HRP22 Optimiser/Compensators

The HRP22 is specifically designed for the regulation, control, optimisation, and monitoring of heating systems. In addition to its default programs it can be configured to control a wide range of applications. It has unique user configurable logic that can involve local and network parameters to develop a required strategy. The controller can be configured as required to interface with other HRP/LRP devices to replace and simplify most complex BMS Applications.

Each HRP22 can control up to two zones of heating with either 0-10v or 3-point valve actuation in addition to boiler/calorifier plant and DHWS control. Each has 6 Digital outputs and 3 Digital Inputs, 6 Temperature Inputs, and 2 0-10v Signals that can be used to accommodate many varied applications. Parameters can be shared between controllers and each controller can provide full user access to any other controller on the network .

The HRP22M also has an additional M-Bus that enables the connection of 4 Utility Meters to the HRP where readings and recordings can be made and displayed. Again the meter data can be interfaced with the control strategy or reported to a point of contact be it a BMS, SMS Message, or Local Alarm.

This controller is ideal for applications where heating systems involve boiler regulation or the control of non-storage heat exchangers as a primary source in addition to the main heating circuit. Additionally applications where the loop may require remote operation, Domestic Hot Water control, and an extremely easy to use interface for the end user. The network flexibility provides sensor sharing and common schedules/plant requests with LRP ventilation plant controllers.

The controller also incorporates Standard Programs for Pump Auto changeover options, Legionella protection for the DHWS Storage Calorifier, Automated Summer/Winter Time Changeover, Leap Year, Full Configuration Back Up and restore options, and 25 Pre-defined application Macros that will control without intervention.

In setting the plant macros, the HRP is completely configured, the accompanying HRP software menus are set, the parameters are configured, and the input and output signals are assigned. The user is guided through the settings via a plaintext menu system. Reading and writing of the data takes place in 3 priority levels accessed through individual codes.

Eight HRP/LRP controllers can be administrated on each of the employed HRP/LRP Bus Systems, each LAN can operate over a distance of 1000 m. Communication to all bus participants can take place between each controller with the BMS. Additionally remote control of one HRP/LRP is possible from any other HRP/LRP connected on the same LAN. Important plant values and information can also be shared to facilitate plant integration directly between controllers without the need of a front end.

For wide area networks, the separated plants can utilise data transmission to the BMS via modem over the public telephone network. This can take place with direct connection of the modem to the HRP controller.

The HRP22M also has an M-bus connection (DIN EN 1434 3) available for the connection of counters with an M-Bus interface. A maximum of four counters can be connected.

Model Types

Model	Description
HRP22	HRP22 Optimiser/compensator with choice output types for valve actuators, two compensated loopsy
HRP22M	HRP22M Optimiser/compensator with choice output types for valve actuators, two compensated loops and Meter Bus Connectivity

Features

- Designed for the regulation, control, optimisation and monitoring of heating plants with boiler regulation or district heating plants.
- Bus and modem can be connected.
- Control over 2 Heating loops and District Heating Plate heat exchanger is possible in addition to DHWS.
- One-knob operation and a graphic, illuminated display for the input and query of all DDC data
- Simple extension of the basic functions by means of the HRP software menus such as Optimisation, Room Correction, Set Point Limitation, Stand by, Boiler Regulation, Domestic Hot Water tank control, Circulation Pump, Operating Hours Counter, Heat Counter, Pump Blocking Protection, Legionella Protection.
- 25 Pre-programmed applications
- Remote control features and easy to set up remote overrides

In setting the plant macros, the HRP is completely configured, the accompanying HRP software menus are set, the parameters are configured, and the input and output signals are assigned. The user is easily guided through the operating system with a plaintext menu.

- Input and query of the data in 3 priority levels can be accessed with code keys.
- Three independent Time Schedules and additional single shot annual program.
- Holiday Scheduler
- Trend value acquisition and display of important plant values.
- Upto 8 HRPs can be administered by means of the HRP LRP Bus. System Communication of all bus participants among each other with queries or modifying all parameters that are an integrated part of the HRP. HRP diagnostics graphically display active members and permit sensor sharing.

A direct connection to the BMS with the RS232 interface is available. For widely separated plants Data transmission for BMS via a modem over the public telephone network is also available.

