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IRT Eurocard

Type MDC-3661

**2Mb/s (E1) G.703 / ASI
Network Interface Adapter**

Designed and manufactured in Australia

**IRT can be found on the Internet at:
<http://www.irtelectronics.com>**

IRT Eurocard**Type MDC-3661****2Mb/s (E1) G.703/ASI
Network Interface Adapter****Revision History**

Revision	Date	By	Change Description	Applicable to:
0	11/01/2005	AL	Original Issue.	Firmware version mdc3661i1
1	12/01/2005	AL	Reference to RS encoded deleted.	Firmware version mdc3661i1
2	30/04/2010	AL	188 byte ASI option added.	Firmware version mdc3661i2

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Instruction Book

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This instruction book applies to units fitted with firmware version mdc3661i2.

Operational Safety:

WARNING

Operation of electronic equipment involves the use of voltages and currents that may be dangerous to human life. Note that under certain conditions dangerous potentials may exist in some circuits when power controls are in the **OFF** position. Maintenance personnel should observe all safety regulations.

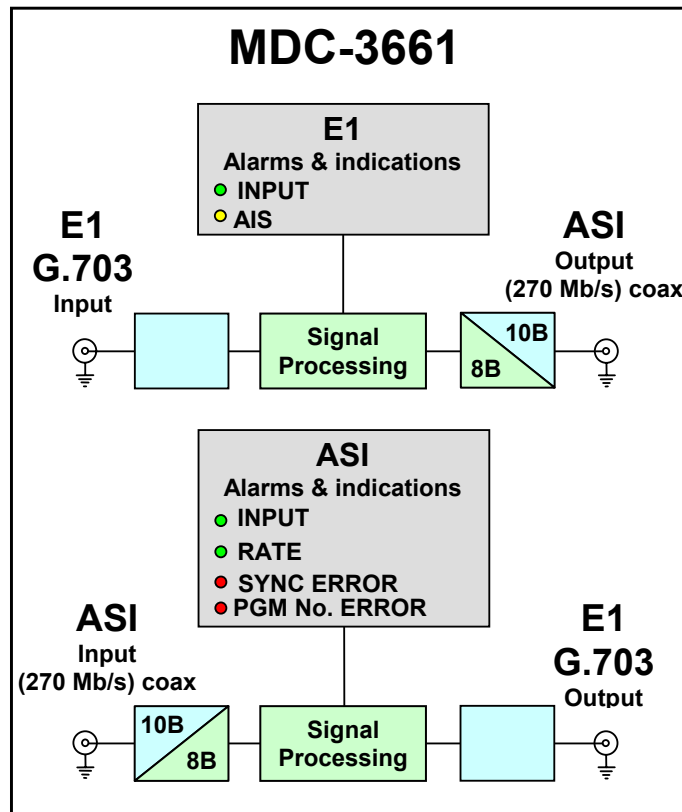
Do not make any adjustments inside equipment with power **ON** unless proper precautions are observed. All internal adjustments should only be made by suitably qualified personnel. All operational adjustments are available externally without the need for removing covers or use of extender cards.

IRT Eurocard

Type MDC-3661

2Mb/s (E1) / ASI Network Interface Adapter

General Description



The MDC-3661 takes a 2048 kb/s G.703 (E1) signal and packs it as private data into a DVB compliant, 188 or 204 byte (selectable), ASI transport stream. On board switch settings set the ASI program number to a choice of 8 settings. This allows it to pass through ASI style of circuits such as IRT's ASI Mux/DeMux and fibre modules as well as ASI statistical multiplexers.

The MDC-3661 will also simultaneously decode an appropriate ASI input into 2048 kb/s G.703 (E1).

In the absence of an ASI input, the G.703 output is AIS (Alarm Indication Signal). In the absence of a valid G.703 input, AIS is packed into a 188 or 204 byte (selectable) ASI transport stream.

For the G.703 input, front panel LEDs indicate if a G.703 input is present and if it is AIS. For the ASI input, front panel LEDs indicate if the ASI is present, if the ASI is at the correct input rate, if there is a sync error, or if the program number of input signal is missing or does not match the on board switch setting.

External relay contact alarms also are available on the rear connector assembly.

