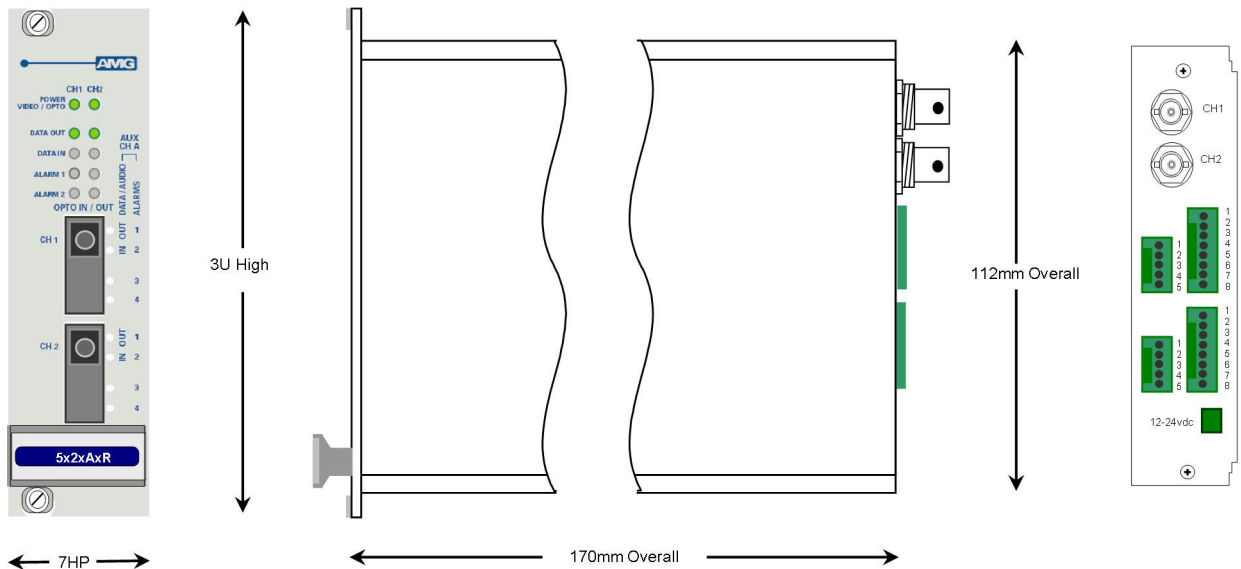


AMG5626A1R Instruction Manual

Dual System with 2x Independent Channels each of :

[Single Channel Video Receive Unit with two Bi-directional Data Channels and two Uni-directional Alarms for a Multimode Fibre Link]



The **AMG5626A1R** is a **DUAL** rackmount system which provides two independent channels, each designed to receive 1 video signals plus 2 Uni-directional alarms and transmit and receive 2 data signals over one Multimode optical fibre.

The **AMG5626A1R** is designed to plug into an **AMG2009** or **AMG2015** subrack, which in turn fits into a 19" rack system.

The **AMG5626A1R** is designed to operate with an **AMG5625A1** or rackmount **AMG5625A1R** dual channel video transmit unit in a point to point configuration. The R suffix in the partno. indicates a rackmount configuration.

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Introduction

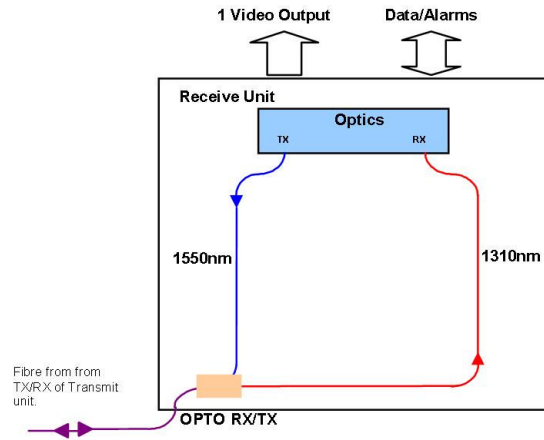
Unit Functional Schematic

The **AMG5626A1R** provides two independent, receive channels.

