

# Fact Sheet 6

## EMR Control Set

The Wirsbo Control Set is designed to provide water temperature control where it is not possible to provide the design water temperature directly from the boiler. It is ideal to serve larger areas where other water control units, e.g. Push 15, are too small. Various sizes of 3-port mixing valves to are available to serve areas from 120m<sup>2</sup>.

The Wirsbo Control Set comprises of the following components delivered together in one box:-

- EMR water temperature controller with cover
- 3-port valve
- 0-10V valve actuator
- strap-on sensor

The 3-port valve is installed at the manifold into the flow pipe with a connection from the return pipe. The 3-port valve is controlled by the EMR water temperature controller which measures the mixed water temperature fitted prior to the flow manifold. The 3-port valve is supplied with a 24V actuator with a 0-10v control signal.

A circulating pump must be included within the control set assembly. Wirsbo do not normally supply the pump but will provide data on the required head drop in order that the client can choose the correct pump. The circulating pump is for the underfloor heating only and must be used in addition to the primary boiler pump.

### Room Temperature Control

Wirsbo individual room control is ideal for optimum comfort conditions. The EMR is compatible with all Wirsbo room control systems including Wirsbo Cosy, Wirsbo CoSy Radio, and Wirsbo Genius. Alternatively the EMR Control Set can be equipped with a single room sensor (tamperproof or adjustable) to control the air temperature in a single large area.

### EMR Controller

When a demand signal is present from the room temperature controls, the EMR controller will monitor the water temperature entering the system and modulate the 3-port valve to prevent the water temperature exceeding the set-point. The EMR will also signal to the boiler and UFH pump relays if the control valve is open. When the room temperature is satisfied, the control valve will close and the boiler and pump relays will switch off. The EMR requires a 240V supply.

### Boiler Relay

The EMR controller has a dedicated boiler relay to enable the boiler to run if there is a demand for heat. There is a 30 second delay to prevent short-cycling of the boiler. The relay is a 5-amp switch and is volt free.

### Pump Relay

The EMR controller has a dedicated UFH pump relay to enable the secondary (ufh) pump to be started when there is a demand for heat. When the signal is switched off, there is



a delay of 2 minutes to allow the pump to continue running and any residual heat to be circulated. The relay is a 5-amp switch and is volt free.

### Single Zone (WH2)

Where the underfloor heating system is installed in one large area, a single room sensor can be installed. An adjustable (EMRF-99) room sensor is connected to the EMR controller. This sensor is delivered with the control set.

### Individual Room Control (IRC) (WH8)

Any of the Wirsbo individual room control systems can be connected to the EMR. The volt-free relay output from the Wirsbo units is connected across terminals 35&36. Manual or Programmable room temperature night set-back is available with all of the Wirsbo room control options.

### Water Temperature Limit Sensor

The sensor element is inserted into the black block provided and is strapped to the pipework after the mixing valve and just prior to the manifold. Ensure that the metal element touches the pipe surface. A secondary mechanical water temperature limit can also be installed and connected to the EMR controller.

### Night Set-Back (NSB)

Where a single room sensor is installed, an external time switch or programmer can be connected to the EMR controller to provide automatic room temperature set-back. The EMR will reduce the room temperature according to that set on the NSB dial. Where IRC is installed, the EMR will reduce the flow limit temperature to that on the NSB dial.

