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You can read the recommendations in the user guide, the technical guide or the installation guide for HONEYWELL DT92. You'll find the answers to all your questions on the HONEYWELL DT92 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual HONEYWELL DT92
User guide HONEYWELL DT92
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Instruction manual HONEYWELL DT92

Honeywell

DT92
WIRELESS DIGITAL ROOM THERMOSTAT

PRODUCT SPECIFICATION SHEET



FEATURES

- Energy saving TPI control performance
- Advanced self-learning control adapts to the environment and ensures close temperature control with minimum energy usage
- Slim modern styling
- Simple user interface with large high contrast display and easy-to-read characters
- Display shows room temperature, with option to inquire about setpoint
- 5°C to 35°C setpoint range with 0.5°C increments, using ▲ and ▼ buttons
- Off/standby button, allowing manual switch off, with frost protection active
- Adjustable off/standby setpoint 5°C to 16°C or DT92 can be set to off completely
- Room thermostat is battery powered by 2 x AA (LR6) alkaline cells giving up to 4 years battery life (minimum 2 years), with battery low warning
- Simple battery change by unclipping front cover
- Relay switching box is 230Vac mains powered with 24...230Vac SPDT potential-free contacts
- 5 A resistive, 3 A inductive switch rating

The new DT92 family of wireless digital room thermostats is a range of market leading products designed to provide comfort with economy in modern heating systems.

Comprising a battery-powered room thermostat and a mains switching relay box, DT92 features robust 2-way RF communications between the units. This allows signal strength testing to help the installation process. The RF link between both units is already set (pre-bound) at the factory, so the product is ready for immediate installation.

Energy efficiency is addressed by state-of-the-art TPI control performance and an ECO button energy saving feature. Applications include control of gas or oil-fired boiler systems, underfloor heating, electric heating and zoning systems.

With a modern fresh look that complements any style of décor, and a range of valued features for users and installers alike, DT92 sets the standard for simple environmentally-friendly wireless room thermostats.

- 2-way RF communications at 868MHz radio frequency band, giving typical reliable range of 30m in houses
- Transmission and signal strength test features to guarantee good room thermostat placement
- RF link between units is pre-set at the factory
- Installer Mode allows operation to be customised for the application and the needs of the user
- NVRAM storage of setup parameters, ensuring these are never lost
- Setpoint limits can be programmed in
- Special 'fail-safe' mode, should RF communications be temporarily lost
- Manual override possible at relay box
- Optional table stand supplied for thermostat

FEATURES UNIQUE TO DT92E ECO MODEL

- Energy saving ECO button allows user to change to a lower, energy saving setpoint for a timed period of their choosing (1...24 hours)
- Display shows countdown of time remaining in ECO energy saving mode

ENSH 8580 UK07 R1 03/09



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Manual abstract:

