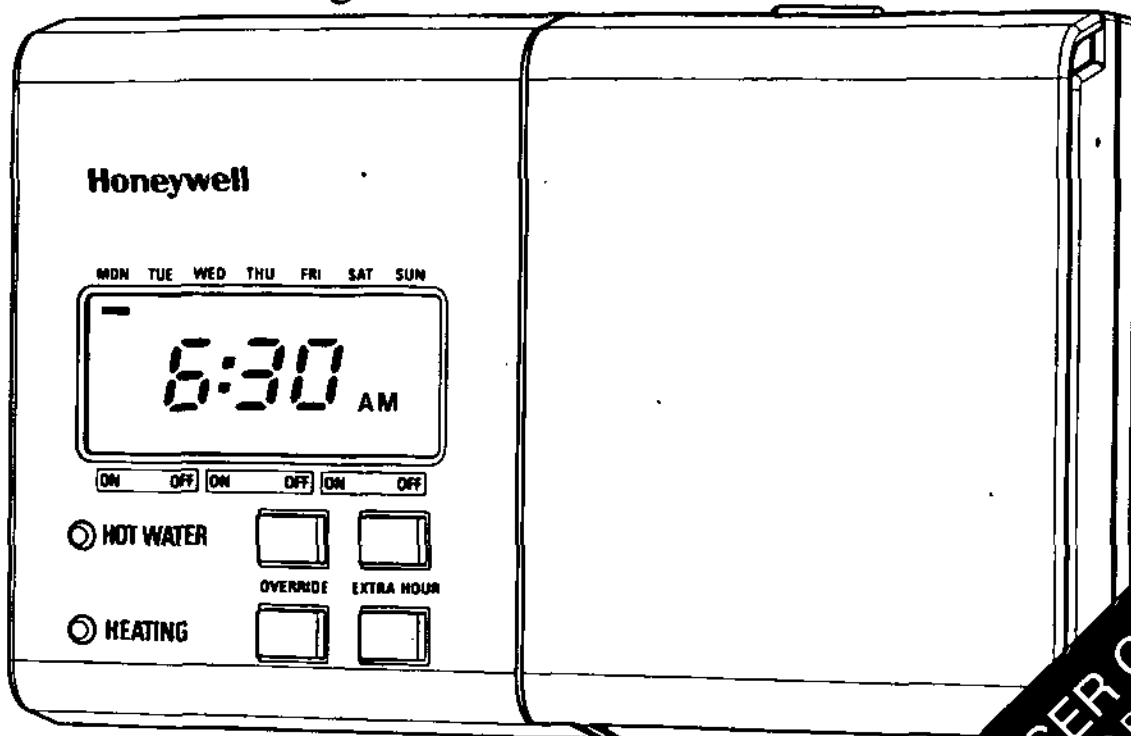


ST6400C Programmer ⁷⁰³²⁰



42009084-005 R2

USER GUIDE
TO BE LEFT
WITH USER

INTRODUCTION

The ST6400C programmer controls your central heating system. It will enable you to select the times when heating and hot water are switched **ON** and **OFF**.

FEATURES

- 7-day or weekday/weekend heating programme.
- 7-day or weekday/weekend hot water programme.
- Three **ON/OFF** switching times each day.
- Built-in programme with typical **ON/OFF** times.
- Override buttons for heating and hot water.
- Extra hour buttons for heating and hot water.
- Built-in battery to prevent loss of programme during power cuts.
- 12 hour am/pm or 24 hour clock format.

The ST6400C and other Honeywell controls in your central heating system will provide comfortable temperatures in your home when you want them

12 HOUR AM/PM or 24 HOUR CLOCK DISPLAY

Your programmer can operate on 12 hour am/pm or 24 hour clock formats. To change the format, ensure the setting slider is in the **RUN PROGRAMME** position then press the + and - buttons together for about 5 seconds. All the displayed times will be automatically changed to the new format.

Repeating this procedure will change the clock display back to the original format.

7 DAY OR WEEKDAY/WEEKEND PROGRAMMING

If installed as a Weekday/Weekend programmer, the day marker will be displayed as a block of days (MON...FRI or SAT...SUN) when setting the programme times. The DAY button will switch between the Weekday and Weekend programmes when pressed.

