

NFC-TS4311

NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



DESCRIPTION

The NFC-TS4311 and NFC-TS4316 is a 4.3 inch Colour TFT Touchscreen, Proportional + Integral Fan Coil Controller with BACnet MS/TP connectivity up to 64 devices and supports COV subscription. The Unit has 2 NTC Sensor Inputs, 1 Universal input for remote changeover or changeover NTC Sensor, 2 Digital Inputs

(Key Card/Occupancy, Window and Changeover Input), 5 Optically Isolated SSR (Solid State Relay) Outputs (1 x Raise Lower or 2 x PWM-ON/OFF and 3 Digital Fan Speed) and 3 Analogue 0-10VDC Outputs (1 Heating, 1 Cooling and 1 Analogue Fan Speed).

The NFC-TS431x supports both, 2 Pipe and 4 Pipe System. The Raise Lower Outputs are TPC (Time Proportional Control with adjustable valve opening time).

The Controller has built-in real time clock with backup Supercapacitor eliminates the use of battery. The real time clock can be synced with Computer/Server Time Clock with BACnet Time Sync Feature. This controller has BACnet Schedule Object (Read/Writeable) thus providing Schedule Programming with up to 6 Temperature Settings Per Day.

The NFC-TS4311 and NFC-TS4316 works on 24VAC/DC and is Wall Mount with only 25MM Thickness.



FEATURES:

- 4.3 inch Colour TFT Touchscreen
- Three Analog outputs, one Heating, one Cooling and one Fan Speed output
- Three Interchangeable Digital Inputs for Key Card/Occupancy, Window, EC Fan Error, Filter Pollution and Heating/Cooling Changeover
- Programmable Digital/Universal inputs NC/NO contacts
- Three NTC 10K3A1 Sensor Inputs.
- Schedule Programming with up to 6 Temperature Settings Per Day

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- Sensors offset feature
- Fan Speed Selection Auto/Manual and Analog/Digital
- Programmable Fan Prop Band, Fan On Delay, Fan Start up and Fan Overrun Time
- Adjustable Analog Speed Range with programmable minimum output voltage
- 3 Stage Digital Fan Speed Output
- Full Proportional + Integral, separate Integral Time for Heating and Cooling
- Celsius/Fahrenheit selection from Main touchscreen (supports BACnet Unit Celsius/Fahrenheit)
- Temperature range from -10°C to +95°C (0.5°C resolution) or 14°F to 203°F (1°F resolution)
- Adjustable Minimum and Maximum Setpoint Range
- Built-in Real Time Clock with Supercapacitor Back-up, up to 48 hours
- Non-volatile Programmable Hours Filter Service Timer, 1 Hour update, 0-65000 hours
- BACnet MS/TP Connectivity with up to 64 devices (Supports COV Subscription)
- On board EOL(120Ω Termination Resistor)
- Setup entry from Main Screen (PIN Protected)
- 24VAC/DC Power input
- Wall mount (124 x 85 x 24)

SPECIFICATIONS

Power Supply	24VAC/DC, -15/+10% 100mA max (excluded SSRs load)
Temperature Range	-10°C to 95°C (0.5°C Resolution) or 14°F to 203°F (1°F Resolution)
Setpoint Range	-5°C to 95°C (1°C Resolution) or 23°F to 203°F (1°F Resolution)
Temperature Sensors	NTC 10K3A1, adjustable offset $\pm 10^{\circ}\text{C}$, 0.5°C Resolution or $\pm 20^{\circ}\text{F}$, 1°F Resolution
Integral Time (Heating & Cooling)	0 to 500seconds
Proportional Band (Prop band)	0-50°C, 1°C Resolution or 0-100°F, 2°F Resolution
Deadband	0-10°C, 1°C Resolution or 0-20°F, 2°F Resolution
Time Proportional Control TPC(valve opening time)	0-300seconds
Real Time Clock with 48 hours Capacitor Backup	Adjustable from Setup and supports BACnet Time Sync Feature
Proportional Outputs (Heating, Cooling and Fan)	Digitally Calibrated 0-10VDC, 5mA per output max at 10VDC
Optically Isolated SSR Outputs	Solid State Relays (SSR), 30VAC/DC 1A per SSR
Baud Rate	9600, 19200, 38400, 57600, 76800 and 115200

ORDERING INFORMATION

NFC-TS4311	TOUCHSCREEN FAN COIL CONTROLLER
NFC-TS4316	TOUCHSCREEN FAN COIL CONTROLLER with BACnet MS/TP

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INSTRUCTIONS

MAIN SETUP

1. From the Main Temperature Screen, press  icon to go to PIN Entry Page.
2. Type 4 Digit PIN (factory default PIN: 1234) number and press ENTER

If the PIN Entry is correct, MAIN SETUP Screen will appear. MAIN SETUP Screen gives information about current SYSTEM UNIT (Degrees Celsius/Degrees Fahrenheit), Firmware Version and route to all other settings including SYSTEM SETUP and BACnet SETUP (available in NFC-TS4316 version).

'C/'F (SYSTEM UNIT)

The Controller has two types of Units. Display Unit and System Unit. Display unit can be changed to °C or °F from Main Temperature Screen only. This is available for the guests or users to choose their preferred temperature unit. For example if the guest or user has set the unit to °F, the SYSTEM UNIT in the MAIN SETUP will still be unchanged unless the administrator changes from MAIN SETUP Screen. The System Unit can also be changed using BACnet (NFC-TS4316 version) remotely.

TEMPERATURE SETTINGS

SETPOINT MIN (-5.0°C – 94.5°C/23°F – 202°F) step: 0.5°C/1°F, default: 5.0°C/41°F

SETPOINT MAX (-4.5°C – 95.0°C/24°F – 203°F) step: 0.5°C/1°F, default: 35.0°C/95°F

The SETPOINT MIN and SETPOINT MAX settings restrict all setpoints (except LO-LIMIT & HI-LIMIT), not to go below and above the setpoint minimum and maximum range.

SELECT MAIN SENSOR

(INTERNAL ROOM SENSOR/EXTERNAL SENSOR SEN1) default: INTERNAL ROOM SENSOR

This is the selection of main sensor, internal on-board room sensor or external sensor at SEN1 input.

UNOCCUPIED (-5.0°C – 95.0°C/23°F – 203°F) step: 0.5°C/1°F, default: 15.0°C/59°F
SETPOINT

When the system is set to unoccupied, this setpoint overrides the main setpoint or schedule setpoint even if the system is following schedule. The UNOCCUPIED SETPOINT value is restricted to setpoint minimum and maximum range

NO OCCUPANCY

DEROGATION TIME (0 – 180 min) step: 15 min, default: 15 min

Once the occupancy sensor input is activated, the room status will not be set to unoccupied unless the derogation time elapses.

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CHANGEOVER (-10.0°C – 95.0°C/14°F – 203°F) step: 0.5°C/1°F, default: 20.0°C/68°F SETPOINT

This option will be available when 2 PIPE SYSTEM is selected and changeover universal input UIN1 is configured as sensor input 'SEN3'. NTC 10K3A1 sensor must be connected to sensor input SEN3 when UIN1 is configured as sensor input 'SEN3'. When the changeover temperature is equal to or greater than the changeover setpoint, changeover mode will be set to 'HEAT' and if the changeover temperature is less than the changeover setpoint, changeover mode will be set to 'COOL'.

OFFSET CHANGEOVER ($\pm 10.0^{\circ}\text{C}/\pm 20^{\circ}\text{F}$) step: 0.5°C/1°F, default: 0.0°C/0°F SENSOR SEN3

Changeover sensor error can be eliminated by adding offset.

OFFSET INTERNAL ($\pm 10.0^{\circ}\text{C}/\pm 20^{\circ}\text{F}$) step: 0.5°C/1°F, default: 0.0°C/0°F SENSOR

Internal sensor error can be eliminated by adding offset.

