Single Fibre Four Channel Video RX Unit with Bi-directional Data
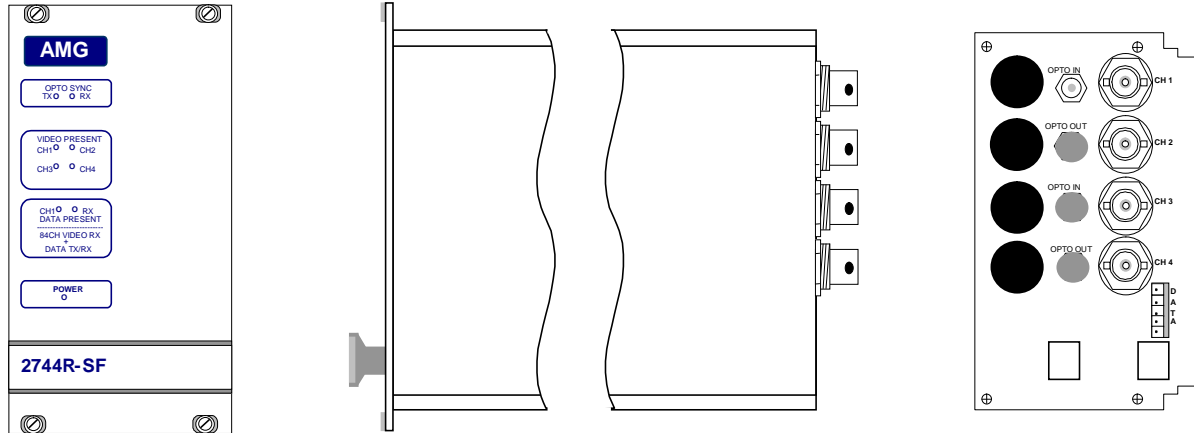

The **AMG2744R-SF** is a rackmount four channel video receive unit designed to receive four video signals. It also provides one RS485/RS422.or RS232 bi-directional data channel. It is designed to plug into an **AMG2000** or an **AMG2005** subrack which in turn fits into a 19" rack system.

The **AMG2744R-SF** is designed to operate with the **AMG2743R-SF or AMG2743-SF** four channel video transmitters and data transceiver requiring one fibre for operation of the video and bi-directional data.

Connections

Video Output Connection

Connector	75 ohm BNC Socket.
Input Impedance	75 ohm terminated.
Input Level	1 volt p-p nominal
Frequency Response	10Hz to 5.75MHz min.
No of channels	4

Optical Connections

Connector	FC/PC 1 off
OPTO OUT	
Optical Launch Power	-5dBm
Wavelength	1310nm
OPTO IN	
Optical Sensitivity	-22dBm
Wavelength	1550nm

Power Connection

Power supply	from plug in connection on the 2000 or 2005 subrack
Power consumption	10 Watts max.

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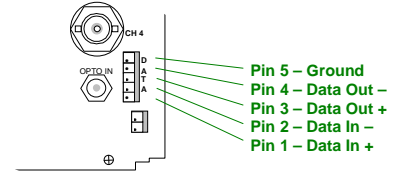
Data Connector .... 5 way removable spring terminal connector (2.5mm spacing)
Manufacturers Part No. Phoenix/Combicom FK-MC-0.5/5-ST-2.5
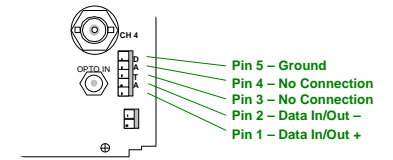AMG Part No G15098-00

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.
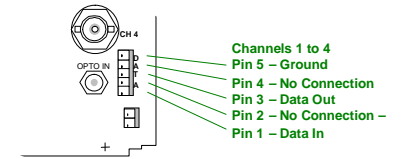
Connections RS422 4 wire .... See schematic

Pin 5 – Ground
Pin 4 – Data Out –
Pin 3 – Data Out +
Pin 2 – Data In –
Pin 1 – Data In +

Connections RS485 4 wire .... See schematic

Pin 5 – Ground
Pin 4 – No Connection
Pin 3 – No Connection
Pin 2 – Data In/Out –
Pin 1 – Data In/Out +

Connections RS232 .... See schematic

Channels 1 to 4
Pin 5 – Ground
Pin 4 – No Connection
Pin 3 – Data Out
Pin 2 – No Connection –
Pin 1 – Data In

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

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

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	–	video channel available on the fibre but no
video	-	signal being transmitted
Off	–	no video present on video CH1 input BNC
Video Present CH2 ....Green	–	video signal present on video CH1 input BNC
Red/Green	–	video channel available on the fibre but no
video	-	signal being transmitted
Off	–	no video present on video CH1 input BNC
Video Present CH3 ....Green	–	video signal present on video CH1 input BNC
Red/Green	–	video channel available on the fibre but no
video	-	signal being transmitted
Off	–	no video present on video CH1 input BNC
Video Present CH4 ....Green	–	video signal present on video CH1 input BNC
Red/Green	–	video channel available on the fibre but no
video	-	signal being transmitted
Off	–	no video present on video CH1 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 ....2U Plug-in
Width..14HP
Depth ....170mm excluding connectors
Weight..750grams

Mounting Details
The unit is designed to be mounted within a 2000 or 2005 Subrack on standard card guides. Note the AMG standard racks are supplied with guide rails every 7HP. In order to fit this unit in the subrack, 1 set of card guides have to be removed by pulling gently on the card guides.

The 2000 series subrack is fitted with a 50 watt power supply.
The 2005 series subrack is fitted with a 100 watt power supply.

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Configuration of the RS422/485 Data Channel

The RS422/485 data channel can operate in two modes that are set by SW2 on the main PCB. (See below for **removal of the PCB** and access to 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
1	RS-422 4 wire Point-to-Point - and RS-422 BUS system	OFF	OFF	OFF	OFF
2	RS-485 2 wire BUS systems	OFF	ON	ON	ON

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 a tri-state condition is detected by the AMG2700 equipment, then these resistors should have a value above 1kohm.

SW1 Switch Settings

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

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	Not Used	OFF
7	Not Used	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 stamps) 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 out the PCB assembly connected to the rear panel.
       (note: to access the configuration switches the PCB only needs to slid out by ~25mm)
    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.

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