

# Preferred Mutual New Berlin

New Berlin, New York

Application Engineering by Randy Langille

Engineer/Architect


Mechanical Contractor      Air Temp

Job Number                      P8237

**AUTOMATEDLOGIC**<sup>®</sup>  
CORPORATION

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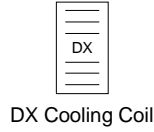
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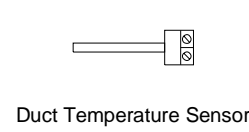
# Symbol Legend



Supply Fan



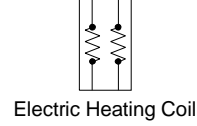
DX Cooling Coil



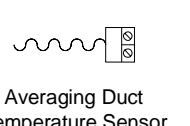
Duct Temperature Sensor



Exhaust Fan



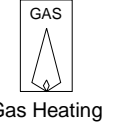
Electric Heating Coil



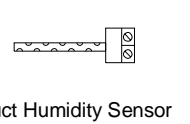
Averaging Duct Temperature Sensor



Return Fan



Gas Heating



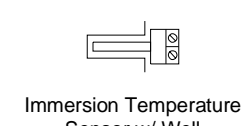
Duct Humidity Sensor



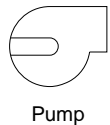
Fan w/ Inlet Vane Control



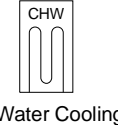
Hot Water Heating Coil



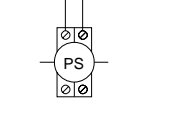
Immersion Temperature Sensor w/ Well



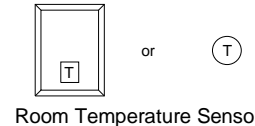
Pump



Chilled Water Cooling Coil



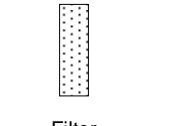
Pressure Sensor



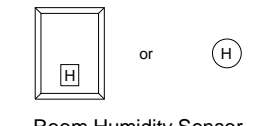
Room Temperature Sensor



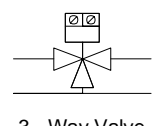
Steam Heating Coil



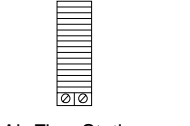
Filter



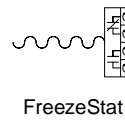
Room Humidity Sensor



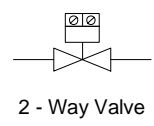
3 - Way Valve



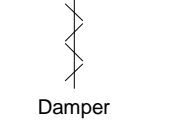
Air Flow Station



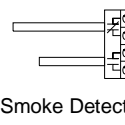
FreezeStat



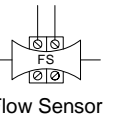
2 - Way Valve



Damper



Smoke Detector



Flow Sensor

## Common Abbreviations:

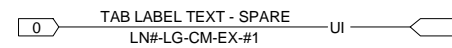
AC - Air Conditioning  
 ACU - Air Conditioning Unit  
 AHU - Air Handling Unit  
 AI - Analog Input  
 AO - Analog Output  
 AUTO - Automatic  
 AUX - Auxiliary  
 C - Common  
 CHW - Chilled Water  
 CHWP - Chilled Water Pump  
 CHWR - Chilled Water Return  
 CHWS - Chilled Water Supply  
 COND - Condenser  
 CW - Condenser Water  
 CWP - Condenser Water Pump  
 CWR - Condenser Water Return  
 CWS - Condenser Water Supply  
 DA - Discharge Air  
 DI - Digital Input  
 DO - Digital Output  
 EA - Exhaust Air  
 EF - Exhaust Fan

EVAP - Evaporator  
 F - Fahrenheit  
 FCU - Fan Coil Unit  
 HOA - Hand / Off / Auto  
 HP - Heat Pump  
 HRU - Heat Recovery Unit  
 HTEX - Heat Exchanger  
 HW - Hot Water  
 HWP - Hot Water Pump  
 HWR - Hot Water Return  
 HWS - Hot Water Supply  
 MAX - Maximum  
 MIN - Minimum  
 MISC - Miscellaneous  
 NC - Normally Closed  
 NO - Normally Open  
 OA - Outdoor Air  
 PIU - Powered Induction Unit  
 RA - Return Air  
 RF - Return Fan  
 RH - Relative Humidity  
 RTU - Roof-top Unit

