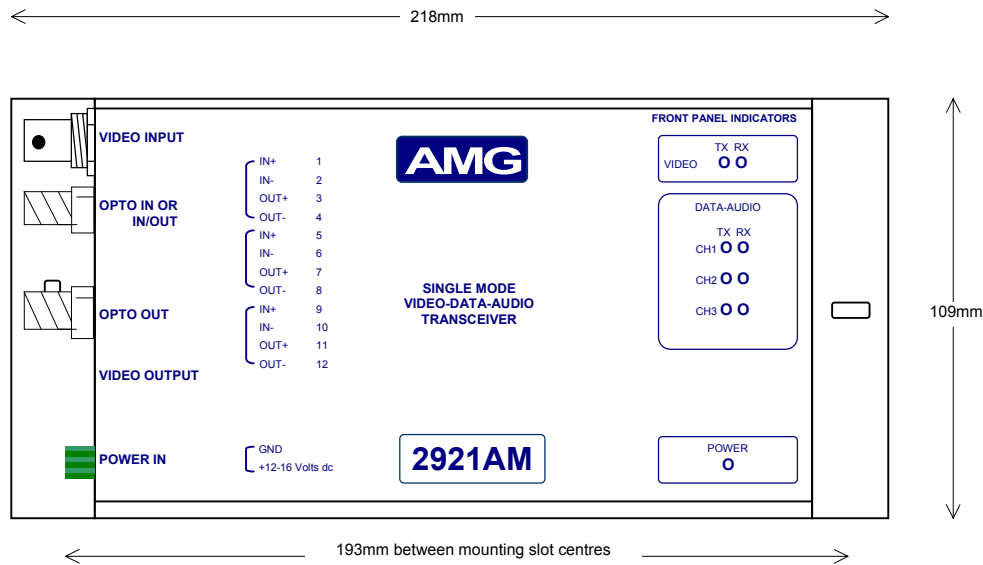




AMG2921AM Instruction Sheet

AMG2921AM Standalone Single Channel Video with Data and Contact Closure Fibre Optic Transceiver for use on two Multimode Optical Fibres



The AMG2921AM transmits a single video signal and transmits and receives one bi-directional data signal and two bi-directional contact closure signals over two multi-mode fibres. It is designed to operate with an AMG2922AM or an AMG2922ARM Video Receiver.

NOTE: to operate with a 2922M or 2922RM then there is a possibility of the 2921AM unit optically overloading the input of the 2922M. A minimum of 5dB attenuation must be between the 2921AM optical output and the 2922M optical input.

Connections

Video Input Connection

Connectors 75 ohm BNC Socket.
 Input Impedance 75 ohm terminated.
 Input Level 1 volt p-p nominal (+3dB overload).
 Frequency Response 10Hz to 5.75MHz min.

Optical Connection

Opto Output

Connector ST Style
 Launch Power -10dBm
 Wavelength 1310nm nominal.

Opto Input

Connector ST Style
Optical Sensitivity -30dBm
Wavelength..... 1310nm nominal.

Power Connection

Power Supply +12 volts d.c. to +16 volts d.c. at 300mA
Connector Removable screw terminal connector (3.5mm spacing)
See equipment label for connection details

Data Connections

Data Connector..... 12 way removable screw terminal connector (3.5mm spacing)

The Data Channel transmits and receives on channel 1 using pins 1 to 4 as shown below. Channel 2 and 3 are used for Contact closure transmission on the AMG2921AM

Channel	Pin No.	Pin Description
1	1	Data IN+
	2	Data IN-
	3	Data OUT+
	4	Data OUT-
2	5	Contact In +
	6	Contact In -
	7	Contact Out +
	8	Contact Out -
3	9	Contact In +
	10	Contact In -
	11	Contact Out +
	12	Contact Out -

See below for Data Channel configuration.

Dimensions

Height 109mm
Width 218mm
Depth 39mm

Mounting Details

The AMG2921AM is designed to be mounted onto a panel via the two mounting slots of 4.5mm x 10mm.

Indicators

Power Green – unit powered
 Off – no power applied to unit

Video TX Green – video signal present in video input BNC
 Off – no video present on video input BNC

Video RX.....Red/Green – optical connection to AMG2924A(R)M OK
 Off – optical loss to AMG2924A(R)M too high

Channel 1 Data - when configured for 'ON BOARD' data

TXGreen – logic one present on the corresponding data input
 Red – data transitions on the corresponding data input
 Off – logic zero present on the corresponding data input

This represents the data signals being transmitted on the optical fibre

RXGreen – logic one present on the corresponding data output
 Red – data transitions on the corresponding data output
 Off – logic zero present on the corresponding data output

