

1.2.4 MV3000e User Input/Output (I/O) Termination Panel

The User Termination Panel, shown at Figure 1-5, provides the input and output termination facilities for signals to and from the MV3000e Controller. Functional details for each termination on the panel are included at Table 5-4 and a Wiring Diagram showing user circuits is included at Figure 5-22.

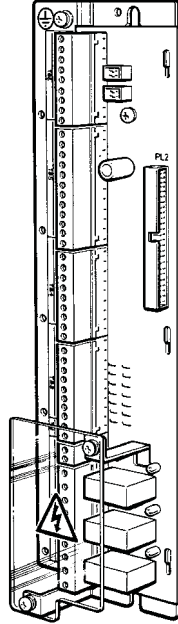


Figure 1-5 User I/O Termination Panel

1.2.5 Optional Drive Data Manager™ (Keypad)

The Drive Data Manager™, shown at Figure 1-6, is an ergonomically designed keypad which provides the functionality to configure a drive and also provide motor control and diagnostic functions. The Drive Data Manager™ is an optional item for use with the MV3000e Controller from where it derives its power supply. It is supplied with separate user instructions.

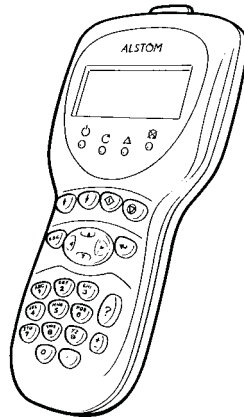


Figure 1-6 Drive Data Manager™ MVS3000-4001 for MV3000e Controller

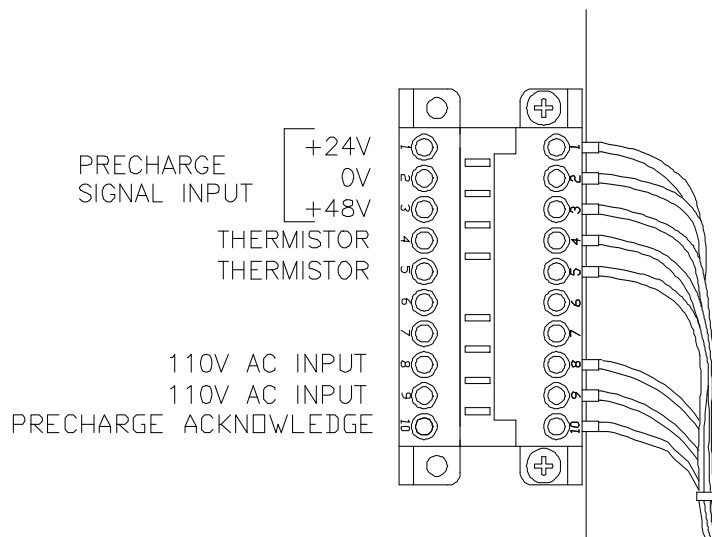


Figure 5-3 Rectifier Bridge Module Control Terminals (GDR391-4601 & GDR721-4601)

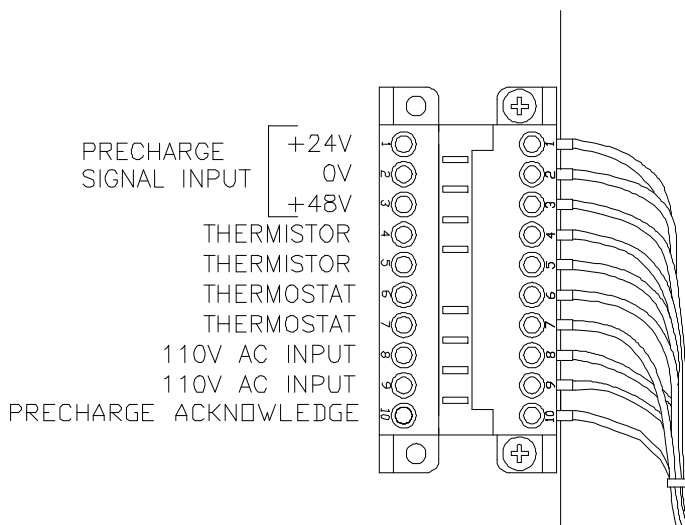


Figure 5-4 Rectifier Bridge Module Control Terminals (GDR633-4601, GDR872-4601 & GDR1168-4601)

- Notes:**
- (1) Terminals will accept up to 2.5 mm² (12 AWG) flexible cables.
 - (2) To prevent failure of the Rectifier Bridge Module precharge components, the rectifier precharge acknowledge signal (TB1/10) must be connected to the control module. If this signal is not high the control module must not allow the drive to run.

