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IRT Eurocard

Type MDC-3660

2 Mb/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

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

Instruction Book

Table of Contents

This instruction book applies to units later than S/N 0305001.

Operational Safety:

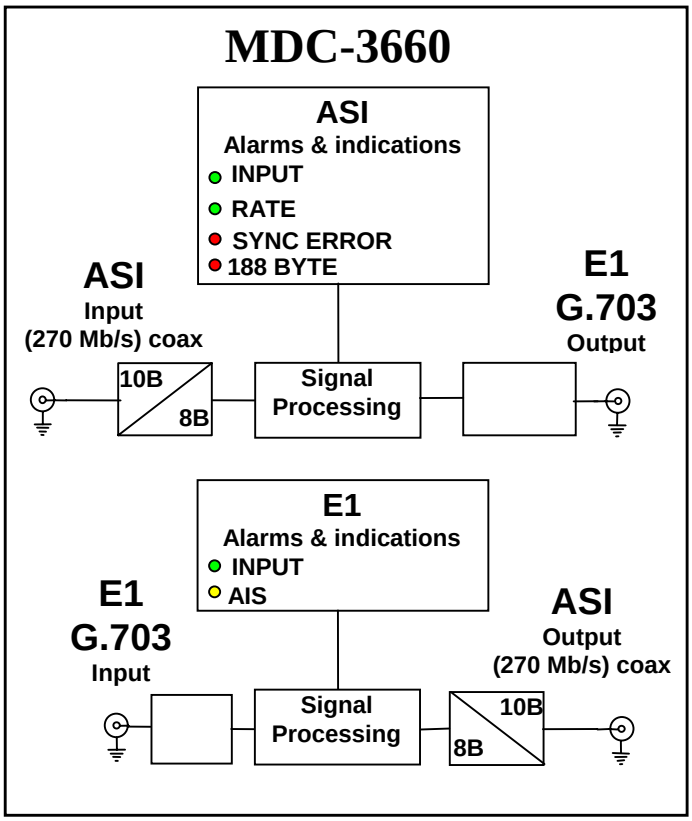
WARNING

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-3660
2 Mb/s (E1) G.703 / ASI
Network Interface Adapter

General Description



The MDC-3660 takes a 2048 kb/s G.703 (E1) signal and packs it into an RS encoded DVB compliant, 204 byte, ASI transport stream. This allows it to pass through ASI style of circuits such IRT's ASI Mux/DeMux and fibre modules.

The MDC-3660 will also simultaneously decode an appropriate ASI input into 2048 kb/s G.703 (E1).

The MDC-3660 finds particular use for transmission of framed or unframed E1 signals down an ASI link such as a fibre optic link.

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 an RS encoded 204 byte 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 the input signal is a 188 byte packet, as the unit expects a 204 byte packet signal.

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

The MDC-3660 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.**

Technical Specifications

IRT Eurocard module
Type MDC-3660

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, 204 Byte RS encoded.
Data Rate	3.072 Mb/s (nominal).
Impedance	75Ω.
Level	800 mVp-p.

Input 2:

Type	1 x ASI-C, 75 Ω, 204 Byte RS encoded.
Data rate	3.072 Mb/s (nominal).
Return Loss	>15 dB 5 MHz to 270 MHz.
Equalisation	Automatic, better than 250 metres at 270 Mb/s for Belden 8281 or equivalent cable.

Output 2:

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

Alarms:

2 x general alarm	- Relay 1 releases on ASI Sync loss, incorrect ASI rate, 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.