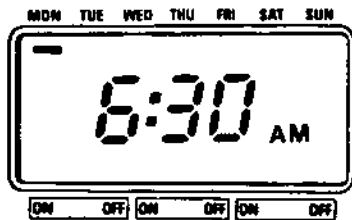
SETTING YOUR PROGRAMMER

SETTING THE CORRECT TIME AND DAY

To set the correct time and day open the flap on the front of the programmer.

STEP 1

Move the setting slider to the **SET DAY/TIME** position. The time and day marker on the display will now be flashing to indicate they can be changed.



STEP 2

To change the time, press the + or - buttons until the correct time is displayed.

Each press of the button will change the time by one minute. Holding the button down for more than a few seconds will change the time slowly at first, then quickly.

STEP 3

To change the day, press the **DAY** button until the day marker is positioned under the correct day. Each press of the button moves the marker by one day.

STEP 4

Moving the setting slider to the next position completes the setting of time and day.

SETTING THE HOT WATER PROGRAMME

The hot water programme has three **ON/OFF** switching times for every day. Each time can be set between 3.00 am and 2.50 am (on the next day) to allow you to programme the hot water to stay on past midnight, if required.

STEP 5

Move the setting slider to the **SET HOT WATER** position. The words **HOT WATER** will now be visible on the display and the first **ON** time will now be flashing.

STEP 6

Use the + and - buttons to set the first **ON** time. Each press of the button will change the time by 10 minutes.

STEP 7

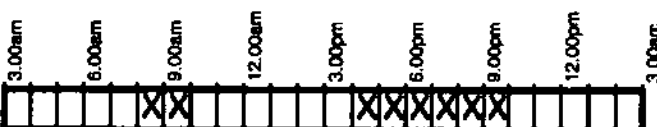
Press the **NEXT ON/OFF** button once to display the first **OFF** time. Set this time using the + and - buttons.

STEP 8

By pressing the **NEXT ON/OFF** and + or - buttons the two remaining **ON/OFF** times can be set. If you only require two **ON/OFF** times per day it is recommended you set the second **OFF** time equal to the second **ON** time.

STEP 9

You now have a choice to set the programme for the next day:-



Choice 1 Press the **DAY** button to step the day marker to the next day. The **ON/OFF** times for this day can then be set as described in steps 6 to 8.

or

Choice 2 Press the **COPY** button to copy the first day's programme into the second. Several days can be set to the same programme by pressing the **COPY** button repeatedly (not required for 5/2 day programming).

STEP 10

The hot water programme for the remaining days of the week can be set by following steps 6 to 9 (applies to 7 day programming only).

NOTE

1. When pressing the + button, the next **ON** or **OFF** marker may start to flash. If this happens the next programme time will have been changed. Press the **NEXT ON/OFF** button to check and adjust this programme time if necessary.
2. When pressing the - button, the previous **ON** or **OFF** marker may start to flash. If this happens the previous programme time will have been changed. Follow the procedure in **"REVIEWING PROGRAMME TIMES"** to check and adjust this time if necessary.

Moving the setting slider to the next position completes setting the hot water programme.

SETTING THE HEATING PROGRAMME

The heating programme has three **ON/OFF** switching times for every day. Each time can be set between 3.00 am and 2.50 am (on the next day) to allow you to programme the heating to stay on after midnight if required.

STEP 11

Move the setting slider to the **SET HEATING** position. The word **HEATING** will now be visible on the display and the first **ON** time will be flashing.

STEP 12

The required heating programme for each day of the week can now be set by following the same procedure as **"SETTING THE HOT WATER PROGRAMME"** in steps 6 to 10.

STEP 13

Moving the setting slider to the next position completes setting the heating programme.

REVIEWING PROGRAMME TIMES

To review your hot water programme move the setting slider to the **SET HOT WATER** position.

To review your heating programme move the setting slider to the **SET HEATING** position.

To review the programme times for a day press the **NEXT ON/OFF** button repeatedly. Any of these times can be adjusted by using the + and - buttons.

Press the **DAY** button to review consecutive days.

