



TECHNICAL NOTICE

VERSA SYSTEM

MAVE-0112

Vizimax, 2284 de la Province Street
Longueuil (Quebec), Canada, J4G 1G1
Tél: (450) 679-0003 Fax: (450) 679-9051 www.vizimax.com



USER INSTRUCTION MANUAL

VERSA

MODULAR RACK SYSTEM

MAVE-0112

Rev. 0

9407

Snemo Ltd

3605 Isabelle Street, Brossard, Qc J4Y 2R2, Canada
Tel. 514-444-3001. Fax 514-444-3009

7351 Victoria Park Avenue, Unit 8, Markham, On L3R 3A5, Canada
Tel. 1-800-465-5916, 905-940-2495. Fax 905-940-2075.

1. APPLICATION

The VERSA[®] modular rack system has been designed to house standard modules for protection schemes and auxiliary controls.

Modules are compact and consist of various types of electromechanical relays and/or solid state printed circuit boards.

2. MAIN COMPONENTS

The VERSA[®] modular rack system is expandable and adaptable to most situations.

It is composed of four main elements:

- rack housing and door;
- plug-in modules;
- plug-in connectors;
- rack (system) wiring.

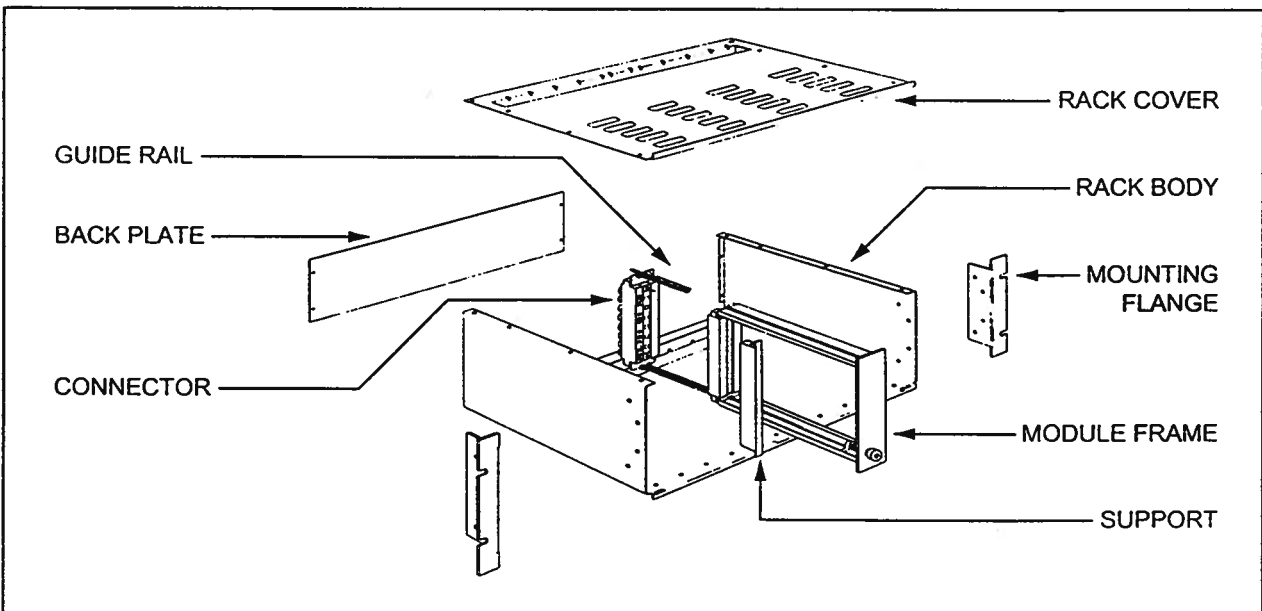


Fig. 1 - Rack components

3. MECHANICAL DESIGN

- Frame: zinc-bichromated steel
- Rear terminals: Bakelite
- Module front plate: aluminium
- Aluminium central reinforcing support (s).
- Hinged door with special gasketing.
- Resetting from outside-cover facility.
- Exterior paint finish specified by customer
- Can be delivered pre-cabled to and from defined marked positions M → X.

