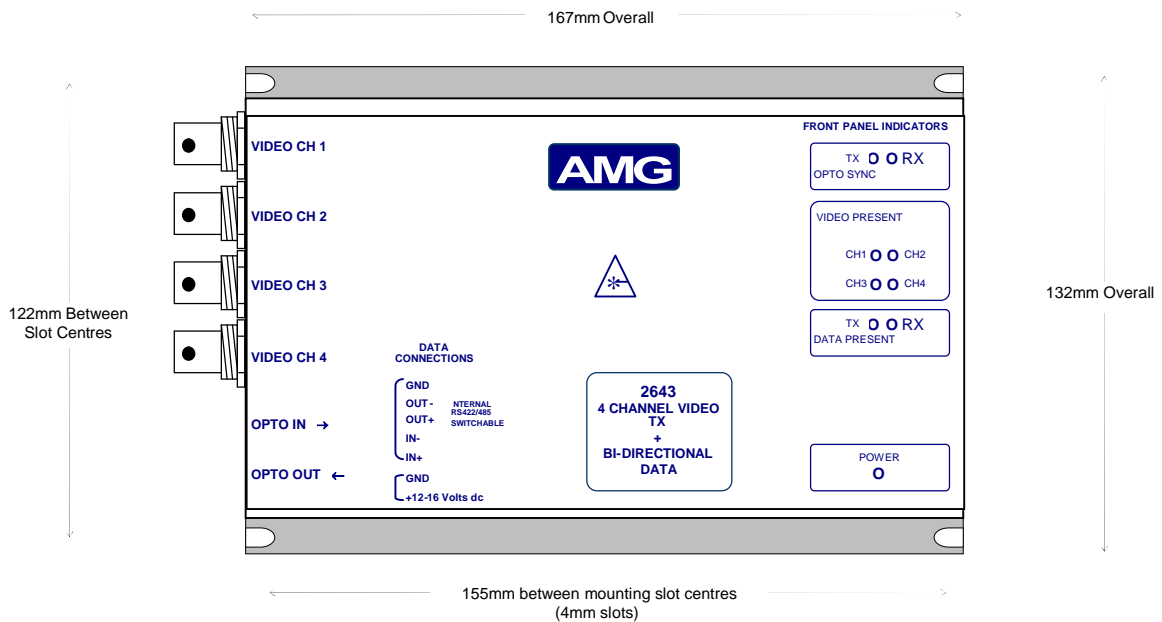




# AMG2643 Instruction Manual

## Four Channel Video TX Unit with Bi-directional Data



The **AMG2643** is a standalone four channel video transmit unit designed to transmit four video signals. It also provides one RS485/RS422.or RS232 bi-directional data channel. It is designed to be powered from an **AMG2002** power supply.

The **AMG2643** is designed to operate with the **AMG2644R** or **AMG2644** four channel video receiver and data transceiver requiring two fibres for operation of the video and bi-directional data.

### Connections

#### Video Input 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 insert channels ..... 4

#### Optical Connections

##### OPTO OUT

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

##### OPTO IN

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

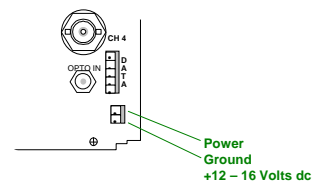
Note: - The transmission distance on multimode fibre will tend to be limited by the bandwidth of the fibre rather than the optical dynamic range. It is recommended that 50/125 optical fibre is used as this will have a higher bandwidth than 62.5/125 fibre. The **AMG2643** and **AMG2644R** will transmit and receive over a minimum of 1km of 50/125 fibre and will typically transmit and receive over 2km of 50/125.

#### Power Connection

Connector .....removable screw terminal connector (3.5mm spacing)  
 Manufacturers Part No. Phoenix/Combicom MC1-5/2-ST-3.5  
 AMG Part No.G00047-00

Power requirement .....12 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



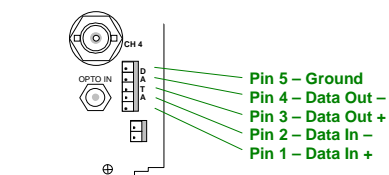
**Data Connections**

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

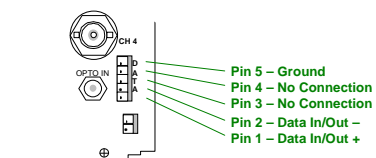
SW1 used to select between RS232 and RS485/422, SW2 is used to select between RS422 and RS485.

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

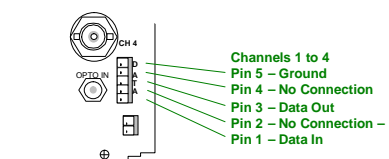
Connections RS422 4 wire ..... See schematic



Connections RS485 4 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
	Off	– no video present on video CH1 input BNC
Video Present CH2 .....	Green	– video signal present on video CH2 input BNC
	Off	– no video present on video CH2 input BNC
Video Present CH3 .....	Green	– video signal present on video CH3 input BNC
	Off	– no video present on video CH3 input BNC
Video Present CH4 .....	Green	– video signal present on video CH4 input BNC
	Off	– no video present on video CH4 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 .....	122mm
Width.....	167mm
Depth .....	70mm
Weight.....	800grams

#### Mounting Details

The unit is designed to be mounted into a panel via the four mounting slots of 4.5mm x 10mm.

### 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 2600 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 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 2600 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 AMG2600 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.