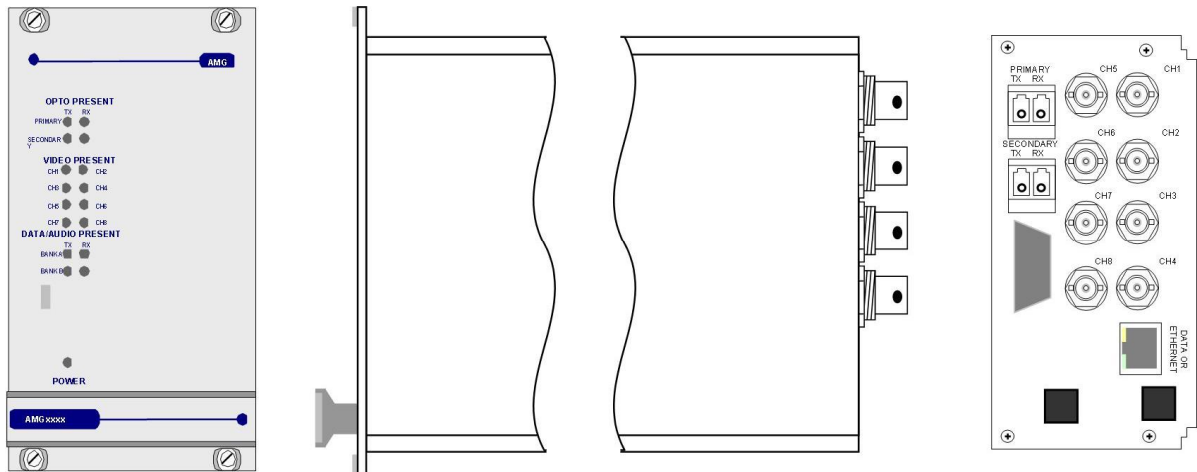


## 8 Channel Video Transmit Unit with Ethernet for a Singlemode Fibre Link plus an integral WDM coupler



The **AMG4681ER-CWDMn-C** is a rackmount eight channel video transmit unit designed to transmit 8 video signals and provide full duplex 100BaseT Ethernet connectivity over one Singlemode optical fibre.

The **AMG4681ER-CWDMn-C** transmits on a CWDM wavelength defined by the 'n' in the CWDMn partno. as detailed in the following table, but can receive from any 1310nm or 1550nm band wavelength. It also incorporates a WDM "drop and insert" optical multiplexer. This allows the user to combine a signal from a unit transmitting at an alternative CWDM wavelength onto the same optical fibre.

The **AMG4681ER-CWDMn-C** is designed to plug into an AMG2009 or AMG2015 subrack, which in turn fits into a 19" rack system.

The **AMG4681ER-CWDMn-C** is designed to operate with **AMG4682E-CWDMn-C** or rackmount equivalent **AMG4682ER-CWDMn-C** eight channel video receive unit in a point to point configuration.

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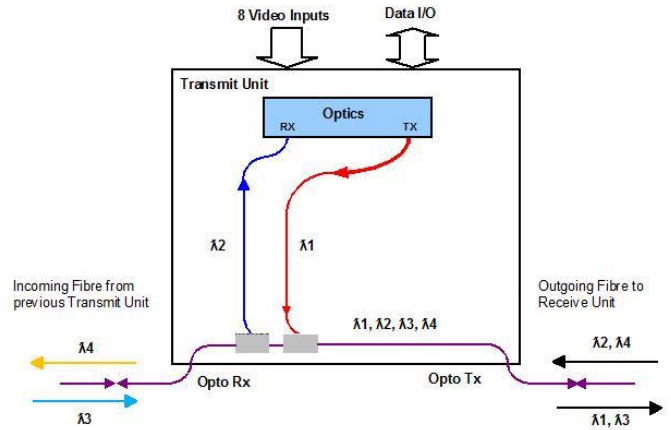
## Introduction

### Unit Functional Schematic

The **AMG4681ER-CWDMn-C** transmits up to 8 video signals plus Ethernet data to the **AMG4682ER-CWDMn-C** receive unit using a wavelength ( $\lambda_1$ ) defined by 'n' in the CWDMn partno.

It also receives Ethernet data transmitted on  $\lambda_2$  wavelength from the **AMG4682ER-CWDMn-C**.

The **AMG4681ER-CWDMn-C** incorporates an integral WDM coupler which allows other CWDM wavelengths to be combined onto the same (single or dual) Optical Fibre(s).