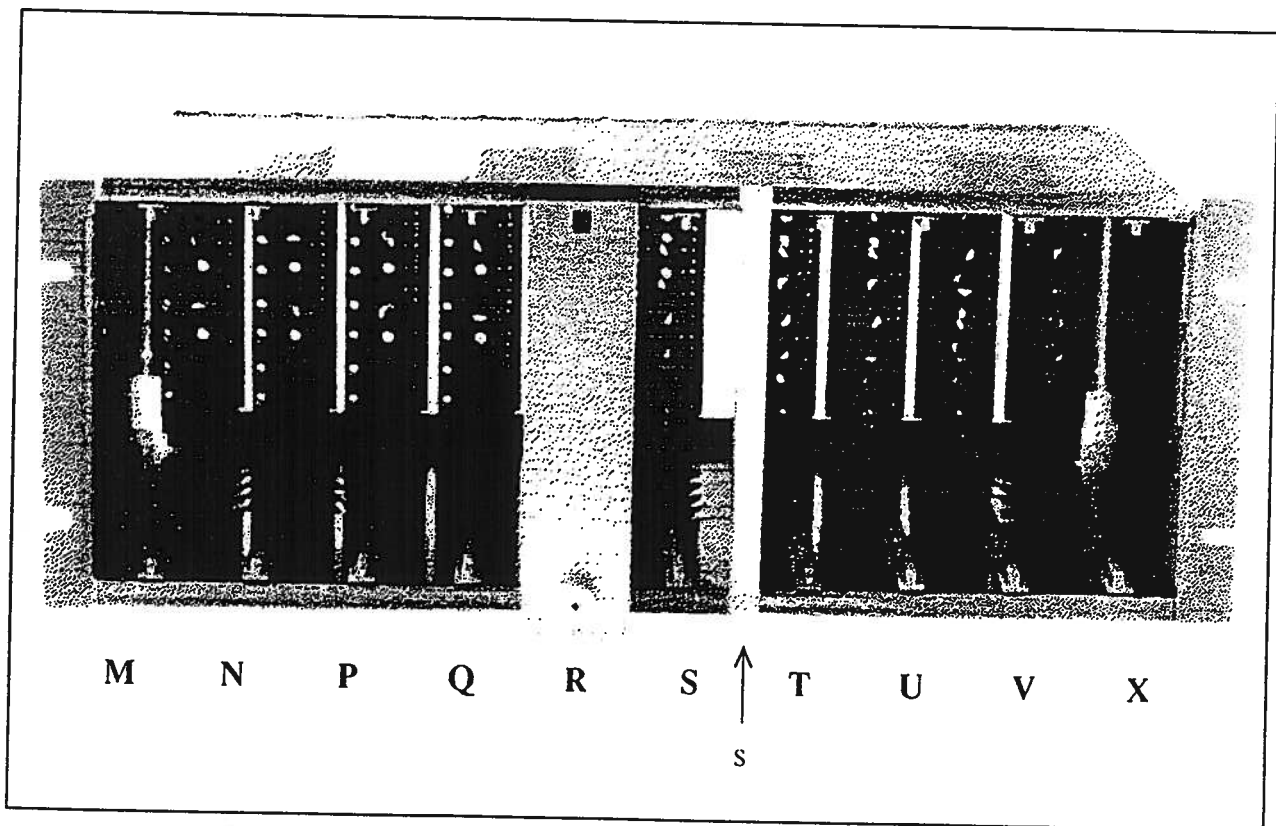


Fig. 2 - Ten-seat rack division

4. RACK

The VERSA_® system modules fit into this specially designed rack. Its dimensions conform with existing standards for modular protection and systems control.

Furthermore, built entirely of steel plates, as true Faraday cages, they offer an effective barrier to the electromagnetic disturbances that are common wherever electrical power is being transformed, distributed or used. Right or left hinged cover doors are available.

The rack is designed to contain modules of either 42 mm (1 seat) or 84 mm (2 seats) width. The 42 mm width is the unit for defining the rack size.

Rack are available in several sizes. While depth and height are invariable, they can be 2, 4, 6, 8 or 10 seats wide, depending on the number of modules they are configured to receive.

