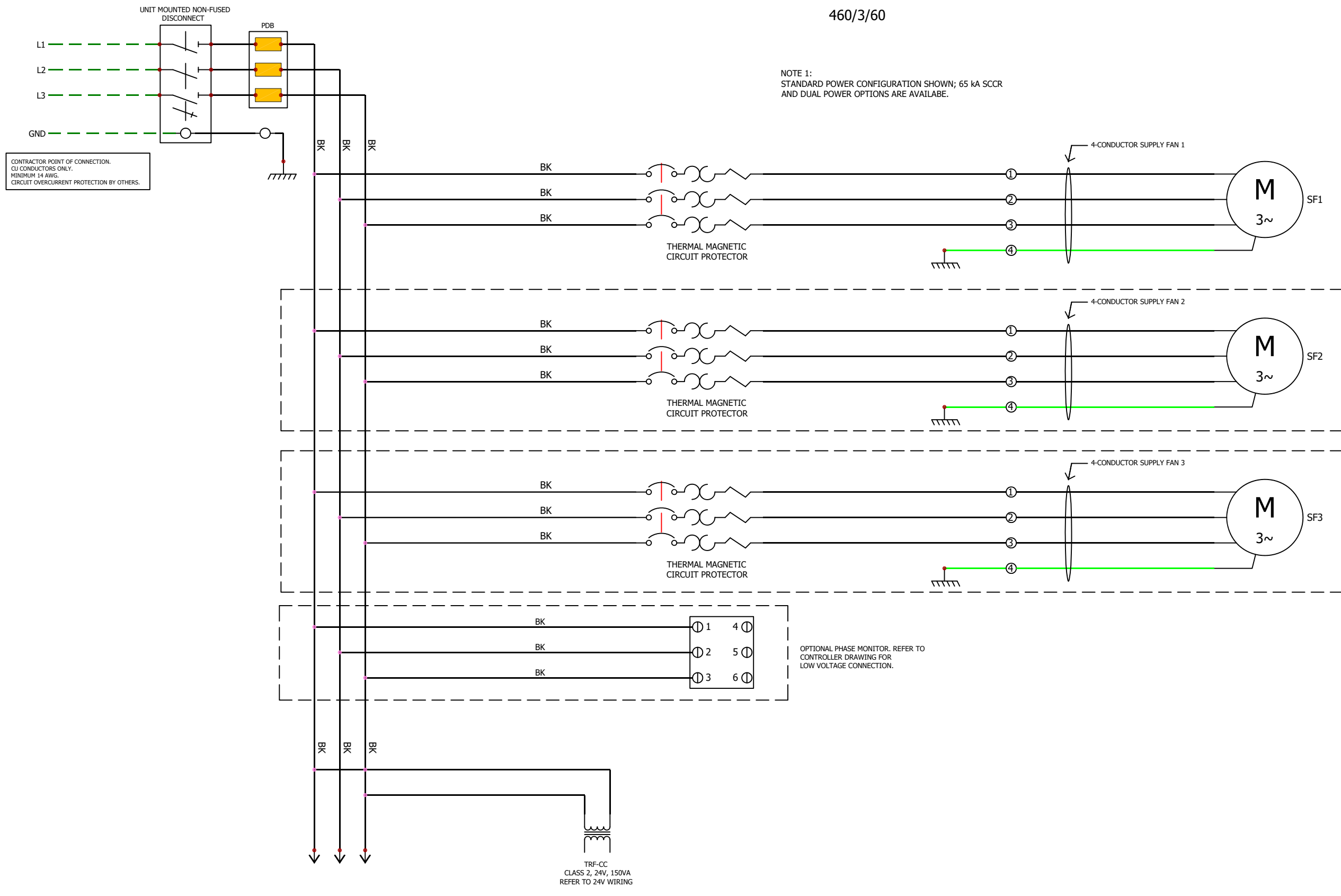


MC2 Sample Wiring - Split Air-Cooled

Document book

| 0 | 6/7/2019 | | |
|------|----------|------|--|
| REV. | DATE | NAME | CHANGES |
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| | | | REVISION 0 |
| | | | CONTRACT: |
| | | | SCHEME 22 |

460/3/60



NOTE 1:
STANDARD POWER CONFIGURATION SHOWN; 65 KA SCCR
AND DUAL POWER OPTIONS ARE AVAILABE.

CONTRACTOR POINT OF CONNECTION.
CU CONDUCTORS ONLY.
MINIMUM 14 AWG.
CIRCUIT OVERCURRENT PROTECTION BY OTHERS.

NOTE 2:
TWO SUPPLY FANS REQUIRED
FOR UNITS 42 kW (12.0T) -
70 kW (20.0T) CAPACITY

NOTE 3:
THREE SUPPLY FANS REQUIRED
FOR UNITS 88 kW (25.0T) -
105 kW (30.0T) CAPACITY

OPTIONAL PHASE MONITOR. REFER TO
CONTROLLER DRAWING FOR
LOW VOLTAGE CONNECTION.

