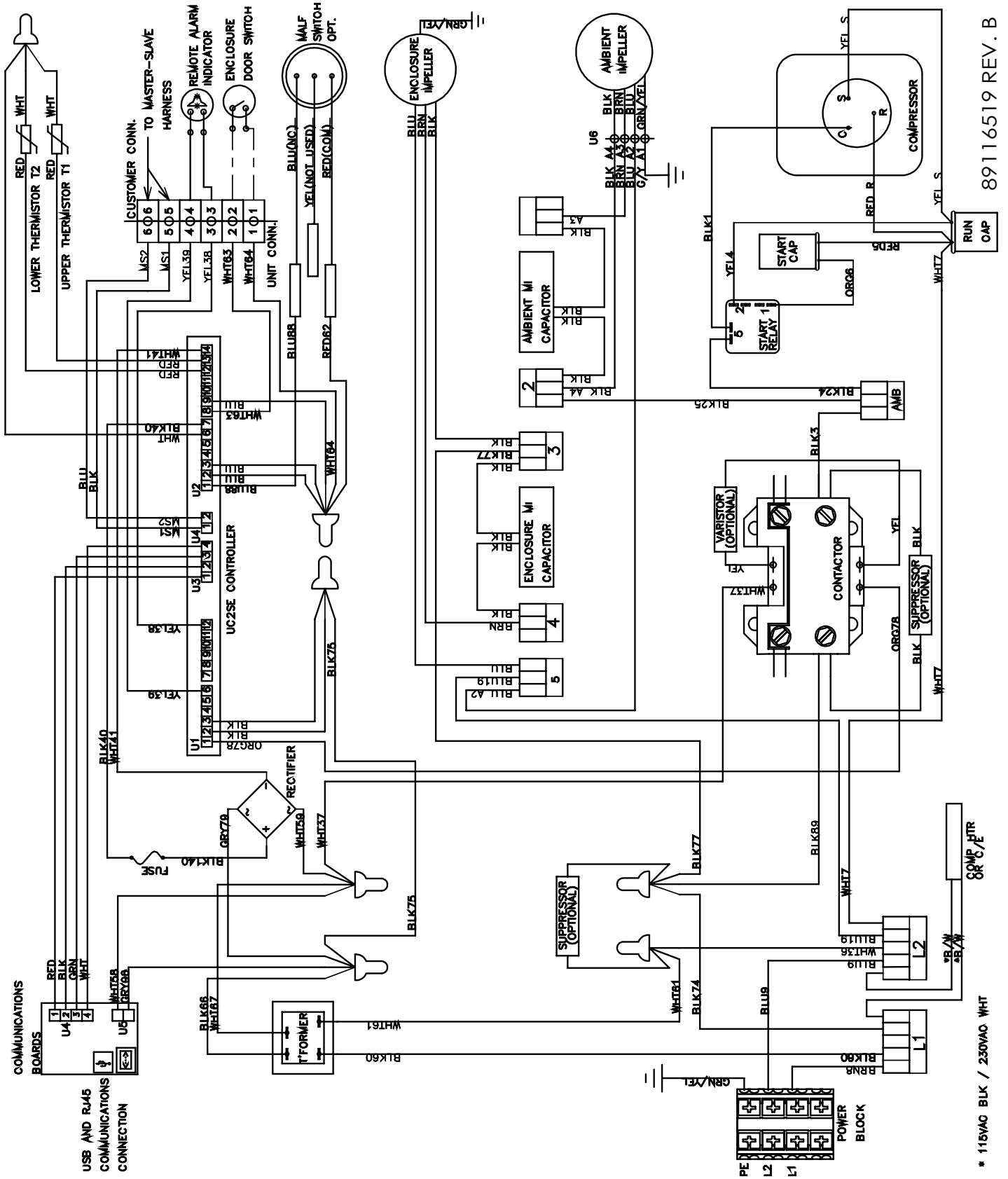
ELECTRICAL SCHEMATIC

4000W 460V



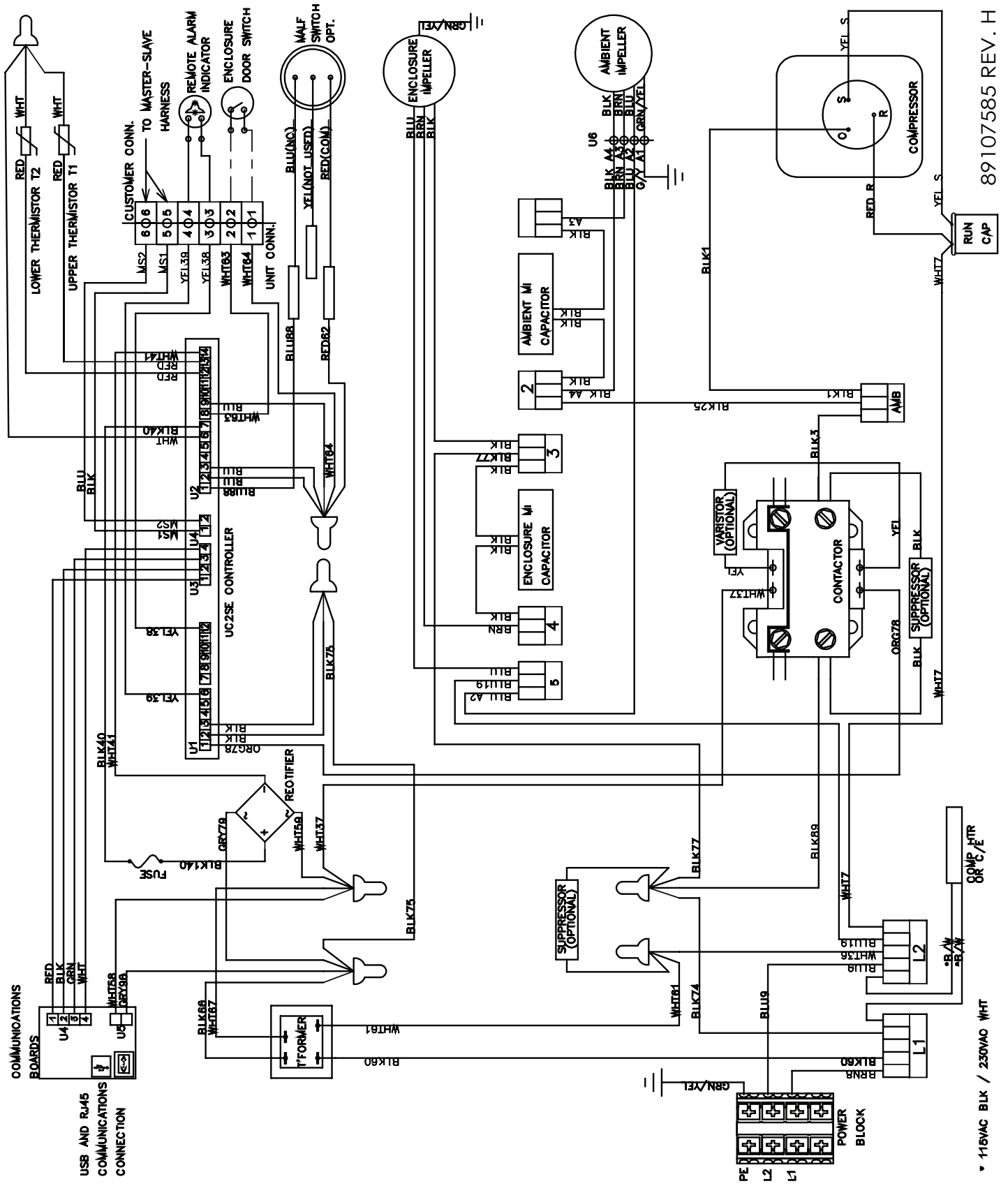
89107595 REV. G

S16 WIRE DIAGRAMS
2000W 115V



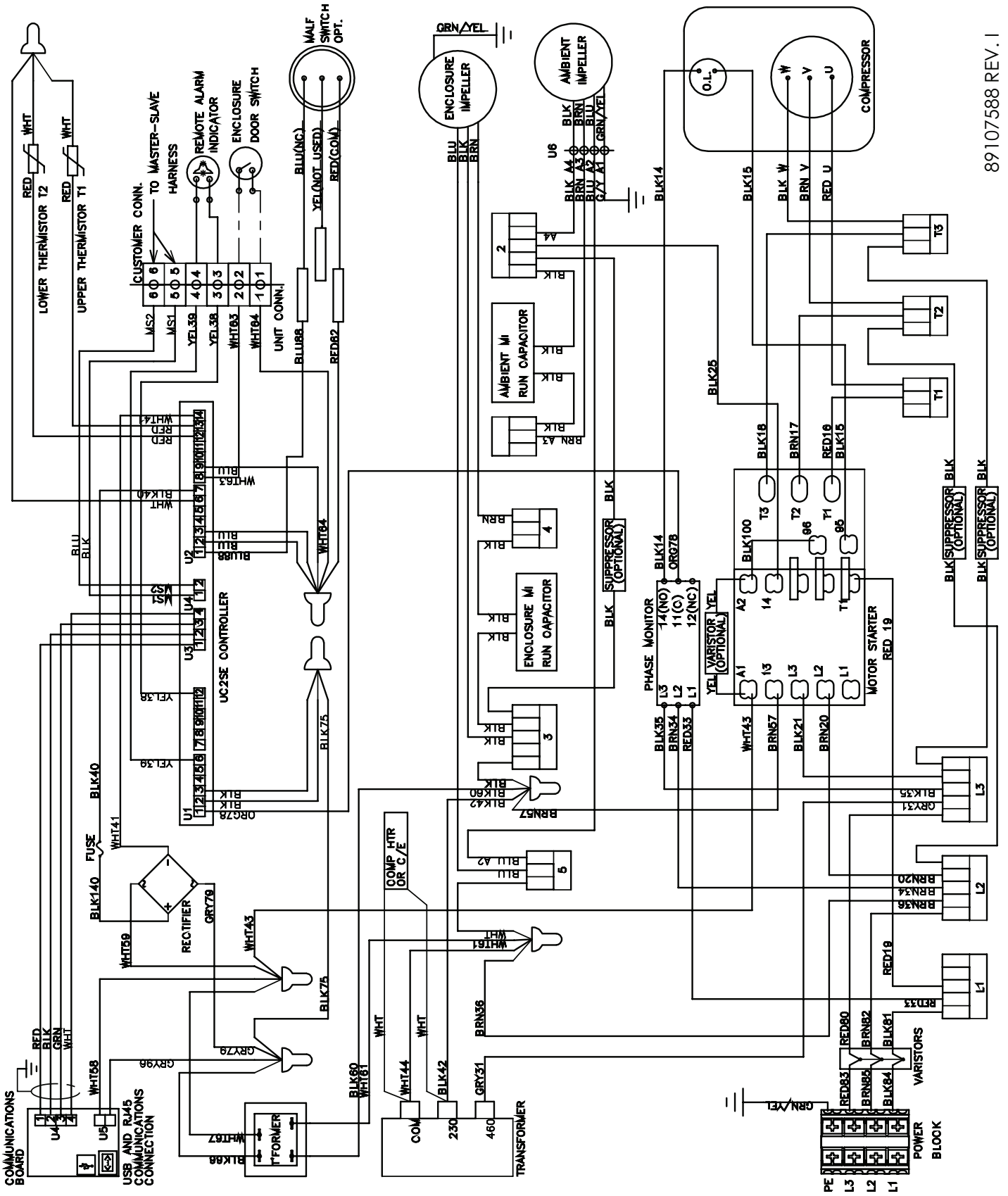
89116519 REV. B

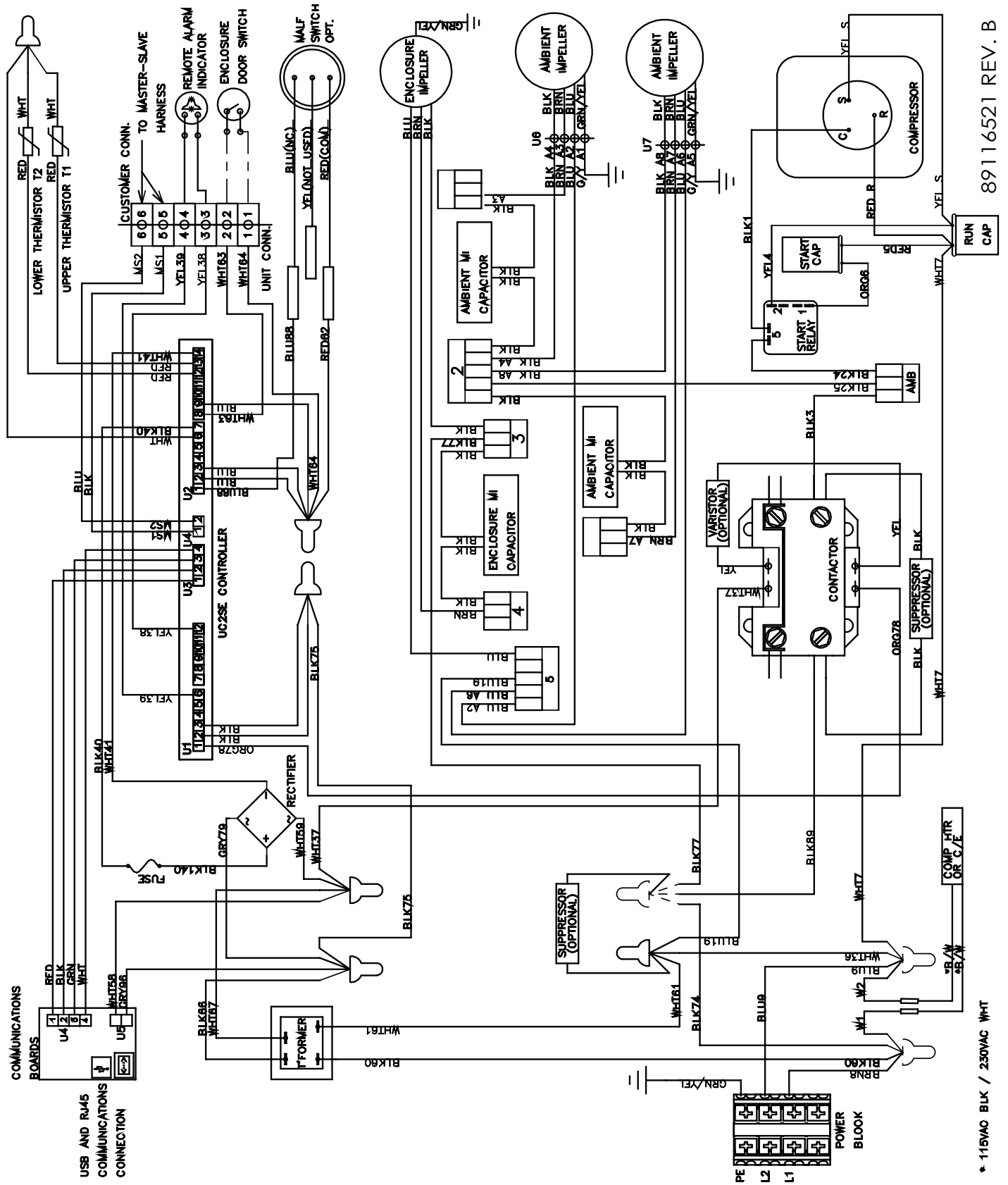
* 115VAC BLK / 230VAC WHI



89107585 REV. H

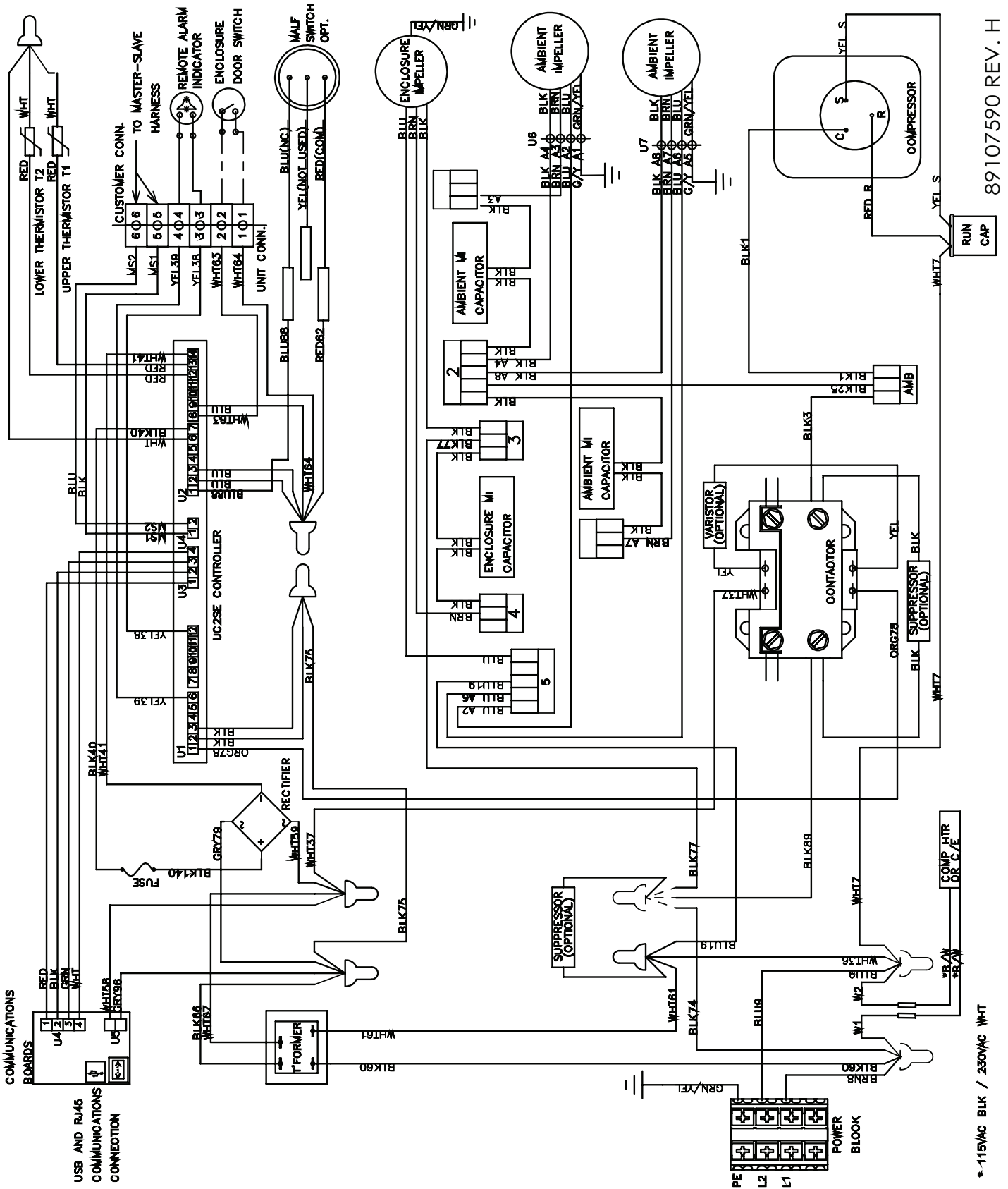
