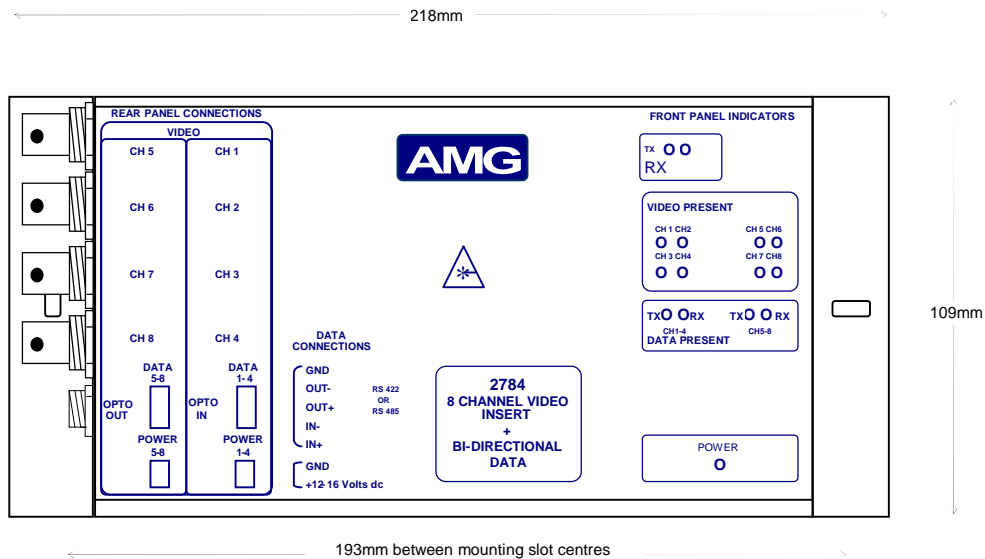




AMG2784 Instruction Manual

Eight Channel Video RX Unit with 2 Bi-directional Data



The **AMG2784** is a standalone eight channel video receive unit designed to receive eight video signals. It also provides two RS485/RS422 or RS232 bi-directional data channels. It is designed to be powered from an **AMG2002** power supply.

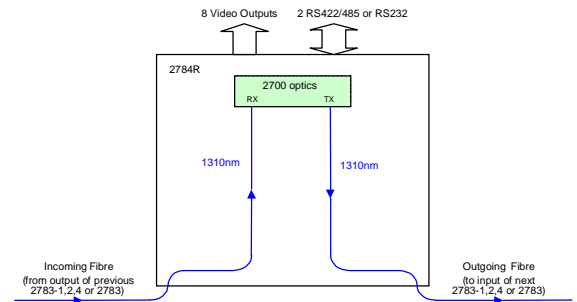
The **AMG2784** is designed to operate with the **AMG2783R** or **AMG2783** eight channel video transmitter and data transceiver requiring two singlemode fibres for operation of the video and bi-directional data.

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Introduction

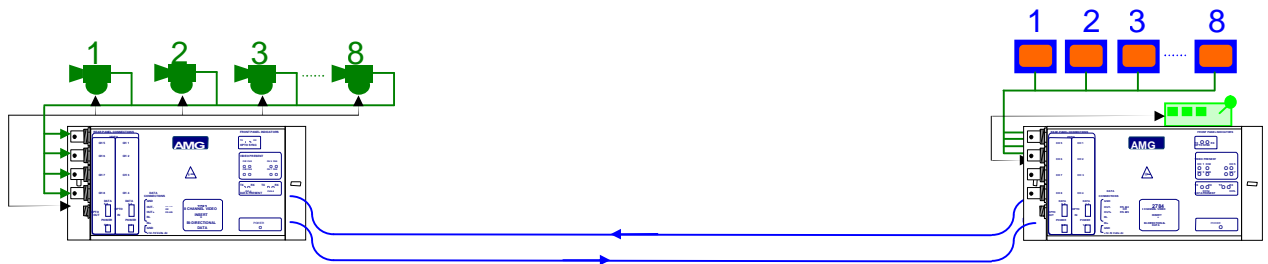
Unit Functional Schematic

The **AMG2784** receives a 1310nm optical signal and drops of video and data transmitted from an **AMG2783** transmitter. It then transmits data signals onto the outgoing 1310nm optical signal. The video signals are received from the 8 channels available on the optical fibre.



Optical System Connection

The **AMG2783** is connected as illustrated below when used with an **AMG2784** 8 channel receiver.



Note that where necessary repeaters can be added at nodes to increase the average distance between nodes.

