NT900 Touch Series

BACnet MS/TP Networking Room Thermostats for Fan Coil Units

Features

- Wall-mount network control unit to match any décor
- Supports standalone operation on BACnet MS/TP communication failure; relinquishes all network commands by a special control icon operation at the thermostat
- Field selectable RS-485 communication port baud rate setting: 9,600, 19,200, 38,400 or 76,800 bps
- Fan coil application database pre-loaded
- Extra large easy-to-read Liquid Crystal Display (LCD), with display icons and LED backlight (white)
- Compact touch screen with control icons
- Choice of constant display of ambient temperature or temperature set point value
- Output relays employed for direct connection of valve actuators and 3-speed fan and to provide high current ratings and performance
- Slim separate power supply unit to fit on all sizes of fan coil units and to provide highly reliable power source
- Configurable operating parameters
- Choice of ºC or ºF temperature display via parameter setup menu
- Adjustable 1-5 K proportional band and integral time for PI control
- Choice of valve stroke time for 3-wire floating output models
- Field adjustable high and low occupied set point limit values
- Field adjustable cooling and heating unoccupied set point values (applicable to some models only)
- Choice to retain last entered settings on power resumption
- 2-wire on-off, 3-wire on-off/floating and 0-10 VDC output models available
- Dual-output models with auto cooling/ heating changeover (deadband operation) and manual override
- Adjustable 1 to 5 K deadband for dual-output models
- Choice of operating sequence for dual-output models
- Choice of unoccupied mode activation in operating mode only or in both standby and operating modes
- Choice of thermostat priority array assignment from 1 to 16
- Provides thermostat keys lockout from any workstation in the network
- Window contact closure to lock out all thermostat functions
- Provides two additional digital inputs for function such as remote night setback, service/filter alarm or motion detection
- Provides one digital output for external device interlocking: output is on whenever the fan is running at any speed
- Provides one additional digital output for function such as lighting control
- Choice of fan action in unoccupied mode
- Field recalibration capability of measured temperature
- Continuous or auto fan operation
- External and seasonal changeover temperature sensor capability
- Optional infra-red remote control unit available
- Optional energy metering capability
- Suitable for both American and European electrical box mounting standards
- Both vertical and horizontal mounting versions available

General

The NT900 Touch Series networking room thermostats are BACnet Master-Slave/ Token-Passing (MS/TP) networked devices designed in strict accordance with ASHRAE standard 135-2010 and are native BACnet devices. These thermostats provide line-voltage or 24-VAC 2-wire on-off, 3-wire floating or 0-10 VDC output to water valves in 2-pipe or 4-pipe fan coil units.

The technologically advanced NT900 Touch Series thermostats feature a BACnet MS/ TP communication capability that enables remote monitoring and programmability for efficient space or return air temperature control.

The microprocessor combines a proportional plus integral (PI) algorithm with advanced adaptive control logic. The proportional component of the algorithm adjusts the control output in response to changes in the measured temperature. The integral component of the algorithm adjusts the control output to eliminate offset (difference between the set point and the actual temperature). This provides precise and stable control under various system capacity and varying load conditions without the need for tuning or calibrating the control algorithm in the field.

The NT900 Touch Series thermostats also feature an intuitive user interface that makes setup and operation quick and easy.

A system control icon on the touch screen

allows the user to enter into the desired operating mode of cool-heat-auto-fan only-off for single- and dual-output models or auto-off for dual-output models only.

A fan-speed control icon allows control of a 3-speed fan. The speed control key has 4 positions: “Hi-Med-Low-Auto”. In the “Hi”, “Med” or “low” position, the fan runs continuously at the selected speed.

In the “Auto” mode, the fan speed is temperature dependent and controlled automatically at 0.5~4.5 K differential increments from low to high speed. For actual activating temperature differential values, refer to the parameter setup menu in Page 7.

Two adjustment control icons allow change of settings such as temperature set points.

Mounting

The NT900 Touch Series display control unit can be surface mounted or secured to a standard American 2”x 4” single gang box or a standard European 75 x 75 x 35 mm electrical box. The same mounting method is applicable to both vertical and horizontal versions. Two M3.5 mounting screws are included.

Ordering

To order, specify model numbers of complete set, display control unit or power

Figure 1: NT900 Touch Series Model Number Selection Guide

NT900 Touch Series Model Number Selection Guide (Complete Sets)

NT9	0	1AM	R	–	V
Product Type	Power Supply	Control Type	Options	Control Output	Mounting
NT9 = NT900 Touch Series room thermostats	**0** = 100-230 VAC **2*** = 230 VAC + 24 VAC * Suitable for line-voltage fan control and 24 VAC valve control	**1** = Single 2-wire on-off output, cool only or heat only **1M** = Single 2-wire on-off output, manual cool/heat changeover **1F** = Single 3-wire floating output, cool only or heat only **1F-24** = Single 24 VAC 3-wire floating output, cool only or heat only **1FM** = Single 3-wire floating output, manual cool/heat changeover **1A** = Single 0-10 VDC output, cool only or heat only **1AM** = Single 0-10 VDC output, manual cool/heat changeover **2** = Dual 2-wire on-off outputs, manual or auto cool/heat changeover manual cool/heat changeover **2A** = Dual 0-10 VDC outputs, manual or auto cool/heat changeover	**R** = With infra-red receiver for RCU-1 **B** = Without buzzer for screen touch sounding **E** = With energy metering capability	**–** = Line-voltage 2-wire on-off or 3-wire floating output **–24** = 24 VAC 2-wire on-off or 3-wire floating output	**V** = For vertical mounting **H** = For horizontal mounting

Power Supply Unit Model Number Selection Guide

PSU9	2	1	A	R	–24
Product Type	Power Supply	Number of Outputs	Control Type	Options	Control Output
PSU9 = NT900 Touch Series Power Supply Units	**0** = 100-230 VAC **2** = 230 VAC + 24 VAC* * Suitable for line-voltage fan control and 24 VAC Valve control	**1** = Single output **2** = Dual outputs	**Nil** = 2-wire on/off **F** = 3-wire floating **A** = 0-10 VDC output **M** = manual cool/heat changeover	**R** = with infra-red receiver for RCU-1 **B** = without buzzer for screen touch sounding	**Omitted** = Line-voltage 2-wire on-off or 3-wire floating output **–24** = 24 VAC 2-wire on-off or 3-wire floating output