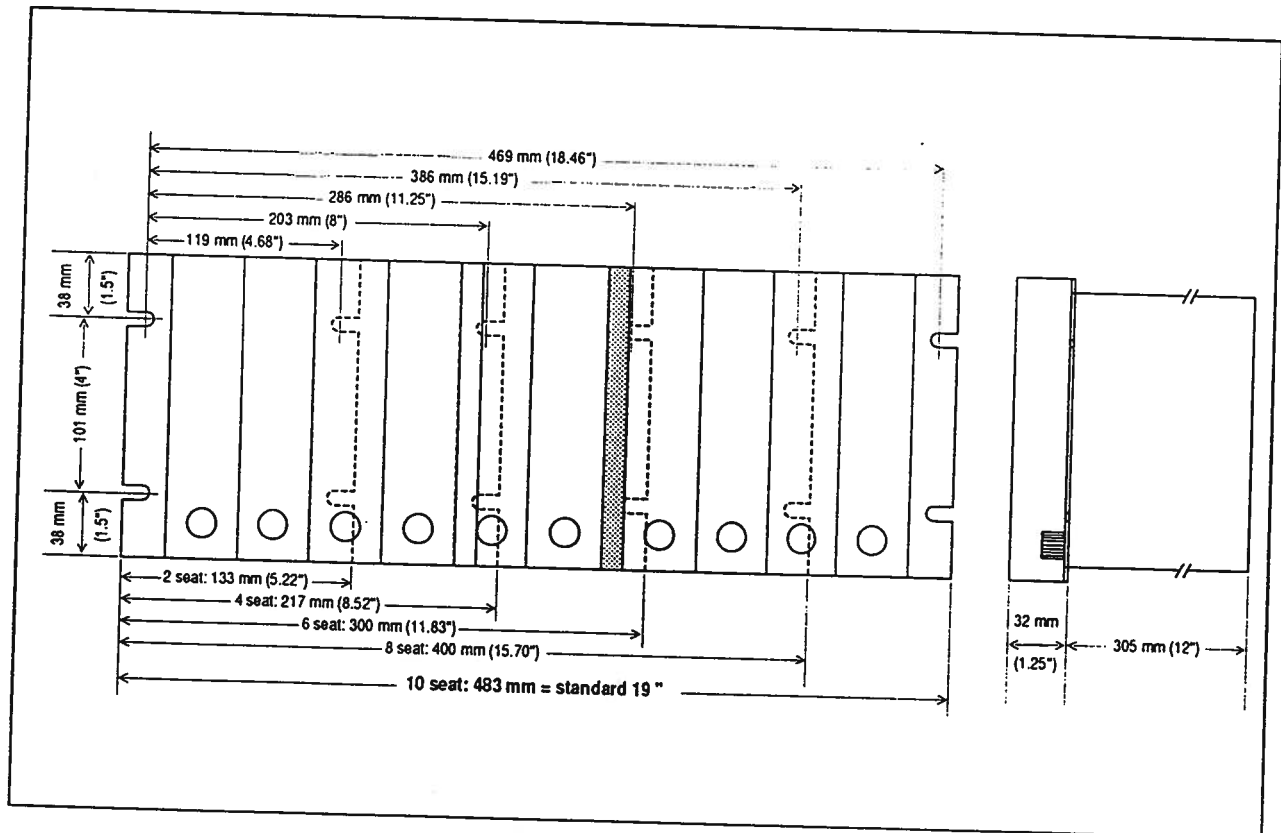


Fig. 3 - Versa outline drawing

5. MODULES

Modules are metal assemblies within which the active parts of a function are mounted. Their frame consist of:

- ① an upper and lower support rail;
- ② a front plate with insertion screw ③;
- ④ a connector assembly with key coded strip;
- ⑤ a front plate cover with silkscreened printing.

It may contain a reinforcement plate ⑥.

The active parts can consist of any combination of:

- separately mounted auxiliary contactors;
- single or double printed circuit boards;
- front panel pcb for setting device and target mounting.