### Frost Protection

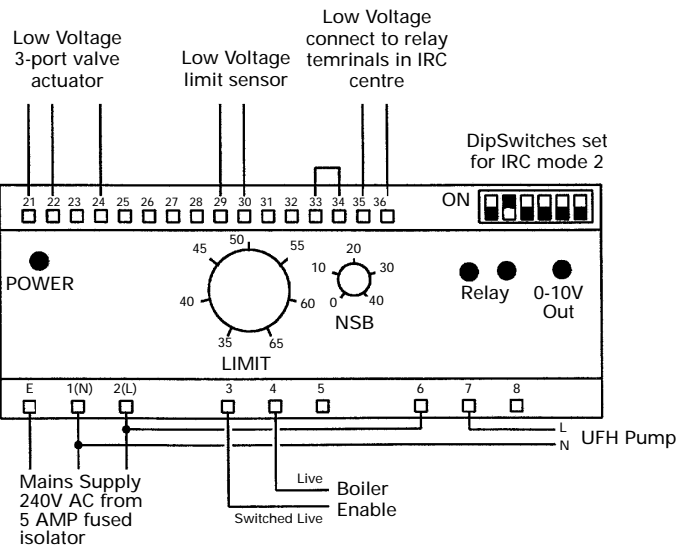
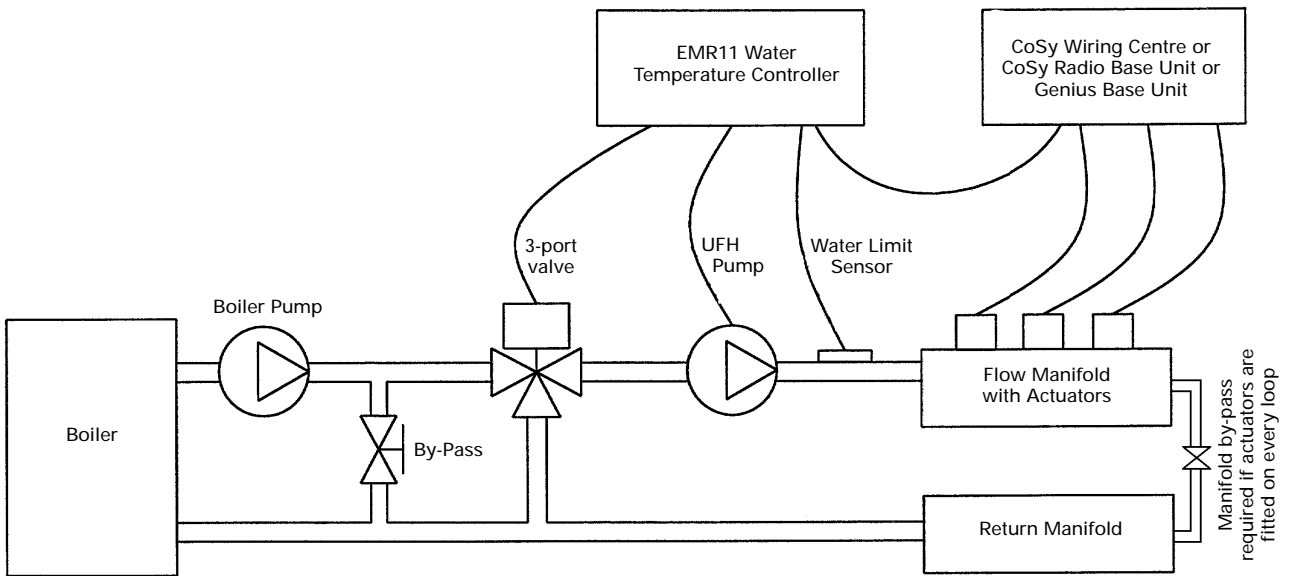
The EMR will provide frost protection if either the room sensor or water flow temperature fall below 10°C. The control valve is opened and boiler and pump relays signal that heat is required.

### Valve Selection Guide

Control Set IRC (WH8) Telecode	Control Set with adj. sensor (WH2) Telecode	Valve Size	Kvs Value	Max Floor Area (100 W/m <sup>2</sup> )
010 222	010 232	1" (25r)	8	120
010 223	010 233	1" (25)	12	180
010 224	010 234	1 1/4" (32)	18	270

Note: Max floor area is given for guidance only. Calculated for 20x2mm Wirsbo-pePEX pipe laid at c/c 300mm with dT=5°C.

### Pipework and Wiring Schematic - Control Set with IRC



All wiring must comply with the current IEE requirements.