

TF628 Series Digital Thermostat

Fan Coil Unit Control

SPECIFICATION DATA



General

The TF628 series digital thermostat is designed for 3-speed fan and on/off valve control in a fan coil system, including:

- 2-pipe cooling only/heating only/manual changeover
- 4-pipe cooling/heating manual/auto changeover
- Ventilation mode
- 2-stage cooling application (only activated under cooling system type)
- Manual or automatic 3-speed fan control
- On/off water valve control

Besides the basic controls, TF628 series featuring **CPH** (**Cycle Per Hour**) better maintains the room temperature to the setpoint and **Random Start-up Function** would help to maintain power grid stability.

In addition, Honeywell Home **Memorized Time Off Function** can automatically turn off the thermostat to save energy.

Features

- Memorized time off
- Cycle Per Hour (CPH)
- Random startup
- Remote temperature sensor optional
- Energy saving mode optional
- LCD display with simple user interface
- Room temperature or setpoint temperature display selectable
- Manual or automatic fan speed selectable
- Temperature units in either °C or °F
- User setting can be stored when power loss
- Freeze protection function available
- Keypad lock options
- Heating and cooling setpoint limitation

Specifications

Power supply 220/230VAC(±10%) 50/60Hz Accuracy ±1°C at 21°C Auto Cycle times 100,000 times 10.000 times Manual Cycle times Protection class **IP20** 10 ~ 32°C Set point range Display range 0~37°C Ambient operating limits 0~ +49°C Ambient storage limits -30 ~ +60°C Humidity limits 5~90% RH, non-condensing Remote temperature sensor NTC20K Rating Capacity Working current for the whole product : 4(3)A 4A: When the load of the thermostat is resistance 3A: When the load of the thermostat is inductance For Fan load 4(2)A 4A:when the load is resistance; 2A:When the load is inductance For Valve load 2(1)A 2A: when the load is resistance; 1A: when the load is inductance

Product Model

OS#	Backlight	Application	Power	Ventilation	Auto Fan	Package
TF628WN/U	Yes	2/4 pipes	220/230VAC; 50/60Hz	Yes	Yes	Unit Package, with wall plate
TF628DN/U	Yes	2/4 pipes	220/230VAC; 50/60Hz	Yes	Yes	Unit Package, with wall plate

Product Design

Thermostat appearance



LCD display



Dimensions (mm)



Function

2- stage cooling

2-stage cooling function is enabled as default setting. (It can be disabled when ISU_1≠1). The compressor (or the second cooling valve) will be open/closed subjected to the gap between room temperature and setpoint. The gap value can be selected in ISU 19.

Please refer ISU (Installation setup) table in page 6 of this datasheet for more instructions.

Valve Control

Thermostat measures the room temperature via integrated sensor or remote temperature sensor and maintains the setpoint by delivering on/off valve control command outputs.

To protect the system, user can select the "minimum relay off time" between previous "turn off" and next "turn on". The range can be selected in ISU18.

The fan setting can be selected as manual or automatic 3-speed operation. When in "manual" mode, the fan is switched to the selected speed via control output FH (high), FM (Medium) , FL (Low).

While in "automatic" mode, fan speed depends on the difference between room temperature and setpoint. When room temperature reaches the setpoint, the valve will be closed, and the fan will be closed in the meanwhile.



Fig. 1. Fan Speed Ramping Control Algorithm

E&ES-CDS-CT02-166-E01-EN

Memorized Time Off

The time off feature will automatically turn off the thermostat after a selectable amount of time. To change the time setting, press and hold the power button for more than 3 seconds and press "up" and "down" button to change the value when the thermostat is working.

NOTE: The setting range is from 0 to 12 hours. The step is 1 hour and the default value is 0.



Backlight

To turn on the backlight, press any key. The backlight will timeout 8 seconds after the last key is pressed. When in ISU and Installation test mode, the backlight will timeout 60 seconds after the last key is pressed.

Keypad Lockout

Keypad lockout can be set in ISU and the default status is "All keys are available". Keypad lock can be optioned to "system button locked out", "Fan and system buttons locked out", "all buttons (except power button) locked out", "fan button locked out" and "all buttons are locked".

Temperature Display

The displayed temperature can be set to room temperature or setpoint. The setting can be changed during ISU (Installation Set Up) process.

Cycle Per Hour (CPH)

In order to achieve more accurate temperature control, the CPH function enables the thermostat to open the valve several times per hour as the room temperature gets close to the sepoint.

The value can be changed in the ISU, the default values are 4 for heating and 3 for cooling.

Operating Mode

Comfort Mode

In comfort mode, the setpoint and fan speed can be changed by pressing corresponding buttons. Comfort mode including 2pipe cool only/heat only/manual changeover and 4-pipe heat/ cool manual / auto changeover.