Comprising a battery-powered room thermostat and a mains switching relay box, DT92 features robust 2-way RF communications between the units. This allows signal strength testing to help the installation process. The RF link between both units is already set (prebound) at the factory, so the product is ready for immediate installation. Energy efficiency is addressed by state-of-the-art TPI control performance and an ECO button energy saving feature. Applications include control of gas or oil-fired boiler systems, underfloor heating, electric heating and zoning systems. With a modern fresh look that complements any style of décor, and a range of valued features for users and installers alike, DT92 sets the standard for simple environmentally-friendly wireless room thermostats. DT92 FEATURES Energy saving TPI control performance Advanced self-learning control adapts to the environment and ensures close temperature control with minimum energy usage Slim modern styling Simple user interface with large high contrast display and easy-to-read characters Display shows room temperature, with option to inquire about setpoint 5°C to 35°C setpoint range with 0.5°C increments, using and buttons Off/standby button, allowing manual switch off, with frost protection active Adjustable off/standby setpoint 5°C to 16°C or DT92 can be set to off completely Room thermostat is battery powered by 2 x AA (LR6) alkaline cells giving up to 4 years battery life (minimum 2 years), with battery low warning Simple battery change by unclipping front cover Relay switching box is 230Vac mains powered with 24... 230Vac SPDT potential-free contacts 5 A resistive, 3 A inductive switch rating 2-way RF communications at 868MHz radio frequency band, giving typical reliable range of 30m in houses Transmission and signal strength test features to guarantee good room thermostat placement RF link between units is pre-set at the factory Installer Mode allows operation to be customised for the application and the needs of the user NVRAM storage of setup parameters, ensuring these are never lost Setpoint limits can be programmed in Special 'fail-safe' mode, should RF communications be temporarily lost Manual override possible at relay box Optional table stand supplied for thermostat FEATURES UNIQUE TO DT92E ECO MODEL Energy saving ECO button allows user to change to a lower, energy saving setpoint for a timed period of their choosing (1...24 hours) Display shows countdown of time remaining in ECO energy saving mode EN0H 8580 UK07 R1 03/09 DT92 WIRELESS DIGITAL ROOM THERMOSTAT SPECIFICATIONS ELECTRICAL Room thermostat Power supply : 2 x 1.5V IEC LR6 (AA) Alkaline cells Battery life Battery low warning : Minimum 2 years (with correctly specified alkaline cells) : Display indicates when battery power reserve is low. Unit will continue to function for a minimum of 4 weeks after the first indication is given : Configuration settings stored in NVRAM, so are retained during battery replacement : 230 V, 50...60Hz 1VA max. Note requires permanent mains power supply : SPDT (single pole double throw) potential free : 24. .230 V, 50...60 Hz, 5 A resistive, 3 A inductive (0.6pf) : 100,000 operations minimum : Terminal block for mains and relay wiring, for wires up to 2.5mm² : Rear and left side Positive off ECO energy saving Fail-safe operation Temperature setting range Control form Proportional band Minimum on/off time Cycle rate TEMPERATURE CONTROL Sensing element : 10K (@25°C) NTC thermistor : 5°C to 35°C setpoint range in 0.5°C increments : Self-learning TPI Fuzzy Logic algorithm : 1.5°C adjustable up to 3°C in 0.

1°C increments : 1 minute, adjustable up to 5 min in 1 min increments : Adjustable to suit the application 3, 6, 9, 12 cycles per hour Battery replacement Relay Box Power supply Switch type Electrical rating Relay life Wiring Wiring access Temperature : ± 0.5°C (or better) at 20°C, 50% load and control accuracy 3°C /hour temperature ramp Frost protection : 5°C when thermostat switched to off/standby, adjustable 5°C to 16°C : Frost protection not available in cooling mode : Positive off possible (no frost protection) by setting in Installer Mode : Setpoint default 18°C, adjustable 5°C to 35°C : If temperature measurement system fails, unit will continue to operate on the assumption of a 10% load : If RF communication fails, relay box can be set to switch off or operate at 20% on Relay box : Pressing the button on the relay box will manual override temporarily override the current relay position. The relay status may change with the next communication from the room thermostat RF SPECIFICATION Operation band Communication range Communication technology Blocking immunity RF binding method : ISM (868.0-868.6) MHz, 1% duty cycle : 30 m in a residential building environment : 2-way RF, using short, high rate transmissions to minimise air time and avoid collisions : Receiver class 2 (ETSI EN300 220-1 version 2.1.1) : Units are pre-bound at the Factory. Field re-binding can be done, if required Information USER INDICATIONS : Current room temperature, setpoint, off/standby mode, relay box relay status (flame), RF communication, ECO mode active, ECO mode countdown. @@@@ @@@@ The large characters and high contrast screen are especially important for those with impaired vision. Simple Interface The user interface has been made as simple as possible to make DT92 very easy to use. Buttons have been labeled and to identify them as the means of increasing and decreasing (respectively) the setpoint temperature. The display normally shows the actual room temperature. When one of the buttons is first pressed, the setpoint temperature is shown flashing, accompanied by the and symbols. Further buttons presses will increase or decrease the setpoint in increments of 0.5°C.