TRF-CC
CLASS 2, 24V, 150VA
REFER TO 24V WIRING

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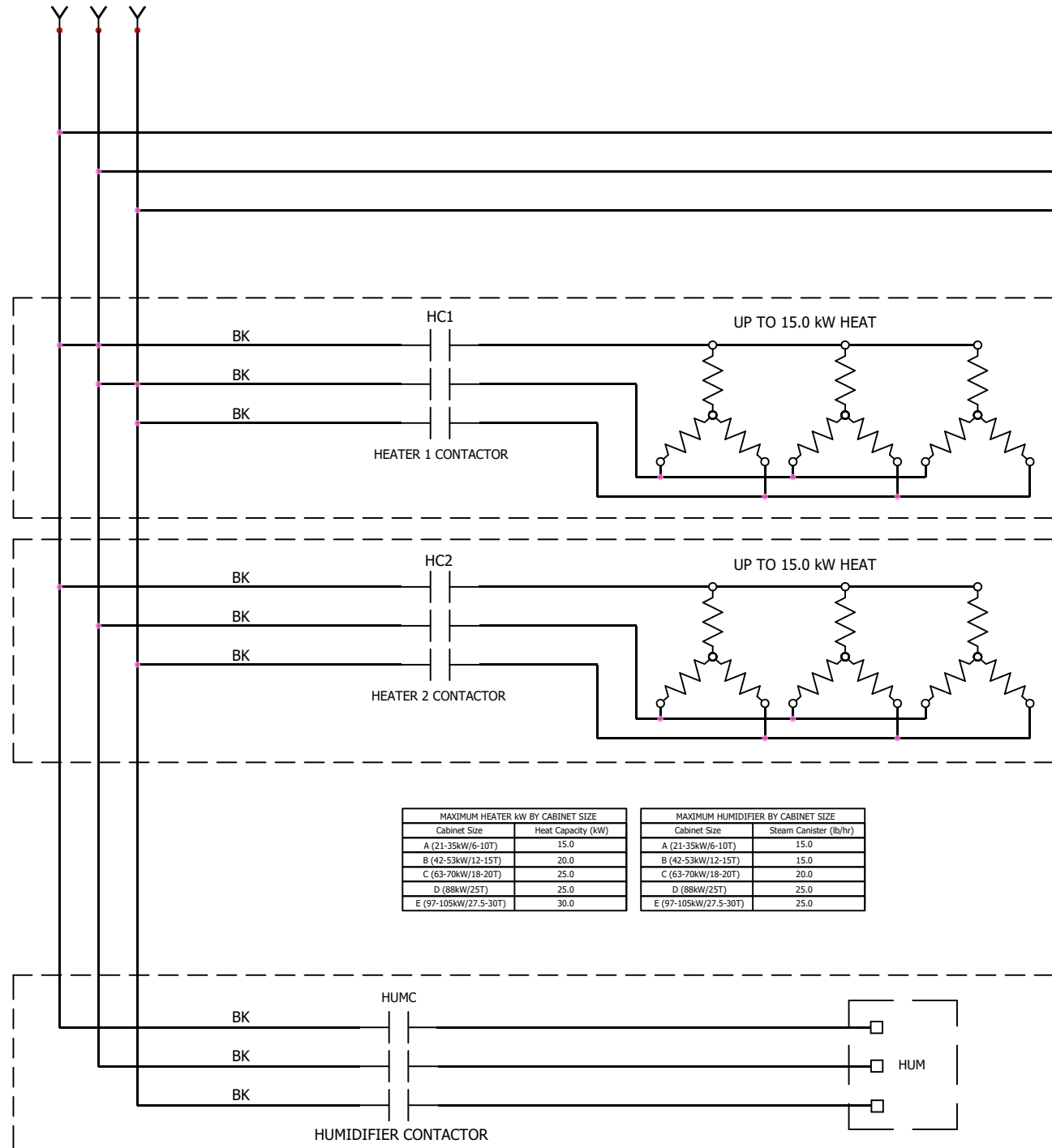
Fan Power
Main Power: 208/1/60

| 0 | 6/7/2019 | | |
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| REV. | DATE | NAME | CHANGES |