SA - Supply Air  
 SF - Supply Fan  
 SP - Static Pressure  
 TEMP - Temperature  
 UH - Unit Heater  
 UV - Unit Ventilator  
 VAV - Variable Air Volume  
 VVTU - Variable Volume Terminal Unit  
 W/ - with  
 W/O - without  
 WSHP - Water-Source Heat Pump



## General Notes:

- All control modules are drawn using standard ALC module representations.
- Electrical points are identified by a tagged method (LN# - LG - CM - EX - Z0):




LN# - The line number (optional).  
 LG - The gateway number (optional).  
 CM - The control module address.  
 EX - The expander module number.  
 #1 - The channel number.

These tags include wiring for all AI's, DI's, AO's and DO's. Points using pneumatic tubing follow the same convention.

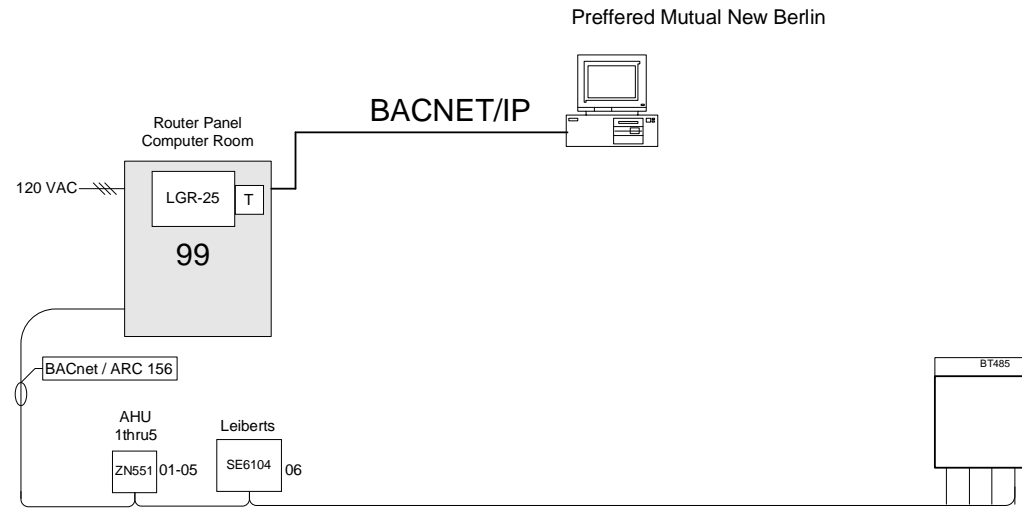
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# Summary Bill of Materials