### Standard AMG CWDM Wavelengths

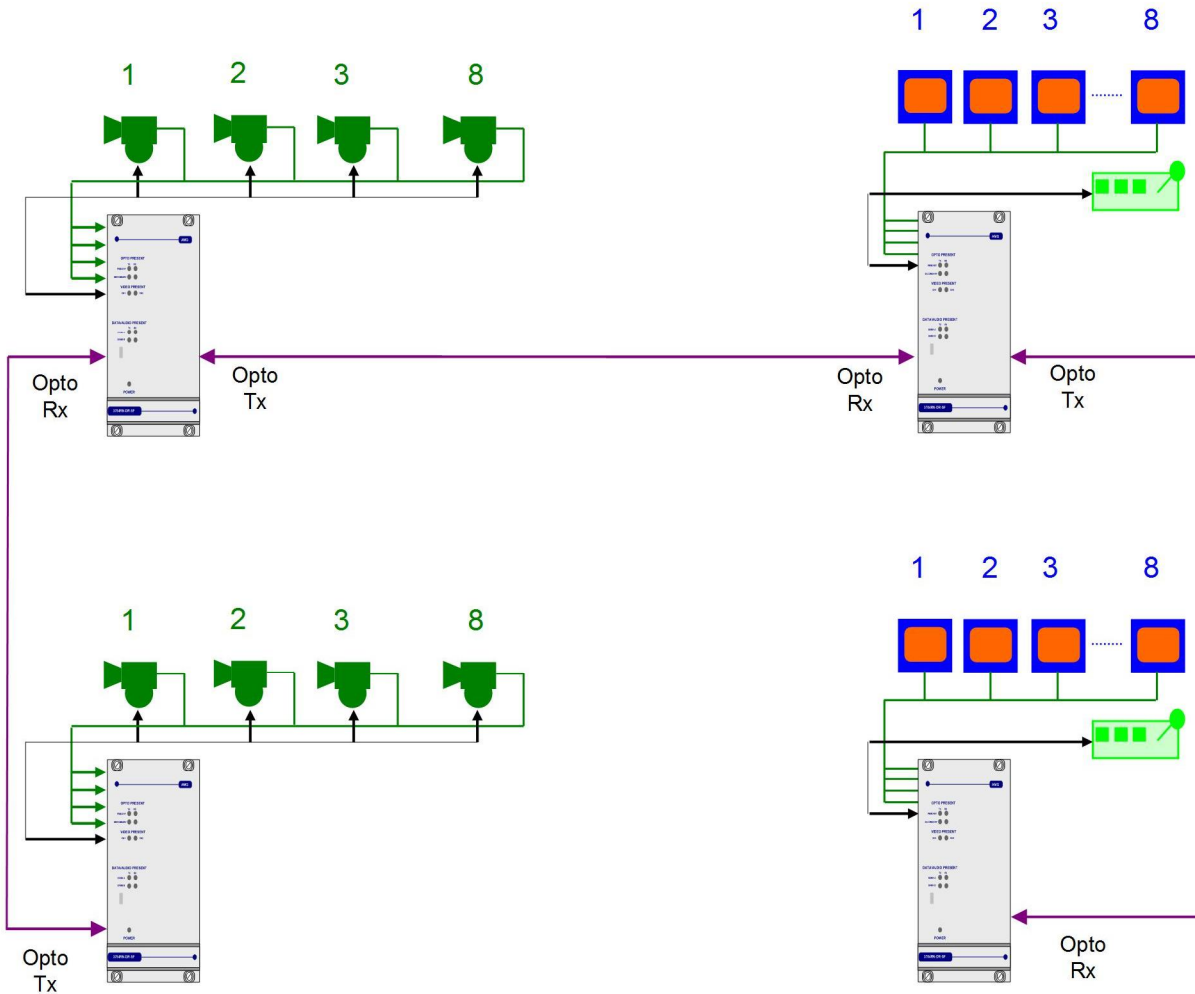
CWDM n/m	Wavelength (nm)	CWDM n/m	Wavelength (nm)	CWDM n/m	Wavelength (nm)	CWDM n/m	Wavelength (nm)
1	1510	6	1490	11	1350	16	1450
2	1530	7	1590	12	1370	17	1270
3	1550	8	1610	13	1390	18	1290
4	1570	9	1310	14	1410		
5	1470	10	1330	15	1430		

For CWDM wavelengths 11-16, ITU-T G652C or D fibre is recommended.