Network Control Unit Model Number Selection Guide

NCU9	1	A	M	R	–	V
Product Type	Number of Outputs	Control Type	Seasonal Changeover	Options	Separator	Mounting
NCU9 = NT900 Touch Series Network Control Units	**1** = Single output **2** = Dual outputs	**Nil** = 2-wire on/off **F** = 3-wire floating **A** = 0-10 VDC output	**Nil** = Auto **M** = Manual	**R** = with infra-red receiver for RCU-1 **E** = With energy metering capability		**V** = For vertical mounting **H** = For horizontal mounting

Figure 2: NT900 Touch Series Application Guide

Model Numbers	Outputs	Applications	Cooling/Heating Mode	External Seasonal Changeover	System Modes	Fan Control	Unoccupied Mode
NT9x1	Single 2-Wire On-Off	Cooling Only or Heating Only (2-Pipe System)	Auto Only	Yes	Cool or Heat-Fan Only-Off	Hi-Med-Low-Auto	Yes
NT9x1M	Single 2-Wire On-Off	Cooling/Heating (2-Pipe System)	Manual Only	No	Cool or Heat-Fan Only-Off	Hi-Med-Low-Auto	Yes
NT9x1F	Single 3-Wire Floating	Cooling Only or Heating Only (2-Pipe System)	Auto Only	Yes	Cool or Heat-Fan Only-Off	Hi-Med-Low-Auto	Yes
NT9x1FM	Single 3-Wire Floating	Cooling/Heating (2-Pipe System)	Manual Only	No	Cool or Heat-Fan Only-Off	Hi-Med-Low-Auto	Yes
NT9x2	Dual 2-Wire On-Off	Cooling and Heating (4-Pipe System)	Manual or Auto	No	Cool-Heat-Auto-Fan Only-Off Or Auto-Off	Hi-Med-Low-Auto	Yes
NT9x1A	Single 0-10 VDC	Cooling Only or Heating Only (2-Pipe System)	Auto Only	Yes	Cool or Heat-Fan Only-Off	Hi-Med-Low-Auto	Yes
NT9x1AM	Single 0-10 VDC	Cooling/Heating (2-Pipe System)	Manual Only	No	Cool or Heat-Fan Only-Off	Hi-Med-Low-Auto	Yes
NT9x2A	Dual 0-10 VDC	Cooling and Heating (4-Pipe System)	Manual or Auto	No	Cool-Heat-Auto-Fan Only-Off Or Auto-Off	Hi-Med-Low-Auto	Yes

Figure 3: Touch Screen and LCD Layout

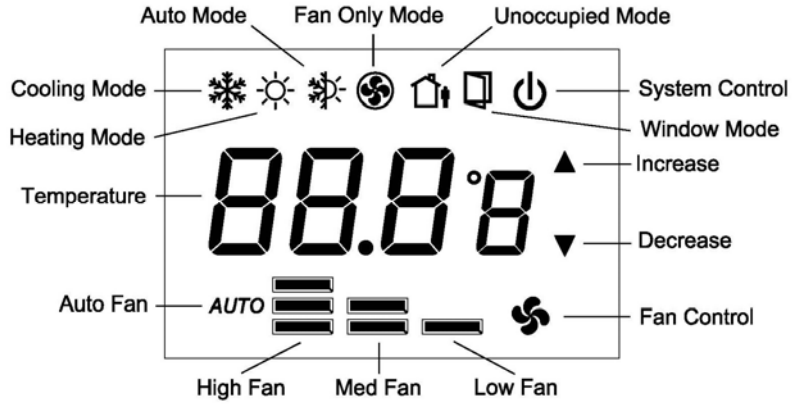


Figure 4: Optional Accessories

Description	Part
Remote control unit	RCU-1
Probe temperature sensor	TE10-1
Duct temperature sensor	TE10-2
With infra-red receiver capability	NT9xxxR-x
Without buzzer capability	NT9xxxB-x
With energy metering capability	NT9xxxE-x

Figure 5: Cover Removal Procedure

1. Poke a thin-blade screw driver into the slot between the cover and the base.
2. Slightly lever the screw driver upwards to crack open the cover from the base.
3. Hold the base firmly with one hand and remove the cover with another hand by pulling away from the base forcibly.

