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### Headend Optical Transport OmniStar® Enhanced DFB Laser [AM-OMNI-ALM-\*]

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## FEATURES

- **870 MHz passband: up to 110 channels + digital**
- **Advanced linear predistortion circuitry**
- **Low RF input level**
- **AGC/manual gain modes**
- **CW/video switch for accurate link optimization**
- **Microprocessor control & monitoring of critical functions**
- **Wide selection of models for optimum performance/price ratio**
- **True front panel "plug and play"**

The OmniStar® ALM-\* is a line of high performance DFB laser modules. The AM-OMNI-ALM-\* family consists of twelve models with optical powers ranging from 2 to 25+ mW serving link budgets from 2 to 16+ dB. All OmniStar lasers have an integrated Gallium Arsenide (GaAs) preamp allowing for a low RF input level and exceptional distortion performance. The laser modules have separate broadcast and narrowcast RF inputs with high port to port isolation. Each laser module features a state-of-the-art linear predistortion circuit to provide superior CSO and CTB distortion performance. During manufacturing the performance of each laser is characterized and its optimal operating point is stored in non-volatile memory within the unit. No user adjustments of RF or laser drive levels are required by the operator to insure that the guaranteed link performance is automatically achieved upon power-up. The three user controlled modes of operation are: **Preset**- factory set AGC for optimal laser performance, **Set**- user adjustable AGC, and **Manual**- user adjustable fixed gain. The *Set* and *Manual* modes allow the user to adjust the RF drive level for customized C/N and distortion performance based on channel loading and system requirements. The CW/Video switch allows the user to set up and proof a link using a CW video source. When modulated signals are then applied, the microprocessor adjusts the RF drive level into the laser to match the CW drive levels. This feature insures the laser is not operating in clipping when modulated signals are applied and provides operators with a reliable and accurate way to proof links.

This wide variety of modules combined with the scalability of the OmniStar platform allows the user to design the best solution for an application based on different variables such as loss budget, performance criteria, splitting ratio considerations, and cost effectiveness.

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## Specifications

### Headend Optical Transport OmniStar® Enhanced DFB Laser[AM-OMNI-ALM-\*] Specifications

<b>RF Characteristics:</b>	
Operational Bandwidth	50 - 870 MHz (50 - 750 Analog, 750 - 870 Digital)
RF Input Impedance	75 Ohms
RF Input Return Loss	16 dB Min. 50 - 750 MHz; 14 dB Min. 750 - 870 MHz
RF Connector Types	Test Point - F-Type
	Input Connector - G-Type (User Interface is F-Type)
<b>Optical Characteristics:</b>	
Optical Wavelength	1310 nm +/- 20 nm
Distortion Performance	(See link performance specs.)
Laser Shutdown	Enable/Disable via Control Module using HCS
Eye Protection	Optical Safety Shutter
<b>Power Requirements:</b>	
DC Current	<b>Min /Max</b>
+ 5 Vdc	90 mA /1.7 A
+12 Vdc	350 mA /450 mA
+24 Vdc	400 mA /550 mA
Power Consumption	25 Watts Max, 15 Watts Typical
<b>User Interface:</b>	
Front Panel	Tri-Color Module Status LED
Optical Power Test Point	10 mW/V, scaled DC Voltage of Optical Output Power
Optical Output Ports	1 Port
Optical Connector Types	SC/APC with Optical Safety Shutter
RF Test Point (Total Constant Power)	+9.5 dBmV/ch +/- 0.5 dB, with 110 NTSC channel loading
Data/Control Interface	Serial Peripheral Interface (SPI) to Control Module using HCS
<b>Environmental Specifications:</b>	
Operating Temperature Range	-20° to +65° C (-4° to 149° F)
Storage Temperature Range	-40° to 80° C (-40° to 176° F)
Over Temperature Laser Protection	Software and Hardware active

<b>Physical Properties:</b>		
Dimensions	1.5"W x 6.5" H x 14.25"D (3.81cm x 16.51cm x 36.20cm)	
Weight	4.0 lbs. (1.8 kgs)	
Mounting	AM-OMNI-HSG* equipment shelf, any of slots 3-10	
<b>Input Signal Level:</b>		
Broadcast Input	+13.5 dBmV for 110 NTSC channels, 50 - 750 MHz	
Analog	+15.0 dBmV for 77 NTSC channels, 50 - 550 MHz	
Digital	-10 dB relative to Broadcast input level, 750 - 870 MHz	
Narrowcast Input - Analog/Digital	+22 dB above Broadcast input levels	
<b>Link Distortion Performance:</b>		
	<b>77 NTSC channels</b>	<b>94 NTSC channels</b>
		<b>110 NTSC channels</b>
Composite Triple Beat Distortion (CTB)	-70 dB	-69 dB
Composite Second Order Distortion (CSO)	-66 dB	-65 dB
<b>Carrier to Noise (CNR) Performance:</b>	<b>77 NTSC Channels:</b>	

Model	Output Power (nominal dBm)	Optical Loss (dB)														
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ALM-2	2.6	<b>54</b>	53	52												
ALM-4	4.6		55	<b>54</b>	53	52										
ALM-5	5.6			55	<b>54</b>	53	52									
ALM-6	6.6				55	<b>54</b>	53	52								
ALM-7	7.6					55	<b>54</b>	53	52							
ALM-8	8.6						54.5	<b>53.5</b>	52.5	51.5						
ALM-9	9.6							54.5	<b>53.5</b>	52.5	51.5					
ALM-10	10.6								54.5	<b>53.5</b>	52.5	51.5				
ALM-11	11.6									54	<b>53</b>	52	51			
ALM-12	12.6										54	<b>53</b>	52	51		

ALM-13	13.6											54	<b>53</b>	52	51	
ALM-14	14.6												54	<b>53</b>	52	51

**Notes:**

- Specifications measured using SG2-LR receiver.
- Link budgets are all fiber with 1 dB for connector loss.
- To calculate CNR performance for 110 channels (50 - 750 MHz) subtract 1.5 dB.
- Specifications are measured using CW carriers per NCTA recommended test procedures.
- Optical power is +/- 0.6 dBm from nominal.

Specifications subject to change without notice.

For more information: call 1-888-436-4678