

# Contents

---

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>Installation and configuration</b>	<b>4</b>
2.1	Door removal	4
2.2	Fitting rear connector panels	4
2.3	Setting the mains voltage	6
2.4	Fitting different module types	8
2.5	Connecting the power supply	13
2.6	Monitoring the PSU	15
<b>3</b>	<b>Theory of operation</b>	<b>17</b>
<b>4</b>	<b>Fault finding</b>	<b>19</b>
<b>5</b>	<b>Specification</b>	<b>21</b>

---

# 1 Introduction

---

The 6063 rackframe is a 19" wide, 3U high unit offering an extensive mix and match capability for up to 12 modules.

Notable characteristics of the rackframe are:

- versatility to accommodate different modules
- dual mains transformers
- robust construction
- removable door
- anti-static earthing point

It has the flexibility to accommodate different modules by allowing various motherboard sections to be installed to suit specific applications. Two card slots are designated for the standard range of modules, the remaining ten slots are configurable in two, five slot motherboard sections to cater for further standard type modules, digital video converters, or fibre optic interfaces.

There are three different types of Pro-Bel modules that can be fitted in the 6063 frame:

- conventional modules, using a type 1 motherboard
- digital video ADC/DAC, using a type 2 motherboard
- fibre optic interfaces, using a type 3 motherboard

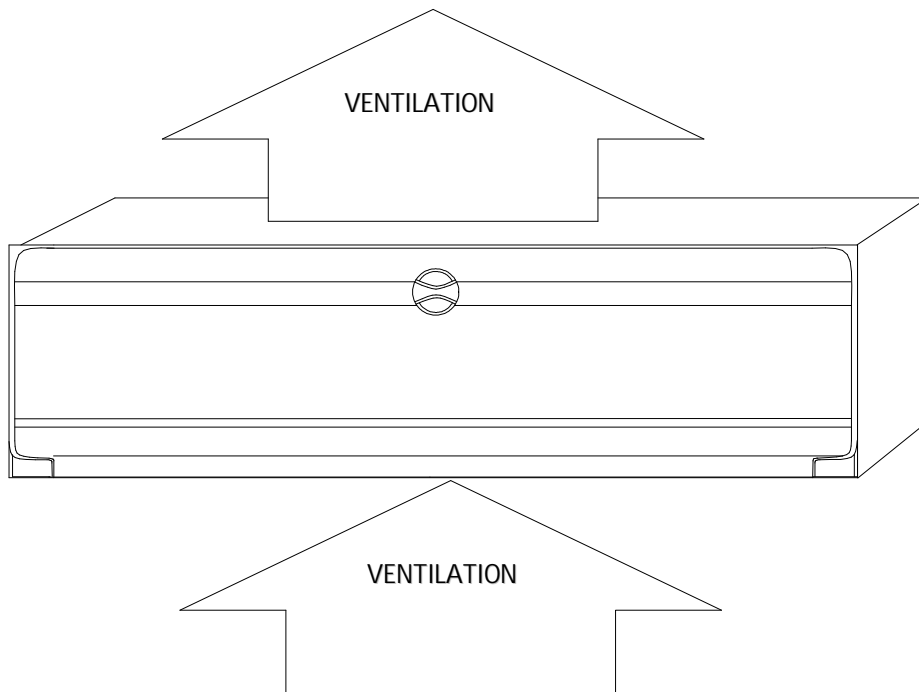
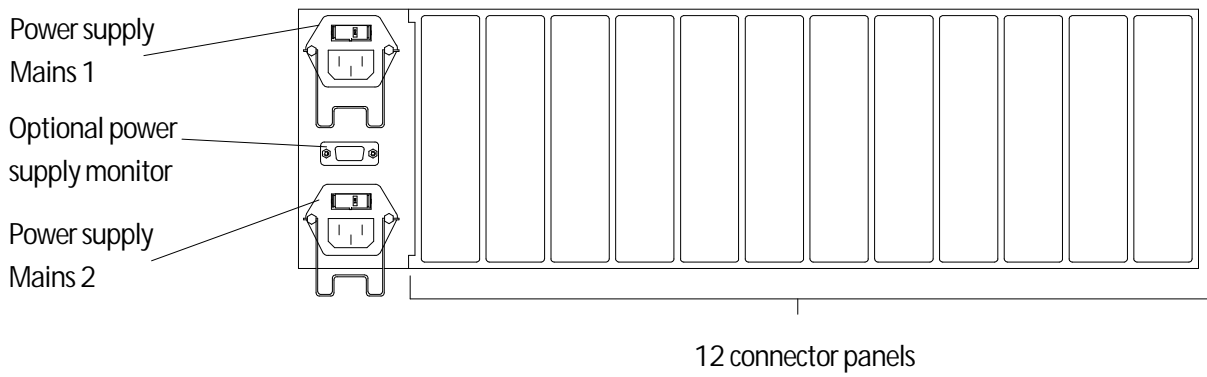
The type 1 motherboard accommodates five cards, together with their relevant rear connector assemblies.

Up to four Digital video ADC and DAC converter cards are catered for by the type 2 motherboard section. It is available as a complete unit, comprising a motherboard section, a regulator card and a termination assembly.