5.8 Connections to the Drive Data Manager™ (Keypad)

The MVS3000-4001 Keypad is an optional item of equipment for use with the MV3000e Controller. The keypad is supplied separately from its mounting kit which also includes a 9 way connecting lead with a 'D' type connector. The connections for the Keypad are shown at Figure 5-20 and the functions listed at Table 5-3.

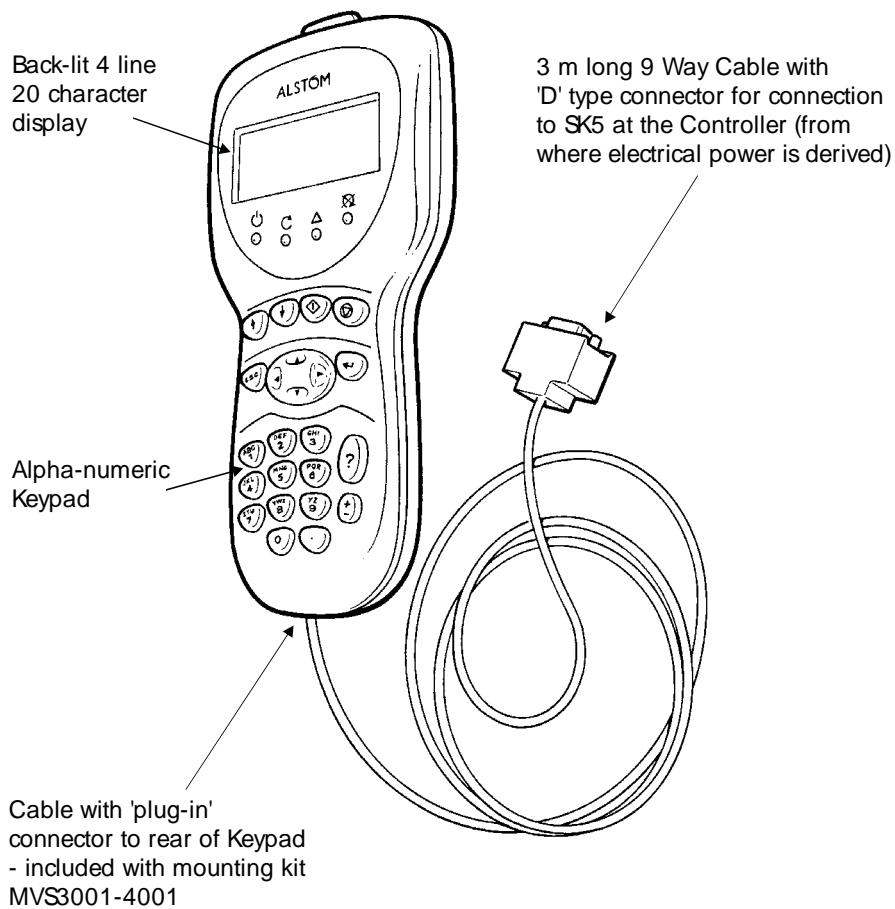


Figure 5-20 Connections to the Drive Data Manager™ (Keypad) MVS3000-4001 - for use with the MV3000e Controller

5.9 Connections to the User I/O Termination Panel

Details of the connections between the MV3000e Controller and the User I/O Termination Panel are included at Table 5-4 and shown at Figure 5-21 and 5-22.

Refer to Section 3 CUBICLE PLANNING for details of cable length limits and segregation distances.

User connections to the I/O Termination Panel are dependent upon the particular application. However, multicore screened cables must always be used except for the connections to TB1, TB2 and TB3 where screened cable is not mandatory. Each screened cable must be bonded to earth at both ends. For each screened cable, crimp the braid to an M4 (No. 8 or 3/16 in) ring crimp and secure it to the I/O Termination Panel with the M4 screws provided (also see Figure 4-19).