OFFSET EXTERNAL ($\pm 10.0^{\circ}\text{C}/\pm 20^{\circ}\text{F}$) step: 0.5°C/1°F, default: 0.0°C/0°F SENSOR SEN1

External sensor error can be eliminated by adding offset.

FROST PROTECTION (ON/OFF) default: OFF

If the Frost Protection is 'ON', then the Heating Output will come on when the Internal Sensor or External Sensor SEN1 temperature falls below 5°C (41°F), even if the heating is off.

POWER ON RESET (AUTO/OFF) default: AUTO HEATING MODE

In 4 PIPE System, four modes are available for the user:

1. AUTO
2. HEAT
3. COOL
4. OFF

In 2 PIPE System, two modes are available for the user depending on the changeover mode:

Changeover Heating Mode

1. HEAT
2. OFF

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Changeover Cooling Mode

1. COOL
2. OFF

POWER ON RESET HEATING MODE, if 'OFF', will keep the heating and cooling off, on system power up. Frost protection (if 'ON') is unaffected. If 'AUTO' is selected, then on power up, system will be set to AUTO for 4 PIPE System and the system will be set to HEAT or COOL in 2 PIPE System (depending on the changeover mode).

PROP BAND CLG (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 5.0°C/10°F

PROP BAND HTG (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 5.0°C/10°F

These are Proportional Band settings for heating and cooling. Proportional output depends on the error and the Proportional Band. Error is the difference between the room temp and the setpoint when Deadband is 0°C/0°F. If Deadband is not zero, half of the Deadband is added to the Setpoint on Cooling Side and half of the Deadband is subtracted from the Setpoint on Heating Side in order to get the error. See Figure 1...

Note: The function is different when digital output is selected as ON/OFF only. In this case, PROP BAND acts as a differential for that particular digital output. There are only two states of the output when selected as ON/OFF, 0% (OFF) or 100% (ON). Once the output reaches 100%, the selected digital output goes ON and remains ON unless the output falls to 0%. As the output falls to 0%, the selected digital output goes OFF.

DEADBAND (0°C – 10°C/0°F – 20°F) step: 1°C/2°F, default: 2°C/4°F

This is the dead zone between heating and cooling. If the room temperature falls in dead zone, no output will be available, neither heating nor cooling. See Figure 1...

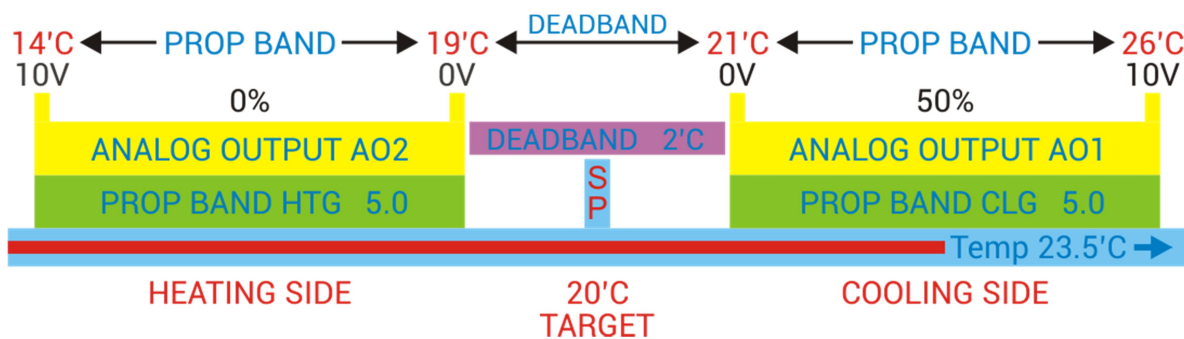


Figure 1

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INTEGRAL TIME CLG (0 – 500 sec) step: 10 sec, default: 0 sec

INTEGRAL TIME HTG (0 – 500 sec) step: 10 sec, default: 0 sec

The Integral Time is used to perform P + I (Proportional + Integral) action. If integral action not required, set integral time to 0 sec.

LO-LIMIT (-10.0°C – 95.0°C/14°F – 203°F) step: 0.5°C/1°F, default: 10.0°C/50°F
SETPOINT

The Lo-Limit is applied to supply air temperature which reduces the cooling output proportionally. Once the supply air temperature reaches the Lo-Limit Setpoint, cooling output is set to zero. This ensures the level of comfort.

LO-LIMIT (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 5.0°C/10°F
PROP BAND

This is the Lo-Limit Proportional Band required to reduce the cooling output proportionally.

HI-LIMIT (21.0°C – 50.0°C/70°F – 122°F) step: 0.5°C/1°F, default: 40.0°C/104°F
SETPOINT

The Hi-Limit is applied to supply air temperature which reduces the heating output proportionally. Once the supply air temperature reaches the Hi-Limit Setpoint, heating output is set to zero. This ensures the level of comfort.

HI-LIMIT (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 5.0°C/10°F
PROP BAND

This is the Hi-Limit Proportional Band required to reduce the heating output proportionally.

OFFSET LIMIT (±10.0°C/±20°F) step: 0.5°C/1°F, default: 0.0°C/0°F
SENSOR SEN2

Limit sensor error can be eliminated by adding offset.

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DISPLAY SETTINGS

SCREEN TIMEOUT

SCREEN TIMEOUT (0 – 90 sec) step: 5 sec, default: 30 sec

If screen is not touched till the screen timeout elapses, the controller turns on the screen saving mode. This reduces the TFT back-lit current and power consumption. If screen saving mode not required, set the screen timeout to 0 sec.

RENAME LOCATION

RENAME LOCATION (20 Characters) default: Change Location

Using QWERTY Keyboard, rename location. Press ENTER to confirm the changes or press CANCEL to discard entry. This can normally be the name of location where the device is installed.

UNOCCUPIED SETPOINT TAG

RENAME UNOCCUPIED SETPOINT TAG (20 Characters) default: UNOCCUPIED SETPOINT

Using QWERTY Keyboard, rename unoccupied setpoint tag. Press ENTER to confirm the changes or press CANCEL to discard entry.

DISPLAY/HIDE

DISPLAY TIME/DATE (NONE/TIME/TM+DT) default: TM+DT

This option helps to display or hide Time/Date on Main Temperature Screen. Three options are available:

1. TM+DT (Display Time and Date)
2. TIME (Display Time only)
3. NONE (Do not display Time and Date)

DISPLAY LOCATION (NO/YES) default: YES

This option displays or hides location on Main Temperature Screen.

DISPLAY SETPOINT TAG (NO/YES) default: YES

This option displays or hides setpoint name on Main Temperature Screen.

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ALLOW SCHEDULE (NO/YES) default: YES

PROGRAMMING

BY END USER?

This option allows guests or user to access schedule programming icon on Main Temperature Screen without login into main setup.

OCCUPIED SETPOINT TAG

RENAME OCCUPIED SETPOINT TAG (20 Characters) default: SETPOINT

Using QWERTY Keyboard, rename occupied setpoint tag. Press ENTER to confirm the changes or press CANCEL to discard entry.

SCHEDULED SETPOINT TAG

RENAME SCHEDULED SETPOINT TAG (20 Characters) default: FOLLOWING SCHEDULE

Using QWERTY Keyboard, rename scheduled setpoint tag. Press ENTER to confirm the changes or press CANCEL to discard entry.

TIME CLOCK/SCHEDULE

TIME CLOCK SETTINGS

SECONDS	(0 – 59)	step: 1, default:
MINUTES	(0 – 59)	step: 1, default:
HOURS	(0 – 23)	step: 1, default:
DAY	(MON – SUN)	step: 1, default:
DATE	(1 – 31)	step: 1, default:
MONTH	(1 – 12)	step: 1, default:
YEAR	(2017 – 2030)	step: 1, default:

These are the settings of built-in Real Time Clock (RTC).