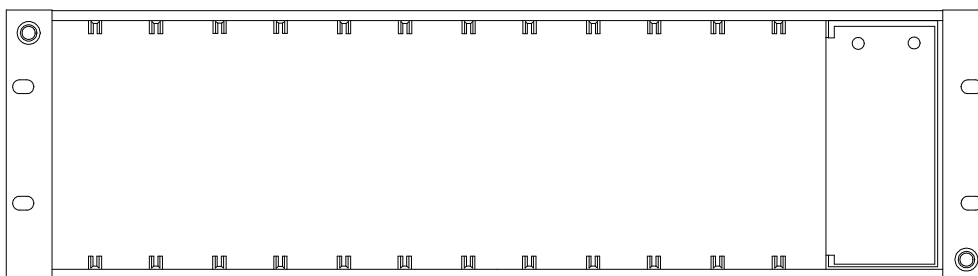
The fibre optic interface motherboard section, type 3, allows five of these cards to be accommodated in the rackframe.

Two mains transformers are fitted as standard, giving automatic supply redundancy. These transformers provide twin ac power rails along the motherboard, with each card locally rectifying and regulating from these to suit its individual requirements. This arrangement not only removes the PSU as a major point of failure, but additionally distributes the heat dissipation evenly across the frame.

### View of rear panel



### View inside front of frame



## 2 Installation and configuration

---

During the installation process it is important to observe the following points:

- do not obstruct the vents on the unit to allow cooling to take place
- set the ac supply voltage to the correct local value

### ■ 2.1 Door removal

The door can be removed from the frame by opening it approximately 30° and lifting upwards. It will not disconnect from the hinge at a greater angle.

For correct re-fitting of the door, ensure that it is centrally located on the hinge.

### ■ 2.2 Fitting rear connector panels

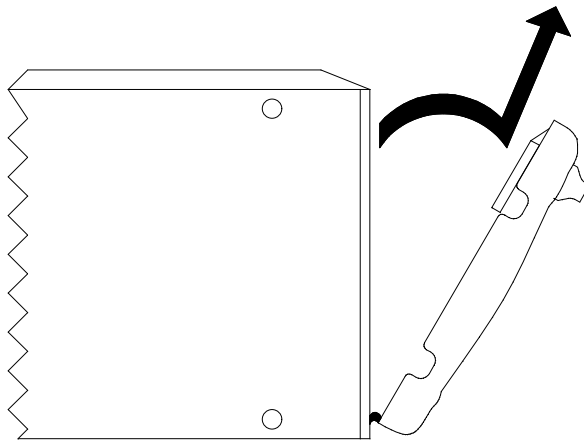
The rackframe is supplied with a combination of rear connector panels and blanking plates. To fit the panels, or to later change the position of a module, the procedure is as follows:

- only minimal force is required for this operation - do not overtighten
- ensure that the pins and socket mate on a one-to-one basis and that there is no offset either vertically or horizontally
- where a rear connector panel only has one row of pins, these normally mate with the right column of the motherboard socket
- the rear connector panel is secured to the metalwork using the M2.5 crosshead screws supplied
- if the screwholes do not align then the panel is wrongly fitted

