

EP2000 Electronic Programmer

FEATURES

- * Accurate micro-electronic quartz time control
- * Digital clock display 12 hour am/pm
- * Two ON/OFF periods per day
- * Battery Standby
- * Programme setting before installation
- * Double Insulated
- * Separate mounting panel incorporating programmer terminals
- * Spare terminals provided which eliminate need for additional junction box in most applications
- * Programmer plugs onto mounting panel
- * Simple programme and time setting
- * Override and automatic reset
- * Programme ON indication
- * Minimum setting between switching times 10 minutes
- * Two changeover contacts

DATA AND INSTALLATION INSTRUCTIONS

APPLICATION

The Programmer is a wall mounted time control for programming combined central heating and domestic hot water systems. In its basic form it provides a choice of ten programmes suitable for controlling simple systems such as gravity hot water and pumped central heating systems. It can easily be adapted to give a choice of sixteen programmes to suit more sophisticated installations (e.g. fully pumped systems with domestic hot water temperature control).

DATA

Supply Voltage	220-240V AC 50 Hz
Switch rating	6 amp at 240V AC Resistive. 2.5 amp at 240V AC Inductive @ 0.6 Power Factor
Ambient Temperature	0 – 45°C
Overall Dimensions	Height 100 mm Width 157 mm Depth* 46 mm
	*Inclusive of switches and backplate

1. INSTALLATION

The carton contains:—

Programmer
Mounting Panel
Installation and Users
Operating Instructions
Battery
Fixing Screws

WARNING:

Disconnect power supply before wiring the programmer to prevent electrical shock and equipment damage.

The Programmer may be fitted to:

- (a) any flat surface
- (b) a single gang or double gang Flush mounted socket outlet box to BS 1363 : 1976 Part 2.
- (c) a double gang Surface mounted socket outlet box to BS 1363 : 1976 Part 2.

WARNING:

IT MUST NOT BE FITTED TO A SINGLE GANG SURFACE MOUNTED SOCKET OUTLET BOX AS THIS ALLOWS ACCESS TO LIVE PARTS THROUGH THE HOLES IN THE BACK PLATE.

Sufficient clearances should be allowed to enable fitment and removal of the Programmer and to allow access for testing.

2. To remove the Programmer from the mounting panel insert a small screwdriver into the hole on the underside of the case. Press the retaining clip whilst hinging the unit upwards. See Figures 1 and 2.

FIG. 1 – REAR VIEW OF PROGRAMMER

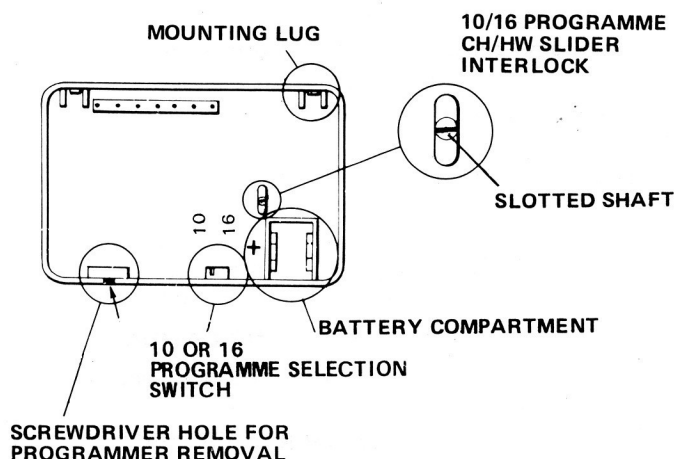
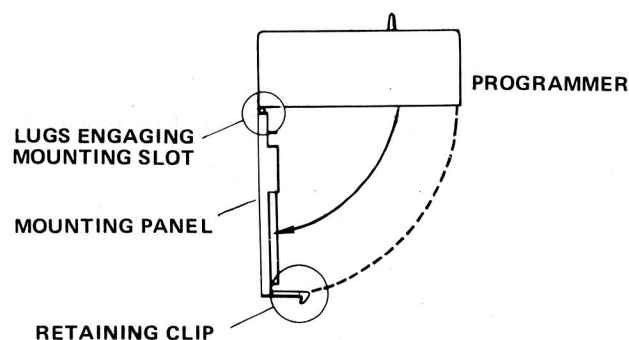
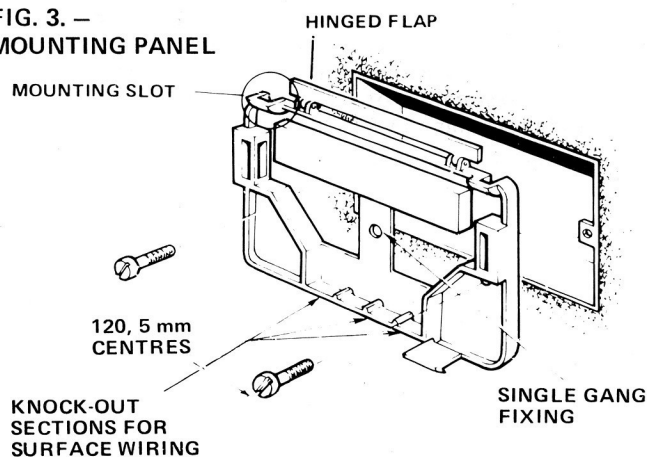