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SCHEDULE PROPERTIES

PRESENT VALUE (-5.0°C – 95.0°C/23°F – 203°F) step: 0.5°C/1°F, default: 20.0°C/68°F

This is the effective setpoint value, currently being used by the controller to maintain temperature. If the controller is following schedule, updating the present value will be overridden by the next schedule time update. The PRESENT VALUE range is restricted to setpoint minimum and maximum range.

SCHEDULE DEFAULT (-5.0°C – 95.0°C/23°F – 203°F) step: 0.5°C/1°F, default: 22.0°C/72°F

This is the default value to be used for PRESENT VALUE when no other scheduled value is in effect or the value of that particular effective time is null. The SCHEDULE DEFAULT value is restricted to setpoint minimum and maximum range.

OUT OF SERVICE (TRUE/FALSE) default: TRUE

If this value is TRUE, then the PRESENT VALUE is decoupled from internal scheduled value calculations.

WEEKLY SCHEDULE

MONDAY – SUNDAY

There are maximum of six Time Entries per day can be added and each time entry can be deleted or assigned a value of (-5.0°C – 95.0°C/23°F – 203°F) including null value. These values are restricted to setpoint minimum and maximum range. Any day or its time entry can be copied and pasted to other day or its time entry.

WEEKLY SCHEDULE START DATE

DAY (MON – SUN) step: 1, default: MON
DATE (1 – 31) step: 1, default: 1
MONTH (1 – 12) step: 1, default: 7
YEAR (2017 – 2030) step: 1, default: 2019

This is Weekly Schedule start date.

WEEKLY SCHEDULE END DATE

DAY (MON – SUN) step: 1, default: TUE
DATE (1 – 31) step: 1, default: 31
MONTH (1 – 12) step: 1, default: 12
YEAR (2017 – 2030) step: 1, default: 2019

This is Weekly Schedule end date.

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SYSTEM SETUP

SELECT 2 PIPE/4 PIPE SYSTEM (2 PIPE SYSTEM/4 PIPE SYSTEM) default: 4 PIPE SYSTEM

This is the selection between 2 PIPE and 4 PIPE system.

CONFIG 4 PIPE OUTPUTS

This option will be available when 4 PIPE SYSTEM is selected.

1. COOL ON/OFF or PWM-DO4

This option configures the digital output DO4 as ON/OFF or PWM cooling output.
see 'PWM COOLING PERIOD IN SECONDS'

2. COOL FLOATING-DO4:DO5 (0 – 300 sec) step: 1 sec, default: 100 sec

This option configures the digital outputs DO4 and DO5 as FLOATING Raise/Lower cooling outputs.
see 'FLOATING TIME IN SECONDS'

3. COOL ANALOG-AO1

This option assigns the analogue output AO1 as proportional cooling output.

4. HEAT ON/OFF or PWM-DO5

This option configures the digital output DO5 as ON/OFF or PWM heating output.
see 'PWM COOLING PERIOD IN SECONDS'

5. HEAT FLOATING-DO4:DO5 (0 – 300 sec) step: 1 sec, default: 100 sec

This option configures the digital outputs DO4 and DO5 as FLOATING Raise/Lower heating outputs.
see 'FLOATING TIME IN SECONDS'

6. HEAT ANALOG-AO2

This option assigns the analogue output AO2 as proportional heating output.

CONFIG 2 PIPE OUTPUTS (changeover mode COOL)

This option will be available when 2 PIPE SYSTEM is selected.

1. COOL ON/OFF or PWM-DO4

This option configures the digital output DO4 as ON/OFF or PWM cooling output.
see 'PWM PERIOD IN SECONDS'

2. COOL FLOATING-DO4:DO5

This option configures the digital outputs DO4 and DO5 as FLOATING Raise/Lower cooling outputs.
see 'FLOATING TIME IN SECONDS'

3. COOL ANALOG-AO1

This option assigned the analogue output AO1 as proportional cooling output.

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CONFIG 2 PIPE OUTPUTS (changeover mode HEAT)

This option will be available when 2 PIPE SYSTEM is selected.

1. HEAT ON/OFF or PWM-DO4

This option configures the digital output DO4 as ON/OFF or PWM heating output.
see 'PWM PERIOD IN SECONDS'

2. HEAT FLOATING-DO4:DO5

This option configures the digital outputs DO4 and DO5 as FLOATING Raise/Lower heating outputs.
see 'FLOATING TIME IN SECONDS'

3. HEAT ANALOG-AO1

This option assigned the analogue output AO1 as proportional heating output.

CHANGEOVER INPUT (NC/CL, NC/HT or SEN3) default: NO/CL SENSOR/VOLT FREE-UIN1/SEN3

This option will be available when 2 PIPE SYSTEM is selected. This option configures changeover universal input UIN1 as a Normally Open/Normally Close Volt Free digital input or as a sensor Input without changing or modification in the hardware. For example if the setting is 'NC/HT', then the changeover mode is set to 'COOL' when the contact is open or floating while closing the contact (shorting the changeover digital input to GND or 0V) will set the changeover mode to 'HEAT' and similarly, if the setting is 'NC/CL', then the changeover move is set to 'HEAT' when the contact is open or floating while closing the contact (shorting the changeover digital input to GND or 0V) will set the changeover mode to 'COOL'. However, if the setting is 'SEN3', then the changeover mode depends on the changeover temperature and the setpoint.

FLOATING TIME (0 – 300) step: 1, default: 100 sec IN SECONDS

This is the valve/actuator opening and closing time. On POR (power on reset) and after every 24 hours of POR, the controller DO5 output is energised for a period equal to the floating time plus 10% to ensure the valve/actuator is driven to the fully closed position before the time proportional action is applied.

For example if the proportional output is 20% then the output DO4 is energised for 20% of the floating time by driving the valve/actuator to open position. Similar action is taken place when the proportional output change from 20% to 50%, but this time the output DO4 is energised for only 30% of the floating time as the valve/actuator has already travelled 20% of the floating time.

PWM COOLING PERIOD (0 – 360) step: 1, default: 0 sec IN SECONDS

This is the PWM total Period in seconds for cooling. For example, if the Period is set to 2 seconds and heating output is 50%, then the heating output will be on for 1 second and off for 1 second. This is useful when driving thermic actuators.

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PWM HEATING PERIOD (0 – 360) step: 1, default: 0 sec IN SECONDS

This is the PWM total Period in seconds for heating. For example, if the Period is set to 2 seconds and heating output is 50%, then the heating output will be on for 1 second and off for 1 second. This is useful when driving thermic actuators or 3 phase solid-state relay driving heater battery.

SELECT PORTS INPUT default: all ports set to NOT USED

All Digital Inputs and Universal Input can be configured individually for dedicated Window Input, Occupancy Input or interchangeable EC Fan Error and Filter Pollution Input. It is not possible to assign Multiple Inputs for same function. For example, if the port DIN1 is assigned for EC FAN ERROR Input, selecting EC FAN ERROR input for port DIN2 for will set the port DIN2 to WINDOW INPUT.

OCCUPANCY DETECTION CONTACT default: NO

This option helps to interface Occupancy Sensor with Normally Open or Normally Close Volt Free output without changing or modification in the hardware. For example if the Setting is 'NO', then the room status is occupied when the contact open or floating while closing the contact (shorting the input DIN2 to GND or 0V) will set the room status to unoccupied after the derogation time elapses.

EC FAN ERROR DETECTION CONTACT default: NC

This option helps to detect EC Fan Error with Normally Open or Normally Close Volt Free output without changing or modification in the hardware. For example if the Setting is 'NC', then the EC Fan Error status to Okay when the contact open or floating while closing the contact (shorting the digital input DINx to GND or 0V) will set the EC Fan Error status to Fault after the purge time elapses.

FILTER ERROR DETECTION CONTACT default: NC

This option helps to detect Filter Pollution using Pressure Switch with Normally Open or Normally Close Volt Free output without changing or modification in the hardware. For example if the Setting is 'NC', then the Filter Error is set to Okay when the contact open or floating while closing the contact (shorting the digital input DINx to GND or 0V) will set the Filter Error status to Fault after the purge time elapses.

