Honeywell Home

T6590 Series

FAN-COIL CONTROLLER

PRODUCT DATA

APPLICATIONS

The T6590 range of digital thermostats is designed to control the valves, fan and auxiliary electric heater within fan-coil systems.

Modern, attractive styling and comprehensive feature set makes the T6590 suitable for a wide range of applications.

There are a total of 8 application configurations supported, and these are:

Application	Description
0	2 pipe system, heating only
1	2 pipe system, cooling only
2	2 pipe system, 1 stage heat or 1 stage cool
3	2 pipe system, 1 stage heat or 1 stage cool, auto changeover
4	4 pipe system 1 stage heat and 1 stage cool
5	4 pipe system 1 stage heat and 1 stage cool auto changeover
6	2 pipe system, 1 stage heat or 1 stage cool with auxiliary electric heater (T6590B only)
7	4 pipe system, mixed manual and auto

The different applications can be selected from the installer setup mode and by altering the external wiring connections

FEATURES

- **Large, easy to read LCD display with backlight**
- **Heat / Cool or standby mode displayed on LCD**
- **Lockable keypad**
- **Room setpoint adjustable via simple-to-use up/down buttons**
- **Fan speed ON/Off, low/med/high or auto**
  - **Auto mode, fan speed is proportional to distance of room temperature from setpoint. Fan stops when setpoint is reached**
- **Manual or automatic heat / cool changeover**
- **Control of auxiliary electric heater on T6590B1000 model**
- **Inbuilt or wall mounted remote sensor (NTC20K) options available**
- **Simultaneous display of room temperature and user setpoint**
- **Push button adjustment of setpoint**
- **Switches allow manual control of system operation and fan speed**
- **Special energy savings mode activated by external input from Energy Management System (EMS) – a window contact or hotel card-key - overrides the temperature setting to installer defined heating and cooling temperatures**
- **Energy savings input (remote setback) can be configured to be normally open (NO) circuit or normally closed (NC) circuit**
- **All models have a proportional plus integral (P+I)**
- **T6590 meets all relevant requirements for CE approval**
- **Easy to use Installer setup mode allowing operating parameters to be changed**
- **Installer test mode for ease of installation**
- **Installer set up settings retained in the event of a power loss**
- **Central remote setback for both cooling and heating operation**
- **Freeze protection**
- **Automatic setback to unoccupied mode with no key operation**
- **°C display**
- **0°C to 2°C Temperature display offset available**
- **Adjustable deadband for heat & cool sequence control**
- **Setpoint range 10°C to 32°C**
- **Installer test mode for on-site wiring checks**
- **Line voltage (230V~) models available**

EN0H8579 R3 1020

ООО Промэлектроника / sales@prom-elec.com

SPECIFICATIONS

Setpoint range	10...32ºC
Supply voltage	230 V~ (+10%, -15%), 50/60 Hz
Control Performance	P+I algorithm applied to ON/OFF control gives typical control to ±1.0°C at 22°C at 50% duty cycle, nominal control to ±1.0°C
Electrical ratings	Fan Motor: 230V~, 50…60Hz, 3.0A run, with inrush 6A Valve Actuators: 230V~, 50…60Hz, 1.0A run, with inrush 3.5A
Operational life	Greater than 100,000 cycles (all loads) for thermostat contacts at 230 V~
Mounting	Mounts directly onto wall or wall-box - a standard 65x65mm junction box (hole pitch 60mm). Mounting screws supplied.
Wiring	11 screw-in terminals per unit, capable of accepting either 2 wires up to 1.5 mm^2 , or 1 x 2.5mm^2
Energy Savings Input	Voltage-free contact (rating 24Vdc), maximum contact resistance of 1000ohms
Enclosure	Plastic 3-piece housing
Dimensions	97 x 148 x 29 mm (h x w x d)
Environmental requirements	Operating temperature range 5 to 45ºC Shipping and storage temperature range -20 to 55ºC Humidity range 5 to 95% rh, non-condensing
Approvals	CE mark, complying with standards EN60730-1 (2001), EN55014-1 (2007), EN55014-2 (1997). Product must be wired as shown for CE compliance.