REVISION
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SCHEME
04

CONTRACT: LOCATION: **L1** Main electrical closet

SOLIDWORKS Electrical

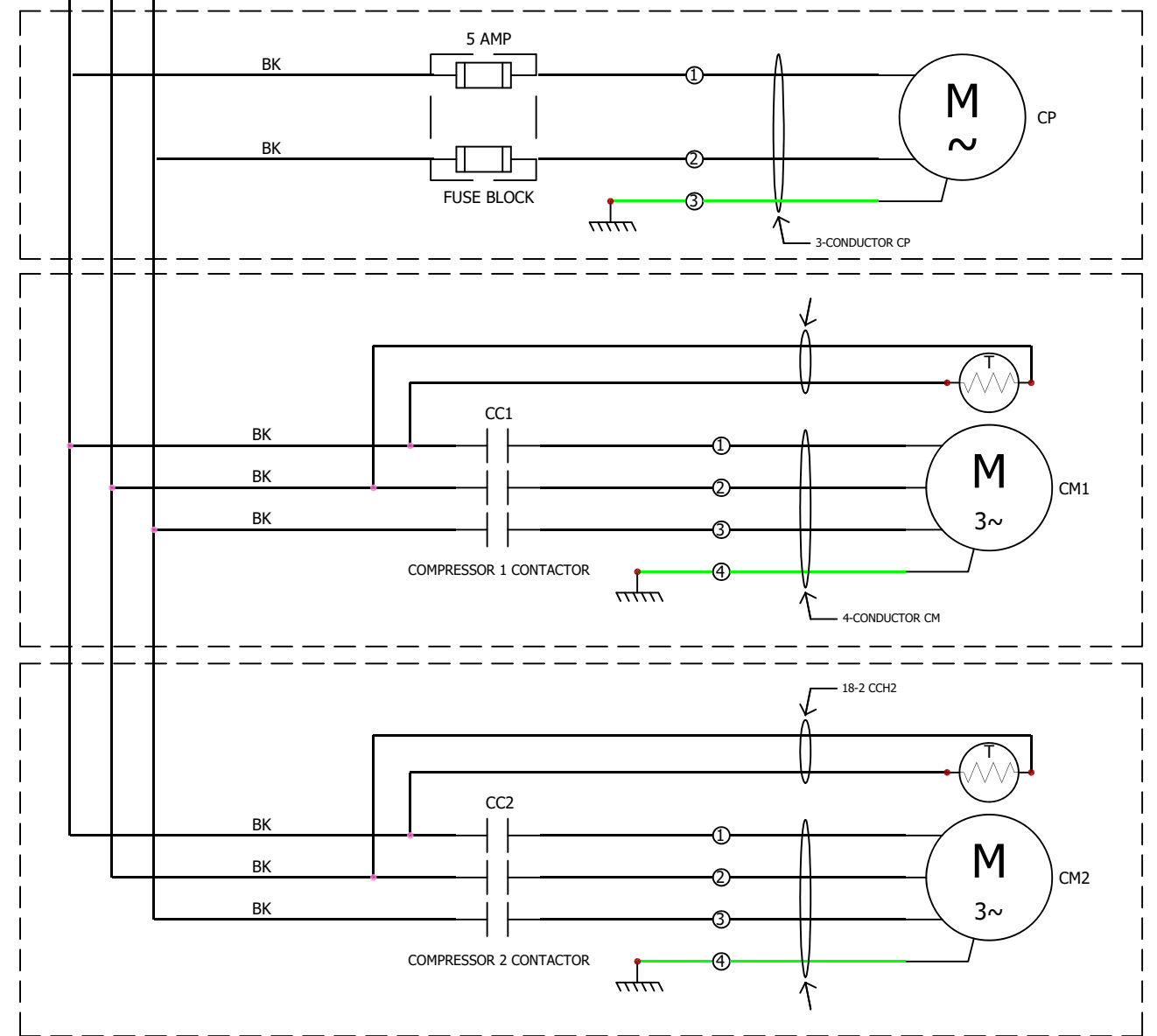


OPTIONAL UNIT MOUNTED ELECTRIC HEAT POWER WIRING

OPTIONAL UNIT MOUNTED ELECTRIC HEAT POWER WIRING

OPTIONAL UNIT MOUNTED HUMIDIFIER POWER WIRING

| MAXIMUM HEATER kW BY CABINET SIZE | | MAXIMUM HUMIDIFIER BY CABINET SIZE | |
|-----------------------------------|--------------------|------------------------------------|------------------------|
| Cabinet Size | Heat Capacity (kW) | Cabinet Size | Steam Canister (lb/hr) |
| A (21-35kW/6-10T) | 15.0 | A (21-35kW/6-10T) | 15.0 |
| B (42-53kW/12-15T) | 20.0 | B (42-53kW/12-15T) | 15.0 |
| C (63-70kW/18-20T) | 25.0 | C (63-70kW/18-20T) | 20.0 |
| D (88kW/25T) | 25.0 | D (88kW/25T) | 25.0 |
| E (97-105kW/27.5-30T) | 30.0 | E (97-105kW/27.5-30T) | 25.0 |



OPTIONAL UNIT POWERED, UNIT MOUNTED CONDENSATE PUMP POWER WIRING

DX SYSTEM CIRCUIT 1 COMPRESSOR 1 & CRANKCASE HEATER POWER WIRING

DX SYSTEM CIRCUIT 2 COMPRESSOR 2 & CRANKCASE HEATER POWER WIRING

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Heat & Accessory Power

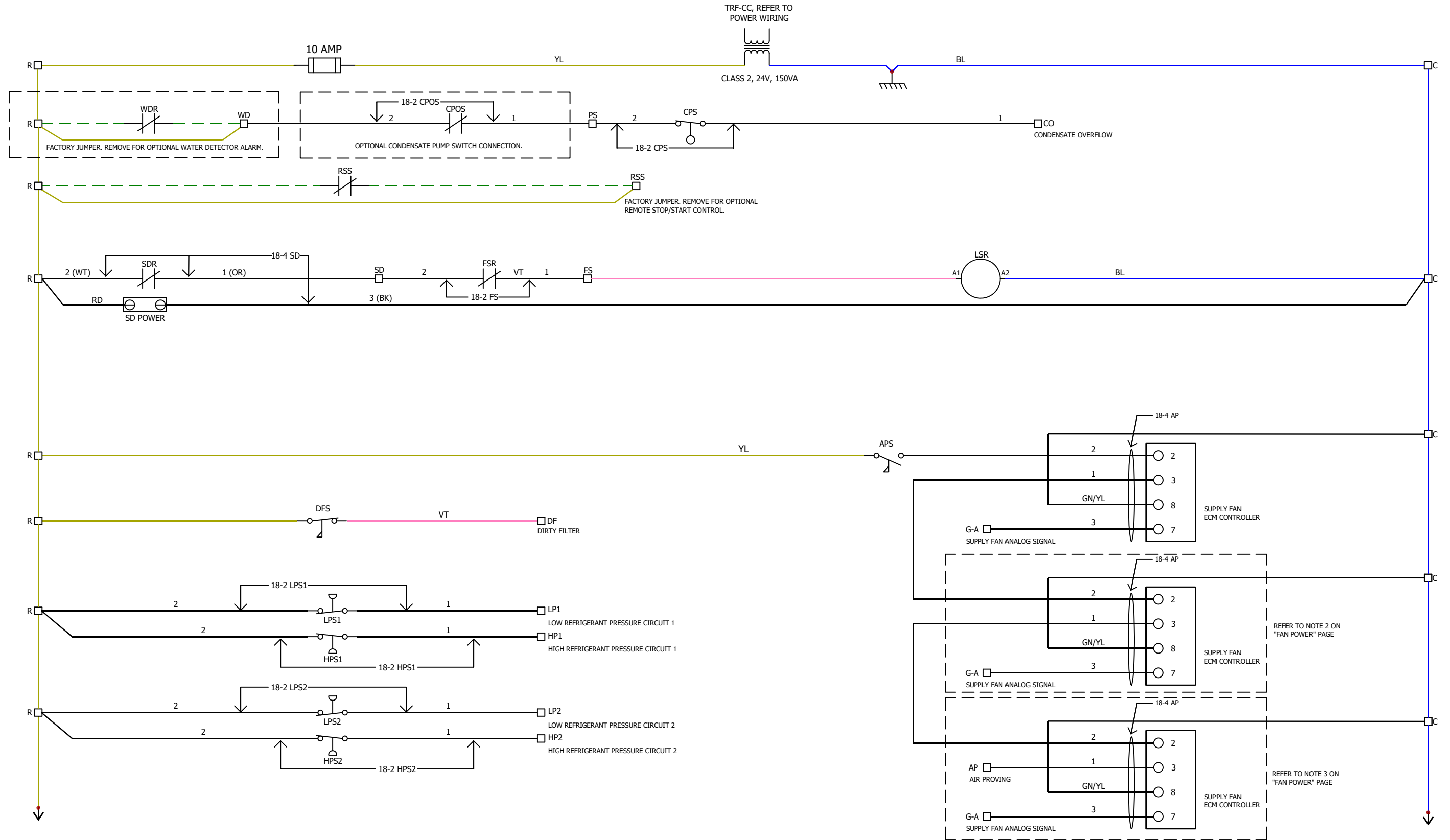
Main Power: 460/3/60

CONTRACT:

LOCATION: **L1** Main electrical closet

| REV. | DATE | NAME | CHANGES |
|------|-----------|------|------------------|
| 0 | 7/15/2019 | | |
| | | | — 4-CONDUCTOR CM |

REVISION
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SCHEME
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24V Safety & Fan

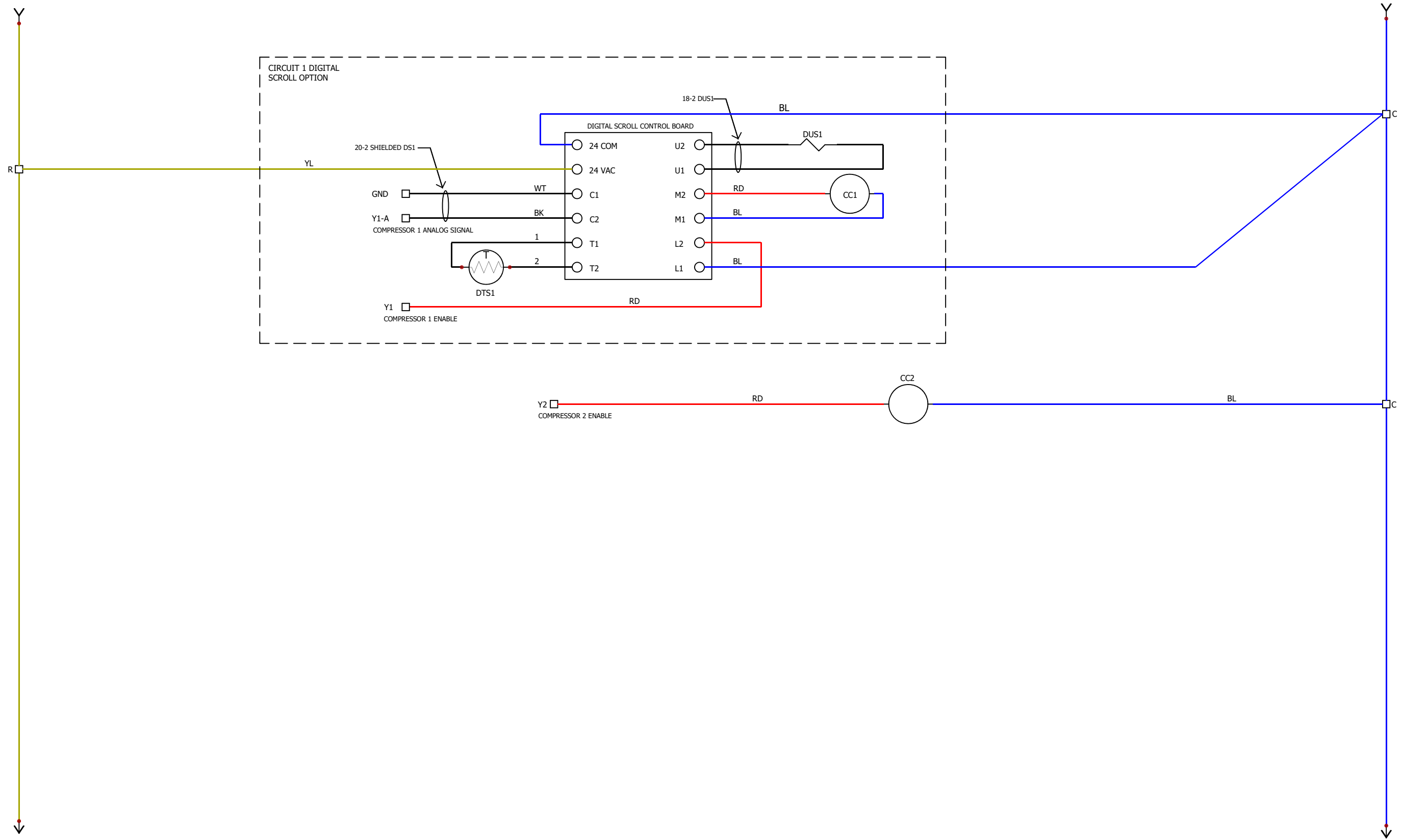
CONTRACT:

LOCATION: L1

Main electrical closet

| REV. | DATE | NAME | CHANGES |
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| 0 | 7/16/2019 | | |
| | | | |
| | | | |