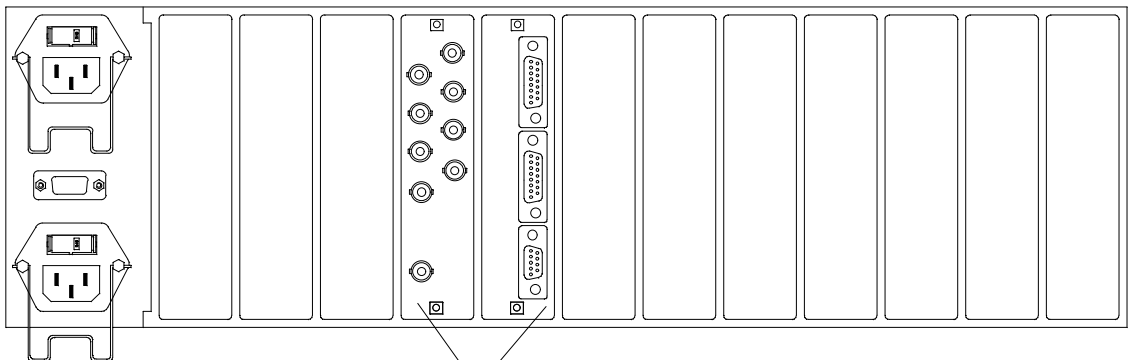


**WARNING: The screws form an essential chassis connection for EMC compliance and must not be omitted**

### Door removal

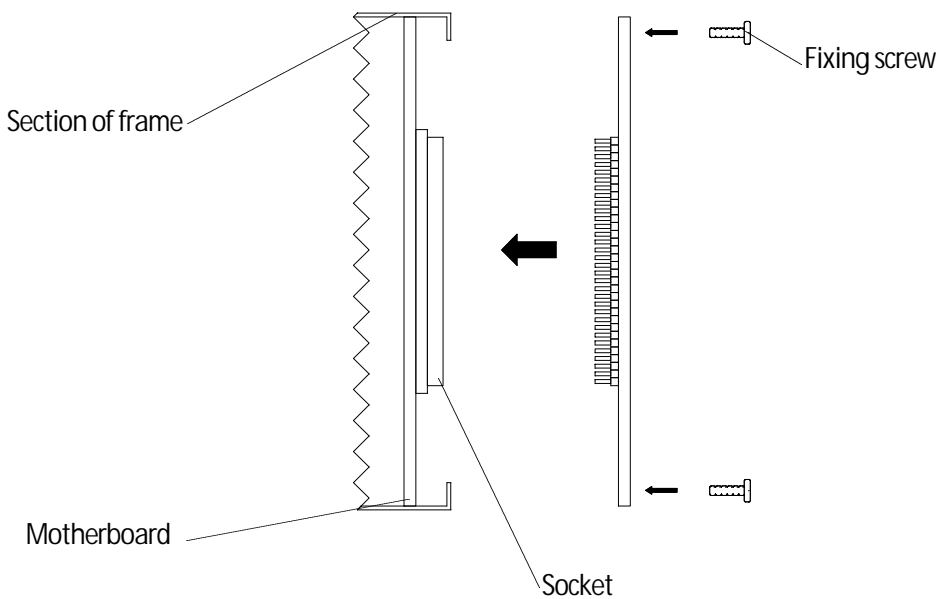


### Rear connector panels



Example connector panels

### Fitting rear connector panels

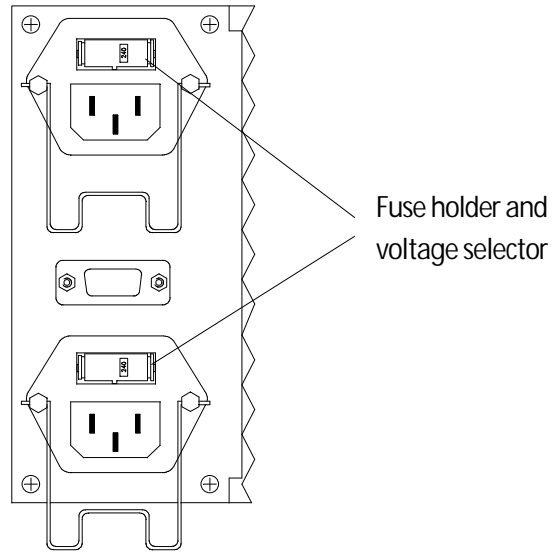


## ■ 2.3 Setting the mains voltage

The ac supply voltage is set using voltage selectors fitted to the fuse holders, located in the power supply unit at the rear of the frame, as described opposite. Before commencing, it is essential to disconnect the power from the frame.

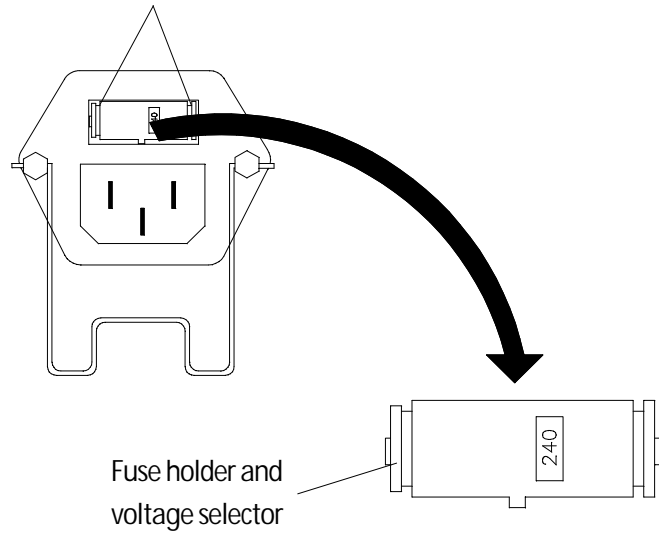


**WARNING:** Maintenance of these units should only be carried out by trained service personnel.

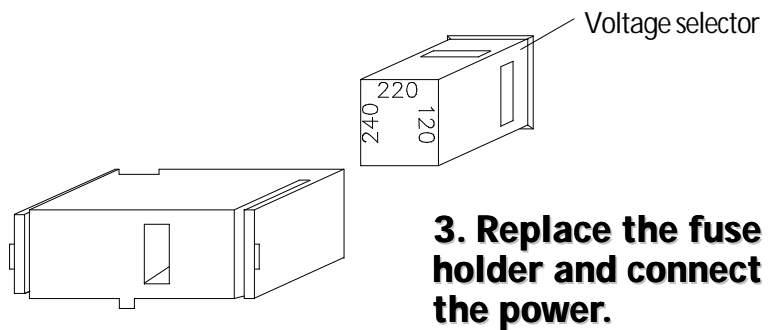


Outer catches

**1. Remove the fuse holder by squeezing the outer catches together and pulling forwards**



**2. Remove the voltage selector from the fuse holder and rotate to the desired voltage before replacing.**



## ■ 2.4 Fitting different module types

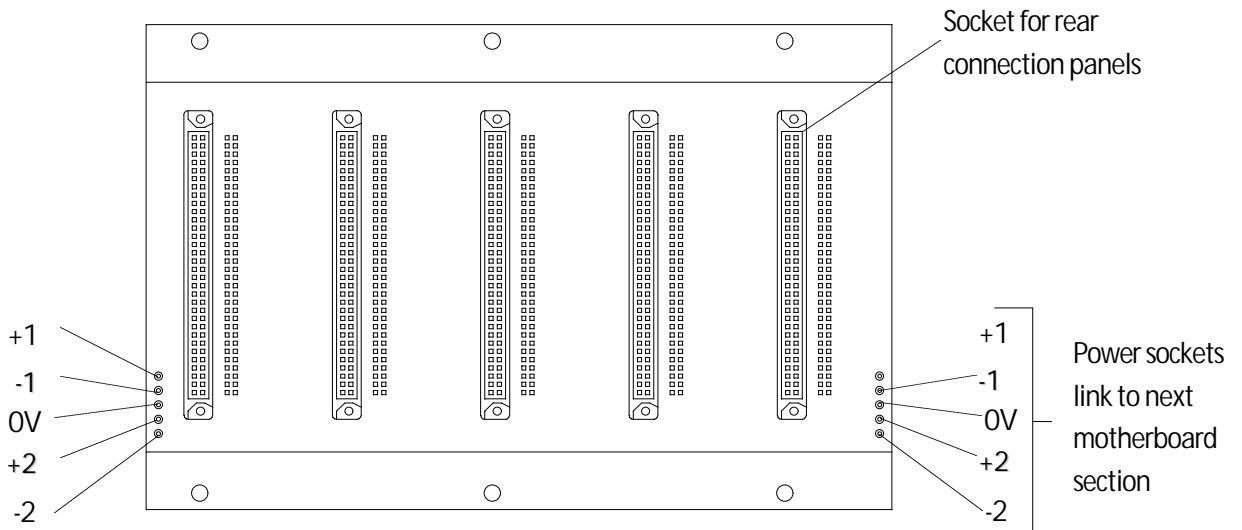
A range of different modules may be accommodated by installing various motherboard sections. The three currently available types are designated 'type 1', 'type 2' and 'type 3'.