Off/Standby Button, with Frost Protection The off/standby button allows DT92 to switch off the heating (or cooling) system at the touch of a button. To prevent accidental switch-off, the button must be held for 2 seconds to activate the change. When off, DT92 will maintain control at a frost protection setpoint, factory set to 5°C but adjustable between 5 and 16°C. If required, frost protection can be switched off, to provide a positive off function. These adjustments are made by entering the DT92 Installer Mode.

Installer Mode The Installer Mode is where DT92 can be configured for different applications, and customized to meet the needs of the user. The operating properties that can be adjusted are called parameters, and these are described in detail on page 6. Parameters are as follows: · Minimum on/off time · Cycle rate · Proportional band width · Temperature measurement offset · Upper setpoint limit · Lower setpoint limit · Energy saving ECO temperature (on DT92E only) · Selection of heat/cool changeover operation · Off/Standby setpoint · Room temperature sensor use (when used with HR80 intelligent radiator valves · Failsafe operation mode (if RF comms are lost) · HR80 window open function enabling · HR80 local override function enabling · Reset all parameters to factory settings Installer Mode is entered via a sequence of button presses.



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The buttons are also used to scroll between parameters and to make changes to their values. 2-Way RF Communications RF communications between the room thermostat and the relay box is 2-way, making it more efficient and reliable, and allowing the room thermostat to display information from the relay box, such as actual relay status or communications loss. Signal Strength Test Mode Another benefit of 2-way RF is to allow the room thermostat to display the strength of the signal that the relay box is receiving. This ensures the thermostat can be positioned in the best possible location for system performance. Reliable RF Communications in 868MHz band 868MHz is a well regulated band where continuously transmitting devices are not permitted. Together with a 1% transmission duty cycle, this means the possibility of interference or clashing messages is minimized, and increases the reliability of communications. NVRAM Storage of Settings All parameter settings are stored in a special kind of memory called NVRAM so they will be retained indefinitely even if the batteries are removed.

Advanced Self-learning TPI Control DT92 uses a self-learning 'fuzzy logic' time-proportional control algorithm. This form of control is better than conventional PI control as it has a faster response and better performance in steady state conditions. It performs equally well in a wide range of different installations, and ensures energy savings by controlling closer to setpoint and minimising temperature overshoots. Additional Energy saving ECO feature In a heating system, one of the best ways to save energy is to reduce the setpoint temperature. The DT92 green ECO button provides a simple and convenient way of doing this for a period of time of the user's choice. The ECO energy saving setpoint is pre-defined in the Installer Mode. The factory setting is 18°C, but it can be adjusted (between 5°C and 35°C) to give a timed boost, if required. When the ECO button is pressed, the user is given the chance to set the time required at this new temperature, from 1 hour to 24 hours in 1 hour increments. The display indicates that ECO mode has been set, and will count down the time remaining in energy saving mode. Should they wish to readjust the temperature setting, they can do that too, using the and buttons. ECO mode is cancelled simply by pressing the ECO button again. 4 DT92 WIRELESS DIGITAL ROOM THERMOSTAT INSTALLATION Installation Process To ensure best system performance, there is an optimum sequence of installation operations and test steps. These are as follows: 1. Install BDR91 relay box, connect to mains, and power up. 2.

Before mounting DT92 thermostat onto backplllled at the same site. If products from individual system packs are separated, or mixed with other pre-configured system packs during installation, or a faulty unit is being replaced, the desired units must be specially configured to allow them to communicate with each other. This process is called Binding. The sequence of operations required is: 1. Bring thermostat close to relay box (around 1m.) 2. Reset stored data in relay box 3. Put relay box into binding mode 4. Reset stored data in room thermostat 5. Put room thermostat into binding mode 6. Bind room thermostat to relay box Reset Stored Data in Relay Box Press and hold the push button for 15s to reset the stored data in the BDR91 relay box. The red LED will give a brief flash every second to verify reset has happened. Put Relay Box into Binding Mode Press and hold the push button for 5s to put the BDR91 relay box into binding mode. The red LED will flash 0.5 seconds on, 0.