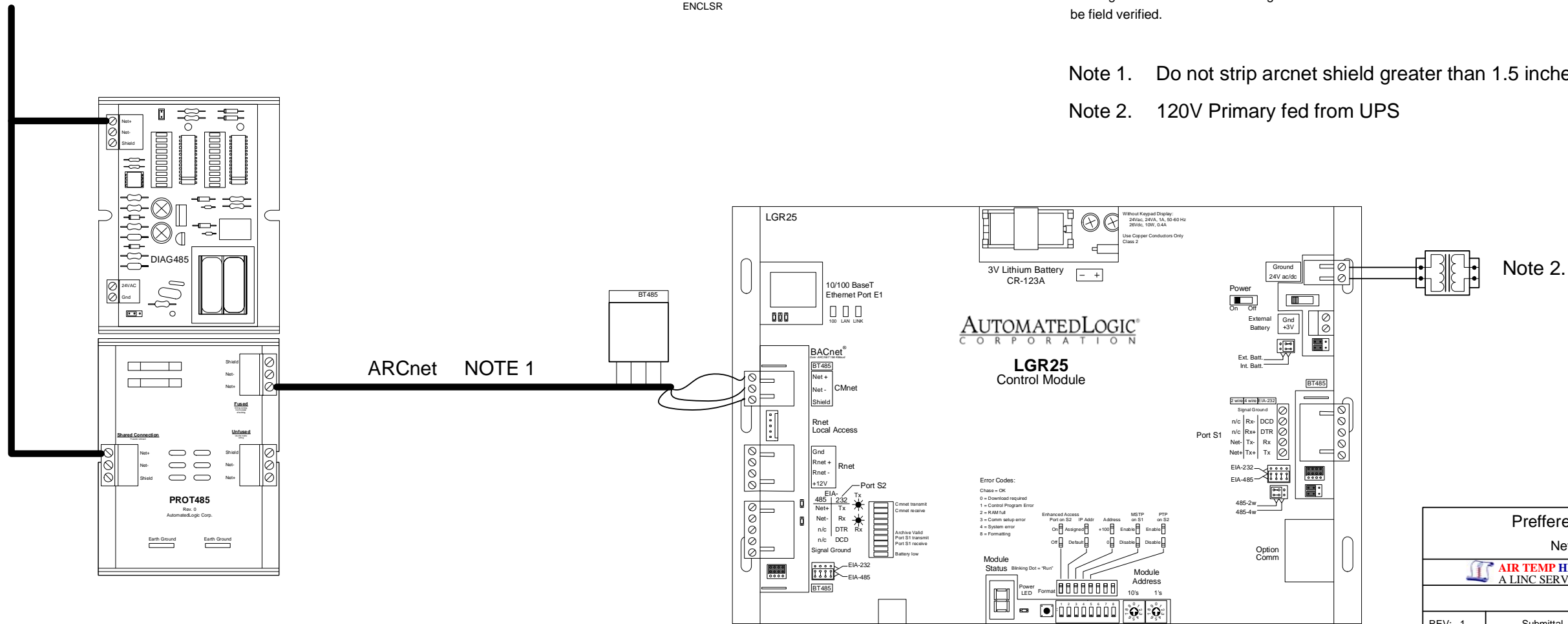
Summary Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
DAT	DUCT SENSE	BAPI	BA10K	5 ea
DIAG				1 ea
LGR25	LGR25	AUTOMATED LOGIC	LGR25	1 ea
PROT				1 ea
RS	SPACE SENSOR	ALC	RS	5 ea
SE6104a	SE6104A	AUTOMATED LOGIC	SE6104A	1 ea
Wall snsr	WALL SNSR	BAPI	BA10KW	3 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	5 ea
bt485	BIAS TERM	ALC	BT485	2 ea
enclsr	ENCLSR	ALPS	ALPS003	2 ea
trans	TRANSFORMER	FD	TR50VA	1 ea

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# Riser



- PROT
- DIAG
- BT485
- ENCLSR



## Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
DIAG				1 ea
LGR25	LGR25	AUTOMATED LOGIC	LGR25	1 ea
PROT				1 ea
b485	BIASTERM	ALC	BT485	2 ea
enclsr	ENCLSR	ALPS	ALPS003	1 ea

### General Notes:

All ARC156 wiring shall be 22AWG single twisted pair, low capacitance (12.5pF/ft), shielded, plenum rated cable. ALC recommends Magnum Cable Corporation Product number A3ARC156.

Each ARC156 segment must be wired in a daisy chain configuration. Branching requires the use of a REP485.

Each ARC156 segment should have one (1) PROT485 installed to provide protection from electrical surges.

Each ARC156 segment end must be terminated with a TERM485 (120 ohm) terminating resistor.

The ARC156 network segment must have at least one (1) DIAG485 installed to supply bias.

Do not strip back shielded cable sheath more than 1" in order to keep twisted pair from separating. Do not ground shield to the panel or chassis ground. The shield should only be connected to the "Optional Shield" connection at a module.

Routing of communications cabling and control module locations shall be field verified.

