TECHNICAL DATASHEET

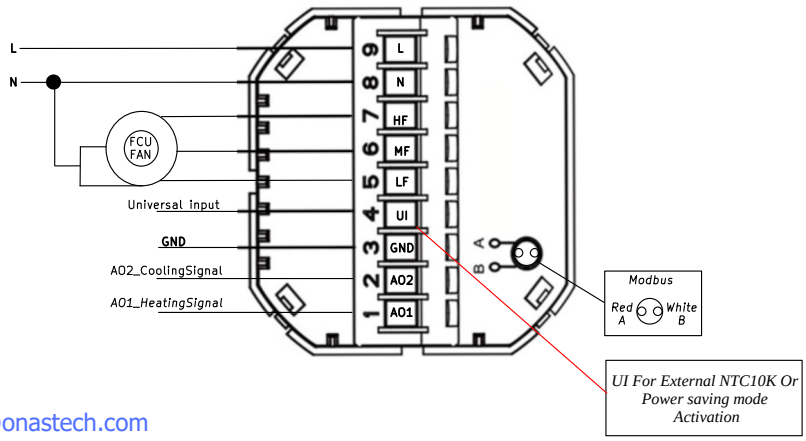
FCT-941 Fan Coil Thermostat

General

FCT-941 fan coil thermostat is designed to control fan coil unit system, by switching on/off on 3 fan speed + 1 modulating Heating valves + 1 modulating Cooling valves with Modbus communication. It is widely used in these environment like Homes, Residential buildings, Schools, Hotels, Hospitals, Offices and etc. to main an ideal room temperature purpose.

Typical Wiring

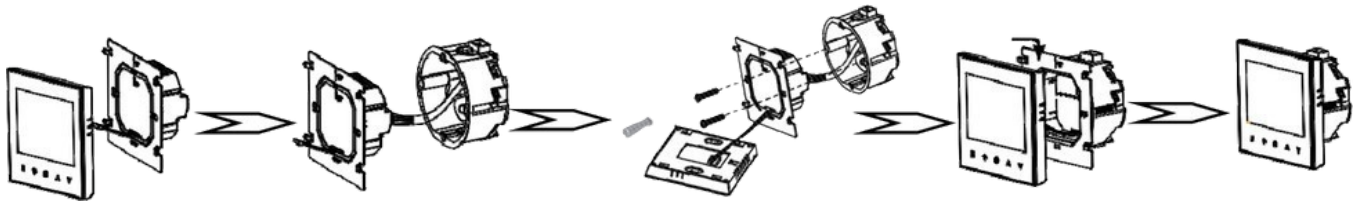
Snap-In Easy Installation
Fit for EU & Standard Junction Electric Box
Fashion Sense of Science and Technology
Cooling only/Heating or Cooling mode
Modbus Communication



Technical Specifications

Power Supply	**95~240Vac, 50/60Hz**	**Sensor**	**NTC3950, 10K**
Current Load	Fan Relay 5A(2A-inductive)	**Temperature Accuracy**	±0.5°C or ±1℉
	Valve Relay 0-10V signal	**Set-Point Range**	5~35°C
Storage Temp.	-5 ~ 45 °C	**Display Temp. Range**	5 ~ 99°C
Power Consumption	< 1.5W	**Timing Error**	< 1%
Housing Material	PC +ABS (Fireproof)	**Installation Box**	EU or Standard Electric Box
Wires on Terminals	Wire 2 x 1.5 mm^2 or 1 x 2.5 mm^2		
Protection Class	IP20	**Operating Buttons**	Capacitive Touch Buttons
Compliance	• Approval from the ministry of industry in Egypt. • Complied to IEC 63044-5-1 & IEC 63044-5-2 requirements which are equivalent to the following: - UL 916 requirements. - EN 50491-11 requirements.		