115VAC BLK / 230VAC WHT
80°C/E





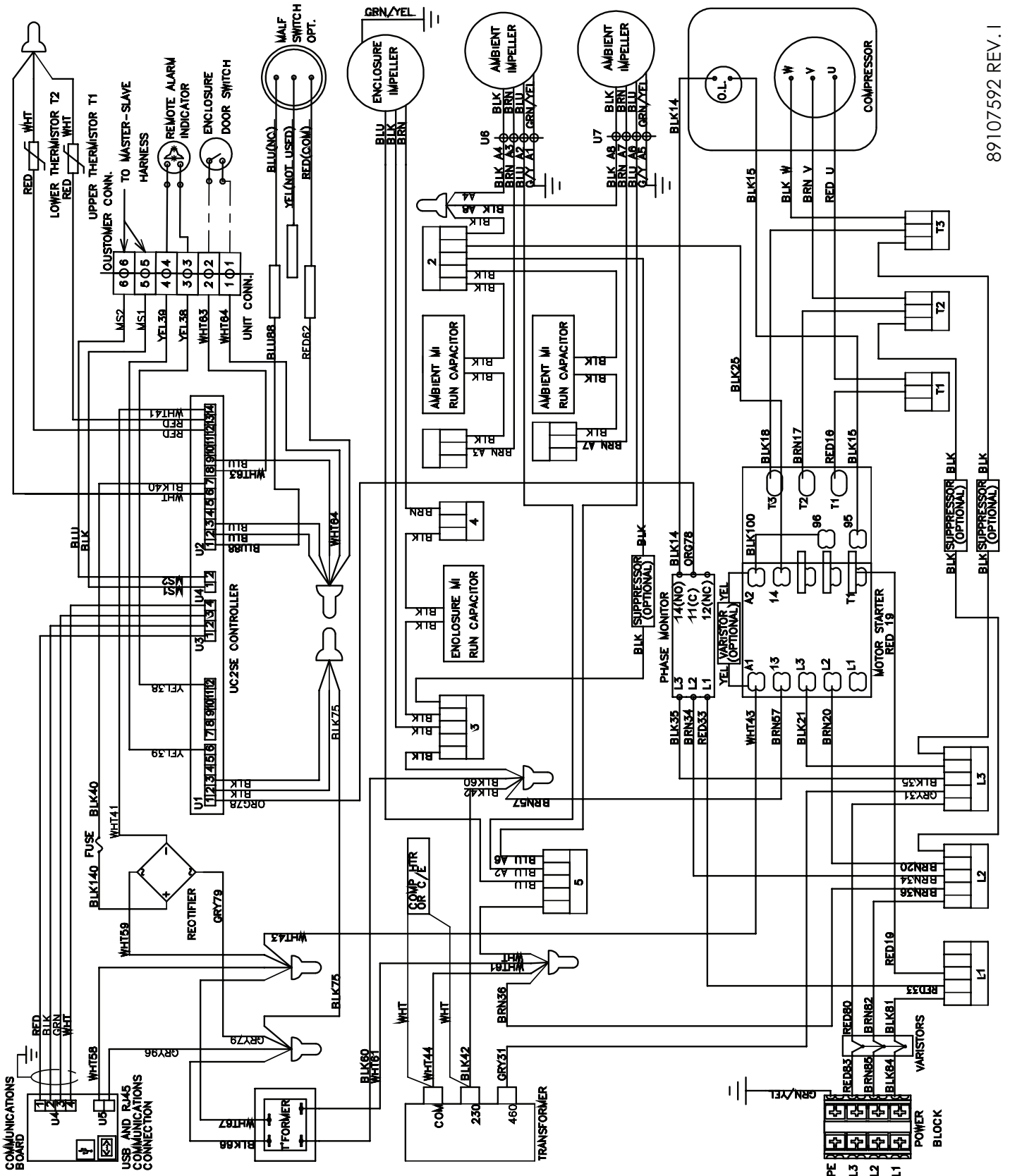
89116521 REV. B

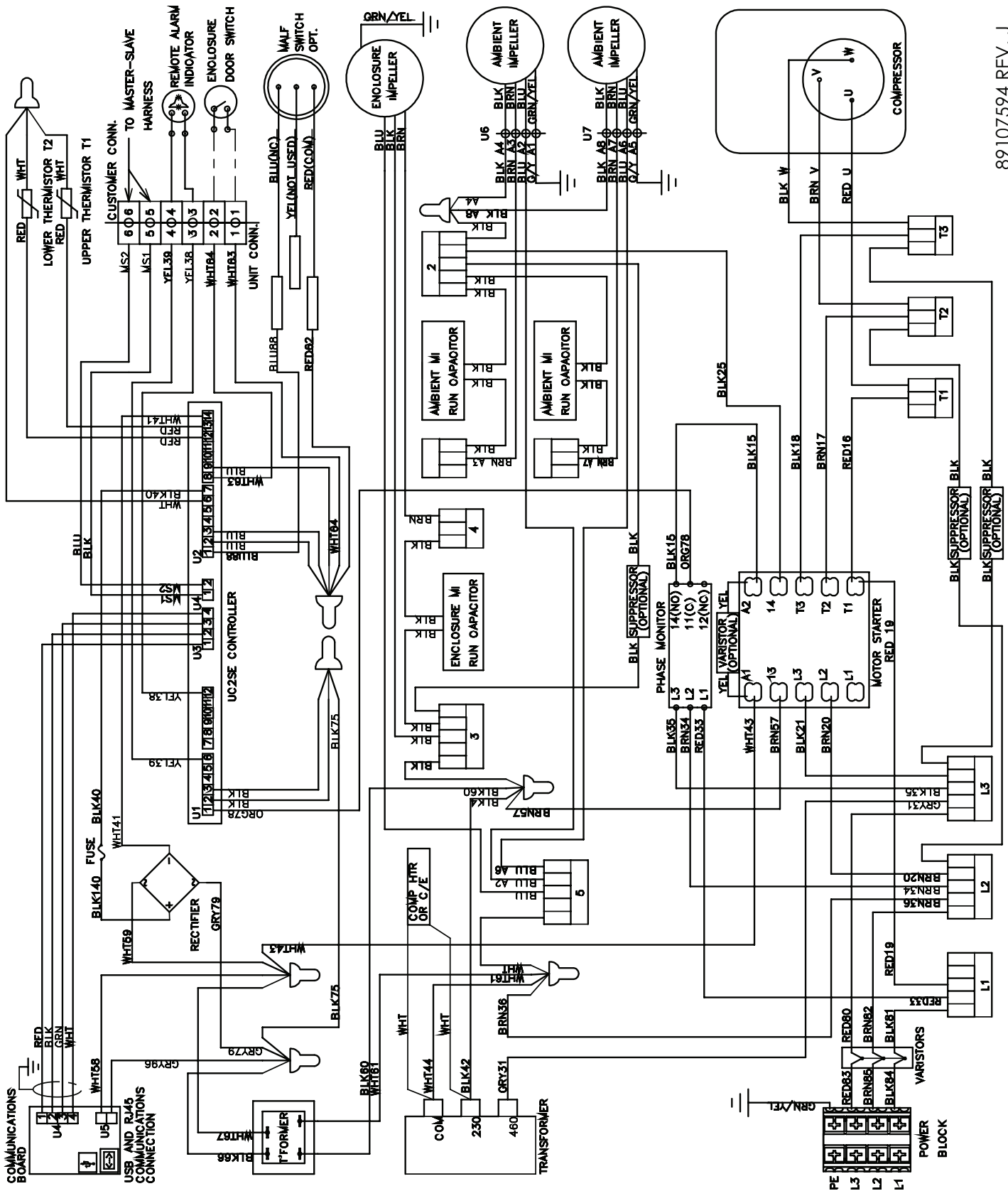
* 115VAC BLK / 230VAC WHT



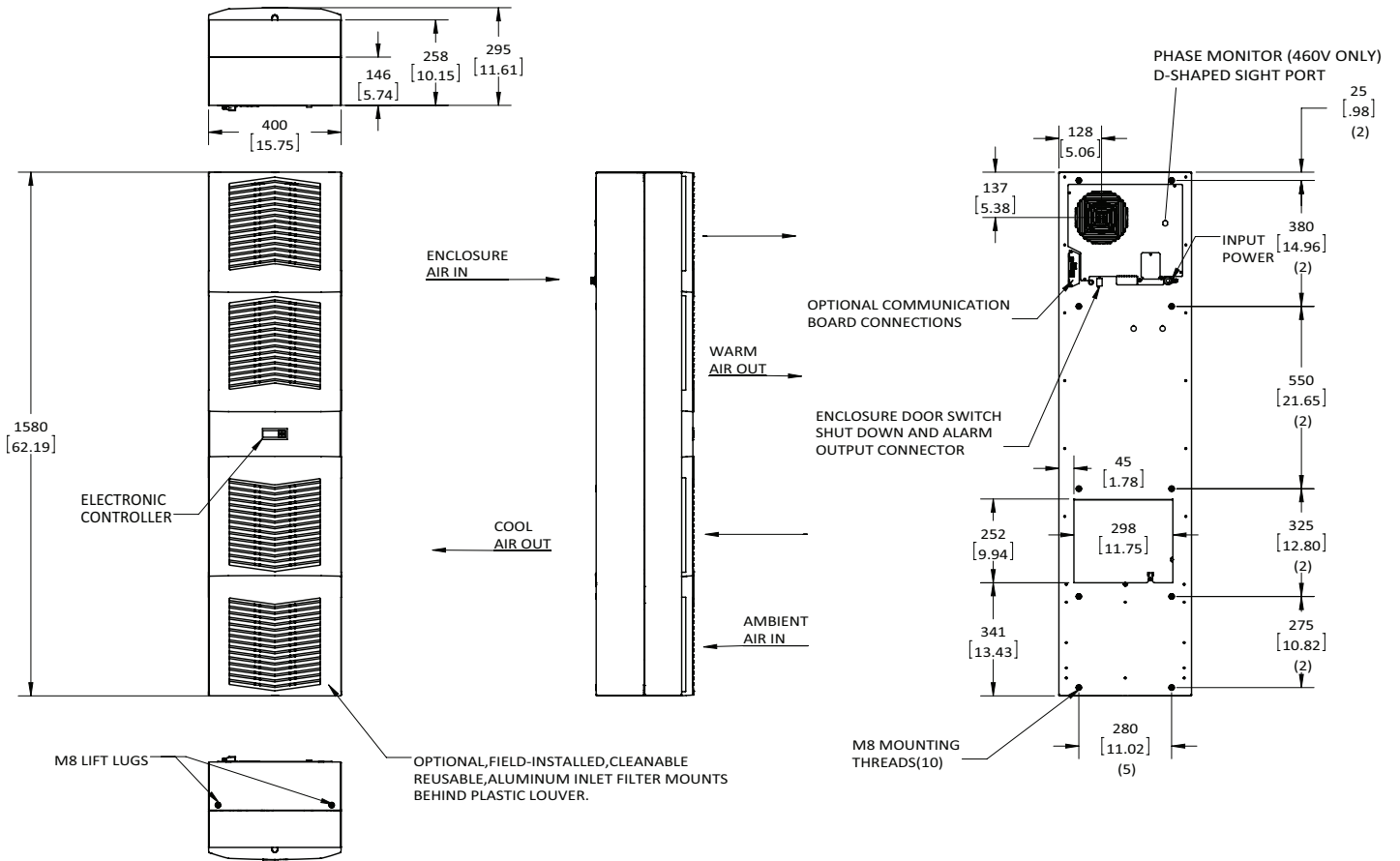
89107590 REV. H

*-115VAC BLK / 250VAC WHT

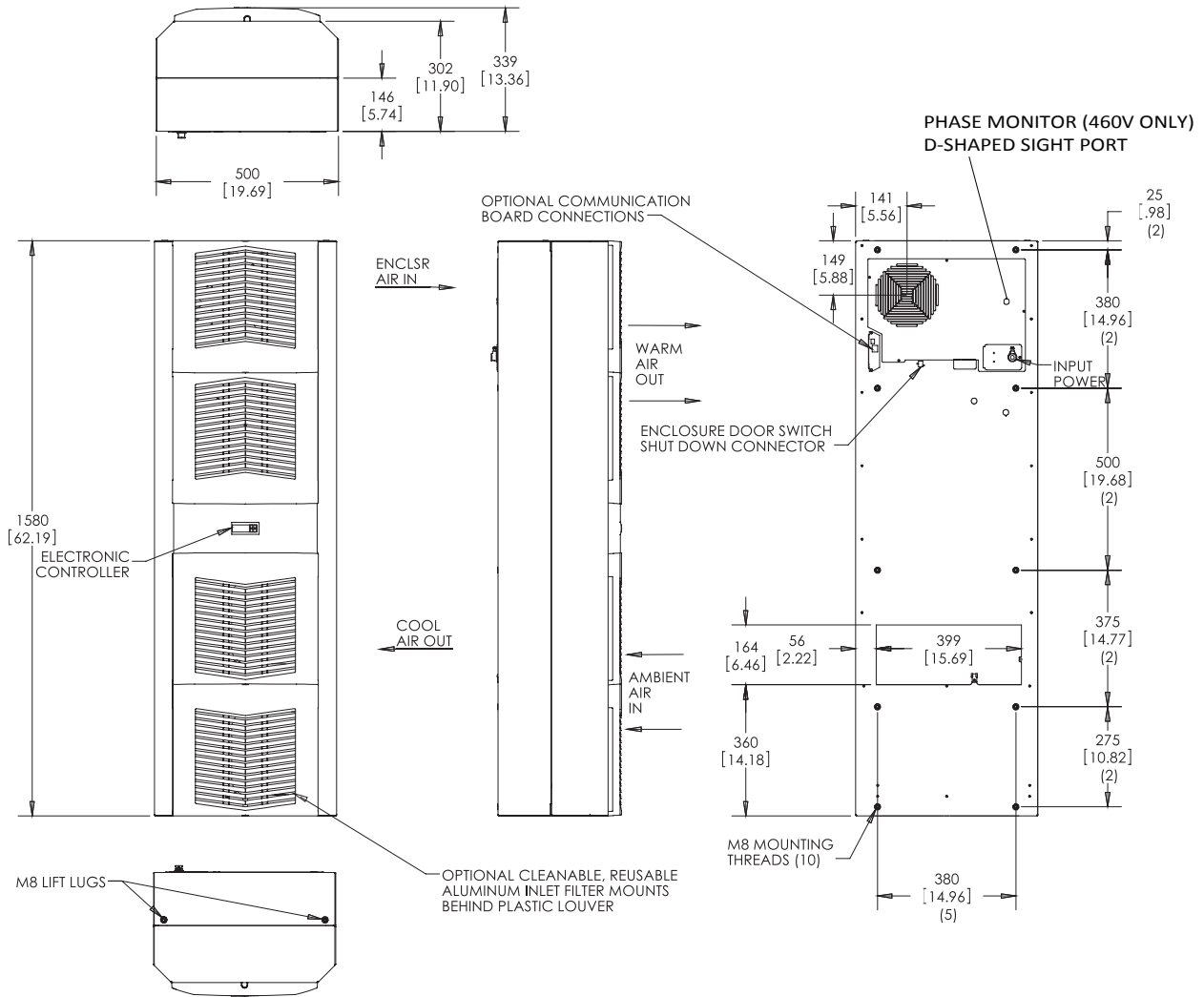




S16 DIMENSIONAL DRAWING 2000/2500W