Note 1. Do not strip arcnet shield greater than 1.5 inches

Note 2. 120V Primary fed from UPS

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**Riser**

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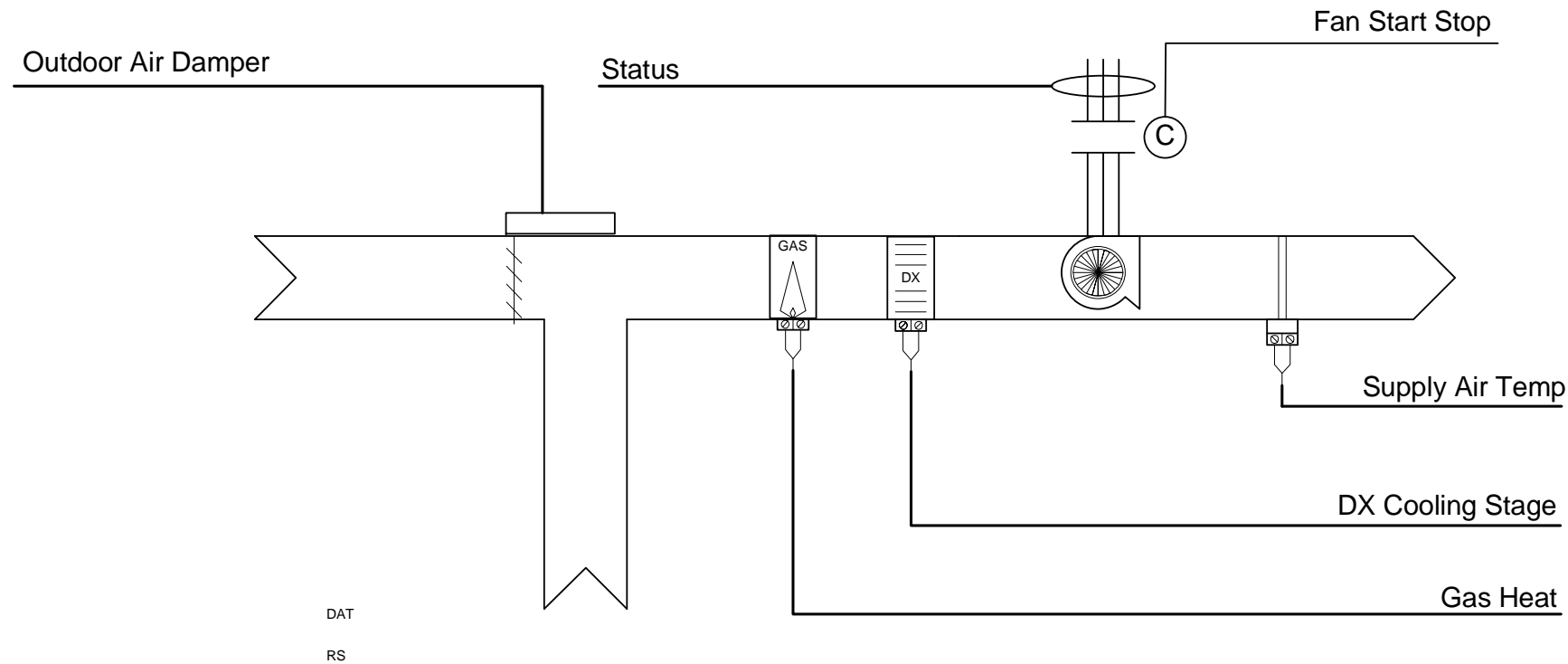
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# AHU 1