## Optical Connection

The **AMG4681ER-CWDMn-C** is connected as illustrated below when used with an **AMG4682ER-CWDMn-C** 8-channel receive unit plus an additional 8-channel transmit / receive pair which together provide a 16-channel point to point system over a single optical fibre.

The example shown uses all single fibre optical links, alternatively dual fibres or a combination of both may be used depending on the model. Data provided can be Ethernet or low speed RS-485/RS-232 Data or both.



## **Connections**

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### **Video Input Connections**

No. of channels..... 8  
Connector ..... 75 ohm BNC Socket.  
Input Impedance ..... 75 ohm terminated.  
Input Level ..... 1 volt p-p nominal  
Frequency Response ..... 10Hz to 7MHz.

### **Optical Connections**

#### **PRIMARY OPTO OUT**

Connector ..... LC/PC  
Primary Optical Launch Power ..... 0dBm  
Wavelength..... Defined by 'n' in the AMG Partno.  
Optical Fibre ..... Singlemode

#### **PRIMARY OPTO IN**

Connector ..... LC/PC  
Primary Optical Sensitivity..... -22dBm  
Wavelength..... Any 1310nm or 1550nm band  
Optical Fibre ..... Singlemode  
Optical Overload ..... -5dBm

NOTE: The optical launch power may overload the input of an AMG receiver if connected directly. A minimum of 5dB loss is required to ensure correct operation.

### **Power Connection**

Power supply ..... from plug in connection on the AMG2009 / AMG2015 subrack  
Power consumption ..... 10 Watts max.

### **Ethernet Connection**

Ethernet Data Connector ..... RJ45  
Interface ..... Auto-negotiation up to 100BASE-TX full duplex  
Ethernet Data Rate ..... Maximum 100Mb/s total Ethernet traffic on fibre

## **Ethernet Operation**

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In order for the AMG system to transmit Ethernet signals, an onboard RJ45 Ethernet interface or X16003 Ethernet interface adaptor should be fitted to both the Transmit unit and the Receive unit.

The Ethernet interface can operate at either 10Mbps/s half duplex, or 100Mbit/s full duplex, and data is transmitted from one port the other port with the minimum of delay or buffering.

The 100BaseT port does not implement MDI/MDIX; it should be connected with a straight though cable to an external switch port and with a cross over cable when connected directly to a PC or DTE.

## Front Panel Indicators

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### Power LED

Power .....	Green	-	unit powered
	Off	-	no power applied to unit

### Video Input LED's

Video Present CH1-8 .....	Green	-	video signal present on input BNC
	R/G	-	channel present but no video on I/P BNC

### Fibre Optic LED's

Primary Opto Sync TX .....	Green	-	optical channel transmitting
	Off	-	optical channel not transmitting
Primary Opto Sync RX .....	Green	-	optical channel receiving
	Org	-	optical channel receiving but not sync.
	Off	-	optical channel not transmitting

### Ethernet Data LED's

#### BANK A

Data Present TX (Ethernet) .....	Green	-	data present on the Ethernet input
	Off	-	no data present on the Ethernet input

This represents the Ethernet signals being transmitted onto the optical fibre

Data Present RX (Ethernet) .....	Green	-	data present on the Ethernet input
	Off	-	no data present on the Ethernet input

This represents the Ethernet signals being received from the optical fibre

#### BANK B

Data Present TX .....	Green	-	RJ45 Ethernet port operating at 100Mbit/s
	Red	-	RJ45 Ethernet port operating at 10Mbit/s

Data Present RX .....	Green	-	RJ45 Ethernet port operating full duplex
	Off	-	RJ45 Ethernet port operating half duplex

Note: the RJ45 Ethernet auto-negotiates up to 100Mbit/s full duplex.

## **Physical Information**

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### **Dimensions**

Height..... 3U Plug-in  
Width..... 14HP  
Depth..... 170mm excluding connectors  
Weight..... 1000grams

### **Mounting Details**

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

### **Removal / replacement from / to the Case**

Note: - The AMG unit PCB's are static sensitive. Handle with proper care and use normal electrostatic discharge (ESD) procedures. Use properly grounded protection (for example, wrist straps) when handling the PCB.

To remove units from the case to access the data expansion boards and the daughter boards, remove the 2 or 4 fixing screws on the rear panel and slide the PCB's out of the case. Ensure that the fibres do not snag or get trapped.

To replace the PCB's into the case, slide the PCB's gently into the case aligning the boards with the appropriate slots. Ensure that the fibre do not snag or get trapped.

## **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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