

Datasheet

TP5000 Si Range Programmable Room Thermostat

Features



The TP5000 Si is a microprocessor based programmable room thermostat with many advanced features. The range includes battery and 230 volt powered hard-wired models and battery powered wireless versions. All models in the range utilise an advanced PI algorithm to provide close and accurate temperature control to reduce energy waste and ensure comfort under all load conditions.

The TP5000 Si incorporates a factory set real time clock, both date and time are set in the factory to the appropriate time zone, eliminating the need to set the time at installation or to change the time in spring or autumn. This function is powered from a separate lithium battery which lasts for the lifetime of the product.

The calendar clock is also used to provide a service due timer function which can be enabled by the installer if required. If enabled, several operating options are available ranging from audible & visual service due warning to proportional reduction of heating until the boiler is serviced and the service due feature is reset by the installer.

The TP5000 Si is a 5-day / 2-day programmable thermostat which also includes a feature which allows two blocks of programmes to be set up (A/B Programming), either programme can then be assigned to any day of the week allowing the programming to closer match the lifestyle of the consumer, all without the need to go for a far more complex 7-day unit.

Unlike earlier models, the TP5000 Si can be configured by the installer to provide 2, 4 or 6 events per day, it can also be set up to provide

constant temperature control if required, again this allows the thermostat to be matched with consumers lifestyle.

Versions with programmable remote inputs are also available. Remote inputs can be either remote temperature sensing, (control or limit), or digital inputs from window contacts, telephone operated switches, card readers or building automation systems.

For standard applications the product can be installed and will work straight out of the box, however there is a wide range of user and installer options which allow the product operation to be tuned to the specification requirements of the system. Some of these options are hardware settings made by DIL switches, but the majority are software settings made in one of two advanced programming modes.

Settings made by the installer or the end user are stored for the life of the product in a non-volatile memory chip which does not require power. This same storage technique allows customer specific programmes to be established as factory defaults, but is only available for larger projects.

Significant effort has been made to make the product as energy efficient as possible, this includes improving both on/off performance and chrono-proportional performance, charts on page 4 detail the relative performance of each mode.

Programming of the TP5000 Si is as simple as it has always been, just five buttons and an intuitive MMI ensure that the product is no more complicated to the user than previous models.



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Installer Hardware Settings (Switches show factory setting)

| Sw. No. | OFF | ON |
|---------|--|--|
| 1 | Keyboard disabled <input type="checkbox"/> | Keyboard enabled <input checked="" type="checkbox"/> |
| 2 | Reset disabled <input type="checkbox"/> | Reset enabled <input checked="" type="checkbox"/> |

Installer Advanced Programming Settings

| Option | Description | Factory Setting | | Other Setting | |
|---|---|-----------------|-------------------------|---------------|-----------------------|
| User Advanced Programming Options Use + or - key to scroll between options, use \wedge or V keys to select option setting | | | | | |
| 1 | Enable/disable A/B block programming | 0 | Disabled | 1 | Enabled |
| 3 | Automatic summer/winter time change | 2 | European rules | 0 | Disabled |
| | | | | 1 | Manual time change |
| | | | | 3 | USA rules, post 2006 |
| | | | | 4 | USA rules, pre-2007 |
| 4 | Time zone offset - UST models | 00:00 | Use UST clock setting | ± 12 | Hours offset from UST |
| | Time zone offset - CET models | 00:00 | Use CET clock setting | ± 12 | Hours offset from CET |
| 10 | Set frost protection default temperature | 5 | 5°C | | 5-30°C |
| 11 | Start-up type | 0 | Fixed time start-up | 1 | Optimum start control |
| | | | | 2 | Delayed start-up |
| 12 | Optimum start control setting, maximum pre-heat period based upon 2°C deviation from next event temperature. (Only accessible if option 11 is set to 2) | 1:00 | 60 minutes | 0:15 | 15 minutes |
| | | | | 0:30 | 30 minutes |
| | | | | 0:45 | 45 minutes |
| | | | | 1:15 | 75 minutes |
| | | | | 1:30 | 90 minutes |
| | | | | 1:45 | 105 minutes |
| 13 | OSC or delay start function active (Only accessible if option 11 is set to 1 or 2) | 0 | First event of day only | 1 | All events |

