I-Type Medallion 6000 1550 nm Externally-Modulated Transmitter

DATASHEET | NOVEMBER 2013 FIBER OPTICS



Applications

- High-Performance Supertrunking Links
- High-Power Distribution Networks
- Redundant Ring Architectures
- FTTx Networks
- RFoG Applications
- Optimized for International CATV Systems
- DWDM Node Splitting

Features

- Single or Dual Optical Outputs
- QAM Loading to 1003 MHz
- Dual Power Supplies, Redundant & Hot Swappable
- Front Panel RF Test Point
- Vacuum Fluorescent Status Display
- OMI / RF Gain Adjustment
- AGC Select: CW, Video, Manual (No AGC)
- Industry Leading Field Adjustable SBS Suppression

The I-Type Medallion 6000 Series

The I-Type Medallion 6000 series is a family of state-of-the-art high-performance 1550 nm externally-modulated CATV fiber optic transmitters optimized for International network applications that employ an 85 MHz forward / reverse path split frequency. Packaged in a convenient 1 RU housing, this line of optical transmitters couples high optical output power, up to 10.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary pre-distortion circuitry, provides superior CTB and CSO performance with adjustable SBS suppression levels of greater than 19 dBm.

The I-Type transmitter's exceptional performance is enabled by EMCORE's proprietary high power, narrow linewidth CW (Continuous Wave) laser technology. When deployed with one or more EMCORE optical amplifiers, transmissions of 150 km can be achieved. The feature-rich WEB GUI and SNMP interface bring a whole suite of advanced operator monitoring and configuration options to the platform, allowing for secure, simplified and future-ready functionality for the next generation of intelligent networks.

Advanced features such as built-in field adjustable SBS control allow these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters.

I-Type transmitters are specially designed and optimized to support fiber optic links of up to 150 km for the international marketplace and other markets with similar requirements.

Monitoring and configuration is supported via a convenient front panel display, an RS-232 port, and an Ethernet port with SNMP, Telnet, and Web GUI. The platform is mechanically designed for flexibility and space efficiency including universal rack-mount features, modular front panel design, and optional front and rear port placement. Dual redundant field-replaceable fans and power supplies are standard.

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Optical Characteristics

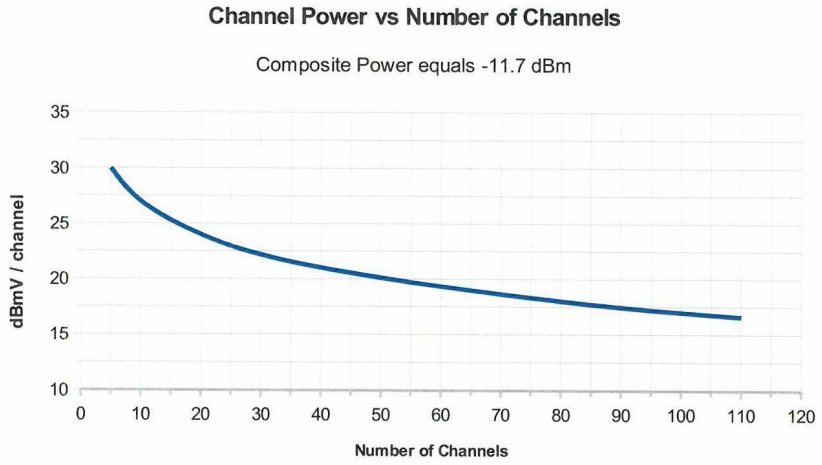
Property Performance (note 1-9)	Units	6000-0IE1		Comments
Specified Link Length	L (km)	65	65	Other Fiber Lengths Supported. See Note 8
Channel Plan		NTSC 80-Ch	PAL 60-Ch	Other Channel Plans Supported. Note 9
Optical Output Power	Po (dBm)	7.0/7.0	8.5/8.5	Min. 10 dBm version avail. See Chart
Noise Bandwidth	BW (MHz)	4	5	
SBS Suppression	(dBm)	13 to 19	13 to 19	Min.
Carrier to Noise Ratio	CNR (dB)	52.5	52.5	Min.
Composite Second Order	CSO (dBc)	-65	-65	Max. Port 1
Composite Triple Beat	CTB (dBc)	-65	-65	Max. @ +25°C
Composite Triple Beat	CTB (dBc)	-64	-64	Max. @ 0°C to 50°C

Notes:
1. Unless stated otherwise all specifications apply over full temperature range with no digital loading.
2. Unless stated otherwise specifications apply for nominal RF input level as defined below, after a 30 minute stabilization period.
3. Specifications separated by a slash are port1 / port 2.
4. