

CM900 series Programmable Thermostats



November 2005

Honeywell

Full featured but very simple.....

Like to have it all automatic.....

The solution.....

Chronotherm CM900

The new line of programmable thermostats

Problem statement (for installer)

They always ask – 'What's in it for me? I ...'

Do not want to waste any time during installation

Don't want to visit customers to simply explain how the thermostat works

Don't want to receive phone calls from my customers every time they want to adjust the time

Need a universal solution that fits the life styles of all my customers and lets them save energy

Want to sell modern quality products that are reliable and make a good impression on the user

Chronotherm CM900



... a simple digital solution

Key New Features



- **The Green 'OK' Button**
 - 'OK' confirmation
 - **easy-to-follow**
 - **simple** programming setup



- **DTD (Dynamic Text Display)**
 - **Your own language**
 - **feedback** and **assistance**



- **Extra Large LCD Display + Backlight**
 - **Added user friendliness**
 - **clearing viewing**

More Features...

- **Automatic Summer/Winter time change.**
 - Adjusts the time setting automatically for 'Daylight Saving Time'.
- **Optimisation.**
 - Ensures you get the **temperature you want** at the **time you want**.
- **Auto, Man and Off Modes.**
 - Different operating modes allow the user to run the **heating program** or use the unit as a **simple thermostat**.
 - Build in **Frost Protection** to ensure the heating system is protected during Winter.
- **Special Function Modes.**
 - Three different override modes (**Holiday, Party & Day-off**) provide **additional flexibility** without having to modify the heating program.
- **Installer Mode.**
 - Allows **easy and quick setup** to any application.
- **User Mode.**
 - Allows the user to modify some basic settings.
- **Packaged Separately**
 - **Reducing installation time** on site.



So What's In It For You?

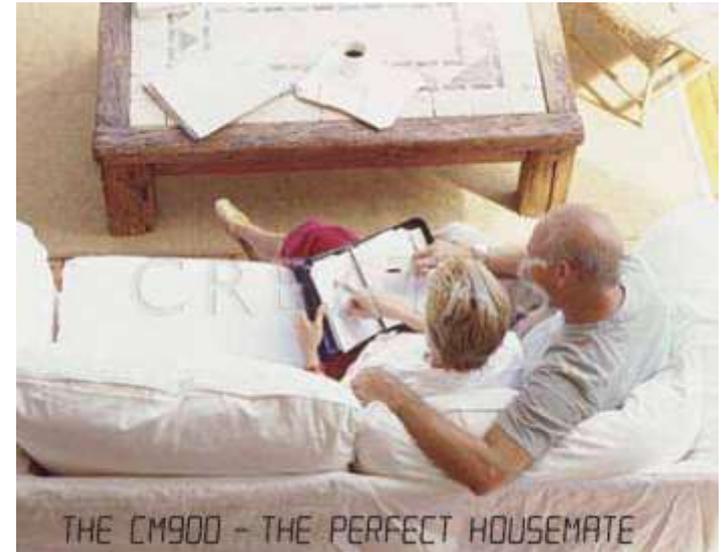
- Fewer Call-Backs
- Easy Installation
- Easy Operation
- Do the Right Thing
- ...Save Time



Now You Can Easily Sell to End Users

Honeywell

- Good With Money
- As Smart As It Looks
- Takes Care Of Itself
- Bright As A Button



Feature benefits (1)

- Slim attractive ultra modern styling
- Large easy to read LCD
- Full line of text to give proper feedback
- LCD backlighting at each button press
- One button, one function and OK confirmation button
- Use words or symbols that are easy to read / understand
- Automatic summer / winter time change
- P+I control for accurate temperature control
- Battery powered (easy battery replacement)

Feature benefits (2)

- 7 day (CM907) or 1 day (CM901) programmable
- 6 daily independent temperature levels
- Built-in default program
- EEPROM memory to holds user program indefinitely
- Various manual program overrides:
 - Party, Holiday, Day-off (temporary)
 - Manual or Off mode
- Optimization to ensures reached setpoint at the programmed time
- Optional accessory (remote sensor, outdoor sensor, phone interface)

Where to apply?

- Single homes
- Apartments
- Multi family homes
- Shops
- Small businesses

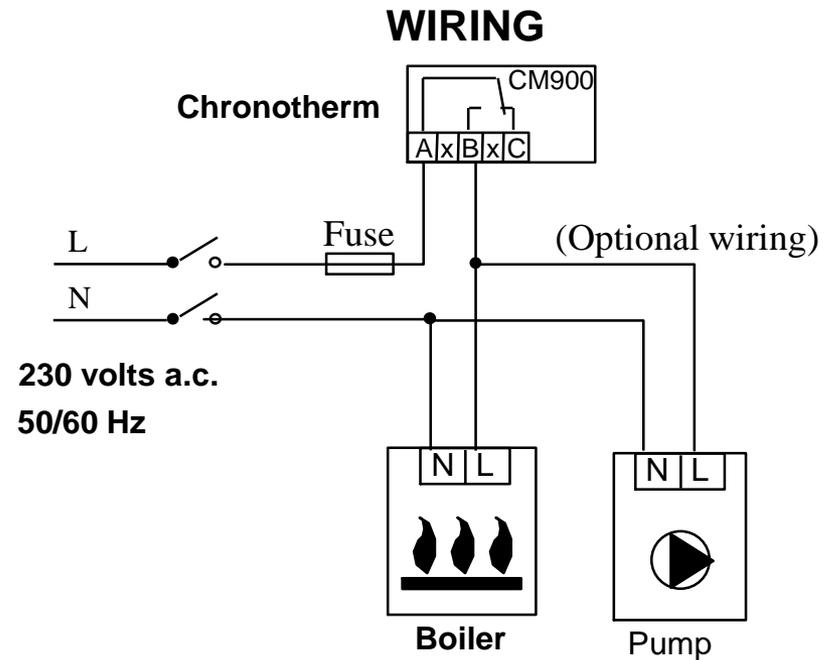
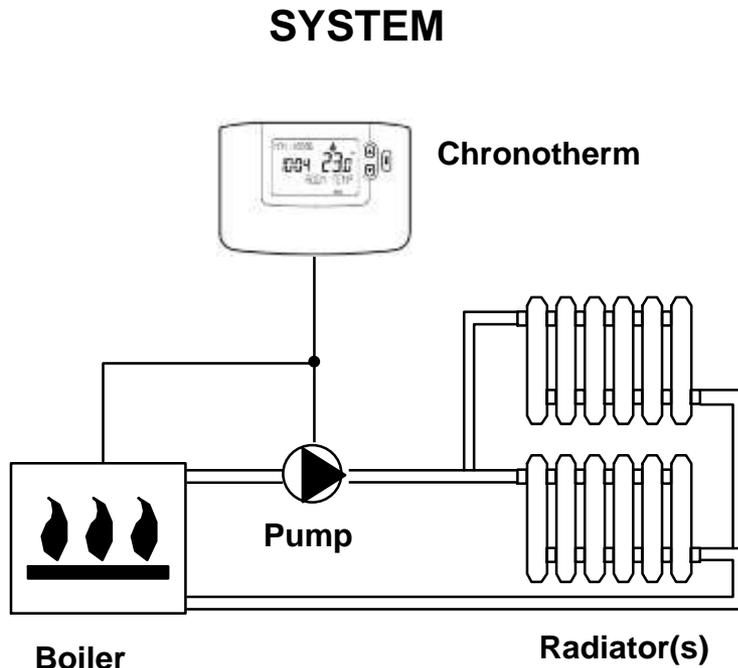
... no limits in applications

Specifications

- Programmable thermostat - CM901 = 24 hour program
- CM907 = 7 day program
- Powered by 2x1.5V AA (LR6) batteries (life 2 years typical)
- Time display 24 hour or 12 hour AM/PM format
- Minimum ON time 10% of cycle time (min one minute, adjustable)
- 3 operating modes - Automatic / Manual / Off
- Temperature control accuracy ± 0.5 K (nominal @ 20°C, 50% load 3 K/hour)
- Cycle rate 3, 6 (default), 9, 12. (via installer set up mode)
- Potential free SPDT relay
Electrical rating: 230 V~, 50...60 Hz 0.5 A to 8 A resistive
0.5 A to 3 A inductive (0.6 pf)
: 24 V~, 50...60 Hz 0.5 A to 8 A resistive
0.5 A to 3 A inductive (0.6 pf)
- Mounts on a wall box, or directly on the wall

Application (1)

Hydronic Heating Control

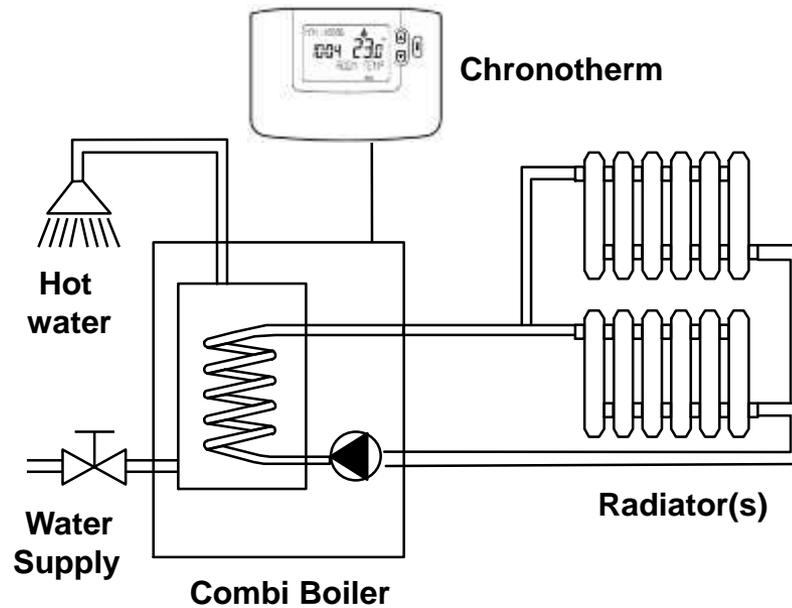


Installer Set-Up: No Change

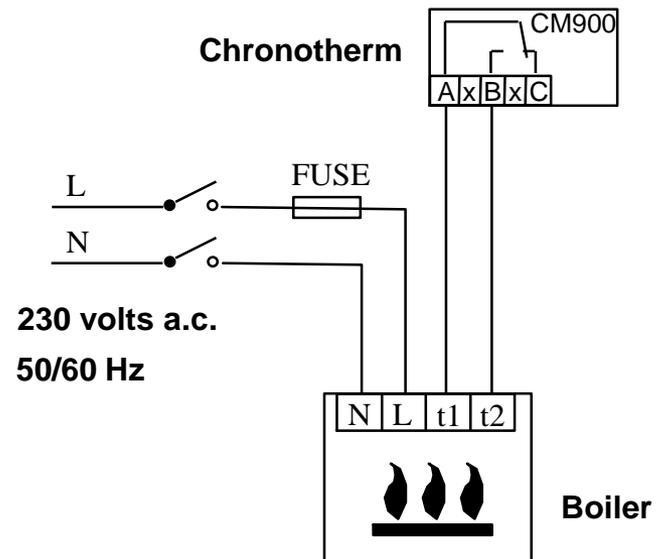
Application (2)

Combi Boiler Control

SYSTEM



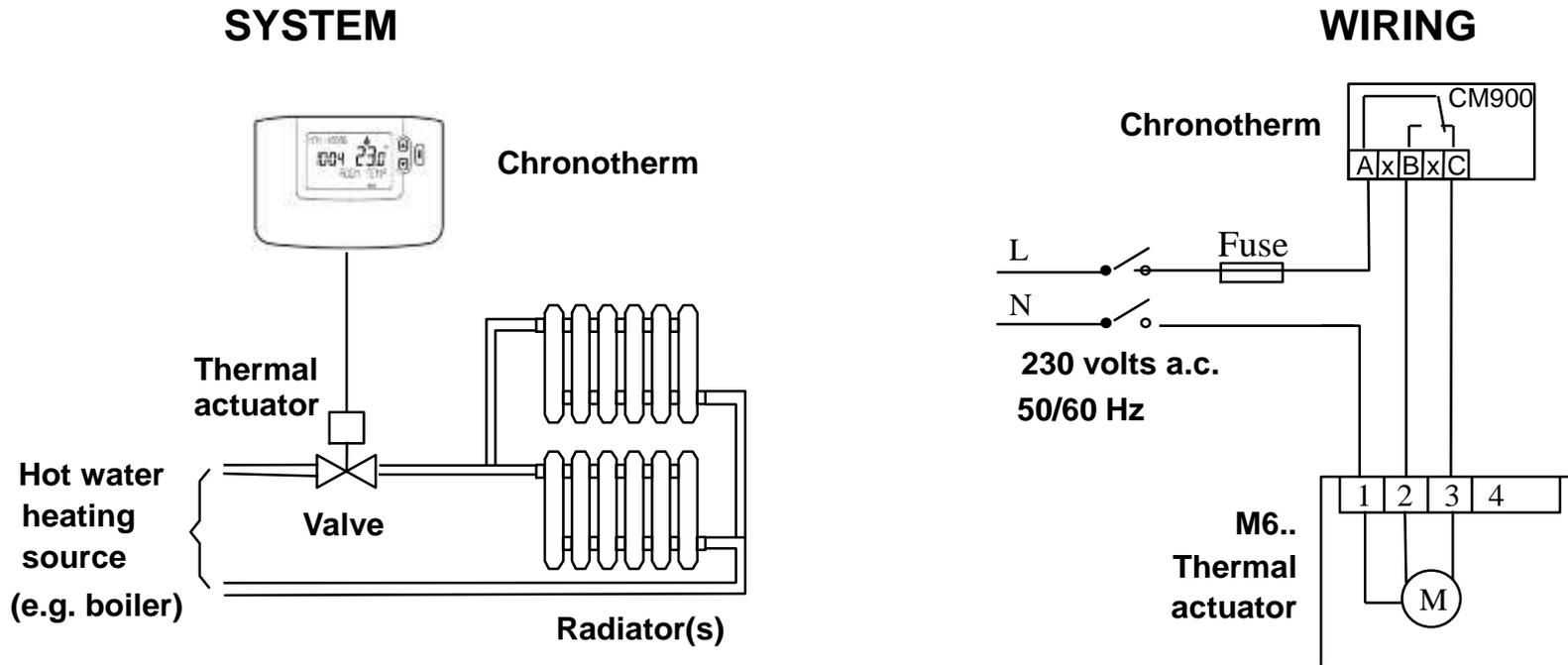
WIRING



Installer Set-Up: No Change

Application (3)

