DATA SHEET

NXT500 SERIES
TOUCH SCREEN ROOM THERMOSTAT

Product Description

The **NXT500 Series** is 3.5 inch color Touch Screen Smart Room Thermostats are designed to learns your heating and cooling preferences and then intelligently creates an optimized Schedule to maximize efficiency. With a modern digital interface and touch buttons, it's easy to operate and is also WiFi capable, which means you can control it through your mobile devices.

It's support open standard Modbus TCP, Modbus RTU and MQTT protocol that helps integrate with any BMS and Cloud platform.

The Optional Occupancy/ Keycard/ Motion sensor inputs helps to switch the thermostat to ECO/Energy saving mode when the input is inactive. Similarly Door contact in put helps to Switch OFF the unit and prevent the humidification when window/balcony door open.

These thermostats can also be made available in any RAL color of your choice subject to minimum order quantity. Please contact us for further information.

Key Features

- ❏ 24V or 230V AC power supply Variant
- ❏ 3.5" TFT color touch screen
- ❏ Ambient light sensor
- ❏ Humidity sensor
- ❏ Wi-Fi connective (Optional)
- ❏ 3 speed or 0-10VAC fan control
- ❏ On/Off relay or 0-10VAC valve control
- ❏ 2/4 pipes HVAC system
- ❏ On/off or 0-10v valve for heating and cooling.
- ❏ Manual or Auto change over
- ❏ 7-day, week day/weekend, 24 hours schedule
- ❏ Four or six events per day
- ❏ Auto sync time and date
- ❏ Automatically adjusts to day light saving time
- ❏ Defrost protection
- ❏ Modbus RS485, Modbus TCP, MQTT (Optional)
- ❏ Holiday mode
- ❏ Multi-language (9 languages)
- ❏ C/F temperature display
- ❏ Touch screen lock out

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Quick Reference

Technical Information

Purpose Of Control	2/4 pipes Fan coil AC system, AC + electric heating
Supply Voltage	24vac, 110-240 vac 50/60 Hz
Relay Rating	230VAC @5 Amp maximum per relay
Output Relay	SPST - NO
Display	320x480 pixels TFT, Capacitive touch screen
Communications	Modbus RTU, Modbus TCP MQTT
Displayed Temperature Resolution	0.1°C
Control Temperature Step	0.2°C(default = 0.5°C)
Wire Size, Terminals	Current ≤ 5 A - 1.5 mm2, solid core wire
Smart Schedule Type	7days, weekday/weekend,24hours
Schedule Per Day	Up to seven different 4- or 6-event program
Standby Consumption	≤0.5 w
Wi-Fi (Optional)	IEEE 802.11 b/g/n - 2.4ghz
Security	WPA/WPA2
Operating Temperature	1° c- 85° c
Dimensions (W/H/D)	96 * 86 * 13.8 (mm)
Build-In Depth	24.5mm
Weight	≤200 g
Enclosure Rating	IP 21
Enclosure Material	PC + ABS plastic
Alexa (Optional)	Available
Google Home (Optional)	