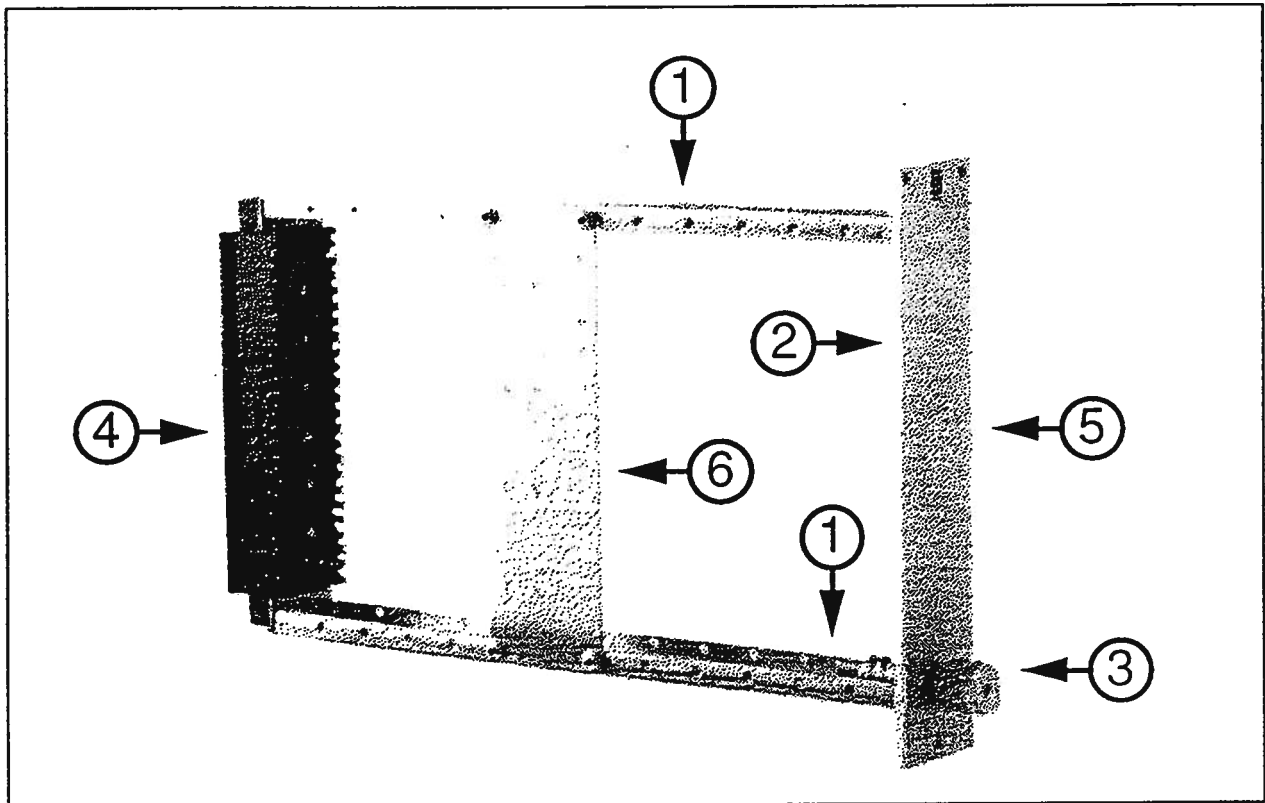


Fig. 4 - Module components

Component technologies found in the modules include electromechanical; solid-state (discrete components); solid-state (integrated circuits); digital (programmable controllers).

Modules are inserted from the front of the rack and guided by upper and lower guide rails. Electrical contact is achieved through mating of the rack mounted male connector assembly with the module rear-mounted female connector assembly, reassured by insertion screw.