FIG. 2 – SIDE VIEW OF PROGRAMMER AND MOUNTING PANEL



Fit the Mounting Panel as shown in Fig. 3

FIG. 3. – MOUNTING PANEL



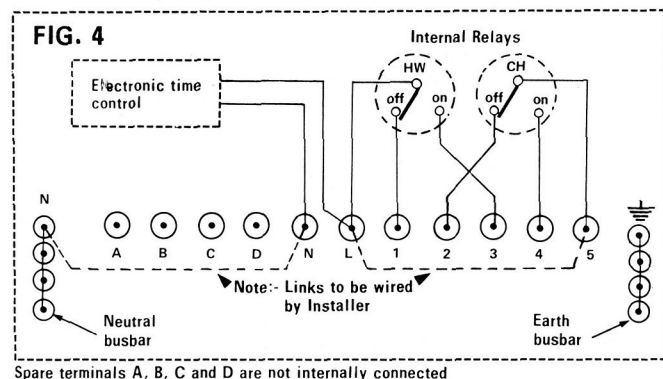
Mounting Panel may be screwed directly onto any flat surface. Recommended Clearance 9" above and 6" below unit to allow access for testing and Programmer removal.

2. WIRING

All electrical wiring to and from the Programmer must conform to the latest I.E.E. Regulations for Electrical Equipment of Buildings.

A class A (All pole 3 mm gap) circuit disconnection must be incorporated in the electrical supply. The Programmer is designed for fixed wiring only.

Figure 4 shows the internal connection of the switch contacts and the links which are to be fitted by the installer.



Figures 5, 6 and 7 show typical wiring connection arrangements. Spare terminals are provided to make connections from various parts of the circuit. (Ensure correct polarity of L and N connections).

NOTE:

This programmer can be applied to control most mid position valves. Details of how to wire a particular valve should be obtained from the valve manufacturer.

3. CONNECTING THE BATTERY

The battery is located in the rear of the Programmer. To make connection remove the battery and re-insert ensuring correct polarity (See Figure 1).

4. TEN OR SIXTEEN PROGRAMME CHOICE — See Fig. 9

Depending on system type, adjust for 10 or 16 programmes (See Figures 5, 6 and 7).

The Programmer is supplied set to give 10 programmes. To convert to 16 programmes set HW slider to 24 hr and set CH slider to OFF; as shown on the rear of the Programmer, turn the slotted shaft anti-clockwise through 90°, and set the Programme Selection switch from '10' to '16' (See Figure 1).

5. SETTING THE PROGRAMMER

When the battery is fitted, the Programmer may be set whilst it is removed from the mounting panel. Refer to the Users Setting and Operating Instructions (overleaf).