Specifications

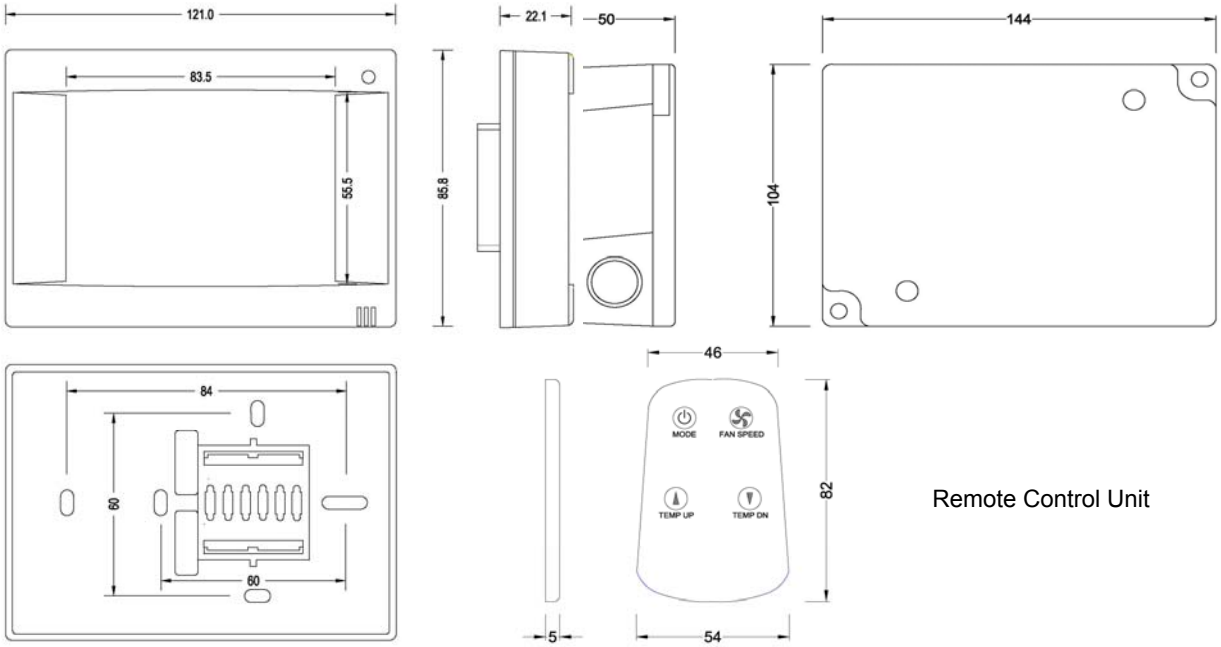
Product model numbers	See Figure 1: NT800 Series Model Number Selection Guide
Power requirements	100-230 V, ±10%, 50/60 Hz or 230 V ±10%, 50/60 Hz depending on models
0-10 VDC output impedance	Minimum 10,000 Ω
Operating temperature differential for 2-wire on-off models	Fixed at 1 K for both cooling and heating modes
Temperature display range	5-35°C in 0.5 K increments: accuracy ±1 K (41-95ºF in 0.5 R increments, accuracy ±1 R)
Temperature set point range	5-35°C in 0.5 K increments (41-95ºF in 0.5 R increments), initial factory setting at 22°C
Temperature set point limits	Field adjustable 5-35ºC (41-95ºF) in 0.5 K increments
Constant display on LCD	Choice of ambient temperature or temperature set point value
Offset adjustment of temperature	+2, +1, 0, -1 and -2 K (+2, +1, 0, -1 and -2 R) throughout the range, factory setting 0
Deadband of dual-output models	Choice of 1, 2 , 3, 4 or 5 K between cooling mode and heating mode, factory setting 3 K
Valve stroke time for 3-Wire floating models	Accumulatively 10 to 240 s maximum in one direction in steps of 10 s
Proportional band for PI control	Adjustable 1 to 10 K (2-10 R) in 1 K (1 R) increments, factory setting 5 K (5 R)
Integral time for PI control	Adjustable 0 to 30 minutes in 1 minute increments, factory setting 15 minutes. Setting = 0 means integral time being turned off.
Auto fan temperature differential	At 2 K (4 R) increments. In cooling mode, fan stays at low speed when there is no cooling valve output. Fan status in heating mode depends on auto fan action selection setting.
Sensing element	NTC thermistor, 10 kΩ @ 25ºC,accuracy ± 0.5 K @ 25ºC
Unoccupied mode binary Input	From external voltage-free contact. Choice of activation of unoccupied mode: in operating mode only or in both standby and operating modes Choice of fan action: always runs at “Low” fan when in operation or runs at “low” fan only when thermostat calls for cooling or heating
Unoccupied temperature set Point range	Adjustable 5-35ºC (41-95ºF) in 1 K (1 R) increments separately for cooling and heating; Factory settings: 16ºC (61ºF) for heating and 26ºC (79ºF) for cooling
Binary inputs	2 binary inputs for external voltage-free contacts
Binary outputs	For direct Connection of valve actuators (100-230 VAC) 1 relay output for 2-pipe models 2 relay outputs for 4-pipe models For direct connection to 3-speed fans (100-230 VAC): 3 relay outputs For connection to relay coils: 2 photo-coupler outputs for 30 VDC@50mA external power
RS-485 communication speed	Selectable baud rate at 9600, 19200, 38400 or 76,800 bps (factory set at 38,400 bps)
Maximum number of BACnet device instance ID	9999 thermostat addresses: from 0001 to 9999 via parameter setup menu, factory setting “0123”
BACnet MS/TP network guidelines	Maximum 32 devices and maximum 1,000 m cable length per segment; maximum two segments per network trunk with one repeater; maximum 64 devices per network trunk; only one segment allowed at 76,800 bps baud rate
Enclosure	Material: Self-extinguishing, molded ABS Finish: Off white housing and dark grey faceplate
Protective class	IP30
Electrical ratings	Valve output (24 VAC valve output only) 24 V, 0.3 A resistive, 0.3 A inductive, 50/60 Hz Valve output (all other models) 100-230 V, 5 A resistive, 2 A inductive, 50/60 Hz Fan output relays 100-230 V, 5 A resistive, 2 A inductive, 50/60 Hz Total rating 100-230 V, 5 A maximum, 50/60 Hz
Ambient/storage temperature limits	0 to 55ºC / -30 to 50ºC, 10 to 90% RH non-condensing
Connectors	Non-removable terminal blocks and removable wire plugs
Power wires	Wire size 1 mm^2 or 18 AWG solid copper recommended
PSU/NCU inter-connecting wires	Cat 5e twisted 6-conductor cable (shielded or unshielded)
Sensor wires	22 AWG twisted shielded pair double-insulated cable
RS-485 communication wires	22 AWG twisted shielded pair double-insulated cable
Input/output wires	Cat 5e twisted conductor cable (shielded or unshielded) recommended
Accessories and options	See Figure 4: Optional Accessories
Agency approval	CE Mark compliant to EMC and Low Voltage Directives, pending BTL Listing
Shipping weight	Network control unit & power supply unit together: 0.62 to 0.78 kg (1.4 to 1.7 lb)
Dimensions	See Figure 6: Dimensions in mm

The performance specifications above are nominal and subject to tolerances and application variables of generally acceptable industry standards. The manufacturer shall not be liable for damages resulting from misapplication or misuse of its products.

Figure 6: Dimensions in mm

Display Control Unit

Power Supply Unit



Remote Control Unit

Thermostat Errors Reporting

When the following errors are reported on the LCD display unit, these errors will prevent the thermostat from normal operation and all thermostat functions will be locked out:

E-1 EEPROM read/write error
E-2* Temperature sensor open-circuited
E-3 Temperature sensor short-circuited
E-4 User configuration checksum error

* If jumper JP1 is cut open and external sensor is used, E-2 means the external sensor may have been disconnected from Terminals SR1 and GND. Check the external sensor's connectivity and resistive value. If E-2 error is still reported, return the thermostat to the manufacturer for repair.