REVISION
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12



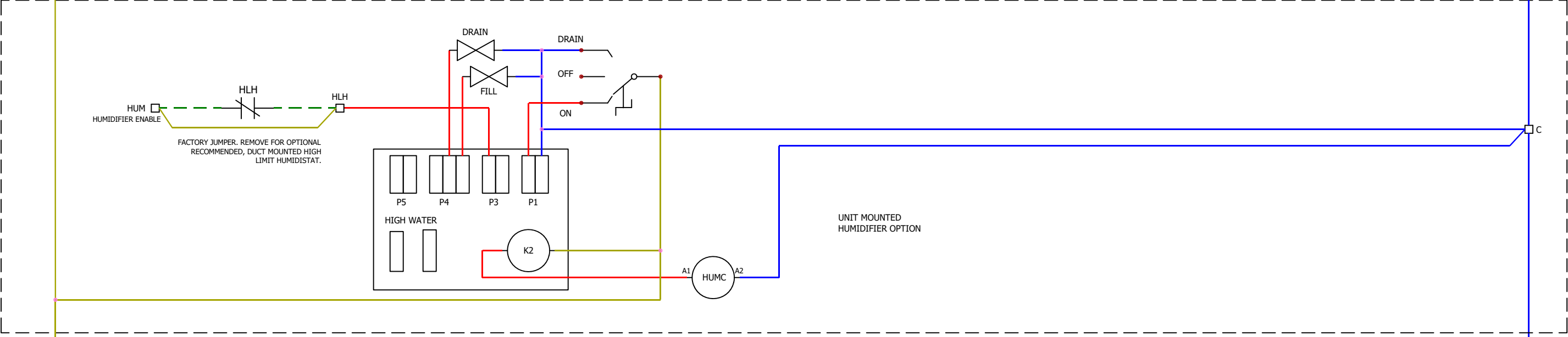
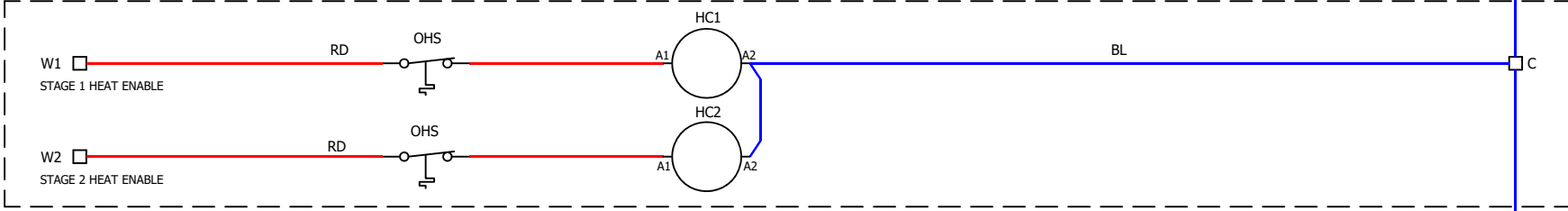
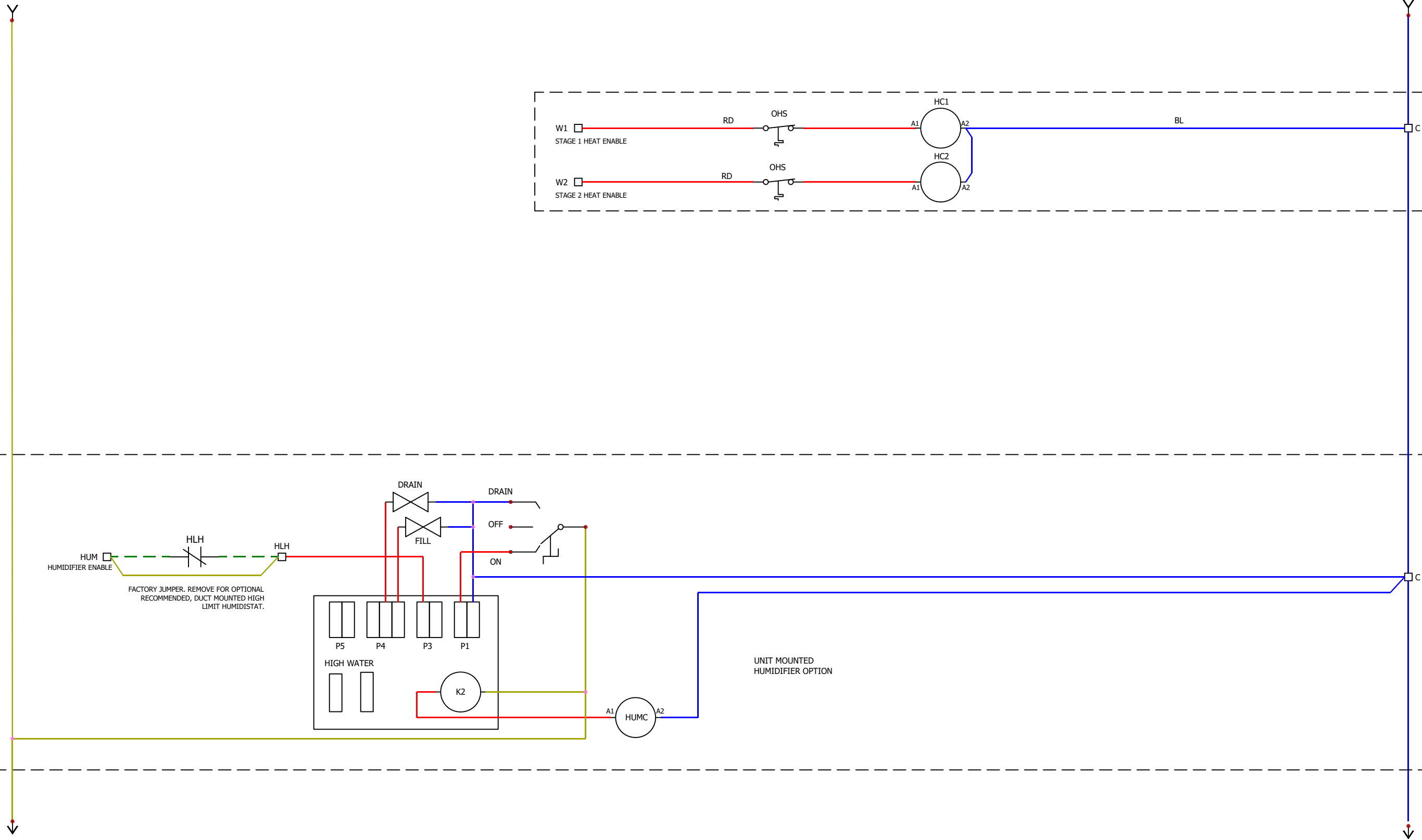
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24V Cooling

| REV. | DATE | NAME | CHANGES |
|------|----------|------|---------|
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REVISION
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 SCHEME
07

CONTRACT: LOCATION: **L1** Main electrical closet



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24V Heat & Humidification

CONTRACT: LOCATION: **L1** Main electrical closet

| | | | |
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| REV. | DATE | NAME | CHANGES |
| 0 | 7/16/2019 | | |

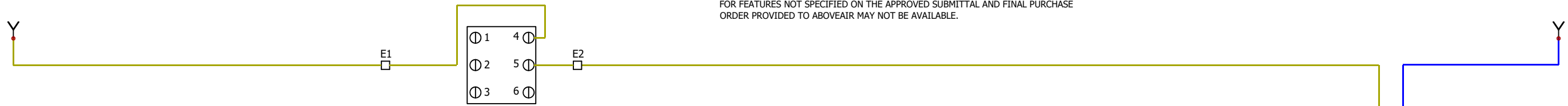
REVISION
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SCHEME
14