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WINDOW CLOSE

DETECTION CONTACT default: NO

This option helps to interface Window Contact with Normally Open or Normally Close Volt Free output without changing or modification in the hardware. For example if the setting is 'NO', then the window status is set to 'Closed' when the contact DIN1 is open or floating while closing the contact (shorting the Window input DIN1 to GND or 0V) will set the Window status to 'Opened' and shutdown the Heating and Cooling Cycle. Frost protection is unaffected regardless the Window Status.

EC FAN ERROR

PURGE TIME (0 – 100 sec) step: 1 sec, default: 5 sec

Once the EC Fan Error is detected, the Fan Error will not be set to Fault unless the purge time elapses. This prevents nuisance detection when the EC Fan Error input changes rapidly.

FILTER POLLUTION

PURGE TIME (0 – 100 sec) step: 1 sec, default: 5 sec

Once the Filter Pollution is detected from pressure switch, the Filter Error will not be set to Fault unless the purge time elapses. This prevents nuisance detection when the Filter Pollution input changes rapidly.

FILTER SERVICE (0 – 65000 hours) step: 1 hour, default: 0 hours

TIMEOUT (hours)

This is the threshold for Filter Timer. When the timer value is greater than or equal to Filter Timeout, filter service status is set to fault and FILTER SERVICE appears on main screen.

FILTER POLLUTION value: NORMAL/FAULT, default: N/A

FAULT DETECT

This is the fault indication which is latched when filter pollution is detected. This can be cleared by pressing and confirming CLEAR FILTER FAULT button.

FILTER SERVICE value: NORMAL/FAULT, default: N/A

FAULT DETECT

This is the fault indication which is latched when filter service status is set to fault. By pressing and confirming CLEAR SERVICE FAULT button, will reset the Filter Service Timer and clear the fault.

FILTER SERVICE

TIMER (hours)

This is the non-volatile timer which is updated after every one hour. If the Fan output is not zero, timer starts running and incremented after every hour.

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RESTORE DEFAULTS

Confirm Restore Defaults?

By confirming 'YES' will reset all the parameters values to factory defaults.

CHANGE PIN NUMBER

ENTER NEW PIN default PIN: 1234

To change PIN, type new PIN number and press 'CHANGE PIN'.

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FAN SPEED SETTINGS

FAN ON DELAY (0 – 180 sec) step: 30 sec, default: 0 sec
(Heating only)

The fan on delay is provided only in heating cycle. If not zero and the heating is OFF for more than 30 sec, then the heating off period is inserted for fan on delay during heating cycle. If the heating off period is more than the fan on delay, then the maximum delay will be fan on delay.

FAN START UP (0 – 10 sec) step: 1 sec, default: 0 sec

This option provides a facility to start up the fan at full speed whenever it is switched ON from an OFF state. If the fan start up time is not zero, then the fan will receive full power for the set fan start up time. After the fan start up time is expired, the fan speed will be reduced to the selected value.

FAN OVERRUN (0 – 15 min) step: 1 min, default: 0 min

If not zero, then the fan will continue to run at default low speed for the duration of fan overrun period.

SELECT FAN SPEED OUTPUT TYPE

(DIGITAL: SSR DO1, DO2, DO3/ANALOG OUTPUT AO3) default: ANALOG

This is the selection between DIGITAL and ANALOG fan speed output.

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DIGITAL OUTPUT DO1, DO2, DO3 (AUTO)

These settings will be available when fan speed output 'DIGITAL: SSR DO1, DO2, DO3' is selected.

1. $\Delta T1$ (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 3.0°C/6°F

When the main temperature falls in this cooling $\Delta T1$ band, digital output DO1 is activated.

2. $\Delta T2$ (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 3.0°C/6°F

When the main temperature falls in this cooling $\Delta T2$ band, digital output DO2 is activated.

3. $\Delta T3$ (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 3.0°C/6°F

When the main temperature falls in this heating $\Delta T4$ band, digital output DO1 is activated.

4. $\Delta T4$ (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 3.0°C/6°F

When the main temperature falls in this heating $\Delta T5$ band, digital output DO2 is activated.

NOTE 1: When the main temperature falls in cooling $\Delta T4$ band or heating $\Delta T6$ band, digital output DO3 is activated.

NOTE 2: All digital outputs depend on FAN ON DELAY, FAN START UP and FANOVERRUN.

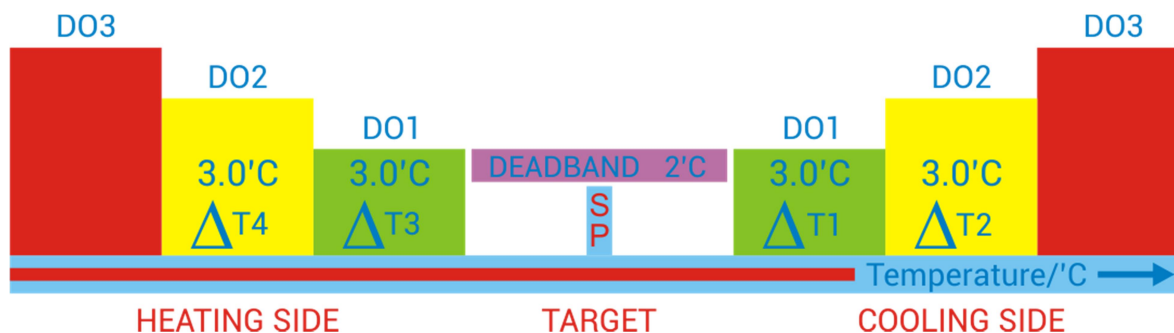


Figure 2

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



ANALOG OUTPUT AO3 (AUTO)

These settings will be available when fan speed output 'ANALOG OUTPUT AO3' is selected.

1. **FAN PROP BAND CLG (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 3.0°C/6°F**

This is the Fan Prop Band in cooling cycle.

2. **FAN PROP BAND HTG (0.5°C – 15.0°C/1°F – 30°F) step: 0.5°C/1°F, default: 3.0°C/6°F**

This is the Fan Prop Band in heating cycle.

FAN MIN/MAX ANALOG OUTPUT: AO3

These settings will be available when fan speed output 'ANALOG OUTPUT AO3' is selected.

1. **MIN ANALOG OUTPUT (0V – 9V) step: 1V, default: 0V**

This is the analog fan speed minimum output voltage.

2. **MAX ANALOG OUTPUT (1V – 10V) step: 1V, default: 10V**

This is the analog fan speed maximum output voltage.

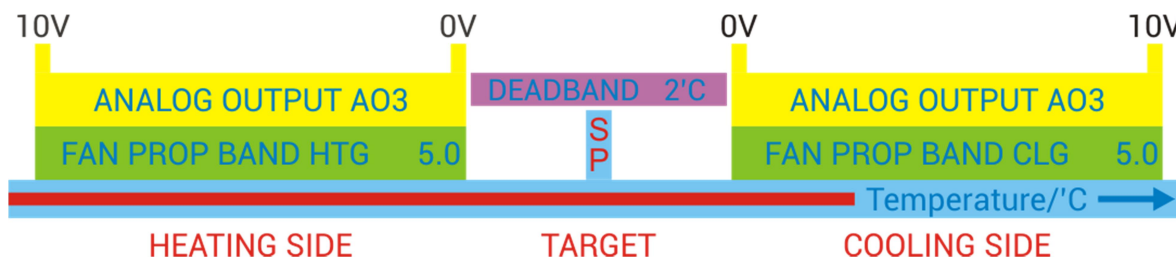


Figure 3

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



BACnet SETUP

MS/TP MAC ADDRESS (1 – 127) step: 1, default: 1

This is the controller's unique MAC address. The range 1 – 127 is for master only.