This represents the data signals being received on the optical fibre

Channel 1 when data slot contains a data daughter board

TXGreen – logic one present on the corresponding data input
 Red – data transitions on the corresponding data input
 Off – logic zero present on the corresponding data input

This represents the data signals being transmitted on the optical fibre

RXGreen – logic one present on the corresponding data output
 Red – data transitions on the corresponding data output
 Off – logic zero present on the corresponding data output

This represents the data signals being received on the optical fibre

(when data slot contains an audio daughter board)

TXGreen – when an audio level between –40dBm and +0dBm is on the audio input (600ohm).
 Red – when an audio level above 0dBm is on the audio input. (600ohm).
 Red/Green – when an audio level peaking above 0dBm is on the audio input. (Note audio daughter board will accept up to +6dBm(600ohm)).
 Off – when an audio level is below –40dBm on the audio input. (600ohm).

This represents the audio signals being transmitted on the optical fibre

RXGreen – when an audio level between –40dBm and +0dBm is on the audio output (600ohm).
 Red – when an audio level above 0dBm is on the audio output. (600ohm).

- Red/Green – when an audio level peaking above 0dBm is on the audio output. (Note audio daughter board will transmit up to +6dBm(600ohm)).
- Off – when an audio level is below –40dBm on the audio output. (600ohm).

This represents the audio signals being received from the optical fibre

Channel 2 and 3

- TXGreen – closed contact present on the corresponding data input
- Red – transition on the corresponding data input
 - Off – open contact present on the corresponding data input

This represents the data signals being transmitted on the optical fibre

- RXGreen – closed contact present on the corresponding data output
- Red – transition on the corresponding data output
 - Off – closed contact present on the corresponding data output

This represents the data signals being received on the optical fibre

The Data Channel

The data channel can either:

1. Use the ‘ON BOARD’ RS422/485 interface without the use of any data daughter board.
2. Use a data daughter board to define what physical interface is presented at the connector.

Option 1 – Use of ‘ON BOARD’ RS422/485 interface

‘ON BOARD’ data is selected by removing JP4 on the main board

The RS422/485 data channel can operate in two modes:

Mode 1 – RS422 four wire full duplex transmission. In this mode the AMG2921AM will transmit a tristate condition as well as logic high and low for systems which require bus-ing of the RS422 four wire connection.

Mode 2 – RS485 two wire half duplex transmission.

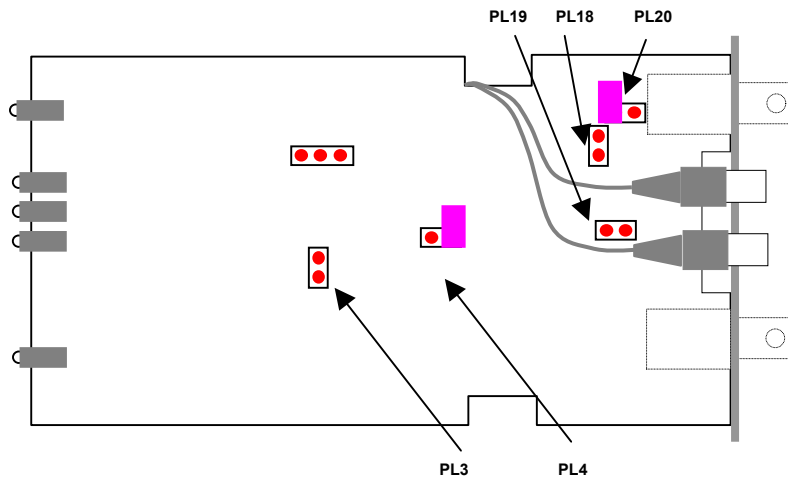
MODE	Configuration Details	PL3	PL4	PL18	PL19
1	RS-422 4 wire Point-to-Point - Not for Rs-422 BUS system	No	No	No	No

