The AMG4600 & AMG4700 Series

Multi Channel Fibre Optic CCTV Transmission Solutions

DESIGNED IN BRITAIN. MADE IN BRITAIN.

The AMG4600 & 4700 series are designed for low cost, multi-channel point-to-point video transmission together with associated Ethernet and low speed data and audio signals.

The AMG4600 series is designed for multimode fibre, whilst the AMG4700 series is designed for singlemode fibre.

The system can provide a highly resilient, managed, low cost, transmission system for both compressed and uncompressed video signals. It allows the user to pick and choose the best from all technologies both now and in the future, by making sure the system can cater for all the future needs from the outset.

The video is transmitted in a real time full bandwidth digital format. This ensures high quality transmission regardless of distance. As no compression of the video is used, there is no latency or compromise on quality.

When congured in a dual redundant /self-healing ring option, the AMG4600 & AMG4700 ensure no loss of signal during a catastrophic fibre failure.

Please Note: The AMG dual optical redundancy does not utilise mechanical switches or couplers. Both transmission paths are continually monitored.

Using Coarse Wavelength Division Multiplexing, CWDM, up to 18 wavelength channels can be used providing a transmission capacity of up to 144 video channels on one singlemode optical fibre together with the associated data/audio and Ethernet.

When used in a dual redundant conguration, an 8 fibre ring has a simultaneous capacity of up to 576 video channels, 1152 data/audio channels and 7.2Gbit/s of Ethernet.

The AMG4600 & AMG4700 can be delivered with a dedicated Network Management System, NMS, providing alarms associated with the breaks in the optical fibre together with loss of video signals and power failure. The NMS system can also operate with SNMP management.

For drop and insert options, AMG offers the AMG3600 & AMG3700 Series.

Features

- Real time digital transmission format - no signal quality degradation with distance
- Wide link dynamic range - no link margin adjustment required for installation, just plug in and switch on
- Single fibre as well as dual fibre configurations
- Simultaneous multiple video, Ethernet, data and audio transmission - covers all signal transmission needs on one set of equipment
- High capacity with up to 144 video signals, 1.8Gbit/s of Ethernet and 288 data/audio signals transmitted simultaneously per link
- Front panel LED status indicators provides at a glance status monitoring
- Plug in module for AMG200 series of 19" subracks - ability to mix multimode and singlemode products in the same rack
- Data interface daughter board configurable - ability to address any interface protocol
- Standalone and rackmount formats for minimum space usage
- Multiple Management options including SNMP compliant network management for remote fault reporting and diagnosis

Applications

- Transportation: Road, Rail, Metro, Light Rail
- Security and Surveillance
- Industrial sites
- Inter and intra town and city centres
- Campus sites
- Personal help points
- Government agency applications
- Video conferencing

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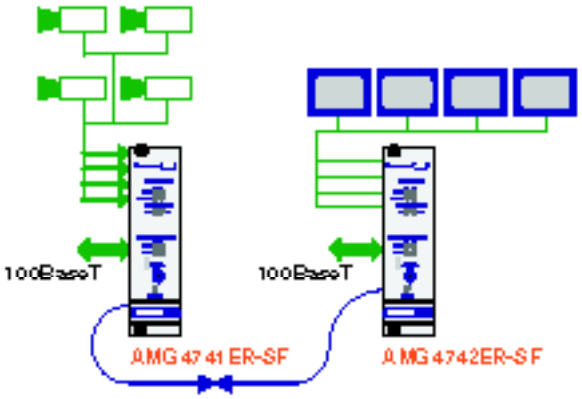
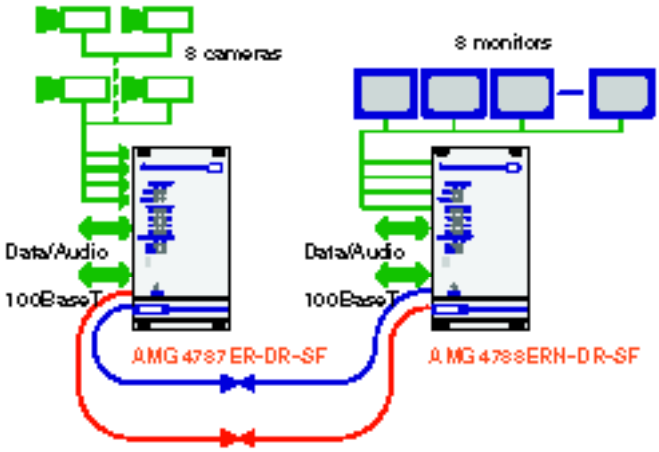
Example Topologies

