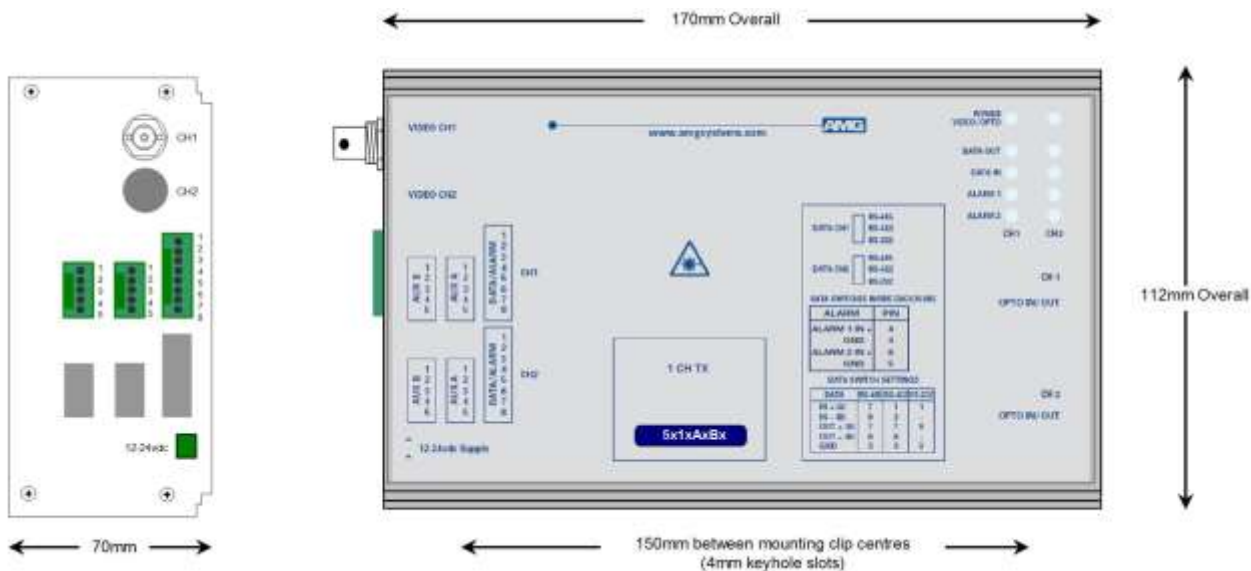




# AMG5713A6B9-DIN Instruction Manual

## Single Channel Video Transmit Unit with one Bi-directional Data Channel, one Bi-directional Alarm Channel and one Bi-directional Audio Channel plus 1 Echelon FTT-10A data signal for a Singlemode Fibre Link



The **AMG5713A6B9-DIN** is a DIN rail mountable standalone one channel video transmit unit designed to transmit 1 video signal and transmit & receive one data signal, 1 Bi-directional alarm and one Bi-directional Audio Channel plus 1 Echelon FTT-10A data signal over one Singlemode optical fibre.

The **AMG5713A6B9-DIN** is designed to be powered using an **AMG2001** standalone power supply.

The **AMG5713A6B9-DIN** is designed to operate with an **AMG5714A6B9 / AMG5714A6B9R** single channel video receive unit in a point to point configuration. The R suffix in the part no. indicates a rackmount configuration.

# Contents

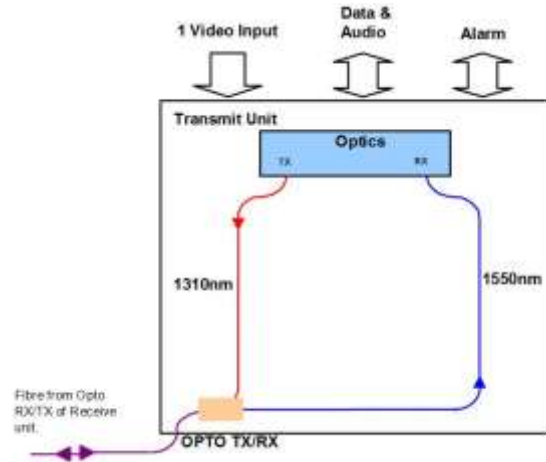
<b>Introduction</b>	<b>3</b>
Unit Functional Schematic.....	3
Optical Connection .....	3
<b>Connections</b>	<b>4</b>
Video Input Connections .....	4
Optical Connection Singlemode .....	4
Power Connection .....	4
Data and Alarm Channel Connections .....	4
Audio Connections .....	4
<b>Front Panel Indicators</b>	<b>6</b>
Power LED.....	6
Auxiliary Data LEDs.....	6
Alarm LEDs.....	6
Audio LEDs.....	6
<b>Echelon FTT-10A Data Channel Configuration</b>	<b>8</b>
Data Interface Connections .....	8
Echelon FTT-10A Data LEDs .....	8
<b>Data and Alarm Channel Configuration</b>	<b>9</b>
Data Channel Configuration .....	9
Data Interface Connections .....	10
Alarm Channel Configuration .....	10
Alarm Interface Connections .....	10
Audio Channel Configuration.....	11
Audio Interface Connections .....	11
<b>Physical Information</b>	<b>12</b>
Dimensions .....	12
Mounting Details .....	12
<b>Safety</b>	<b>12</b>
<b>Maintenance and Repair</b>	<b>12</b>

