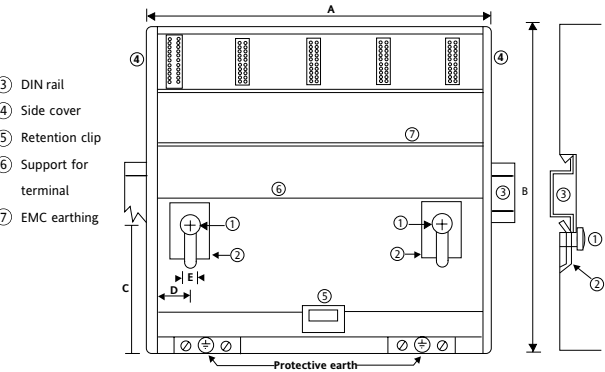


The Base

To mount the base

This unit is intended to be mounted within an enclosure, or in an environment suitable for IP20 rated equipment. It can be DIN rail or bulkhead mounted.



Model	Dimensions (mm)					Weights (Kgms)	
	A	B	C	D	E	No models fitted	All models fitted
2500B							
S02	87	180	68	15	5	0.6	1.0
S04	137	180	68	15	5	0.6	1.0
S08	239	180	68	15	5	1.1	1.7
S10	289	180	68	15	5	1.3	1.9
S12	340	180	68	15	5	1.6	2.1
S16	442	180	68	15	5	2.1	2.7

DIN Rail Mounting (horizontal)

1. Mount the DIN rail horizontally, using suitable bolts.
2. Ensure that the DIN rail makes good electrical contact with the metal base of the enclosure.
3. Loosen screws (1) in the base, and allow them, and the associated base retention clips (2) to drop to the bottom of the screw slot.
4. In the back of the base is an extruded slot which locates with the DIN rail (3).
5. Fit the top edges of this into the top edge of the DIN rail (3).
- Slide the screws (1) with the associated clips (2) upwards as far as they will go towards the top of the screw slots. The angled edge of the base retaining clip (2) must locate behind the bottom edge of the DIN rail.
6. Tighen the screws (1).

DIN Rail Mounting (vertical)

Caution! It is acceptable to mount the 2500 base vertically. If it is mounted vertically, however, it is advisable to fit a fan in the cubicle to ensure a free flow of air around the modules.

1. Mount the DIN rail vertically, using suitable bolts.
2. Ensure that the DIN rail makes good electrical contact with the metal base of the enclosure.
3. Loosen screws (1) in the base, and move them and the associated base retention clips (2) to the bottom of the screw slot.
4. In the back of the base is an extruder slot which locates with the DIN rail (3).
5. Fit the top edge of this into the top edge of the DIN rail (3)
6. Slide the screws (1) with the associated clips (2) upwards as far as they will go towards the top of the screw slots. The angled edge of the base retaining clip (2) must locate behind the bottom edge of the DIN rail.
7. Tighten the screws.

Direct Panel Mounting

1. Remove the screws (1) and base retention clips (2)
2. Hold the base horizontally or vertically on the panel and mark the position of the two holes on the panel.
3. Drill two 5.2mm holes in the panel.
4. Using M5 bolts supplied, secure the base to the metal panel.



CAUTION



Do not operate the equipment without a protective earth conductor connected to one of the earth terminals on the base unit. The earth cable should have at least the current rating of the largest power cable used to connect to the unit. Connect the protective earth with a suitable tinned copper eyelet, and use the screw ans washer supplied with the base unit, tightened to a torque of 1.2Nm (910.5lbin). This connection also provides a ground for EMC purposes. For DIN rail mounting, use symmetrical DIN rail to EN50022-35 X 7.5 or 35 X 15 mounted horizontally or vertically.

Connecting the 24Vdc Power Supply

Caution: Before proceeding with any wiring on this unit, please read section on Wiring, and Safety and EMC information. It is the responsibility of the installer to ensure the safety and EMC compliance of any particular installation.

The power supply is the 2500P. This is a DIN rail mounted unit, which may be mounted adjacent to the 2500 base or remotely. Alternatively, an existing power supply may be used provided it meets the specification below.

The IOC terminal unit contains a fuse and a reverse biased power diode. If the power is wired reverse polarity the fuse will blow and protect the complete 2500 base from damage. The fuse is not user replacable. The unit should be returned to the factory for replacement.