Four Channel Point-to-Point Video with Ethernet & SF



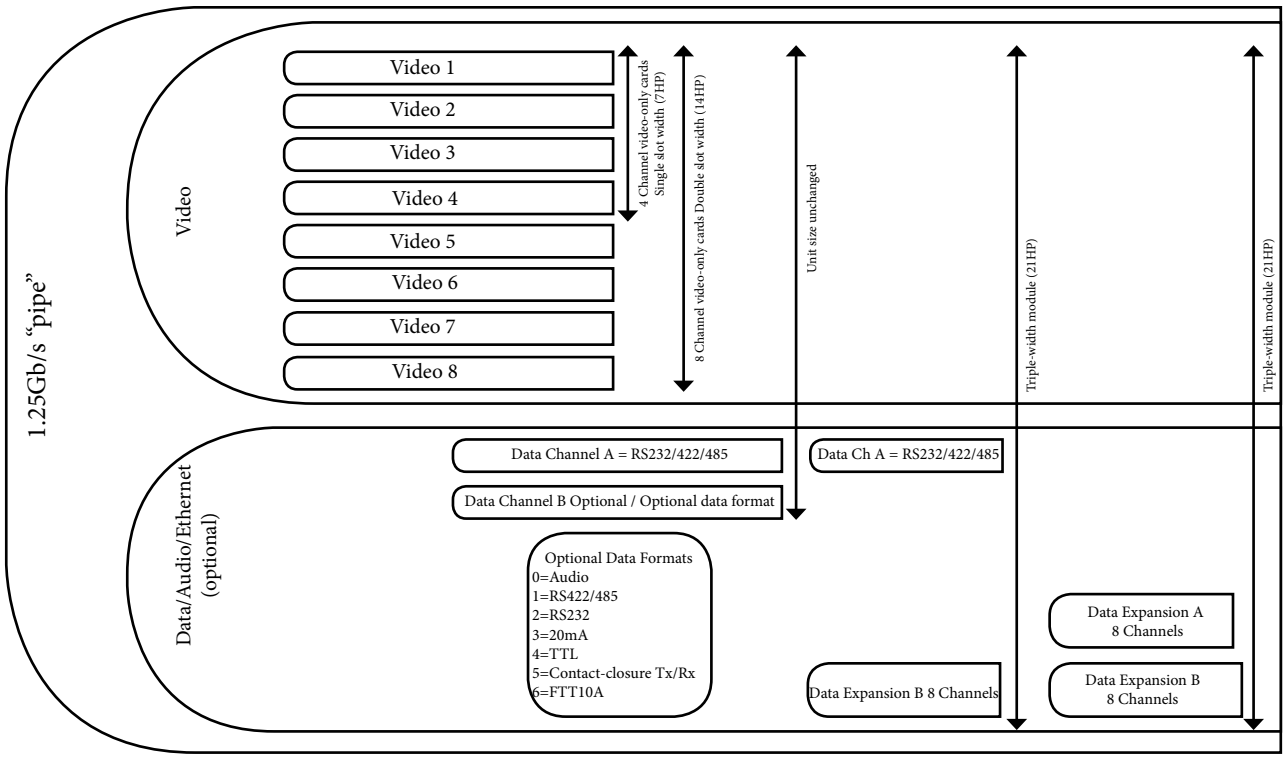
Four channels uni-directional video and bi-directional 100BaseT Ethernet transmitted over a single singlemode fibre using SF option.
Ethernet can be used for: PC network, IP cameras, VOIP phones, Wi-Fi hotspots, access control, alarm systems, remote DVR's.