MAX MASTER (1 – 127) step: 1, default: 127

The Max Master is the address where the node that is polling for masters rolls over to MAC address 0.

MAX INFO FRAMES (1 – 10) step: 1, default: 1

This is the setting of maximum number of information frames that a node can send before passing the token to the next node.

BAUD RATE (9600, 19200, 38400, 57600, 76800 & 115200) default: 19200

This is the communication baud rate. Six baud rates are available for RS-485 communication. Baud rate must be set prior to connecting to the network.

DEVICE INSTANCE (1 – 4194302) default: 1076000 + MAC ADDRESS

This is the device instance number which must be unique within the entire network. A default device instance is the combination of vendor id and device MAC address. For example, vendor id of NORPOSH is 1076 and if the set MAC address is 2 then the default device instance will be set to 1076002.

APDU TIMEOUT (1 – 60000) default: 1000

This is the amount of time in milliseconds between retransmissions of an APDU.

NUMBER OF (1 – 10) step: 1, default: 1

APDU RETRIES

This is the maximum number of times that an APDU is retransmitted.

OBJECT NAME (29 Characters) default: NFCTS4316

This is the device name which can be renamed to the maximum of 29 alpha-numeric strings and must be unique within the entire network.

LOCATION (20 Characters) default: Change Location

This is the device name which can be renamed to the maximum of 20 alpha-numeric strings and should be renamed where the device is installed. This will help to locate the device during commissioning.

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



BACnet Protocol Implementation Conformance Statement (PICS)

Vendor Name: NORPOSH LIMITED

Vendor Identifier: 1076

Product Name: Touchscreen Fan Coil Controller

Model Number: NFC-TS4316

Firmware Revision: 4316.1.0

Protocol Revision: 19

NFC-TS4311

NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



BACnet Interoperability Building Blocks Supported (BIBB)

Read Property

Read Property Multiple

Write Property

Subscribe COV

Who-Is

I-Am

Who-Has

I-Have

DeviceCommunicationControl (DM-DCC-B)

TimeSynchronization (DM-TS-B)

Standard Object Types Supported

Analog Input-R

Analog Output-R

Analog Value-R/W

Binary Input-R

Binary Output-W

Multistate Output-W

Multistate Values-R/W

Schedule-R/W

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TOUCHSCREEN FAN COIL CONTROLLER



List of BACnet Proprietary Properties

Table 1

Device:1076XXX

Property	Value	Default	Read/Write	Remarks
1076400	9600, 19200, 38400, 57600, 76800, 115200		R/W	Baudrate
Apdu Timeout	1000	1000	R/W	
Application Software Version	1.0			
Database Revision	0			
Description	BACnet FCU Controller			
Device Address Binding				
Firmware Revision				
Local Date	DD/MM/YYYY			Current Date
Local Time	HH:MM:SS			Current Time
Location	Change Location		R/W	Max 20 Characters
Max Apdu Length Accepted	480			Max APDU Length for MS/TP
Max Info Frames	1 – 80	1	R/W	
Max Master	1 – 127	127	R/W	
Model Name	NFC-TS4316			
Number of Apdu Retries	1 – 10	1	R/W	
Object Identifier	OBJECT_DEVICE:1076XXX	1076001	R/W	
Object Name	NFCTS4316		R/W	Max 29 Characters
Object Type	Object Device			
Protocol Object Types Supported				
Protocol Revision	19			
Resolution	0.5°C [1°F]			Setpoint Min increment /decrement
Segmentation Supported	None			
System Status	Operational			
Vendor Identifier	1076			
Vendor Name	NORPOSH LIMITED			

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Analog_Input:0

Property	Value	Default	Read/Write	Remarks
1076300	-10 to +10°C [-20 to +20°F]	0°C [0°F]	R/W	OFFSET INTERNAL SENSOR
Cov Increment	0.5 to 30°C [1 to 60°F]	0.5°C [1°F]	R/W	Change of Value
Description	Main Temperature from Internal On-board Sensor			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_INPUT:0			
Object Name	INTERNAL ROOM SENSOR		R/W	Max 29 Characters
Object Type	Object Analog Input			
Out of Service	True / False			True, if sensor is not in use
Present Value	-5 to 95°C [23 to 203°F]			Measured Sensor Temperature
Reliability	No Fault Detected No Sensor Over Range Under Range Open Loop Shorted Loop No Output			These values are set by controller depend on the measured sensor value, connectivity to the input port and Out of Service status
Resolution	0.5°C [1°F]			Setpoint Min increment /decrement
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Degrees Celsius Degrees Fahrenheit	Celsius	R/W	System/Controller working Unit

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Analog_Input:1

Property	Value	Default	Read/Write	Remarks
1076301	-10 to +10°C [-20 to +20°F]	0°C [0°F]	R/W	OFFSET EXTERNAL SENSOR
Cov Increment	0.5 to 30°C [1 to 60°F]	0.5°C [1°F]	R/W	Change of Value
Description	Main Temperature from External Sensor SEN1			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_INPUT:0			
Object Name	EXTERNAL SENSOR SEN1		R/W	Max 29 Characters
Object Type	Object Analog Input			
Out of Service	True / False			True, if sensor is not in use
Present Value	-5 to 95°C [23 to 203°F]			Measured Sensor Temperature
Reliability	No Fault Detected No Sensor Over Range Under Range Open Loop Shorted Loop No Output			These values are set by controller depend on the measured sensor value, connectivity to the input port and Out of Service status
Resolution	0.5°C [1°F]			Setpoint Min increment /decrement
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Degrees Celsius Degrees Fahrenheit	Celsius	R/W	System/Controller working Unit

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Analog_Input:2

Property	Value	Default	Read/Write	Remarks
1076302	-10 to +10°C [-20 to +20°F]	0°C [0°F]	R/W	OFFSET LIMIT SENSOR
Cov Increment	0.5 to 30°C [1 to 60°F]	0.5°C [1°F]	R/W	Change of Value
Description	Limit Temperature from Sensor SEN2			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_INPUT:0			
Object Name	LIMIT TEMPERATURE		R/W	Max 29 Characters
Object Type	Object Analog Input			
Out of Service	True / False			True, if sensor is not in use
Present Value	-5 to 95°C [23 to 203°F]			Measured Sensor Temperature
Reliability	No Fault Detected No Sensor Over Range Under Range Open Loop Shorted Loop No Output			These values are set by controller depend on the measured sensor value, connectivity to the input port and Out of Service status
Resolution	0.5°C [1°F]			Setpoint Min increment /decrement
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Degrees Celsius Degrees Fahrenheit	Celsius	R/W	System/Controller working Unit

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TOUCHSCREEN FAN COIL CONTROLLER



Analog_Input:3

Property	Value	Default	Read/Write	Remarks
1076303	-10 to +10°C [-20 to +20°F]	0°C [0°F]	R/W	OFFSET CHANGEOVER SENSOR SEN3
Cov Increment	0.5 to 30°C [1 to 60°F]	0.5°C [1°F]	R/W	Change of Value
Description	Changeover Temperature from Sensor SEN3			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_INPUT:0			
Object Name	CHANGEOVER TEMP		R/W	Max 29 Characters
Object Type	Object Analog Input			
Out of Service	True / False			True, if sensor is not in use
Present Value	-5 to 95°C [23 to 203°F]			Measured Sensor Temperature
Reliability	No Fault Detected No Sensor Over Range Under Range Open Loop Shorted Loop No Output			These values are set by controller depend on the measured sensor value, connectivity to the input port and Out of Service status
Resolution	0.5°C [1°F]			Measured Temperature minimum increment or decrement
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Degrees Celsius Degrees Fahrenheit	Celsius	R/W	System/Controller working Unit

Analog_Output:4

Property	Value	Default	Read/Write	Remarks
Description	Analog Cooling Output at AO1			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_OUTPUT:4			
Object Name	COOLING OUTPUT AO1		R/W	Max 29 Characters
Object Type	Object Analog Input			
Out of Service	True / False			
Present Value	0-100%			Cooling Output set by Controller
Priority Array	Object[] Array			
Relinquish Default	0			
Resolution	1			
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Percent	Percent		Analog output in percent