OPERATING YOUR CONTROLLER

For normal operation the setting slider must be in the **RUN PROGRAMME** position.

A red indicator lamp shows when the heating or hot water is switched **ON**.

Two sliders are provided to select how the heating and hot water are controlled.

The **HEATING SLIDER** has four positions:

OFF The Heating will remain **OFF**.

AUTO The heating will be switched **ON** and **OFF** automatically according to the heating programme.

ONCE The heating will come **ON** at the first programmed **ON** time and go **OFF** at the last programmed **OFF** time.

CONT. The heating will remain **ON** continuously.

The **HOT WATER** slider operates in the same manner as described above for the **HEATING SLIDER**.

EXTRA HOUR

The **EXTRA HOUR** buttons switch the heating or hot water **ON** for up to 3 extra hours without altering the programme. Pressing either button once will give one extra hour, and the words **HEATING +1 HR** or **HOT WATER +1 HR** show on the display to confirm the button has been pressed.

When the red indicator lamp is **OFF**, pressing the **EXTRA HOUR** button switches the heating or hot water **ON** for just one hour.

When the red indicator lamp is **ON**, pressing the **EXTRA HOUR** button extends the programmed **ON** period by one hour.

Further presses of the **EXTRA HOUR** buttons will increase the extra hour period by one hour for each button press, up to a maximum of 3 hours. The display will change to show the number of extra hours, for example **HEATING +3 HR** or **HOT WATER +2 HR**.

To cancel the extra hours, keep pressing the **EXTRA HOUR** button until the **HEATING + (1,2 or 3) HR** or **HOT WATER + (1,2 or 3) HR** disappears from the display.

OVERRIDE

The **OVERRIDE** buttons switch the heating or hot water **ON** or **OFF** without altering the programme.

When the indicator lamp is **ON**, pressing the **OVERRIDE** button switches the heating or hot water **OFF** until the next programmed **ON** time.

When the indicator lamp is **OFF**, pressing the **OVERRIDE** button switches the heating or hot water **ON** until the next programmed **OFF** time.

RESET

To reset the programmer back to the original built-in programme press the **RESET** button with the tip of a pen or pencil.

POWER FAILURE

~~Your programmer has a built-in battery to ensure correct operation after a main supply power cut. No action should be necessary following a power cut of up to 4 days. Longer power cuts may require you to reprogramme.~~

HONEYWELL TIMED Y PLAN INSTALLER PACK with ST6300 or ST6400 programmer

INSTALLATION GUIDE

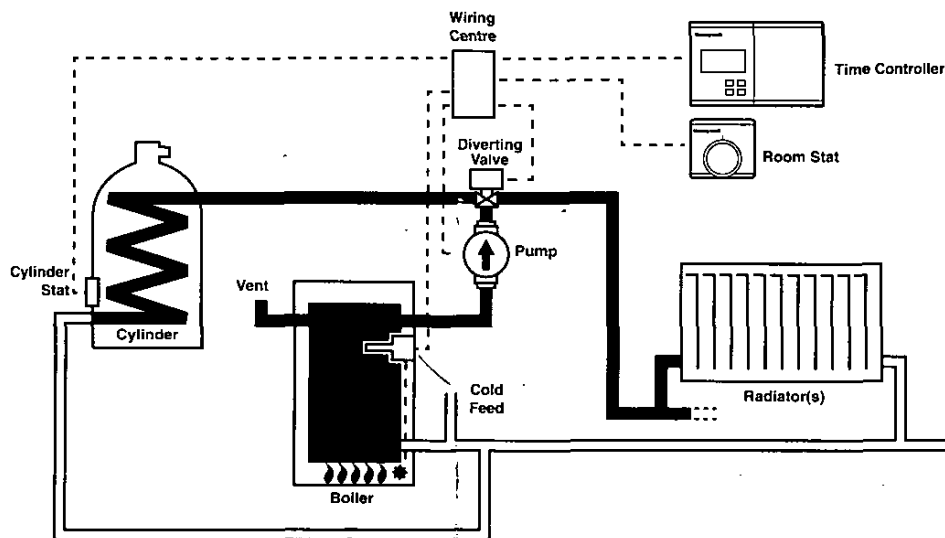
Pack Contents

One-off V4073A	Mid-position Valve
One-off T6360B	Room Thermostat
One-off L641A	Cylinder Thermostat
One-off ST6300A	24 Hour Standard Programmer
or ST6400A	24 Hour Full Programmer
or ST6400C	7 Day Full Programmer

