Honeywell

T7560A,B Digital Wall Module

EXCEL 5000 OPEN™ SYSTEM

SPECIFICATION DATA

FEATURES

- **Fully compatible to all current Excel 10 and Excel 20 to 600 controllers.**
- **Low power consumption.**
- **LCD display continuously shows current space temperature, occupied/unoccupied/standby mode, fan status/mode, humidity, as configured.**
- **Push-button interface for full navigation and change control of wall module functions.**
- **Single touch occupied/unoccupied override.**
- **Setpoint wheel for setpoint adjustment.**
- **Integral 20k ohm NTC sensor.**
- **Fan Speed/Mode commandable from buttons.**
- **Selectable °F/°C temperature display.**
- **Selectable setpoint type, absolute or relative.**
- **Separate mounting base for easy installation.**
- **Tamper resistant locking cover.**

GENERAL

The T7560A,B Digital Wall Modules (DWM) display and provide space temperature, setpoint, Occupied/Unoccupied override, and fan mode/speed selection for the Honeywell Excel 10 W7750, W7751, W7752, W7753, W7761, W7762, W7763, and Excel 600, 500, 100, 80, 50, 20 Controllers, as applicable (a software module ModAL is available to adapt the wall module to the respective Excel 20, 50, 80, 100, 500, 600 controller, see T7560 Installation Instructions, form 95-7620 for details).

Using the three buttons, the user can change room temperature setpoint, fan mode/speed, initiate/cancel bypass, and change configuration information such as the DWM's engineering units.

These wall modules are not compatible with Honeywell W7751A,C,E,G (VAV1) and W7752D1 (FCU1) Controllers.

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CE

SPECIFICATIONS

Models

Table 1. Types of DWM.

	Sensor[1]	Setpoint	Bypass	Fan Override
T7560A	Tmp	wheel	Button	Button
T7560B	Tmp/Hum	wheel	Button	Button

[1] Tmp = Temperature sensor; Hum = Humidity sensor

Temperature Sensor Accuracy
The DWM is furnished with a 20k ohm NTC temperature sensor that follows a specific temperature-resistance curve. See Fig. 1. Honeywell controllers used with the DWM employ an algorithm that provides readings close to the actual temperature. Table 2 summarizes the DWM sensor accuracy for normal operating temperatures. Across the range of 43 to 104°F (6 to 40°C) the accuracy is better than ±0.75°F (±0.42°C).

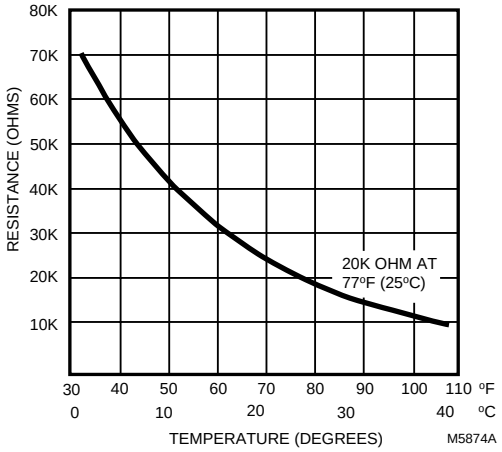


Fig. 1. Temperature versus resistance for 20k ohm sensor.

Table 2. Temperature sensor accuracy.

Ambient Temperature °F (°C)	Maximum Error °F (°C)	Minimum Error °F (°C)	Nominal Resistance (ohms)
60 (15.5)	±0.52 (±0.29)	0 (0)	31543
65 (18.3)	±0.49 (±0.27)	0 (0)	27511
70 (21.1)	±0.48 (±0.27)	0 (0)	24047
80 (26.7)	±0.49 (±0.27)	0 (0)	18490
85 (29.5)	±0.52 (±0.29)	0 (0)	16264

Table 3. Fan speed resistances.

Fan speed	Resistance (ohms)
Auto	1861.4 ±100
0	2686.4 ±100
1	3866.4 ±100
2	3041.4 ±100
3	4601.4 ±100
Bypass button closed	0 to 100

NOTE: If connected to Excel 10 UV Controller W7753, fan output will not be shorted to ground on pressing the BYPASS button; with every other Excel 10 Controller it will be shorted.
See T7560 Installation Instructions, form 95-7620 for configuration.