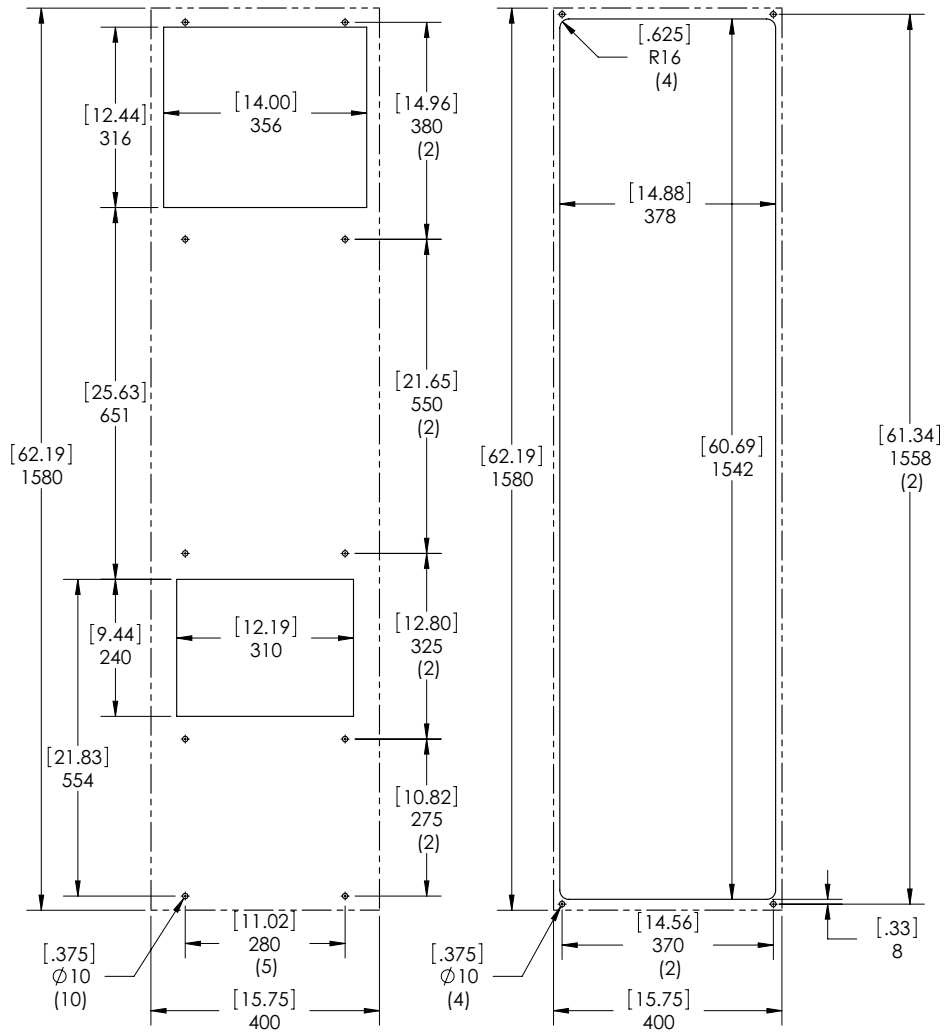


4000W



S16 INSTALLATION INSTRUCTION

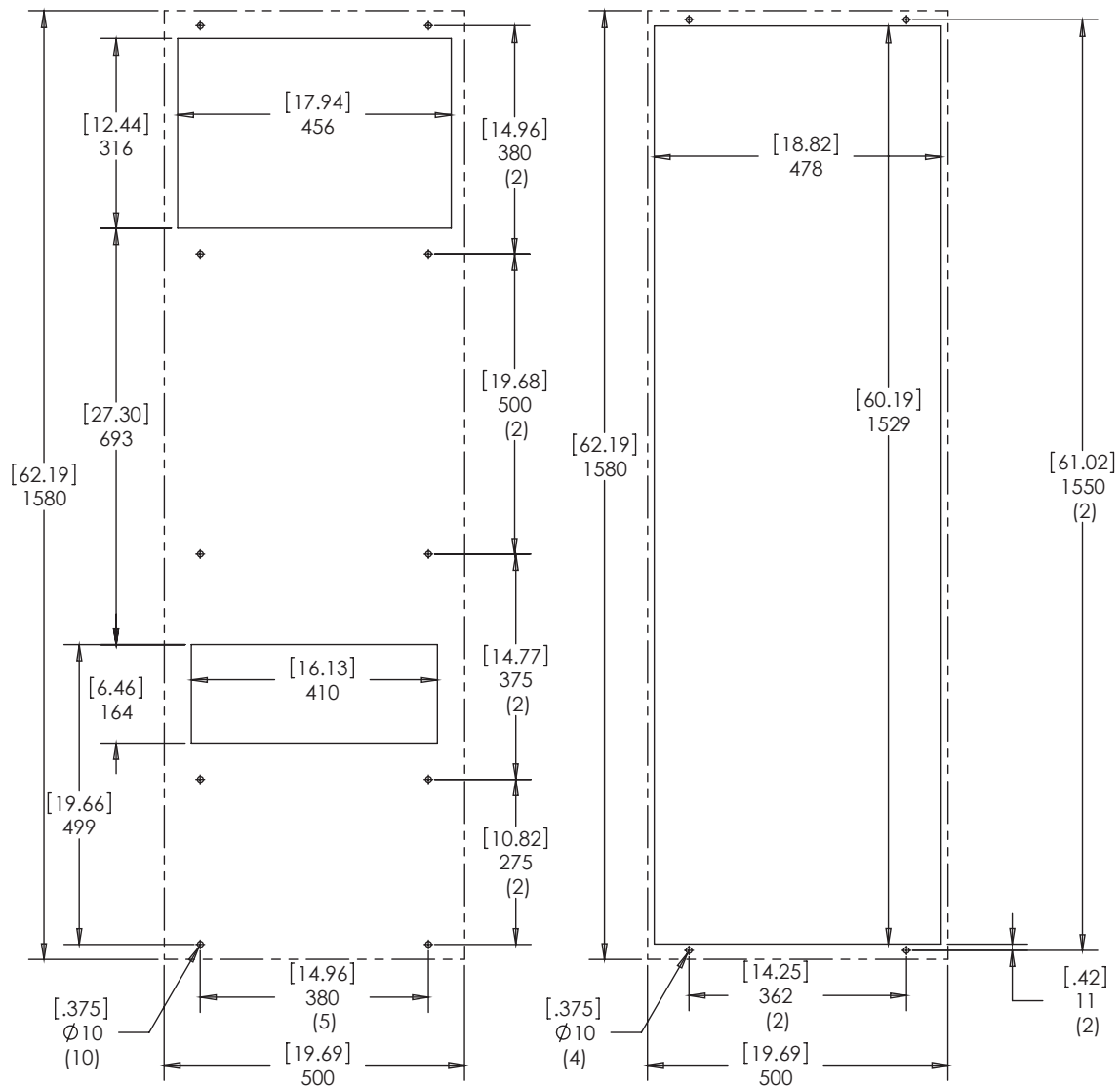
1. See Receiving The Air Conditioner and Handling and Testing The Air Conditioner on page 6.
2. Using the cutout template provided with the unit, prepare the enclosure. See Figure 16 and Figure 17. The front of the unit requires a half meter clearance for proper airflow. Five centimeters is required on each side of the unit. To avoid condensate overflow, unit must be mounted within 3° of level.
3. Refer to mounting instructions on page 8.
4. Adjust controller to desired cabinet temperature. Refer to Displaying and Changing Program Variables on page 13 for controller adjustment and operation.



Surface Mount

Partial and Full Recess Mount

Figure 16
S16 2000/2500W Cutout Drawing
 Dashed Lines Represent The Air Conditioner



Surface Mount

Partial Recess Mount

Figure 17
S16 4000W Cutout Drawing
 Dashed Lines Represent The Air Conditioner

S16 UNIT CHARACTERISTICS (115V, 230V)