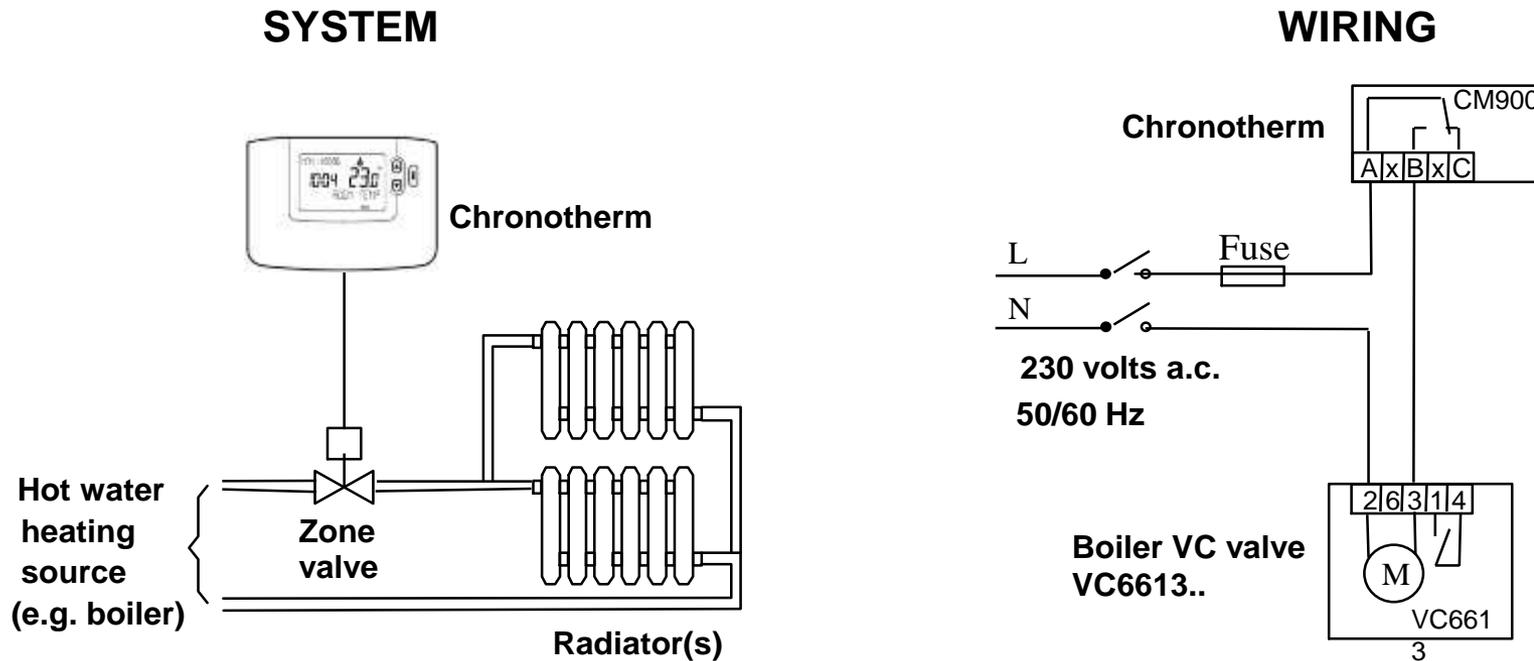
Zone Valve Control – Thermo actuator control (long run time)



Installer Set-Up: Set Parameter 9 to 12 (12 CPH)

Application (4)

Zone Valve Control – Motorized actuator (short run time)



Installer Set-Up: No Change

The products

Honeywell



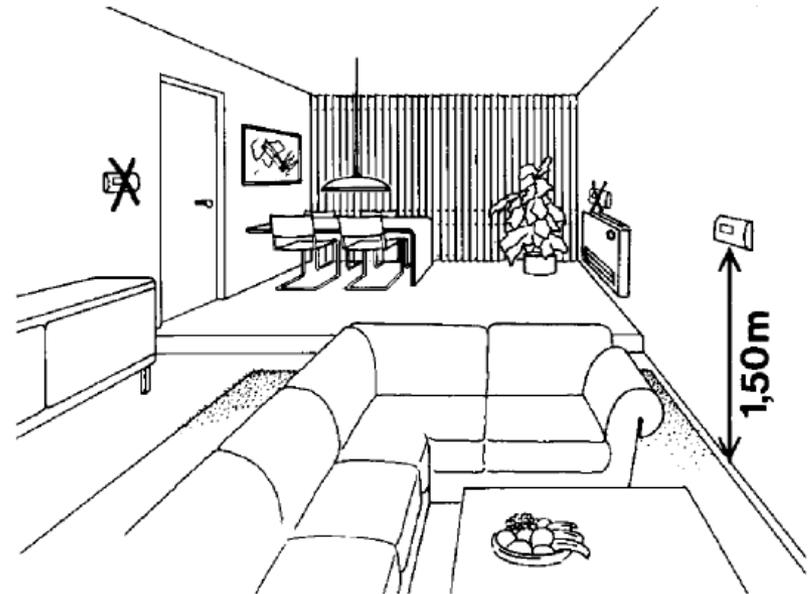
CM901

CM907



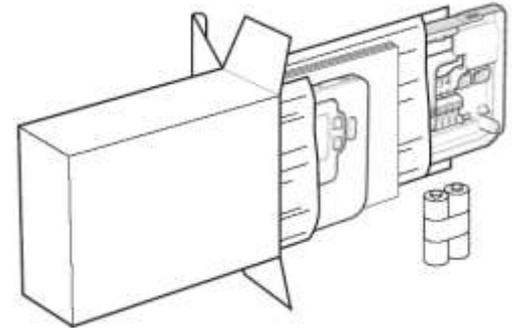
Installation (1)

- Representative location
- Easy to access height (1,50 m)
- Not near heat source (open fire, radiator, TV, etc.)
- No direct spot light
- Not on a draft spot
- Not behind a door

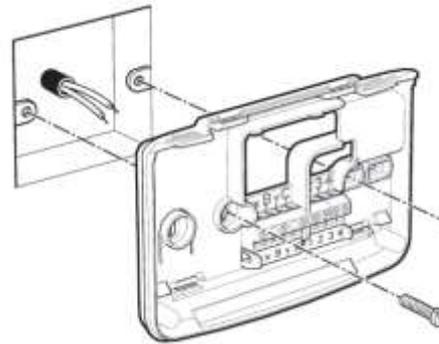


Installation (2)

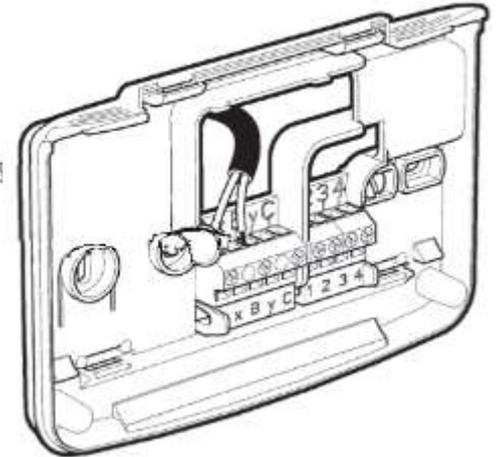
- (1) Open the package
- (2) Take out the parts



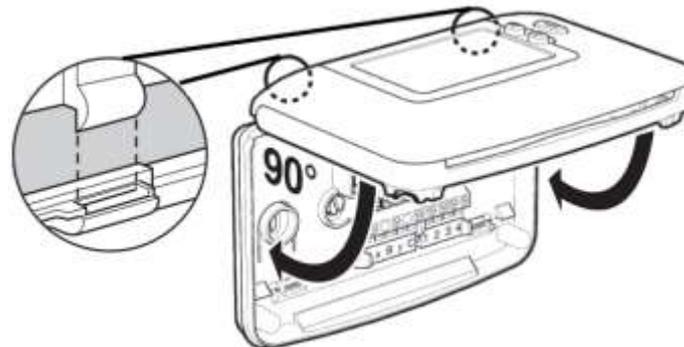
- (3) Mount base on wall



- (4) Connect wires (see next slide)

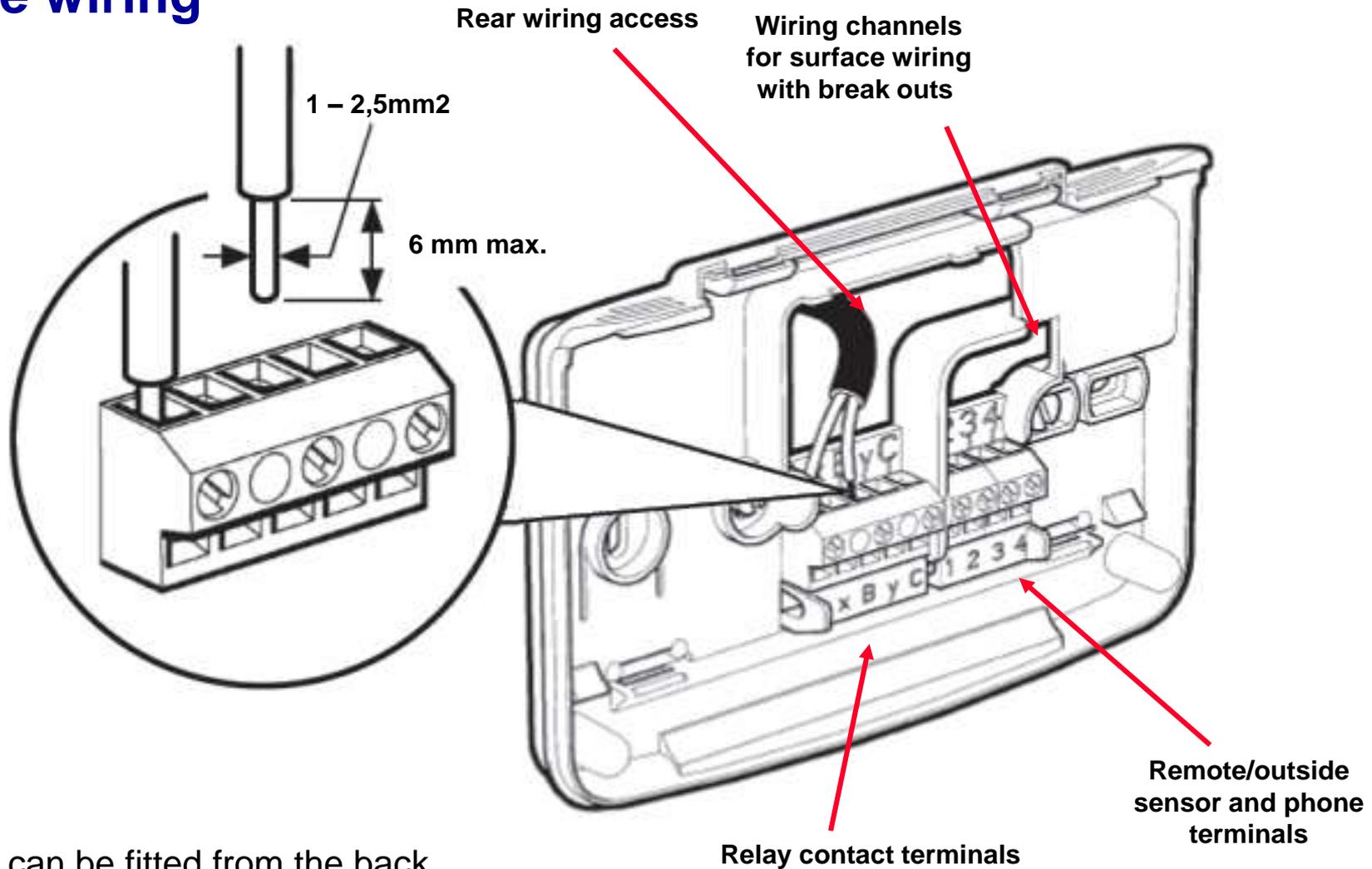


- (5) Place thermostat part



Installation (3)