1	Rs-422 4 wire BUS systems	No	No	No	No
2	RS-485 2 wire BUS	Yes	No	Yes	Yes

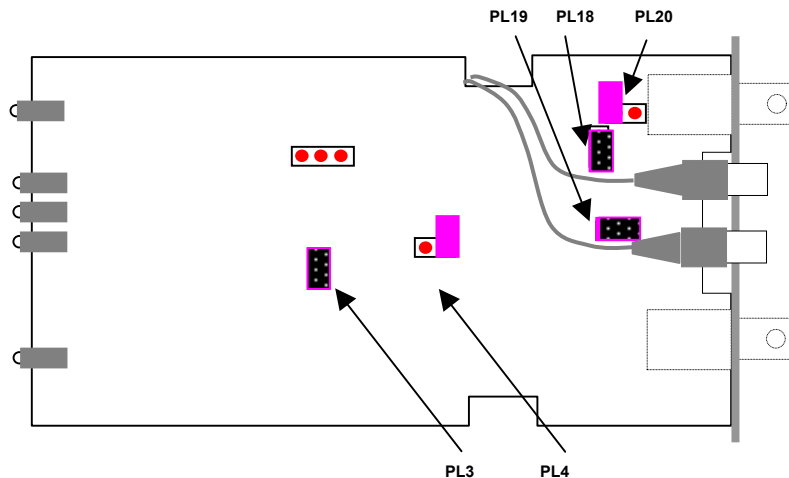
Selection the mode of operation is done with jumpers PL18, PL19 and PL3. When JP20 is fitted the data input connection is 120ohm terminated. When used in RS485 mode or in a RS422 BUS system mode, in order to detect the tristate condition on the input ***the AMG2921AM requires that the bus must be terminated either externally or with the internal jumper.*** If several data inputs are connected in parallel, the 120ohm termination should only be fitted once.

Unless order with data daughter boards or otherwise requested the 2921AM is set up for 'ON BOARD' RS485 two wire operation unterminated on leaving the factory.

MODE 1 – RS422 4 Wire Operation Jumper Settings:



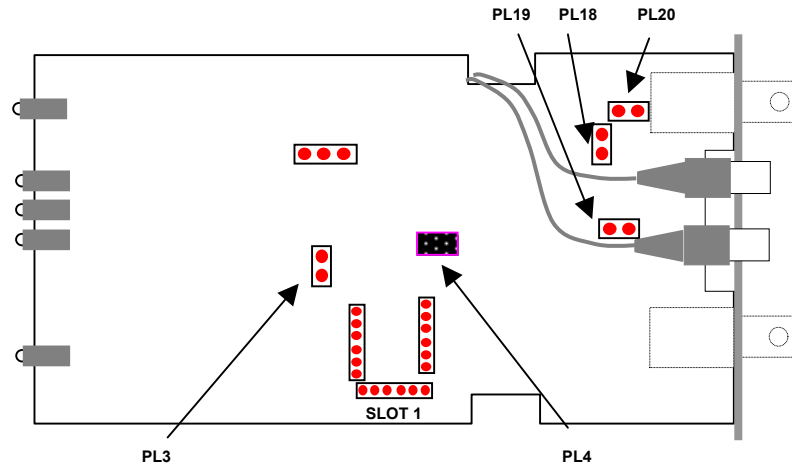
MODE 2 – RS485 2 Wire Operation Jumper Settings:



Option 2 – Use of data daughter boards

Installing and Removing a Data or Audio Daughter Board to slot 1.

The data and audio daughter boards are fitted to the main PCB either at the factory or in the field. There are three daughter board slots on the 2900 series with only one available on the 2921AM, this being slot 1. The diagram below illustrates the positions of the interface Daughter Board channels slot and the position of the relevant jumpers.



Option 2	Configuration Details	PL3	PL4	PL18	PL19	PL20
	Data daughter board fitted in slot 1	No	YES	No	No	No

To install the Interface Daughter Boards:

1. Remove the main PCB from the housing as follows:

Note:- The 2900's PCB is static sensitive. Handle it with proper care and normal electrostatic Discharge (ESD) procedures. Use properly grounded protection (for example, wrist stamps) when handling the PCB.

- 1.1. Loosen and remove the two screws on the top and bottom of the unit's rear panel.
- 1.2. Ensure that the optical fibre is not trapped.
- 1.3. Slide the rear panel out.
- 1.4. The PCB is attached to the rear panel.

2. Align the daughter board with the desired slot connectors and press into place.
3. Check that all the pins are correctly seated into their correct socket. The set of six pins parallel to the bottom of the main board on each slot are only used when an audio daughter board is fitted.

4. Fill other slots as required.
5. Re-insert the main PCB into the housing taking care not to trap the optical fibre
6. Fasten the rear panel with the screws.

To remove a Interface Daughter Board:

1. Remove the main PCB from the housing as above.
2. Grasp the Interface Daughter Board you wish to remove and away from the main board.
3. Re-insert the main PCB into the house as above

Data Daughter Board Options

Option Code	Part No.	Description
1	X04057	RS422/485 Data Interface Daughter Board
2	X04049	RS232 Data Interface Daughter Board
3	X04058	20mA Current Loop Data Interface Daughter Board
4	X04059	TTL Data Interface Daughter Board
5	X12578	Contact Closure Data Interface Daughter Board
6	X13038	FTT10A Echelon Lonworks Data Interface Daughter Board
0	X14542	4 Wire Audio Interface Daughter Board

Safety

The 2921AM 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 fibre systems see EN 60825-2:2000 or your local safety officer.

Support

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 product data sheet for full specification.