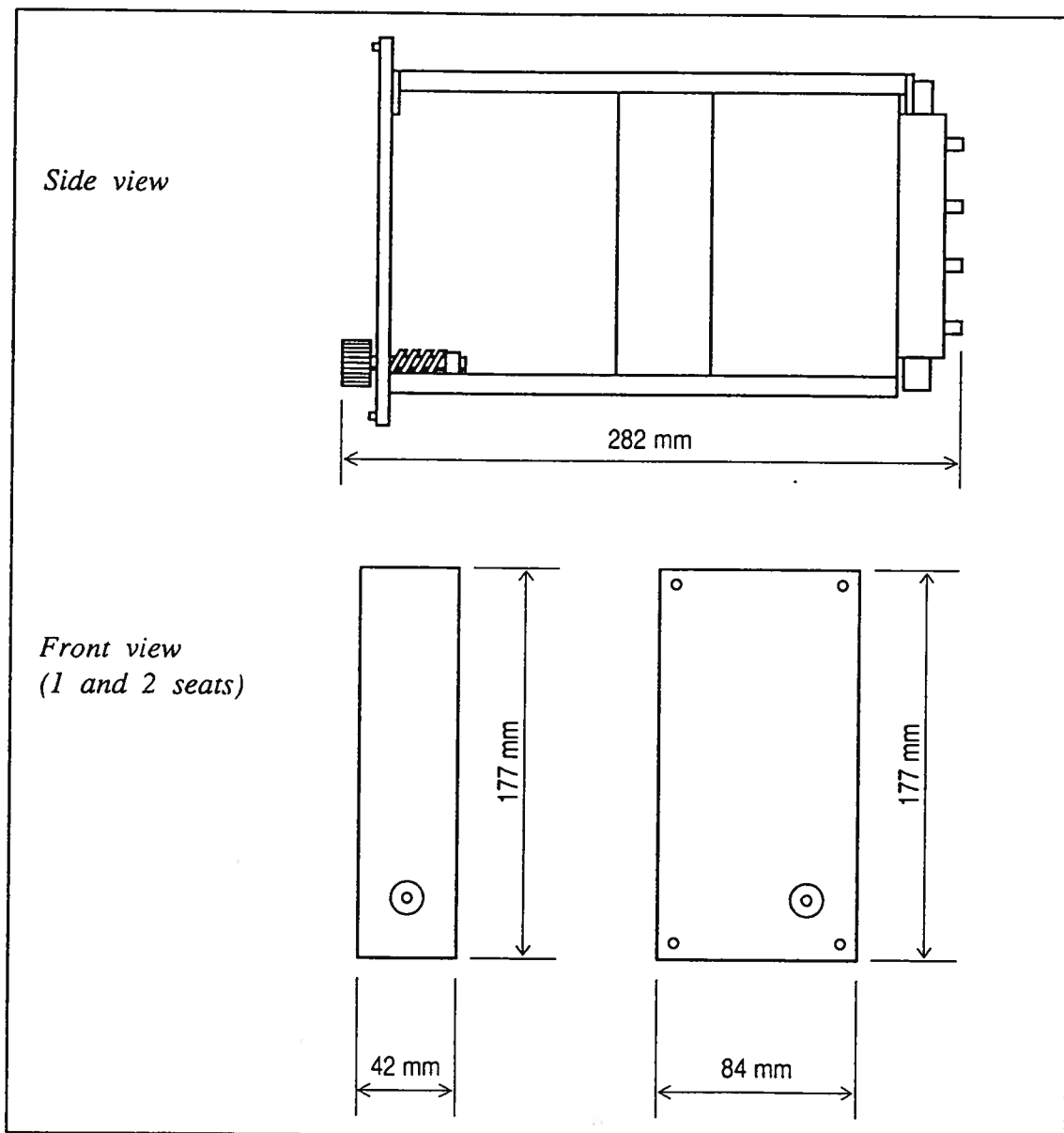


Fig. 5 - Module outline drawing

6. CONNECTORS

6.1 Technical data

ELECTRICAL AND MECHANICAL		CURRENT CIRCUITS	VOLTAGE CIRCUITS
Maximum permanent current in each terminal without deterioration		16 A	8A
Short term overload	For 1 s	550 A	250 A
Dielectric withstand between terminals	At 60 Hz for 1 min	5 kV	3.5 kV
	Impulse voltage (Standard IEC-255)	5 kV	5 kV
Contact resistance	(Contact plus crimping)	9 mΩ	9 mΩ
Insertion effort	Plug-in	200 g	400 g
	Withdrawal	200 g	300 g
Maximum wire gauge		14 AWG	16 AWG
ENVIRONMENTAL			
Temperature (storage)	- 25 °C to + 70 °C		
Humidity (storage)	≤ 90 %		

6.2 Design

The connector assemblies link the active circuits on the module to the rack wiring.

They have two parts: a male connector assembly mounted on the rack and a female connector assembly that is an integral part of the module.