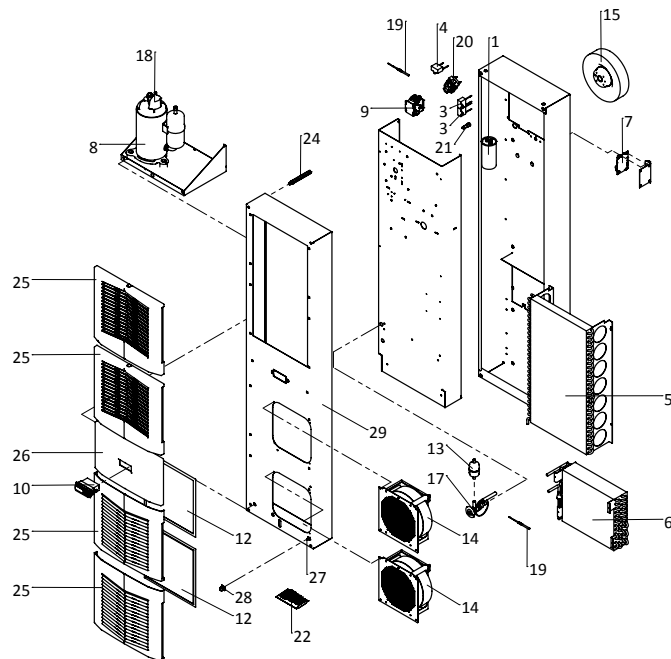
| UNIT | 2000W 115V | 2000W 230V | 2500W 115V | 2500W 230V |
|---|---------------------------------|-------------|-------------|-------------|
| CATALOG NUMBER | | | | |
| Indoor Model without Communications Board (°C Controller) | S162016G031 | S162026G031 | S162516G031 | S162526G031 |
| Indoor Model with Communications Board (°C Controller) | S162016G041 | S162026G041 | S162516G041 | S162526G041 |
| Indoor Model without Communications Board (°F Controller) | S162016G050 | S162026G050 | S162516G050 | S162526G050 |
| Indoor Model with Communications Board (°F Controller) | S162016G060 | S162026G060 | S162516G060 | S162526G060 |
| COOLING PERFORMANCE | | | | |
| Total L35 L35, 50Hz, according to DIN EN 14511 (Watt) | 2200 | 2200 | 2680 | 2680 |
| Cooling performance L35 L35 (Watt) 50/60Hz | 2200 / 2400 | 2200 / 2400 | 2680 / 2800 | 2680 / 2800 |
| Cooling performance L35 L50 (Watt) 50/60Hz | 1820 / 1900 | 1820 / 1900 | 2200 / 2300 | 2200 / 2300 |
| Refrigerant | R134a | R134a | R134a | R134a |
| Refrigerant Charge (g) | 709 | 709 | 737 | 737 |
| Max. allowable operating pressure (p. max.) bar | 28 | 28 | 28 | 28 |
| Operating Temperature Range (Min/Max °C) | 10 / 55 | 10 / 55 | 10 / 55 | 10 / 55 |
| Operating Temperature Range (Min/Max °F) | 50 / 131 | 50 / 131 | 50 / 131 | 50 / 131 |
| Setting Temperature Range (Min. / Max. °C Controller) | 20 / 55 | 20 / 55 | 20 / 55 | 20 / 55 |
| Setting Temperature Range (Min. / Max. °F Controller) | 72 / 120 | 72 / 120 | 72 / 120 | 72 / 120 |
| Airflow at 0 Static Pressure: | | | | |
| Internal loop (m ³ /h) | 454 / 484 | 454 / 484 | 447 / 466 | 447 / 466 |
| External loop (m ³ /h) | 634 / 654 | 634 / 654 | 1104 / 1143 | 1104 / 1143 |
| Duty Cycle | 100% | 100% | 100% | 100% |
| ELECTRICAL DATA | | | | |
| Rated Voltage (Volt) | 115 | 230 | 115 | 230 |
| Phase | 1~ | 1~ | 1~ | 1~ |
| Frequency (Hz) | 50/60 | 50/60 | 50/60 | 50/60 |
| Operating Range | +/- 10% | +/- 10% | +/- 10% | +/- 10% |
| Max power Consumption 50/60Hz L35 L35 (Watt) | 930 / 1090 | 940 / 1140 | 1230 / 1420 | 1320 / 1650 |
| Max power Consumption 50/60Hz L35 L50 (Watt) | 1280 / 1410 | 1070 / 1320 | 1500 / 1970 | 1500 / 1910 |
| Max. Nominal Current (Amps) | 11.1 / 12.5 | 5.7 / 7.2 | 16.1 / 16.9 | 8.0 / 10.1 |
| Starting Current (Amps) | 37 / 41 | 19 / 24 | 53 / 56 | 26 / 33 |
| Pre-fuse T (Amps) | 15 | 15 | 20 | 15 |
| Agency Approvals | UL Listed, cUL Listed, GOST, CE | | | |
| Power Input Description | Terminal Block | | | |
| PERFORMANCE FACTOR (EER), 50Hz, DIN EN 14511 | | | | |
| Cooling Performance L35 / L35 | 2.37 / 2.20 | 2.34 / 2.11 | 2.18 / 1.97 | 2.03 / 1.70 |
| Cooling Performance L35 / L50 | 1.42 / 1.35 | 1.70 / 1.44 | 1.47 / 1.17 | 1.47 / 1.20 |
| ENCLOSURE PROTECTION | | | | |
| IP Code (External loop / Internal loop) | IP34 / IP54 | IP34 / IP54 | IP34 / IP54 | IP34 / IP54 |
| CONTROLLER | | | | |
| Description | Smart controller with display | | | |
| Controller Location | Ambient Side | | | |
| Factory Default Setpoint (°C Controller) | 35 | 35 | 35 | 35 |
| Factory Default Setpoint (°F Controller) | 80 | 80 | 80 | 80 |
| SOUND LEVEL | | | | |
| At 1 M (dBA) | 70 | 70 | 72 | 72 |
| UNIT CONSTRUCTION | | | | |
| Material | Steel | | Steel | |
| Finish | RAL 7035 | | RAL 7035 | |
| UNIT DIMENSIONS | | | | |
| Height (mm) | 1580 | 1580 | 1580 | 1580 |
| Width (mm) | 400 | 400 | 400 | 400 |
| Depth (mm) | 295 | 295 | 295 | 295 |
| Weight (kg) | 68 | 68 | 70 | 70 |

S16 UNIT CHARACTERISTICS (460V)

| UNIT | 2000W 460V | 2500W 460V | 4000W 460V |
|---|---------------------------------|-------------|-------------|
| CATALOG NUMBER | | | |
| Indoor Model without Communications Board (°C Controller) | S162046G031 | S162546G031 | S164046G031 |
| Indoor Model with Communications Board (°C Controller) | S162046G041 | S162546G041 | S164046G041 |
| Indoor Model without Communications Board (°F Controller) | S162046G050 | S162546G050 | S164046G050 |
| Indoor Model with Communications Board (°F Controller) | S162046G060 | S162546G060 | S164046G060 |
| COOLING PERFORMANCE | | | |
| Total L35 L35, 50Hz, according to DIN EN 14511 (Watt) | 2200 | 2680 | 4000 |
| Cooling performance L35 L35 (Watt) 50/60Hz | 2200 / 2400 | 2680 / 2800 | 4000 / 4500 |
| Cooling performance L35 L50 (Watt) 50/60Hz | 1820 / 1900 | 2200 / 2300 | 3050 / 3450 |
| Refrigerant | R134a | R134a | R134a |
| Refrigerant Charge (g) | 709 | 850 | 1247 |
| Max. allowable operating pressure (p. max.) bar | 28 | 28 | 28 |
| Operating Temperature Range (Min/Max °C) | 10 / 55 | 10 / 55 | 10 / 55 |
| Operating Temperature Range (Min/Max °F) | 50 / 131 | 50 / 131 | 50 / 131 |
| Setting Temperature Range (Min. / Max. °C Controller) | 20 / 55 | 20 / 55 | 20 / 55 |
| Setting Temperature Range (Min. / Max. °F Controller) | 72 / 120 | 72 / 120 | 72 / 120 |
| Airflow at 0 Static Pressure: | | | |
| Internal loop (m³/h) | 454 / 484 | 447 / 466 | 494 / 576 |
| External loop (m³/h) | 634 / 654 | 1104 / 1143 | 1070 / 1184 |
| Duty Cycle | 100% | 100% | 100% |
| ELECTRICAL DATA | | | |
| Rated Voltage (Volt) | 400 / 460 | 400 / 460 | 400 / 460 |
| Phase | 3~ | 3~ | 3~ |
| Frequency (Hz) | 50/60 | 50/60 | 50/60 |
| Operating Range | +/- 10% | +/- 10% | +/- 10% |
| Max power Consumption 50/60Hz L35 L35 (Watt) | 900 / 1180 | 1150 / 1510 | 1790 / 2310 |
| Max power Consumption 50/60Hz L35 L50 (Watt) | 1060 / 1340 | 1330 / 1770 | 1850 / 2430 |
| Max. Nominal Current (Amps) | 2.2 / 2.6 | 3.2 / 3.4 | 4.2 / 4.4 |
| Starting Current (Amps) | 7 / 9 | 11 / 11 | 14 / 15 |
| Pre-fuse T (Amps) | 15 | 15 | 15 |
| Agency Approvals | UL-listed, cUL-listed, GOST, CE | | |
| Power Input Description | Terminal Block | | |
| PERFORMANCE FACTOR (EER), 50Hz, DIN EN 14511 | | | |
| Cooling Performance L35 / L35 | 2.44 / 2.03 | 2.33 / 1.85 | 2.23 / 1.95 |
| Cooling Performance L35 / L50 | 1.72 / 1.42 | 1.65 / 1.30 | 1.65 / 1.42 |
| ENCLOSURE PROTECTION | | | |
| IP Code (External loop / Internal loop) | IP34 / IP54 | IP34 / IP54 | IP34 / IP54 |
| CONTROLLER | | | |
| Description | Smart controller with display | | |
| Controller Location | Ambient side | | |
| Factory Default Setpoint (°C Controller) | 35 | 35 | 35 |
| Factory Default Setpoint (°F Controller) | 80 | 80 | 80 |
| SOUND LEVEL | | | |
| At 1 M (dBA) | 70 | 72 | 72 |
| UNIT CONSTRUCTION | | | |
| Material | Steel | | |
| Finish | RAL 7035 | | |
| UNIT DIMENSIONS | | | |
| Height (mm) | 1580 | 1580 | 1580 |
| Width (mm) | 400 | 400 | 500 |
| Depth (mm) | 295 | 295 | 340 |
| Weight (kg) | 68 | 70 | 92 |

S16 COMPONENTS (115V, 230V)

