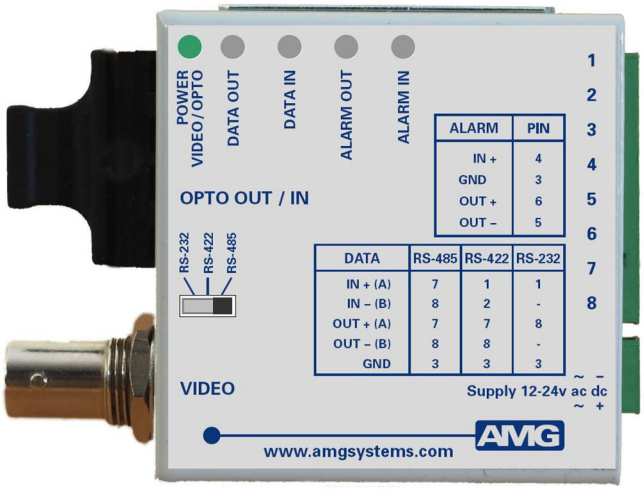
AMG5714
Instruction Manual

Single Channel Video Receive Unit with one Bi-directional Data Channel and one Bi-directional Alarm for a Singlemode Fibre Link



The **AMG5714** is a standalone system designed to receive one video signal and transmit and receive one bi-directional alarm plus one data signal over a Singlemode optical fibre.

The **AMG5714** is designed to be powered using an **AMG2001** standalone power supply.

The **AMG5714** is designed to operate with an **AMG5713** standalone video transmit unit in a point to point configuration.

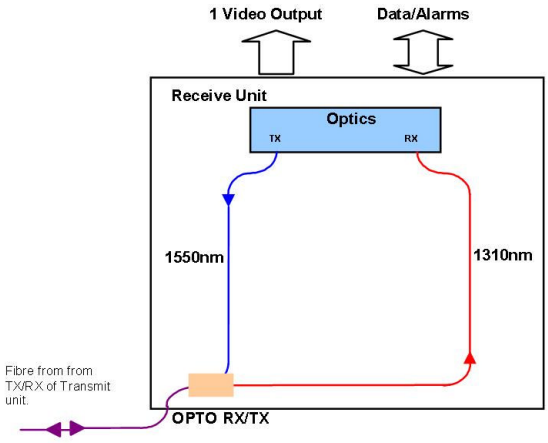
Contents

Introduction

Unit Functional Schematic

The **AMG5714** receives 1 video signal plus 1 data and 1 bi-directional alarm signal from a **AMG5713** transmit unit.

It also transmits 1 data and 1 bi-directional alarm signal to a **AMG5713**.



Optical Connection

The **AMG5714** connections are illustrated in the following example which shows an **AMG5713** single channel transmit unit together with a **AMG5714** configured as a point to point system.

Connections

Video Output Connection

Connector .....75 ohm BNC Socket.
Output Impedance .....75 ohm terminated.
Output Level .....1 Volt p-p nominal
Frequency Response.....10Hz to 7MHz.

Optical Connection Singlemode

Optical Fibre .....Singlemode
Connector .....SC/PC

Primary Optical Launch Power .....-10dBm
Transmit Wavelength.....1550nm

Primary Optical Sensitivity.....-30dBm
Receive Wavelength.....1310nm

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 .....2.5 Watts

Data and Alarm Channel Connections

No. of Data Channels 1
No. of Alarms 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 on front panel.

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

Power LED

Power / Video / Opto	Green	-	Video present & opto sync.
	R/G	-	Opto sync. but no video present.
	Red	-	No 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 **AMG5714** sends and receives data to/from a **AMG5713** single channel standalone transmit 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.

One bi-directional alarm is also provided. The alarm input is typically connected to a contact closure switch. The alarm output can receive an on/off signal from an **AMG5713** and is typically used to convey 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 **AMG5714** provides one bi-directional alarm output / contact closure input.

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

The alarm output can receive an on/off signal from an **AMG5713** and is typically used to convey contact closure status. An alarm output uses a solid-state relay, with a maximum load current of 150mA at 125Vac/dc and Ron < 6.5Ω.

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

Dimensions

Height.....56mm
Width.....55mm (excluding connectors)
Depth 25mm
Weight.....600grams

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

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

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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