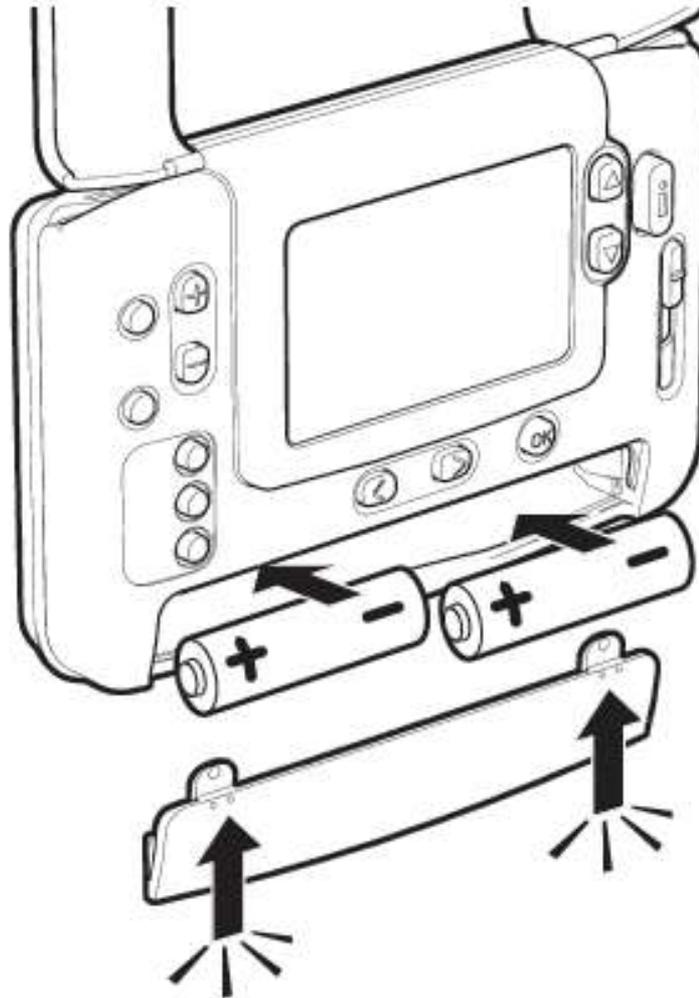
The wiring



Cables can be fitted from the back, from the left side, or from below

Start up

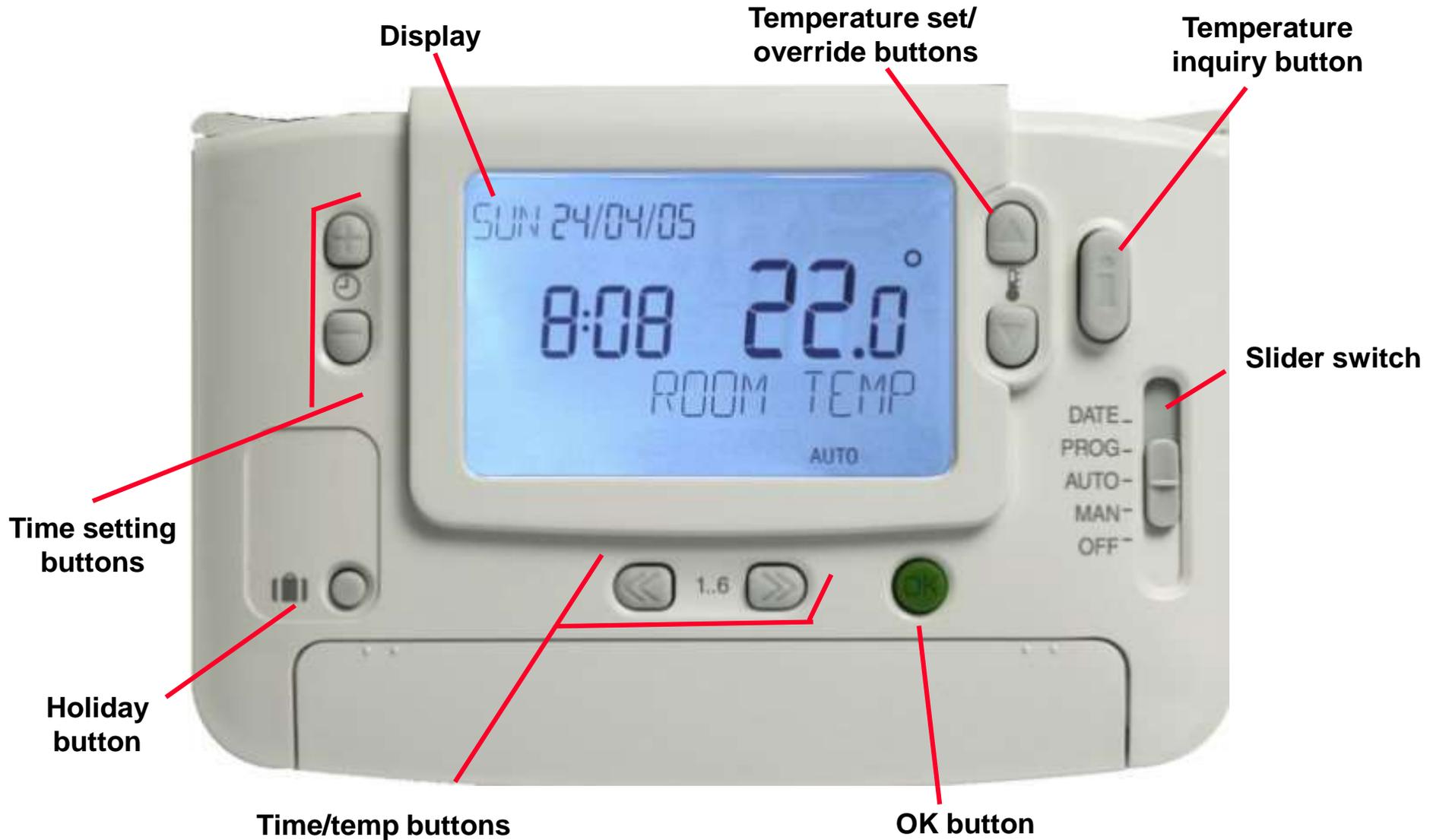
The batteries



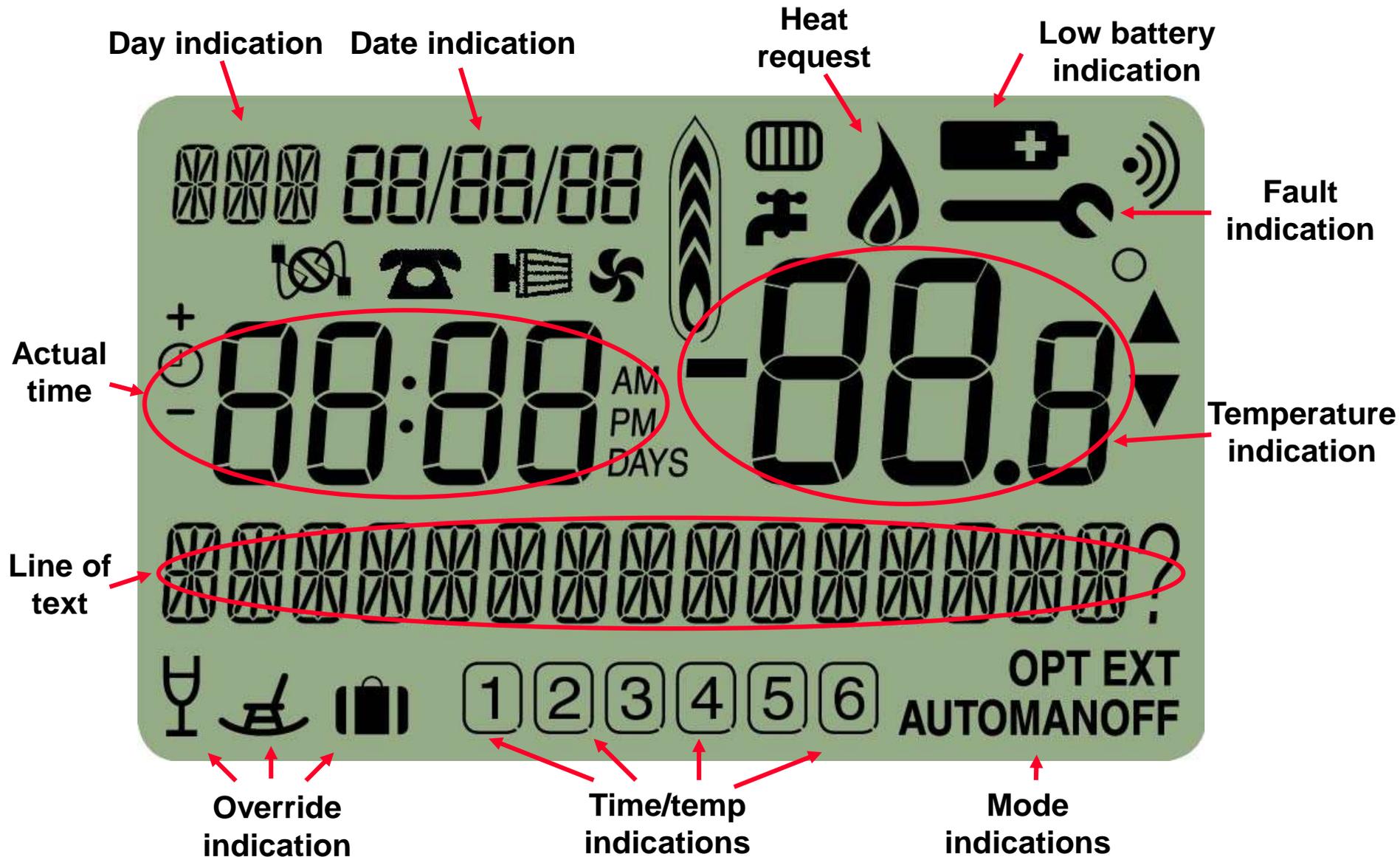
Use type AA LR6 alkaline
batteries only

User interface (CM901)

Honeywell



The display (CM900)



The dynamic text line



- Unique feature
- Alpha numeric segments
- Easy to understand
- Local language
- Guiding help for next step
- Feedback to user

Examples of the text line

ROOM TEMP

Normal display reading

TARGET TEMP

Setpoint displayed

FROST TEMP

Slider switch in OFF position

SET TIME 1

Slider switch in PROG position

TIME 1 OK?