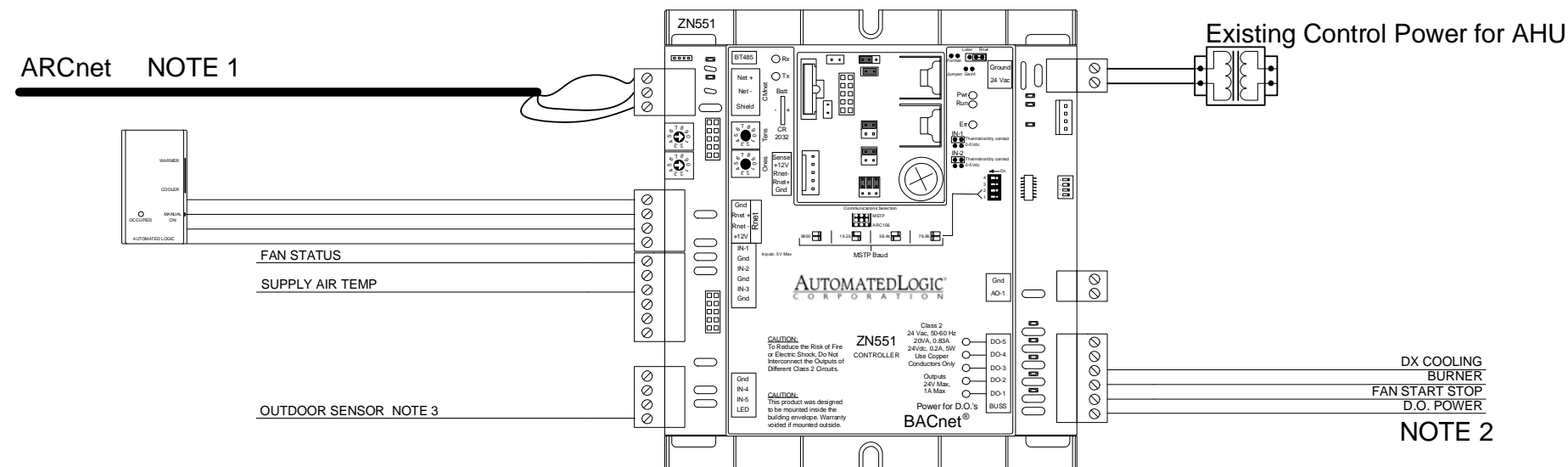
AHU 1 thru 5

## Bill of Materials

DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
DAT	DUCT SENSE	BAPI	BA10K	5 ea
RS	SPACE SENSOR	ALC	RS	5 ea
ZN551	ZN551	AUTOMATED LOGIC	ZN551	5 ea



- Note 1. Do not strip arcnet shield greater than 1.5 inches
- Note 2. D.O. power is supplied by AHU's control transformer
- Note 3. O.A. Sensor north wall to nearest AHU Controller



- Note 1. Do not strip arcnet shield greater than 1.5 inches
- Note 2. D.O. power is supplied by AHU's control transformer

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**AHU 1**

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# LEIBERT INTERFACE

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
SE6104a	SE6104A	AUTOMATED LOGIC	SE6104A	1 ea
Wall snsr	WALL SNSR	BAPI	BA10KW	3 ea
enclsr	ENCLSR	ALPS	ALPS003	1 ea
trans	TRANSFORMER	FD	TR50VA	1 ea