6. PROGRAMMER MOUNTING

Mount the Programmer by engaging the lugs on the rear into the slots at the top of the mounting panel, hinge the unit downwards and ensure positive location into the lower retaining clip (See Figure 2).

7. PROGRAMMER REMOVAL

WARNING: DISCONNECT FROM THE MAINS IMMEDIATELY

To remove the Programmer from the mounting panel insert a small screwdriver into the hole on the underside of the case. Press the retaining clip whilst hinging the unit upwards. See Figures 1 and 2.

8. BATTERY REPLACEMENT

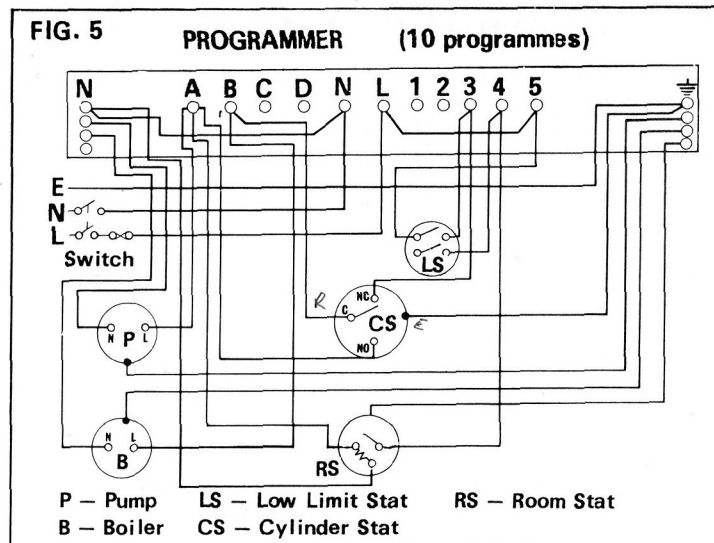
Remove the Programmer from the mounting panel as described in 7 above.

Replace the battery ensuring correct polarity and refit the Programmer to the mounting panel.

Switch on the power supply and reset the clock and programme times.

9. TYPICAL CONTROL WIRING

a) Combined Gravity Hot Water with Pumped Central Heating System

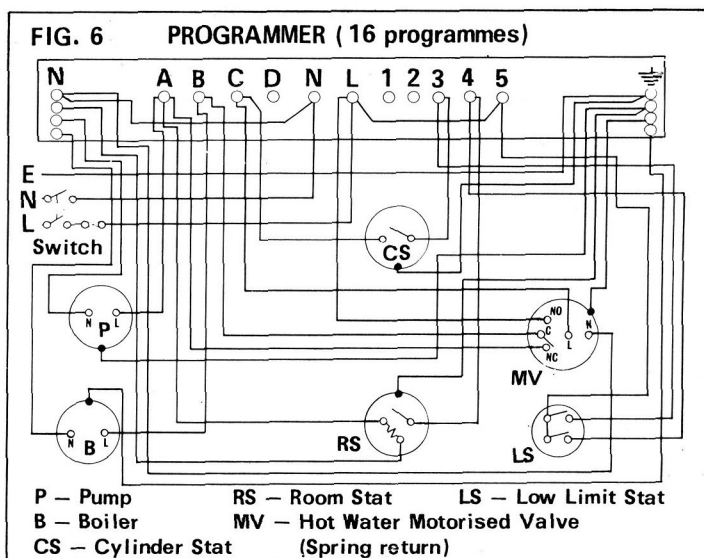


A typical wiring arrangement is shown in Figure 5. For this application the Programmer should be set for 10 programmes. The boiler will operate under the control of its own thermostat when the Programmer has hot water or central heating and hot water programmed ON and the cylinder or room thermostat calls for heat.

The circulating pump will operate if the room thermostat is calling for heat and the Programmer has central heating programmed ON.

