

HE1000

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**Metrodata HE1000
ASI/HSSI Converter
Installation Guide**

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Part No: 76-02-049B

1 INTRODUCTION

1. 1 About the HE1000

The Metrodata HE1000 provides the ability to extend HSSI traffic to 150 metres distance by using an ASI connection on standard good quality co-axial cable. The HE1000 operates as a HSSI DCE, providing the transmit timing to an attached router. A simple bit-switch array on the baseplate is used to enable operation at either 1xn Mbps or standard network frequencies such as 34.368 Mbps. HSSI speeds of up to 51.84 Mbps are selectable in steps of 1xn Mbps

The HE1000 can also be used to interface between a router with an HSSI interface and a remote (150 metres) satellite modem with an ASI interface. ASI runs over standard co-axial cable and is terminated with BNC connectors at the HE1000.

2 STATUTORY INFORMATION

2.1 Safety

The following ports are designated SELV (Safety Extra Low Voltage) within the scope of EN41003:

ASI Tx and Rx Ports
HSSI DCE Port
Alarm extension port

These ports should only be connected to SELV ports on other equipment in accordance with EN60950 clause 2.3.

2.2 Electromagnetic Compatibility

In order to ensure EMC compliance all signal and data cables and connectors must use a screened connector shell with a screened cable. The cable screen must be terminated to the screened connector shell and not connected to any pins of the connector. Failure to use the correct connector may compromise EMC compliance.

2.3 FCC Declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at its own expense.

2.4 EN55022 Declaration

The HE1000 is a Class A product. In a domestic environment it may cause radio interference, in which case the user may be required to take adequate measures.

2.5 RoHS Compliance

The HE1000 is compliant with the EU RoHS directive 2002/95/EC. The RoHS directive bans the use of six hazardous materials in products placed on the market after July 1st 2006. The six banned materials are Lead, Mercury, Hexavalent Chromium, Polybrominated Biphenyls, Polybrominated Diphenyl Ethers and Cadmium.

The HE1000 is categorised as a “network infrastructure” product, and as such has an exemption for the use of leaded solder for reliability. The HE1000 is therefore RoHS 5/6 compliant.

2.6 Power Supply

The HE1000 is powered by a mains supply with an input voltage of 220-250VAC 50-60Hz with a maximum input current of 25 mA. Mains power is connected via the IEC inlet on the rear of the unit. The HE1000 consumes approximately 5 Watts.

An alternative -48VDC powered unit is available. The input voltage and current ranges are minus 36 to minus 72 volts DC, 200 - 100mA. A Buccaneer type socket is fitted to the rear panel, and a plug is provided with the unit for the customer's own wiring. The connections are labelled on the rear panel of the HE1000.

Pin no	Connection
1	-48VDC
2	Ground
3	0VDC

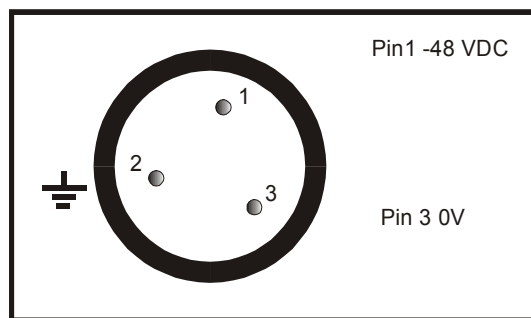


Figure 2.1 -48VDC connections

Note: The HE1000 must be connected to mains safety earth for correct operation. On some units, an additional Ground stud may be located on the rear panel to permit a separate Ground connection to be made.

3 INTRODUCING THE HE1000

3.1 Rear Panel

The layout of the rear panel of the HE1000 is shown in schematic form below

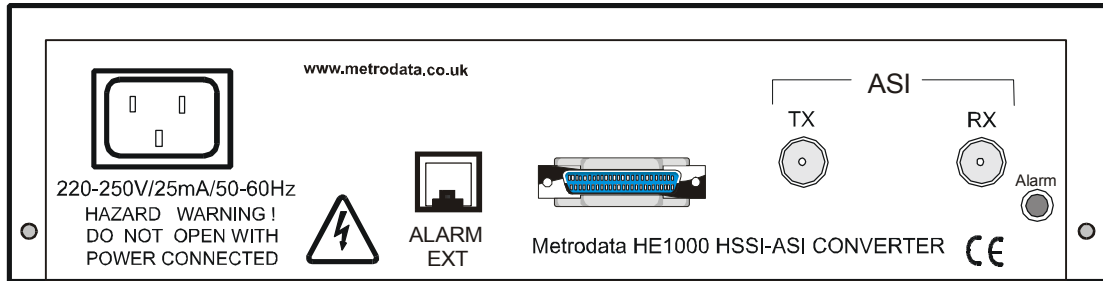


Figure 3. 1 HE1000 rear panel

The HSSI connection is via a 50-way AMP connector. The ASI connections are for co-axial cables, one for receive and one for transmit. The alarm extension is an RJ45 outlet.