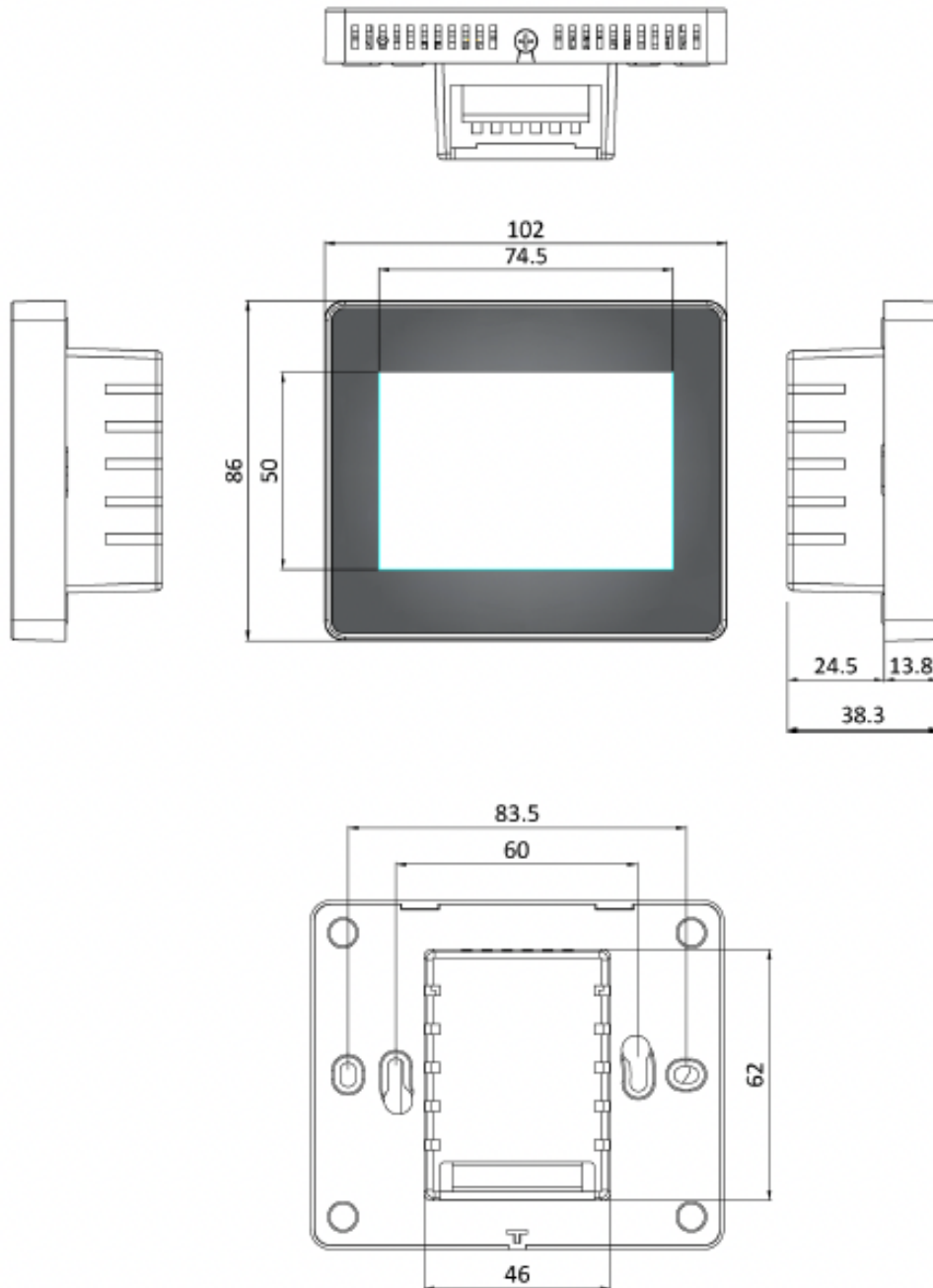|			
1 Wi-Fi indicator	9 Holiday
2 History data diagram	10 Schedule
3 Adjusting the optional settings.	11 Configuration settings
4 Day indicator & clock	12,13 Adjusting the setting temperature
5 System mode: heat, cool ,auto, off	14 Setting temperature display
6 Fan :auto, high, med, low	15 Room temperature display
7 Humidity	16 °C or °F display
8 Power on/off	17"heating/cooling/vent" symbol

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Dimensions

102
74.5
86
50
24.5 13.8
38.3

83.5
60
62
46

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Settings

Language	English, Chinese, Spain, Italian, Russian, Polish, Czech, German, French, Slovenski, Swedish, Portuguese
Date & Time	1) Time Zone 2) Date & Time 3) Daylight saving Time (DST)
Display Brightness	Ambient Light Diming
Screen Saver	Standby Screen 1) Time: 3min, 10min, just night 2) Type: Clock , default, Off screen
Lock screen	4 number PIN; Disable/enable
Network Settings	1) WiFi Setup 2) Pair to App (Smart Config) 3) QR Code 4) Mac Address 5) Modbus Address (Option)

Feature Settings	1) Temperature Format
	2) Temperature Limit
	3) Switch differential
	4) Output delay
	5) Defrost:
	   Defrost temperature;
	   Enable/disable
	1) Build-in sensor calibration
	2) Humidity sensor calibration
	3) Optimum Start
	4) Energy Tariff:
	     KW/H
	     $/kwh
	1) Open Window function
	2) Fan setting:
	     0-10v Fan; 3 speed Fan; EC
	     Fan work mode
	1) Valve setting:
	     Switch on/off valve
	     0-10v valve
	1) Input signal setting:
	     Disable/enable input
	     Input signal type

Schedule	Weekday/Weekend 7 Days 24 Hours None
Hold Temperature	Hold time Hold setpoint
System Information	Version number, QR code
Factory reset	Reset to factory settings