Eight Channel Video with Data/Audio, Ethernet, DR, SF, N



Eight channels uni-directional video and up to 16 bi-directional data/audio channels & Ethernet transmitted over dual singlemode fibres. All 16 data/audio channels can be individually congured by separately specifying the required daughter boards. DR option provides dual redundancy -primary path in blue, secondary path in red. SF option minimises the fibre usage, and includes integral couplers. N option on the receiver provides a management port. option on the receiver provides a management port.
Both optical routes continually monitored.

4000 Modularity Diagram



NOTE: Ethernet can be added to any product variant. Capacity is 100Mb/s without data/audio, or 50Mb/s with data/audio.
MEX expansion card provides up to 6 fully-managed ethernet ports per insert unit.

Model Number Builder

AMG 4 Series	Fibre Type	Video Channels	Data / Audio	Ethernet	Slave Receiver	Housing Style	Network Mngmt.	Dual Redun-dant	Single Fibre	Optical Wave-length	High Power	Integral Coupler

Fibre Type

6	Multimode	7	Singlemode

Number of Video Channels

0	Repeater	4	4 channel video	8	8 channel video

Data/Audio

	Video	Channel A Qty. & Type	Channel B Qty. & Type	Case Width 4 Video	Case Width 8 Video
1	TX	-	-	7HP	14HP
2	RX	-	-	7HP	14HP
3	TX	1 RS232/422/485	-	14HP	14HP
3Bx[1]	TX	1 RS232/422/485	1 Daughter Board	14HP	14HP
4	RX	1 RS232/422/485	-	14HP	14HP
4Bx[1]	RX	1 RS232/422/485	1 Daughter Board	14HP	14HP
7	TX	8 Daughter Board Slots[2]	8 Daughter Board Slots[2]	21HP	21HP
7A	TX	8 Daughter Board Slots[2]	-	21HP	21HP
7B	TX	1 RS232/422/485	8 Daughter Board Slots[2]	21HP	21HP
8	RX	8 Daughter Board Slots[2]	8 Daughter Board Slots[2]	21HP	21HP
8A	RX	8 Daughter Board Slots[2]	-	21HP	21HP
8B	RX	1 RS232/422/485	8 Daughter Board Slots[2]	21HP	21HP

[1]See Table 1 for value of x [2]See Table 1 to order Daughter Boards

Ethernet

-	No Ethernet	E	Ethernet

Slave Receiver For RX only

-	No Slave Receiver	S	Slave Receiver

Table 1 Daughter Boards

Interface	x	AMG Order Code
Audio	0	X12542
RS422, RS485	1	X04057
RS232	2	X04049
20mA	3	X04058
TTL	4	X04059
Contact Closure	5	X12578
FTT10A	6	X13038

Use 'x' with 3B & 4B Use AMG order codes with 7, 7A, 7B, 8, 8A, 8B

Integral CWDM Add/Drop Coupler 4700 only

-	No coupler, external couplers required
C	Integral add/drop couplers for CWDM ring
2C	Integral couplers for early loop back from ring

High Power 4700 only

-	Standard optical launch power, see specifications
HP	Launch power increased by 5dB

Optical Wavelength

	Non SF	SF
-	1310nm	1310/1550nm
1550	1550nm	N/A
CWDMn	n:See Table 2	N/A
CWDMn/m	n/m:See Table 2	N/A

Single Fibre

	Number of fibres used Video Only Non DR	Video Only DR	Video + Audio/Data/Ethernet Non DR	Video + Audio/Data/Ethernet DR
-	1	2	2	4
SF	1 default	2 default	1	2

SF option includes integral coupler(s) use C/2C options for CWDM

Dual Redundant

-	Without redundancy	DR	With dual route redundancy

Network Management

-	No Management port	N	Management port

Network Management software ordered separately: order as AMGNMS

Housing Style

-	Standalone	R	AMG standard rackmount
D	With 3U subrack frame	G	Plug in for 3rd party subrack frame

Table 2 CWDM Wavelengths 4700 only

n/m	λnm	n/m	λnm	n/m	λnm	n/m	λnm
1	1510	5	1470	9	1310	13	1390
2	1530	6	1490	10	1330	14	1410
3	1550	7	1590	11	1350	15	1430
4	1570	8	1610	12	1370	16	1450