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-3660 is made up of a 2 Mb/s G.703 to ASI encoder and a completely separate ASI to 2 Mb/s 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:

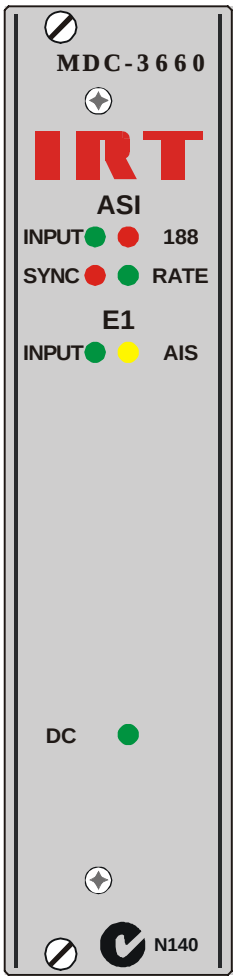
As well as front panel LEDs indicating signal status, there are two relay alarm outputs sharing a 5 pin connector, PL3, on the rear connector unit.

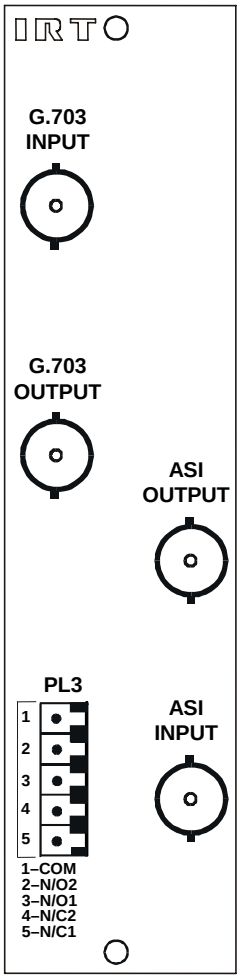
Relay 1 releases on releases on ASI Sync loss, incorrect ASI rate, or power loss.
Relay 2 releases on G.703 input loss, or power loss.

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.





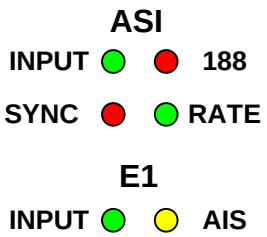
Operation

The MDC-3660 is made up of a 2 Mb/s G.703 to ASI encoder and a completely separate ASI to 2 Mb/s 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.

There are no operational or set-up controls for this module. 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 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.

188 byte indicator:

This LED lights Red when a 188 byte TS is present. The MDC-3660 expects to see a 204 byte signal.

Rate indicator:

This LED lights Green when the input ASI signal is at the correct expected rate of 3.072 Mb/s.

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 releases on ASI Sync loss, incorrect ASI rate, 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
IRT Electronics Pty Ltd
26 Hotham Parade
ARTARMON
N.S.W. 2064
AUSTRALIA