NOTE 4:

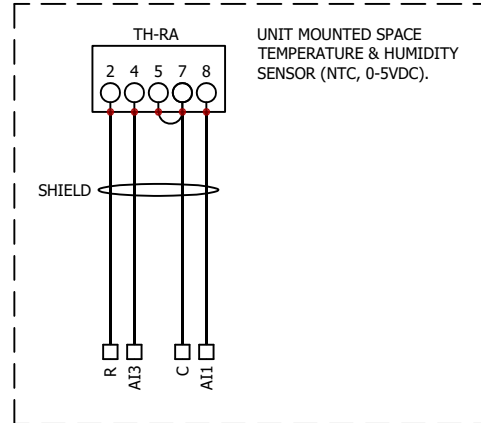
THIS DRAWING DEPICTS A TYPICAL, MINIMUM CONTROLLER CONFIGURATION. FINAL IO AND MODULES INSTALLED IN THE UNIT WILL BE DETERMINED BASED ON THE FEATURES PURCHASED AND REQUIRED IO CONNECTIONS. SPARE IO FOR FEATURES NOT SPECIFIED ON THE APPROVED SUBMITTAL AND FINAL PURCHASE ORDER PROVIDED TO ABOVEAIR MAY NOT BE AVAILABLE.

NOTE 5:

FINAL SENSOR CONFIGURATIONS ARE DEPENDENT ON UNIT CONTROL SEQUENCE, SUBMITTAL AND PURCHASE ORDER DETAILS.

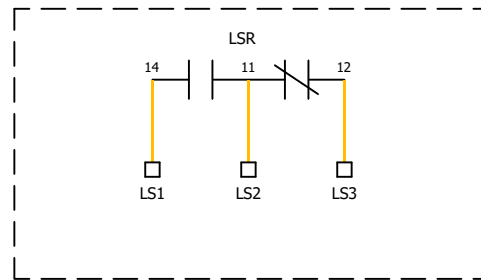


UNIT MOUNTED SENSOR - RETURN TEMPERATURE & HUMIDITY

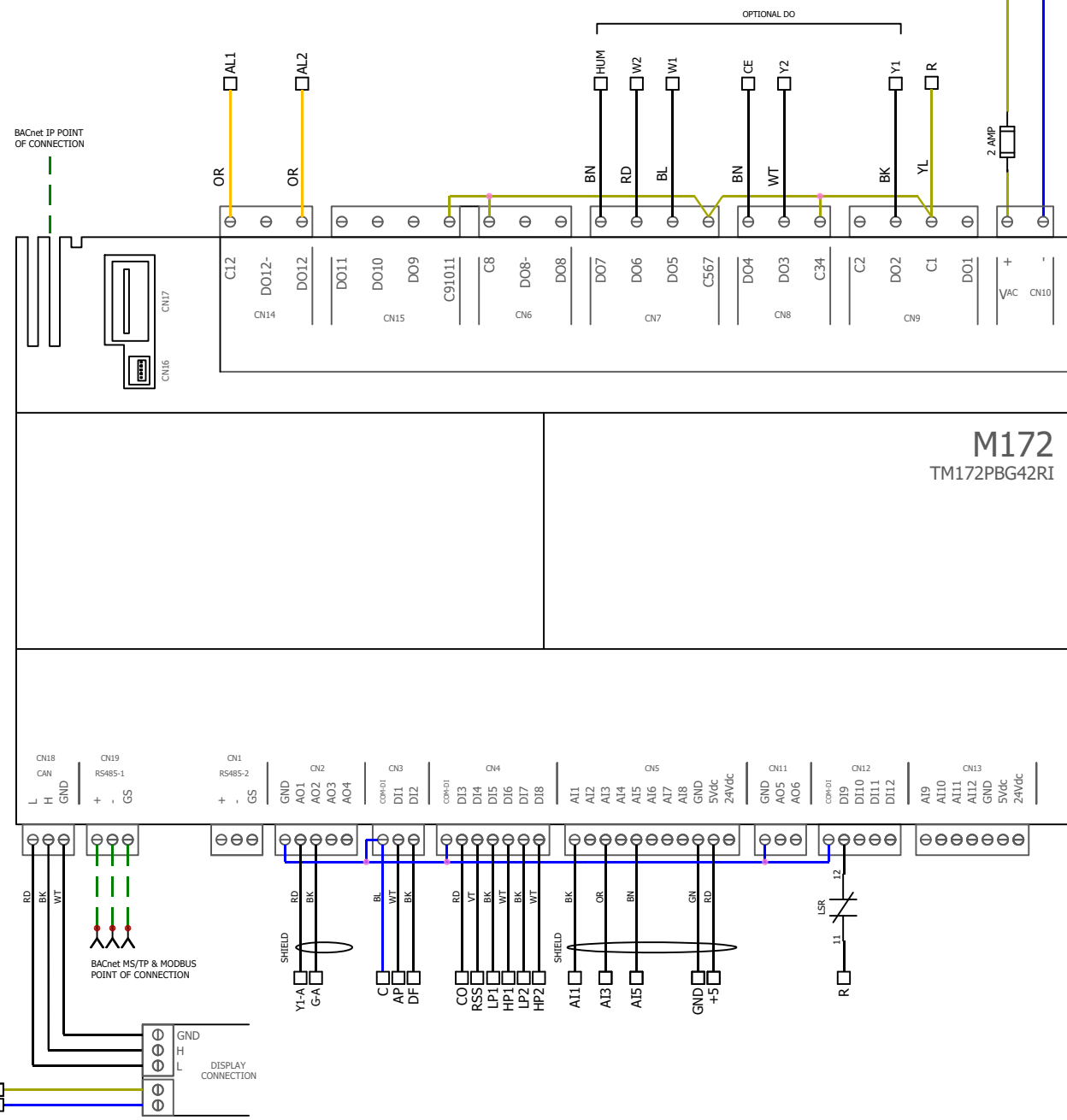
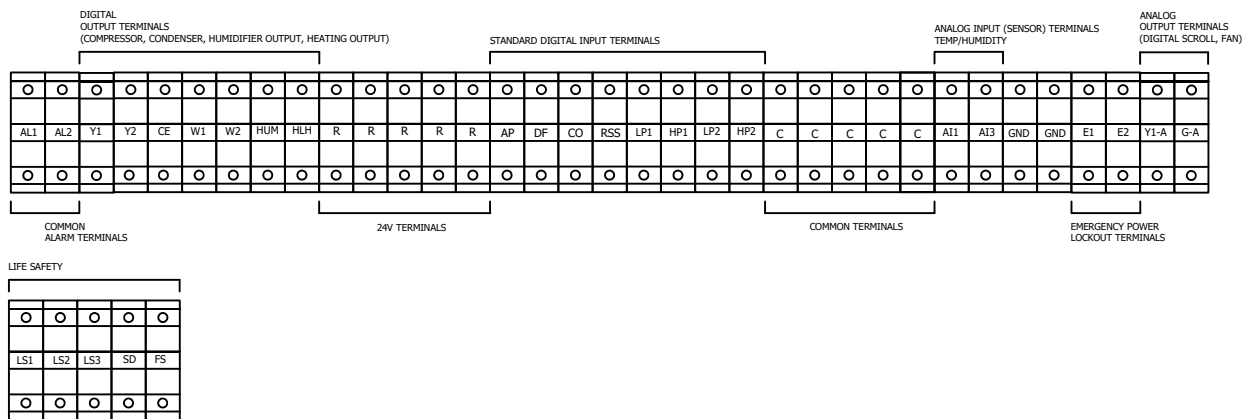


