

## Dual Timer Modbus override module for BMS systems

### General:

EM200B is a universal override timer unit communicating with its host system using the Modbus-RTU RS485 protocol.

### Type 1 - dual independent timers.

Two timers in the same compact package. Each timer operates independently with its own timing range selection and BMS control points.

### Power supply:

Nominal 24VAC or +24VDC, the EM200B will operate between 12 and 32VDC and 10 to 24VAC. Peak power consumption is typically 250mW.

### Bus interface:

Modbus-RTU using RS485. Quarter power loading, slew rate limited and rated to withstand peak voltages of +/-60VDC. Operates at 2400, 4800, 9600, or 19200 baud with no or even parity.

Wire bus in twisted pair cable of around 120 ohms impedance in daisy-chain configuration properly terminated at the extreme ends with an R-C series network of 120 ohms + 1nF. Provide bus common connection between the devices on the bus to minimise common mode differences. Avoid significant power supply or earth currents circulating through this common connection.

### Default setting:

Holding down both push buttons for at least six seconds when power is applied forces the bus configuration to its default settings: 9600 baud, even parity at bus address 17.

### Dimensions:

87mm x 87mm x 30mm deep over switches. Depth below panel <= 20mm.  
Fits standard single gang electrical installation box.

### Terminations:

Plug in screw terminal block:

bus B; RS485 bus B

bus A: RS485 bus A

common: bus and power supply common

Power in: supply 10-24VAC, + 12-35VDC

SCRN: For cable screen; internally connected to switch hardware.

### Register map:

The table overleaf shows the Modbus registers applicable to EM200B Type 1 operation.



Offset	Register Function	Details	
0	Ch/Timer flag bits	B0: Ch1 selected B1: Ch1 occy OR timer out B2: Ch1 timer out B3: Ch1 occy/hold in B4: Ch2 selected B5: Ch2 occy OR timer out B6: Ch 2 timer out B7: Ch2 occy/hold in B8: T1 clear 1 B9: T2 clear 1	R/W
2	Faceplate temperature	MFanlg	R only
3	Timer 1 minutes	Integer	R/W
4	Timer 2 minutes	Integer	R/W
5	Timer 1 count	Integer ( 0..768 )	R/W
6	Timer 2 count	Integer ( 0..768 )	R/W
8	Comms mode	0 = 2400/N/2 1 = 4800/N/2 2 = 9600/N/2 3 = 19200/N/2 4 = 2400/E/1 5 = 4800/E/1 6 = 9600/E/1 (default) 7 = 19200/E/1 8 = 38400/N/2	R/W
9	Bus Address	Integer 1..255 (default = 17)	R/W
10	T1 timing range		
11	T2 timing range	0 = 30mins 1 = 1hr 2 = 2hrs 3 = 3hrs (default) 4 = 6hrs	R/W
12	Sensor offset	MFanlg (Int x1) (default = 0.0)	R/W
15	Display brightness	0 = min, 1 = low, 2 = med, 3 = max (default)	R/W
16	Model code	Integer = 200	Read only
17	Firmware version code	Integer (currently = 201)	Read only
18	Operating mode (Type)	Integer = 1	Read only
19	Mfg code	Integer	Read only
32	Faceplate temperature	Int x10	Read only
34	Sensor offset	Int x10	R/W
64	Faceplate temperature	32bit FP	Read only
68	Sensor offset	32bit FP	R/W