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TOUCHSCREEN FAN COIL CONTROLLER



Analogue_Output:5

Property	Value	Default	Read/Write	Remarks
Description	Analog Heating Output at AO2			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_OUTPUT:5			
Object Name	HEATING OUTPUT AO2		R/W	Max 29 Characters
Object Type	Object Analog Input			
Out of Service	True / False			
Present Value	0-100%			Cooling Output set by Controller
Priority Array	Object[] Array			
Relinquish Default	0			
Resolution	1			
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Percent	Percent		Analog output in percent

Analogue_Output:6

Property	Value	Default	Read/Write	Remarks
Description	Analog Fan Speed Output at AO3			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_OUTPUT:6			
Object Name	FAN ANALOG OUTPUT AO3		R/W	Max 29 Characters
Object Type	Object Analog Input			
Out of Service	True / False			
Present Value	0-100%			Fan Speed Output
Priority Array	Object[] Array			
Relinquish Default	0			
Resolution	1			
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Percent	Percent		Analog output in percent

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TOUCHSCREEN FAN COIL CONTROLLER



Analog_Value:7

Property	Value	Default	Read/Write	Remarks
1076330	0			Filter Service Timer
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_VALUE:7			
Object Name	FILTER SERVICE TIMEOUT		Read	Max 29 Characters
Object Type	Object Analog Value			
Out of Service	True / False			
Present Value	0 to 65000	0	R/W	Filter Service Timeout in hours
Resolution	1			
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Hours	Hours		

Analog_Value:8

Property	Value	Default	Read/Write	Remarks
1076304	-5 to 94.5°C [23 to 202°F]	5°C [41°F]	R/W	SETPOINT MIN
1076305	-4.5 to 95°C [24 to 203°F]	35°C [95°F]	R/W	SETPOINT MAX
1076306	0.5 to 15°C [1 to 30°F]	5°C [10°F]	R/W	PROP BAND COOLING
1076307	0.5 to 15°C [1 to 30°F]	5°C [10°F]	R/W	PROP BAND HEATING
1076308	0 to 10°C [0 to 20°F]	1°C [2°F]	R/W	DEADBAND
1076309	0 to 500 (sec)	0 (sec)	R/W	INTEGRAL TIME COOLING
1076310	0 to 500 (sec)	0 (sec)	R/W	INTEGRAL TIME HEATING
1076311	5 to 15°C [41 to 59°F]	10°C [50°F]	R/W	LO-LIMIT SETPOINT
1076312	0.5 to 15°C [1 to 30°F]	5°C [10°F]	R/W	LO-LIMIT PROP BAND
1076313	21 to 50°C [70 to 122°F]	40°C [104°F]	R/W	HI-LIMIT SETPOINT
1076314	0.5 to 15°C [1 to 30°F]	5°C [10°F]	R/W	HI-LIMIT PROP BAND
1076315	SETPOINT	SETPOINT	R/W	Max 29 Characters
Description	Room Setpoint			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_VALUE:8			
Object Name	SETPOINT		R/W	Max 29 Characters
Object Type	Object Analog Value			
Out of Service	True / False			
Present Value	-5 to 95°C [23 to 203°F]	20°C [68°F]	R/W	Range depends on Setpoint Min and Setpoint Max Value
Resolution	0.5°C [1°F]			Setpoint Min increment /decrement
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Degrees Celsius Degrees Fahrenheit	Celsius	R/W	System/Controller working Unit

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TOUCHSCREEN FAN COIL CONTROLLER



Analog_Value:9

Property	Value	Default	Read/Write	Remarks
Description	Unoccupied Setpoint			
1076316	UNOCCUPIED SETPOINT	UNOCCUPIED	R/W	Max 29 Characters
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_VALUE:9			
Object Name	UNOCCUPANCY SETPOINT		R/W	Max 29 Characters
Object Type	Object Analog Value			
Out of Service	True / False			
Present Value	-5 to 95°C [23 to 203°F]	15°C [59°F]	R/W	
Resolution	0.5°C [1°F]			Setpoint Min increment /decrement
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Degrees Celsius Degrees Fahrenheit	Celsius	R/W	System/Controller working Unit

Analog_Value:10

Property	Value	Default	Read/Write	Remarks
Description	Changeover Setpoint			
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_ANALOG_VALUE:10			
Object Name	CHANGEOVER SETPOINT		Read	Max 29 Characters
Object Type	Object Analog Value			
Out of Service	True / False			
Present Value	-10 to 95°C [14 to 203°F]	20°C [68°F]	R/W	
Resolution	0.5°C [1°F]			Setpoint Min increment /decrement
Status Flags	In Alarm Fault Overridden Out Of Service			
Units	Degrees Celsius Degrees Fahrenheit	Celsius	R/W	System/Controller working Unit

Binary_Input:11

Property	Value	Default	Read/Write	Remarks
Description		NOT USED		
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_BINARY_INPUT:11			
Object Name	DIGITAL INPUT DIN1		R/W	Max 29 Characters
Object Type	Object Binary Input			
Out of Service	True / False			
Polarity	Normal	Normal		
Present Value	0/1			
Status Flags	In Alarm Fault Overridden Out Of Service			

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TOUCHSCREEN FAN COIL CONTROLLER



Binary_Input:12

Property	Value	Default	Read/Write	Remarks
		NOT USED		
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_BINARY_INPUT:12			
Object Name	DIGITAL INPUT DIN2		YES	Max 29 Characters
Object Type	Object Binary Input			
Out of Service	True / False			
Polarity	Normal	Normal		
Present Value	0/1			
Status Flags	In Alarm Fault Overridden Out Of Service			

Binary_Input:13

Property	Value	Default	Read/Write	Remarks
Description		NOT USED		
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_BINARY_INPUT:14			
Object Name	UNIVERSAL INPUT UIN1		R/W	Max 29 Characters
Object Type	Object Binary Input			
Out of Service	True / False			
Polarity	Normal	Normal		
Present Value	0/1			
Status Flags	In Alarm Fault Overridden Out Of Service			

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Binary_Output:14

Property	Value	Default	Read/Write	Remarks
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_BINARY_OUTPUT:14			
Object Name	DIGITAL OUTPUT DO4		R/W	Max 29 Characters
Object Type	Object Binary Output			
Out of Service	True / False			
Polarity	Normal	Normal		
Present Value	0/1			
Status Flags	In Alarm Fault Overridden Out Of Service			

Binary_Output:15

Property	Value	Default	Read/Write	Remarks
Event State	Normal			This value is always set to Normal
Object Identifier	OBJECT_BINARY_OUTPUT:15			
Object Name	DIGITAL OUTPUT DO5		R/W	Max 29 Characters
Object Type	Object Binary Output			
Out of Service	True / False			
Polarity	Normal	Normal		
Present Value	0/1			
Status Flags	In Alarm Fault Overridden Out Of Service			

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TOUCHSCREEN FAN COIL CONTROLLER



Multi_State_Output:16

Property	Value	Default	Read/Write	Remarks
Description	Fan Digital Speed Output			
Event State	Normal			This value is always set to Normal
Number of States	4			
Object Identifier	OBJECT_MULTI_STATE_OUTPUT:16			
Object Name	FAN DIGITAL OUTPUT			
Object Type	Object Multi State Output			
Out of Service	True / False			
Present Value	1 – 4			
Priority Array	Object[] Array			
State Text	1:OFF 2:LOW 3:MEDIUM 4:HIGH			
Status Flags	In Alarm Fault Overridden Out Of Service			