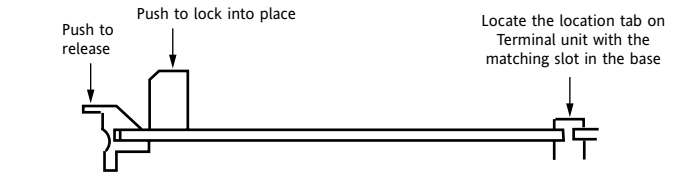
Power supply specification

Power supply voltage:	18.0Vdc min to 28.8Vdc max
Supply ripple:	2Vp-p max
Power consumption:	90W max. per base

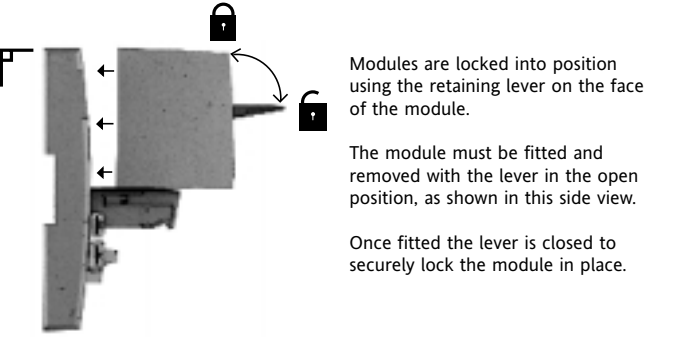
Note:- The current taken by each module is 100mA on average. 18V is the absolute lower limit. The use of an 18V power supply with any appreciable voltage drop may cause unpredictable or out of specification operation.

Assembling I/O Modules & Terminal Units

To Fit Terminal Unit



To Fit a Module



The Configuration Port

An RS232 configuration port is provided on the front of the IOC, via a RJ11 socket. When the IOC is powered up with a PC connected to the RJ11 configuration port, it will start in configuration mode. Alternatively, the IOC is put into configuration mode by setting a command from the configuration software. Note:- Existing configuration mode must be done using iTools or through communications.

The IOC will not control the process if:

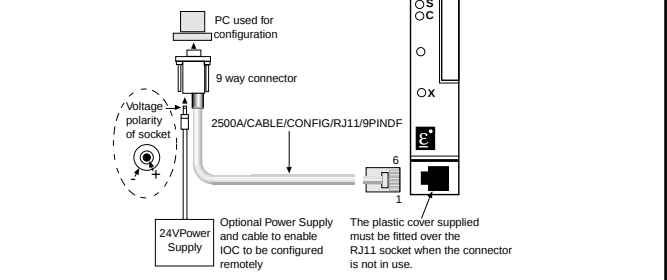
1. It is in configuration mode or standby mode
2. A network watchdog time-out occurs (if configured)
3. It is removed from the system

Under these conditions all modules will enter a 'safe' state. Generally this defaults as digital output modules will go to an OFF state, and analogue output modules will go to a minimum output state (generally 0V or 4mA). Unless set otherwise in the configuration.

Connections to this socket are given below:

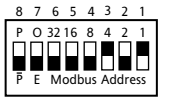
Pin connections RJ11 into IOC	Pin connections on 9 way D-type into PC	Pin connections on 25 way D-type into PC
6 no connection	-	
5 RX	3 TX	2TX
4 TCX	2RX	3RX
3 0V	5 0V	7 0V
2 no connection		
1 24V (in)		
Screen	Screen	1 Screen

Configuration Connections



IOC Terminal unit Address Switches

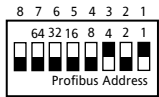
Modbus



P=Parity on, P=Parity off, O=Odd, E=Even

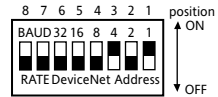
Sixty-three Modbus addresses can be set in binary using positions 1 to 6. Parity has three possible states - none/even/odd - using SW7 & 8 as above. If the address switch is set to all OFF then the IOC expects to have it address set by the configuration tools. For addresses between 65 and 255 the address switch must be set all OFF and the address set in iTools.

Profibus



The switch gives 127 addresses from 1 to 127. Address 0 is invalid. Switch 8 is not normally used. If, however, it is set to ON the unit address is settable over communications.

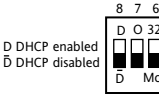
DeviceNet



Addresses from 0 to 63 can be set. SW7 | SW8 | Communications speed

0	0	125K baud
0	1	250K baud
1	0	500K baud
1	1	Both speed and node address controlled software

Ethernet

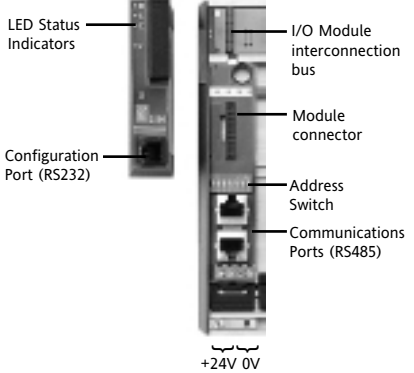


Addresses from 1 to 63 are set on the rightmost 6 switches. The leftmost switch may be used to enable DHCP Ethernet addressing. If all switches are off, the Modbus address and DHCP enable will be determined by the value seen in the iTools Operator.