Table 5-4 User Input/Output Terminations

TB6		Analogue Inputs/Outputs	Specifications
Pin	Signal	(Menu 7)	Cables must be screened - see 5.10.
1/2	ANOP ½	Analogue outputs 1 and 2, V or I as selected by SW1	V: -10 V to +10 V, ≤ 5 mA load I: -20 mA to +20 mA, ≤ 500 Ω load
3	AN GND	Analogue ground (earth) for inputs and outputs	Connected to earth (ground) internally Do not use for cable screens
4/9	-10 V/+10 V	Reference supplies for analogue inputs.	
5/6 7/8	AN I/P 2 -/+ AN I/P 1 -/+	Differential analogue input 2 Differential analogue input 1	V or I as selected by SW1. V: -10 V to +10 V, 100 kΩ load input impedance I: -20 mA to +20 mA, 235 Ω load input impedance Common mode volts = 2.5 V maximum
TB5		Encoder/PTC	Specifications
Pin	Signal	Menu 13	Cables must be screened - see 5.10.
1	M_PTC	Input from motor PTC.	Resistive: Trip: P2.13 (0 Ω to 7 kΩ) Reset: P2.13 -0.1 kΩ
2/5	FB -/FB+	Encoder power supply feedback for accurate setting.	
4/6	+5 V/+24 V	Power supply outputs for the encoder.	+5 V: Adjustable, 4.5 - 6.5 V, 350 mA maximum +24 V Fixed, 350 mA maximum
3	0 V	Common return line for encoder power supply and the PTC.	Connected to earth (ground) internally. Do not use for cable screens.
7/8 9 - 12	Z-/Z+ B-/B+, A-/A+	Marker signal from encoder. Encoder position signals	EIA RS422A, Max edge freq 1.5 MHz
TB4		Communications	Specifications
Pin	Signal		Cables must be screened - see 5.10.
1/2 3/4	RS485 Tx +/- RS485 Rx +/-	Differential link for improved noise immunity. (Menu 32)	0 - 2 km range.
5	GND	Common ground for communications links	Connected to earth (ground) internally. Do not use for cable screens.
6/7	CAN link	Connection to CANopen or to expanded I/O	Not Used
8/9	HSIO +/-	High speed digital link (Menu 20)	RS422 protocol
TB3		Digital Inputs	Specifications
Pin	Signal	(Menu 7)	
3 to 8	DIGIN 1-6	For remote control of drive – default functions are shown in diagram	Active: +12 V to +50 V Inactive: Open circuit or 7 V
9	INTERLOCK	Hardware interlock – must be made to enable drive	Healthy: +12 V to +50 V Unhealthy: Open circuit or 7 V
2 & 10	+24 V O/P	User supply for peripheral equipment	Volts range: +22.8 V to +25.3 V Max load: 500 mA
1	0 V (digital)	0 V reference of digital inputs	Connected to earth (ground) internally
TB2		Auxiliary Input Supply	Specifications
+24 V Aux input		Allows monitoring and programming with main power switched off	Current – BDM: – DELTA: Connected to earth (ground) internally
TB1		Digital Outputs	Specifications
DIGOUT 1 to 3		Volt-free changeover relay outputs (Menu 7)	Max volts: 250 Vac, 30 Vdc Max current: 3 A (resistive load)

Notes:

- (1) Set the DIP Switches to configure the analogue I/O for current or voltage operation then refer to Menu 7 to configure the relevant parameters.
- (2) Plant I/O is configured by Menu 7 of the MV3000C firmware - see the Commissioning Section of the T1676 MV3000C Getting Started Manual.