Programming of start time period 1

SET TEMP 1

Programming of temperature period 1

SET THE DAY

Slider switch in DATE position or when starting up

PARTY DURATION

Party function enabled

DAYS OFF

Day off function enabled

CHANGES SAVED

After confirming the changes are saved

Setting the clock

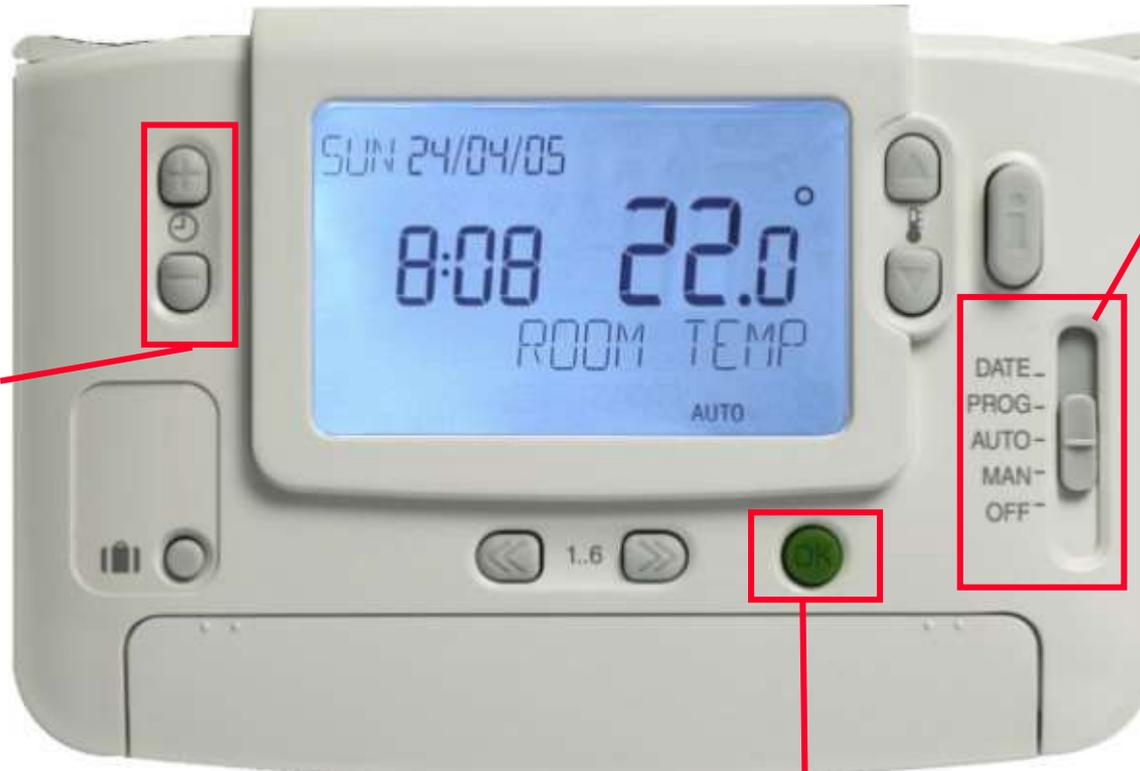
Setting the actual time and date

(2) Use the + and - time buttons to set the day of the month

(4) Use the + and - time buttons to set the month

(6) Use the + and - time buttons to set the year

(8) Use the + and - time buttons to set the actual time



(1) Set the slider switch in the DATE position

(10) Set the slider switch in the AUTO position

(3), (5), (7), (9) Press OK to confirm

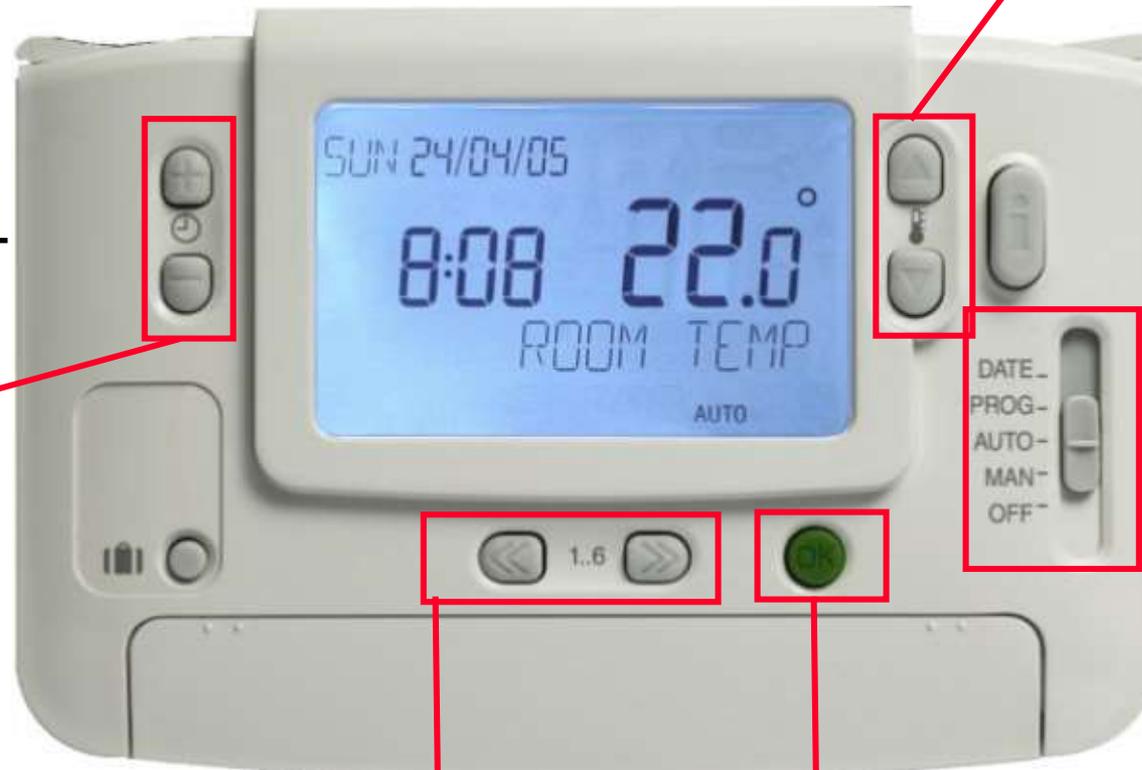
The factory default time/temp program

Daily program of CM901

Program	1	2	3	4	5	6
Time	06:30	08:00	12:00	14:00	18:00	22:30
Temperature	21 °C	18 °C	21 °C	18 °C	21 °C	16 °C

Programming CM901

(5) Set temperature



(3) Use the + and -
time buttons to
set the program
time

(1) Set the slider
switch in the
PROG position

(7) Set the slider
switch in the
AUTO position

(2) Select time/temp
program (1 - 4)

(4) Press OK to confirm
(6) Press OK to confirm

Temperature overrides CM901

A short period (temporary)

1. Use the temperature buttons to change the setpoint for the active time/temp program.
2. Press the AUTO button to cancel the override.

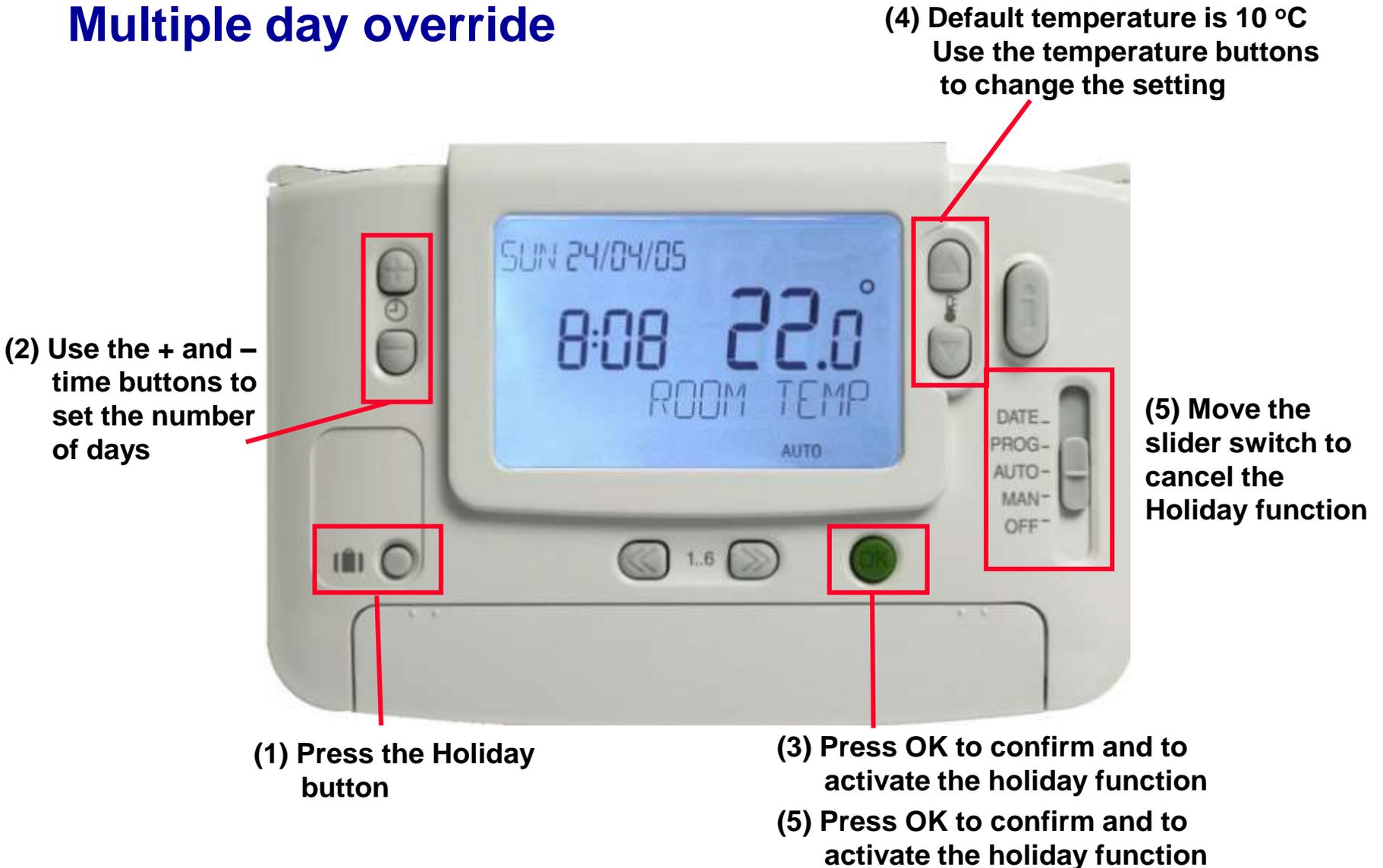


Undetermined period (manual or off)

1. Move the slider switch to the MAN or OFF position to change the setpoint.
2. Use the temperature buttons to change the setpoint (Manual mode only, Off is fixed at 5 °C)
3. Move the slider switch to the AUTO position to cancel the override.

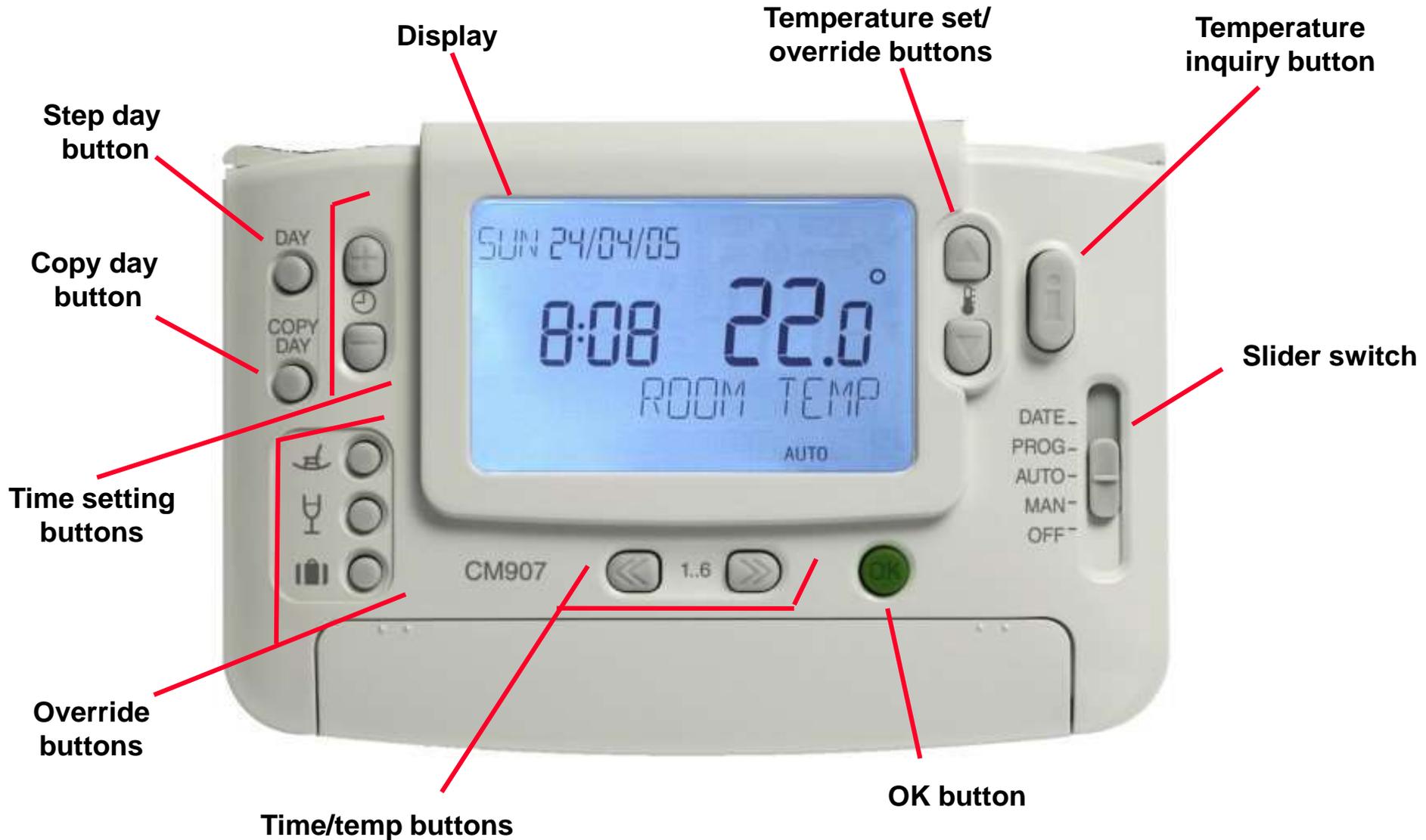
The Holiday function CM901

Multiple day override



User interface (CM907)