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Schedule:17

Property	Value	Default	Read/Write	Remarks
Effective Period	Object[] Array			Schedule Effective Period
List of Object Property References	Reference to OBJECT_ANALOG_VALUE:17			
Object Identifier	OBJECT_SCHEDULE:0			
Object Name	SCHEDULE		R/W	Max 29 Characters
Object Type	Object Schedule			
Out of Service	True / False		R/W	
Present Value	-5 to 95°C [23 to 203°F]		R/W	This value is set by Controller but can be written when Out of Service value is True
Priority For Writing		Lowest And Default		
Reliability	No Fault Detected Unreliable Other Configuration Error			These values are set by controller
Schedule Default	-5 to 95°C [23 to 203°F]	22°C [72°F]		
Status Flags	In Alarm Fault Overridden Out Of Service			

Multi_State_Value:20

Property	Value	Default	Read/Write	Remarks
Description				
Event State	Normal			This value is always set to Normal
Number of States	4			
Object Identifier	OBJECT_MULTI_STATE_VALUE:20			
Object Name	SELECT AUTO/HEAT/COOL/OFF			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1 – 4			
State Text	1:AUTO 2:HEAT 3:COOL 4:OFF			
Status Flags	In Alarm Fault Overridden Out Of Service			

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Multi_State_Value:21

Property	Value	Default	Read/Write	Remarks
Description	SELECT MAIN SENSOR			
Event State	Normal			This value is always set to Normal
Number of States	2			
Object Identifier	OBJECT_MULTI_STATE_VALUE:21			
Object Name	SELECT MAIN SENSOR			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1/2	1	R/W	
State Text	1:INTERNAL ON-BOARD 2:EXTERNAL SEN1			
Status Flags	In Alarm Fault Overridden Out Of Service			

Multi_State_Value:22

Property	Value	Default	Read/Write	Remarks
Description	Select 2 PIPE/4 PIPE SYSTEM			
Event State	Normal			This value is always set to Normal
Number of States	2			
Object Identifier	OBJECT_MULTI_STATE_VALUE:22			
Object Name	SELECT 2 PIPE/4 PIPE SYSTEM			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1/2	2	R/W	
State Text	1:2 PIPE SYSTEM 2:4 PIPE SYSTEM			
Status Flags	In Alarm Fault Overridden Out Of Service			

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Multi_State_Value:23

Property	Value	Default	Read/Write	Remarks
Description	Configure Outputs			
Event State	Normal			This value is always set to Normal
Number of States				This depends on 2 PIPE and 4 PIPE System
Object Identifier	OBJECT_MULTI_STATE_VALUE:23			
Object Name	CONFIG OUTPUTS			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value			R/W	
State Text				This depends on 2 PIPE and 4 PIPE System
Status Flags	In Alarm Fault Overridden Out Of Service			

Multi_State_Value:24

Property	Value	Default	Read/Write	Remarks
Description	Turn On/Off Frost Protection			
Event State	Normal			This value is always set to Normal
Number of States	2			
Object Identifier	OBJECT_MULTI_STATE_VALUE:24			
Object Name	FROST PROTECTION ON/OFF			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1/2	2	R/W	
State Text	1:FROST PROTECTION: ON 2:FROST PROTECTION: OFF			
Status Flags	In Alarm Fault Overridden Out Of Service			

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Multi_State_Value:25

Property	Value	Default	Read/Write	Remarks
Description	Power on Reset Heat Mode			
Event State	Normal			This value is always set to Normal
Number of States	2			
Object Identifier	OBJECT_MULTI_STATE_VALUE:25			
Object Name	POWER ON RESET HEAT MODE			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1/2	1	R/W	
State Text	1: POWER ON RESET HEAT MODE: AUTO 2: POWER ON RESET HEAT MODE: OFF			
Status Flags	In Alarm Fault Overridden Out Of Service			

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TOUCHSCREEN FAN COIL CONTROLLER



Multi_State_Value:26

Property	Value	Default	Read/Write	Remarks
Description				
Event State	Normal			This value is always set to Normal
Number of States	7			
Object Identifier	OBJECT_MULTI_STATE_VALUE:26			
Object Name	CONFIG DIGITAL INPUT DIN1			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1/2	2	R/W	
State Text	1:NC: WINDOW CLOSED 2:NO: WINDOW CLOSED 3:NO: EC FAN ERROR DETECT 4:NC: EC FAN ERROR DETECT 5:NO: FILTER ERROR DETECT 6:NC: FILTER ERROR DETECT 7:NOTUSED			
Status Flags	In Alarm Fault Overridden Out Of Service			

Multi_State_Value:27

Property	Value	Default	Read/Write	Remarks
Description				
Event State	Normal			This value is always set to Normal
Number of States	7			
Object Identifier	OBJECT_MULTI_STATE_VALUE:27			
Object Name	CONFIG DIGITAL INPUT DIN2			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1/2	2	R/W	
State Text	1:NC: OCCUPIED 2:NO: UNOCCUPIED 3:NO: EC FAN ERROR DETECT 4:NC: EC FAN ERROR DETECT 5:NO: FILTER ERROR DETECT 6:NC: FILTER ERROR DETECT 7:NOTUSED			
Status Flags	In Alarm Fault Overridden Out Of Service			

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NFC-TS4316 (BACnet)

TOUCHSCREEN FAN COIL CONTROLLER



Multi_State_Value:28

Property	Value	Default	Read/Write	Remarks
Description				
Event State	Normal			This value is always set to Normal
Number of States	8			
Object Identifier	OBJECT MULTI STATE VALUE:26			
Object Name	CONFIG UNIVERSAL INPUT UIN1			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1/2	2	R/W	
State Text	1:CHANGEOVER INPUT UIN1NC: HEATING 2:CHANGEOVER INPUT UIN1NC: COOLING 3:CHANGEOVER SENSOR SEN3 4:NO: EC FAN ERROR DETECT 5:NC: EC FAN ERROR DETECT 6:NO: FILTER ERROR DETECT 7:NC: FILTER ERROR DETECT 8:NOTUSED			
Status Flags	In Alarm Fault Overridden Out Of Service			

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Multi_State_Value:29

Property	Value	Default	Read/Write	Remarks
Description	Select Fan Speed Output Type			
Event State	Normal			This value is always set to Normal
Number of States	2			
Object Identifier	OBJECT_MULTI_STATE_VALUE:29			
Object Name	SELECT FAN SPEED OUTPUT TYPE			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1/2		R/W	
State Text	1:ANALOG OUTPUT AO3 2:DIGITAL OUTPUT DO1, DO2, DO3			
Status Flags	In Alarm Fault Overridden Out Of Service			

Multi_State_Value:30

Property	Value	Default	Read/Write	Remarks
1076318 – 1076328				See Table 1
Description				This depends on Fan Speed Type
Event State	Normal			This value is always set to Normal
Number of States				This depends on Fan Speed Type
Object Identifier	OBJECT_MULTI_STATE_VALUE:30			
Object Name	FAN SPEED			
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value			R/W	This depends on Fan Speed Type
State Text				This depends on Fan Speed Type
Status Flags	In Alarm Fault Overridden Out Of Service			

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Multi_State_Value:31

Property	Value	Default	Read/Write	Remarks
Description	OCCUPANCY STATUS			
Event State	Normal			This value is always set to Normal
Number of States	3			
Object Identifier	OBJECT_MULTI_STATE_VALUE:31			
Object Name	OCCUPANCY STATUS		R/W	Max 29 Characters
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1 – 3			
Priority Array	Object[] Array			
State Text	1:OCCUPIED 2:UNOCCUPIED 3:NOT USED			
Status Flags	In Alarm Fault Overridden Out Of Service			

Multi_State_Value:32

Property	Value	Default	Read/Write	Remarks
Description	WINDOW STATUS			
Event State	Normal			This value is always set to Normal
Number of States	3			
Object Identifier	OBJECT_MULTI_STATE_VALUE:32			
Object Name	OCCUPANCY STATUS		R/W	Max 29 Characters
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1 – 3			
Priority Array	Object[] Array			
State Text	1:WINDOW CLOSED-OKAY 2:WINDOW CLOSED-FAULT 3:NOT USED			
Status Flags	In Alarm Fault Overridden Out Of Service			

