



## Technical Data Sheet

### CANFORD MAINS DISTRIBUTION UNITS

- MDU3** AC MDU 12x IEC out, 3m fixed lead in
- MDU3S** AC MDU 12x IEC out, 3m fixed lead in, switch
- MDU3Q** AC MDU 12x IEC out, 3m fixed lead in, sequence
- MDU3SQ** AC MDU 12x IEC out, 3m fixed lead in, switch, sequence
- MDU3QQ** AC MDU 12x IEC out, 3m fixed lead in, sequence on-off
- MDU3F** AC MDU 12x IEC out, 3m fixed lead in, filter
- MDU3SF** AC MDU 12x IEC out, 3m fixed lead in, switch, filter
- MDU3QF** AC MDU 12x IEC out, 3m fixed lead in, sequence, filter
- MDU3SQF** AC MDU 12x IEC out, 3m fixed lead in, switch, sequence, filter
- MDU3QQF** AC MDU 12x IEC out, 3m fixed lead in, sequence on-off, filter

#### DESCRIPTION

This range of twelve-way, IEC outlet, AC mains power distribution panels, with a 20amp, unterminated, orange, fixed-lead inlet is housed in a compact 1U rackmount steel case. All versions have on the front panel an illuminated, power rocker switch or an un-switched, LED power-present indicator, fuse and bi-colour LED indication of power status for each of the output channels. Inlet and outlets are on the rear panel.

The fuses on the front panel have an adjacent bi-colour LED. Green illuminated indicates that the circuit is powered correctly. Red illuminated indicates that the fuse has failed.

Outputs are numbered front and rear for easy identification and a designation-strip holder with snap-on cover is fitted on the front panel. The paper strips supplied may be inserted before or after installation; 7.5mm of printable height is available. Templates for printing designation strip labels, available as a DWG file for AutoCAD and compatible applications, can be downloaded from the appropriate product page on the Canford website.

#### AVAILABLE VERSIONS

All versions have front panels that are finished in Dawn Grey or Black. There is either an illuminated power rocker switch (in red or green) or an un-switched neon power present indicator. There is also a fuse and dual LED indication of power status for each of the output channels.

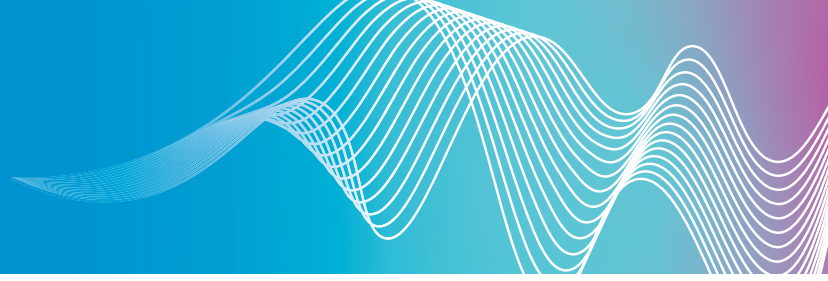
#### Standard (MDU3, MDU3S)

The front panel has an illuminated switch or un-switched neon indicator, independent outlet fuses with status indicators. The rear panel has a 20 amp unterminated, orange, fixed-lead inlet and twelve 10 amp IEC outlets. An earth stud is fitted.

#### Sequential Switch-on (MDU3Q, MDU3SQ)

These are as the standard type but, in addition, to avoid overloading the supply, the outputs are sequentially switched on when power is applied. This delay is vital where a number of pieces of equipment drawing a high 'inrush' current, such as CRTs, power amplifiers or equipment fitted with switch-mode power supplies, are connected to a single MDU. This sequential solution may also be used to switch on equipment in an audio installation prior to the power amplifier to avoid 'clicks' and possible damage to loudspeakers.

The delay between successive outputs is preset at 300mS, but an internal control allows adjustment between approximately 30mS and 600mS. Outputs are switched using relays controlled from a microprocessor. The top cover is user-removable to access the sequential switch-on delay adjustment control. In the case of switched versions, if power is connected to the unit when the switch is 'off', no power is supplied to the outputs. If the switch is 'on', the outputs will be powered up sequentially as normal.



## Sequential Switch-on And Switch-off (MDU3QQ)

Similar to the Sequential Switch-on types above, these also are based on the standard types, but have a control activating the 'start' or 'stop' sequence. The control is a latching rocker switch, but, it should be emphasised, does not switch the supply itself. When power is supplied to the MDU, an LED shows that power is present. If the control is in the 'stop' position, no power will be supplied to the outputs. Changing the control to the 'start' position will cause the outputs to be switched on sequentially. Once the sequence is complete, changing the control to 'stop' will cause the outputs to be switched off sequentially in the reverse order.