System Operation

The room air temperature of the whole house is controlled from a room thermostat located in a living room or hall. Domestic hot water is maintained at the desired temperature by a cylinder thermostat. The flow of hot water from the boiler is directed to the heating or domestic hot water circuits, or *both at the same time*, by means of a motorised valve. Both thermostats can switch the water circulator and the boiler on and off. The boiler thermostat acts as a high limit and should be set to its maximum setting - i.e. 80-85°C (180°F).

Schematic System Layout



System Wiring Notes

Please refer to the wiring diagram on page 4 for details of the system terminal connections.

Isolate mains before installation.

All wiring should be carried out by a qualified electrician or heating engineer.

All wiring must be in accordance with IEE regulations. The room thermostat and programmer are for use with fixed wiring only; the cylinder thermostat may be used with fixed wiring or flexible cables; the Mid-position valve is supplied fitted with a 1 metre length of flexible cable.

A Class 'A' switch (having contact separation of at least 3mm in all poles) must be incorporated in the fixed wiring as a means of disconnecting the mains supply.

The heating system must be appropriately fused. A fuse rated at no more than 3 Amps should be installed. The T6360B Room Thermostat, L641A Cylinder Thermostat and the ST6300/ST6400 Programmer are Class II (double insulated) devices. Earth terminals, where provided, are for external earth continuity purposes only. All earth conductors inside the programmer and room thermostat must be sleeved. The V4073A Mid-position valve is a Class I device and must be connected to a suitable earth.

Room Thermostat

<p>Cover Removal</p> <p>Caution: Disconnect system power supply before removing cover</p>	<p>Wall box mounting Fixing holes spaced to suit BS4662</p> <p>Screws supplied</p>	<p>Surface mounting Use wall box fixing holes or alternatives shown</p> <p>Screws supplied</p>
<p>Wiring to terminals</p>	<p>Wall box wiring</p>	<p>Surface wiring</p>

The thermostat has 4 knockouts on the cover for surface wiring installations. Care must be taken to use the knockouts so that the cable completely fills the knockout hole without leaving any gaps. Where used, mini-trunking must be fitted firmly against the thermostat cover in such a way as to leave no gap. A neutral connection must be made to terminal 2 to ensure good room temperature control.

Cylinder Thermostat

<p>Pre-insulated Cylinder Preparation</p> <p>Remove a section of insulation as specified. Clean cylinder surface to ensure good surface contact.</p>	<p>Cover Removal</p> <p>Caution: Disconnect system power supply before removing cover</p> <p>Cover installation is the reverse of above</p>	<p>Wiring to Terminals</p>	
<p>Mounting</p> <p>Hot Water Cylinder</p> <p>Locate mounting strap in cover slot</p>	<p>Fixing Strap and Hooks</p> <p>Cut strap to size (if required) to ensure thermostat is held firmly against cylinder</p> <p>Screw hooks into strap and link together</p>	<p>Temperature Setting</p> <p>Normal set point 60°</p>	<p>Optional Manual Setting Knob</p> <p>IMPORTANT NOTE Ensure slot in knob is aligned with arrow then push home firmly</p>

System Component Specifications

ST6300/ST6400 Programmer

Switch type	SPDT
Contact Rating	3(3)A 230V AC
Power Supply	230V AC 50Hz
Battery Reserve	Built-in rechargeable battery
Double Insulated	
Operating Temp. Range	2 - 45°C
Storage Temperature	-20 - +55°C

T6360B Room Thermostat

Contact Rating	10(3)A 230V AC (Terminal 3) 6(2)A 230V AC (Terminal 4)
Switch Type	SPDT
Double Insulated	
Temperature Setting Range	10°C - 30°C
Thermal Differential	+/-0.5°C under standard conditions at a heat ramp of 3°C per hour with heat anticipator