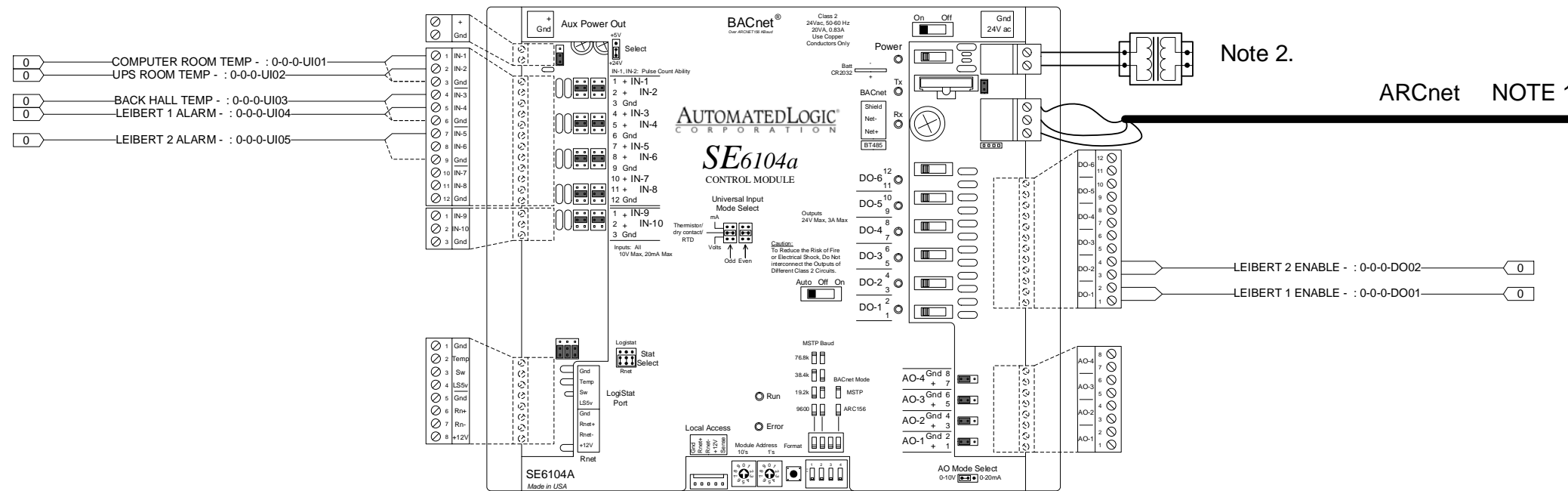
Note 1. Do not strip arcnet shield greater than 1.5 inches