Modbus Communications

The Modbus network connection (RJ45 sockets) and the 2500 system power connections (standard screw terminals) are provided by the Terminal Unit.

The network connection to an operator interface unit, a PC running iTools or 3rd party system, or to link further slave 2500 controllers or other Modbus equipment in a system. The IOC can be configured from the Modbus network if required.



Connections to the Network Connectors

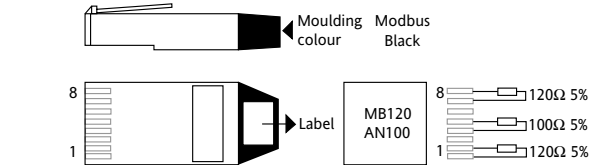
RJ45 pin	Colour	EIA485	2 wire	4 wire
1	Orange/White	B	D-	TX-
2	Orange	A	D+	TX+
3	Green/White	Gnd	Gnd	Gnd
4	Blue			
5	Blue/White			
6	Green	Gnd	Gnd	Gnd
7	Brown/White	B		RX-
8	Brown	A		RX+
Screen			-	-

Modbus RJ45-Type Connections
WARNING CABLE COLOURS MAY CHANGE!

Modbus - RJ45 Communications Line Terminator

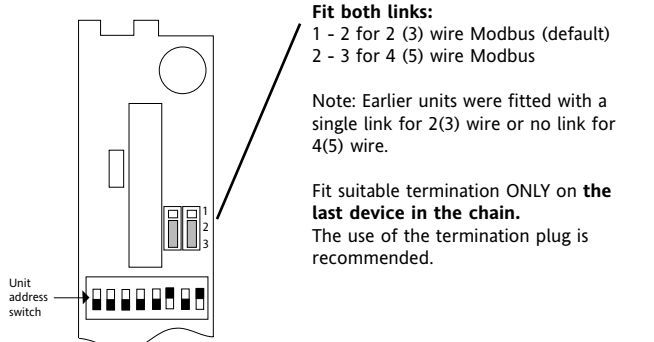
The communications line must be terminated using the appropriate load resistors. To minimise on site wiring and to provide the correct resistor values, 'Terminator' are available from Eurotherm.

2500A/TERM/MODBUS/RJ45



The terminator is plugged into the last RJ45 socket in the chain. If the operating interface is a PC or PLC this should be terminated in accordance using the appropriate load resistors.

RS422-RS485 Modbus communications selection



Fit both links:
1 - 2 for 2 (3) wire Modbus (default)
2 - 3 for 4 (5) wire Modbus

Note: Earlier units were fitted with a single link for 2(3) wire or no link for 4(5) wire.

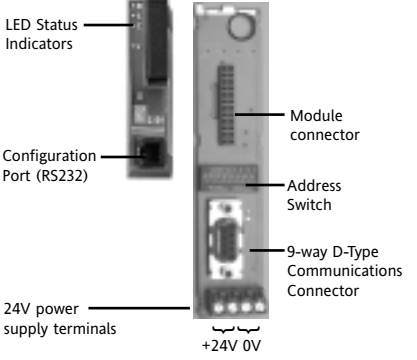
Fit suitable termination ONLY on the last device in the chain. The use of the termination plug is recommended.

Profibus DP and DPv1 Communications

There are two ProfiBus TU options: a standard 9-Way D-type, and a dual RJ45 unit. The latter is similar to the Modbus terminal unit, but must not be confused; the Modbus unit includes capacitors that could affect high-speed data.

Baud rate

Baud rate is set by the Profibus Master which is able to detect the fastest Baud at which all slaves can operate. The Profibus IOC is capable of operating at 12Mbaud.



Connections to the Network Connectors

The 9 pin D-Type connector is intended for installations using standard Profibus cables:

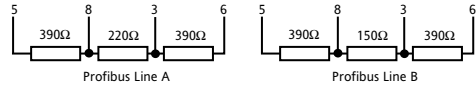
Pin No.	Signal Name	Meaning
1	Shield	Shield (ground)
2	Not used	
3	RxD/TxD-P	Receive/Transmit - Data 'P'
4	Not used	
5	DGND	Data ground
6	VP	Voltage - Plus
7	Not used	
8	RxD/TxD-N	Receive/Transmit - Data 'N'
9	Not used	