## Introduction

### Unit Functional Schematic

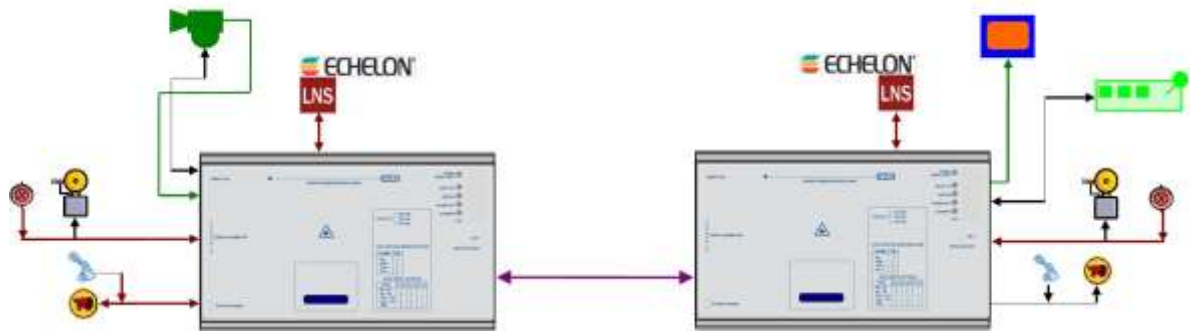
The **AMG5713A6B9-DIN** transmits 1 video, 1 data, 1 Echelon FTT-10A data signal, one Bi-directional Audio Channel and 1 Bi-directional alarm signal to the **AMG5714A6B9** receive unit.

It also receives 1 data, 1 Echelon FTT-10A data signal, one Bi-directional Audio Channel and 1 Bi-directional alarm signal transmitted from the **AMG5714A6B9**.



### Optical Connection

The **AMG5713A6B9-DIN** connections are illustrated in the following example which shows an **AMG5713A6B9-DIN** transmit unit together with an **AMG5714A6B9** standalone receive unit configured as a single 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 Connection Singlemode

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

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

Primary Optical Sensitivity ..... -30dBm  
Receive Wavelength..... 1550nm

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

### Power Connection

Connector Type ..... Removable 2-pin, 3.81mm, Screw Terminal  
Connector Partno..... Phoenix 1803578  
Supply Voltage..... +12 to +15 Volts DC  
Maximum Power ..... 5 Watts

### Data and Alarm Channel Connections

No. of Integral Data Channels ..... 1 Selectable RS-232 / RS-422 / RS-485  
No. of Aux. Data Channels ..... 1 Echelon FTT-10A  
No. of Alarms ..... 1

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

Integral Data Interfaces RS-232, RS-422 or R-S485. 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

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

### Audio Connections

No. of Audio Channels..... 1 per video channel.

Connectors ..... Removable 5-pin, 2.5mm, Spring Terminal  
Connector Partno..... Phoenix 1881354

Input level ..... 0dBm  
Input overload level..... +6dBm

Input impedance ..... 10k $\Omega$  / 600 $\Omega$   
Output impedance ..... 600 $\Omega$

Frequency response ..... 10Hz to 20KHz

Audio Input impedance is selected by removable jumper JP1 or JP2 on Audio Expansion board inside enclosure. \*See appropriate section on how to remove the case for access to the data/audio switches.

- 1-2 – High Impedance 10k $\Omega$
- 2-3 – Balanced 600 $\Omega$

## Front Panel Indicators

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### Power LED

Power / Video / Opto.....	Green	-	Video present & opto sync.
	R/G	-	Opto sync. but no video present.
	G/R	-	Video present but no opto sync.
	Red	-	No opto sync.
	Off	-	No power applied to unit
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

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

### Audio LEDs

Audio Present TX ..... Green - audio present > -40dBm  
Red - audio present > 0dBm (overload at +6dBm)  
Off - audio not present or < -40dBm

This represents the audio signals being transmitted on the optical fibre

Audio Present RX ..... Green - audio present > -40dBm  
Red - audio present > 0dBm (overload at +6dBm)  
Off - audio not present or < -40dBm

This represents the audio signals being received from the optical fibre.