The MDC-3661 is suitable for mounting in all IRT's standard 1RU and 3RU frames

Standard features:

- 2 Mb/s (E1) G.703 input to ASI output.
- ASI input to 2 Mb/s (E1) G.703 output.
- AIS signal generated when no input is present.
- Selectable ASI program number.

Technical Specifications

IRT Eurocard module Type MDC-3661

Input 1:

Type	1 x G.703.
Electrical characteristics	HDB3 encoded.
Data rate	2048 kb/s (E1).

Output 1:

Type	1 x ASI-C, 75 Ω , 188 or 204 Byte (selectable), (distributed).
Data Rate	2.831 Mb/s for 188 byte, or 3.072 Mb/s for 204 byte (nominal).
Impedance	75 Ω
Level	800 mVp-p.
Program Number	Selectable from 3661 (0E4D) to 3668 (0E54)

Input 2:

Type	1 x ASI-C, 75 Ω , 188 or 204 Byte, (distributed or contiguous)
Data rate	2.831 Mb/s for 188 byte, or 3.072 Mb/s for 204 byte (nominal).
Return Loss	>15 dB 5 MHz to 270 MHz.
Equalisation	Automatic, better than 300 metres at 270 Mb/s for Belden 8281 or equivalent cable.
Program Number	Selectable from 3661 (0E4D) to 3668 (0E54).

Output 2:

Type	1 x G.703.
Electrical characteristics	HDB3 encoding.
Data Rate	2048 kb/s (E1).

Alarms:

2 x general alarm	<ul style="list-style-type: none"> - Relay 1 releases on ASI Sync loss, incorrect ASI rate, incorrect program number, or power loss. - Relay 2 releases on G.703 input loss, or power loss.
	2 set relay contacts - N/O1, N/C1, N/O2, N/C2, Com.
	5 pin phoenix style connector.

Power Requirements	28 Vac CT (14-0-14) or ± 16 Vdc.
Power consumption	<4 VA.

Other:

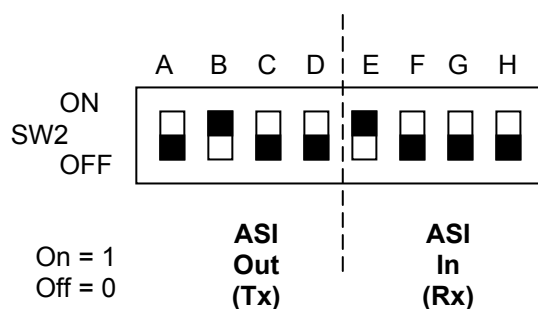
Temperature range	0 - 50° C ambient.
Mechanical	Suitable for mounting in IRT 19" rack chassis with input, output and power connections on the rear panel.
Finish:	
Front panel	Grey background, silk-screened black lettering & red IRT logo.
Rear assembly	Detachable silk-screened PCB with direct mount connectors to Eurocard and external signals.
Dimensions	6 HP x 3 U x 220 mm IRT Eurocard.
Supplied accessories	Rear connector assembly including matching connector for alarm output.
Optional accessories	TME-6 module extender card.

Due to our policy of continuing development, these specifications are subject to change without notice.

Configuration

ASI Program Number set:

Switch 2 sets a choice of 8 different program numbers for both the ASI output and the ASI input.



SW2-A OFF - 204 byte ASI output at 3.072 Mb/s;
ON - 188 byte ASI output at 2.831 Mb/s.

SW2-E - Not Used.

Switch 2	ASI Out PGM No.	
BCD	Decimal	Hex
000	3661	(0E4D)
001	3662	(0E4E)
010	3663	(034F)
011	3664	(0E50)
100	3665	(0E51)
101	3666	(0E52)
110	3667	(0E53)
111	3668	(0E54)

Switch 2	ASI In PGM No.	
FGH	Decimal	Hex
000	3661	(0E4D)
001	3662	(0E4E)
010	3663	(034F)
011	3664	(0E50)
100	3665	(0E51)
101	3666	(0E52)
110	3667	(0E53)
111	3668	(0E54)

Installation

Pre-installation:

Handling:

This equipment may contain or be connected to static sensitive devices and proper static free handling precautions should be observed.

Where individual circuit cards are stored, they should be placed in antistatic bags. Proper antistatic procedures should be followed when inserting or removing cards from these bags.

