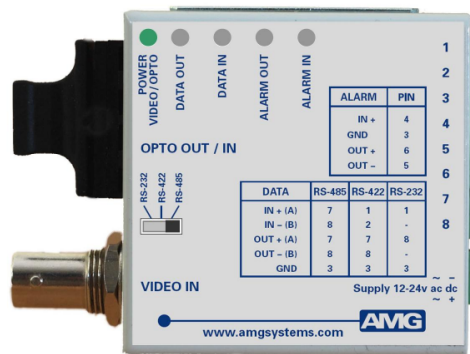


## Single Channel Video Transmit Unit with one Bi-directional Data Channel plus one Bi-directional Alarm for a Singlemode Fibre Link



The **AMG5713** is a compact standalone one channel video transmit unit designed to transmit 1 video signal and transmit and receive 1 data signal plus 1 bi-directional alarm over one Singlemode optical fibre.

The **AMG5713** is designed to be powered using an **AMG2001** standalone power supply.

The **AMG5713** is designed to operate with an **AMG5714 / AMG5714R** single channel or **AMG5724 / AMG5724R** dual channel video receive unit in a point to point configuration. The R suffix in the partno. indicates a rackmount configuration.

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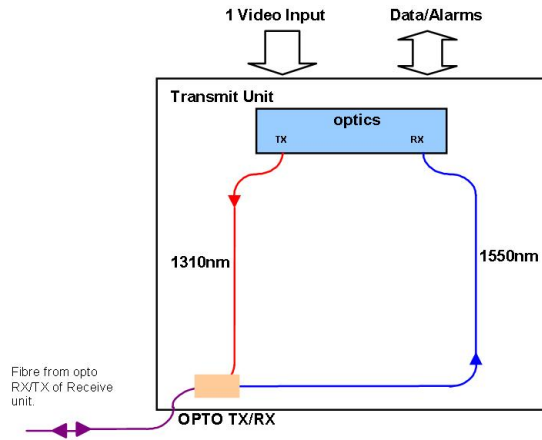
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# Introduction

## Unit Functional Schematic

The **AMG5713** transmits 1 video plus 1 data and 1 bi-directional alarm signal to the **AMG5714** receive unit.

It also receives 1 data and 1 bi-directional alarm signal from the **AMG5714**.



## Optical Connection

The **AMG5713** connections are illustrated in the following example which shows two transmit units together with an **AMG5724R** two channel rackmount receive unit configured as a dual channel point to point system.



## Connections

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### Video Input Connections

No. of channels ..... 1  
Connector ..... 75 ohm BNC Socket.  
Input Impedance ..... 75 ohm terminated.  
Input Level ..... 1 volt p-p nominal  
Frequency Response..... 10Hz to 7MHz.

### Optical Connections Singlemode

No. of Optical Connections ..... 1 per video channel  
Optical Fibre ..... Singlemode  
Connector ..... SC/PC

Primary Optical Launch Power ..... -10dBm  
Transmit Wavelength ..... 1310nm

Primary Optical Sensitivity ..... -30dBm  
Receive Wavelength ..... 1510nm

Minimum Optical Dynamic Range ..... 20dB.

### Power Connection

Connector Type ..... Removable 2-pin, 3.81mm, Screw Terminal  
Connector Partno..... Phoenix 1803578  
Supply Voltage..... +12 to +15Vdc  
Maximum Power ..... 1.5 Watts

### Data and Alarm Channel Connections

No. of Data Channels ..... 1  
No. of Alarm Channels..... 1

Connector ..... Removable 8-pin, 3.81mm, Screw Terminal  
Connector Partno..... Phoenix 1803633

Data Interface ..... RS-232, RS-422 or R-S485. Selected by slide switch above the BNC connector.

RS-232 – Switch Position - Left  
RS-422 – Switch Position - Centre  
RS-485 – Switch Position - Right

Alarm Input ..... Contact Closure pull-up is 330R to +3V3  
Alarm Output..... Solid-state Relay, maximum 150mA at 125Vac/dc, Ron < 6.5Ω

## Front Panel Indicators

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### Power LED Video & Data

|                            |       |   |                                      |
|----------------------------|-------|---|--------------------------------------|
| Power / Video / Opto ..... | Green | - | Video input & Opto sync.             |
|                            | R/G   | - | Opto sync. but no Video input.       |
|                            | G/R   | - | Video input but no Opto sync.        |
|                            | Red   | - | Unit powered, no Video or Opto sync. |
|                            | Off   | - | No power applied to unit             |

### Low Speed Data LEDs

|                                       |       |   |  |
|---------------------------------------|-------|---|--|
| Data Present IN (RS485 or RS422) .... | Green | - | logic zero (+V, -V) present on IN+, IN-    |
|                                       | Red   | - | logic one (-V,+V) present on IN+, IN-      |
|                                       | Off   | - | tri-state off or no connection on IN+, IN- |
| Data Present IN (RS232) .....         | Green | - | logic zero (+V) present on input IN+       |
|                                       | Red   | - | logic transitions present on input IN+     |
|                                       | Off   | - | logic one (-V) present on input IN+        |

IN corresponds to the data signals being transmitted onto the optical fibre.

|                                   |       |   |  |
|-----------------------------------|-------|---|--|
| Data Present OUT (RS485 or RS422) | Green | - | logic zero (+V,-V) present on OUT+, OUT-     |
|                                   | Red   | - | logic one (-V,+V) present on OUT+, OUT-      |
|                                   | Off   | - | tri-state off or no connection on OUT+, OUT- |
| Data Present OUT (RS232) .....    | Green | - | logic zero (+V) present on OUT+              |
|                                   | Red   | - | logic transitions present on OUT+            |
|                                   | Off   | - | logic one (-V) present on OUT+               |

OUT corresponds to the data signals being received from the optical fibre.

