

4 ASI to G.703 (STM-1) Combiner / DeCombiner

FEATURES

- Up to 4 ASI and 1 Data stream on one 155 Mb/s (STM-1) G.703 electrical or optical link.
- Automatic Input equalisation up to 200m.
- Suitable for Single Frequency Network use.
- Maintains original ASI rate, packet size & coding.

GENERAL

The MMM-4682 and MMX-4682 are part of a family of data transcoders for converting between the commonly used MPEG2 Transport Stream formats for video distribution in the broadcast industry.

With the MMM-4682 up to four ASI and one RS232 data signals can be combined together and converted into 155Mb/s G.703 (STM-1) electrical CMI and optical NRZ signals.

The sum of the ASI input payload rates can be anything up to 148 Mb/s. Inputs may be 188 or 204 byte packet length, burst or continuous, and may have energy dispersal scrambling, interleaving and/or Reed Solomon bytes included.

The MMX-4682 separates the 155 Mb/s G.703 signal back into the original four ASI signals (at their original rates) and the RS232 data signal. The ASI outputs are suitable for Single Frequency Network use, in that there is no data rate conversion or PCR restamping of the ASI streams.

Inputs are automatically equalised for lengths of up to 200m of Belden 8281 or equivalent cable.

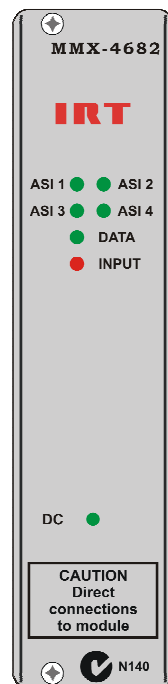
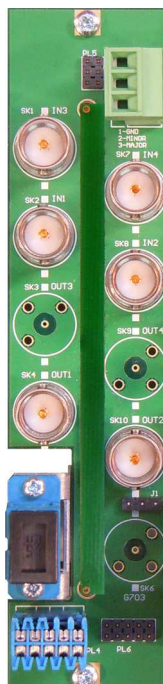
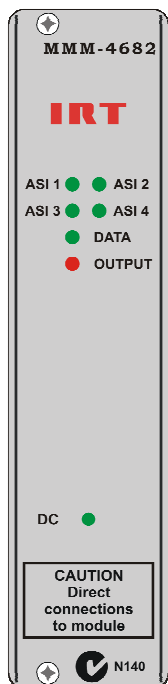
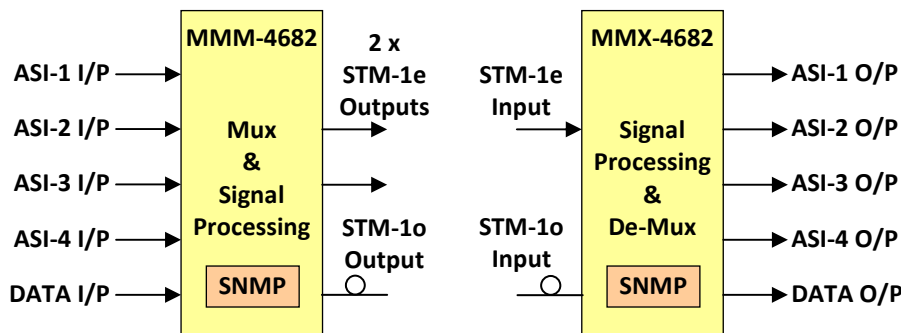
RS232 uni-directional data may also be sent on the same link. It can pass rates up to 19.2 kb/s with any combination of start/stop & parity bits. The data rate does not affect the payload available for the ASI streams.

Front panel indication and relay alarm on the MMM-4682 transmitter shows if there is an input data rate violation. Corresponding alarm on the MMX-4682 receiver shows a loss of STM-1 input.

SNMP (Simple Network Management Protocol) is available for monitoring and control when used in an IRT frame fitted with SNMP capability. Bandwidth capping of channels can be user set so as limit input rates so that maximum combined input is not exceeded, as well as channels being individually enabled or disabled, via SNMP.

The MMM-4682 and MMX-4682 are designed to fit IRT's standard Eurocard frames and may be used alongside any other of IRT's analogue or digital Eurocards.

BLOCK DIAGRAM MMM-4682 & MMX-4682 SIGNAL PATH



TECHNICAL SPECIFICATIONS

MMM-4682:

Inputs:

Type 1	4 x ASI-C 75Ω, 800 mVp-p, BNC connector.
Maximum Data Rate per channel	Up to a combined maximum rate of 148 Mb/s.
Type 2	RS232 Uni directional data input.
Equalisation	Automatic, better than 200m at 270Mb/s for Belden 8281 or equivalent cable.

Output:

Type 1	2 x 1Vp-p, G.703, 75Ω BNC connector.
Electrical Characteristics	CMI (STM-1e) or NRZ (STM-1o) ¹ encoded, selectable.
Type 2	1 x optical, G.703, SC/PC connector (standard).
Optical Characteristics	NRZ (STM-1o) encoded.
Data Rate	155.52 Mb/s.

Alarm Output:

MAJOR	Open circuit on sum of ASI input payload rates in excess of maximum allowable 148Mb/s, or loss of power.
MINOR	Open circuit on no valid input ASI streams present, or loss of power.

MMX-4682:

Input:

Type 1	1 x G.703, 75Ω BNC connector.
Electrical Characteristics	CMI (STM-1e) or NRZ (STM-1o) ¹ encoded, selectable.
Equalisation	Automatic, better than 200m at 155Mb/s for Belden 8281 or equivalent cable.
Type 2	1 x optical, G.703, SC/PC connector (standard).
Optical Characteristics	NRZ (STM-1o) encoded.
Data Rate	155.52 Mb/s.

Outputs:

Type 1	4 x ASI-C 75Ω, 800 mVp-p, BNC connector.
Data Rate	Same as MMM-4682 input rate.
Type 2	RS232 Uni directional data output.

Alarm Output:

MAJOR	Open circuit on no valid STM-1 input present, AIS on STM-1 input detected, or loss of power.
MINOR	Open circuit on no valid output ASI streams present, or loss of power.

Optical:

Optical path loss	3 to 18 dB with PIN detector (typ. 20dB). NOTE: requires optical attenuator for path losses < 3dB.
Optical fibre	Designed for use with 9/125 μm single mode fibre.
Optical wavelength	1310nm (DFB laser - standard).
Optical connectors	SC/PC (standard).
MMM-4682 optical output	0 dBm +4.5/-0 dB standard DFB laser.
MMX-4682 optical input	PIN detector, -3 to -18 dBm input level.

Power Requirements:

Voltage	28 Vac CT (14-0-14) or ±16 Vdc.
Power consumption	6 VA.

Other:

Temperature range	0 - 50° C ambient.
Mechanical	For mounting in IRT 19" rack chassis with input, output and power connections on the rear panel.
Finish	Grey background, black lettering & red IRT logo.
Front panel	
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.
Ordering Information	MMM-4682/PC & MMX-4682/PC for standard SC/PC optical connector (suffix /APC for SC/APC); MMM-4682 & MMX-4682 for electrical only (non-optical) version.

NOTE: 1 CMI encoding standard for STM-1 electrical. NRZ encoding on electrical O/Ps and I/P for use with external optical transmitters and receivers (for backwards compatibility with previous models).