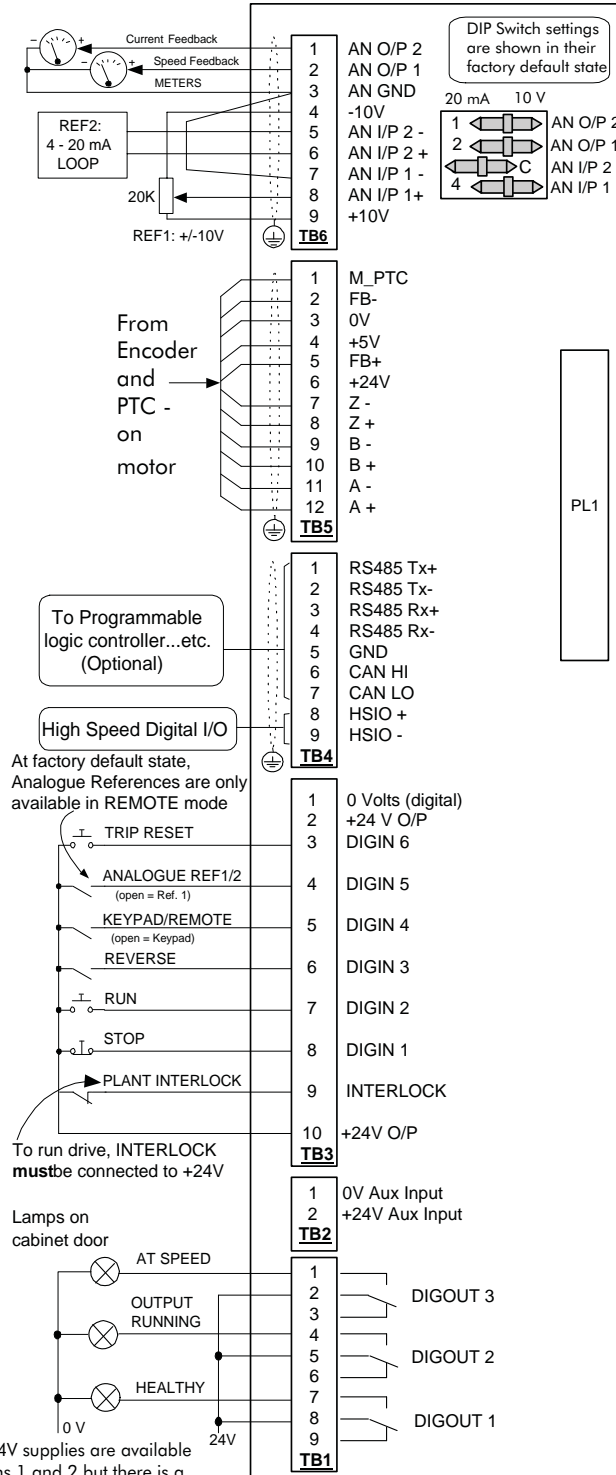


Figure 5-21 Wiring Diagram for User I/O Termination Panel

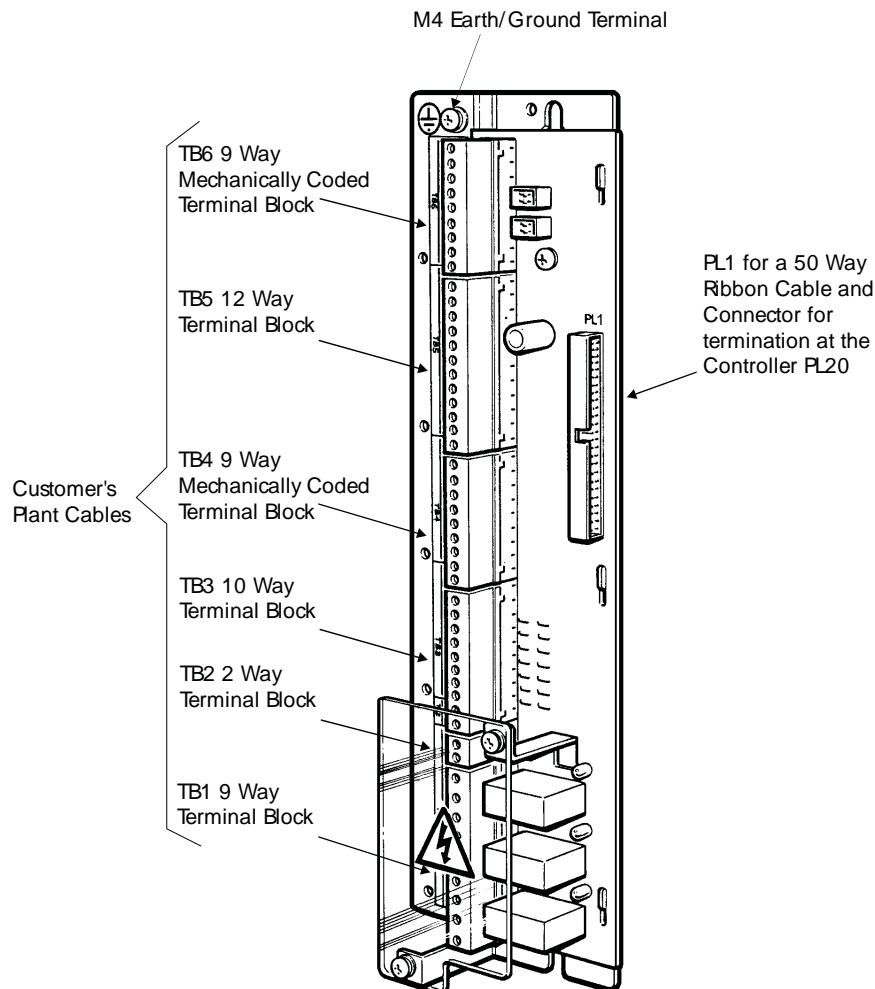


Figure 5-22 Connections to the User I/O Termination Panel

Note: TB4 and TB6 are each 9 way terminal blocks of the same connector pitch and so it is important that wiring for these blocks is connected to the correct terminal block. TB1 is also a 9 way terminal block but this has a different connector pitch to TB4 and TB6.

5.10 MV3000e Switched Mode Power Supply (SMPS)

The flying lead, supplied with the SMPS, should be connected to TB1 on the Transistor Bridge Module - see Section 4 - MECHANICAL INSTALLATION (4.17). A 40 way ribbon cable, supplied with the Transistor Bridge Module, should be connected to PL22 on the SMPS.

5.11 DC Link Fuse Protection

When four or more MV DELTA transistor bridge modules are used in an output bridge configuration they should be connected in two groups with two or three modules in each group. Each group must have fuses fitted in the d.c. link, in both the d.c. + and d.c. - lines as shown for Circuits MVC4, MVC5 and MVC6 at Appendix A (see A.6.4 to A.6.6).

Fuses provided for this type of module protection must be rated for the d.c. link operating voltage. Refer to Table 5-5 for recommended fuse types and Appendix A for connection details.