On Potterton boilers the necessary connections are given in the boiler literature for this type of system.

b) Gravity Hot Water System with Temperature Control By Zone Valve and Pumped Central Heating



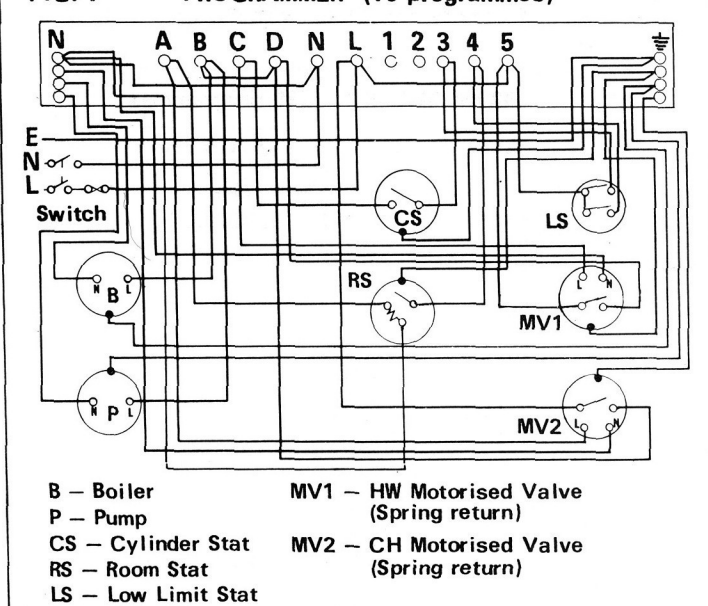
In a system where the central heating is controlled by a room thermostat and it is required that the temperature of the domestic hot water is also individually controlled, this can be achieved by installing a zone valve and cylinder thermostat. These items must be installed in an approved manner.

The boiler will operate under the control of its own thermostat only when the cylinder thermostat calls for heat and the Programmer has hot water programmed ON. The circulating pump and boiler will operate if the room thermostat is calling for heat and the Programmer has central heating programmed ON.

A typical wiring arrangement is shown in Figure 6. For this application the Programmer should be set for 16 programmes.

c) Combined Fully Pumped Systems with Temperature Control of Hot Water and Central Heating

FIG. 7 PROGRAMMER (16 programmes)



Where the temperature of both the central heating and hot water are to be individually controlled, this can be achieved by installing two zone valves in an approved manner, together with a cylinder and room thermostat.

The boiler and pump will operate when the cylinder thermostat calls for heat and the hot water motorised valve opens, providing that the Programmer has hot water programmed ON.

The hot water zone valve will close when the cylinder thermostat is satisfied. The boiler and pump will operate when the room thermostat calls for heat and the central heating zone valve opens, provided that the Programmer has central heating programmed ON. The central heating zone valve will close when the room thermostat is satisfied.

With this arrangement, when both the cylinder and room thermostats are satisfied, the boiler and pump will be OFF. The zone valves require an auxiliary switch which is energised when the valve is open. A typical schematic arrangement of wiring is shown in Figure 7. For this application the Programmer should be set for 16 programmes.

10. LOW LIMIT THERMOSTAT

A low limit thermostat can be installed to override the OFF setting of the Programmer if the temperature where the thermostat is located falls below the thermostat setting. The wiring of this control is dependent on the type of system and site requirements.

The one shown in Figures 5, 6 & 7 is a double pole type.

11. CIRCUIT TESTING

WARNING: CIRCUIT TESTING MUST ONLY BE UNDERTAKEN BY FULLY TRAINED & QUALIFIED PERSONNEL.

There is a hinged flap on the top of the mounting panel (See Figure 3) to allow temporary access to the terminals for circuit testing.

When circuit tests are complete, remove the Programmer (See Section 7), lower the flap ensuring that it is positively clipped down, remount the programmer.