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Setting the clock

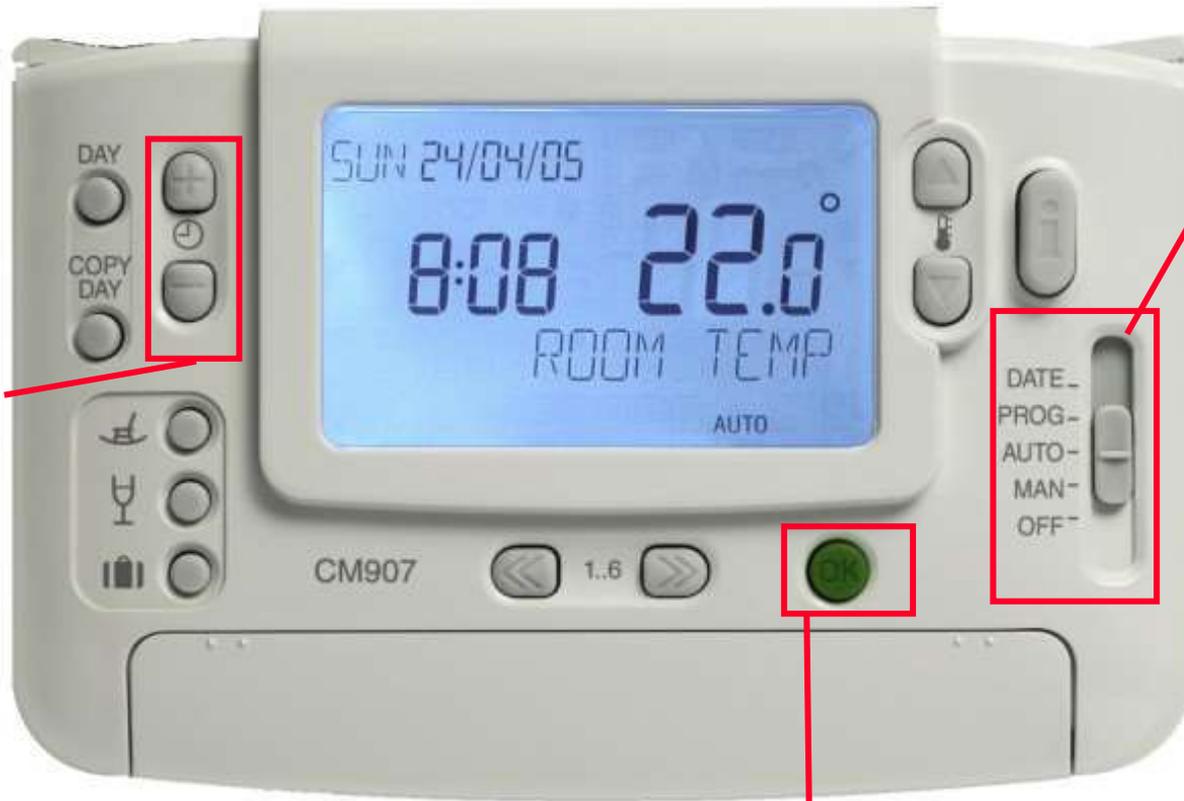
Setting the actual time and date

(2) Use the + and - time buttons to set the day of the month

(4) Use the + and - time buttons to set the month

(6) Use the + and - time buttons to set the year

(8) Use the + and - time buttons to set the actual time



(1) Set the slider switch in the DATE position

(10) Set the slider switch in the AUTO position

(3), (5), (7), (9) Press OK to confirm

The factory default time/temp program

Monday - Friday

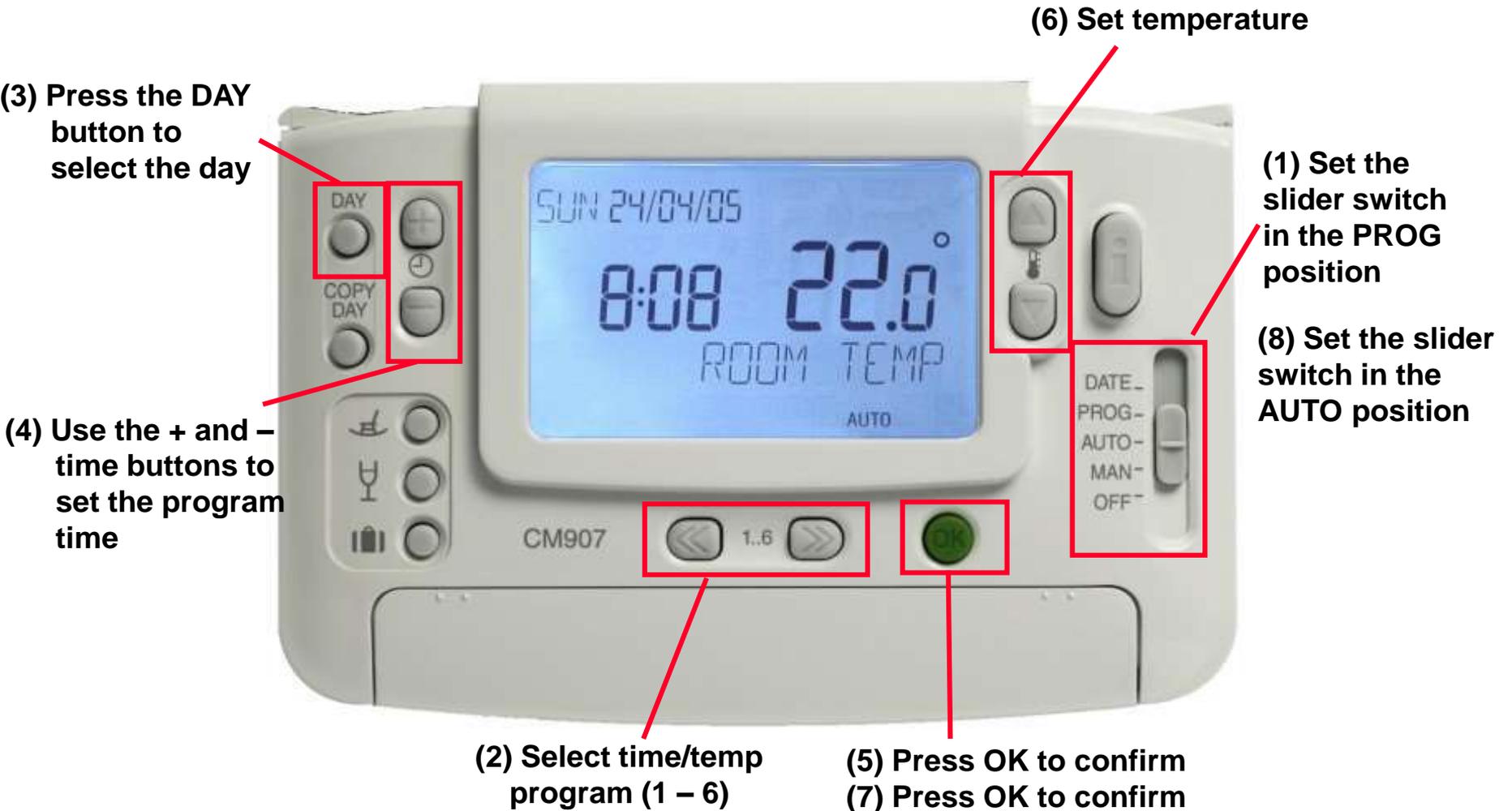
Program	1	2	3	4	5	6
Time	06:30	08:00	12:00	14:00	18:00	22:30
Temperature	21 °C	18 °C	21 °C	18 °C	21 °C	16 °C

Saturday - Sunday

Program	1	2	3	4	5	6
Time	08:00	10:00	12:00	14:00	18:00	23:00
Temperature	21 °C	16 °C				

Programming CM907 (1)

The changing time/temp program



Programming CM907 (2)

Copying a program to another day

(2) Press the DAY button to select the day to be copied

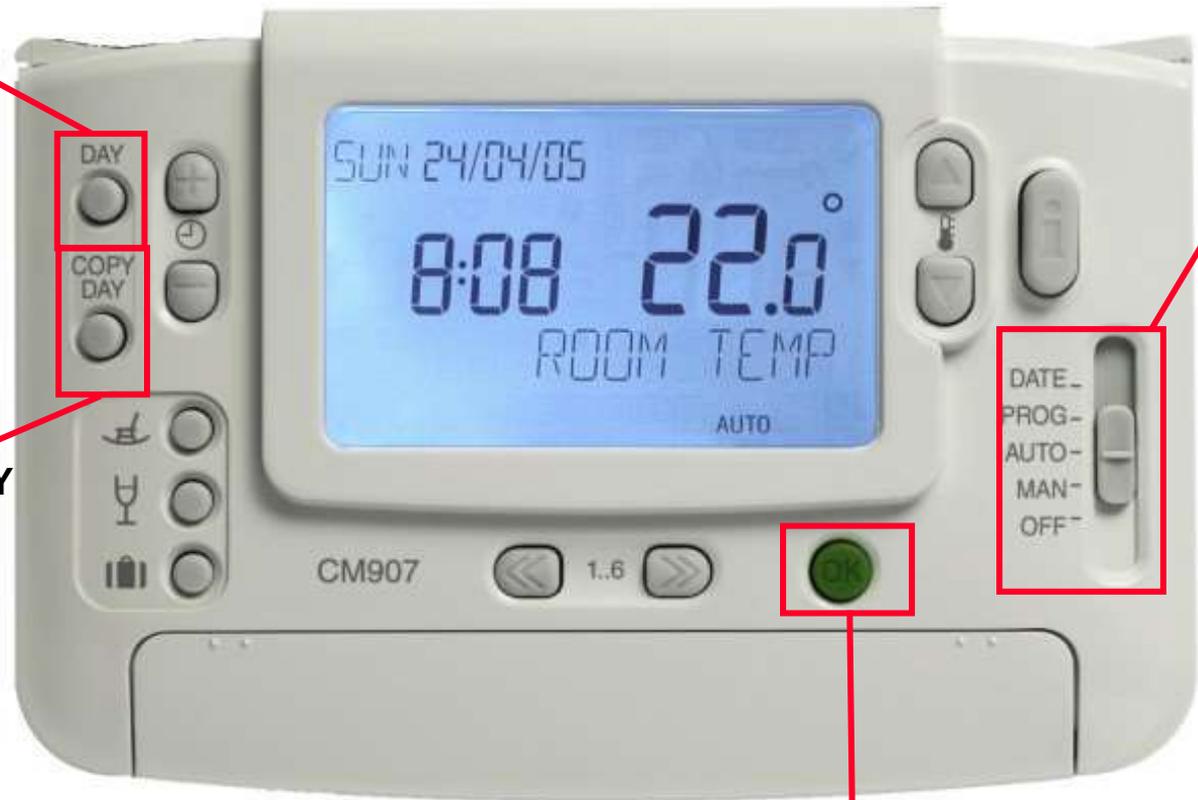
(4) Press the DAY button to select the day to copy to

(3) Press the COPY DAY button to select the day

(1) Set the slider switch in the PROG position

(6) Set the slider switch in the AUTO position

(5) Press OK to confirm



Temperature overrides CM907

A short period (temporary)

1. Use the temperature buttons to change the setpoint for the active time/temp program.
2. Press the AUTO button to cancel the override.