When the error E-1, E3 or E-4 is reported or when the error E-2 is reported without jumper JP1 being cut and external sensor being installed, return the thermostat to the manufacturer for repair.

Operation Notes

- LCD shows ambient temperature or current set point value constantly except when set point adjustment is being made or in parameters setup mode.
- Tap the system operating icon Φ to enter into the desired operating mode: Cool-Heat-Auto-Fan Only-Off, etc.
- Tap the fan operating icon ✱ to change the fan speed mode: High-Med-Low-Auto.
- Increase or decrease temperature set point in 0.5 K increments by tapping adjustment key ▲ or ▼ respectively. When the adjustment icon is tapped, the LCD shows the current set point value.
- When the unoccupied contact closes, it will override the operating mode and operate the thermostat in energy saving mode despite the thermostat being in operating or standby mode.
- In unoccupied mode, the factory-set temperature cut-in points are 26°C for cooling and 16°C for heating. Meanwhile, the operation of all operation keys are locked out until the unoccupied contact opens.
- During unoccupied mode, the default fan speed is set at "low" when pre-set cut-in temperature is reached, or otherwise the fan output is always "off".
- Unoccupied mode can be activated in the following manner when the unoccupied contact closes:
  For 2-pipe models with auto seasonal changeover, the unoccupied cooling or heating mode is determined by the status of the SR2 seasonal changeover sensor and the valve output is activated according to the measured temperature.
  For 2-pipe models with manual seasonal changeover, the unoccupied cooling or heating status is determined by the last status of the occupied mode and the valve output is controlled according to the measured temperature.
  For 4-pipe models, the unoccupied cooling or heating mode is always determined by the measured temperature and valve output is also activated according to the measured temperature.
  Unoccupied mode activation in operating mode only or in both standby and operating mode will be determined by activation setting in setup menu. Low fan will run according to fan action setting in setup menu.
  When unoccupied mode is activated, all keys are locked out and no settings can be entered.
- When Window contact closes, it will override the operating mode and operate the thermostat in off mode despite the thermostat being in operating or standby mode. Meanwhile, all operating keys are locked out until the window contact opens.
- The thermostat allows the authorized service agent to make changes to the following operating parameters in the field:

MCU firmware revision level	0	Appears once after entering the setup mode
Choice of temperature engineering unit	1	1-C = ºC (factory setting) 1-F = ºF
Choice to retain last entered settings on power resumption	2	2On = program on (factory setting) 2OF = program off
Offset adjustment of temperature indication (field recalibration of measured temperature)	3	3 2 = temperature indication plus 2 degrees 3 1 = temperature indication plus 1 degree 3 0 = no offset (factory setting) 3- 1 = temperature indication minus 1 degree 3-2 = temperature indication minus 2 degrees
RS-485 communication port baud rate setting	4	4 9 = 9600 bps 4 19 = 19,200 bps 438 = 38,400 bps (factory setting) 476 = 76,800 bps
Thermostat MAC address setting	5	To set the BACnet MS/TP device MAC address from 1 to 99, factory setting 1
Primary BACnet MS/TP device Instance ID setting*	6	To set the first 2 digits of a 4-digit BACnet MS/TP device instance ID from 0 to 99. *Complete device instance ID = 6 x 100 + 7. Example: If 6 = 01 and 7 = 23, then device instance ID address = 0123 (factory setting)
Secondary BACnet MS/TP device Instance ID setting*	7	To set the last 2 digits of a 4-digit BACnet MS/TP device instance ID from 0 to 99.
Choice of language display at workstation	8	8En = English (default setting) 8CS = Simplified Chinese 8Ct = Traditional Chinese
Choice of operating sequence for “1M” models only (hidden when t- 1 is set)	9	9- 1 = to set operating mode in sequence of Cool-Fan Only-Off (factory setting) 9-2 = to set operating mode in sequence of Heat-Fan Only-Off
Adjustable proportional band for PI control	A	**Selection of 1 to 5:** A 1 = 1 K…….A 3 = 3 K (factory setting)……..A 5 = 5 K
Adjustable integral time for PI control	b	To set integral time from 0 (0 min) to 30 (30 min) in numeric 1 (1 min) increment factory setting = 15 minutes. Setting = 0 means integral time being turned off.
Choice of valve stroke time for 3-wire floating models	C	Adjustable 1 to 24: C 1 = 10 seconds……..C 18 = 180 seconds = factory setting……..C24 = 240 seconds
Deadband value adjustment for dual-output Models	d	To set deadband value from 1 to 5 K, factory setting 3 K
Upper occupied set point limit setting	E	To set upper occupied set point limit, adjustable between current lower set point limit value and 35°C (factory setting 35°C). The program is set such that there is always a minimum separation of 4 degrees maintained between the upper occupied set point limit value and the lower set point limit value.
Lower occupied set point limit setting	F	To set lower occupied set point limit, adjustable between current upper set point limit value and 5°C (factory setting 5°C). The program is set such that there is always a minimum separation of 4 degrees maintained between the upper occupied set point limit value and the lower set point limit value.
Unoccupied cooling set point setting	G	To set unoccupied cooling set point, adjustable between current unoccupied heating set point value and 35°C (factory setting 26°C). The program is set such that there is always a minimum separation of 4 degrees maintained between the unoccupied cooling set point value and the unoccupied heating set point value.
Unoccupied heating set point setting	h	To set unoccupied heating set point, adjustable between current unoccupied cooling set point value and 5° C (factory setting 16°C). The program is set such that there is always a minimum separation of 4 degrees maintained between the unoccupied cooling set point value and the unoccupied heating set point value.
Choice of fan action in unoccupied mode (always in auto fan mode)	J	J- 1 = Low fan will run only when unoccupied set point calls for cooling or heating in unoccupied mode (factory setting) J-2 = Low fan always runs whenever unoccupied contact is closed while opening and closing of control valve are temperature-dependent.
Choice of activation of unoccupied mode	L	L- 1 = Unoccupied mode can only be activated when thermostat is in operating mode (factory setting) L-2 = Unoccupied mode can be activated when thermostat is in either standby mode or operating mode
Choice of auto fan action in heating mode (operation of both control valve and fan is temperature-dependent)	P	P- 1 = No fan output when room temperature (Tr) => set point value (Ts). Low speed when - 2.0 K <= Tr - Ts <= -0.5 K Med speed when - 4.0 K <= Tr - Ts <= -2.5 K High speed when Tr - Ts <= -4.5 K P-2 = (factory setting) Low fan output when -2.0 K <=Tr - Ts Med speed when - 4.0 K <= Tr - Ts <= -2.5 K High speed when Tr - Ts <= -4.5 K
Choice of operating sequence for dual-output models only	r	r- 1 = to set operating mode in sequence of Cool-Heat-Auto-Fan Only-Off (factory setting) r-2 = to set operating mode in sequence of Auto-Off
Choice of “1” or “1M” model	t	t- 1 = to set operating mode in sequence of Off-Cool or Heat-Fan Only (factory setting for “1” model) t-2 = to set operating mode in sequence of Off-Cool-Heat-Fan Only (factory setting for “1M” model)
Choice of constant display of ambient temperature or temperature set point value	u	u- 1 = constant display of ambient temperature (factory setting) u-2 = constant display of set point value
Choice of thermostat priority array assignment	U	Range: 1 to 16; factory setting: 16
Restoration of default factory settings	rS	rS 1 = Retain current settings (factory setting) rS2 = Restore default factory settings