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Multi_State_Value:33

Property	Value	Default	Read/Write	Remarks
1076333	5		R/W	Purge Time
Description	EC FAN ERROR STATUS			
Event State	Normal			This value is always set to Normal
Number of States	3			
Object Identifier	OBJECT_MULTI_STATE_VALUE:33			
Object Name	EC FAN ERROR STATUS		R/W	Max 29 Characters
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1 – 3			
Priority Array	Object[] Array			
State Text	1:EC FAN ERROR-OKAY 2:EC FAN ERROR -FAULT 3:NOT USED			
Status Flags	In Alarm Fault Overridden Out Of Service			

Multi_State_Value:34

Property	Value	Default	Read/Write	Remarks
1076334	5		R/W	Purge Time
Description	FILTER POLLUTION STATUS			
Event State	Normal			This value is always set to Normal
Number of States	4			
Object Identifier	OBJECT_MULTI_STATE_VALUE:34			
Object Name	FILTER POLLUTION STATUS		R/W	Max 29 Characters
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1 – 4			
Priority Array	Object[] Array			
State Text	1:FILTER POLLUTION-OKAY 2:FILTER POLLUTION -FAULT 3:NOT USED 4:CLEAR FILTER FAULT			
Status Flags	In Alarm Fault Overridden Out Of Service			

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Multi_State_Value:35

Property	Value	Default	Read/Write	Remarks
1076333	5		R/W	Purge Time
Description	FILTER SERVICE STATUS			
Event State	Normal			This value is always set to Normal
Number of States	4			
Object Identifier	OBJECT_MULTI_STATE_VALUE:34			
Object Name	FILTER SERVICE STATUS		R/W	Max 29 Characters
Object Type	Object Multi State Value			
Out of Service	True / False			
Present Value	1 – 4			
Priority Array	Object[] Array			
State Text	1:FILTER SERVICE-OKAY 2:FILTER SERVICE-FAULT 3:NOT USED 4:CLEAR SERVICE FAULT			
Status Flags	In Alarm Fault Overridden Out Of Service			

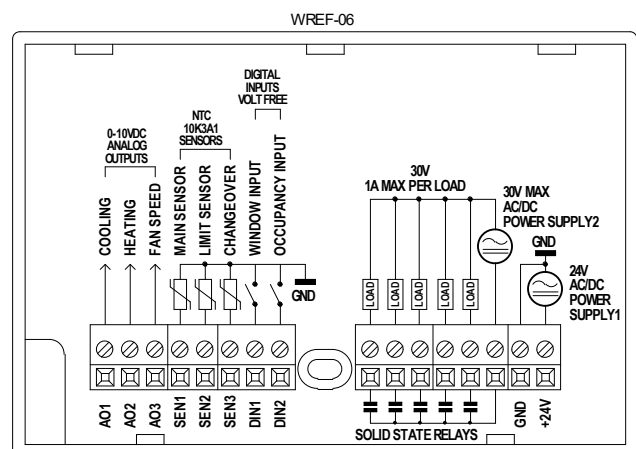
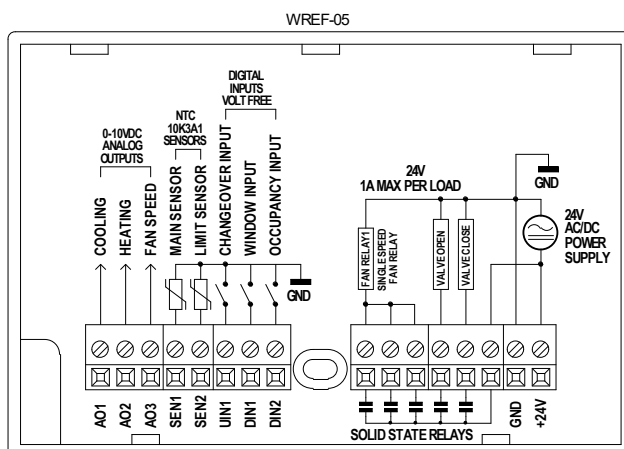
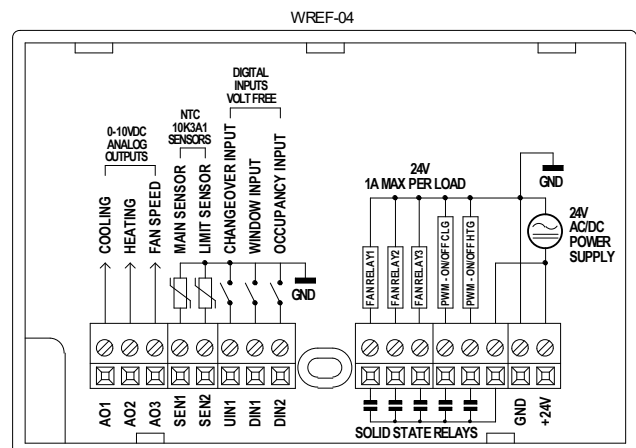
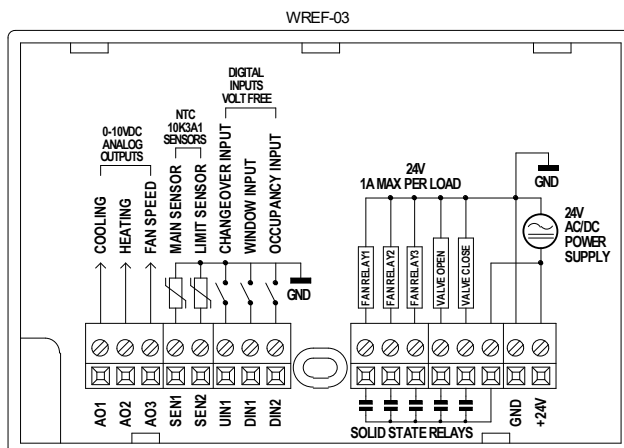
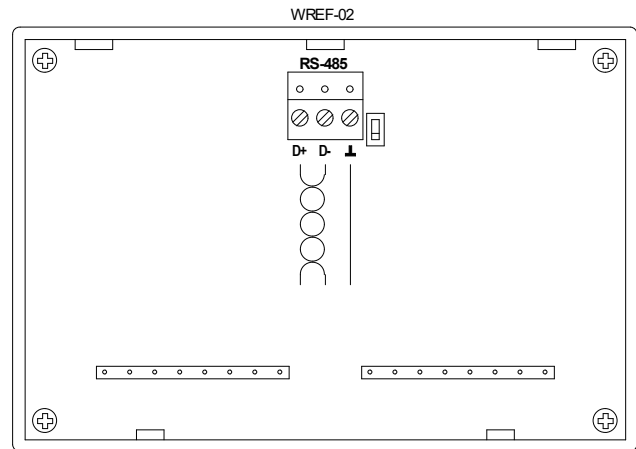
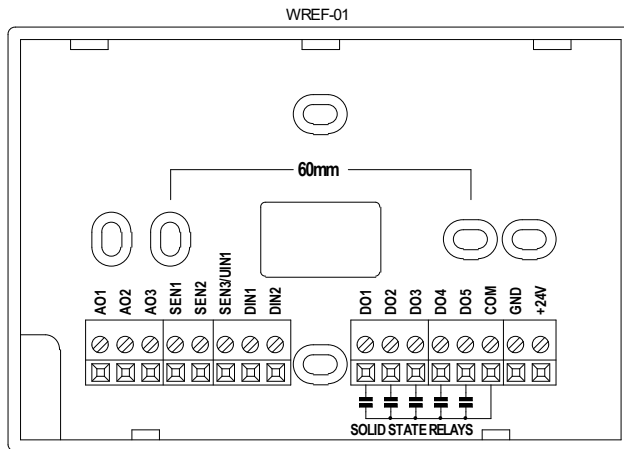
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WIRING REFERENCE



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