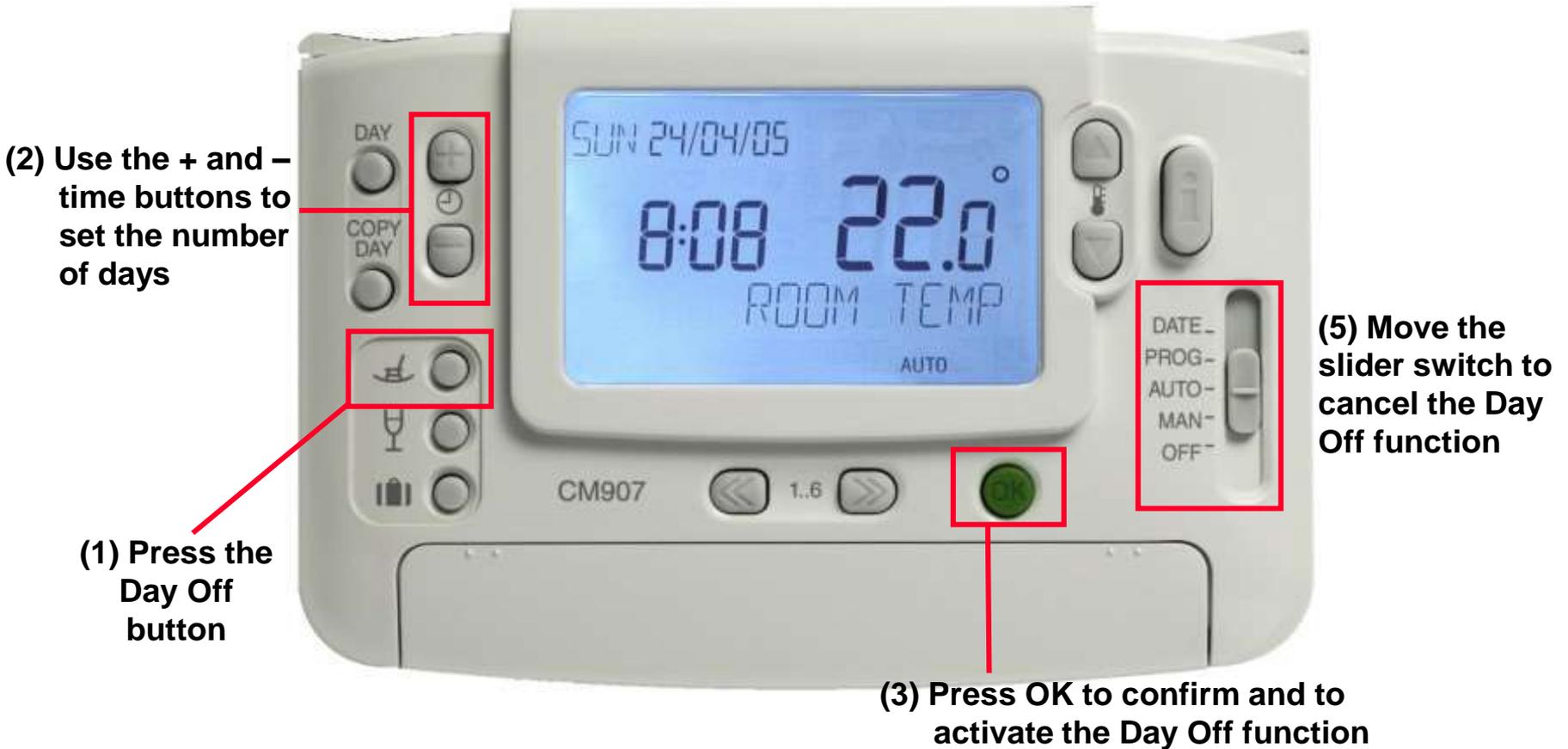


Undetermined period (manual or off)

1. Move the slider switch to the MAN or OFF position to change the setpoint.
2. Use the temperature buttons to change the setpoint (Manual mode only, Off is fixed at 5 °C)
3. Move the slider switch to the AUTO position to cancel the override.

The Day Off function CM907

Sunday program override



The Party function CM907

Multiple day override

(4) Use the temperature buttons to change the setting

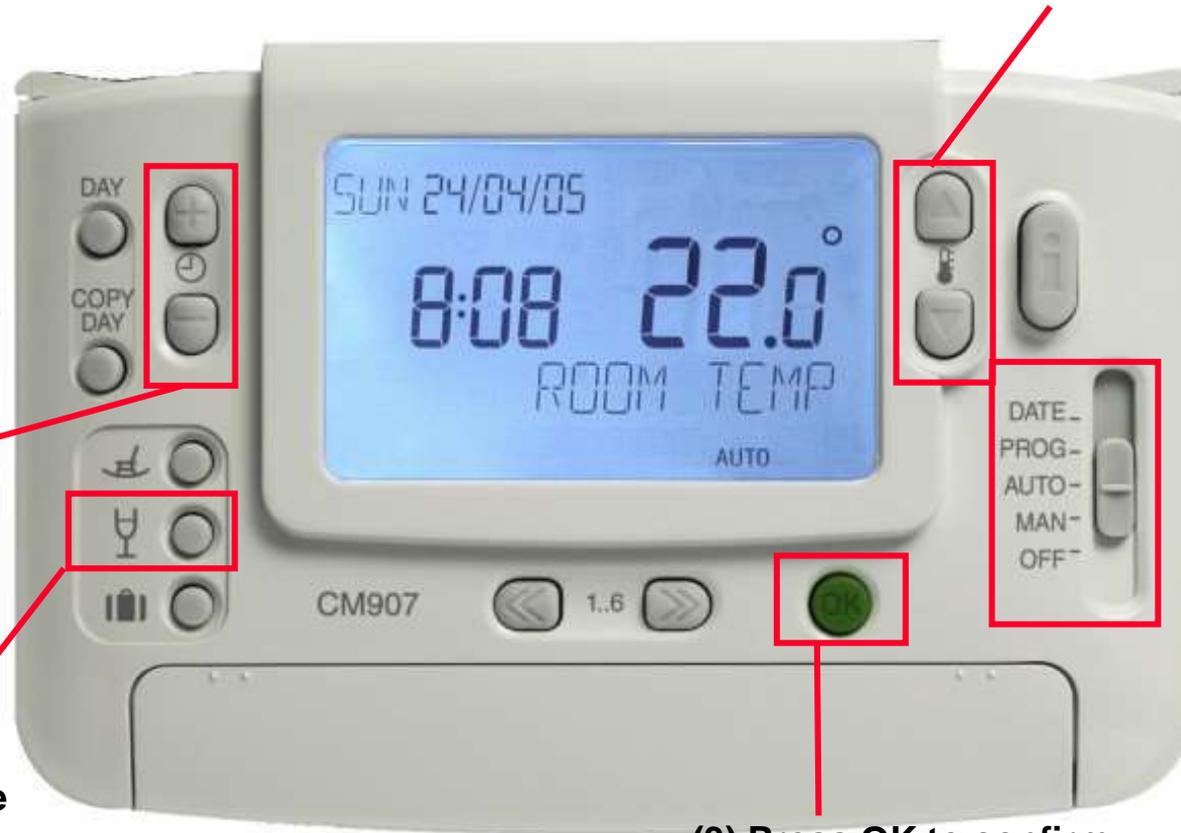
(2) Use the + and - time buttons to set the number of hours

(1) Press the Party button

(3) Press OK to confirm

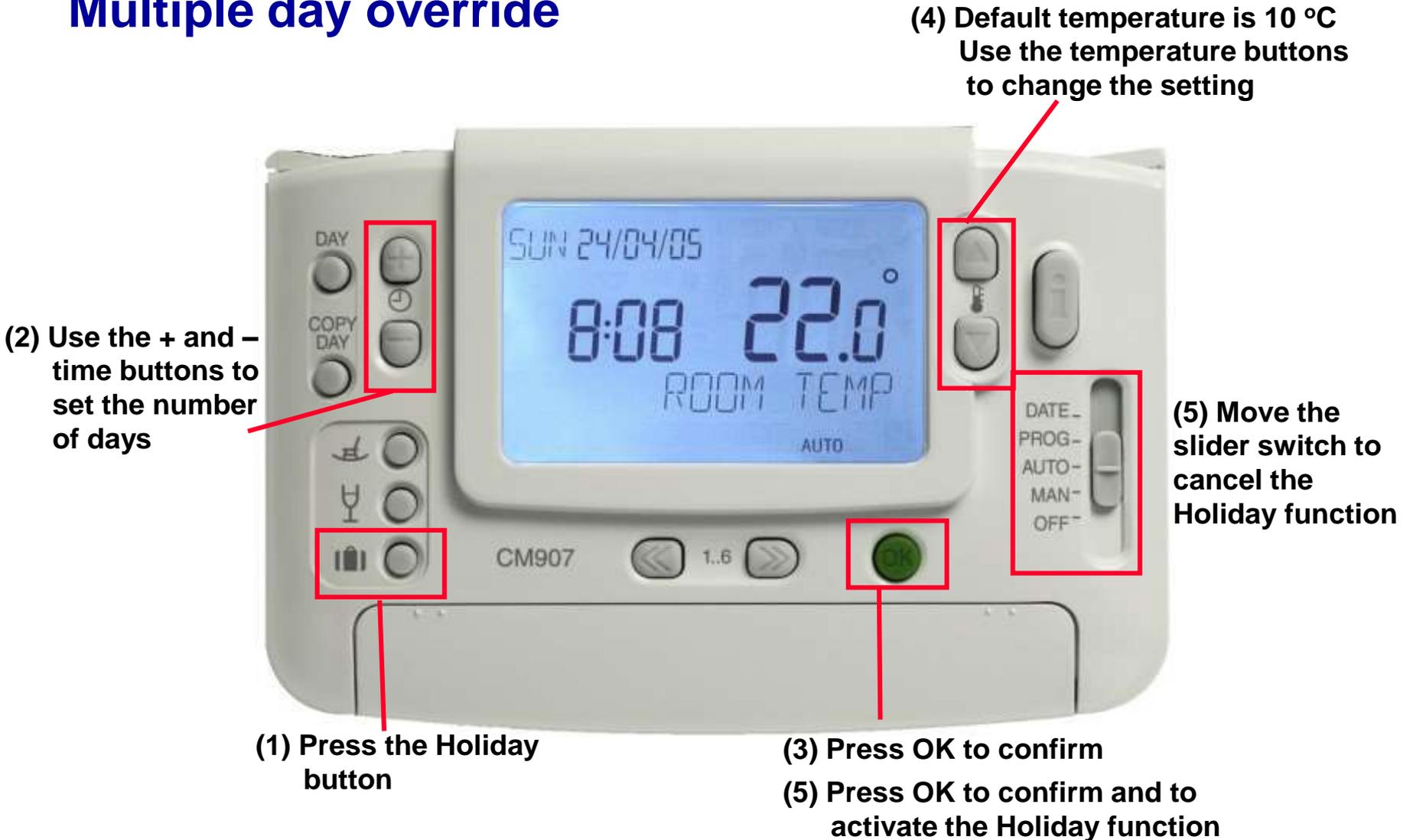
(5) Move the slider switch to cancel the Party function

(5) Press OK to confirm and to activate the Party function



The Holiday function CM907

Multiple day override

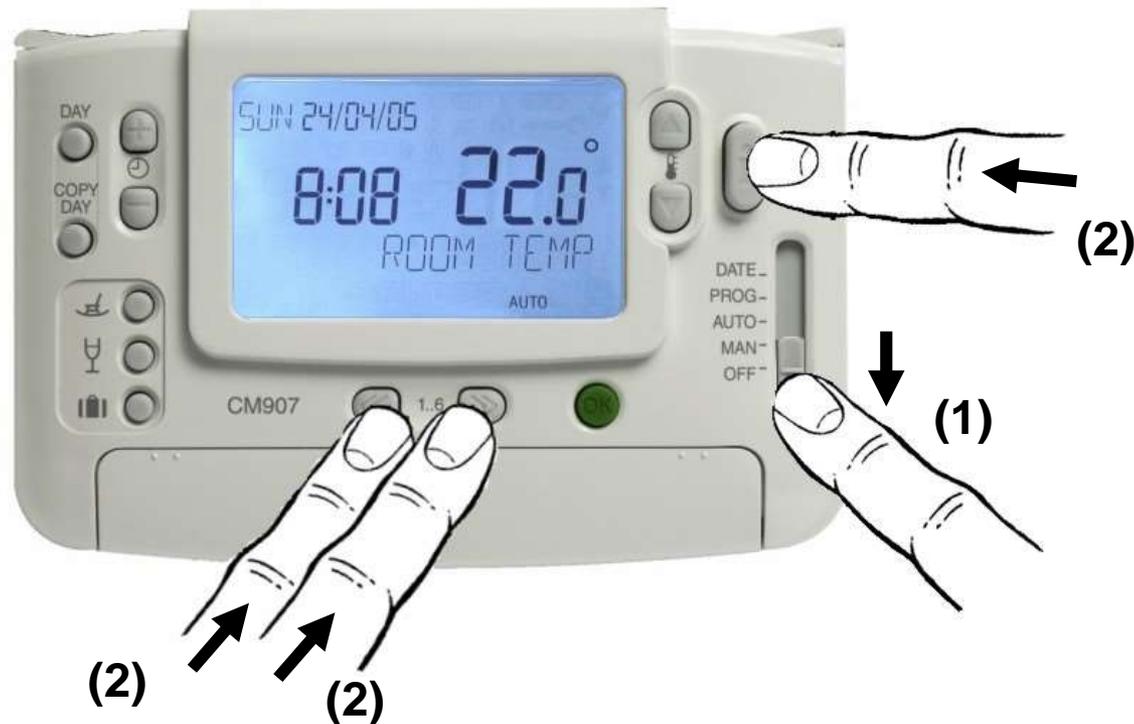


Parameter list first level

- AM-PM/24h select
- Reset to factory default time/temp program
- Backlight display
- Upper setpoint limit adjust
- Lower setpoint limit adjust
- Optimisation
- Remote control setpoint
- Second sensor*
Remote or outdoor sensor
- Measurement offset adjust (temperature)
- Proportional band width
- Return to factory settings

Installer settings (1)

Start the installer menu



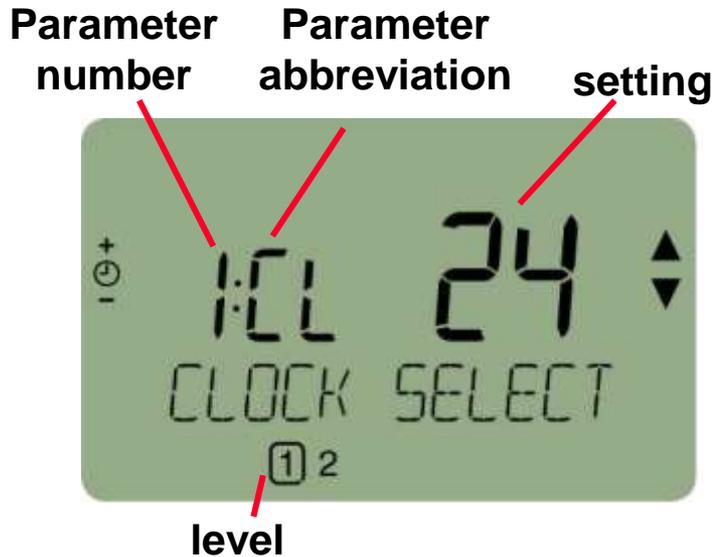
1. Move the slider switch to the OFF position
2. Press and hold the i-button
3. Press the two period buttons
4. To exit move the slider switch

Parameter list second level

- Minimum boiler ON time
- Cycle rate of control
- Electric Heat operation
Relay controlled with higher current
- Heat – Cool operation
- Boiler Cycle Rate

Changing Installer settings (1)

Parameter 1: AM-PM/24h clock select



1. After entering the Installer menu the first parameter is displayed
2. Press the TEMP ▲ or ▼ buttons to change the setting (flashes)
3. To confirm press the OK button
4. Press the ⊕ + or – buttons for the next parameter
5. Move the slider switch to exit the set up



Step 2.