Note 2. 120V Primary fed from UPS

ENCLSR

TRANS

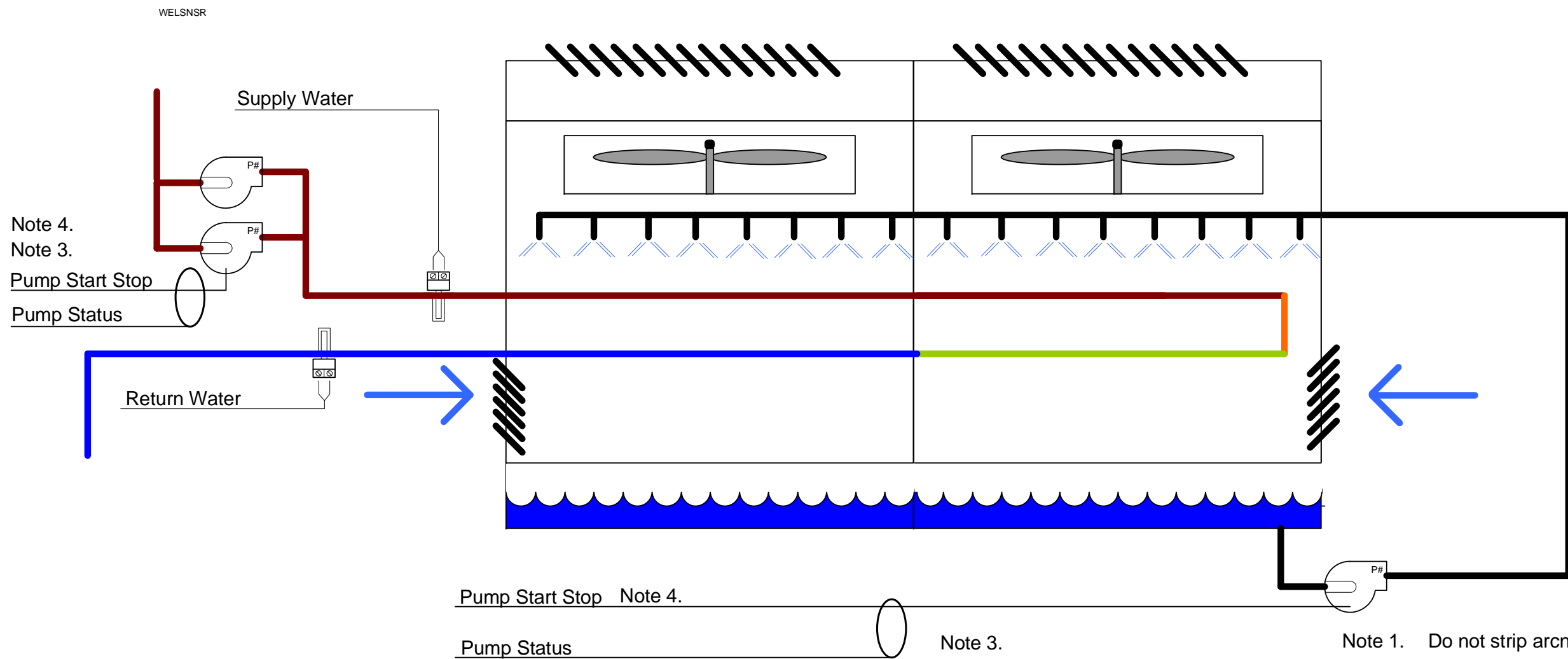
WALL SNSR



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# Cooling Tower

Bill of Materials				
DID	DESCRIPTION	MANUFACTURER	PART NUMBER	QTY
SE6104a	SE6104A	AUTOMATED LOGIC	SE6104A	1 ea
welsnsr	WELSNSR	BAPI	BA10KI4	2 ea



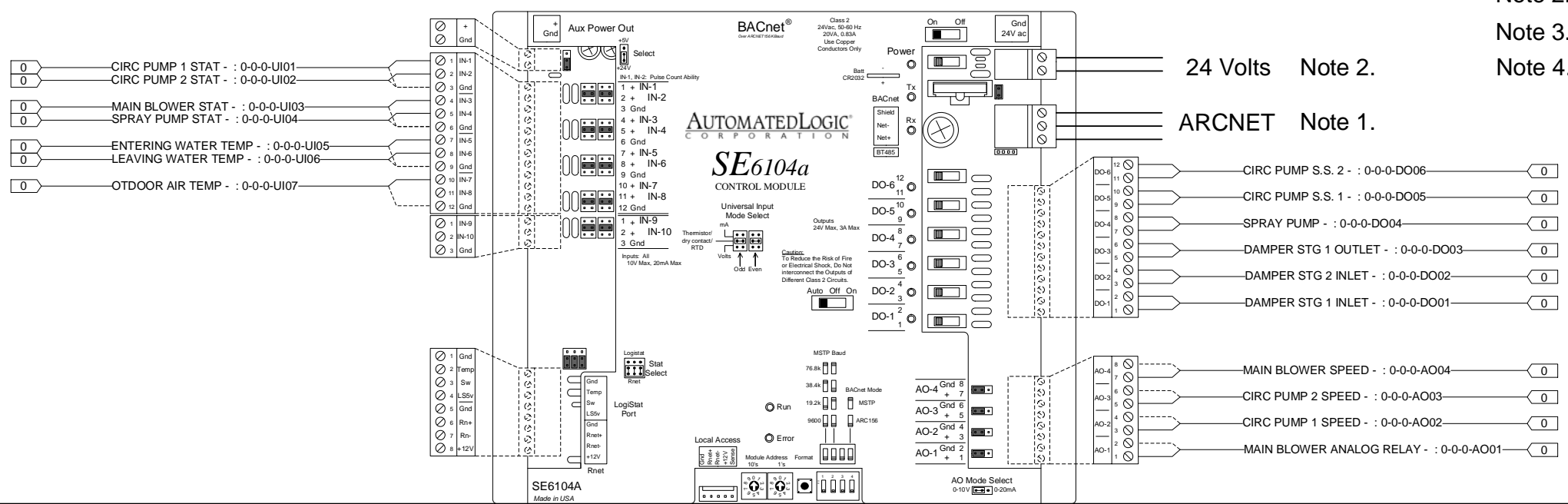
Note 4.  
Note 3.  
Pump Start Stop  
Pump Status

Pump Start Stop Note 4.

Pump Status

Note 3.

- Note 1. Do not strip arcnet shield greater than 1.5 inches
- Note 2. Use Existing Control Transformer
- Note 3. Use Existing CT's
- Note 4. Isolation Control Relays Use Existing



24 Volts Note 2.

ARCNET Note 1.

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Cooling Tower

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