Connections

Video Input Connection

Connector 75 ohm BNC Socket.
 Output Impedance 75 ohm terminated.
 Output Level 1 volt p-p nominal
 Frequency Response 10Hz to 5.75MHz min.
 No of channels 8

Optical Connections

OPTO OUT

Connector FC/PC
 Optical Launch Power -5dBm
 Wavelength 1310nm

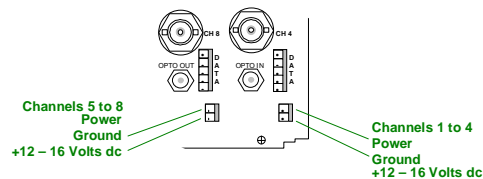
OPTO IN

Connector FC/PC
 Optical Sensitivity -22dBm
 Wavelength 1310nm

Power Connection

Connectorremovable screw terminal connector (3.5mm spacing)
 Manufacturers Part No. Phoenix/Combicom MC1-5/2-ST-3.5
 AMG Part No.G00047-00
 Power requirement12 volts to 16 volt DC @
 700mA (1 amp turn on
 current)

Connections..... See schematic
 +12 – 16 Volts on lower pin
 0 Volts on upper pin



Data Connections

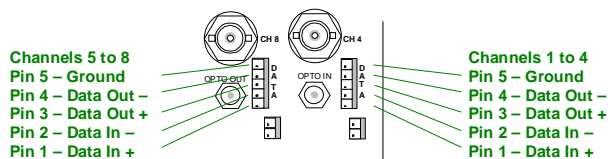
Number of Channels..... Two independent data channels, one associated with video channels 1-4 and another associated with video channels 5-8.

Data Connector 5 way removable spring terminal connector (2.5mm spacing)
 Manufacturers Part No. Phoenix/Combicom FK-MC-0.5/5-ST-2.5
 AMG Part No G15098-00

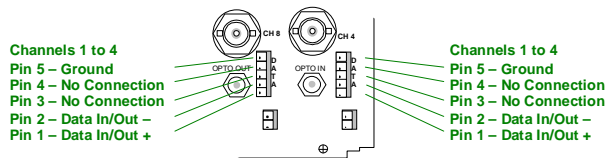
SW1 used to select between RS232 and RS485/422, SW2 is used to select between RS422 and RS485.

NOTE: The unit is shipped from the factory as RS485 unless otherwise requested.

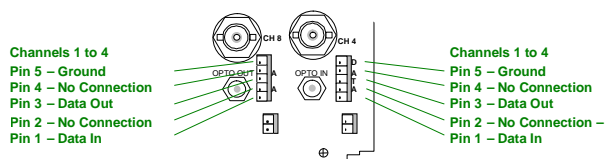
Connections RS422 4 wire See schematic



Connections RS485 2 wire See schematic



Connections RS232 See schematic



Protocol..... RS232
 SW1 switch position 9 on, switch position 10 on
 SW2 all off

RS485 2wire
 SW1 switch position 9 off, switch position 10 off
 SW2 see below

RS422 4 wire Bus'ed or point to point
 SW1 switch position 9 off, switch position 10 off
 SW2 see below

See below for **Configuration of the RS485 / RS422 data channel** and description of tristate operation

Each of the two data channels can be set up independently.

Indicators

Power.....	Green	- unit powered
	Off	- no power applied to unit
Opto Sync TX	Green	- optical channel transmitting
	Off	- optical channel not transmitting
Opto Sync RX	Green	- optical channel receiving
	Off	- optical channel not receiving
Video Present CH1	Green	- video signal present on video CH1 input BNC
	Red/Green	- Channel present , no video
	Red	- Fibre Loop Present, no TX selected on this channel
	Off	- no video present on video CH1 input BNC
Video Present CH2	Green	- video signal present on video CH2 input BNC
	Red/Green	- Channel present , no video
	Red	- Fibre Loop Present, no TX selected on this channel
	Off	- no video present on video CH2 input BNC
Video Present CH3	Green	- video signal present on video CH3 input BNC
	Red/Green	- Channel present , no video
	Red	- Fibre Loop Present, no TX selected on this channel
	Off	- no video present on video CH3 input BNC
Video Present CH4.....	Green	- video signal present on video CH4 input BNC
	Red/Green	- Channel present , no video
	Red	- Fibre Loop Present, no TX selected on this channel
	Off	- no video present on video CH4 input BNC
Video Present CH5	Green	- video signal present on video CH5 input BNC
	Red/Green	- Channel present , no video
	Red	- Fibre Loop Present, no TX selected on this channel
	Off	- no video present on video CH5 input BNC
Video Present CH6	Green	- video signal present on video CH6 input BNC
	Red/Green	- Channel present , no video
	Red	- Fibre Loop Present, no TX selected on this channel
	Off	- no video present on video CH6 input BNC
Video Present CH7	Green	- video signal present on video CH7 input BNC
	Red/Green	- Channel present , no video
	Red	- Fibre Loop Present, no TX selected on this channel
	Off	- no video present on video CH7 input BNC
Video Present CH8	Green	- video signal present on video CH8 input BNC
	Red/Green	- Channel present , no video
	Red	- Fibre Loop Present, no TX selected on this channel
	Off	- no video present on video CH8 input BNC

Data Present TX Green – logic one present on the data input
 Red – logic zero present on the data input
 Off – tri-state off or no connection on the data input

This represents the data signals being transmitted on the optical fibre

Data Present RX..... Green – logic one present on the corresponding data
 output
 Red – logic zero present on the data output
 Off – tri-state off on the data output

This represents the data signals being received on the optical fibre

Physical Information

Dimensions

Height 109mm
 Width..... 218mm
 Depth 120mm
 Weight..... 800grams

Mounting Details

The unit is designed to mount into a panel via the two mounting slots of 4.5mm x 10mm.

