EMO MASTER SWITCHER UNIT CM6
INSTRUCTIONS FOR USE

WARNING : TO AVOID ELECTRICAL SHOCK READ THESE INSTRUCTIONS CAREFULLY.

These instructions apply to UK versions only.

Models

- EMO MASTER SWITCHER UNIT CM6 (42-661)

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1 Introduction

1.1 Safety

Mains power wiring is dangerous. A suitably qualified person should install the system. Reference should be made to BS & any other local wiring requiremnts

Before working on this system or altering any of the options, isolate the units from the electricity supply. When the supply is hard wired turn off the local isolator and preferably remove the fuses. Ensure that all staff know that you will be working on the system. If power is supplied from a pluggable source, remove the plug.

This unit should be fitted in a suitable enclosure (19" rack) to restrict access to the wiring terminals.

1.2 Description

The system allows mains powered electrical equipment to be turned on and off in a particular sequence. Instructions to initiate the sequence are input via a coded keypad. The CR6 Remote Panel allows control from a location remote to the CM6 Master Unit. The CM6 Master Unit contains all the control electronics together with the first two sequential power outputs. A further 8 low voltage outputs are available to control CS6 Slave Units.

A front panel facility socket outlet is fitted to allow soldering irons, working lights to be used during installation/maintenance.

2. Installation

2.1 Fixing

All units are designed for mounting in a standard 19" rack. The plastic bushes supplied should be used beneath the fixing screws to prevent damage to the front panel. We would suggest that rear (or side) supports be used to prevent cabling distorting or bending the chassis. The unit will generate a small amount of heat so should not be placed in an unventilated position.

2.2 Setting up the system
When a system is first installed it is necessary to program the master unit with information about the number of slaves fitted, and the code also needs setting to the required value.

2.2.1 Code Setting
At manufacture the code is set to '1234'. This code can easily be changed by moving the small jumper plugs on the headers on the printed circuit board (PCB) in the master unit. To set the code proceed as follows:-

a) Disconnect mains power and remove the master unit lid.
b) Decide on the code, which can be any combination of four digits between 1 & 6, e.g. 5213, 3226 etc.
c) Set up your chosen code on the headers marked with numbers 1, 2, 3 & 4. For example if chosen code is 3642,
   Header 1 - select 3
   Header 2 - select 6
   Header 3 - select 4
   Header 4 - select 2
d) Now select on the 6-way header marked IN CODE, the digits that make up the code & on the 6way header marked NOT IN CODE select the unused code digits.
e) Replace lid, reconnect power and check that the correct code is accepted and a false code is not accepted. Allow at least 15 secs between tries. If 'correct' code is not accepted go back to a) above and try again.

2.2.2 Slave selection
At manufacture the master units are set up for operation on their own, i.e. no slave units are connected. If slave units are to be used with the system then the following programming must be done.

a) Remove mains power and remove the master unit lid.
b) Set the number of slave units to be connected on the two headers marked SET NUMBER OF SLAVES. Note that if no slaves are to be used then the headers are set to 1 (as supplied).

2.2.3 Keypad de-select
When a CR6 Remote Panel is fitted to a system it is sometimes necessary to prevent the keypad on the master unit being able to operate the system. This can be achieved by cutting a wire link on the keypad PCB in the master unit. This link is situated on the LED end of the front panel PCB and is accessible without removing the board from the unit. This link only prevents the keypad from operating, it does not disable the LED's so that the system status can be checked.

2.2.4 'Instant' on/off
During normal operation it is not possible to interrupt the 'UP' or 'DOWN' cycle of the system. However in some circumstances it is desirable to override this circuit to allow instant 'UP/DOWN'. This is achieved by moving the jumper plugs on header HD7 to the pins away from the mains transformer.

2.3 Wiring
All connections to the system are 'hard' wired. If a plugable system is required the E.M.O. 19" Power Distribution System panels will provide a solution.

2.3.1 Power
All power (mains) wiring to the system is via the rail mounting terminal blocks on the rear panel. Supply requirements are single phase 240VAC, under no circumstances should 415V be connected to the system. The power input terminals will accept cables with conductors up to 10mm2, which should be provided from a suitable local fused isolator with a rating suitable for the cable size used up to a maximum of 60amps. The unit must be earthed.

If power is being provided via 'pyro' or similar, access to the inside terminations is available through a 20mm hole in the rear panel. The 'live' connection can be made directly into the main rail terminal by removing the rear panel to internal rail cable link. The 'neutral' connection is made to the busbar with the fitted cable connector. The 'earth' termination should be to the chassis earth terminal (M4 ring terminal).