If the control is changed to 'stop' during the 'start' sequence, the sequence is stopped and the outputs which are on will be turned off, sequentially, in reverse order. If the control is changed to 'start' during the 'stop' sequence, the outputs which have been turned off will be turned on again sequentially, in the usual 'start' order.

If power is applied to the MDU when the switch is in the 'start' position, say after a power cut, the outputs will be turned on, sequentially, in the usual order. If power is taken away from the MDU when outputs are turned on, either during a sequence or not, all outputs will turn off together.

The delay between each successive output when switching on is preset at 300mS, but an internal control may be accessed by removing the top cover which allows an adjustment between approximately 30mS and 600mS. The delay between each successive output when switching off is the same as set for the switch-on delay.

## Filtered (MDU3F, MDU3SF)

These are as the standard type with a high-performance filter, fitted internally, that helps to protect sensitive electronic components connected to the MDU against mains-borne interference and to reduce the audible effects of spikes and dips in the mains supply.

## Sequential Switch-on plus Filtered (MDU3QF, MDU3SQF)

These versions combine the features of the Sequential switch-on and Filtered types.

## Sequential Switch-on and Switch-off Plus Filtered (MDU3QQF)

These versions combine the features of the Sequential Switch-on and Switch-off and Filtered types.

### Features by model

|         | Switched | Sequential | Filtered |
|---------|----------|------------|----------|
| MDU3    |          |            |          |
| MDU3S   | •        |            |          |
| MDU3Q   |          | ON         |          |
| MDU3SQ  | •        | ON         |          |
| MDU3QQ  | •        | ON/OFF     |          |
| MDU3F   |          |            | •        |
| MDU3SF  | •        |            | •        |
| MDU3QF  |          | ON         | •        |
| MDU3SQF | •        | ON         | •        |
| MDU3QQF | •        | ON/OFF     | •        |

42-9332 CANFORD MDU3 AC MDU 12x IEC out, 3m fixed lead in, green, black

42-9334 CANFORD MDU3 AC MDU 12x IEC out, 3m fixed lead in, red, black

42-9336 CANFORD MDU3S AC MDU 12x IEC out, 3m fixed lead in, switch, green, black

42-9338 CANFORD MDU3S AC MDU 12x IEC out, 3m fixed lead in, switch, red, black

42-9432 CANFORD MDU3Q AC MDU 12x IEC out, 3m fixed lead in, sequence, green, black

42-9434 CANFORD MDU3Q AC MDU 12x IEC out, 3m fixed lead in, sequence, red, black

42-9436 CANFORD MDU3SQ AC MDU 12x IEC out, 3m fixed lead in, switch, sequence, green, black

42-9438 CANFORD MDU3SQ AC MDU 12x IEC out, 3m fixed lead in, switch, sequence, red, black

42-9736 CANFORD MDU3QQ AC MDU 12x IEC out, 3m fixed lead in, sequence on-off, green, black

42-9738 CANFORD MDU3QQ AC MDU 12x IEC out, 3m fixed lead in, sequence on-off, red, black

42-9532 CANFORD MDU3F AC MDU 12x IEC out, 3m fixed lead in, filter, green, black

42-9534 CANFORD MDU3F AC MDU 12x IEC out, 3m fixed lead in, filter, red, black

42-9536 CANFORD MDU3SF AC MDU 12x IEC out, 3m fixed lead in, switch, filter, green, black

42-9538 CANFORD MDU3SF AC MDU 12x IEC out, 3m fixed lead in, switch, filter, red, black

42-9632 CANFORD MDU3QF AC MDU 12x IEC out, 3m fixed lead in, sequence, filter, green, black

42-9634 CANFORD MDU3QF AC MDU 12x IEC out, 3m fixed lead in, sequence, filter, red, black

42-9636 CANFORD MDU3SQF AC MDU 12x IEC out, 3m fixed lead in, switch, sequence, filter, green, black

42-9638 CANFORD MDU3SQF AC MDU 12x IEC out, 3m fixed lead in, switch, sequence, filter, red, black

42-9836 CANFORD MDU3QQF AC MDU 12x IEC out, 3m fixed lead in, sequence on-off, filter, green, black

42-9838 CANFORD MDU3QQF AC MDU 12x IEC out, 3m fixed lead in, sequence on-off, filter, red, black

## LACING BARS

A single-rod lacing-bar is fitted, which can be moved to an alternative fixing position if desired.