Configuration is usually set at Pro-Bel and does not normally need to be adjusted. However, frames initially supplied with some motherboard sections omitted can be upgraded in the field. For identification purposes, the appearance of the different motherboard sections is described in this chapter.

### Conventional modules, type 1

The type 1 motherboard section caters for the majority of modules available. Five cards are accommodated, together with their relevant rear connector assemblies. The motherboard busses low voltage ac power to each module position, with fixed links providing connection between motherboard sections.

#### Type 1 motherboard





## Digital video ADC/DAC (6615/6635), type 2

This section is treated as a complete unit comprising a regulator card (1185) and termination assembly. The regulator card provides dc supplies to the converters. It is always used with an ADC and DAC termination assembly (1653) fitted to the rear of the frame. Up To four type 2 cards may be accommodated by one motherboard.

### The termination assembly (1653)

This is for use with type 2 modules only. It provides:

- external connections
- miniature fans for cooling and ventilation
- voltage and fan fail monitoring

#### PSU & fan monitoring

Pin	Function
1	RELAYCOMMON
2	GND
3	MONITOR -7.5V
4	MONITOR +6.5V
5	N/C
6	RELAY S/C FAIL
7	RELAY O/C FAIL
8	GND
9	N/C

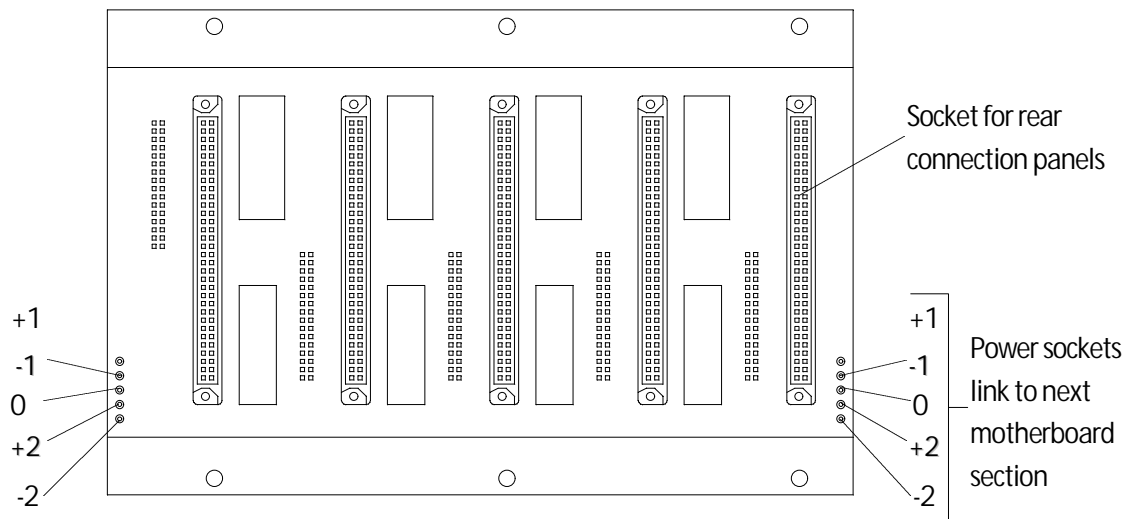
#### BNC functions

BNC	ADC Function	DAC Function
A	Y IN	SERIAL IN
B	U IN	NO CONNECTION
C	V IN	SYNC OUT
D	SYNC IN	Y OUT
E	SER1 OUT	U OUT
F	SER2 OUT	V OUT

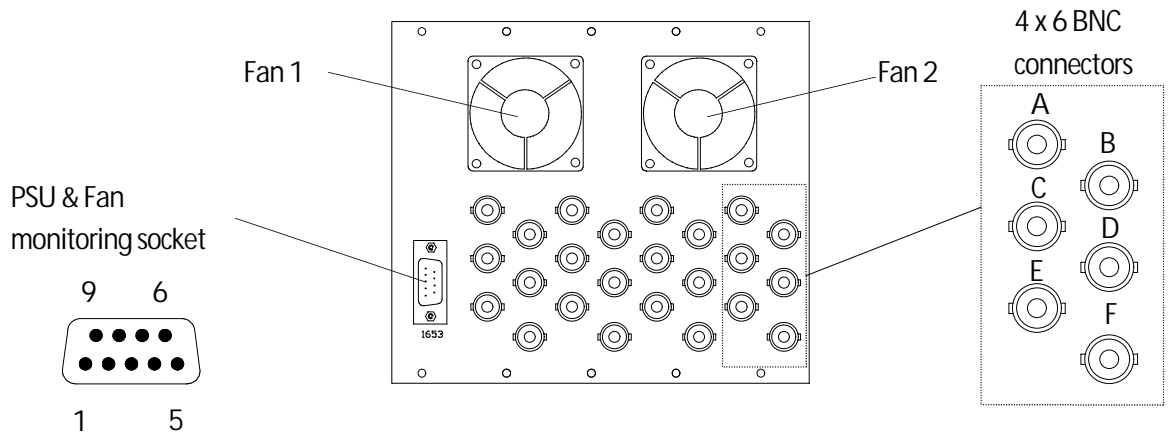
### The regulator card (1185)

This plugs into the rightmost slot of a type 2 motherboard and provides power for up to four modules.