Power outputs from the system are available on three way 'in-line' terminals, 5 ways per output are provided to prevent the need for terminal sharing. Each output terminal will accept up to 4mm2 conductors. If regular disconnection is envisaged then the use of crimp pins is recommended to prevent conductor damage. When using flexible cables ensure all cable strands are located in the terminal.

2.3.2 Slaves
Slave units that are connected are controlled from the 10way barrier strip marked SLAVES. Each slave unit requires a pair of wires from this strip and should preferably be run in 'star' fashion. Terminals 1 to 8 are control outputs and terminals 9 & 10 are commons. Connecting cables can be any suitable low voltage wiring, e.g. burglar alarm wire or phone cable. The use of space crimps is recommended. Low voltage cables should be segregated from power (mains) cables.

2.3.3 Remote
The CR6 Remote Panel allows the system to be controlled from a remote location. To give complete control and maximum security a 9 wire cable is required to connect the remote panel to the master unit. Wiring between the barrier strips is 1 to 1, 2 to 2 etc. Most low voltage types are suitable as in 2.3.2.
As in 2.3.2. low voltage cables should be segregated from power cables.

It is possible to use the system with a reduced number of wires in the control cable but this does allow the 'cracking' of the code to be a lot easier and reduces the flexibility when code changing. The wire coinciding with a key which does not appear in the set code need not be run, e.g. if the set code is 3642 then the wires corresponding to keys 1 & 5 need not be used. The barrier strip numbering corresponds with the keypad number, i.e. barrier strip terminal 1 controls key 1 etc. Wires between strip numbers 7, 8 & 9 MUST be connected.

3. Operation

3.1 System
On first connecting power to the system, the system will be 'OFF'. Upon entry of the correct combination (code), the code accept LED (marked 'ON') will illuminate. After approx 10 secs Output 1 and output 1 LED will turn on. After approx another 10 secs Output 2 and Output 2 LED will turn on. This sequence will continue until all connected outputs have latched on. During the turn-on sequence no 'OFF' code will be accepted.

Once the 'ON' cycle has been completed, entry of the correct combination (code) will start the turn-off sequence i.e. turn-on in reverse. Similarly to the 'ON' sequence the 'OFF' sequence will not accept an 'ON' code until the system has completed its cycle.

After loss of power the system will reset to 'OFF'.

After entry of the first correct digit of a code the rest of the code must be entered within 5 seconds or the code will be rejected. If an incorrect code is entered about 10 seconds should be allowed before trying again.

3.2 Facility outlet
The front panel facility outlet is not switched and is live whenever power is connected. It should not be used to supply permanently connected equipment. To prevent misuse of this socket, remove the rear panel fuse.

4. Troubleshooting

SYMPTOM	CAUSE	SOLUTION
Front panel neon not illuminated	Main supply failure	Check main supply
Neon on but no LEDS a) Override operates both contactors b) Override operates only one contactor c) Override operates neither contactor	 Electronics failure Main fuse Both main fuses blown	 Check PCB fuse Check fuses Replace fuses & check cause before reconnecting
OFF or ON LED lit but does not change on entry of code	Wrong code or link cut on keypad PCB	Check code & allow 20 secs between tries
Surges blowing fuses	See below	

5. Fusing

5.1 Fuses
The two main outputs are fused at 10amps and 32amps respectively.
Fuses fitted are 'gl' type industrial cartridge fuses, 10.3 x 38 HRC.

Replacement Fuse Part Numbers

	Legrand	Ferraz	RS Components
10Amp	13310	gl 10 10	421-031
32Amp	13332	gl 10 32	209-9349

Certain types of load may blow either the SWITCHER fuses (and /or external supply fuses/breakers) at switch on. This is particularly a characteristic of some audio power amplifiers. As an example there is a particular amplifier that will run perfectly happily on a 10amp circuit but draws in excess of 100amps during the first 50mS after switch on. The solution to this is to reduce the load on each output by adding further slave units until the problem is solved.

Some items of equipment that are fitted with combined circuit breaker and ON/OFF switches do not reliably turn on remotely i.e. when the item is left turned on and the supply is connected. There is no solution to this problem apart from removing the offending circuit breaker, this is not recommended.

5.2 Socket fuse
The front panel socket is fused via the rear panel mounted fuse holder. The fuse is 5amp to BS1362 as fitted to square pin mains plugs. The RS part number is 412-576.

For further information or servicing please contact your local E.M.O. Dealer.