L641A Cylinder Thermostat

Contact Rating	4(2)A 230V AC
Switch Type	SPDT
Double Insulated	
Temperature Setting Range	40°C - 80°C
Thermal Differential	10°C approx.
Ambient Temperature	0 - 55°C

V4073A Motorised Mid-position Valve

Operating Voltage	230V AC 50 Hz
Power Consumption	6W
Operating Fluid Temp. Range	5°C - 88°C
Maximum Ambient Temperature	50°C

Whilst Honeywell takes all practicable steps to design and manufacture its products to comply with the requirements of the Health and Safety at Work Act 1974, all products must be properly used and Purchasers are reminded that their obligations under the Act are to ensure that the installation and operation of such products at a place of work should be safe and without risk to them.

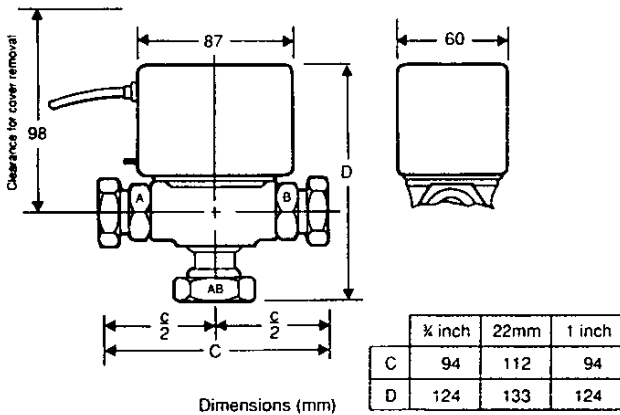
Honeywell reserve the right at any time and without notice to change any product or information contained in this publication.

The wiring diagrams and installation instructions in this publication are provided for guidance purposes when installing recognised standard systems only. Any application of this product not shown here, or any deviation from these instructions, is neither recommended nor advised. Any such application or deviation should be referred to Honeywell for technical assistance.

Honeywell

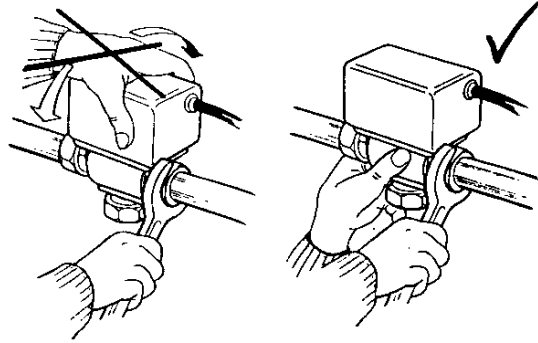
Mid-Position Valve

The valve must not be fitted on the return pipework under any circumstances. Flow from the boiler must be connected to port AB, the radiator circuit to port A and the hot water cylinder to port B. Ensure adequate space is left for actuator removal. The valve may be mounted at any angle but must not be mounted such that the valve head is below the level of the pipework. In the unlikely event of a leak, a safety hazard could result.



Do *not* grip the valve head whilst making and tightening pipe connections. **Either** hold the brass valve body in your hand or attach an adjustable spanner (32mm, 1¼") across the hexagonal faces in the valve body at each port as appropriate.

Tighten the compression nuts sufficiently to make a watertight seal. *Take care not to over-tighten.*



The valve actuator incorporates a Manual operating lever. This should normally be in the **Auto** position but can be moved to **Man Open** position for system drain down and filling.

Programmer

Fitting the Backplate

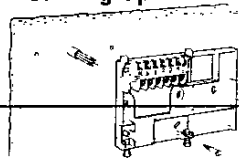
Remove the programmer from the backplate by slackening the two screws located on the bottom left and centre of the programmer. The backplate may be surface mounted or screwed directly to a flush mounting single wiring box complying to BS4662 using the two M3.5 screws provided. Clearance below the backplate when mounted on the wall should be 100mm minimum.

clipped to the wall adjacent to the programmer. Four knockouts are provided for surface wiring. Care must be taken to use the knockouts in such a way that the cable completely fills the knockout hole without leaving any gaps. When mini trunking is used it should fit snugly against the unit leaving no gaps.