| Option | Description | Factory Setting | | Other Setting | |
|--|--|-----------------|---|---------------|--|
| Installer Advanced Programming Options Use + or - key to scroll between options, use \wedge or V keys to select option setting | | | | | |
| 30 | Set range upper limit | | 30°C | | 40-50°C |
| 31 | Set range lower limit | | 5°C | | 5-40°C |
| 32 | Enable/disable Off function at lower limit | 0 | Enabled | 1 | Disabled |
| 33 | Enable/disable On function at upper limit | 0 | Disabled | 1 | Enabled |
| 34 | Set chrono-proportional cycle rate | 6 | 6 cycles per hour | 3 | 3 cycles per hour |
| | | | | 9 | 9 cycles per hour |
| | | | | 12 | 12 cycles per hour |
| 35 | Set integration time | 2.5 | 2.50% | 5 | 5% |
| | | | | 10 | 10% |
| 36 | Set temperature override limit | 0 | No limit | 1 | Limited to $\pm 2^\circ\text{C}$ |
| | | | | 2 | Disabled, no override |
| 37 | Set time duration of override | 0 | Next event | 1 | 1 hour |
| | | | | 2 | 2 hours |
| | | | | 3 | 3 hours |
| | | | | 4 | 4 hours |
| 38 | Relay park status on battery low volt detect | 0 | Relay parked Off | 1 | Relay parked On |
| 40 | Number of Events | 6 | 6 Switching events per day | 1 | Thermostat mode |
| | | | | 2 | 2 Switching events per day |
| | | | | 4 | 4 Switching events per day |
| 41 | Operating Mode | 5-2 | 5/2 day programming | 24 | 24 Hour programming |
| 70 | Keyboard lock type | 0 | Normal Lock | 1 | Full lock |
| 71 | Random time on start-up (not battery models) | 0 | Disabled | 1 | Enabled |
| 72 | Site ID number (user defined) | | 00 | | 01 to 99 |
| 73 | Thermostat ID number (user defined) | | 00 | | 001 to 999 |
| 74 | Date format for calendar clock | 0 | European (dd/mm/yy) | 1 | North American (mm/dd/yy) |
| 81 | Thermostat calibration bias | | 0 | | $\pm 1.5\text{K}$ |
| 90 | Remote sensor configuration (A models only) | 0 | 0, Disabled | 1 | Room/duct |
| | | | | 2 | Limit, (floor) |
| | | | | 3 | Start-up (digital input) |
| 93 | Limit sensor set point adjustment (Only accessible if Option 90 is set to 2) | | 27°C | | 20-50°C |
| 94 | Start-up (digital input) NO or NC (Only accessible if Option 90 is set to 3) | 0 | NC, open circuit to change to thermostat mode | 1 | NO, close circuit to change to thermostat mode |

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Service Interval Timer

The service interval timer allows the installer to select a service due date for the boiler, this can be set at between 28 days and 366 days from the current date.

Service due date is within 28 days

From 28 days prior to the service due date, a visual warning will appear in the display and a buzzer will sound for ten seconds each hour commencing at midday, this can be cancelled for the current day by pressing any button.

Service due date is reached or passed

When the service due date is reached the visual and audible warning are repeated each hour of the day commencing at midday, but the duration of the alarm is increased to 60 seconds, this can be cancelled for the current day by pressing any button. All override and programming buttons are disabled and depending upon service interval timer setting, heating can be restricted to 15, 30 or 45 minutes in each programmed hour.

| Option | Service Interval Timer Function |
|-----------|---|
| Setting 0 | Disabled, (factory default) |
| Setting 1 | Active, visual and audible warning, no heat reduction |
| Setting 2 | Active, visual and audible warning, heat reduced to 45 minutes per hour |
| Setting 3 | Active, visual and audible warning, heat reduced to 30 minutes per hour |
| Setting 4 | Active, visual and audible warning, heat reduced to 15 minutes per hour |