Energy Saving Mode

A dry contact (such as hotel card) or button press (press and hold the "mode" button for more than 3 seconds) can activate the energy saving mode. The dry contact can be selected as normal open or normal close in ISU.

If activated by dry contact, all buttons will be locked except the multi-key for ISU. If activated by button press, any button press can stop energy saving mode.

The setpoint will change to the remote setback heating/cooling setpoint when the energy saving mode is enabled. The heating setpoint range is 10°C to 21°C and the default is 18°C. The cooling setpoint range is 22°C to 32°C and the default is 26°C.



Ventilation Mode

Press "mode" button to enter "ventilation" mode. In "ventilation" mode, no output for valve while the fan will operate at selected fan speed.



Freeze Protection Mode

Freeze protection can be selected as disabled(default) or enabled in the ISU. In freeze protection mode (not in cool only application), when thermostat is off and the temperature is below 6° C, the thermostat will activate heating mode til the temperature rises to 8° C.



Installation and Wiring

TF628 Series can be installed in vertical 2*4 inches junction box through mounting plate.

The screws must be locked tightly to avoid wire break off from the terminals. The wire should not be tangled and stucked Between front case assembly and back case.



Terminal Designations

Terminal	Terminal Description
vC2	Cooling close
vO2	Cooling open
L	Live
vC	Heating close/Cooling close
vO	Heating open/Cooling open
Ν	Neutral
FH	High speed fan relay
FМ	Medium speed fan relay
FL	Low speed fan relay
RG	Ground for remote sensor and setback
RSB	Remote setback
RS	Remote sensor

Wiring Diagram

2 pipes 1 stage heating or 1 stage cooling MCO/ heating only application



Honeywell Home VC4013 series



Honeywell Home VC6013 series

Cooling only application



Honeywell Home VC4013 series



Honeywell Home VC6013 series

4 pipes 1 stage heating or 1 stage cooling MCO/ ACO application



Honeywell Home VC4013 series



Honeywell Home VC6013 series

ISU (Installation Setup)

Press and hold the "mode" and "up" buttons together for more than 3 seconds to enter or exit ISU. Change the ISU code by pressing the "mode" button and then change the option setting by pressing the "up" and "down" button refer to the following introduction.

ISU Code	Description	Options
1	System Type	0 Heating only
		1 Cooling only (Default)
		2 Two pipes heating/cooling
		4 Four pipes manual
		5 Four pipes auto
2	Valve Output	0 NO
	Туре	1 NC (Default)
3	Remote Sen-	0 Onboard sensor (Default)
	sor	1 Remote sensor (NTC20K)
4	Temp. Scale	0 °F
		1 °C (Default)
5	Fan Control Type	0 Auto only Auto has fan ramping algorithm
		1 Manual only (3 speed: Low→Med→High→Low)
		2 Users can choose Auto or Manual (Low→Med→High→Auto→Low) (Default)
6	Switching Dif-	1°C (2°F)
	Four Pipes	1.5°C (3°F) (Default)
	Auto Changeo-	2°C (4°F)
	Setpoint	3°C (5°F)
7	CPH For Heat	1-12 4(Default)
8	CPH For Cool	1-6 3(Default)
9	Display Temp. Adjustment	-2~2°C, 0.5°C. Default 0°C (-4~4°F, 1°F. Default 0°F)
10	Temp. Display	0 Room temp. (Default)
	Mode	1 Setpoint

ISU Code	Description	Options		
11	Heating Range Stops	10~32°C. Default 32°C (50~90°F. Default 90°F)		
12	Cooling Range Stops	10~32°C Default 10°C (50~90°F.Default 50°F)		
		0 All keys are available (Default)		
		1 System button locked out		
13	Keypad Lockout	2 Fan and system button locked out		
		3 All button locked out except power button		
		4 Fan button locked out		
		5 All buttons are locked		
		0 Hotel card NO		
14	Remote Setback Enable Method	1 Hotel card NC		
		2 Button (Default)		
15	Remote Setback Heating Setpoint	10~21°C. Default 18°C (50~70°F. Default 64°F)		
16	Remote Setback Cooling Setpoint	22~32°C. Default 26°C (72~90°F. Default 79°F)		
17	Franza Protection	0 Disabled (Default)		
17	Field Fiolection	1 Enabled		
18	Minimum Relay off	0 Disable min. relay off time (Default)		
	lime	1-5 minutes of min relay off time for the 1 st stage		
19		2°C (4°F)		
	Gap of 2 nd Stage	3°C (5°F)		
	cool On	4°C (7°F) (Default)		
		5°C (9°F)		



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