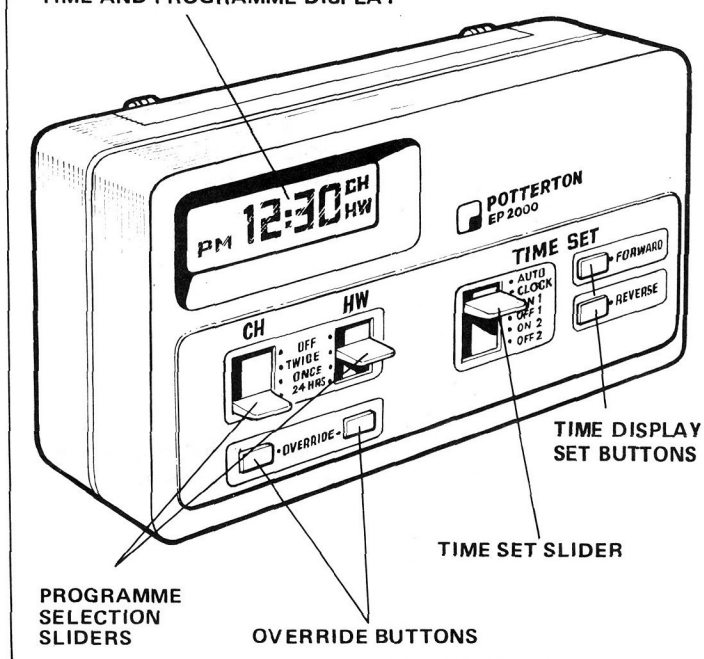
USERS SETTING AND OPERATING INSTRUCTIONS

The Installer may have already set your Programmer to ensure that the heating and hot water are available at times to match your requirements.

If you wish to change the times of operation or set the clock, carry out the following instructions, noting that the CH and HW system will require a period to reach a comfortable temperature. For example you may have to set the first ON period at 6.30 a.m. to provide comfortable temperatures when you awake at 7.30 a.m.

FIG. 8

TIME AND PROGRAMME DISPLAY



SETTING PROGRAMMER

Clock

Set 'TIME SET' slider to 'Clock'. Press 'Forward' or 'Reverse' buttons until the display shows the correct time of day (A.M. Morning or P.M. Afternoon).

Prolonged pressing of the buttons will cause the time to change rapidly. NOTE: Midnight is shown as 12.00 a.m. Noon is shown as 12.00 p.m.

ON and OFF Times

ON 1 Set 'TIME SET' slider to 'ON 1'. Press 'Forward' or 'Reverse' buttons until the display shows the time required for the central heating (CH) and/or the hot water (HW) to start at the beginning of the day (e.g. 7 a.m.).

OFF 1 Set 'TIME SET' slider to 'OFF 1'. Press 'Forward' or 'Reverse' buttons until the display shows time at which the first period of CH and/or HW should end (e.g. 9.00 a.m.).

ON 2 Set 'TIME SET' slider to 'ON 2'. Press 'Forward' or 'Reverse' buttons until the display shows time at which the second period of CH and/or HW should start (e.g. 4.00 p.m.).

OFF 2 Set 'TIME SET' slider to 'OFF 2'. Press 'Forward' or 'Reverse' buttons until the display shows the time at which the second period of CH and/or HW should end (e.g. 10 p.m.).

To re-check these time settings move the 'Time Set' slider to each position.

Finally, set and leave the 'Time Set' slider at 'Auto'. The correct time of day will be displayed.

NOTE:

a) The latest OFF time which can be set is 11.50 p.m.

b) If difficulty is experienced in changing times:—

Set 'Time Set' slider to 'OFF 2' press both 'Override' buttons at the same time. This resets all programme times to those shown below:—

ON 1 6.30 a.m.

OFF 1 9.30 a.m.

ON 2 4.30 p.m.

OFF 2 10.30 p.m.

If different times are required repeat instructions under Setting Programmer, taking care that the correct A.M. or P.M. is displayed for each 'Time Set' slider position.

CENTRAL HEATING/HOT WATER INDICATION

The display will indicate when the CH and/or HW are programmed ON.

OPERATING THE PROGRAMMER

Set the CH and HW sliders to any of the following positions to give the desired programme:—

OFF Permanently OFF

TWICE Gives two operating periods between times set for 'ON 1' and 'OFF 1' and 'ON 2' and 'OFF 2' (e.g. 7.00 a.m. to 9.00 a.m. and 4.00 p.m. to 10.00 p.m.).