Figure 7: Application Notes and Wiring Diagrams

The networking thermostats consist of two basic units: the Network Control Unit and the Power Supply Unit. While all line-voltage wiring is terminated at the Power Supply Unit, all connections between Network Control Unit and Power Supply Unit are of low-voltage signaling wires.

Wiring and Application Notes

- Cut jumper JP1 if external sensor is wired to SR1 and GND. Run the wiring away from any electrical motors or power wiring. Failure to do so may result in poor thermostat performance due to electrical noise.
- 22 AWG twisted shielded pair double-insulated cable is recommended as remote sensor wiring and its length must not exceed 25 m.
- Do not bundle and run power wiring and remote sensor wiring in the same conduit.
- Connecting wires between Network Control Unit and Power Supply Unit must not exceed 15 m.
- Seasonal changeover sensor or switch is only applicable to heat only or cool only 2-pipe model only.
- The seasonal changeover sensor should be wrapped around the supply water pipe when associated with a water system. When the changeover sensor temperature exceeds 30 ºC, the thermostat enters into heating mode.
- Unoccupied contact closure activates energy saving mode.
- Window contact closure turns off the thermostat.
- The thermostat outputs are designed for controlling zone valves. If used for controlling electric heaters, external contactors must be used.

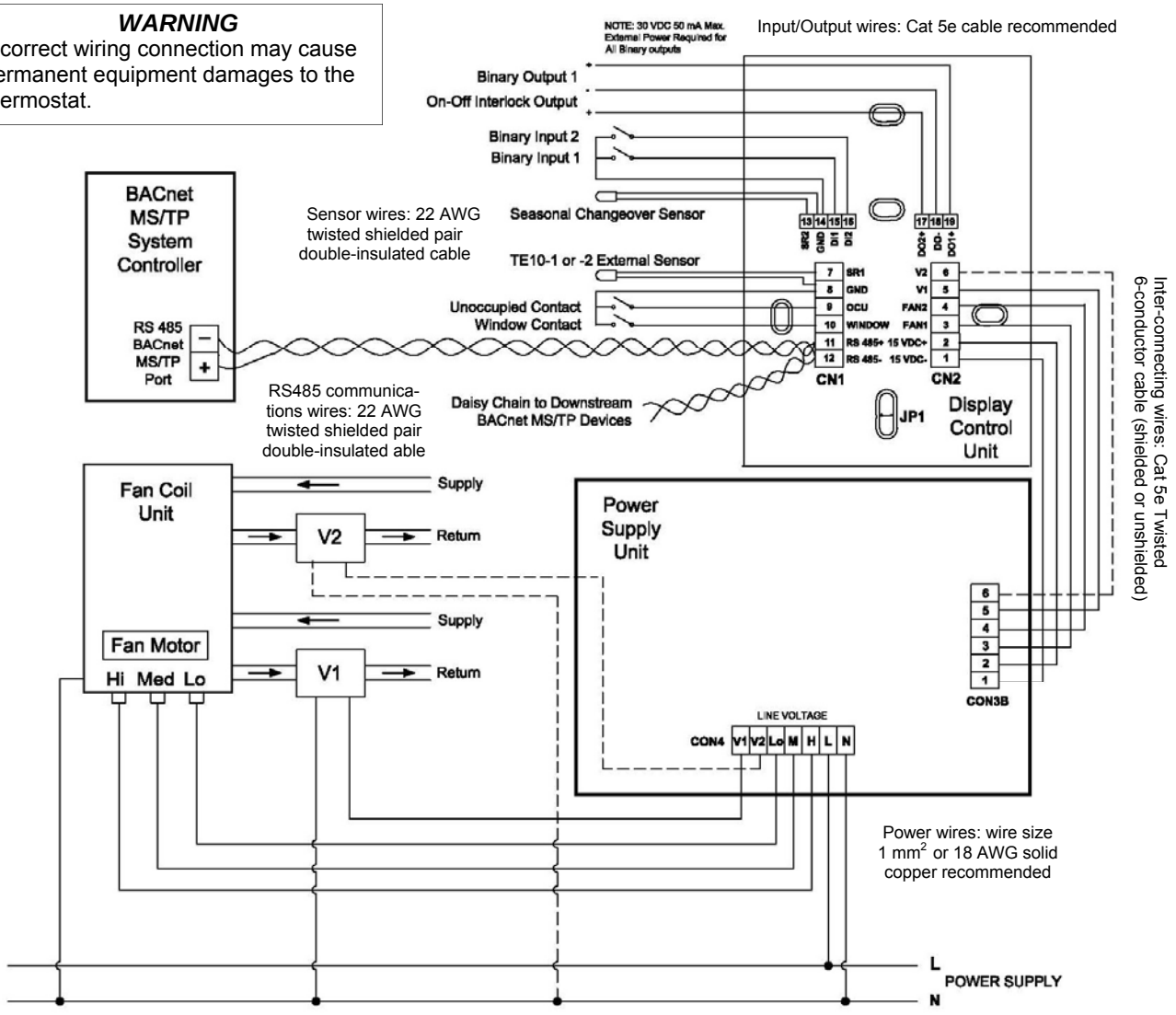
Wiring Diagram for Line-Voltage Fan and Line-Voltage 2-Wire On-Off Valve Outputs