T6590 APPLICATIONS

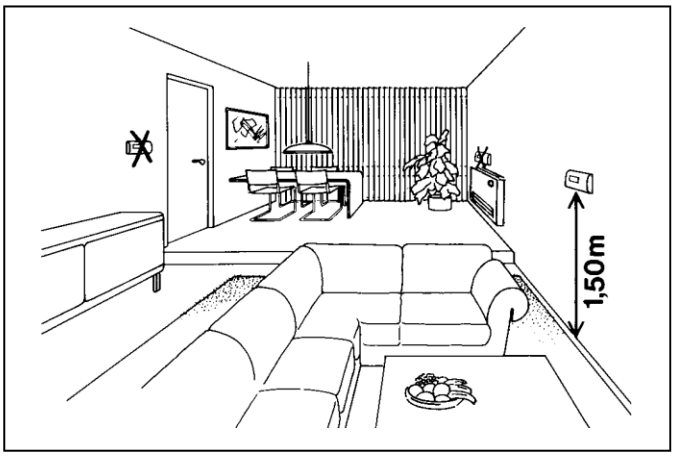
T6590A1000 – 2 Pipe Model

Application	Description	Changeover	Fan speed	Remote sensor	Pipe sensor	Remote setback	Auxiliary Heater	Output type
0	2 pipe system, heating only	No	On/Off, 3 speed or Auto	Y		Y		On Off
1	2 pipe system, cooling only	No	On/Off, 3 speed or Auto	Y		Y		On Off
2	2 pipe system, 1 stage heat or 1 stage cool	Manual	On/Off, 3 speed or Auto	Y		Y		On Off
3	2 pipe system, 1 stage heat or 1 stage cool, auto changeover	Seasonal Changeover	On/Off, 3 speed or Auto	Y	Y	Y		On Off

T6590B1000 – 4 Pipe Model

Application	Description	Changeover	Fan speed	Remote sensor	Pipe sensor	Remote setback	Auxiliary Heater	Output type
0	2 pipe system, heating only	No	On/Off, 3 speed or Auto	Y		Y		On Off
1	2 pipe system, cooling only	No	On/Off, 3 speed or Auto	Y		Y		On Off
2	2 pipe system, 1 stage heat or 1 stage cool	Manual	On/Off, 3 speed or Auto	Y		Y		On Off
3	2 pipe system, 1 stage heat or 1 stage cool, auto changeover	Seasonal Changeover	On/Off, 3 speed or Auto	Y	Y	Y		On Off
4	4 pipe system 1 stage heat and 1 stage cool	Manual	On/Off, 3 speed or Auto	Y		Y		On Off
5	4 pipe system 1 stage heat and 1 stage cool auto changeover	Auto changeover	On/Off, 3 speed or Auto	Y		Y		On Off
6	2 pipe system, 1 stage heat or 1 stage cool with auxiliary electric heater	Manual with seasonal changeover	On/Off, 3 speed or Auto	Y	Y	Y	Y	On Off
7	4 pipe system, mixed manual and auto	Manual / Auto changeover	On/Off, 3 speed or Auto	Y		Y		On Off

INSTALLATION



Location

The T6590 Series thermostat is the temperature control element in the fan-coil or air-conditioning system, and must be located about 1.2 to 1.5m above the floor (according to local building regulations) in a position with good air circulation at room temperature. Do not mount it where it could be affected by:-

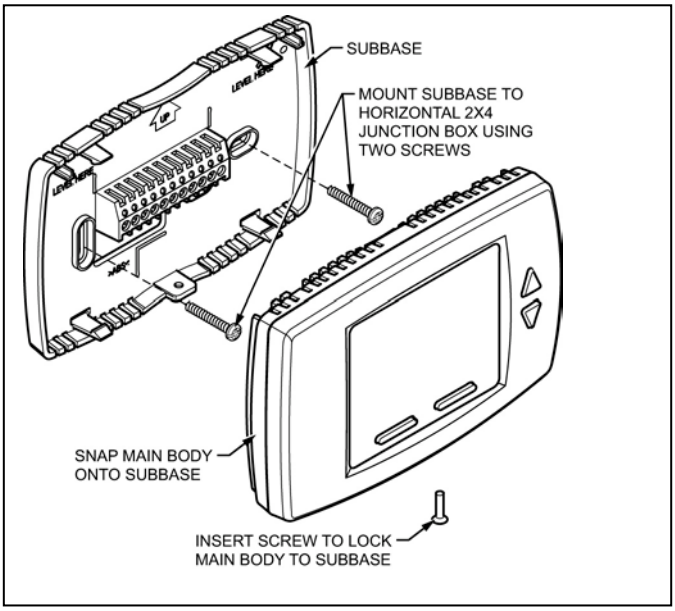
- draughts or dead spots behind doors or in corners
- hot or cold air from ducts
- radiant heat from the sun or appliances
- unheated (uncooled) areas such as an outside wall behind the thermostat
- concealed pipes or chimneys