### Alarm LEDs

|                |       |   |                             |
|----------------|-------|---|-----------------------------|
| Alarm IN.....  | Green | - | Alarm ON / Contacts closed. |
|                | Off   | - | Alarm OFF / Contacts open.  |
| Alarm OUT..... | Green | - | Alarm ON / Contacts closed. |
|                | Off   | - | Alarm OFF / Contacts open.  |

## Data and Alarm Channel Configuration

The **AMG5713** transmit unit sends and receives data to/from an **AMG5714** or rackmount equivalent **AMG5714R** receive unit. The physical data interface RS-485, RS-422 or RS-232 is selectable by the user with the slide switch on the front panel.

There is also one bi-directional alarm channel provided which sends/receives on/off signals to the **AMG5714** receive unit and is typically used to transmit/receive contact closure status.

### Data Channel Configuration

The low speed data channel provides an RS-232, RS-422 (full duplex, four wire) or RS-485 (half duplex, two wire) interface defined by the mode switch on the front panel. The data channel as shipped from the factory is set up for RS-485 operation unless otherwise requested.

The data input for both the RS-485 and the RS-422 modes detects a tri-state input condition by monitoring the differential voltage level across the input. A differential level below 600mV positive or negative will be detected as a tri-state condition. A level above 600mV positive or negative will be detected as a logic 1 or logic zero respectively. It is important therefore to terminate the RS-485 bus or the RS-422 input bus using 120Ω if a pre-bias is present on the RS-485 or RS-422 bus.

A large number of third party equipment manufacturers apply a pre-bias on their RS-485 bus. This pre-bias is applied by pulling one arm of the RS-485 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 AMG equipment detects a tri-state condition, then these resistors should have a value above 5kΩ. If the third party bias resistors are less than 750Ω the bus can be multiple terminated as required to ensure that a tri-state level is detected.

The system detects a tri-state input condition on the data channel bus when in RS-485 or RS-422 mode.

### Data Interface Connections

| Connector Pin No. | Data Channel          |                     |                      |
|-------------------|-----------------------|---------------------|----------------------|
|                   | RS-485 [switch right] | RS-422 [switch mid] | RS-232 [switch left] |
| 1                 |                       | IN + (A)            | IN                   |
| 2                 |                       | IN - (B)            |                      |
| 3                 | GND                   | GND                 | GND                  |
| 4                 |                       |                     |                      |
| 5                 |                       |                     |                      |
| 6                 |                       |                     |                      |
| 7                 | IN/OUT + (A)          | OUT + (A)           |                      |
| 8                 | IN/OUT - (B)          | OUT - (B)           | OUT                  |

Note: (A) or (B) in brackets in the above table refers to RS-485 / RS-422 data specification.

### **Alarm Channel Configuration**

The **AMG5713** also provides one bi-directional alarm output / contact closure input.

An alarm input is typically connected to a contact closure switch. The ALARM IN+ input incorporates a 330R pull-up resistor to the internal +3V3 supply.

The alarm output provides a pair of normally open, volt-free contacts from a solid state relay, maximum current rating 150mA at 125Vac/dc, Ron < 6.5Ω.

### **Bi-directional Alarm Interface Connections**

| Connector Pin No. | Alarm Interface |             |
|-------------------|-----------------|-------------|
|                   | Alarm IN        | Alarm OUT   |
| 1                 |                 |             |
| 2                 |                 |             |
| 3                 | GND             |             |
| 4                 | ALARM IN +      |             |
| 5                 |                 | ALARM OUT - |
| 6                 |                 | ALARM OUT + |
| 7                 |                 |             |
| 8                 |                 |             |

## **Physical Information**

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### **Dimensions**

Height.....56mm  
Width.....55mm (excluding connectors)  
Depth .....25mm  
Weight.....200grams

### **Mounting Details**

The unit is designed to be mounted using the clip holder supplied, which can be fixed to a wall or panel using 2 off 4mm screws.

## **Safety**

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AMG Optical Fibre Products use Class 1 laser systems in accordance with EN 60825-2:2000.

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 optical fibre systems, please see EN 60825-2:2000 or your local safety officer.

## **Maintenance and Repair**

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There are no user serviceable parts within AMG products. See unit data sheet for full specification.

In case of problem or failure, please call your local support centre or contact: **AMG Systems Ltd.** at 3 The Omega Centre, Stratton Business Park, Biggleswade, Beds., SG18 8QB, UK.

|                   |                            |
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