Piping Notes:

1. On a single-output unit, V1 can be either a line-voltage cooling or a line-voltage heating valve.
2. On a dual-output unit, V1 must be a line-voltage cooling valve and V2 a line-voltage heating valve.
3. Hidden-line wiring for Terminals V2 and 6 are applicable to dual-output models only.

WARNING

Incorrect wiring connection may cause permanent equipment damages to the thermostat.



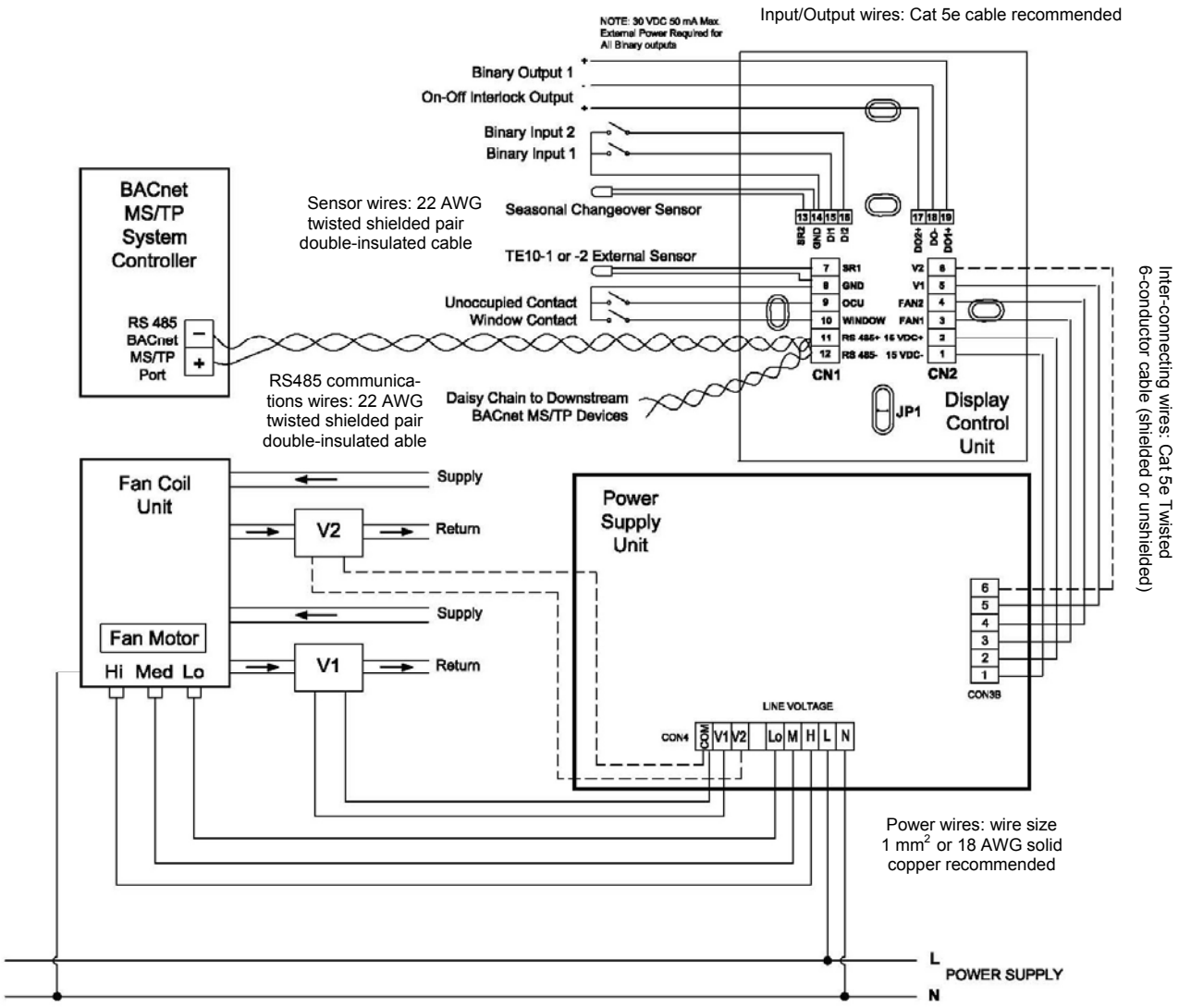
Wiring Diagram for Line-Voltage Fan and 24 VAC 2-Wire On-Off Valve Outputs

Piping Notes:

1. On a single-output unit, V1 can be either a 24 VAC cooling or a 24 VAC heating valve.
2. On a dual-output unit, V1 must be a 24 VAC cooling valve and V2 a 24 VAC heating valve.
3. Hidden-line wiring for Terminals V2 and COM are applicable to dual-output models only.