Power:

AC mains supply: Ensure that operating voltage of unit and local supply voltage match and that correct rating fuse is installed for local supply.

DC supply: Ensure that the correct polarity is observed and that DC supply voltage is maintained within the operating range specified.

Earthing:

The earth path is dependent on the type of frame selected. In every case particular care should be taken to ensure that the frame is connected to earth for safety reasons. See frame manual for details.

Signal earth: For safety reasons a connection is made between signal earth and chassis earth. No attempt should be made to break this connection.

Installation in frame or chassis:

See details in separate manual for selected frame type.

ASI and G.703 Inputs and Outputs:

ASI and G.703 Inputs and Outputs are by BNC connectors on the rear of the connector unit.

Note that the MDC-3661 is made up of a 2 Mb/s (E1) G.703 to ASI encoder, and a completely separate ASI to 2 Mb/s (E1) G.703 decoder. Therefore the 2 Mb/s (E1) G.703 input pairs with the ASI output, and the ASI input pairs with the 2 Mb/s (E1) G.703 output.

Alarm Relays:

As well as front panel LEDs indicating signal status, there are two relay alarm outputs sharing a 5-pin connector, PL3, on the rear connector unit.

Relay 1 releases on ASI Sync loss, incorrect ASI rate, incorrect program number, or power loss.

Relay 2 releases on G.703 input loss, or power loss.

Pin 1 – Common

Pin 2 – Relay 2 Normally Open (N/O2)

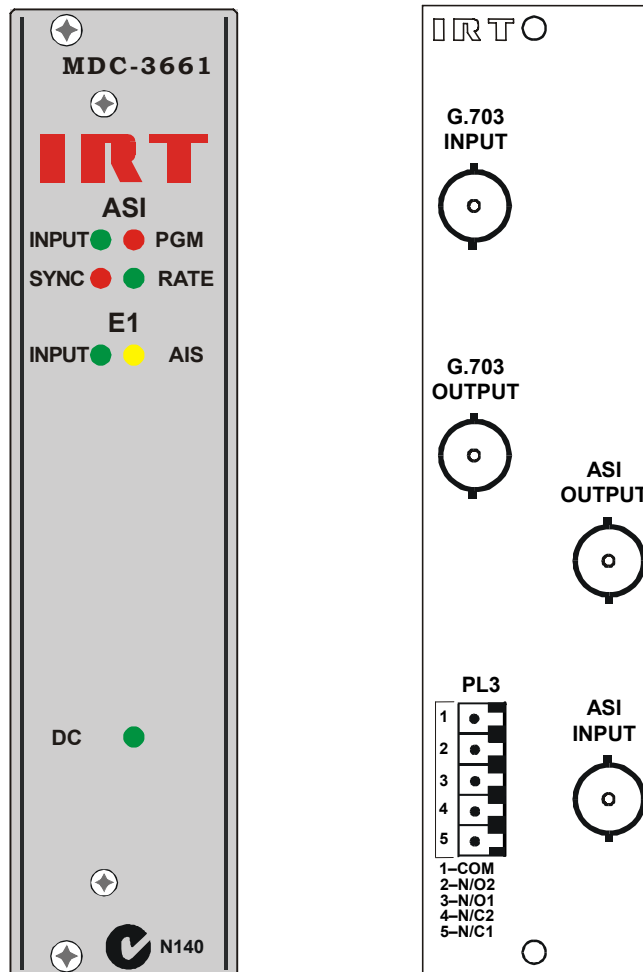
Pin 3 – Relay 1 Normally Open (N/O1)

Pin 4 – Relay 2 Normally Closed (N/C2)

Pin 5 – Relay 1 Normally Closed (N/C1)

Front & rear panel connector diagrams

The following front panel and rear assembly drawings are not to scale and are intended to show connection order and approximate layout only.



Operation

The MDC-3661 is made up of a 2 Mb/s (E1) G.703 to ASI encoder and a completely separate ASI to 2 Mb/s (E1) G.703 decoder. Therefore the 2 Mb/s (E1) G.703 input pairs with the ASI output, and the ASI input pairs with the 2 Mb/s (E1) G.703 output.

A choice of 8 *program numbers* from 3661 (Hex. 0E4D) to 3668 (Hex. 0E54) is possible for both the output and input ASI signals. The output and input *program numbers* may be set independently. See *Configuration Section* of this manual for *program number* settings. The *program number* determines the program identifier (PID) that is set for the private data packets in which the E1 data is stored.