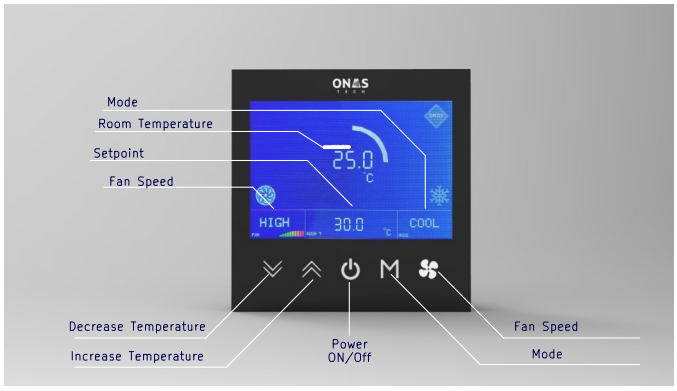
Installation



WARNING: RISK OF ELECTRICAL SHOCK. Disconnect power supply before making electrical connection. Contact with components carrying hazardous voltage can cause electrical shock and may result in severe personal injury or death.

Make sure the power is OFF! Try turning ON your heating/cooling system by changing the temperature. If you can't get the system to turn ON in 5 minutes, you'll know the power is OFF.
Take off the installation face plate by rotating and gently pulling, then connect voltage supply/load output/external sensor(if with) wires respectively to appropriate terminals.
Fix the installation plate onto the electric junction box with screws packed in the box.
Fasten the thermostat display part and the installation face plate through the groove.(Installation process completed)

Dimensions and Display



Operation

Buttons/Functions	Operation
⏻	Switch thermostat power On or Off
∧ ∨	Increase or decrease set-point or parameters
	Select the Fan Speed in Auto-Hign-Medium-Low-Auto
M	Switch among Heating or Cooling or Ventilation mode

System Capabilities

FCT-941 supports operation in 4-pipe systems, providing two analog outputs. These outputs are governed by a PID controller, with tunable parameters (Kp, Ki, Kd) to optimize thermal regulation. These PID parameters can be configured via the web interface, as explained in the Web Page Configuration section.

Operation Modes

Cooling Control Logic with Hysteresis
The thermostat implements a hysteresis-based control strategy to regulate cooling based on the user defined setpoint (SP). This prevents frequent switching near the target temperature and ensures stable system behavior.

Heating Control Logic with Hysteresis
The thermostat also supports heating control using a hysteresis-based approach. This ensures smooth operation and prevents rapid switching of the heating output near the desired setpoint (SP).

Comfort / Pre-Comfort

Dual Mode Temperature Control: Comfort & Pre-comfort
The thermostat supports two operational modes — Comfort and Pre-comfort — each with configurable deadbands to balance energy efficiency and thermal stability.

State Temperature Control with Configurable Deadband
This mode intelligently regulates heating and cooling based on the difference between the current temperature and a user-defined setpoint (SP). The system behavior is governed by a user-configurable deadband and a fixed Idle Zone, enabling both high precision and energy efficiency.

Modbus Holding Registers

Register	Function	Access	Details
[10]	Device Power	Read/Write	0 = Off. Any positive or negative value = Power On.
[11]	Fan Speed	Read/Write	0 = Off, 1 = Low, 2 = Medium, 3 = High, 4 = Auto. Any other value = No change.
[12]	Operating Mode	Read/Write	0 = Cool, 1 = Heat, 2 = Comfort, 3 = Pre-Comfort. Any other value = No change.
[13]	Temperature Setpoint	Read/Write	Value must be written as: Setpoint × 100. Example: 20.0°C = 2000. Setpoint limits are defined via the web interface.
[14]	PID - Kp	Read Only	Monitors the current proportional gain value.
[15]	PID - Ki	Read Only	Monitors the current integral gain value.
[16]	PID - Kd	Read Only	Monitors the current derivative gain value.
[17]	Room Temperature	Read Only	Displays the current measured room temperature (value × 100).

Warranty

Products are warranted for 2 full year (checking and repairing services) from the date of purchase which products are not being damaged by any man-made factors.

- Service outwith the warranty period may incur an extra charge.

Issued by
Onastech
5th floor, Building no. 49, 291 st.,
New Maadi,Cairo,
Egypt
Tel. +2 02 25 19 01 93
www.onastech.com