Each channel receives 1 video signal plus 2 data and 2 uni-directional alarm signals from up to two **AMG5625A1** transmit units.

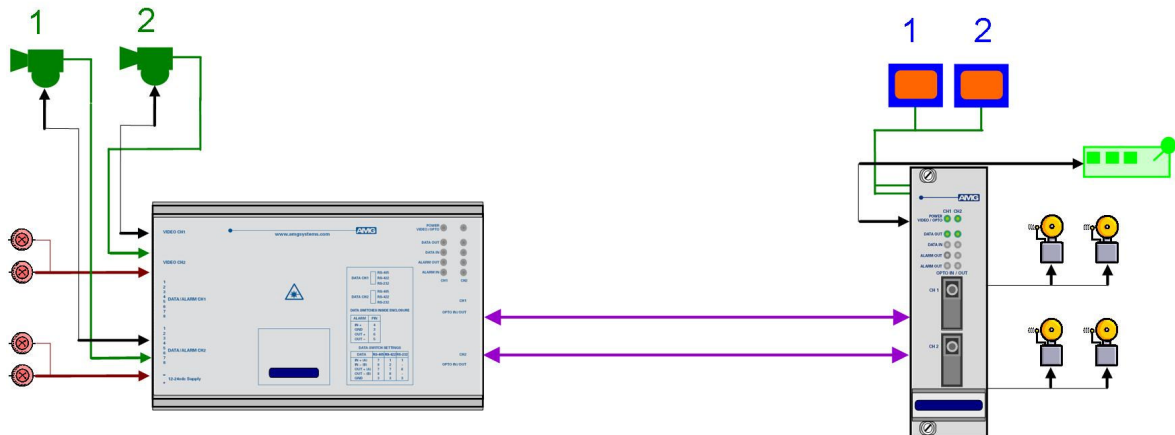
It also transmits 2 data signals to each **AMG5625A1**.

The schematic diagram shows one of the two available channels of the **AMG5626A1R**



Optical Connection

The **AMG5626A1R** connections are illustrated in the following example which shows an **AMG5625A1** two channel standalone transmit unit together with an **AMG5712R** two channel rackmount receive unit configured as a dual channel point to point system.



Connections

Video Output Connections

No. of channels 2 independent video channels
Connectors 75 ohm BNC Socket.
Input Impedance 75 ohm terminated.
Input Level 1 Volt p-p nominal
Frequency Response..... 10Hz to 7MHz.

Optical Connections Multimode

No. of Optical Connections 1 per video channel
Optical Fibre Multimode 50/125 or 62.5/125**
Connector SC/PC

Minimum Optical Launch Power -10dBm
Transmit Wavelength 1550nm

Minimum Optical Sensitivity -30dBm
Receive Wavelength 1310nm

Minimum Optical Dynamic Range 20dB.

**Note: the transmission distance is limited by the bandwidth of the Multimode optical fibre. The optical data rate is 155Mbps/s, which may restrict operation to a maximum fibre length of 7km, although in most cases the units will operate successfully over longer fibre lengths. It is advisable however for distances greater than 7km, to have the optical fibre tested.

Power Connection

Power supply From plug in connection on the AMG2009 or AMG2015 subrack
Power consumption 2.5 Watts max.

Data and Alarm Channel Connections

No. of Data Channels One switchable RS-232 / RS-422 / RS-485 per video channel.
No. of Data Channels One selectable RS-422 / RS-485 per video channel.
No. of Alarms 2

Connectors Removable 5-pin, 8-pin, 2.5mm, Spring Terminal
Connector Partnos..... Phoenix 1881354, 1881383

Data Interface 1: RS-232, RS-422 or RS-485. Selected by slide switch inside enclosure. *See appropriate section on how to remove the case for access to the data switches.

RS-485 – Switch Position - Top
RS-422 – Switch Position - Middle
RS-232 – Switch Position - Bottom

Data Interface 2: RS-422 or R-S485. Options Selected by DIL switch inside enclosure. *See separate Datasheet for Additional Data Interface Settings with the data switches

Alarm Outputs 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.