In order for the MDC-3661 to decode an ASI stream to a 2 Mb/s (E1) G.703 signal, the ASI signal must, of course, first off have been encoded by another MDC-3661 encoder (or the other half of the same MDC-3661), and must also have its *program number* setting set to match that of the input ASI stream.

Other than setting the ASI program number for both the ASI output and input, setting up only consists of connecting the input and its corresponding output. Once this is done the front panel indicators should react and the output should present the correct format signal.

Any change in signal will be indicated by the front panel LEDs and/or alarm output as outlined below.

Front Panel Indicators:

ASI
 INPUT ● PGM
 SYNC ● RATE

E1
 INPUT ● AIS

ASI:

Input indicator:

This LED lights Green when a valid encoded ASI signal is present.

Sync loss alarm:

This LED lights Red upon loss of TS (Transport Stream) sync.

PGM (Program Number) error indicator:

This LED lights Red if the program number of the input ASI signal is missing or does not match the on-board switch settings.

Rate indicator:

This LED lights Green when the input ASI signal is at the correct expected rate of 2.831 Mb/s at 188 byte, or 3.072 Mb/s at 204 byte.

E1:

Input indicator:

This LED lights Green when a valid 2 Mb/s (E1) G.703 signal is present.

AIS indicator:

This LED lights Yellow when G.703 input is AIS (Alarm Indication Signal).

Alarm Relays:

As already mentioned in the Installation section of this manual, as well as front panel LEDs indicating signal status, there are two relay alarm outputs sharing a 5 pin connector, PL3, on the rear connector unit.

Relay 1 releases on ASI Sync loss, incorrect ASI rate, incorrect program number, or power loss.

Relay 2 releases on G.703 input loss, or power loss.

Pin 1 – Common

Pin 2 – Relay 2 Normally Open (N/O2)

Pin 3 – Relay 1 Normally Open (N/O1)

Pin 4 – Relay 2 Normally Closed (N/C2)

Pin 5 – Relay 1 Normally Closed (N/C1)

Maintenance & Storage

Maintenance:

No regular maintenance is required.

Care however should be taken to ensure that all connectors are kept clean and free from contamination of any kind. This is especially important in fibre optic equipment where cleanliness of optical connections is critical to performance.

Storage:

If the equipment is not to be used for an extended period, it is recommended the whole unit be placed in a sealed plastic bag to prevent dust contamination. In areas of high humidity a suitably sized bag of silica gel should be included to deter corrosion.

Where individual circuit cards are stored, they should be placed in antistatic bags. Proper antistatic procedures should be followed when inserting or removing cards from these bags.

Warranty & Service

Equipment is covered by a limited warranty period of three years from date of first delivery unless contrary conditions apply under a particular contract of supply. For situations when “No **Fault Found**” for repairs, a minimum charge of 1 hour’s labour, at IRT’s current labour charge rate, will apply, whether the equipment is within the warranty period or not.

Equipment warranty is limited to faults attributable to defects in original design or manufacture. Warranty on components shall be extended by IRT only to the extent obtainable from the component supplier.

Equipment return:

Before arranging service, ensure that the fault is in the unit to be serviced and not in associated equipment. If possible, confirm this by substitution.

Before returning equipment contact should be made with IRT or your local agent to determine whether the equipment can be serviced in the field or should be returned for repair.

The equipment should be properly packed for return observing antistatic procedures.

The following information should accompany the unit to be returned:

1. A fault report should be included indicating the nature of the fault
2. The operating conditions under which the fault initially occurred.
3. Any additional information, which may be of assistance in fault location and remedy.
4. A contact name and telephone and fax numbers.
5. Details of payment method for items not covered by warranty.
6. Full return address.
7. For situations when “No **Fault Found**” for repairs, a minimum charge of 1 hour’s labour will apply, whether the equipment is within the warranty period or not. Contact IRT for current hourly rate.

Please note that all freight charges are the responsibility of the customer.

The equipment should be returned **to the agent who originally supplied the equipment** or, where this is not possible, to IRT direct as follows.

Equipment Service
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Email: service@irtelectronics.com

Fax: 61 2 9439 7439