ONCE Gives an operating period between times set for 'ON 1' and 'OFF 2' (e.g. 7.00 a.m. to 10.00 p.m.).

24 HRS Gives continuous operation.

To suit your heating system your Installer will have set the Programmer to either a ten programme or a sixteen programme version (See Section 4). On a ten programmed version the two sliders are designed to move together when certain programmes are selected. Do not force the sliders to move separately.

OVERRIDE BUTTONS

Two override buttons are provided beneath the CH and HW sliders. When the time set slide switch is in Auto position the override buttons will change an ON period to OFF or an OFF period to ON, when the sliders are set at 'ONCE' or 'TWICE'.

The display will show the change.

The override is automatically cancelled when the next ON or OFF time is reached.

If your Installer has set the Programmer to a 10 programme version, the CH override will only work when HW is displayed.

ELECTRICAL SUPPLY FAILURE OR PROLONGED ISOLATION

In the event of electrical supply failure the battery will normally maintain programme settings for a period of 24 hours. The battery will re-charge automatically when power is restored. If the electrical supply is disconnected for longer periods it may be necessary on restoration of the electrical supply to reset the time of day and programme switching times.

It is recommended that the battery is replaced every five years and spares are obtainable from Potterton International Limited.

FIG. 9

PROGRAMMES AVAILABLE

	ON 1	OFF 1	ON 2	OFF 2	CH & HW SLIDE SWITCH SETTINGS
1. (HW OFF (CH OFF)					HW OFF CH OFF
2. (HW ON Twice Daily ... (CH OFF)					HW TWICE CH OFF
3. (HW ON Twice Daily ... (CH ON Twice Daily ...)					HW TWICE CH TWICE
4. (HW ON once Daily ... (CH OFF)					HW ONCE CH OFF
5. (HW ON once Daily ... (CH ON Twice Daily ...)					HW ONCE CH TWICE
6. (HW ON once Daily ... (CH ON once Daily ...)					CH ONCE
7. (HW ON continuous ... (CH OFF)					HW 24 h CH OFF
8. (HW ON continuous ... (CH ON Twice Daily ...)					HW 24 h CH TWICE
9. (HW ON continuous ... (CH ON Once Daily ...)					HW 24 h CH ONCE
10. (HW ON continuous ... (CH ON continuous ...)					HW 24 h CH 24 h
11. (HW OFF (CH ON Twice Daily ...)					HW OFF CH TWICE
12. (HW OFF (CH ON Once Daily ...)					HW OFF CH ONCE
13. (HW OFF (CH ON continuous ...)					HW OFF CH 24 h
14. (HW ON Twice Daily ... (CH ON Once Daily ...)					HW TWICE CH ONCE
15. (HW ON Twice Daily ... (CH ON Continuous ...)					HW TWICE CH 24 h
16. (HW ON Once Daily ... (CH ON Continuous ...)					HW ONCE CH 24 h

HW = Hot Water CH = Central Heating

The thick black lines indicate the ON periods

NOTE: 12 a.m. display is midnight
12 p.m. display is noon

Northern/Scottish Regional Service Office:
8 The Gills, Otley, Leeds. LS21 2AH 0943 - 465666
South Western/Midland Regional Sales Office:
Brooks House, Coventry Road, Warwick CV34 4LL 0926 - 496896/7
Southern Regional Service Office:
10 Hardwicks Way, London SW18 4AJ 01 - 870 4131
Parts Department:
Brooks House, Coventry Road, Warwick CV34 4LL 0926 493471

"All descriptions and illustrations contained in this leaflet have been carefully prepared but we reserve the right to make changes and improvements in our products which may affect the accuracy of the information contained in this leaflet".

POTTERTON A member of the **BIRMINGHAM QUALCAST** Group of companies
INTERNATIONAL LTD.

Registered in England No.439502. Registered Office: Portobello Works, Emscote Rd., Warwick CV34 5QU. Sales Office: Brooks House, Coventry Rd, Warwick CV34 4LL. Tel: 0926 493471. Publication No. 558957/0783