5 seconds off to verify it is now in binding mode. The BDR91 relay box will remain in binding mode for 3 minutes, before generating an error message if no valid binding instruction has been received. It must be put back into binding mode if further attempts to bind are required. 10 DT92 WIRELESS DIGITAL ROOM THERMOSTAT Reset Stored Data in Room Thermostat Follow the sequence of steps below to reset the stored binding data in the room thermostat. Put Room Thermostat into Binding Mode Bind Room Thermostat to Relay Box With both units in binding mode, pressing the off/standby button on the room thermostat will bind them together. To verify it is now bound, the red light on the relay box will immediately stop flashing. After about 5 seconds, the room thermostat will come out of binding mode and go back to off mode. 11 DT92 WIRELESS DIGITAL ROOM THERMOSTAT SYSTEM OPERATION RF Signal Propagation As the DT92 room thermostat and relay box communicate using RF technology, special care must be taken during installation. @@@@Each adjustable feature is called a Parameter. These are described below. @@@@Recommended settings are shown in the next table. @@@@Recommended settings are shown in the next table. @@@@This temperature can be set from 5°C to 35°C. DT92 can be used for heating or cooling applications. If heating/cooling changeover is selected, the thermostat can be manually switched from heating to cooling (and back again) by pressing and holding the and buttons together for 3 seconds, in normal operating mode.

When the off/standby button is activated, the DT92 will control to a special off/standby setpoint. By default this is set to 5°C to provide frost protection, but it can be set up to 16°C if required. It can also be set off, by setting the parameter value to -- to provide a positive off function. In cooling mode the default setting is off. In normal operation the DT92 uses it own temperature sensor. If it is operating in a wireless system with HR80 programmable radiator valves the DT92 needs to know that it is controlling HR80s. In addition, there is a choice of whether the HR80s can use their own in-built temperature sensors, or whether they will use the temperature sensed by DT92. The 3 choices then become: a) DT92 operating without HR80 b) DT92 operating with HR80, HR80 using their own temperature sensor c) DT92 operating with HR80, HR80 using the temperature sensed by DT92 Should RF communications be interrupted for a significant period of time, for whatever reason, it is possible to specify the desired mode of operation under these circumstances. The choices are for the Relay box to switch off, or for it to operate at 20% on. In a system where DT92 is operating with HR80 programmable radiator valves, the HR80 is capable of detecting whether a window has been opened. This parameter enables the HR80 response to this condition it can either shutdown (enabled) or operate as before (disabled) In a system where DT92 is operating with HR80 programmable radiator valves, the user can override the room temperature setpoint using the HR80. This parameter can allow (enable) this operation, or prevent it (disable). This provides a means of resetting all the parameters to the factory supplied values. Cycle rate Proportional band width Temperature measurement offset Upper / Lower temperature limits Energy saving ECO temperature Heating or Cooling operation Off/standby setpoint Room temperature sensor use Failsafe operation mode HR80 window open function enabling HR80 local override function enabling Reset parameters 14 DT92 WIRELESS DIGITAL ROOM THERMOSTAT Some parameters require to be set to match specific applications.

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Recommended settings are shown in the table below.