## INSTALLATION

THIS EQUIPMENT MUST BE INSTALLED BY SUITABLY QUALIFIED PERSONNEL

### WARNING

**HIGH LEAKAGE CURRENT  
EARTH CONNECTION ESSENTIAL  
BEFORE CONNECTING MAINS VOLTAGES  
THIS EQUIPMENT MUST BE EARTHED.  
DISCONNECT THE SUPPLY BEFORE REMOVING  
TOP COVER.**

**CE** The CE mark is applied to this product in respect of the Low Voltage Directive. This apparatus complies with the safety requirements of this Directive when used as intended in domestic, commercial, light industrial and similar general indoor use. It must not be subjected to splashing or dripping.

Only remove top cover to adjust timing delay.

The distribution unit should be fixed firmly in a 19" rack using suitable hardware. Appropriate attention **MUST** be paid to protective earthing of the rack itself. Using a suitable, 2.5<sup>2</sup> mm cable, connect one end to the earthing post on the rear of the unit. Connect the other end to permanent independent earth.

The CE mark is applied to this product in respect of the Low Voltage Directive. This apparatus complies with the safety requirements of this Directive when used as intended in domestic, commercial, light industrial and similar general indoor use. It must not be subjected to splashing or dripping.

## POWER WIRING AND FUSING

Replacement mains fuses must be of a 250V rated European approved type with identical current and time characteristics.

The power outlets should be cabled to the equipment to be powered using cable to suit both the load and the outlet's fuse. The fuses supplied limit the maximum output from each connector to 10 amps. This fuse rating should not be exceeded, however, smaller values may be used. Before the fuses are changed, power to the unit should be disconnected. Replace fuses only with HBC ceramic types to BS EN60127. Fuse values should be chosen to protect the cable used to wire to the powered equipment.

The power inlet should be connected using 2.5mm<sup>2</sup> cable.

## THIS EQUIPMENT MUST BE EARTHED

The distribution units should be provided with an adequate mains power supply.

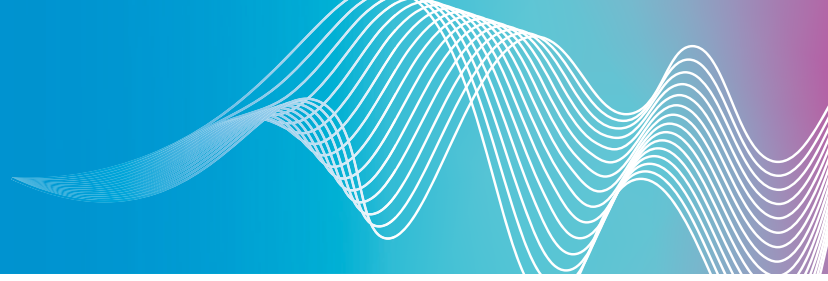
## FAULT CONDITIONS

Under normal operating conditions the "Power Input" LED or mains rocker switch should be illuminated. All channel "Output" LEDs should be green, whether or not a load is present.

If a front panel fuse fails because of a fault with the connected equipment the LED will illuminate red.

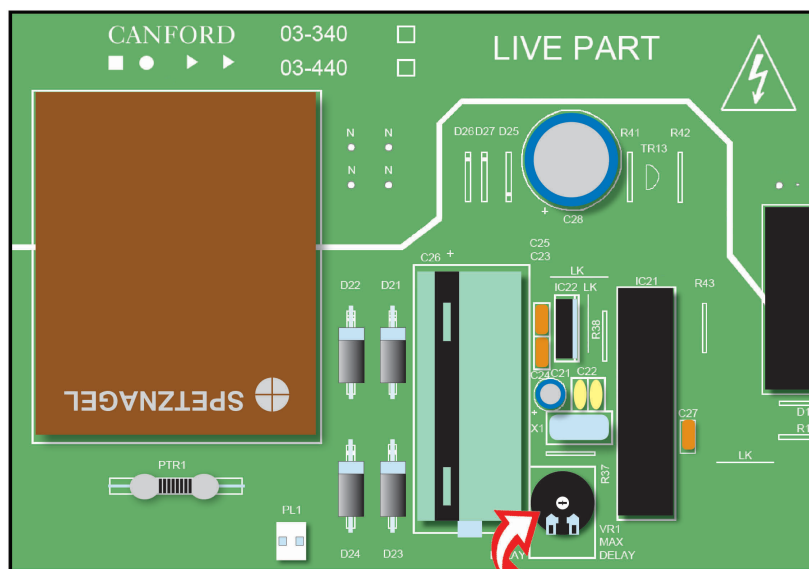
Remove the load and repair/replace the load equipment. Replace the front panel fuse with that stipulated (see Technical Specifications below.) Re-connect the load and check that the unit is functioning correctly.