Mounting the thermostat

Any T6590 Series thermostat can be directly mounted on the wall or horizontally on either a 65x65mm standard junction box or a 2x4inch US junction box. Mounting screws are supplied for both alternatives.

IMPORTANT

The installer must be a trained service engineer
Isolate the power supply before beginning installation



1. Locate the wall-plate in the mounting position, insert the mounting screws through the appropriate holes, and screw into position.
2. Complete the wiring.
3. Attach the thermostat to the wall-plate as follows:
4. Locate the 4 side slots on the wall plate into the appropriate slots on the back of the thermostat.
5. Press down firmly and snap the thermostat into place.
6. Tighten retaining screw in lower edge of thermostat.

Wiring the thermostat

The standard wiring access is via a hole in the centre of the thermostat wall-plate.

Wall Mounted Remote Sensor

Use Honeywell Home type TR21/U and connect according to wiring diagram on the installation leaflet.

Removing the thermostat from the wall

If it becomes necessary to remove the thermostat from the wall-plate:

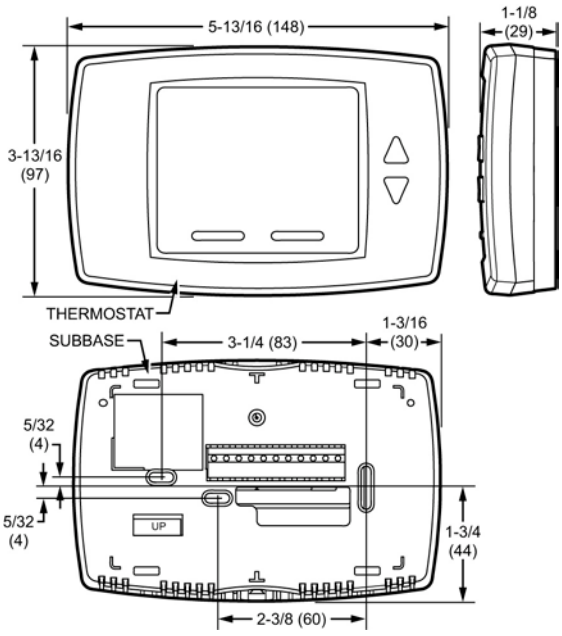
1. Isolate the power supply before removing the thermostat.
2. Loosen the retaining screw in the lower edge of the thermostat.
3. Pry the lower edge of the thermostat away from the wall-plate.
4. Use both hands to pull the thermostat straight away from the wall-plate.
5. NOTE - Incorrect removal of the thermostat from the wall-plate may damage the device.