3.2 Status LED

There is a single alarm/status LED on the rear panel that indicates the status of the HE1000 as shown in the table below .

Status LED	Meaning
Off	Power is not being received by the HE1000.
Green Steady	Power is being received by the HE1000. Status OK
Red	Initialising
Green/Off Flashing	DTE Alarm

Figure 3. 2 Alarm LED indications

3. 3 Bit-switch configuration

The bit-switches are located on the underside of the HE1000 unit and must be configured to select the required data rate for the application as shown in the label schematic below.

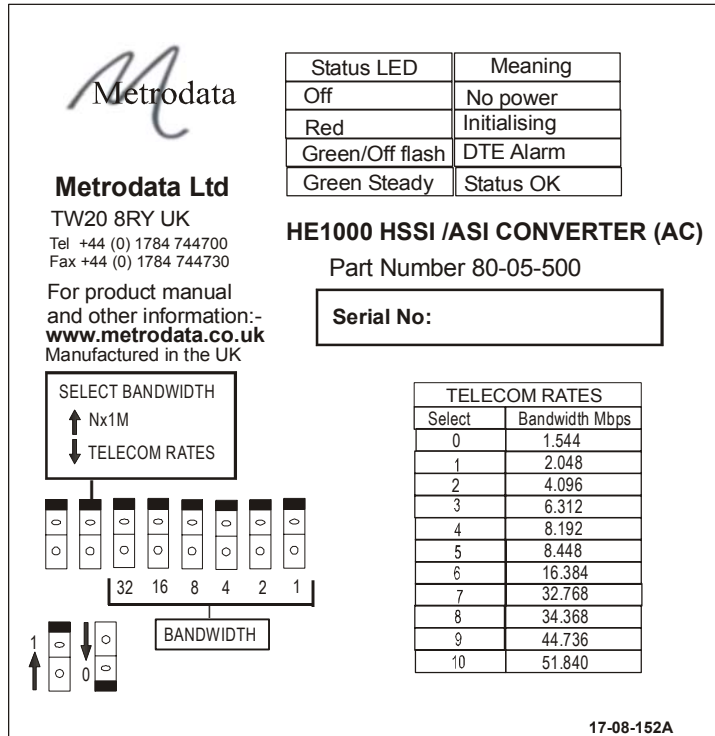


Figure 3. 3 HE1000 baseplate label

The HE1000 supports either Nx1Mbps, where 1<N<63, or standard frequencies as shown in the table below. The switches are set to form a binary representation of the required selection, with switches 1-6 providing frequency selection and switch 7 selecting between Nx1M and the standard frequencies. switch 8 is not used.

Bit-switch 1-6 setting	Decimal-setting	Frequency Mbps
000000	0	1.554
000001	1	2.048
000010	2	4.096
000011	3	6.312
000100	4	8.192
000101	5	8.448
000110	6	16.384
000111	7	32.768
001000	8	34.368
001001	9	44.736
001010	10	51.840

Figure 3.4 Bit-switch settings for telecom rates

4 RACKMOUNTING HE1000

4.1 Optional rackmounting procedure

Rackmounting kit Part No 80-05-256 may be used to mount two HE1000 units side by side in a 19" rack.

First remove the two rear panel screws securing the lid of each unit. Fasten the two HE1000 units to the rackmount adaptor plate using the screws that you have removed, as shown in the illustrations below.

Then secure the rack mounting plate complete with the two HE1000 units to the 19" rack using the locating holes at the ends of the adaptor plate. If you have set the bit-switches on the base plate of the units before fixing them to the adaptor plate, check that the settings are still correct. The bit-switch setting options are described in the previous section of this guide.