They are made of strong, resistant, fire-extinguishing and antifungal molded plastic. All terminals are gold-plated for better contact and an unlimited number of operations.

Each connector assembly is formed of two distinct blocks of terminals, separated by a key coding block. They can consist of:

- voltage blocks with 23 terminals, numbered 1 to 23, 1.6 mm in diameter;
- current blocks with 8 terminals, numbered 40-41, 50-51, 60-61, 70-71, 2 mm in diameter;
- or any combination of the two types.

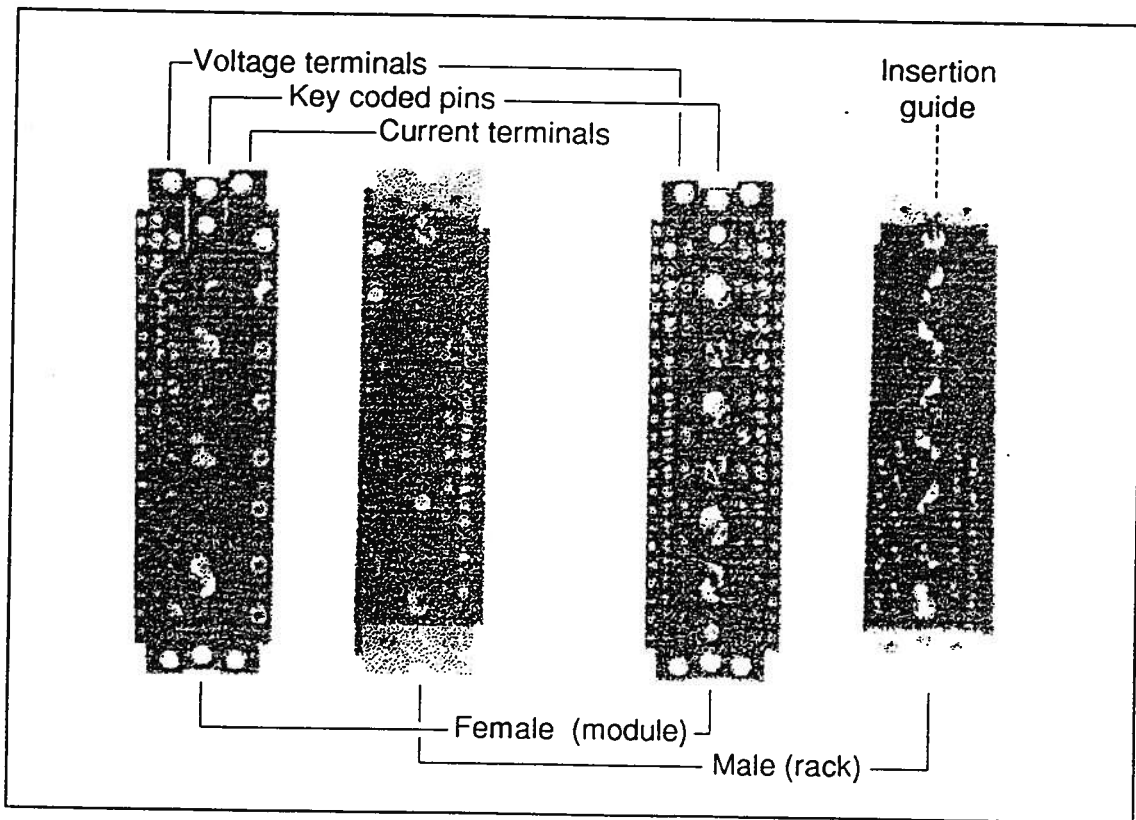


Fig. 6 - Terminal blocks

When the pins of the male connector are inserted in the sockets of the female connectors, they encounter contact resistance which implicates an effort during the insertion of the module and, in practice, limits the number of terminals to 37 per connector.

The current blocks contain up to 4 short-circuit links to avoid open C.T. secondaries or continuity of particular circuits when a module is removed. Each connector is normally equipped with only the number of terminals its module requires.

The central portion of the connector is a key-coding system that uses semi-hexagonal studs. In groups of 3 or 6, these key interlocks are inserted in the hexagonal orifices, allowing up to 6^6 possible combinations (unique configuration for each type of module).