INSTALLER SETUP MODE (ISU) – T6590A1000 & T6590B1000

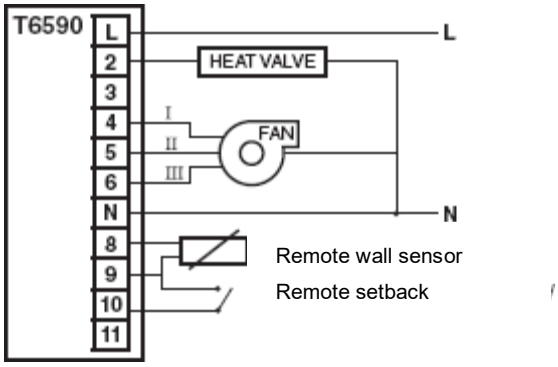
ISU Number and description	Units	Range
1 System Type	-	0 = 2 Pipe system Heat Only
	-	1 = 2 Pipe system Cool Only
	-	2 = 2 Pipe system 1H1C manual changeover
	-	3 = 2 Pipe system 1H1C auto changeover **(default on T6590A1000)**
	-	4 - 4 pipe system with manual changeover (not available on T6590A1000)
	-	5 = 4 Pipe system auto changeover **(default on T6590B1000)** (Not available on T6590A1000)
	-	6 = 2 pipe system 1H1C with Auxiliary Heater. Manual changeover (Not available on T6590A1000)
	-	7 = 4 pipe system, mixed manual and automatic changeover (not available on T6590A1000)
2 Valve output type	-	0 NO ON/OFF **(Default)**
	-	1 NC ON/OFF
3 Sensor Type	-	0 Onboard Sensor **(Default)**
	-	1 remote sensor (NTC20K)
4 Pipe sensor (Note: This item will be automatically populated based on ISU #2 selection).	-	0 NO input **(default mode is Heat)**
	-	1 NO input **(default mode is Cool)**
	-	2 NC input **(default mode is Heat)**
	-	3 NC input **(default mode is Cool)**
	-	**4 Analog input (Default)**（NTC20K, T7414C1012）
5 Threshold for pipe sensor cooling	**ºC**	Range: 10-18 ºC **(Default 15 ºC)**
6 Threshold for pipe sensor heating	**ºC**	Range: 24-32 ºC **(Default 27 ºC)**
7 Fan control type	-	**0** User can choose Cycle or Constant **(Default)** (3 speed: Low->Med->High->Auto-> Low) – fan off when setpoint reached
	-	1 CONSTANT ONLY (3 speed: Low->Med->High-> Low) – fan off when setpoint reached
8 Dead band for four pipes	**ºC**	1ºC, **2ºC (Default)**, 3ºC, 4ºC, 5ºC (not available on T6590A1000)
9 Cycles Per Hour (CPH) value for heating	-	1 – 12CPH **(Default 4)**
10 Cycles Per Hour (CPH) value for cooling	-	1 – 6CPH **(Default 3)**
11 Cycles Per Hour (CPH) value for Auxiliary Heater	-	1-12 **(Default 6)**

ISU Number and description	Units	Range
12 Display Temperature adjustment	**ºC**	-2ºC - +2ºC **(Default 0ºC)**
13 Temperature Display mode	-	0 display Room Temperature
	-	1 display Setpoint
	-	2 display both **(Default)**
14 Heating setpoint Range Stops	**ºC**	10-32ºC **(default 32ºC)**
15 Cooling setpoint Range Stops	**ºC**	10-32ºC **(default 10ºC)**
16 Keypad Lockout	-	**0 All keys available(default)**
	-	1 System button Locked out
	-	2 Fan and System button Locked out
	-	3 All buttons locked out
17 Remote setback	-	1: Hotel card NO, with 1 second software delay going from UnOcc to Occupied; 2 minute delay going from Occupied to UnOcc.
	-	2: Hotel Card NC, with 1 second software delay going from UnOcc to Occupied; 2 minute delay going from Occupied to UnOcc.
	-	3: Hotel Card enabled, NO, with 1 second software delay going from UnOcc to Occupied; 30 minute delay going from Occupied to UnOcc
	-	4: Hotel Card enabled, NC, with 1 second software delay going from UnOcc to Occupied; 30 minute delay going from Occupied to UnOcc.
18 Remote setback heating setpoint	**ºC**	Range 10-21ºC **(Default 18ºC)**
19 Remote setback cooling setpoint	**ºC**	Range 22-32ºC **(Default 26ºC)**
20 Activity Sensing (No single key pressed after certain period which is configured in this parameter, the system will enter unoccupied mode)	-	**0 Disabled (Default)**
	-	1 4 Hour Sensing
	-	2 12 Hour Sensing
	-	3 24 Hour Sensing Comment: Anytime the thermostat is not touched (no single key pressed), the thermostat will automatically fall back into unoccupied setpoints. When any key is pressed, thermostat controls to occupied mode.
21 Freeze Protection	-	**0 Disabled (Default)**
	-	1 Enabled – Stat Cycles On Heat when room temperature reaches 4ºC and disables Heat when room temperature reaches below 8ºC. This feature can not activate if the application is cool only
22 Auto Fan Reset	-	**0 Inactive (Default)**
	-	1 Reset back to Auto after 2 hours (Not when constant fan is selected in ISU #7). The start time is calculated after the initial call for heat/cool.
	-	2 Reset back to Auto after 4 hours (Not allowed when constant fan is selected in ISU #7). The start time is calculated after the initial call for heat/cool.
23 Fan run-on time after auxiliary heater is switched off	**S**	0 – 600Sec **(Default 60Sec)**