UNIT MOUNTED SPACE TEMPERATURE & HUMIDITY SENSOR (NTC, 0-5VDC).

LIFE SAFETY RELAY DRY CONTACTS



SAMPLE TERMINAL STRIP CONFIGURATION. TERMINALS PROVIDED WILL VARY BASED ON UNIT CONFIGURATION.



M172
TM172PBG42RI

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Sample Control Wiring

Control Sequence: MC-2000S UH

| | | | |
|------|-----------|------|---------|
| REV. | DATE | NAME | CHANGES |
| 0 | 6/12/2019 | | |

REVISION
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SCHEME
08

CONTRACT: LOCATION: L1 Main electrical closet

LEGEND

| | |
|--|-------------------------------|
| | DISPLAY CABLE (FACTORY WIRED) |
| | DISPLAY CABLE (FIELD WIRED) |
| | FIELD WIRING |
| | FACTORY JUMPER OR AUX DEVICE |
| | 24V POWER |
| | COMMON |
| | 24V CONTROL INPUT |
| | 24V CONTROL OUTPUT |
| | ALARM/DRY CONTACT |
| | SHIELDED CABLE |

| | |
|--|---|
| | GROUND |
| | REFRIGERANT PRESURE SWITCH (OPEN ON PRESSURE DECREASE) |
| | REFRIGERANT PRESSURE SWITCH (OPEN ON PRESSURE INCREASE) |
| | NORMALLY OPEN CONTACTS |
| | NORMALLY CLOSED CONTACTS |
| | DIFFERENTIAL PRESSURE SWITCH (OPEN ON PRESSURE INCREASE) |
| | DIFFERENTIAL PRESSURE SWITCH (CLOSE ON PRESSURE INCREASE) |
| | OVERHEAT SWITCH (HEATER SAFETY SWITCH) |
| | DEFROST SWITCH |
| | VALVE/ SOLENOID |
| | ON/OFF/AUTO SWITCH |
| | RELAY OR CONTACTOR HOLDING COIL |
| | RESISTIVE HEAT |
| | TERMINAL |

GENERAL POWER NOTES

- REFER TO UNIT NAMEPLATE FOR ELECTRICAL RATING INFORMATION.
- FIELD WIRING MUST BE IN ACCORDANCE WITH NEC/NFPA 70 AND ALL APPLICABLE LOCAL CODES.
- MAINTAIN MINIMUM 3 FEET CLEAR IN FRONT OF ELECTRICAL BOX OR GREATER AS REQUIRED BY CODE.
- DO NOT ROUTE POWER WIRING WITH CONTROL WIRING.
- ELECTRICAL BOX MAY BE HINGED. INSTALL ALL WIRING WITH PROPER STRAIN RELIEF AND ROUTING TO ALLOW BOX TO ROTATE FREELY ON ITS HINGE WHERE APPLICABLE.
- UNIT IS PHASE CHECKED AT FACTORY. IF FAN OR COMPRESSOR IS RUNNING BACKWARDS, CHANGE PHASING AT MAIN POWER BLOCK ONLY. DO NOT REPHASE INDIVIDUAL COMPONENTS.

COMMON POWER ABBREVIATIONS

| | |
|---------|--------------------------------------|
| CAP | CAPACITOR |
| CC# | COMPRESSOR CONTACTOR 1,2,... |
| CM# | COMPRESSOR MOTOR 1,2,... |
| CNDC/R# | CONDENSER CONTACTOR/RELAY 1,2,... |
| CNDM# | CONDENSER MOTOR 1,2,... |
| CP | CONDENSATE PUMP |
| CPHT | CONDENSATE PAN HEAT TAPE |
| DTS# | DISCHARGE TEMPERATURE SWITCH 1,2,... |
| DUS# | DIGITAL UNLOADER SOLENOID 1,2,... |
| ECM | ELECTRONICALLY COMMUNATED MOTOR |
| EVPC/R | EVAPORATOR CONTACTOR/RELAY |
| HGRV | HOT GAS REHEAT VALVE |
| HGS# | HOT GAS SOLENOID 1,2,... |
| HC/R# | HEATER CONTACTOR/RELAY 1,2,... |
| HUM | HUMIDIFIER |
| HUMC | HUMIDIFIER CONTACTOR |
| MPC# | MAIN POWER CONTACTOR 1, 2,... |
| SF | SUPPLY FAN |
| TRF# | TRANSFORMER 1,2,... |
| VFD | VARIABLE FREQUENCY DRIVE |