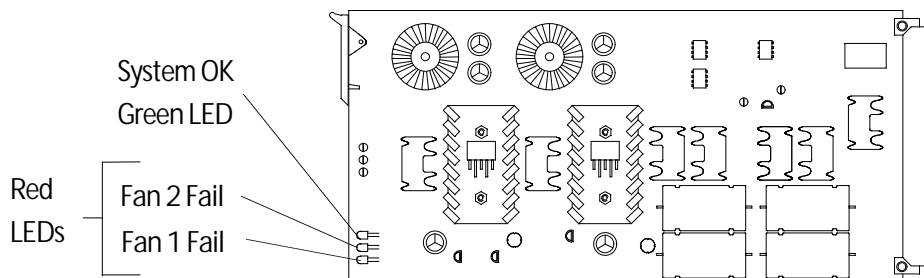
### Type 2 motherboard



### ADC and DAC termination assembly



### Regulator card (1185) for type 2 modules



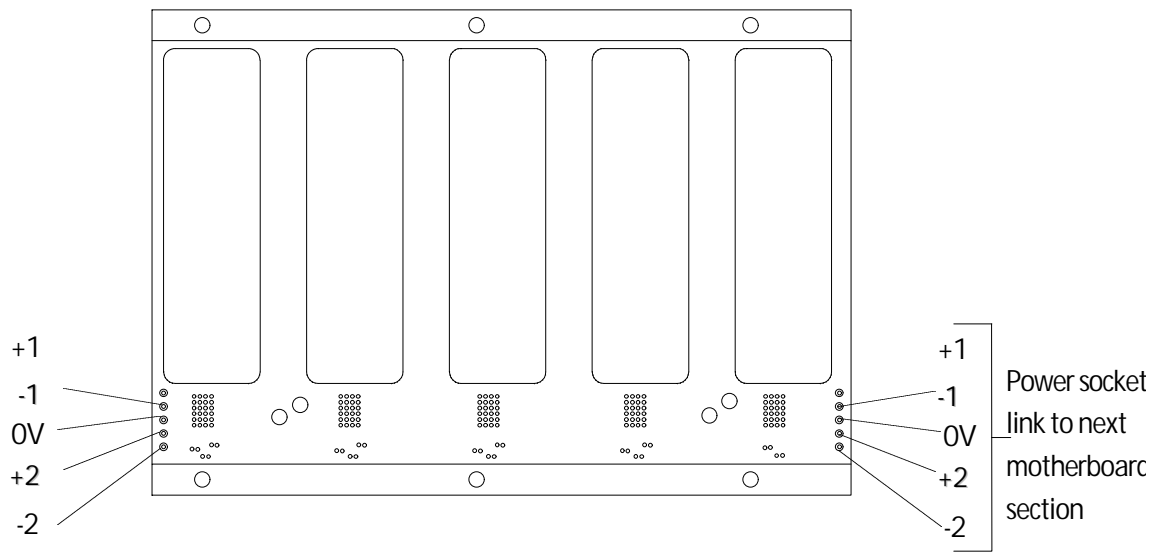
### **Fibre optic interfaces, type 3**

The type 3 motherboard permits five of these cards to be accommodated in the rackframe, alongside other conventional modules. Optical modules are supplied with blanking panels with cut-outs to be fitted to the rear of the frame. The fibre and coaxial connectors protrude through slots in the motherboard and must be secured to the rear panel using a lock washer and retaining nut from the rear of the frame.

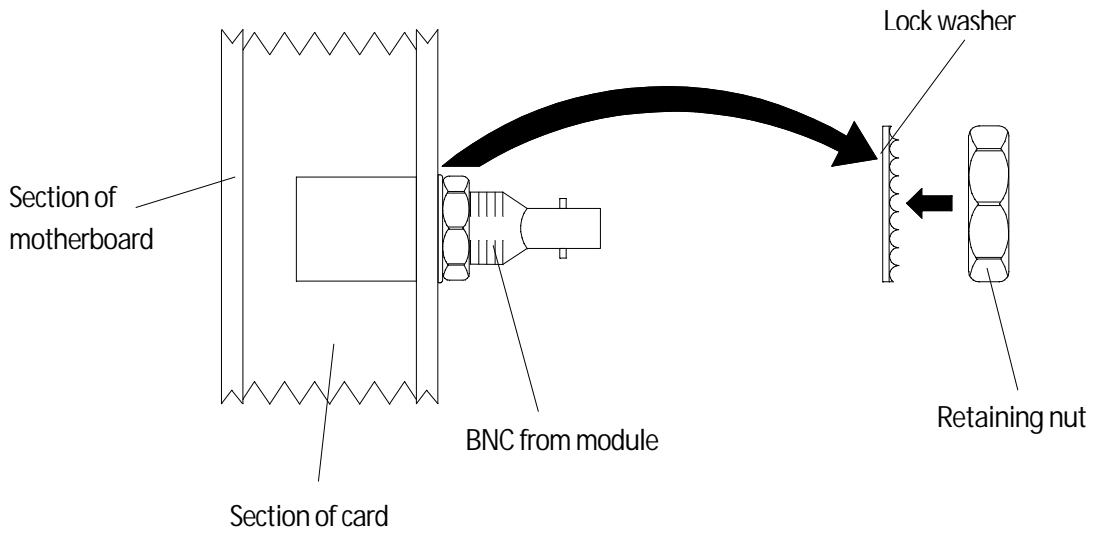


**WARNING: The lock washer and retaining nut form an essential chassis connection for EMC compliance and must not be omitted**

### Type 3 motherboard



### Fitting type 3 modules



## 2.5 Connecting the power supply

The 6063 is fitted with an 1176 dual transformer unit which has an output monitor socket.