| Item | Model Series | 2000W 115V | 2000W 230V | 2500W 115V | 2500W 230V |
|-------------------------|---------------------------------|----------------|----------------|----------------|----------------|
| Part Descriptions | | Part Numbers | | | |
| 1 | Capacitor, Compressor, Run | 89107716SP | 89107716SP | 89107712 | 89107712SP |
| 2 | Capacitor, Compressor, Start | 10103208SP | NA | 10103232SP | NA |
| 3 | Capacitor, Condenser Blower | 52603213SP | 52603214SP | 52603213SP (2) | 52603214SP (2) |
| 4 | Capacitor, Evaporator Blower | 52603213SP | 52603214SP | 52603213SP | 52603214SP |
| 5 | Coil, Condenser | 89107341SP | 89107341SP | 89107341SP | 89107341SP |
| 6 | Coil, Evaporator | 89110233SP | 89110233SP | 89110233SP | 89110233SP |
| 7 | Communication Board (optional) | 89109039SP | 89109039SP | 89109039SP | 89109039SP |
| 8 | Compressor | 10101685SP | 89107887SP | 10101688SP | 89107889SP |
| 9 | Contacting Compressor | 89088986SP | 89088986SP | 89088986SP | 89088986SP |
| 10 | Smart Controller °C | 89123540SP | 89123540SP | 89123540SP | 89123540SP |
| | Smart Controller °F | 90272220SP | 90272220SP | 90272220SP | 90272220SP |
| 11 | Drain Tube Kit (optional) | 101027177SP | 101027177SP | 101027177SP | 101027177SP |
| 12 | Filter Air, Reusable (optional) | 89106977SP | 89106977SP | 89106977SP (2) | 89106977SP (2) |
| 13 | Filter/Dryer | 52602800SP | 52602800SP | 52602800SP | 52602800SP |
| 14 | Impeller, Condenser | 89107374SP | 89107375SP | 89107374SP (2) | 89107375SP (2) |
| 15 | Impeller, Evaporator | 101091123SP | 101091124SP | 101091123SP | 101091124SP |
| 16 | Relay, Compressor Start | 89105934SP | NA | 89105936SP | NA |
| 17 | Thermal Expansion Valve | 10104038SP | 10104038SP | 89114096SP | 10104038SP |
| 18 | Thermal Overload, Compressor | 10100773SP | NA | NA | NA |
| 19 | Thermistor | 89075654SP (2) | 89075654SP (2) | 89075654SP (2) | 89075654SP (2) |
| 20 | Transformer, 24V | 10100694SP | 10100693SP | 10100694SP | 10100693SP |
| 21 | Fuse (Controller) | 89085114SP | 89085114SP | 89085114SP | 89085114SP |
| Accessories | | | | | |
| 22 | Installation Kit | 90221632QDSP | 90221632QDSP | 90221632QDSP | 90221632QDSP |
| 23 | Unit Mounting Gasket | 90241619SP | 90241619SP | 90241619SP | 90241619SP |
| 24 | Mounting standoffs | 89105490SP (4) | 89105490SP (4) | 89105490SP (4) | 89105490SP (4) |
| Structural Parts | | | | | |
| 25 | Louvered Grill Panel | 89105410SP (4) | 89105410SP (4) | 89105410SP (4) | 89105410SP (4) |
| 26 | Controller Bezel Panel | 89105411SP | 89105411SP | 89105411SP | 89105411SP |
| 27 | Panel Strike Clip (Pkg. 4) | 90245472SP | 90245472SP | 90245472SP | 90245472SP |
| 28 | Body Catch Clip (Pkg. 4) | 89105486SP | 89105486SP | 89105486SP | 89105486SP |
| 29 | Body Front Shell | 89107454SP | 89107454SP | 89102801SP | 89102801SP |



S16 COMPONENTS (460V)

| Item | Model Series | 2000W 460V | 2500W 460V | 4000W 460V |
|-------------------------|---------------------------------|----------------|----------------|----------------|
| | Part Descriptions | Part Numbers | | |
| 3 | Capacitor, Condenser Blower | 52603214SP | 52603214SP (2) | 52603214SP (2) |
| 4 | Capacitor, Evaporator Blower | 52603214SP | 52603214SP | 52603220SP |
| 5 | Coil, Condenser | 89107341SP | 89107341SP | 89108064SP |
| 6 | Coil, Evaporator | 89110233SP | 89110233SP | 89115695SP |
| 7 | Communication Board (optional) | 89109039SP | 89109039SP | 89109039SP |
| 8 | Compressor | 89107888SP | 89107890SP | 89107934SP |
| 9 | Contacting Compressor | 89107296SP | 89107296SP | 89107296SP |
| 10 | Smart Controller °C | 89123540SP | 89123540SP | 89123540SP |
| | Smart Controller °F | 90272220SP | 90272220SP | 90272220SP |
| 11 | Drain Tube Kit (optional) | 101027177SP | 101027177SP | 101027177SP |
| 12 | Filter Air, Reusable (optional) | 89106977SP | 89106977SP (2) | 89106977SP (2) |
| 13 | Filter/Dryer | 52602800SP | 52602800SP | 52602806SP |
| 14 | Impeller, Condenser | 89107375SP | 89107375SP (2) | 89107375SP (2) |
| 15 | Impeller, Evaporator | 101091124SP | 101091124SP | 101091139SP |
| 16 | Relay, Overload | 89098323SP | 89098326SP | NA |
| 17 | Thermal Expansion Valve | 89117868SP | 10104038SP | 89114096SP |
| 18 | Thermal Overload, Compressor | 90238425SP | 90238425SP | NA |
| 19 | Thermistor | 89075654SP (2) | 89075654SP (2) | 89075654SP (2) |
| 20 | Transformer, 24V | 10100693SP | 10100693SP | 10100693SP |
| 21 | Fuse (Controller) | 89085114SP | 89085114SP | 89085114SP |
| Accessories | | | | |
| 22 | Installation Kit | 90221632QDSP | 90221632QDSP | 90221632QDSP |
| 23 | Unit Mounting Gasket | 90241619SP | 90241619SP | 90241620SP |
| 24 | Mounting standoffs | 89105490SP (4) | 89105490SP (4) | 89105491SP (4) |
| Structural Parts | | | | |
| 25 | Louvered Grill Panel | 89105410SP (4) | 89105410SP (4) | 89105410SP (4) |
| 26 | Controller Bezel Panel | 89105411SP | 89105411SP | 89105411SP |
| 27 | Panel Strike Clip (Pkg. 4) | 90245472SP | 90245472SP | 90245472SP |
| 28 | Body Catch Clip (Pkg. 4) | 89105486SP | 89105486SP | 89105486SP |
| 29 | Body Front Shell | 89107454SP | 89102801SP | 89104006SP |
| 30 | Transformer, 460/230V | 101006128SP | 101006128SP | 101006128SP |
| 31 | Relay, Phase Monitor | 89097986SP | 89097986SP | 89097986SP |

MAINTENANCE COMPRESSOR

The compressor requires no maintenance. It is hermetically sealed, properly lubricated at the factory and should provide years of satisfactory operating service.

INLET AIR FILTER (FIELD INSTALLED OPTION)

This air conditioner was designed with a dust resistant condenser coil. This allows it to be run filterless in most applications. Should you decide the filter is necessary in your application, regular maintenance to clean this filter will assure normal operation of the air conditioner. The easily removable inlet air filter is located behind the louvered grille. If necessary filter maintenance is delayed or ignored, the maximum ambient temperatures under which the unit is designed to operate will be decreased.

If the compressor's operating temperature increases above designed conditions due to a dirty or clogged filter (or plugged condenser coil), the air conditioner's compressor will stop operating due to actuation of the thermal overload cut-out switch located on the compressor housing. As soon as the compressor temperature has dropped to within the switch's cut-in setting, the compressor will restart automatically. However the above condition will continue to take place until the filter or coil has been cleaned. It is recommended that power to the air conditioner be interrupted intentionally when abnormally high compressor operating temperature causes automatic shut-down of the unit. The above described shut-down is symptomatic of a clogged or dirty filter or condenser coil, thus causing a reduction in cooling air flow across the surface of the compressor and condenser coil.

HOW TO REMOVE, CLEAN OR INSTALL AN OPTIONAL INLET AIR FILTER

Aluminum washable air filters are designed to provide excellent filtering efficiency with a high dust holding capacity and a minimum amount of resistance to air flow. Because they are constructed entirely of aluminum they are lightweight and easy to service. To achieve maximum performance from your air handling equipment, air filters should be cleaned on a regular basis.

The inlet air filter is located behind the front louvered grille. To access the filter, pull the filter up and out of retaining tabs in the bottom of the front louvered grille. The filter may now be cleaned or a new filter installed.

Cleaning Instructions:

1. Flush the filter with warm water from the exhaust side to the intake side. **DO NOT USE CAUSTICS.**
2. After flushing, allow filter to drain. Placing it with a corner down will assure complete drainage.

CONDENSER AND EVAPORATOR AIR MOVERS

Impeller motors require no maintenance. All bearings, shafts, etc. are lubricated during manufacturing for the life of the motor.

If one of the condenser impeller motors (ambient impellers) should fail, it is not necessary to remove the air conditioner from the cabinet or enclosure to replace the blower. The condenser blower is mounted on its own bracket and is easily accessible by removing the louvered grille.



CAUTION

Operation of the air conditioner in areas containing airborne caustics or chemicals can rapidly deteriorate filters, condenser coils, blowers and motors, etc. Contact Pentair Equipment Protection for special recommendations.

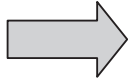
MAINTENANCE / INSPECTION RECOMMENDATIONS
(Perform on a biannual basis - more frequently as required by the operating environment)

| Status ✓ or x | Check Point | Description |
|---------------|---------------------------|--|
| | Operational Inspection | Run unit through all modes of operations and record temperatures, voltages, amperes. |
| | Visual Inspection | Visually inspect unit for damage, cleanliness, missing, loose and/or broken parts. |
| | Filter Maintenance | Inspect, clean and replace filter as necessary. |
| | Clean Unit | Inspect and clean coils, fans/blowers, louvers, air inlets/outlets, interior and exterior of unit as required. |
| | Controller Cycle Sequence | Cycle the controller through all modes of operation to ensure proper cycling and temperature setpoint operation. Adjust to proper setting (typically 25°C-30°C). |
| | Air Flow and Circulation | Inspect air conditioning unit, cabinet and surrounding area to ensure adequate airflow to and from the unit on both the inlet and outlet air channels for the ambient air and cabinet air. |
| | Seals, Gaskets and Leaks | Inspect and repair the seals, gaskets and access holes around the unit and/or cabinet that show signs of leaking air and/or moisture. |
| | Condensate and Drains | Inspect and clean the condensate pans and drains to ensure proper drainage and dissipation of moisture. |
| | Electrical/Wiring | Inspect for loose, damaged, corroded or chaffing wiring and connections. Tighten, insulate or tie-up wires as required. |
| | Options and Accessories | Check operation and functionality of optional and accessory items such as digital display/controller, door switches, alarm switches, air baffles/deflectors, etc. |
| | Refrigeration System | Inspect refrigeration tubing/lines for signs of leaks, rubbing, corrosion or damage. Check the compressor for proper operation, mounting and visible signs of exposure to high heat. |
| | Maintenance Records | Update maintenance records on the unit and in the management system. |

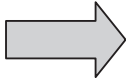
BASIC AIR CONDITIONING TROUBLE SHOOTING CHECK LIST - REMOTE ACCESS CONTROL VERSION

1. Check manufacturer's nameplate located on the unit for correct power supply.
2. Turn on power to the unit. The controller will display a start up sequence then revert to the normal temperature display mode. Is the correct enclosure temperature displayed?