Configuration of the Data Channel

SW1 and SW2 determine the protocol of the data channel. This can be RS232, RS485 or RS422.
 (See below for **removal from the case** and access to SW1 and SW2)

Mode 1 – RS485 two wire half duplex transmission.

Mode 2 – RS422 four wire full duplex transmission.

In this mode the RS422 output will transmit a tristate condition as well as logic high and logic low for systems which require bus-ing of the RS422 four-wire connection.

MODE	Configuration Details	SW2 position 1	SW2 position 2	SW2 position 3	SW2 position 4	SW1 position 9	SW1 position 10
1	RS-422 4 wire Point-to-Point - and RS-422 BUS system	OFF	OFF	OFF	OFF	OFF	OFF
2	RS-485 2 wire BUS systems	OFF	ON	ON	ON	OFF	OFF

The data input for both the RS485 and the RS422 modes detects a tri-state input condition by monitoring the differential voltage level across the input. A differential level below 500mV positive or negative will be detected as a tristate condition. A level above 500mV positive or negative will be detected as a logic 1 or logic zero respectively. **It is important therefore to terminate the RS485 bus or the RS422 input bus using 120ohms if a pre-bias is present on the RS485 or RS422 bus.** A large number of third party equipment manufacturers apply a pre-bias on their RS485 bus. This pre-bias is applied by pulling one arm of the RS485 bus high (+5 volts) and the other arm low (0 volts) using high value resistors within the third party equipment. In order to ensure that the AMG2700 equipment detects a tri-state condition, then these resistors should have a value above 1kohm.

Mode 3 – RS232 full duplex transmission.

MODE	Configuration Details	SW2 position 1	SW2 position 2	SW2 position 3	SW2 position 4	SW1 position 9	SW1 position 10
3	RS-232 Point to Point	OFF	OFF	OFF	OFF	ON	ON

Note: - the data channel is set at Mode 1 – RS485 operation at the factory unless otherwise requested.

SW1 Switch Settings

All SW1 switch settings are set at the factory as follows:

Channels 1-4 Card

Switch Position	Description	Setting
1	Video channel configuration	OFF
2	Video channel configuration	OFF
3	Video channel configuration	OFF
4	Primary / Secondary Board Setting	ON
5	Dual Redundant / Not dual redundant	OFF
6	Master	ON
7	Full Scale Calibration Output	OFF
8	On board data / Separate data card	ON
9	RS232 Select	OFF for RS485/422
10	RS232 Select	OFF for RS485/422

Channels 5-8 Card

Switch Position	Description	Setting
1	Video channel configuration	OFF
2	Video channel configuration	OFF
3	Video channel configuration	ON
4	Primary / Secondary Board Setting	OFF
5	Dual Redundant / Not dual redundant	OFF
6	Master	ON
7	Full Scale Calibration Output	OFF
8	On board data / Separate data card	ON
9	RS232 or RS422/485	OFF for RS485/422
10	RS232 or RS422/485	OFF for RS485/422

Removal From the Case

Note: - The 2700 PCB's are static sensitive. Handle with proper care and use normal electrostatic discharge (ESD) procedures. Use properly grounded protection (for example, wrist straps) when handling the PCB.

In order to remove the case (to access SW1 and SW2)

- 1.1. Loosen and remove the four screws on the top and bottom of the unit's rear panel.
- 1.2. Slide the PCB assembly connected to the rear panel out of the case.
- 1.3. Ensure that the optical fibre is not trapped.

SW1 and SW2 can be found on the bottom right hand corner of each board and are labelled, close to the rear panel. The switch position are labelled on the switch, switch position 1 is always the furthest from the edge of the PCB.

When re-inserting the main PCB into the housing take care not to trap the optical fibre or the board interconnection cables.

Fasten the rear panel with the screws.

Safety

The 2700 series of products uses a Class 1 laser system in accordance with EN 60825-2:2000.

However it is always advisable to follow good practice when working with optical fibre systems. This includes:

- Do not stare with unprotected eyes or with any unapproved collimating device at fibre ends or connector faces, or point them at other people.
- Use only approved filtered or attenuating viewing aids

For other safety issues and advice on good practice associated with the optical fibres systems see EN 60825-2:2000 or your local safety officer.

Maintenance

There are no user serviceable parts within the AMG2700 products.

In case of problem or failure contact your local support centre or AMG Systems Ltd, Technical Support Department on tel. +44 (0) 1767 600777.

See unit data sheet for full specification.