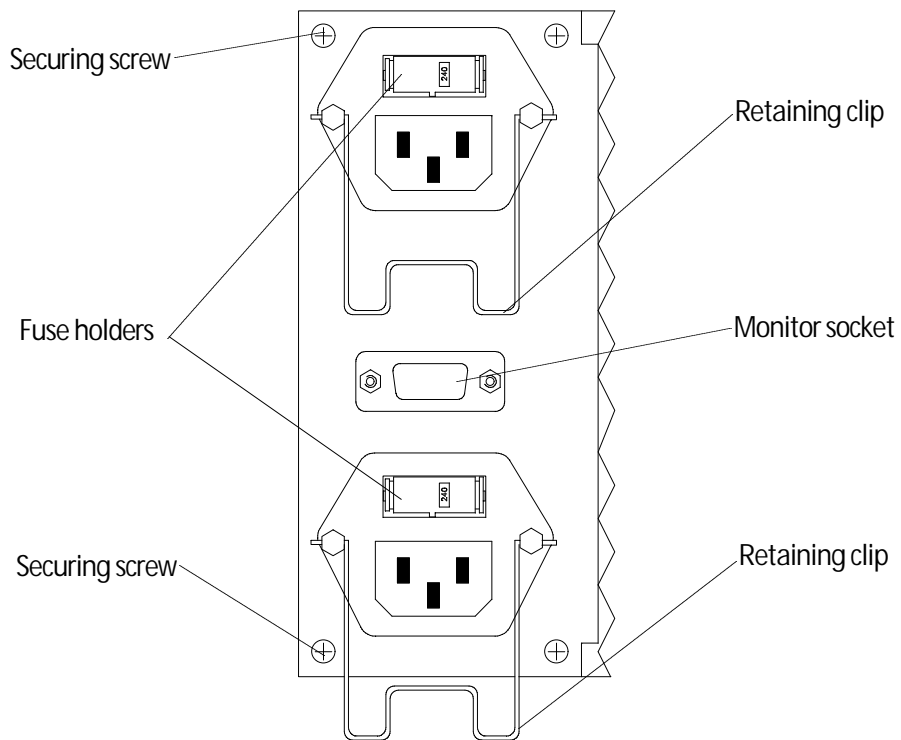
The unit is electrically connected via flying leads with eyelets that are screwed to the motherboard.

Power supplies are fitted from the rear of the frame and are secured by four screws.



***WARNING:* The screws form an essential chassis connection for EMC compliance and must not be omitted**

### Power supply

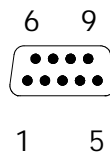


## ■ 2.6 Monitoring the PSU

There are 4 monitor output connections, two from each transformer. All are ac outputs. Typical output voltage will be 14V to 20Vac depending on loading in the frame. The pins from ac input 1 are labelled +1 and -1 and from ac input 2, +2 and -2.

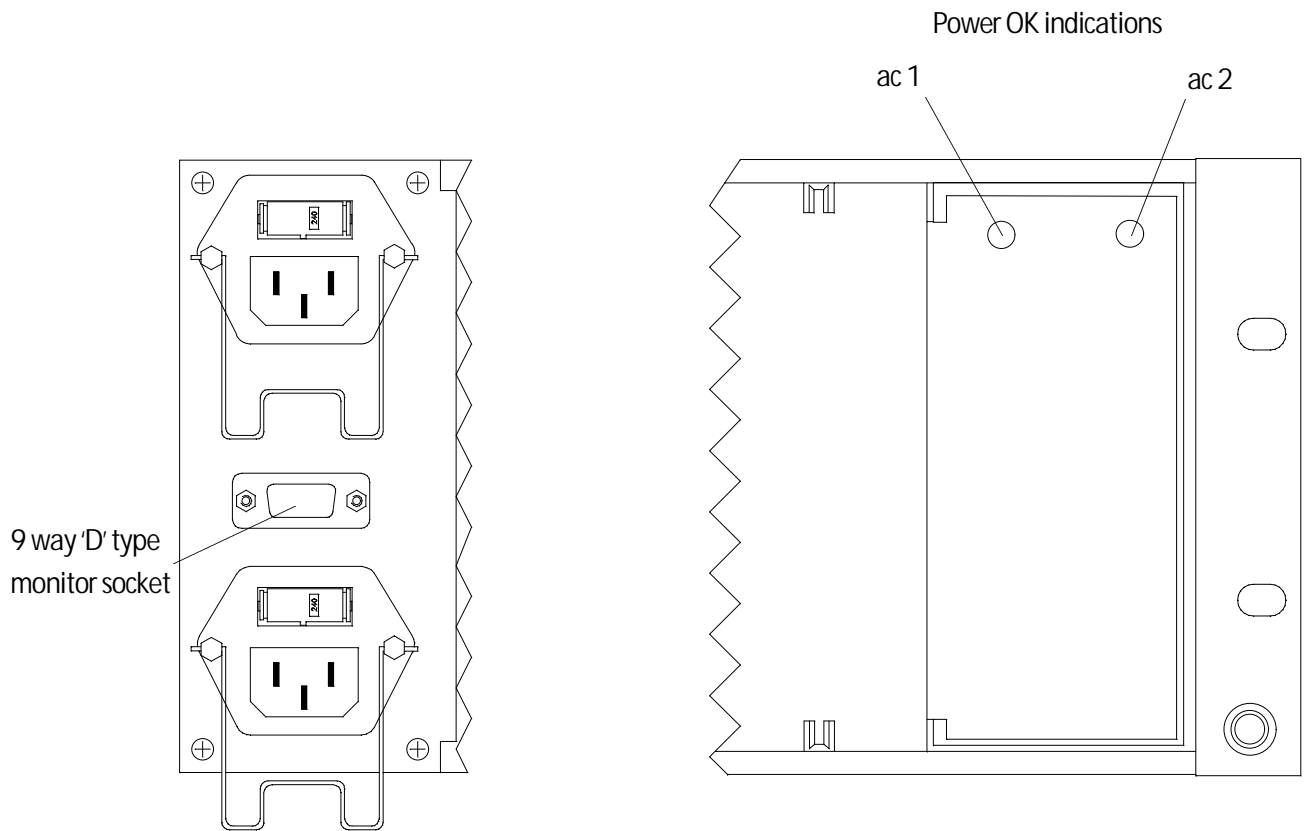
The module has indicator lamps for each ac input to show that an input voltage is present.