Step 3.



Step 4.

Changing Installer settings (2)

Second Installer level



1. To enter the second level of parameters press the PROG >> key (period)
2. Press the TEMP ▲ or ▼ buttons to change the setting (flashes)
3. To confirm press the OK button
4. Press the ⌚ + or – buttons for the next parameter
5. Move the slider switch to exit the set up

The installer menu (1)

First Installer level (part 1)

Parameter	Installer Set-Up Number / Abbreviation	Factory Setting	Optional Setting
AM-PM / 24hr Display	1:CI	24	12 or 24
RESET Time / Temperature Program	2:rP	1*	0 or 1
Automatic Summer/Winter time change	3:Ct	1	0 or 1
Backlight display	5:bL	1	0 or 1
Upper Temperature Limit	6:UL	35	21 to 34
Lower Temperature Limit	7:LL	5	6 to 21
Optimalisation	8:OP	0	0 or 1

* Setting will be '0' after changes are made

The installer menu (2)

First Installer level (part 2)

Parameter	Installer Set-Up Number / Abbreviation	Factory Setting	Optional Setting
Remote control setpoint (telephone)	9:tS	0	0 or 1
Second temperature sensor	10:SS	0	0, 1 or 2
Temperature Offset	12:tO	0	-3 to +3
Proportional Band Width	13:Pb	1.5	1.6 to 3.0
Reset Parameters to Factory Defaults	19:FS	1*	0 or 1

* Setting will be '0' after changes are made

The installer menu (3)

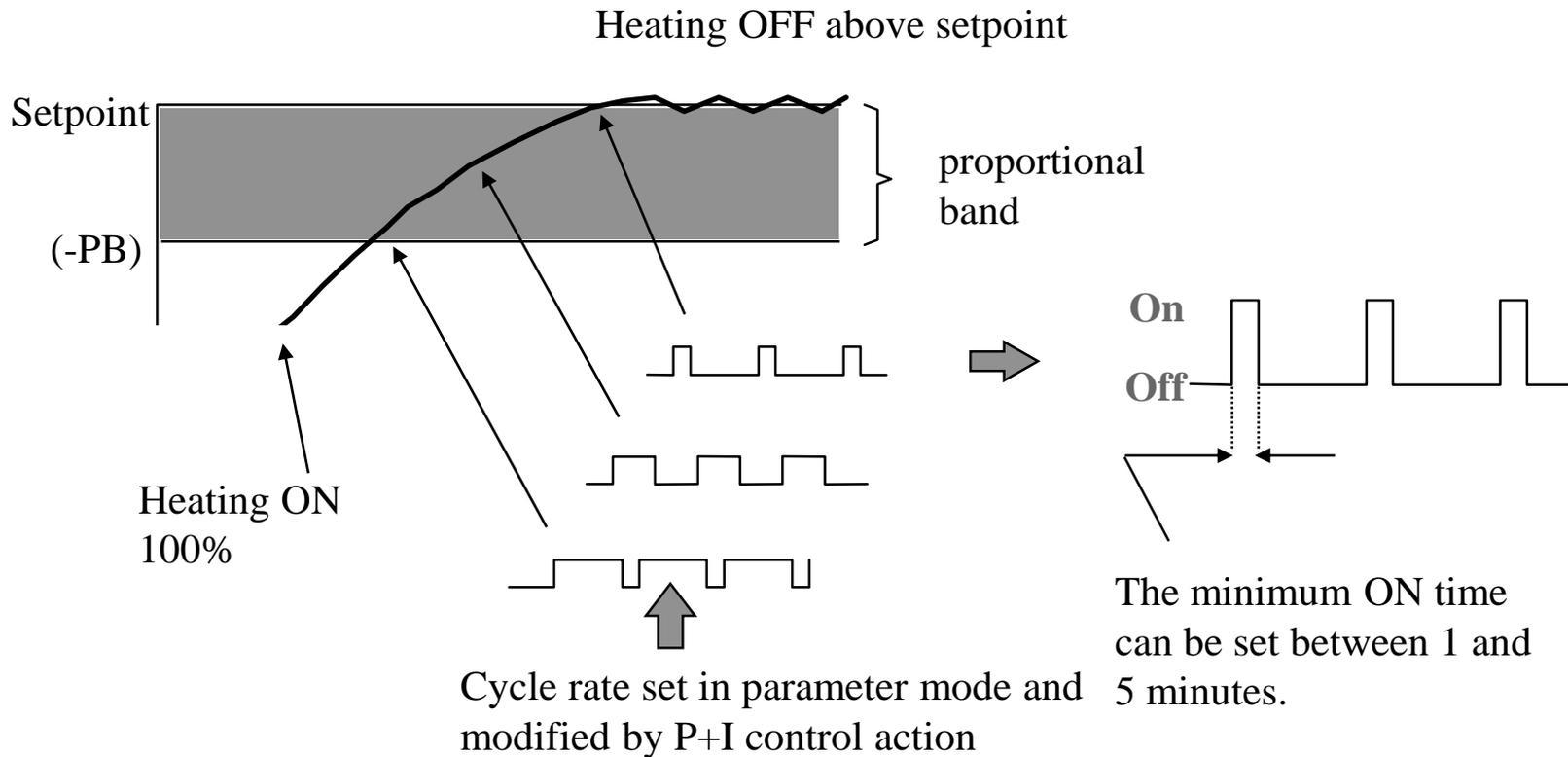
Second Installer level

Parameter	Installer Set-Up Number / Abbreviation	Factory Setting	Optional Setting
Minimum ON Time	1:Ot	1	2 to 5
Cycle Rate	2:Cr	6	3, 9, 12
Electric Heat	3:Eh	0	0 or 1
Heat / Cool change	4:CH	0	0 or 1
Pump exercise	5:PE	0	0 or 1

Minimum ON time

Parameter: 1:Ot

MIN ON OFF TIME

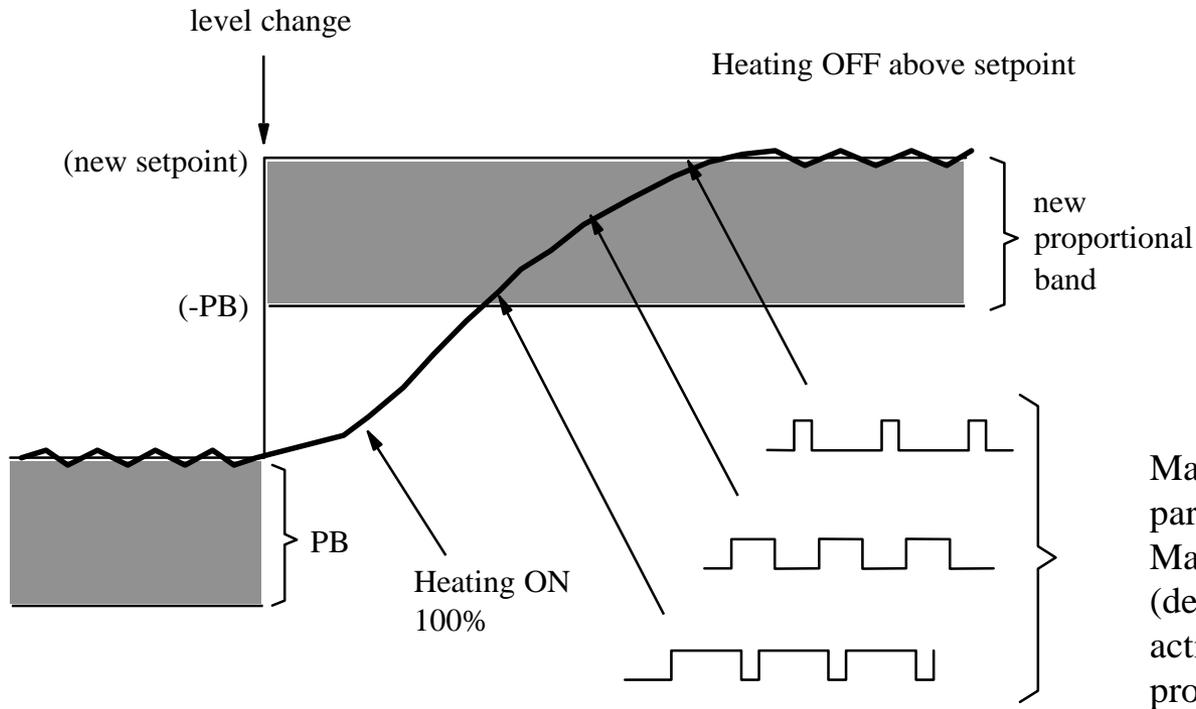


Automatic Minimum ON Time calculation = 10% cycle time(min), but ≥ 1 min

The cycle rate

Parameter: 2:Cr

CYCLE RATE



Maximum cycle rate set in parameter mode. May be modified (decreased) by P+I control action at limits of proportional band.

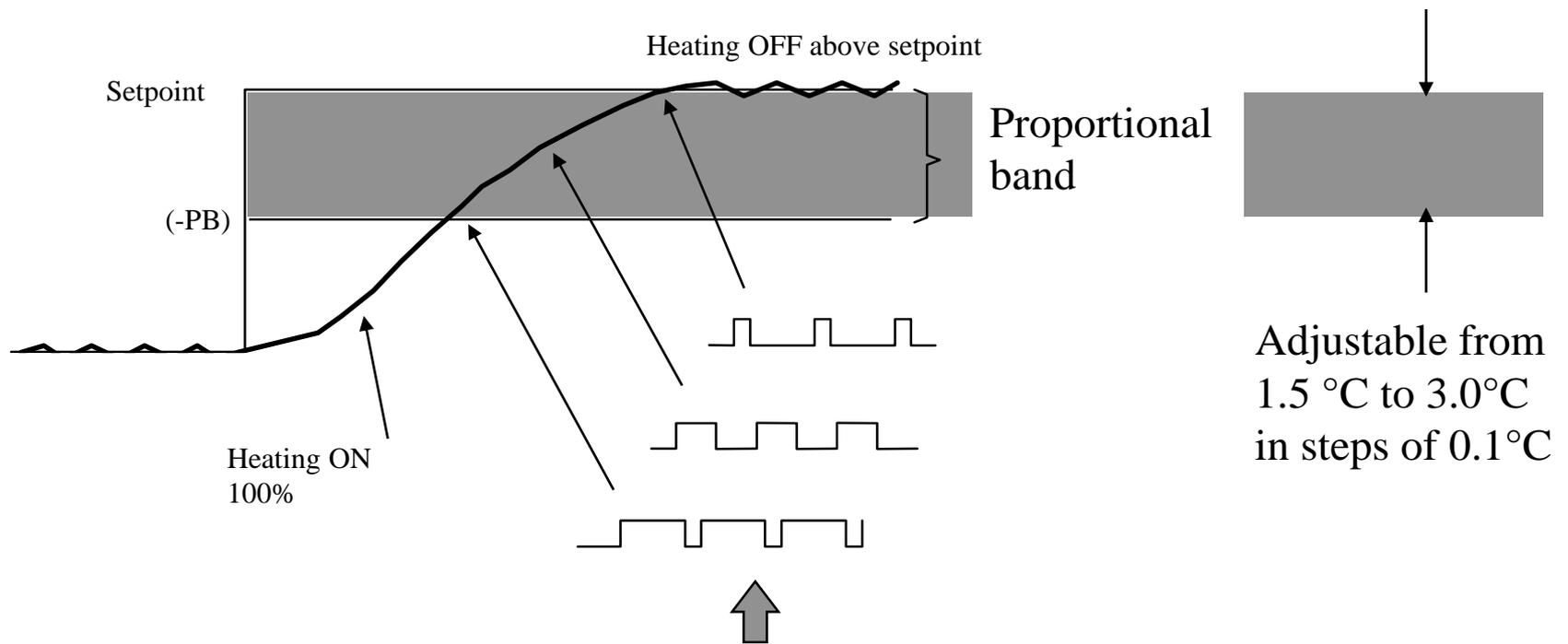
Cycle rate	3	6 = default	9	12
Heating Application	Oil fired boilers	Hydronic heating, gas boilers, zone valves	Forced air	Electric heating Thermal actuators

Proportional band

Parameter: 13:Pb

PROP BAND WIDTH

You may wish to adjust (increase) the proportional band to accommodate fast response or oversized systems.