Phone: 61 2 9439 3744 Fax: 61 2 9439 7439
Email: service@irtelectronics.com

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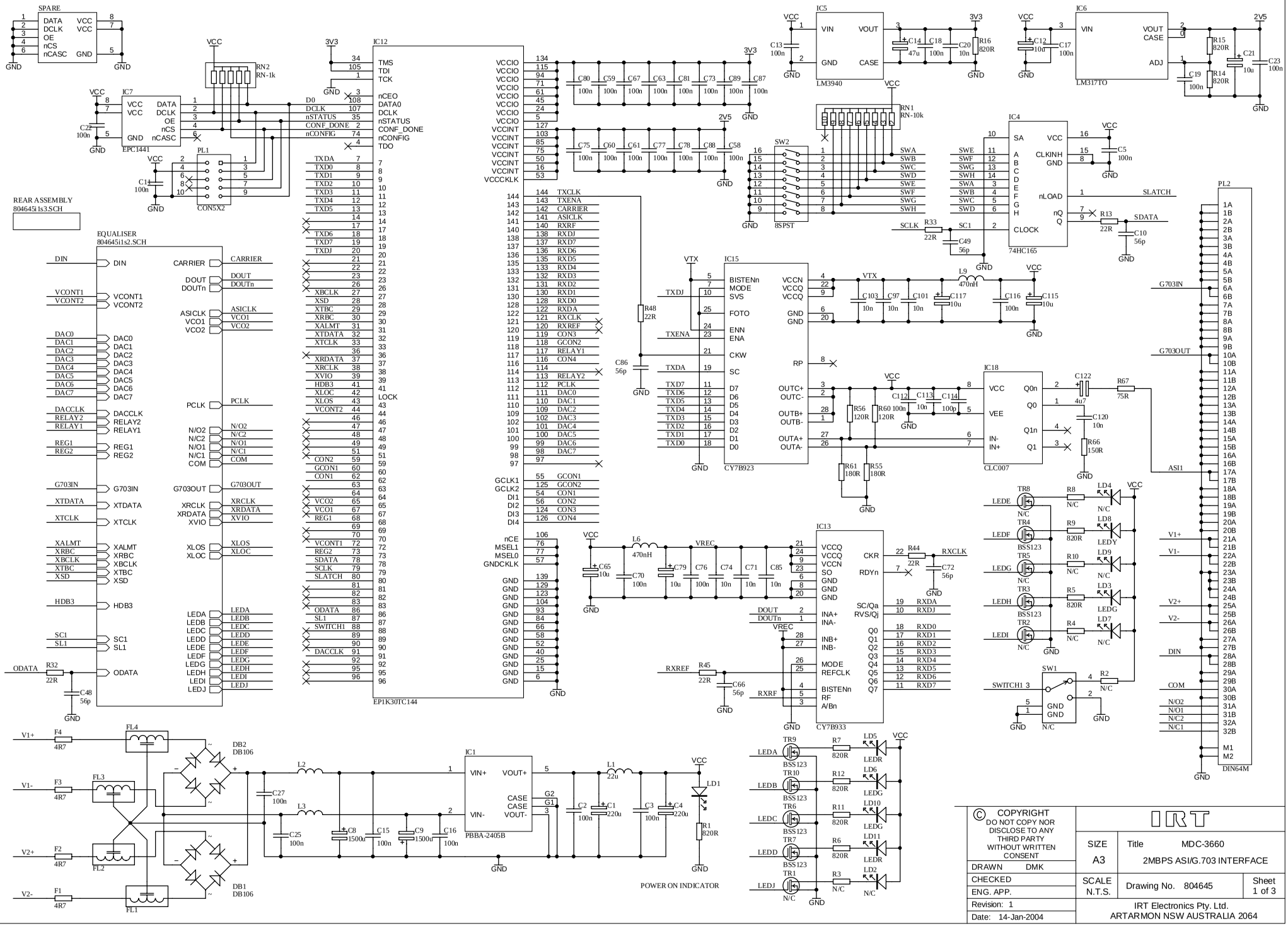
804645	3	2 Mb/s (E1) G.703/ASI Network Interface Adapter circuit diagram – sheet 3