PSU output monitor, 9 way 'D' type fixed socket on frame:



Pin	Function
1	MONITOR -2 OUTPUT
2	MONITOR +2 OUTPUT
3	0V
4	MONITOR -1 OUTPUT
5	MONITOR +1 OUTPUT
6	N/C
7	N/C
8	N/C
9	N/C

### Power output monitors and input indicators





## 3 Theory of operation

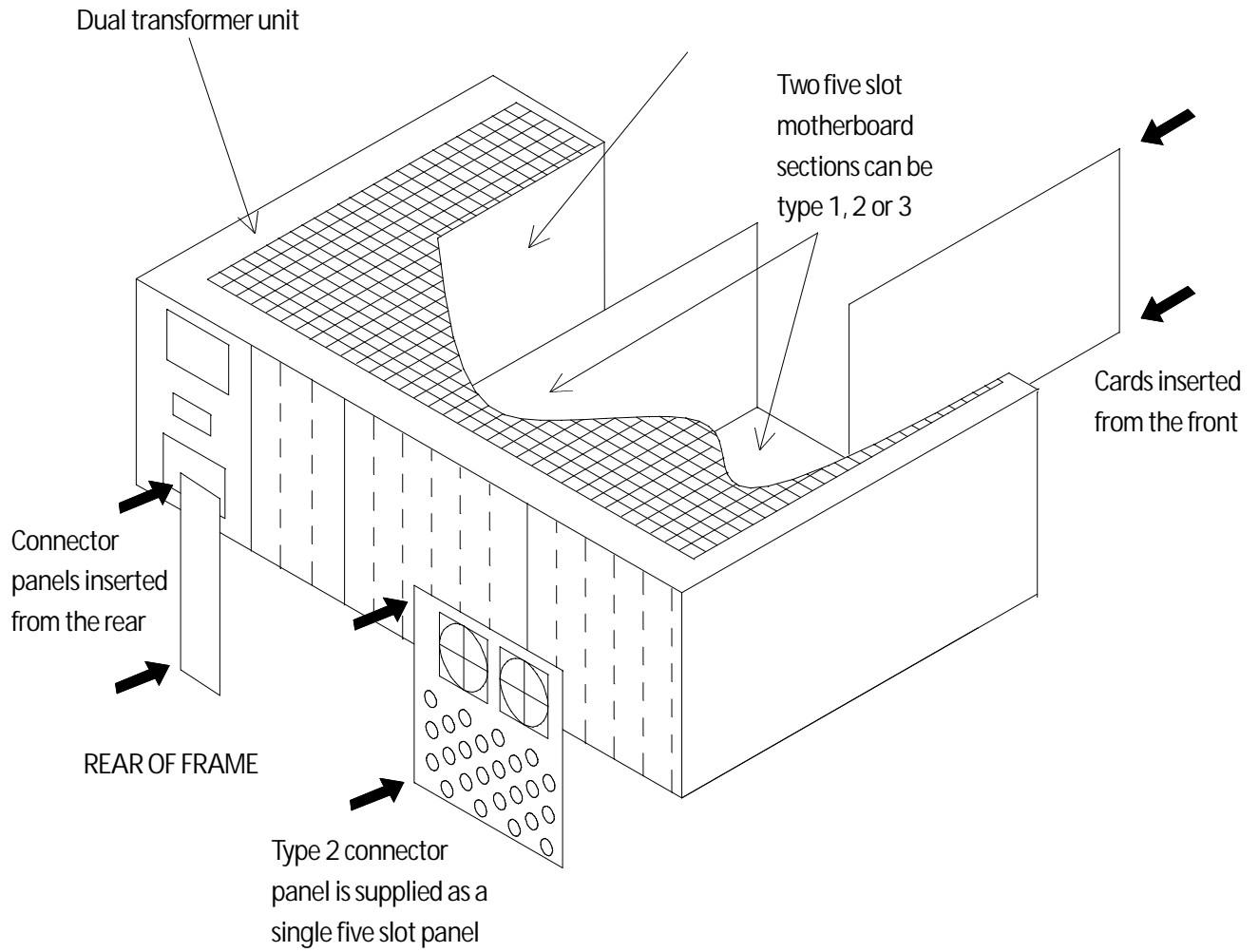
---

The incoming mains is stepped-down via transformers within the power supply unit to 14-0-14 volts. This is connected to the first motherboard section via flying leads from the transformers. It is linked between motherboard sections using power sockets and jumper links.