CWDM wavelengths 11 - 14: ITU-T G652C or D fibre is recommended

Examples, Sub-Rack & Power Supplies

AMG4641	Multimode, standalone 4 channel video only transmitter
AMG4784BOR-SF	Singlemode, rackmount 8 channel video receiver with RS485/422/232 + Audio, single fibre
AMG4787ER-DR-CWDM1/2-C	Singlemode, rackmount 8 channel video transmitter with 16 data/audio daughter board channel slots + Ethernet, dual redundant, operation on a single fibre ring, CWDM1 is the primary wavelength, CWDM2 is the secondary wavelength
AMG4788BERN-DR-SF	Singlemode, rackmount 8 channel video receiver with 8 data/audio daughter board channel slots + RS485/422/232 + Ethernet, dual redundant with both primary and secondary route operating on a single fibre, using 1550nm and 1310nm, with a network management port Daughter boards need to be ordered separately, see Table 1

2009 3U 19" subrack with 10 Slots, 7HP, PSU
2015 3U 19" subrack with 12 Slots, 7HP, PSU
2015DR 3U 19" subrack with 12 Slots, 7HP, PSU
BP2000 Blank panel, 1 Slot, 7HP
2003 Standalone power supply + 15V DC @ 2A

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Specifications

Video

Video compression	none, un-compressed
Input/output level	1V pk to pk nominal
Input/output impedance	75 unbalanced
Frequency response	10Hz to 5.75MHz min. 7.0MHz cut off
Differential gain	<1%
Differential phase	<1°
Signal to noise ratio	67dB, 10 bit conversion
Video standards	NTSC/PAL

Standard Data/Audio Channels

Each link has two Data/Audio Channels, A & B, with or without Ethernet.
For simple options Channel A and Channel B can be provided as individual data channels, with Channel A being switchable between RS232/RS422/RS485 and Channel B being congured by the addition of a daughter board.
See Model Number Builder for all options.

Expanded Data/Audio Channels

Either one or both of Channel A & Channel B can be expanded to 8 individual channels with an expansion card, providing a maximum of 16 individual channels. When expanded each individual channel is congured with a separate daughter board.

Channel A

Available channels	1
Interface options, external switch	RS232, RS422, RS485
Connector	R J45

Channel B

Available channels	1
Connector	R J45

Interface options (determined by daughter board)

Expanded Channel A

Available channels	8
Connector	37 way D-type socket

Interface options (determined by daughter boards)

Expanded Channel B

Available channels	8
Connector	37 way D-type socket

Interface options (determined by daughter boards)

Audio

Input impedance	600Ω
Output impedance	600Ω
Input level	-40dBm-0dBm
Input overload level	+ 6dBm

Frequency response

Audio/Data	10Hz to 22kHz
Audio/Data & Ethernet	10Hz to 11kHz

Note: When using Expanded Channels A & B, a combined maximum of 8 audio channels is available.

Data

Data rate	up to 512kb/s per channel without Ethernet up to 256kb/s per channel with Ethernet

Ethernet

Data interface	10/100BaseT autonegotiate
Data connector	R J45

Maximum Data Rate on Fibre

Ethernet Only	100Mbps
Ethernet & Data/Audio	50Mbps

Optical

Fibre		
4600	50/125 or 62.5/125 multimode	
4700	singlemode	
Wavelength		1310nm
	1550 option	1550nm
	-S F option	1310nm/1550nm
	-CWDM option	1310nm - 1610nm
Path loss		17dB min.
	-HP option	22dB min.
	-CWDM option	22dB min.
Transmission distance		
	4600	< 2km
	4600 -S F option	< 500m
	4700	> 40km
Connector		LC on rear panel

General

Operating temperature	-15 to + 70°C
Operating humidity	0 to 95% non condensing
Video connector	BNC
Emissions	CE approved
Mechanical	3U high, 170mm deep 7/14/21HP wide, see Model Number Builder rackmount or standalone units
Power requirements	+12V to +18V DC @ 500mA
MTBF	> 180,000hrs
Indicators	front panel LED status

Rackmount

Standalone

D14392-02

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