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CHECKED	SCALE N.T.S. — Drawing No. 804645 — Sheet 1 of 3
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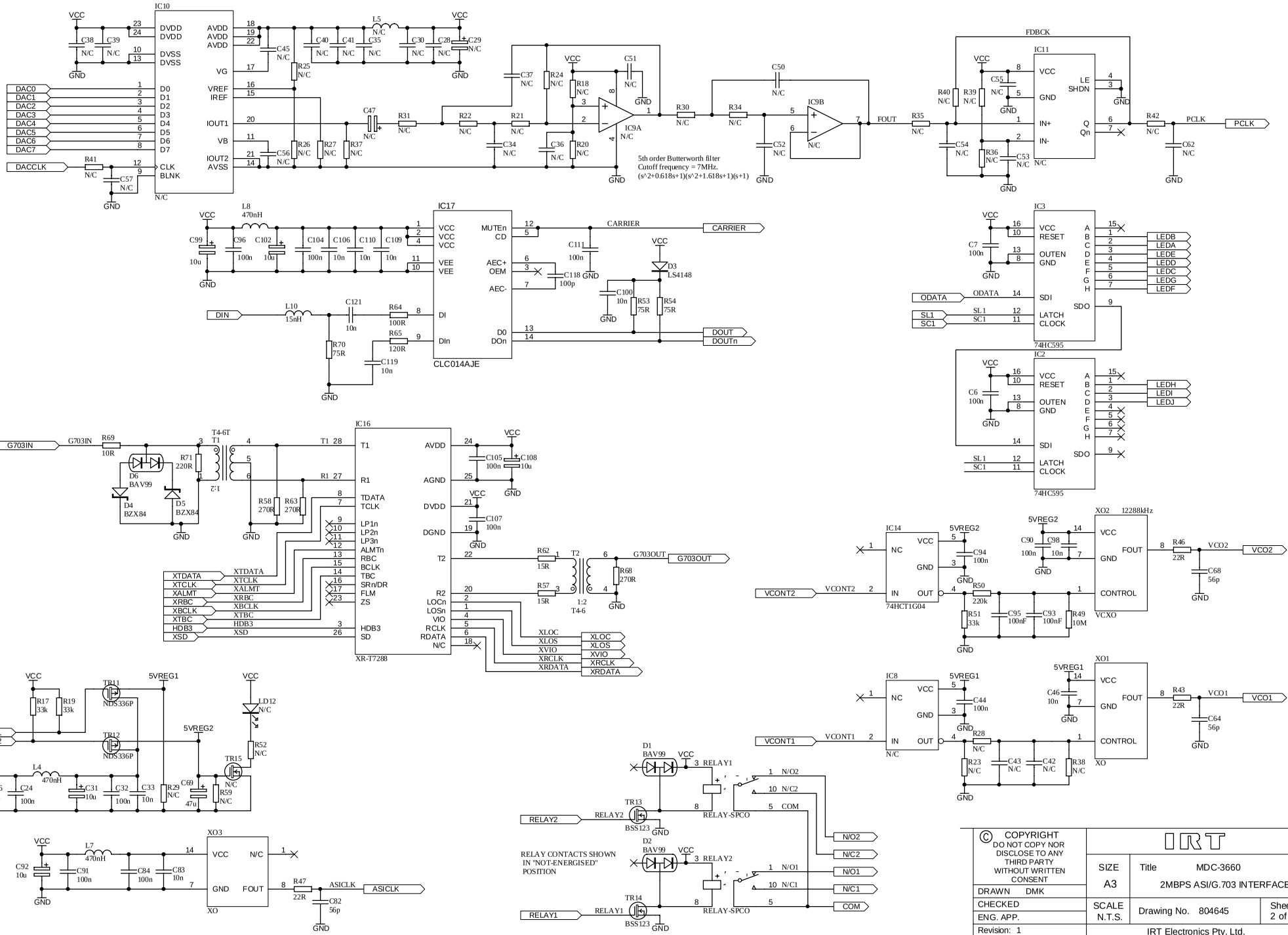
Revision: 1	IRT Electronics Pty. Ltd.
Date: 14-Jan-2004	ARTARMON NSW AUSTRALIA 2064



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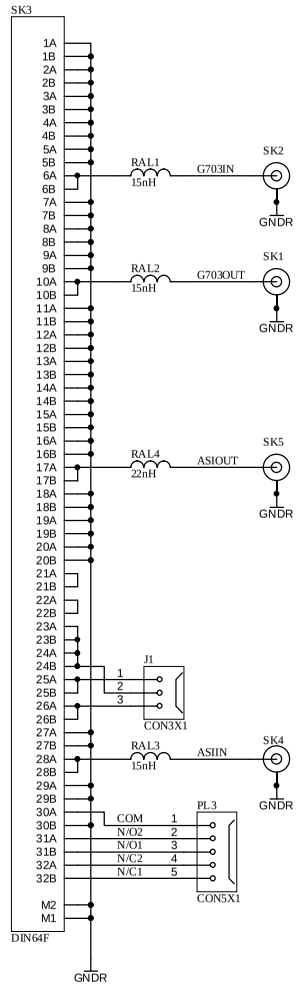

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