When type 2 modules are used, the regulator card (1185) provides local regulation. Other module types use individual or card regulators to suit.

The possible configurations of type 1, 2 and 3 modules are indicated opposite. The power supply position and the first two (type 1) module slots are always the same. The other motherboard sections can vary.

### Operational diagram



## 4 Fault finding

---

### **Both indicator lamps are off?**

There is no power from the PSU:

- check that the mains is connected
- ensure that the correct voltage is selected in the fuseholder
- check that the fuse is intact

### **The green LED on the 1185 regulator card ( type 2 module only) is off?**

There is no power on the regulator card :

- check the PSU indicators to confirm that there is power to the card
- ensure that the card is properly seated in the frame

### **The red LED on the 1185 regulator card ( type 2 module only) is lit?**

One of the fans on the termination assembly has failed:

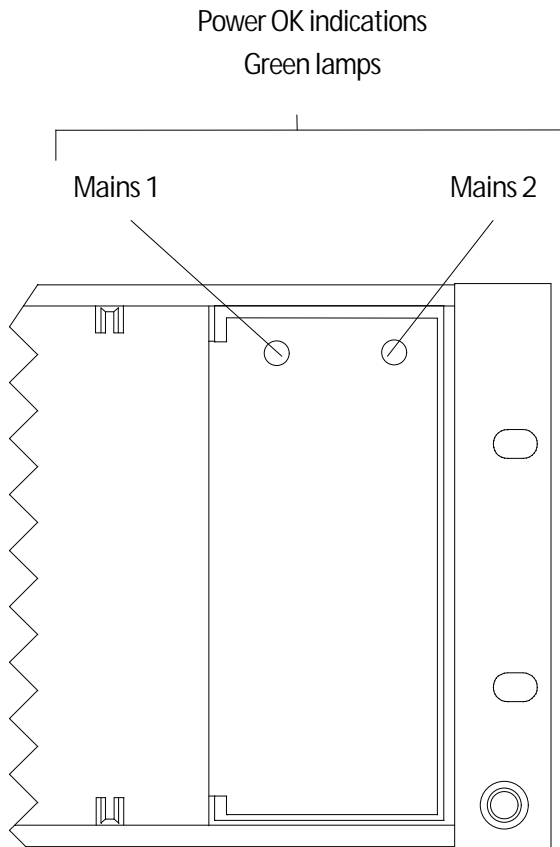
- ensure that the fan is clean
- replace the fan if faulty

### **The green LED on an inserted card is off?**

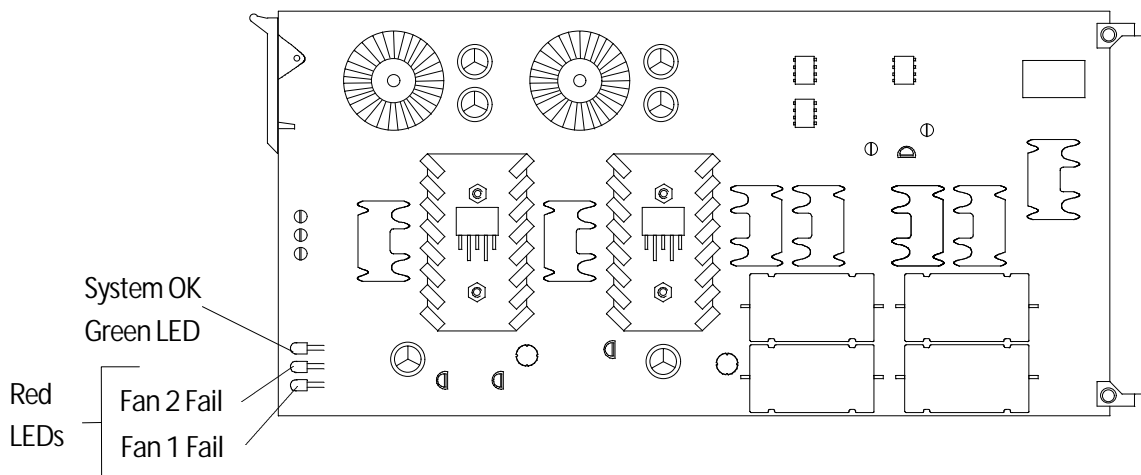
There is no power on the card:

- check the PSU indicators to confirm that there is power to the frame
- ensure that the card is properly seated in the frame
- check the fusible resistors or resettable fuse protecting the card

### Power input indicators



### Regulator card for type 2 modules



---

## 5 Specification

---

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

### General

Frame size:	3U x 19" x 300mm (depth behind rack)
Frame weight:	9kg (typical, fully equipped)
Ac input connectors:	2 x chassis mounted IEC plug
PSU (1176) fuse type:	1.6A anti-surge 20mm

### Inputs

Number and type:	2 x 240/220/120V ac 50/60Hz manually selected (max 253/231/126V ac)
------------------	--

### Indications

Number and type:	2 x green on front of PSU for mains OK
System OK:	Green LED (with type 2 1185 regulator card only)
Fan 1 fail:	Red LED (with type 2 1185 regulator card only)
Fan 2 fail:	Red LED (with type 2 1185 regulator card only)

### Internal voltage

14-0-14V ac @ 4A rms
6.5V dc @ 3A (with type 2 1185 regulator card only)
-7.5V dc @ 2.5A (with type 2 1185 regulator card only)

### PSU monitor source impedance

1K $\Omega$ (1176 PSU)
390 $\Omega$ (type 2 1185 regulator card)