Note: The temperature may be alternating with an alarm code.

| | | |
|---|---|--|
| YES, proceed to step 3. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Open controller fuse » Controller in alarm condition. See Alarm Condition Display on page 15. » Defective controller » Defective thermistor - check by blowing warm air across the thermistor. If display temperature rises, thermistor is operable. |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Replace part</div> |

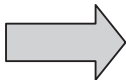
3. The cooling status indication (symbol G) should be on. Is the symbol on? If not, press and hold the lower right snowflake button for greater than five seconds. Is the cooling mode symbol now on?

| | | |
|--|---|--|
| YES, proceed to step 4. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Defective controller |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Replace part</div> |

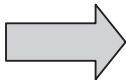
4. The evaporator (Enclosure or COLD air) fan/impeller should turn on. Is there airflow?

| | | |
|--|---|--|
| YES, proceed to step 5. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Controller in alarm condition. See Alarm Condition Display on page 15. » Open motor winding » Stuck fan/impeller » Obstructed blades/wheel » Defective motor capacitor |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Repair or Replace defective part</div> |

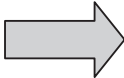
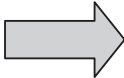
5. Start the cooling cycle by changing the cooling setpoint parameter (r01) to the low limit of 20°C. Symbol 1 should be displayed indicating a call for cooling. If symbol 1 is flashing, the unit is in Restart Time Delay mode. Within 6 minutes, symbol 1 should display without flashing. Is symbol 1 displayed without flashing?

| | | |
|---|---|--|
| YES, proceed to step 7. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Unit still in Recycle Time Delay mode » Enclosure temperature below cooling setpoint temperature |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Wait and/or heat enclosure thermistor T1</div> |

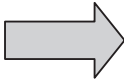
6. The compressor and the condenser (Ambient or HOT air) impeller(s) should turn on. Is there adequate airflow?

| | | |
|---|---|--|
| YES, proceed to step 8. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Open motor winding(s) » Stuck impeller(s) » Obstructed wheel(s) » Defective motor capacitor(s) |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Repair or Replace defective part</div> |

7. Carefully check the compressor for proper operation - motor should cause slight vibration and the outer case of the compressor should be warm. Is the compressor showing signs of this?

| | |
|---|---|
| YES, wait 5 minutes, proceed to step 9. | |
| NO, possible problem: |  |
| » Defective start or run capacitor | |
| » Defective overload | |
| » Defective start relay | |
| » Defective contactor | |
| » Defective compressor |  |
| Repair or Replace defective part | |

8. Make sure the coils are clean then check the evaporator air in and air out temperatures. If the temperatures are the same:

| | |
|---|---|
| » Possible loss of refrigerant |  |
| » Possible bad valves in compressor | |
| Repair or Replace defective part | |

BASIC AIR CONDITIONING TROUBLE SHOOTING CHECKLIST

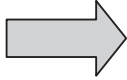
| SYMPTOM | POSSIBLE CAUSE |
|---|--|
| Unit won't cool | Clogged fins on coil(s) |
| | Dirty filter |
| | Impeller(s) not running |
| | Compressor not running |
| | Compressor runs, but has bad valves |
| | Loss of refrigerant |
| Compressor tries to start but won't run | Low line voltage at start. Should be +/-10% rated voltage. |
| | Compressor motor stuck |
| | Bad contactor |
| | Bad overload switch |
| | Bad run/start capacitor |
| Unit blows breakers | Undersized breaker/fuse or not time delayed |
| | Short in system |
| Getting water in enclosure | Drain plugged |
| | Drain tube kinked |
| | Enclosure not sealed (allowing humidity in) |
| | Mounting gasket damaged |

For additional support, refer to Pentair Cooling Sales and Service Contacts on page 4.

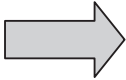
3-PHASE BASIC AIR CONDITIONING TROUBLE SHOOTING CHECK LIST - REMOTE ACCESS CONTROL VERSION

1. Check manufacturer's nameplate located on the unit for correct power supply.
2. Turn on power to the unit. The controller will display a start up sequence then revert to the normal temperature display mode. Is the correct enclosure temperature displayed?

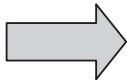
Note: The temperature may be alternating with an alarm code.

| | | |
|---|---|--|
| YES, proceed to step 3. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Open controller fuse » Controller in alarm condition. See ALARM CONDITION DISPLAY on page 60. » Defective controller » Defective thermistor - check by blowing warm air across the thermistor. If display temperature rises, thermistor is operable. |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Replace part</div> |

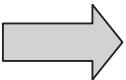
3. The cooling status indication (symbol G) should be on. Is the symbol on? If not, press and hold the lower right "snowflake" button for greater than five seconds. Is the cooling mode symbol now on?

| | | |
|--|---|--|
| YES, proceed to step 4. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Defective controller |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Replace part</div> |


4. The evaporator (Enclosure or "COLD" air) fan/impeller should turn on. Is there airflow?

| | | |
|--|---|--|
| YES, proceed to step 5. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Controller in alarm condition. See ALARM CONDITION DISPLAY on page 60. » Open motor winding » Stuck fan/impeller » Obstructed blades/wheel » Defective motor capacitor |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Repair or Replace defective part</div> |

5. Check phase monitor indicator light, is it illuminated?

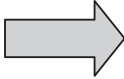
| | | |
|--|---|---|
| YES, proceed to step 6. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Incorrect electrical phasing |  | <p>De-energize unit and swap any two power leads to unit. If problem still persists, replace phase monitor. Refer to phase monitor section of this manual for additional information.</p> |

6. Start the cooling cycle by changing the cooling setpoint parameter (r01) to the low limit of 72 F (22 C). Symbol 1 should be displayed indicating a call for cooling. If symbol 1 is flashing, the unit is in Restart Time Delay mode. Within 6 minutes, symbol 1 should display without flashing. Is symbol 1 displayed without flashing?

| | | |
|---|---|--|
| YES, proceed to step 7. | | |
| NO, possible problem: | | |
| <ul style="list-style-type: none"> » Unit still in Recycle Time Delay mode » Enclosure temperature below cooling setpoint temperature |  | <div style="background-color: black; color: white; padding: 5px; display: inline-block;">Wait and/or heat enclosure thermistor T1</div> |

7. The compressor and the condenser (Ambient or “HOT” air) impeller(s) should turn on. Is there adequate airflow?

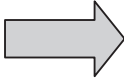
| |
|--|
| YES, proceed to step 8. |
| NO, possible problem: » Open motor winding(s) » Stuck impeller(s) » Obstructed wheel(s) » Defective motor capacitor(s) |



Repair or Replace defective part

8. Carefully check the compressor for proper operation - motor should cause slight vibration and the outer case of the compressor should be warm. Is the compressor showing signs of this?

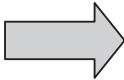
| |
|---|
| YES, wait 5 minutes, proceed to step 9. |
| NO, possible problem: » Defective start or run capacitor » Defective overload » Defective start relay » Defective contactor » Defective compressor |



Repair or Replace defective part

9. Make sure the coils are clean then check the evaporator “air in” and “air out” temperatures. If the temperatures are the same:

| |
|---|
| » Possible loss of refrigerant » Possible bad valves in compressor |
|---|



Repair or Replace defective part

3-PHASE SYMPTOMS AND POSSIBLE CAUSES - REMOTE ACCESS CONTROL VERSION

| SYMPTOM | POSSIBLE CAUSE |
|---|---|
| Unit won't cool | Clogged fins on coil(s) |
| | Dirty filter |
| | Impellers not running |
| | Compressor not running |
| | Compressor runs, but has bad valves |
| | Loss of refrigerant |
| Compressor tries to start but won't run | Low line voltage at start. Should be +/- 10% rated voltage. |
| | Compressor motor stuck |
| | Bad contactor |
| | Bad overload switch |
| | Bad run/start capacitor |
| Unit blows breakers | Undersized breaker/fuse or not time delayed |
| | Short in system |
| Getting water in enclosure | Drain plugged |
| | Drain tube kinked |
| | Enclosure not sealed (allowing humidity in) |
| | Mounting gasket damaged |

For additional technical support, contact Pentair Equipment Protection at 800-896-2665.



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