Auxiliary Data LEDs

Data type depends on AMG system: RS-232, RS-422, RS-485, 20mA,TTL, or FTT-10A

Data Present IN	Green	-	Data channel present but not transmitting
	R/G	-	Data channel transmitting
	Off	-	Data channel not present or no connection

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

Data Present OUT	Green	-	Data channel present but not transmitting
	R/G	-	Data channel receiving
	Off	-	Data channel not present or no connection

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

Alarm LEDs

Channel 1

ALARM 1 IN.....	Green	-	Alarm ON / Contacts closed.
	Off	-	Alarm OFF / Contacts open.

ALARM 2 IN.....	Green	-	Alarm ON / Contacts closed.
	Off	-	Alarm OFF / Contacts open.

Channel 2

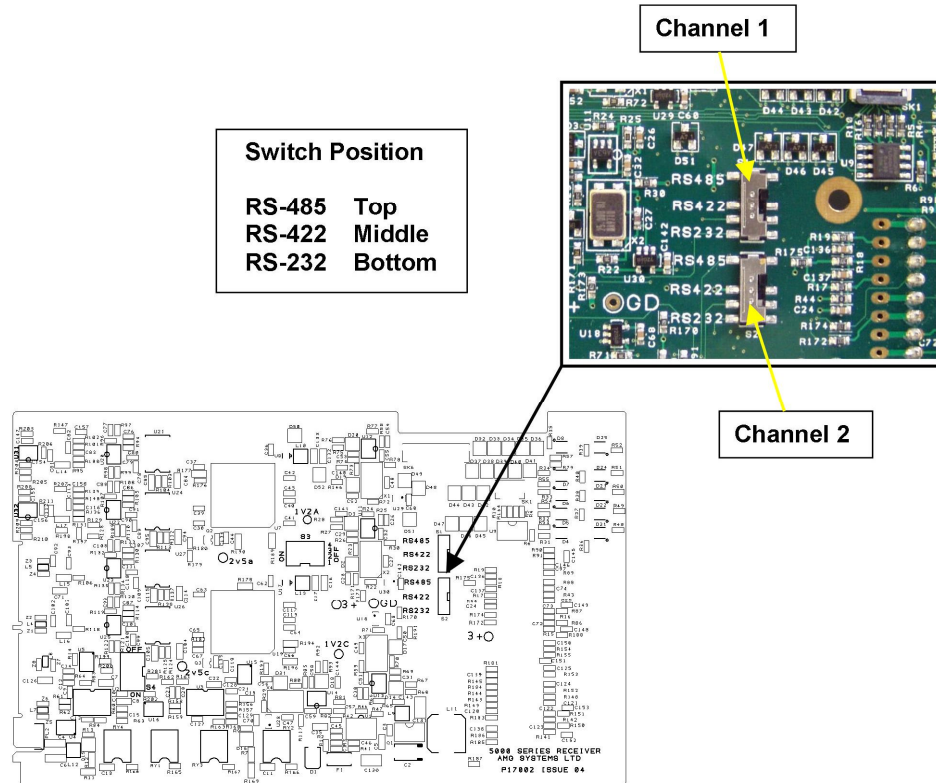
ALARM 1 IN.....	Green	-	Alarm ON / Contacts closed.
	Off	-	Alarm OFF / Contacts open.

ALARM 2 INGreen - Alarm ON / Contacts closed.
Off - Alarm OFF / Contacts open.

Data and Alarm Channel Configuration

The **AMG5626A1R** sends and receives data to/from one **AMG5625A1** or **AMG5625A1R** rackmount equivalent dual channel transmit unit. The physical data interface RS-485, RS-422 or RS-232 is selectable by the user with the slide switch mounted on the main PCB inside the enclosure.

2 uni-directional alarms are also provided for each video channel, each of which can receive an on/off signal from an **AMG5625A1** and are typically used to convey contact closure status.



Data Channel Configuration

Each 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 corresponding mode switch inside the enclosure. Every 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 0 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

Data Channels 1 and 2.

Connector Pin No.	Data Channel		
	RS-485 [switch top]	RS-422 [switch middle]	RS-232 [switch bottom]
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 **AMG5626A1R** provides 2 uni-directional alarm outputs per video channel.