Adjustable from 1.5 °C to 3.0°C in steps of 0.1°C

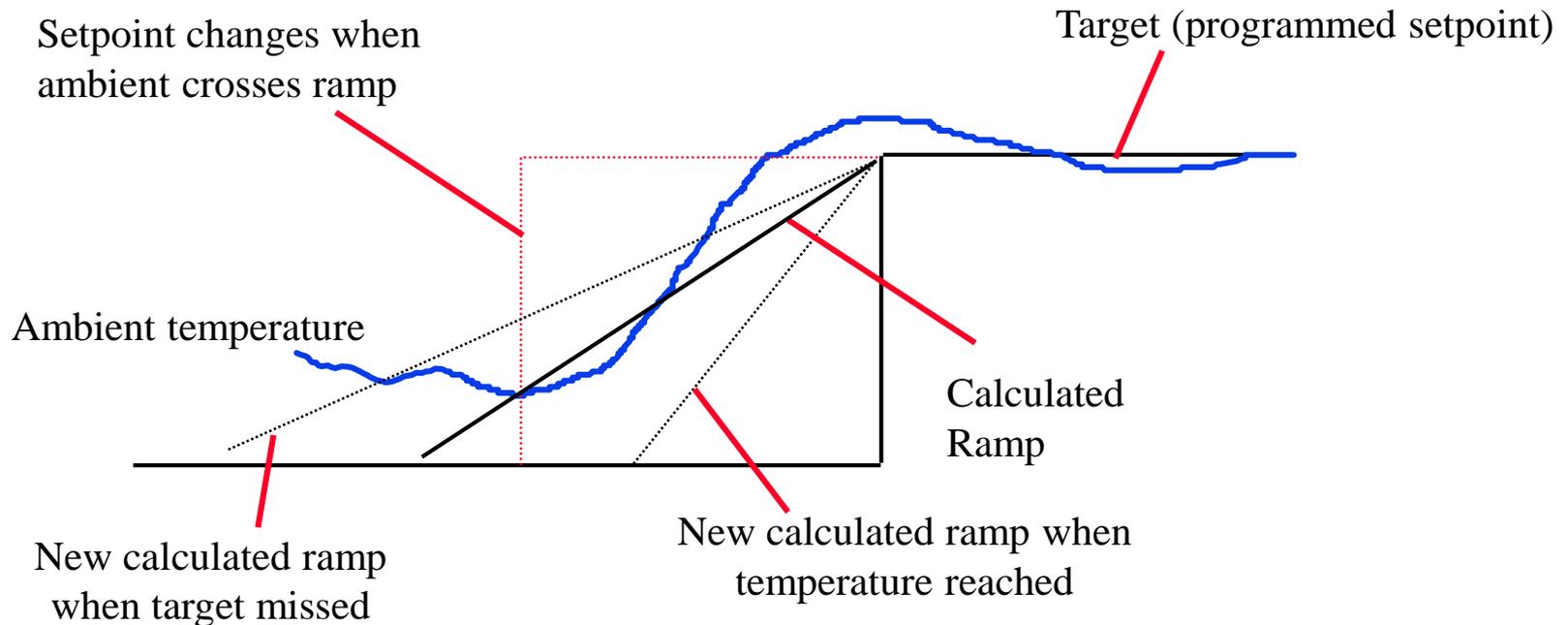
Maximum cycle rate is set in parameter mode.
May be modified (decreased) by P+I control action at limits of proportional band.

Optimization (recovery)

Parameter: 8:OP

OPTIMALISATION

The objective of optimization is to ensure the room temperature reaches the programmed temperature at the desired time.



Second sensor options

Parameter: 10:SS

SECOND SENSOR

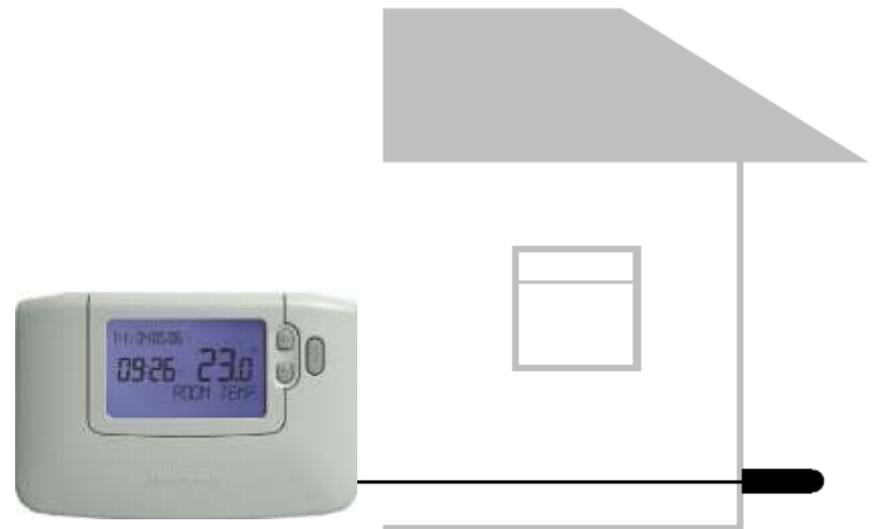
- NTC thermister, 100kohm at 25°C
- Simple wiring connection using terminal block
- Can be used with up to 50m of cable
- Operating temperature range 0°C to +40°C
- Accuracy : $\pm 1^\circ\text{C}$ (over range 5°C to +40°C)
- Ensure maximum cable length between sensor and CM900 is no more than 50m
- Use insulated cable, and ensure cable joins are sealed
- Do not mount in direct sunlight
- Do not mount near discharge vents or fans
- Do not mount near motors, line starters or other inductive loads



Outdoor sensor

Parameter: 10:SS = 1

- Locate on outside wall, approx 2/3 height, where there is good air circulation
- To readout the outdoor temperature press the 'i' key till the display shows 'EXTERNAL'



Remote sensor

Parameter: 10:SS = 2

- Locate on internal wall, at 1.5m height, where there is good air circulation
- The display will show 'EXT' the external room sensor is activated

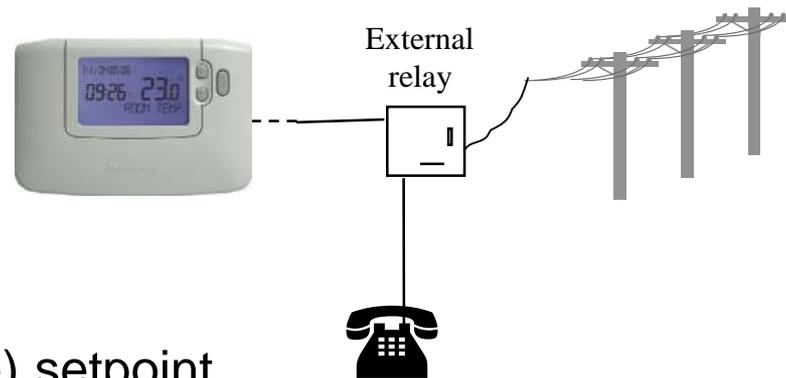


Telephone input

Parameter: 9:tS

TELEPHONE

Via an external telephone interface with relay contact output the setpoint can be switched to 21 °C (default)



To change the remote (telephone) setpoint press the 'i' key till the display shows 'TELEPHONE'

Change over to cooling

Parameter: 4:HC

HEAT COOL

- Enable the Heat / Cool function in the second level of the installer menu (4:HC = 1)

Easy user change from heating to cooling

To change the control from heating to cooling or visa versa press both temperature buttons for about 5 s.



End-user Settings (1)

Start the End-user menu



1. Move the slider switch in the OFF position
2. Press and hold the i-button for 5 sec
3. To exit move the slider switch

End-user settings (2)

End-user settings

- Clock format: 24 hr or AM/PM
- Reset Program
- Summer/Winter Auto Time Change

Parameter	Installer Set-Up Number / Abbreviation	Factory Setting	Optional Setting
AM-PM / 24hr Display	1:CI	24	12 or 24
RESET Time / Temperature Program	2:rP	1	0 or 1
Automatic Summer/Winter time change	3:Ct	1	0 or 1

Changing End-user settings

Parameter 1: AM-PM/24h clock select

Parameter number Parameter abbreviation setting



1. After entering the end-user menu the first parameter is displayed
2. Press the TEMP ▲ or ▼ buttons to change the setting (flashes)
3. To confirm press the OK button
4. Press the ⌚ + or – buttons for the next parameter
5. Move the slider switch to exit the set up



Step 2.



Step 3.



Step 4.

Start the commissioning



1. Move the slider switch in the OFF position
2. Press and hold the i-button for 5 sec
3. Press the **i** and +  buttons together – the commissioning mode becomes active (heat call)
4. To exit move the slider switch

Commissioning mode

Readouts

During this test the following information can be read using the ▲ or ▼ button:

Model number of product:

907A 1
MODEL

Date code of product:

4505 2
DATECODE

Software code of product:

F083 3
CHECKSUM

Feature – Function – Benefit (Installers)

Installation

Feature	Function	Benefit
Large access area for wiring	Allows to lead the cable freely to the terminals	Reduced installation time
Large wiring terminals	Accept wiring cables up to 2.5 mm ²	Reduced installation time
Special tab blocking terminal C	Eliminate the possibility of accidental wiring of the terminal C	No wiring errors
SPDT relay	Terminal C can be used to drive the valve to closed position	Fits all applications
Wall-plate delivered separately	No need to disassemble the product	Reduced installation time
Unobtrusive design	Blends well with any décor	No user complaints
Installer's Mode	Allows adjusting thermostat parameters for meet the needs of all applications	Only one product required in the van

Feature – Function – Benefit (Installers)

Programming

Feature	Function	Benefit
Dynamic Text Display One-function/one-button	Interactive Programming Support	No need to study lengthy user manual
Time/Temperature Pairs Programming	Simple easy to operate interface	Fast programming and commissioning
OK button	Flexible and easy selection of required times and temperatures	Fast programming and commissioning
Extra Large LCD with Backlight	Confirmation of all the changes you have made	No mistakes, you are always in control
	Easy to see Easy to operate	You can easily operate the product even in poor light

The CM900 programming is based on successful and proven programming method of CM60. If you know CM60 you will find CM900 familiar!

Feature – Function – Benefit (Installers)

Everyday Use

Feature	Function	Benefit
Summer/Winter Auto Time Change	End-users do not have to adjust time	No call backs
Front loaded batteries	User can exchange batteries without removing the front cover	No call backs
Dynamic Text Display	On hand information on what the thermostat is doing	No confusion - No call backs
Large Heating ON icon	It is easy to see if boiler is on or off	No confusion - No call backs
OK button	All the changes require confirmation	No confusion – no call backs
Proven control algorithm with Accelerated Response Time (ART) feature	Excellent temperature control performance	No user complaints

CM900 Internal customer values (1)

Honeywell

Sensitive

Introductory Note:

CM900 was designed to replace CM60 and by providing much better feature set help us to retain premium price points held by CM60 in different markets in Europe

• **Integral part of the portfolio**

- The CM900 is fully functional programmable thermostat featuring excellent feature set reinforcing Honeywell leadership in the high-end market segment
- The CM900 is designed as the flagship of our programmable thermostat portfolio and promotional activities of affiliates should reflect and appropriately highlight this position
- The CM900 solution should be offered to customers who recognise value of Honeywell offering and understand the premium value of this excellent product

• **Competitiveness**

- The product design was based on electronic excellence' principle. This product represents state of the art in terms of design, technology and manufacturing processes
- Electronic excellence brings not only cost benefits but also enhanced reliability, performance and endurance

... Premium Product for Sales Champions

CM900 Internal customer values (2)

Honeywell

Sensitive

- **Product Range**

- CM900 will be available in 1 and 7-day versions
- It will have wireless and Opentherm versions featuring the same housing and interface
- The product is exclusively allocated to our professional trade distribution channel

- **Top of the Class Feature Set**

- Enhanced feature set including:
 - ♦ **modern design,**
 - ♦ **extra large LCD,**
 - ♦ **Dynamic Text Display**
 - ♦ **OK button**
 - ♦ **ART Accelerated Response Time**
 - ♦ **Attractive Packaging**
- Based on proven Honeywell interface with on one function- one button philosophy additionally supported by Dynamic Text Display and OK button

Raising the Game to Keep Competitors at Bay

Thermostats

http://ge23s15.ge23.honeywell.de:8081/easydoc_docuserver/webgui/portal/



CM900... more than OK!

Honeywell

www.honeywell.com