Specific Applications Setting Cycle Minimum s/ on/off time hour 6 1 3 12 6 4 1 1 What requires to be changed? Heating Gas boilers (<30kW) Oil boiler Thermal actuator Zone valve No changes required 1. Set minimum ON/OFF time to 4 minutes 2. Set cycle rate to 3 cycles/hour Set cycle rate to 12 cycles/hour No changes required 1. Configure the thermostat to allow switching between heating and cooling modes (set parameter HC = 1) 2. Set the thermostat to the required mode of operation (heating or cooling) by pressing the and buttons together for 3 seconds when in normal run mode (does not work in off/standby mode). 1. Set minimum ON/OFF time to 4 minutes 2. Set cycle rate to 3 cycles/hour No changes required Air conditioning Heatpump / Air conditioner Fan-coil unit 3 6 4 1 INSTALLER MODE HOW TO SET PARAMETERS Each parameter is identified by a 2-letter code, and has a range of values. These are shown in the table below, followed by instructions on how to enter Installer Mode, how to select a parameter and change its value, and finally how to exit Installer Mode. Description Minimum ON/OFF time Cycle rate Proportional band width Temperature measurement offset Upper setpoint limit Lower setpoint limit Energy saving ECO temperature (this parameter is only available on the DT92E model) Selection of heat/cool changeover Parameter Ot Cr Pb tO uL LL ES HC Range of values 1, 2, 3, 4, 5 minutes 3, 6, 9, 12 cycles/hour 1. 5 to 3.0°C -3 to 3°C 21 to 35°C 5 to 21°C 5 to 35°C Factory (default) value 1 minute 6 1.5°C 0 35°C 5°C 18°C 0 5°C 0 0 = disable 1 = enable * Off/standby setpoint OS -- = off, 5 to 16°C ** Room temperature sensor use Su 0 = DT92 alone 1 = DT92 with HR80, using HR80 sensors 2 = DT92 with HR80, using DT92 sensor Failsafe mode (loss of RF LC 0 = switch OFF communications) 1 = operate at 20% ON ** Enable HR80 window-open H0 0 = disable function 1 = enable ** Enable HR80 local override HL 0 = disable 1 = enable Reset parameters FS 0, 1 * In cooling mode the off/standby setpoint defaults to OFF ** Only required if system contains HR80 programmable radiator valves 0 0 1 1 (factory settings) 15 DT92 WIRELESS DIGITAL ROOM THERMOSTAT To enter Installer Mode: a. Put DT92 into off/standby mode by pressing and holding the off/standby button for 2 seconds. b. Now press and hold both and temperature adjustment buttons for 3 seconds, until the display shows the word "Inst". c. Press the button to get to the first parameter Ot. The parameter code is shown on the display separated by a colon from the parameter value. Parameter Value To select and change a parameter: d. Use the and buttons to move from one parameter to another. e. Press the off/standby button to select the parameter value, ready to change f. Use the and buttons to adjust the parameter value. When the correct value is flashing, confirm the selection by pressing the off/standby button again, returning to the parameter menu. To exit Installer Mode: g. Press and hold the off/standby button for 3 seconds Note: Installer Mode will exit automatically after 10 minutes if no buttons are pressed. INSTALLER MODE - FLOWCHART ES parameter Only available on DT92E model 16 DT92 WIRELESS DIGITAL ROOM THERMOSTAT ENERGY EFFICIENCY AND THE ENVIRONMENT Home energy use is currently responsible for more than ¼ of the total carbon emissions which contribute to climate change. Heating and hot water systems based on boilers account for 2/3 of this figure, so it is important to understand how controls can help to maximize energy efficiency while maintaining comfort. DT92 temperature controls should be used in conjunction with appropriate time controls.

In order to save energy the following general points should be observed: 1. Ensure the system contains a room temperature thermostat and a hot water temperature thermostat (except for Combi boiler systems), and that both are set to appropriate temperature levels. 2. Programme the heating and hot water to be off when the house is not occupied. If possible frost damage to any exposed pipework is a concern, it is advisable to fit a frost protection thermostat or system. Honeywell can advise on this. 3. It is normal to have the heating system switched off, or set-back at night when heating is not required. 4. Think about how domestic hot water is used.

In a storage system, it is not necessary to have this switched on all the time, even when the house is occupied. 5. Do not programme excessive heatup times for the central heating. If the occupier is out of the house, or still in bed, much of this heating would be unnecessary. 6.

In the evening, when the house is up to temperature, it is often possible to switch the heating off up to an hour before going to bed, without any noticeable reduction in comfort. The DT92 product family and its associated documentation and packaging are protected by various intellectual property rights belonging to Honeywell Inc and its subsidiaries and existing under the laws of the UK and other countries. @@@@For use outside of the scope as described herein, refer to Honeywell for guidance. Honeywell cannot be held responsible for misapplication of the product(s) described within this document.

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