Each alarm output provides a set of contacts from a solid state relay.

Alarm Output 1 : Provides a pair of normally open, volt-free contacts from a solid-state relay.

Alarm Output 2 : Provides a normally open, switched contact to 0V/GND from a solid-state relay.

Alarm Interface Connections

Video Channels 1 & 2

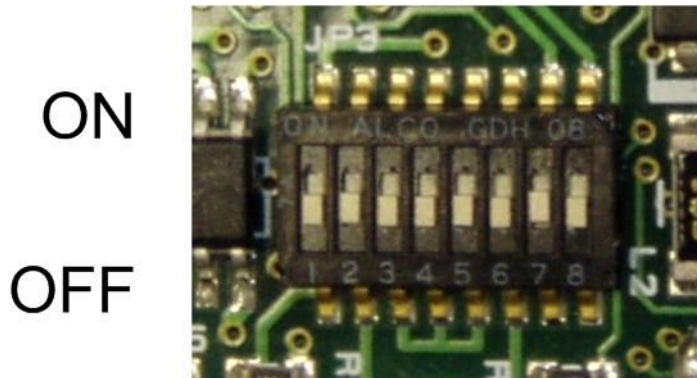
Connector Pin No.	Alarm Interface	
	Alarm 1	Alarm 2
1		
2		
3		ALARM 2 GND
4		ALARM 2 OUT +
5	ALARM 1 OUT -	
6	ALARM 1 OUT +	
7		
8		

Auxiliary RS-422/RS-485 Data Channel Configuration

The **AMG5626A1** receive unit sends and receives RS-422/RS-485 data to/from an **AMG5625A1** or rackmount equivalent **AMG5625A1R** transmit unit.

The auxiliary data channel is provided by an X04057 RS-422/RS-485 Daughter Board. It is used when an additional RS-422 or RS-485 data interface is required and provides one bi-directional RS-422 or RS-485 data channel.

The X04057 daughter board is pre-configured at manufacture using the multiway 8-way DIP switch JP3. It is set to RS-485 mode by default. This switch is not usually accessible by the user, and the following instructions are for INFORMATION only.



The switch functions are as follows: Default (RS-485) settings are shown in the last column.

SW. No.	Function	RS-422	RS-485	DEFAULT
1.	Mode Selection - PCB Identification	Off	On	On
2.	390Ω RX- Pre-bias to +5V. Note when off, the pre-bias is set at 10kΩ to +5V.	Off	On	Off
3.	390Ω RX+ Pre-bias to gnd. (note when off pre-bias set at 10kΩ to GND)	Off	On	Off
4.	120Ω RX termination	Off	On	Off
5.	RX+ connected to TX+	Off	On	On
6.	RX- connected to TX-	Off	On	On
7.	TX data enabled from logic one on the data stream. TX output tri-state after 5μs of a logic zero. See Note 1.	Off	On	On
8.	RX data disabled when TX enabled	Off	On	On

Note 1: Resistor R7 = 1kΩ for 5μS Tx dwell time. (10kΩ for 50μs)

The switches are used as follows:

SW. No.	4 Wire RS-422 Point to Point	4 Wire RS-422 Bussed	DEFAULT 2 wire RS-485
1.			On
2.			
3.			
4.			
5.			On
6.			On
7.		On	On
8.			On

Additional 120Ω Termination	Additional High Bias
	On
	On
On	

Data Interface Connections

Connector Pin No	RS-422	RS-485
1	OUT + (A)	IN/OUT + (A)
2	OUT - (B)	IN/OUT - (B)
3	GND	GND
4	IN + (A)	IN/OUT + (A)
5	IN - (B)	IN/OUT - (B)

Physical Information

Dimensions

Height 3U Plug-in
Width 7HP
Depth 170mm excluding connectors
Weight 500grams

Mounting Details

The unit is designed to be mounted within an AMG2009 or AMG2015 Subrack on standard card guides.

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.

Phone	+44 (0) 1767 600 777
Technical Support	+44 (0) 1767 604 491
Email	techsupport@amgsystems.com

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