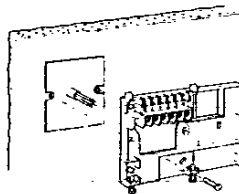
Mounting Options

MINIMUM CLEARANCE DISTANCES:

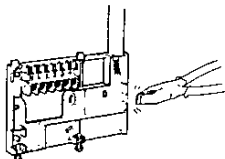
ABOVE WALLPLATE: 40mm
BELOW WALLPLATE: 100mm
LEFT/RIGHT OF WALLPLATE: 10mm



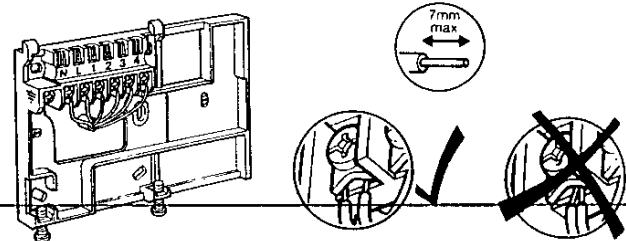
a. Surface mounting
concealed wiring



b. Flush switchbox
Fixing holes are
spaced to suit BS4662
requirements

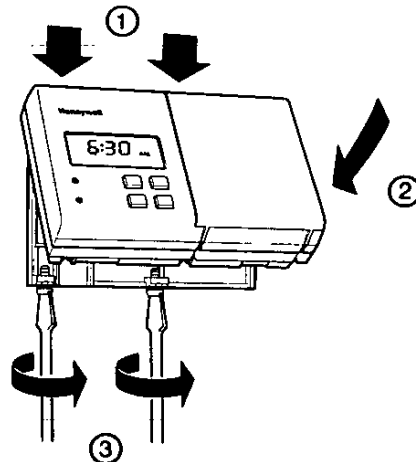


c. Surface mounting with
surface wiring in
mini trunking



Fitting the Programmer

Replace the programmer on the backplate as shown in the following diagram. Place the unit onto the hinges on the top of the wallplate and hinge down into position. Tighten the two securing screws using a screwdriver.



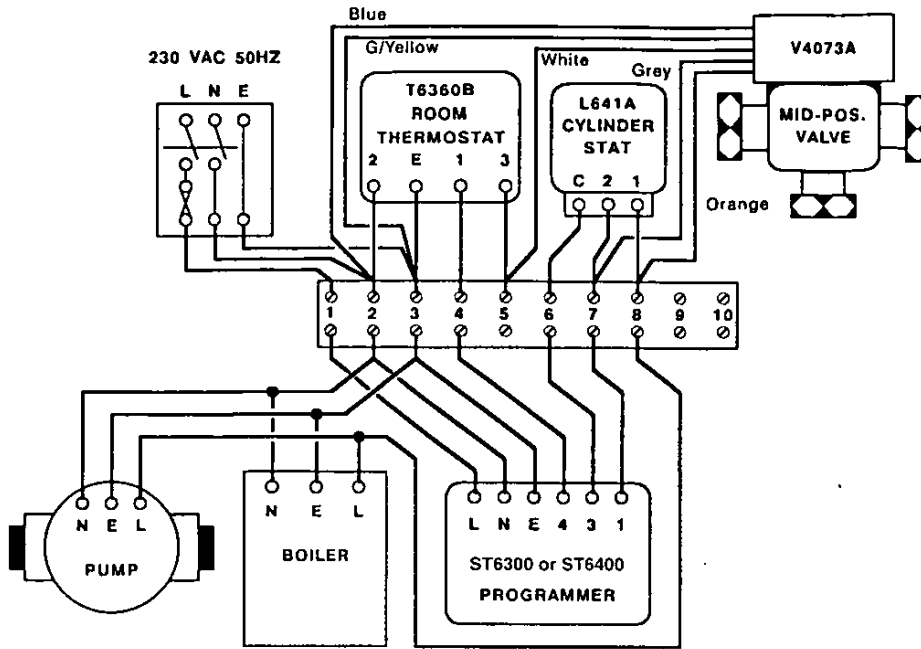
Note: This unit is not suitable for mounting on unearthed metal surfaces.