DWM Setpoint Adjustment:
The relation between setpoint and resistance is given in Table 4 and Table 5. Accuracy of resistance is:
- ±5% in middle position, e.g., 5225 ohms to 5775 ohms
- ±10% in end position, e.g., 9450 ohms to 11550 ohms.

Table 4. Setpoint values versus resistances (Centigrade).

Setpoint Rel./Kelvin	R Nominal (ohms)
-5	9574.0
-4	8759.2
-3	7944.4
-2	7129.6
-1	6314.8
0	5500.0
1	4685.2
2	3870.4
3	3055.6
4	2240.8
5	1426.0

Setpoint Absol./°C	R Nominal (ohms)
12	9958.0
13	9468.7
14	8979.3
15	8490.0
16	8000.7
17	7511.3
18	7022.0
19	6532.7
20	6043.3
21	5554.0
22	5064.7
23	4575.3
24	4086.0
25	3596.7
26	3107.3
27	2618.0
28	2128.7
29	1639.3
30	1150.0

Table 5. Setpoint values versus resistances (Fahrenheit).

Setpoint Rel./Kelvin	R Nominal (ohms)
-10	10026.7
-9	9574.0
-8	9121.3
-7	8668.7
-6	8263.7
-5	7763.3
-4	7310.7
-3	6858.0
-2	6405.3
-1	5952.7
0	5500.0
1	5047.3
2	4594.7
3	4142.0
4	3689.3
5	3236.7
6	2784.0
7	2331.3
8	1878.7
9	1426.0
10	973.3

Setpoint Absol./°F	R Nominal (ohms)
55	9577.4
57	9033.7
59	8490.0
61	7946.3
63	7402.6
65	6858.9
67	6315.2
69	5771.5
70	5499.6
71	5227.8
73	4684.1
75	4140.4
77	3596.7
79	3053.0
81	2509.3
83	1965.6
85	1421.9

Power Supply

24 Vac/dc with a valid range of 18 to 30 V

5 Vdc via LED input with a valid range of 5 to 12 V

(see T7560 Installation Instructions, form 95-7620 for details)

Power Consumption

<2 VA at 24 Vac, 50/60 Hz

Field Wiring

16 to 22 AWG (1.5 to 0.34 mm^2) depending on application
18 AWG (1.0 mm^2) minimum for 24 Vac power wiring

Maximum length of wire from a device to a wall module is 164 ft (50 m)

Twisted pair wire recommended for wire runs longer than 100 ft (30.5 m)

Setpoint Adjustment Range

Setpoint can be configured for

- Fahrenheit absolute (55 to 85°F)
- Fahrenheit relative (± 10)
- Centigrade absolute (12 to 30°C)
- Centigrade relative (± 5)

Temperature Value Display Resolution

Degree Centigrade ⇒ 0.1°C
Degree Fahrenheit ⇒ 0.1°F

Setpoint Value Display Resolution

Degree Centigrade ⇒ 0.5°C
Degree Fahrenheit ⇒ 1.0°F

Mounting Options

Wall mounting

Dimensions(H/W/D)

4-1/8 x 3-15/16 x 1-3/16 in. (104 x 99 x 30 mm)

Environmental Ratings

Shipping Temperature: -40 to 140°F (-40 to 60°C)
Operating Temperature: 32 to 104°F (0 to 40°C)
Relative Humidity: 5% to 90% non-condensing

Approval Bodies

UL 916, NEC Class 2
CE

OPERATION OF THE DWM

Table 6. Supported DWM functions with Excel 10 Controllers.

	Bypass	Unit Enable	Fan Override	Setpoint	Humidity	Room Temperature
W7750 CVAHU	✔	N/A	N/A	✔	✔	✔
W7751 VAV	✔	N/A	N/A	✔	N/A	✔
W7752 FCU	✔	✔	✔	✔	N/A	✔
W7753 UV	✔	✔	✔	✔	✔	✔
W7761 RIO	N/A	N/A	N/A	N/A	✔	✔
W7762 HYD	✔	N/A	N/A	✔	N/A	✔
W7763 CHC	✔	N/A	N/A	✔	✔	✔

General
The T7560A,B provide three buttons, a setpoint wheel, and the LCD display (see Fig. 2). This section describes the functions of these elements. Table 6 shows the functions available with the different Excel 10 Controllers.