WARNING

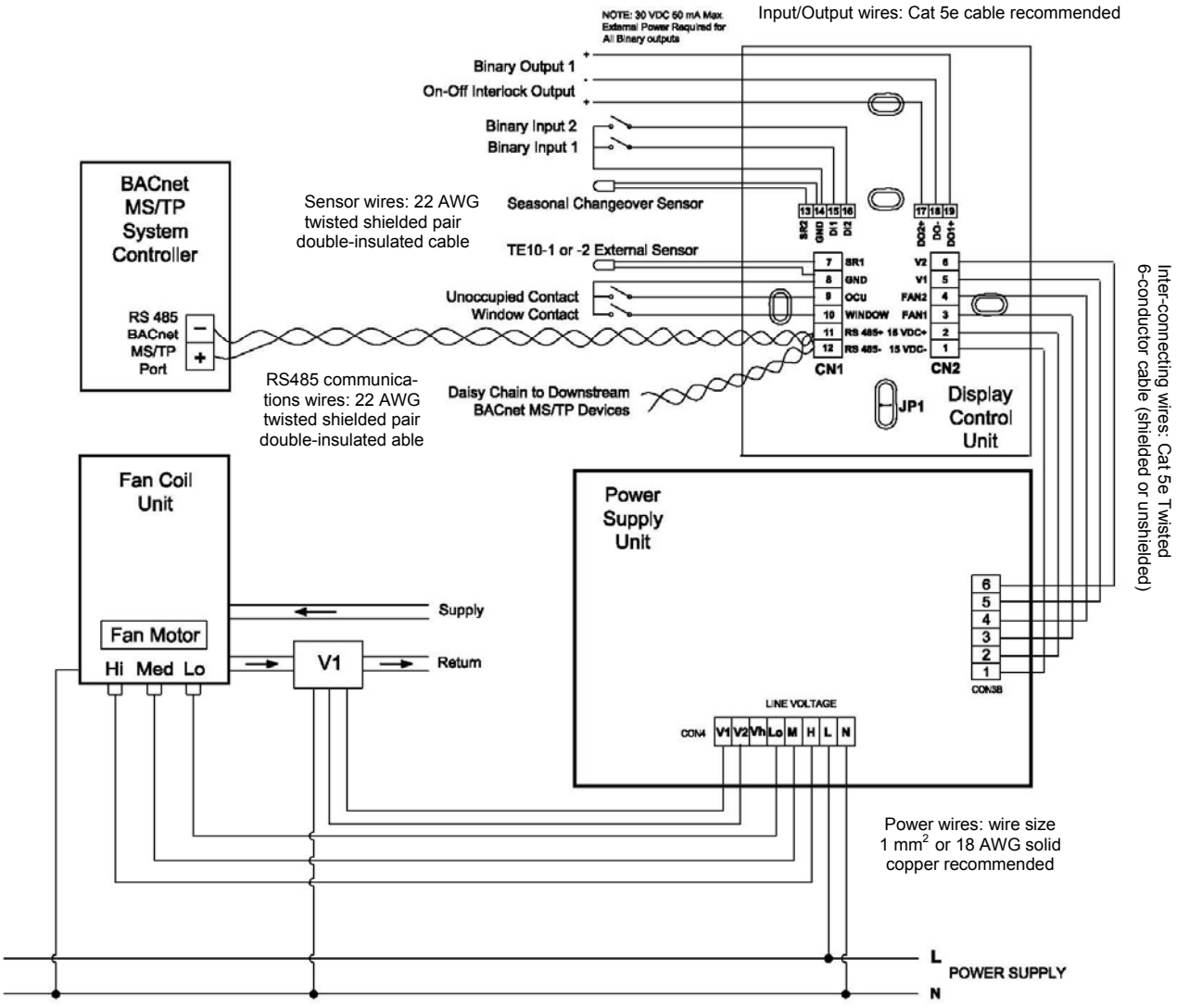
Incorrect wiring connection may cause permanent equipment damages to the thermostat.



Wiring Diagram for Line-Voltage Fan and Single Line-Voltage 3-Wire Floating Valve Output

Piping Note:
V must be a line-voltage 3-wire floating valve. In cooling mode, V1 output opens valve on temperature rise and V2 output closes valve on temperature drop. The action in heating mode is reversed.

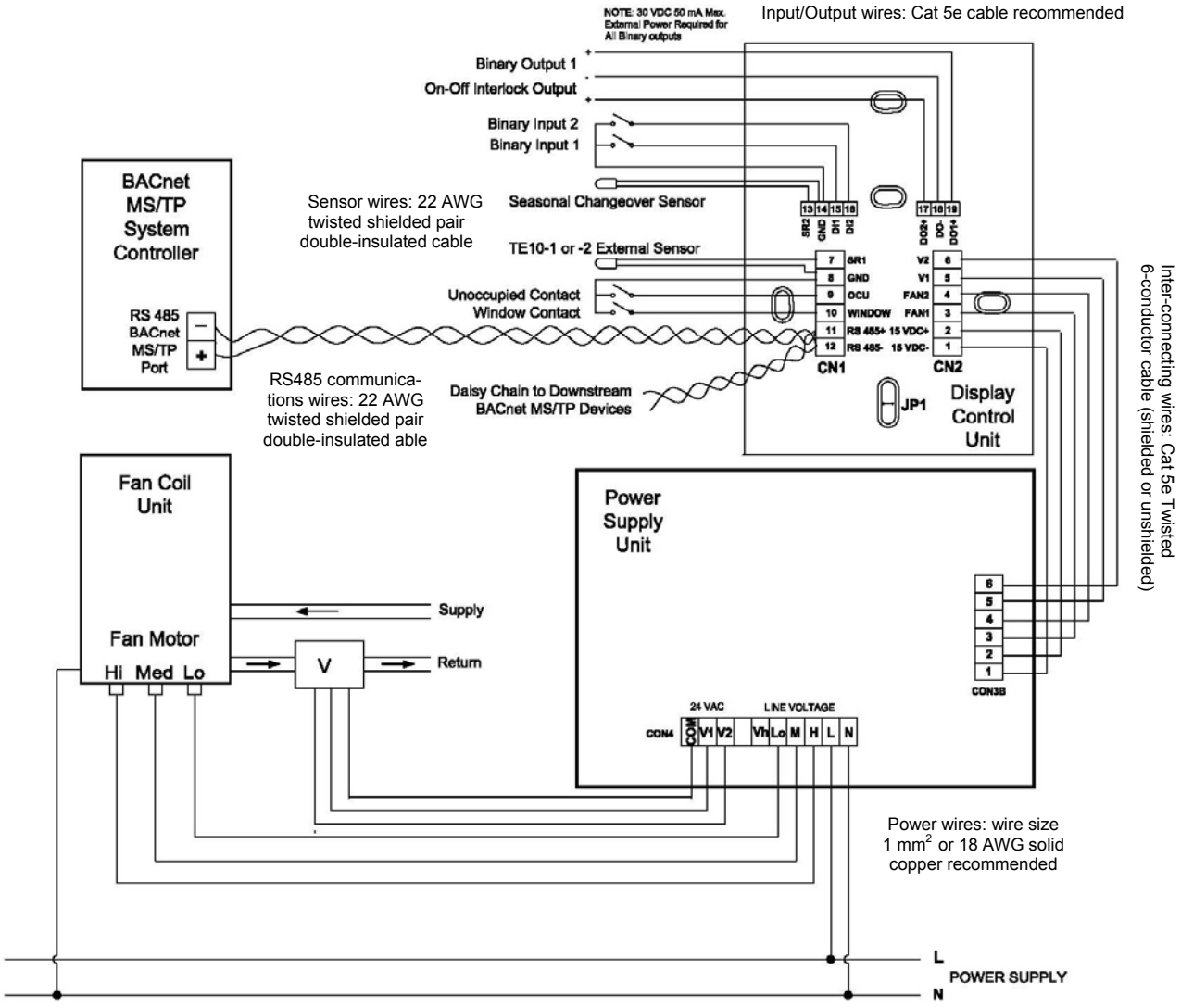
WARNING
Incorrect wiring connection may cause permanent equipment damages to the thermostat.