Wiring the Backplate

With the programmer removed from the backplate, wire up the backplate as shown in the layout and connection diagrams on the next page. Any surface wiring not in trunking must be

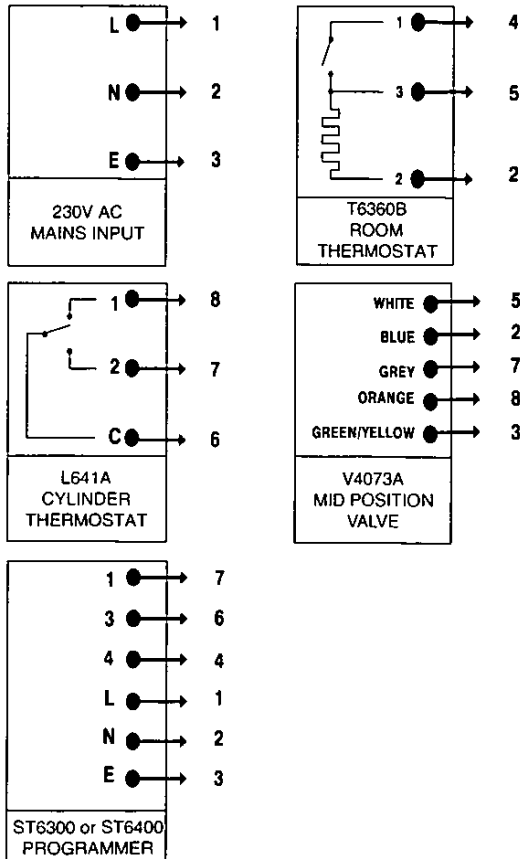
Controls Wiring

The wiring plan shown is based on the use of a 10-way junction box (such as Honeywell Part No. 42002116-001- not included in basic pack). The diagram shown is for basic boilers. Refer to the table below for pump over-run boiler connections.



Note: ST6400C Only
 If weekday-weekend programming is required, set the switch positioned on the rear of the unit to 5/2, before replacing the programmer on the subbase. The RESET button must then be pressed immediately after the power is switched on.

System Component Connections - arrows point to junction box terminal numbers.



	BOILER				PUMP			
	L	E	N		L	N	E	
Basic Boilers								
Baxi 100 HE	PF	SL	E	N	L		N	E
Baxi 45/4 & 57/4 Boilers		SL	E	N		L	N	E
Baxi Barcelona	PF	SL	E	N	L	L	N	E
Baxi Bermuda / Boston 2		SL	E	N			L	N
Baxi Bermuda Inset Range		SL	E	N	L		L	N
Baxi Solo 2 RS	PL	SL	E	N		L		N
Ferrolli Roma 55FF	4	2	E	N	L	L		N
Ferrolli Sigma	PL	SwL	E	N	L	L		N
Glow-worm Energysaver 60 (Remove Link in SL-1)	PL	SL	E	N	L	L		N
Glow-worm Hideaway / Micron		Ls	E	N		L		N
Glow-worm Ultimate 60FF (Remove Link in SL-9)	P	SL	E	N	L			
Glow-worm Ultimate 70FF (Remove Link in SL-9)	7	SL	E	N	L	7	8	E
Grant Euroflame 50/70		1	3	2		L		N
Grant Multi Pass (Oil) 50/70		1	4	2		L		N
Halstead Best	2	1	E	N	L			
Keston Celsius		SL	E	N	PL			
Potterton ranges : Kingfisher, Prima, Profile, Suprima	PL	SwL	E	N	L	L		N
Potterton Osprey 2 CFL	PL	SL	E	N	L	L		N
Potterton Promax range	PF	SL	E	N	L	L		N
Potterton Statesman (Oil)		L	E	N			L	N
Ravenheat CSI Primary	LP	D	E	N	L			
Rayburn 368K range		Bk	E	N	L		L	N
Rayburn Heatranger range	PL	SwL	E	N	L	L		N
Burco Maxol, Potterton Ultra, Vaillant & Vokera	Refer to Manufacturer's instructions							
JUNCTION BOX CONNECTIONS	9	8	3	2	1	9	8	2
								3

Note : on some appliances E may be shown as (earth)

Fitting the Controls - Points to Note

Valve

Valve port A must be connected to the heating circuit and port B to the Hot Water (Cylinder) circuit. Port AB is the inlet from the pump.