ANALOG OUTPUT (0-10VDC) LABELS

| | |
|------|--|
| AE-A | AIRSIDE ECONOMIZER |
| CE-A | CONDENSER VALVE/FAN |
| FE-A | FREE-COOLING VALVE |
| G-A | SUPPLY FAN |
| PH-A | PRE-HEAT |
| RH-A | HOT GAS REHEAT |
| W1-A | ELECTRIC/HOT WATER/STEAM HEAT |
| Y1-A | DIGITAL SCROLL COMPRESSOR 1/MODULATING CHILLED WATER VALVE |

GENERAL CONTROL NOTES

- VDC SIGNALS ARE POLARITY SENSITIVE. FAILURE TO OBSERVE POLARITY MAY RESULT IN IMPROPER OPERATION AND DAMAGE TO SENSORS OR OTHER DEVICES.
- SENSOR CONNECTIONS SHOULD USE SHIELDED, MULTI-CORE CABLE WITH 3-5 CONDUCTORS. THE FOLLOWING WIRE SIZES ARE ACCEPTABLE:
 - UP TO 200': 20 AWG
 - 201' - 350': 18 AWG
 - 351' - 500': 16 AWG
- 24VAC AND COMMON TERMINALS CONNECTED VIA CENTRAL JUMPER.
- DISPLAY TERMINAL DOES NOT CONTAIN SENSORS. CABLE FOR CONNECTION IS PROVIDED BY THE FACTORY.
- ALL DEVICES ARE WIRED THROUGH NC CONTACTS AND ALARM ON LOSS OF 24VAC SIGNAL.
- FACTORY INSTALLED JUMPERS MUST REMAIN IN PLACE OR BE WIRED THROUGH THE INDICATED DEVICE.
- VALVES, SCR HEATERS, AND OTHER DEVICES MAY BE FACTORY MOUNTED OR FIELD WIRED. REFER TO YOUR SUBMITTAL FOR MORE INFORMATION.
- FIELD SUPPLIED DAMPERS, VALVES, SOLENOIDS, ETC. MAY NOT BE POWERED FROM UNIT'S TRANSFORMERS UNLESS SPECIFICALLY NOTED.

COMMON CONTROL ABBREVIATIONS

| | |
|---------|--------------------------------------|
| ACR | AUTO CHANGEOVER RELAY |
| ALR | ALARM RELAY |
| APS | AIR PROVING SWITCH |
| ASE | AIR SIDE ECONOMIZER |
| CC# | COMPRESSOR CONTACTOR 1,2,... |
| CLR | COMPRESSOR LOCKOUT RELAY |
| CNDC/R# | CONDENSER CONTACTOR/RELAY 1,2,... |
| CNDV | CONDENSER VALVE |
| CO | CONDENSATE OVERFLOW |
| COR | CONDENSATE OVERFLOW RELAY |
| CPOS | CONDENSATE PUMP OVERFLOW SWITCH |
| CPS | CONDENSATE PAN SWITCH |
| CWV | CHILLED WATER VALVE |
| DER | DAMPER ENABLE RELAY |
| DFS | DIRTY FILTER SWITCH |
| DFT | DEFROST TEMPERATURE SENSOR |
| DTS# | DISCHARGE TEMPERATURE SWITCH 1,2,... |
| DUS# | DIGITAL UNLOADER SOLENOID 1,2,... |
| ESR | EMERGENCY SHUTOFF RELAY |
| EVPC/R | EVAPORATOR CONTACTOR/RELAY |
| FCS | FAN CYCLING SWITCH |
| FCV | FREECOOL VALVE |
| FRZ | FREEZESTAT |
| FS | FIRESTAT |
| HGRV | HOT GAS REHEAT VALVE |
| HGS# | HOT GAS SOLENOID 1,2,... |
| HC/R# | HEATER CONTACTOR/RELAY 1,2,... |
| HLR | HUMIDIFIER LOCKOUT RELAY |
| HUMC | HUMIDIFIER CONTACTOR |
| HPS# | HIGH PRESSURE SWITCH 1,2,... |
| HWV | HOT WATER VALVE |
| LLS# | LIQUID LINE SOLENOID 1,2,... |
| LPS# | LOW PRESSURE SWITCH 1,2,... |
| LSR | LIFE SAFTEY RELAY |
| MPC# | MAIN POWER CONTACTOR 1,2,... |
| OHS | OVERHEAT SWITCH |
| PDB | POWER DISTRIBUTION BLOCK |
| PE | PUMP ENABLE |
| RSS | REMOTE STOP/START |
| REV# | REVERSING VALVE SOLENOID 1,2,... |
| SD | SMOKE DETECTOR |
| STV | STEAM VALVE |
| TRF# | TRANSFORMER 1,2,... |
| VFD | VARIABLE FREQUENCY DRIVE |
| WD/R | WATER DETECTOR/RELAY |
| WFS/R | WATER FLOW SWITCH/RELAY |

SECTION N/A

| AboveAir Technologies, LLC 5179 Mountville Rd. Frederick, MD 21703 | <h2 style="margin: 0;">Wiring Notes</h2> | | | | REVISION 0 | | | | | | | | |
|--|--|---------------------|------------------------|-----------|----------------------|---------------------|------|---------|---|-----------|--|--|--|
| | CONTRACT: | LOCATION: L1 | Main electrical closet | ENGR: JPN | ENG MGR: MCR | SCHEME 10 | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">REV.</th> <th style="width: 15%;">DATE</th> <th style="width: 15%;">NAME</th> <th style="width: 40%;">CHANGES</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>2/19/2019</td> <td></td> <td></td> </tr> </tbody> </table> | | | | | REV. | DATE | NAME | CHANGES | 0 | 2/19/2019 | | | |
| REV. | DATE | NAME | CHANGES | | | | | | | | | | |
| 0 | 2/19/2019 | | | | | | | | | | | | |