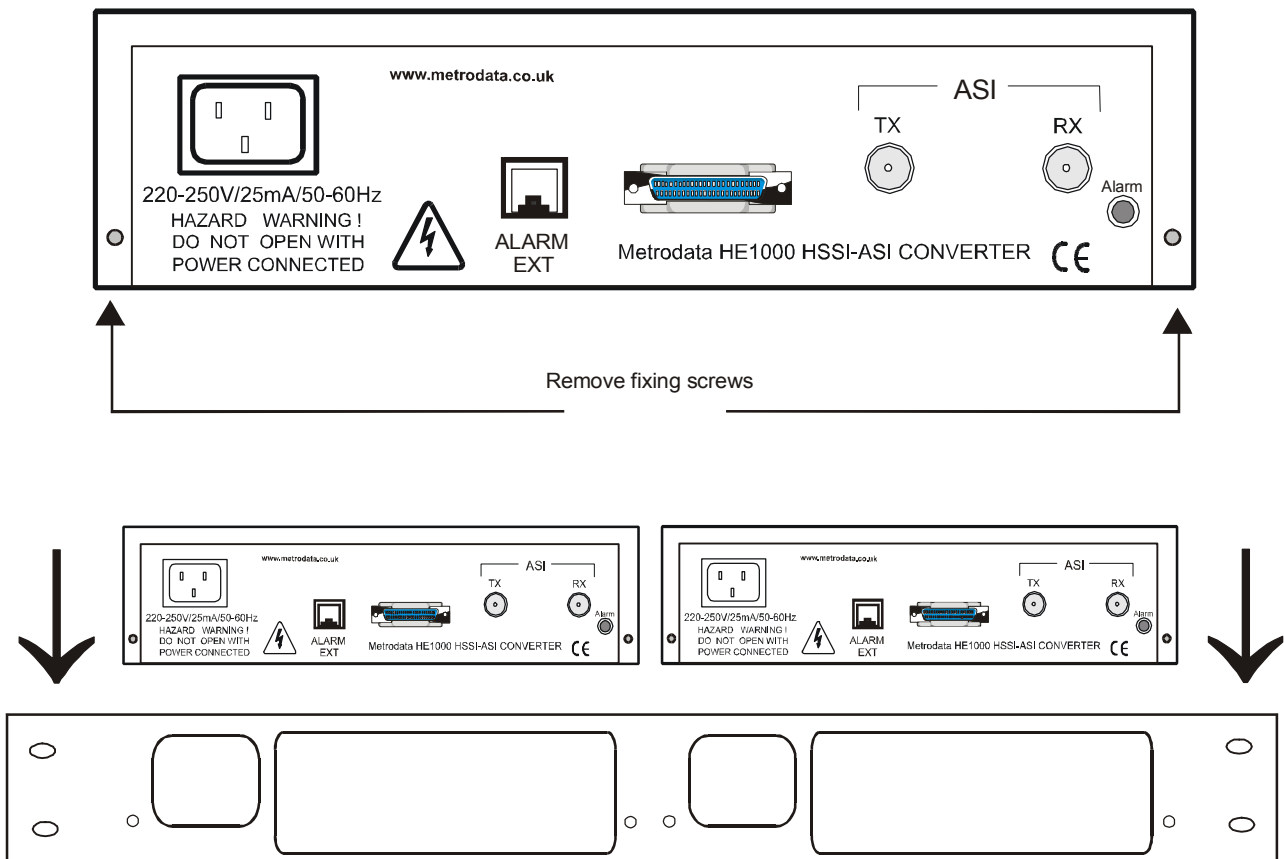


Figure 4.1 HE1000 rackmounting

5 INSTALLING & SETTING UP

5.1 Power up the HE1000

The unit requires 220-250 VAC, 50-60 Hz, 25mA (5 watts). Plug an IEC mains cable into the back of the HE1000 and switch on. Check that the Alarm LED on the rear panel is flashing Green/Off.

5.2 Connect the HSSI cable

The HE1000 provides a HSSI DCE port allowing for direct connection to a router. A straight-through HSSI cable should be used to connect thr router. When connected, the Alarm LED should give a steady Green display.

Note:	The HE1000 should be located close to the router to ensure that the HSSI cable is as short as possible.
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5.3 Connect the ASI ports

Plug the ASI Rx and Tx cables into the corresponding ASI BNC ports on the rear panel of the HE1000.

5.4 Optionally connect the Alarm relay

The HE1000 offers an Alarm relay to provide an external warning of problems which may arise. The interface is presented on an RJ45 connector, and offers both normally open and normally closed contacts. Maximum contact rating is 1.5 Amp at 125 VDC. Normal is the powered up, non-alarmed state. The connections are shown in the table below:

Pin	Contact
1	Normally closed
2	Normally open
3	Common
4	
5	
6	
7	
8	

Figure 5. 1 Alarm relay contacts