The manual valve position allows flow through ports A & B for system fill and drain down purposes only and *will not activate boiler and pump*. Position valve so that feed, vent and bypass are not blocked when any port is closed. Ensure boiler manufacturer's instructions are complied with when fitting valve.

Room Thermostat

Position the room thermostat about 1.5m above the floor out of draughts, direct sunlight and other heat sources. Do not position directly above a radiator. Ensure that terminal 2 is connected to neutral as per the wiring diagram to ensure correct operation of the thermostat.

Cylinder Thermostat

Position quarter to one third of the way up from the bottom of the cylinder.

Commissioning the System (please read in conjunction with User Guide for information on using the programmer)

- 1 Start with mains electricity OFF, cylinder thermostat and room thermostat set to minimum settings, boiler thermostat set to 180°F (80 - 85°C). Select the AUTO position for both heating and hot water using the left hand sliders underneath the flap of the programmer. Start with the system cold if possible.
- 2 **Pump and boiler** should be OFF. If either or both are ON, *check for a wiring error*.
- 3 Switch mains electricity ON. Select the OFF position for both the HEATING and HOT WATER sliders on the programmer. **Pump** should not run, **boiler** should not fire and **zone valve** should not operate. If any of these occur, *check for a wiring error*.
- 4 Move the HOT WATER slider to the CONT position. Turn cylinder thermostat to maximum setting and check that **zone valve** remains closed to heating or returns to close off the heating port. The **pump** will run and the **boiler** will fire. The **flow pipe** to the cylinder will become hot. If the **pump** and/or **boiler** do not operate, *check for a wiring error*. If the **radiators** become hot and the **cylinder** stays cool *check installation of the zone valve port positions*. If correctly installed, *check for a wiring error*. If both the **radiators** and the **cylinder** become hot, *check for a piping error and/or wiring error*.
- 5 Turn the cylinder thermostat to its minimum setting, marked **min**. The **boiler** and **pump** should stop running. If not, *check for a wiring error*. (Note: if installing a boiler fitted with a pump over-run facility, the pump may continue running for some time after the boiler has turned OFF).
- 6 Move the HEATING slider to the CONT position. Set the room thermostat to its minimum setting. The system should remain OFF because the thermostats are both at minimum setting. (Note, however, that when commissioning a system in a cold house in cold weather, the thermostats may still be calling for heat even at minimum setting).
- 7 Turn the room thermostat to its maximum setting. The **zone valve hot water port** should close, the **pump** run and the **boiler** fire. If not, *check for a wiring error*. The **radiators** should get hot and the flow pipe to the cylinder remain cool.
- 8 Balance the individual radiators to give an even heat-up. (If using Honeywell radiator thermostats, refer to the installation instructions for balancing procedure).
- 9 Turn the room thermostat control to the minimum position. The **pump** and **boiler** should stop operating. If they don't, *check for a wiring error*. (Note: if installing a boiler fitted with a pump over-run facility, the pump may continue running for some time after the boiler has turned OFF).
- 10 Set both the cylinder thermostat and the room thermostat to maximum. The **pump** should run and the **boiler** fire. The **zone valve** should move to the mid-position and both the **cylinder** and **radiator flow pipes** should become hot. If not, *check for a wiring error*.
- 11 Move both HOT WATER and HEATING sliders to the OFF position. The **pump** and **boiler** should turn OFF. If not, *check for a wiring error*. (Note: if installing a boiler fitted with a pump over-run facility, the pump may continue to run for some time after the boiler has turned OFF).
- 12 Set the room thermostat to the temperature required by the householder (20°C is recommended). Set the cylinder thermostat to 60°C (140°F) or preferred alternative and the boiler thermostat to 82°C (180°F) or just below maximum setting.
- 13 Set the programmer times to meet the requirements of the householder and instruct the householder in the correct use of the programmer and the room thermostat. See the User Guide for further information.
- 14 **Ensure that the User Guide for the controls is left with the householder.**