Technical Data

Inputs and outputs	3 digital inputs BE (HRP22M) 5 digital inputs (HRP22)	Zero-voltage contact Two of these are impulse inputs 20Hz
	6 digital outputs BA	Relay contacts max. 6 (3)A; 230Vac
	6 analogue inputs AE	KP10, active measuring element
	1 analogue input AE	0...10V continuous (remote setpoint setting)
	2 analogue outputs AA for servo device	0...10V; 5mA at 10V
	Analogue/digital conversion	10 Bit
Interfaces	Serial RS 232, switching possibilities to RS485	Building Management System BMS, Modem, J-Bus
Bus connection	CAN Bus	Maximum 8 HRP/LRP to one bus system
Power Supply	230Vac ±10%; 50...60Hz, 12VA; 52mA	
Nominal voltage	HRP22M: 18VA; current requirements 78mA at 230Vac	
Displays	Graphics display with backlighting LED for error messages and manual operation	
Diagnosis jack	Diagnosis/data backup	
Operation	One rotating knob, selection button [SET], back step button [ESC]	
Fuse	Fuse S1 6, (T) for external switching Fuse S2 630mA (T) for electronics Accessible from the rear	
Processor	80C592	
Memory	64kByte RAM; 512kByte Flash PROM	
Operating system	Multi-tasking	
Mains failure data backup	Lithium battery, unlimited	
Mode of enclosure protection	IP 20	
Environmental temperature	0...45°C	
Environmental humidity	In service: 20-80%rh, non-condensing Out of service 5-90%rh, non-condensing	
Housing	Plastic housing fire-resistant	
Measurements	198.5mm width x 110mm height x 77.5mm depth (with wall console W/HRP 15mm deeper)	
Front panel cutout	200.4mm x 112mm	
Weight	1.2kg	
Agency Approvals	CE	

Inputs & Outputs

	Details
Temperature inputs	6 x analogue inputs for active measuring element type KP10
Analogue inputs	1 x analogue input 0...10V
Digital inputs	3 x binary inputs (HRP22M) 5 x binary inputs (HRP22)
Actuator Outputs	2 x 0-10Vdc output for valve actuator
Digital Outputs	4 x 230V or zero-voltage, 3A for pumps, boilers or plate exchanger
Power Supply	Mains 230Vac ±10% 50...60Hz

The HRP22M also has an M-bus connection (DIN EN 1434 3) available for the connection of counters with an M-Bus interface. A maximum of four counters can be connected.

Temperature Ranges

Please note the sensor ranges of the HRP when dealing with the **trend curves and the outside temperature assignment**.

The sensors are polarity sensitive.

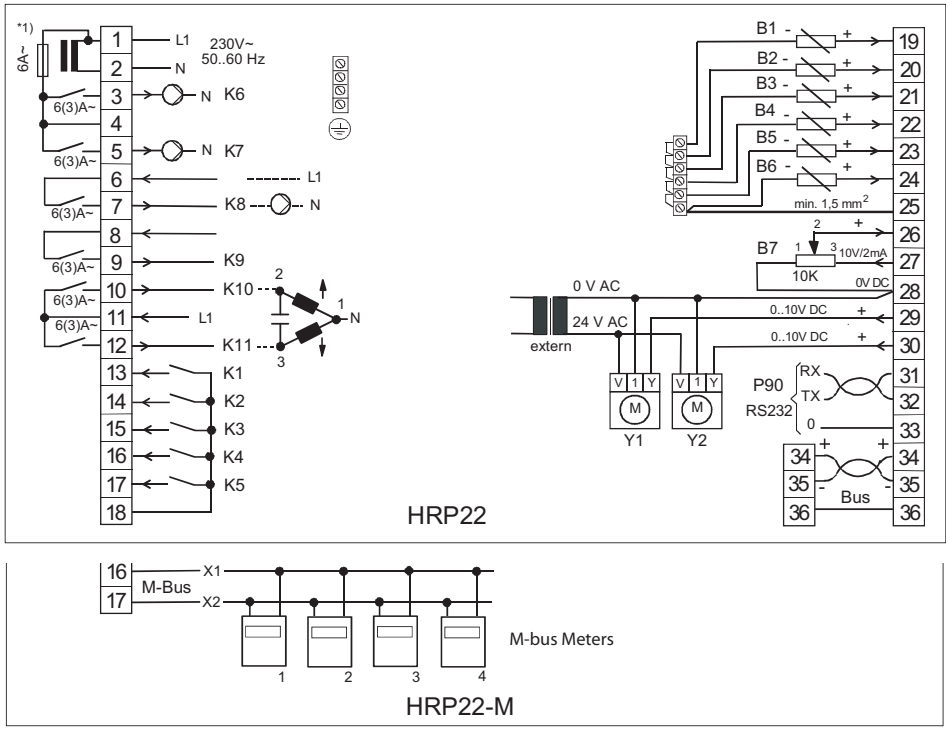
Screened cable should be used.

For temperatures outside these limits, the value is represented as " " (invalid)!

Input Address	Name	Lower Limit	Upper Limit	Input Type	Units
b1	Outside Air Temperature	-50.0	70.0	KP10	°C
b2	Space Air Temperature	0.0	120.0	KP10	°C
b3	Compensated Flow Temp	0.0	120.0	KP10	°C
b4	Sensor 4	0.0	120.0	KP10	°C
b5	Sensor 5	0.0	120.0	KP10	°C
b6	Sensor 6	0.0	120.0	KP10	°C
b7	Sensor 7	0.0	100.0	0-10V	% [a]

a. b7 is scalable between -1000.0 and +1000.0

Wiring Diagram



*1) By removing the fuse S1 (6A(T)), the outputs K6 and K7 become zero-voltage.