The male connector has centering fingers at each end to ensure alignment of both parts and avoid any lateral stress on the pins. For this reason, the male connector is not fastened rigidly.

7. RACK WIRING

Rack wiring is performed at our factory, point-to-point, based on a wiring list established from our customers drawings or specifications. External connections to the rack are made either via a wiring harness (length is user defined) or a row of rail mounted terminal blocks on the back panel of the rack.

Color coded wires allow easy recognition of AC current, AC and DC voltage circuits. Individual conductor identification (user defined) is permanently printed on the wire jackets every 50 cm for easy identification in the field.

Racks can be pre-wired for future installation of modules. Removable blanking plates cover the unused module seats at the front of the rack.

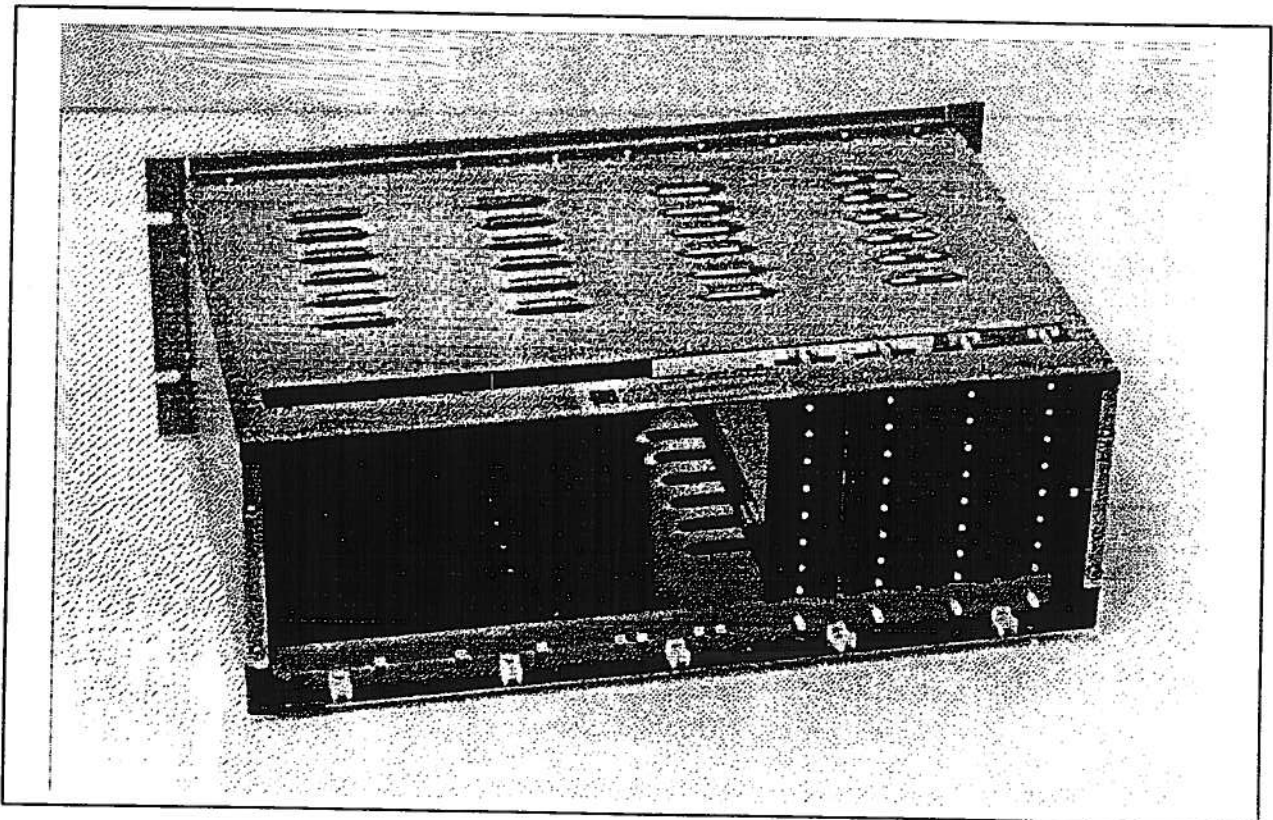


Fig. 7 - Rack back panel