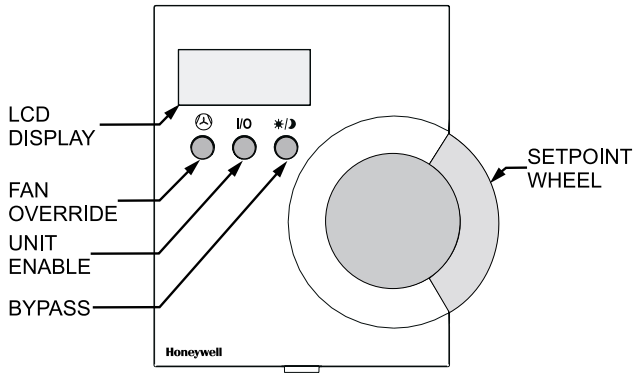


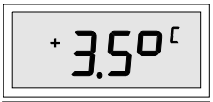
Fig. 2. Control elements of DWM.

NOTE: If not specified differently, the graphics given below show exemplary display settings; depending on configuration, the actual indications may vary from those shown hereinafter.

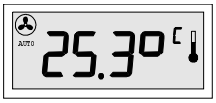
Set Temperature
Depending on the configuration, you can adjust the temperature within the limits given below:

°C absolute ⇒ 12 to 30°C (in 0.5 steps)
°C relative ⇒ -5 to +5 (in 0.5 steps)
°F absolute ⇒ 55 to 85°F (in 0.5 steps)
°F relative ⇒ -10 to +10 (in 1.0 steps)

Turn the SETPOINT WHEEL up/down to decrease/increase the room temperature setpoint. The display toggles the setpoint value (either relative or absolute, as configured).



After the new setpoint has been set, the display returns to normal mode after approx. 5 sec.



Set Fan Speed
The manually set fan speed is represented by a bargraph. Depending on configuration, the fan speed can be set as follows:

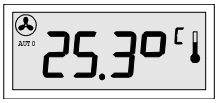
Three speed fan override ⇒ AUTO, OFF, 1, 2, 3
Two speed fan override ⇒ AUTO, OFF, 1, 2
Fan mode override ⇒ AUTO, OFF, ON

NOTE: The default setting after power-up is AUTO. The manually set fan speed overrides the controller's control algorithm.

Three speed fan override

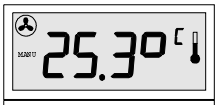
Press the FAN OVERRIDE button to toggle between:

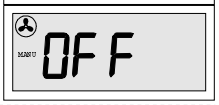
AUTO
(fan speed from controller)



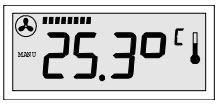
MANU OFF
(fan off)

With this setting, depending on configuration, the display may also read:

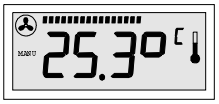




MANU 1
(fan speed 1)



MANU 2
(fan speed 2)



MANU3
(fan speed 3)

Two speed fan override

Press the FAN OVERRIDE button to toggle between:

AUTO (fan speed from controller; display: see above)
MANU OFF (fan off; display: see above)
MANU 1 (fan speed 1; display: half bargraph)
MANU 2 (fan speed 2; display: full bargraph)

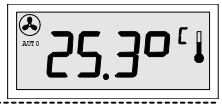
Fan mode override

Press the FAN OVERRIDE button to toggle between:

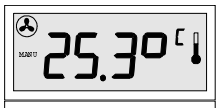
AUTO (fan speed from controller; display: see above)
MANU OFF (fan off; display: see above)
MANU ON (fan on; display: full bargraph)

Set Fan Mode
The UNIT ENABLE button switches the fan mode between AUTO and MANU OFF:

AUTO
(fan speed from controller)



MANU OFF
(fan off)

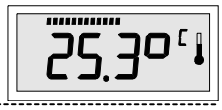


With this setting, depending on configuration, the display may also read:

Humidity Display
If applicable, the humidity is indicated by the bargraph at the top of the LCD. Each segment of the bargraph represents 4% of relative humidity:

NOTE: Humidity display is not available with fan control.