Wiring Diagram for Line-Voltage Fan and Single 24 VAC 3-Wire Floating Valve Output

Piping Note:
V must be a 24 VAC 3-wire floating valve. In cooling mode, V1 output opens valve on temperature rise and V2 output closes valve on temperature drop. The action in heating mode is reversed.

WARNING
Incorrect wiring connection may cause permanent equipment damages to the thermostat.



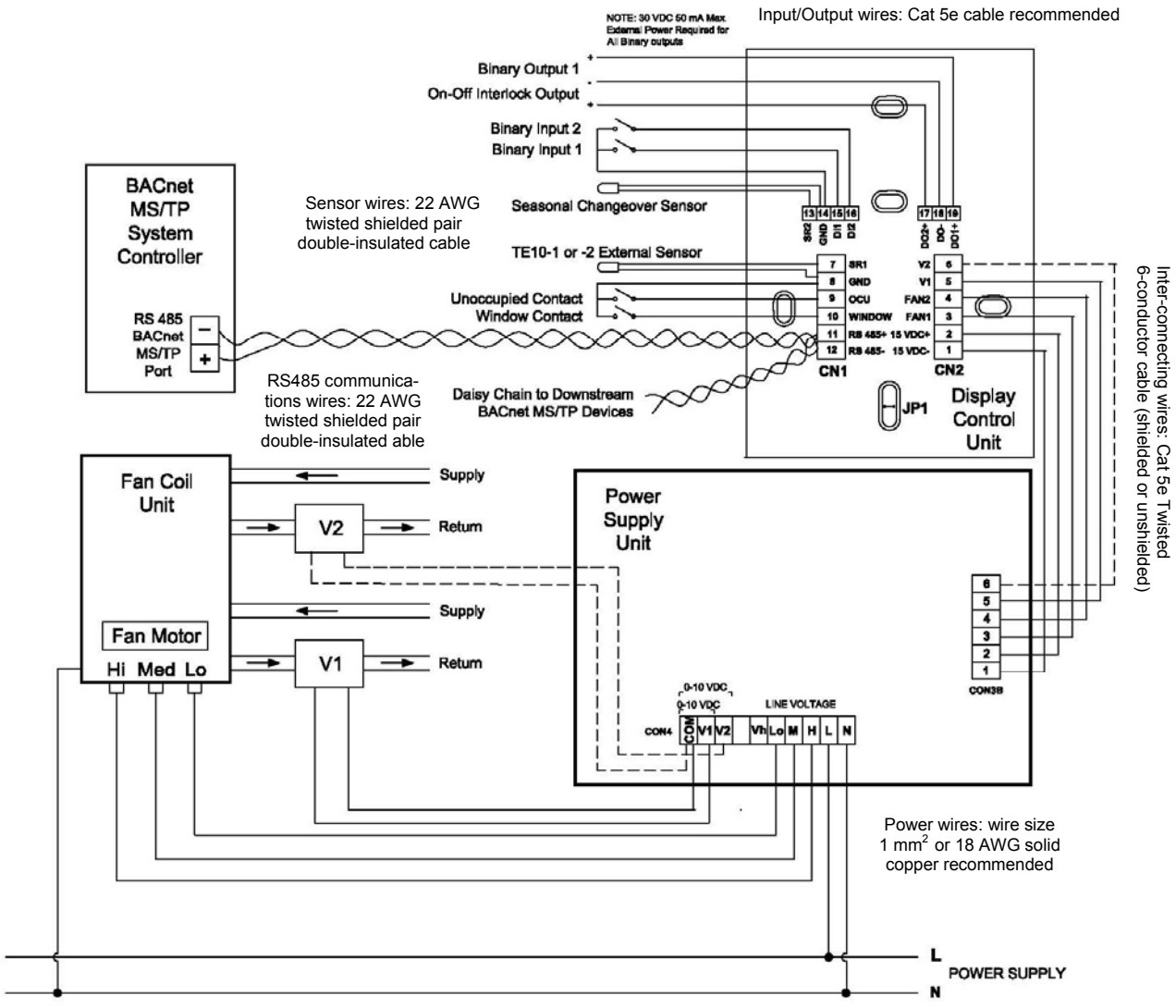
Wiring Diagram for Line-Voltage Fan and 0-10 VDC Valve Outputs

Piping Notes:

1. On a single-output unit, V1 can be a 0-10 VDC either cooling or heating valve.
2. On a dual-output unit, V1 must be a 0-10 VDC cooling valve and V2 a 0-10 VDC heating valve.
3. Hidden-line wiring for Terminals V2 and 6 are applicable to dual-output models only.

WARNING

Incorrect wiring connection may cause permanent equipment damages to the thermostat.



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