Specification and Ordering

| Thermostat Features | | Battery Models | | 230V Models |
|--|--------------------|--|--|---------------------------------|
| | | Hard-wired | Wireless | Hard-wired |
| Hard-wired, built-in sensor | Type Sales Code | TP5000 Si 087N791000 | | TP5000M Si 087N791700 |
| Hard-wired, remote sensor inputs ^{(1) (2)} | Type Sales Code | TP5000A Si 087N791100 | | TP5000MA Si 087N79800 |
| Wireless, built-in sensor | Type Sales Code | | TP5000RF Si 087N791200 | |
| Wireless, built-in sensor complete with RX1 receiver ⁽³⁾ | Type Sales Code | | TP5000RF Si + RX1 087N791400 | |
| Wireless, remote sensor | Type Sales Code | | TP5000ARF Si 087N791300 | |
| 5/2 day or 24 hour programmable room thermostat | | Yes, selectable by installer | | |
| 2, 4 or 6 events per day with optional A/B programming | | Yes, selectable by installer | | |
| Factory pre-set programmes | | Yes, one for weekdays, another for weekends | | |
| Factory set calendar clock | | Automatic summer/wintertime change | | |
| Time accuracy | | ± 1 minute per year | | |
| Memory back-up, time and all user and installer settings | | Retained for life of product | | |
| Temperature range | | 5-30°C | | |
| Programmable frost thermostat function | | Yes | | |
| Control output, derived from PI algorithm | | On/Off or Chrono-proportional, 3, 6, 9 or 12 cycles per hour | | |
| Switching differential in On/Off mode | | ±1°C | | |
| Installer selectable advanced programming options | | Yes, refer to installation instructions for list | | |
| Installer selectable service interval timer | | Yes, 28 to 366 days from current date | | |
| Programmable range limitation | | Yes, max and min | | |
| Electronic keyboard lock | | Yes, full or part | | |
| Power supply | | 2 x AA alkaline cells | | 230V, 50Hz |
| Switching action of output relay | | SPDT (voltage free) | | |
| Switch rating of output relay | | 3 (1) A, 10-230V | N/A | 3(1)A, 10-230V |
| Transmission frequency (RF models) | | N/A | 433.92MHz | N/A |
| Transmission range (RF models) | | N/A | 30m max. | N/A |
| Dimensions, mm | | 110 wide x 88 high x 28 deep | | |
| Design standard | | EN60730-2-9, (EN300220 for RF) | | |
| ⁽¹⁾ Can be configured by installer for remote temperature sensor, limit sensor, window contact or telephone activated switch contact. | | | | |
| ⁽²⁾ Remote sensor is supplied as an accessory, if remote room sensor is required order TS2 sensor, code 087N681100 | | | | |
| ⁽³⁾ RX receiver requires 230 volt power supply | | | | |

ErP Class

| ERP Class | | |
|---|--|----------------------------|
| The products represented within this document are classified according to, and allow completion of, the Energy Related Product (ErP) Directive System Package fiche and the ErP system data label. ErP Labelling obligation is applicable from 26th September 2015. | | |
| ErP Class | Product Function and ErP Description | Additional efficiency gain |
| IV | TPI Room Thermostat, for use with on/off output heaters An electronic room thermostat that controls both thermostat cycle rate and in-cycle on/off ratio of the heater proportional to room temperature. TPI control strategy reduces mean water temperature, improves room temperature control accuracy and enhances system efficiency. | 2% |

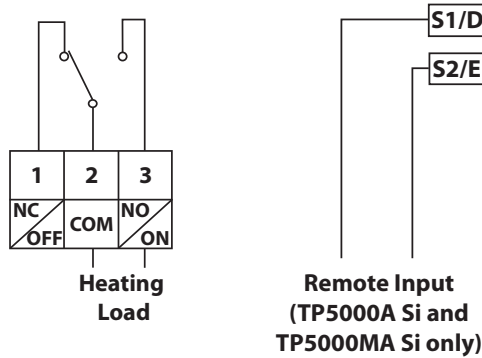


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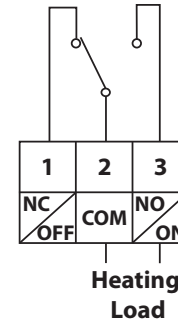
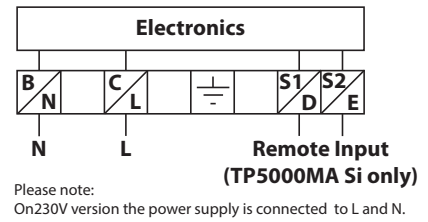
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Wiring

TP5000 Si

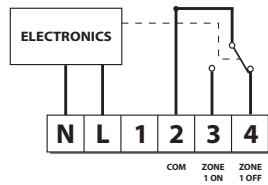


TP5000M Si

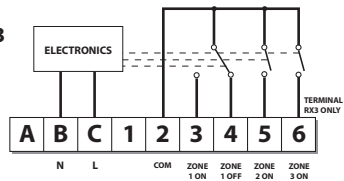


RX Receiver Wiring (RF Models)

RX1

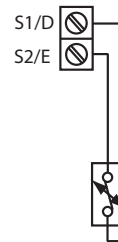


RX2 & RX3

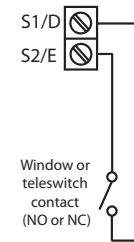


- 1) For mains voltage operated systems link terminal 2 to mains live supply.
- 2) Power supply to unit must not be switched by timeswitch.

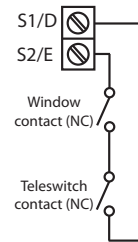
Remote Input Options



Configured for remote room sensor or limit



Configured for window contact or other contact such as teleswitch



Configured for window contact and other contact such as teleswitch

Thermal Performance