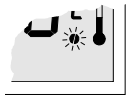
Humidity mode
(e.g., left 12 segments ON = 50% relative humidity)



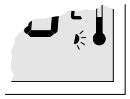
Set Bypass/Occupancy Mode Display
The bypass function can be used to override the control algorithm generated by the controller (e.g., for an event after normal office hours, or for a room that is known not to be used).
The status of the occupancy mode can be seen from the sun-, moon-, and snowflake symbols. The following LCD behaviors are possible, depending on configuration (see T7560A,B Installation Instructions, form 95-7620 for configuration options):

Occupancy mode display for Excel10 LCD signaling (Excel 10 set to LCD_DISPLAY; with FCU, HYD, CHC only, see T7560A,B Installation Instructions, form 95-7620)

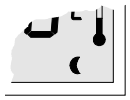
Effective Occupancy or Bypass mode
(SUN continuously ON)



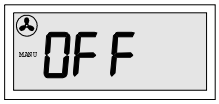
Effective Standby mode; generated by time program
(HALF-SUN continuously ON)



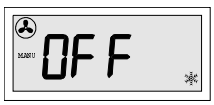
Effective Unoccupancy mode
(MOON continuously ON)



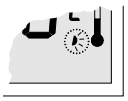
Unit Off, No Frost Protection
(OFF without snowflake)



Unit Off, With Frost Protection
(OFF WITH SNOWFLAKE)



Override Standby mode (from central)
(HALF-SUN FLASHING)



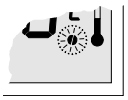
Wink mode (network ID sent)
(SUN/MOON/SNOWFL. FLASHING)
(Only with FCU, HYD, CHC)

Press the BYPASS button to set the desired mode:

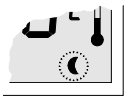
- Press and release BYPASS button to activate Override Occupancy or Bypass mode
- Press and hold BYPASS button for at least 5 sec. to activate Override Unoccupancy mode
- Press and release BYPASS button again to return to normal mode

NOTE: Pressing the BYPASS button for more than 5 seconds sends the NEURON© ID of the connected Excel 10 controller via the LONWORKS© network.

Override Occupancy or Bypass mode
(SUN FLASHING)

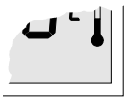


Override Unoccupancy mode
(MOON FLASHING)

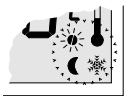


Override mode display for Excel 10 LED signaling (Excel 10 set to LED_OVERRIDE)

Off Conditions, No Override, Overr. Occupancy, Overr. Standby (NO SYMBOLS)



Wink mode (network ID sent)
(SUN/MOON/SNOWFL. FLASHING)
(Only with FCU, HYD, CHC)

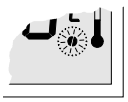


Press the BYPASS button to set the desired mode:

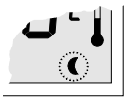
- Press and release BYPASS button to activate Override Bypass mode
- Press and hold BYPASS button for at least 5 sec. to activate Override Unoccupancy mode
- Press and release BYPASS button again to return to normal mode

NOTE: Pressing the BYPASS button for more than 5 seconds sends the NEURON© ID of the connected Excel 10 controller via the LONWORKS© network.

Override Bypass mode
(SUN FLASHING)

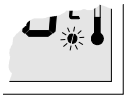


Override Unoccupancy mode
(MOON FLASHING)

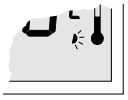


Occupancy mode display for Excel 10 LED signaling (Excel 10 set to LED_OCCUPANCY)

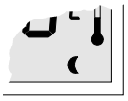
Effective Bypass mode
(SUN continuously ON)



Effective Standby mode; generated by time program
(HALF-SUN continuously ON)



Off Conditions, Effective Unoccupancy mode
(MOON continuously ON)

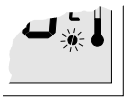


Wink mode (network ID sent)
(SUN/MOON/SNOWFL. FLASHING)
(Only with FCU, HYD, CHC)

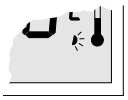
Occupancy mode display for Excel 20 to 600

Display of the currently active Excel 20 to 600 mode, further options depend on the configuration of the controller:

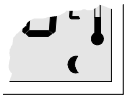
Occupancy mode
(SUN continuously ON)



Standby mode; generated by time program
(HALF-SUN continuously ON)



Unoccupancy mode
(MOON continuously ON)



To adapt the T7560 to the CARE control strategies for Excel 20 to 600, a standard ModAL software module is available. Contact your local Honeywell distributor, or refer to the T7560 Installation Instructions, form 95-7620 for further details.

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