Profibus 9-pin D-Type Connections

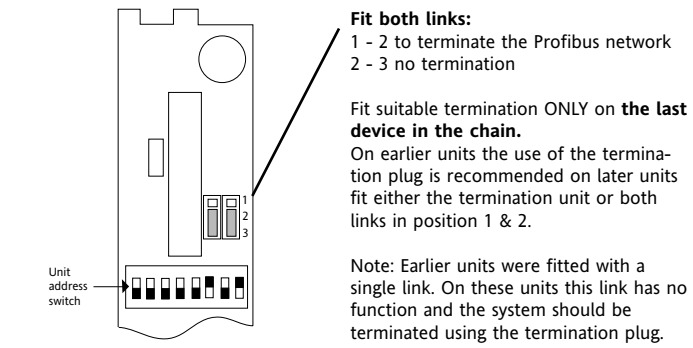
ProfiBus - 9 Pin connectors communications line terminators.

For 9 pin D connectors standard ProfiBus cables should be used. These cables have special headers on the 9 pin D male connector which allow one or two cables to be connected into them and have a small termination load built in with an ON/OFF switch, which is set to ON at the two ends of the link.

The ProfiBus standard states that two types of cable, 'Line A' and 'Line B', may be used. The termination details for these two types of cable are shown below:



Profibus RJ45 type - built-in communications line terminators



Fit both links:
1 - 2 to terminate the Profibus network
2 - 3 no termination

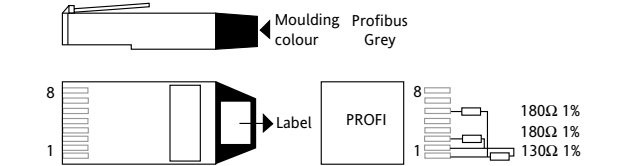
Fit suitable termination ONLY on the last device in the chain. On earlier units the use of the termination plug is recommended on later units fit either the termination unit or both links in position 1 & 2.

Note: Earlier units were fitted with a single link. On these units this link has no function and the system should be terminated using the termination plug.

RJ45 pin	Colour	Signal
1	Orange/white	Date 'N'
2	Orange	Date 'P'
3	Green/white	Gnd
4	Blue	-
5	Blue/white	-
6	Green	+15V
7	Brown/white	-
8	Brown	-

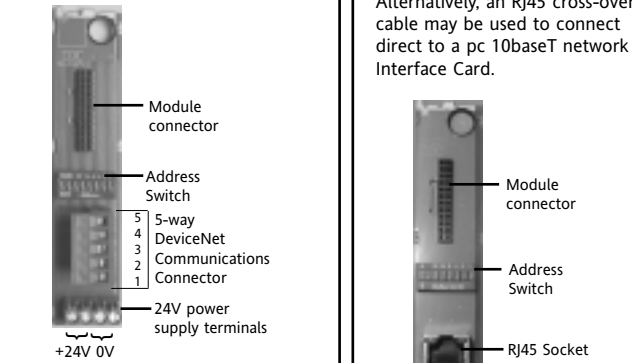
Profibus 9-pin D-Type Connections

2500A/TERM/PROFIBUS/RJ45



DeviceNet Communications

The DeviceNet Communications IOC is identified by the front label and the order code printed on the side label. This IOC must be used with the DeviceNet Terminal Unit. The DeviceNet Connector is selected to comply with the Devicenet Open Connector specification (5-way, 5.08mm pitch).



The mating DeviceNet connector (female Open Connector) is supplied to facilitate screwing user wiring. The pin functions are marked on the TU.

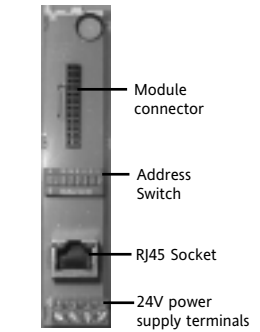
Pin Number	Function
1	V+
2	CAN_H
3	DRAIN
4	CAN_L
5	V-

DeviceNet Terminators

The DeviceNet specification states that the bus terminators should not be included as any part of a master or slave. They are not supplied as part of the 2500 DeviceNet termination assembly.

Ethernet Communications

The Ethernet IOC is defined by the front label and the order code printed on the side label. This IOC must be used with the Ethernet Terminal Unit. The Ethernet port is a 10baseT port and can be connected to a hub or switch with Cat5 cable via the standard RJ45 connector. Alternatively, an RJ45 cross-over cable may be used to connect direct to a pc 10baseT network Interface Card.



Connections to the RJ45 Socket

The RJ45 socket is connected according to the Ethernet standard.

RJ45 pin	Colour	Signal
1	Orange/white	TX+
2	Orange	TX-
3	Green/white	RX+
4	Blue	-
5	Blue/white	-
6	Green	RX-
7	Brown/white	-
8	Brown	-

CABLE COLOURS MAY CHANGE