Note that even if the panel fuse fails there will still be approximately 100V appearing on the output connector. This is limited to a few milliamps, however. It is essential that any connected equipment is removed before any repair work commences.



## DELAY ADJUSTMENT

The delay between the outputs turning off or on can be adjusted between 30 and 600ms. The adjustment is made by turning a potentiometer with a screwdriver. This should be done by a competent person. First remove the unit from the rack and the mains supply. Remove the lid from the unit (six screws on the upper surface and two on each end.) The position of the control can be found below:



## SNUBBER CIRCUIT

### Relay Contact Protection

A snubber circuit (resistor and capacitor) is connected across each relay contact and is used to prevent arcing when breaking inductive loads. This is normal practice but results in a small leakage current when the relay is switched off.

For most loads the leakage current is insignificant and will cause no problems for the user, however modern plug top switch mode power supplies can operate on 110V, require little power and can in some circumstances be powered on by the leakage current through the snubber circuit.

Other low power equipment may also be affected.

## Dealing With Problem Outputs

The general advice is to connect all loads as required to the outputs. If there is a problem where a low power device does not switch off properly consider whether it could share its output with another higher load device as this may cure the problem without the need to open the unit. Mains Y-Leads are available for this purpose.

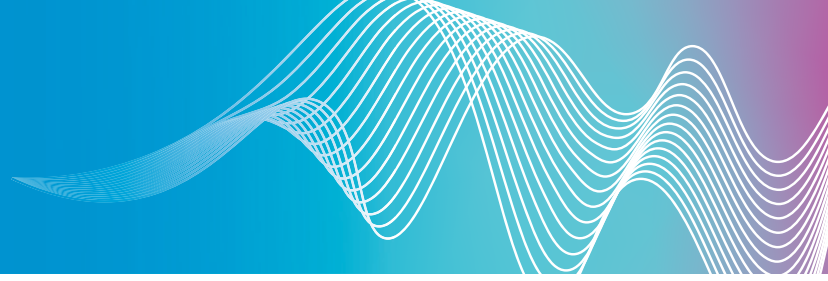
### How to disable a snubber circuit

The circuit board allows for the removal of the snubber network for use with low powered, non-inductive loads such as LEDs and switch-mode power supplies.

- 1) Remove all input and output mains leads from the MDU
- 2) Remove the MDU from the rack
- 3) Remove the lid from the unit (six screws on the upper surface and two on each end.)
- 4) Remove the handbag link on the appropriate outlet. (Outlet 1 is shown below.) Links are installed by default. For safe keeping place the shorting link on only one pin of the plug, this leaves the snubber disabled but can easily be reconnected should the MDU be reconfigured in the future.
- 5) Refit the lid.
- 6) Indicate on the MDU that the channel has had its snubber network removed. This is important in case the load changes in the future.
- 7) Refit MDU back into the rack and connect up.

Some older MDUs do not have handbag links. The snubber components are soldered in and require a competent person to remove them. Alongside each relay is a capacitor and a 100 ohm resistor (brown black brown). These components form the snubber circuit which needs to be disabled. To do this, remove the resistor or with care one lead can be snipped.





## TECHNICAL SPECIFICATION

|                             |   |
|-----------------------------|---|
| <b>Input voltage:</b>       | 198 – 254 VAC   |
| <b>Output load:</b>         | 10A per outlet  |
| <b>Total load:</b>          | Switched load: 16A, loop-outlet 20A<br>Un-switched load: 20A, loop-outlet 20A |
| <b>Outlet fuses:</b>        | 10A(T) HBC ceramic, to BS 60127   |
| <b>Max in-rush current:</b> | 100A for MDU-S versions   |
| <b>Input voltage:</b>       | 198 – 254 VAC   |
| <b>Output load:</b>         | 10A per outlet  |

### Dimensions and weight:

|                       | Depth excluding lacing-bar | Depth including lacing-bar | Weight (maximum) |
|-----------------------|----------------------------|----------------------------|------------------|
| Standard              | 130mm                      | 230mm                      | 1.7kg            |
| Sequential            | 250mm                      | 350mm                      | 4.0kg            |
| Filtered              | 250mm                      | 350mm                      | 4.0kg            |
| Sequential & Filtered | 250mm                      | 350mm                      | 4.0kg            |

All types are 1U, 19-inch rack mounting, 44 x 483 (h x w) mm.