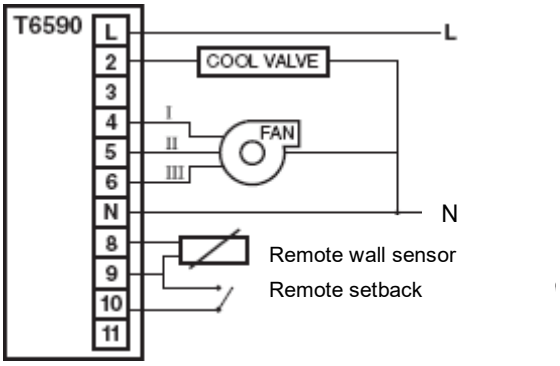
DIMENSIONS



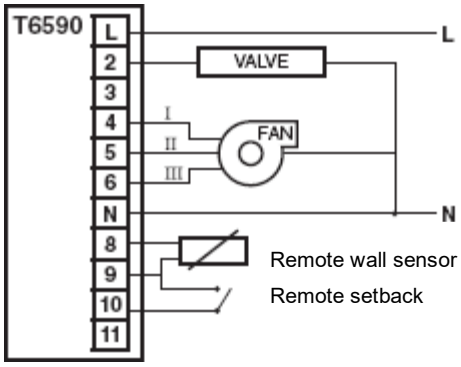
WIRING DIAGRAMS



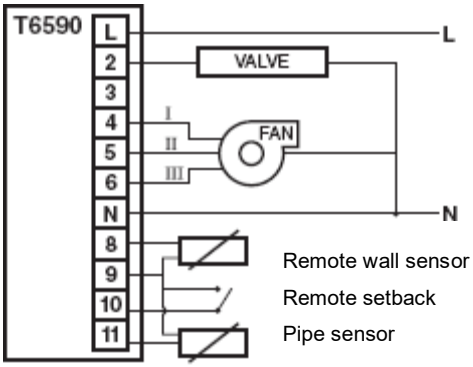
Application 0: Two Pipes, Heating-Only wiring Diagram



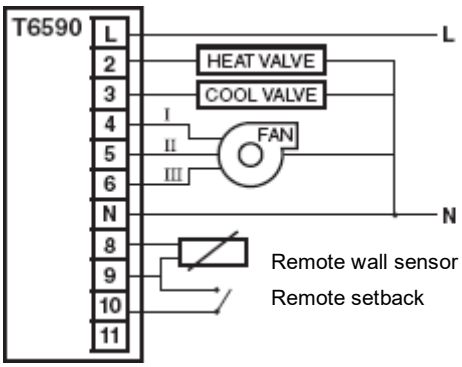
Application 1: Two Pipes, Cooling-Only wiring diagram



Application 2: Two pipes heating or Cooling, manual changeover wiring diagram

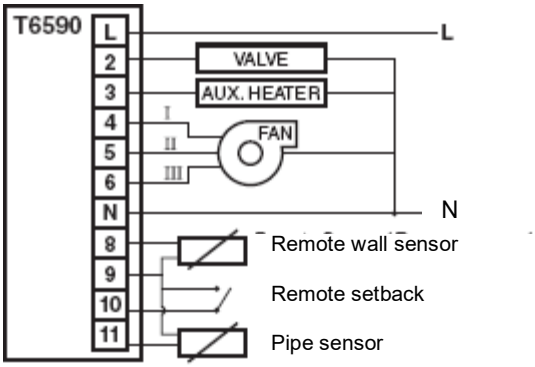


Application 3: Two pipes, one stage heating or cooling – Auto changeover wiring diagram



Application 4, 5 & 7: Four pipes (Heat + Cool) Manual / Auto changeover wiring diagram

WIRING DIAGRAMS (CONT)



Application 6: Two pipe heating or cooling with Auxiliary electric heater wiring diagram (T6590B1000 only)

ORDERING SPECIFICATIONS

OS Number	Description
T6590A1000	FCU Controller two pipe, 230VAC
T6590B1000	FCU Controller two or four pipe, 230VAC

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