## **Echelon FTT-10A Data Channel Configuration**

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The **AMG5713A6B9-DIN** transmit unit sends and receives Echelon FTT-10A data to/from an **AMG5714A6B9** or rackmount equivalent **AMG5714A6B9R** receive unit.

The auxiliary data channel is provided by an **X13038** Echelon Daughter Board, it provides one bi-directional Echelon FTT10A data channel.

### **Data Interface Connections**

<b>Connector Pin No.</b>	<b>Echelon FTT-10A Data Channel</b>
1	Channel 1 NET_B
2	Channel 1 NET_A
3	GND
4	-
5	-

### **Echelon FTT-10A 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

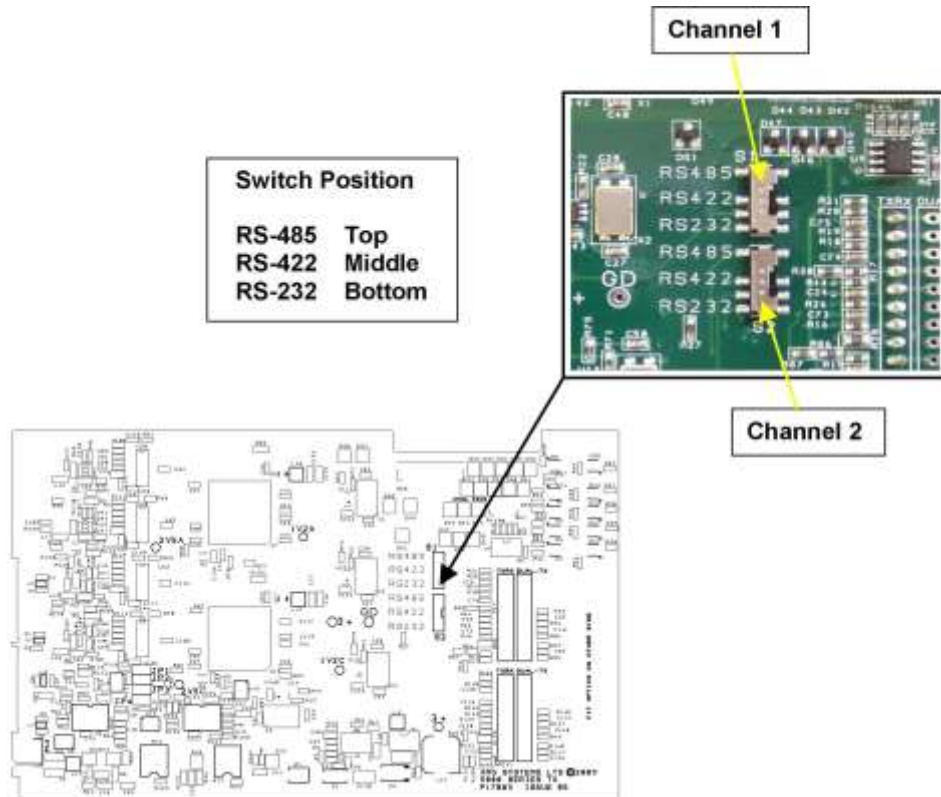
OUT corresponds to the data signals being received from the optical fibre.



## Data and Alarm Channel Configuration

The **AMG5713A6B9-DIN** transmit unit sends and receives data to/from an **AMG5714A6B9** or rackmount equivalent **AMG5714A6B9-R** receive 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.

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 **AMG5714A6B9** and is 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

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 **AMG5713A6B9-DIN** provides 1 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 **AMG5714A6B9** 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		

### **Audio Channel Configuration**

The **AMG5713A6B9-DIN** provides one bi-directional audio channel.

The audio channel input can be configured as a single-ended high impedance 10k $\Omega$  input with GND reference or alternatively as a balanced 600 $\Omega$  input pair. The input impedance is selected using jumpers on the audio expansion board JP1 (Channel 1) or JP2 (Channel 2), the default setting is balanced 600 $\Omega$ .

JP1/JP2            1-2 – High Impedance 10k $\Omega$   
JP1/JP2            2-3 – Balanced 600 $\Omega$

### **Audio Interface Connections**

<b>Connector Pin No.</b>	<b>Balanced Input 600<math>\Omega</math></b>	<b>High Z input 10k<math>\Omega</math></b>
1	OUT -	OUT -
2	OUT +	OUT +
3	GND	GND
4	IN +	IN
5	IN -	GND

## **Physical Information**

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### **Dimensions**

Height.....112mm  
Width.....170mm (excluding connectors)  
Depth .....70mm  
Weight.....600grams

### **Mounting Details**

The AMG unit is supplied with a clip-on mounting bracket which should be attached to a panel or wall using 2 off 4.0mm screws, see diagram on page 1 for dimensions. The unit is clipped into the mounting bracket, and is then held firmly in position.

## **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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