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Definition of P Valve

The proportional band is the amount of change required by the ambient temperature for the output to go from 0 to 100%. It can be adjust from 1~10. Factory default is 2. The P value is bigger ,the change of valve output will be bigger; The P value is smaller, the change of valve output will be smaller. For example, when P=2, the temperature difference between ambient temperature and set point is 5 C the valve to open about 10% when P=4, the temperature difference between ambient temperature and set point is 5C, the valve will open at 20%.
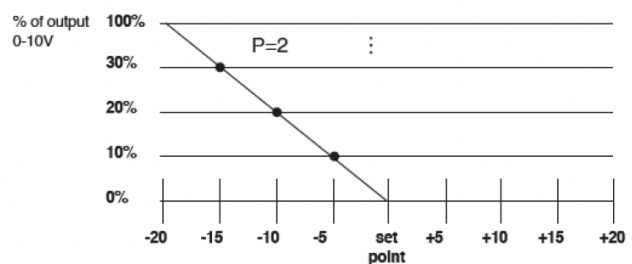
Cool Mode (P-band-1)
When the ambient temperature is above the set point the output is between 0~100%.
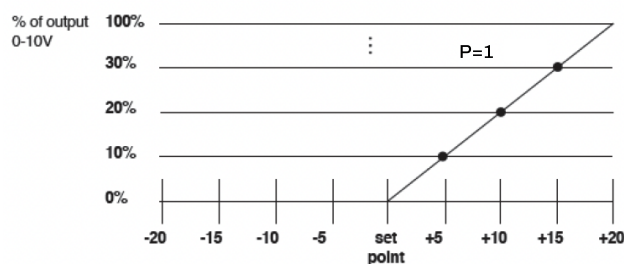
Heat Mode (P-band-2)
When the ambient temperature is below the set point the output is between 0~100%

Modbus Protocol

This protocol takes standard Modbus as are ference, mainly for use for communication between thermostat and computer (PC). This protocol doesn't describe Modbus. For information about Modbus, please refer to the relevant standard documents.

Communication Setting

No	Parameter	Protocol provision
1	Operating mode	RS-485,master-slave; thermostat is the slave
2	Physical interface	A(+),B(-) two wire system
3	Baud rate	9600 bps (standard)
4	Byte Format	9 format (8 data bits+1 stop bit)
5	Modbus	RTU
6	Transmission mode	RTU Format (Please refer to the standard Modbus)
7	Thermostat address	1-255; (0 is broadcast address)
8	Command code	03,06 and 16 (03 –read thermostat , 06-set thermostat, 16 set thermostat for several bytes)
9	CRC check code	CRC-16(Please refer to standard Modbus)
10	CRC Verification code	CRC-16(Please refer to standard Modbus)

Definition of I Valve

This feature allows you to set the integral action time for the integral to run from 0 to 100%. The value required depends on the reaction time
of the control loop. If the time is chosen too short, the control loop will become instable and oscillate. If the time is chosen too long, the control
loop will become sluggish, It can be adjusted from 1S -60S. Factory Default is 40S

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Warning

Must only be installed by a professiona ltechnician. Installation must be according to the installation drawing and instructions must be followed.

Risk of Electrical Shock: Disconnect power supply before making the electrical connection. Contact with components carrying high voltage can cause electrical shock and may result in severe personal injury or loss of life.

Product Variant

Model/ Series	NXT500
Shape	Square
Screen	LCD, Touch screen
No. Of Pipes	2 pipe, 4-pipe
Backlight Color	White, Blue
Communication	Modbus, Wi-Fi
Value Control	On/Off, 0-10 VDC
Fan Speed	3-Speed / ECM
Operations Voltage	110-240 VAC
Energy Saving Mode	Optional
Time Clock	Optional: Available (available only on Modbus RTU Model)
Schedules	Optional: Weekly programmable (available only on Modbus RTU Model)
Color	Black, White, Gold, Silver, Pink, Brushed, Stainless Steel
Special Function	Amazon Echo, Google Home, (available on WIFI Model)

Colors can also be customized to any RAL Color subject to quantity

Ordering Code

A1: Two pipe; Control Fan Coil Unit & Two wired Motorized valve. (when room temperature reaches the set point, both will turn off)

A2: Two pipe; Control Fan Coil Unit & Two wired Motorized valve.(when room temperature reaches the set point, valve will turn off but fan will turn to low speed)

B: Two pipe; Control on/off Motorized Damper

C: Two Pipe; Control Fan Coil Unit & Three wired Motorized valve

M: Two pipe; Control 0-10V Motorized Valve

F: Four pipe; Control Fan Coil Unit and Two wired Heat and Cool motorized valve

Y: Two pipe; 0-10V for Fan Speed (ECM) and Motorized Valve

T: Clock

L: Backlight

P: Weekly Programmable

N: RS485/MODBUS RTU communication

K: Keycard

E: External sensor

For example: **NXT500 A1 B M L K**... (Please add choice of color)

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For further information

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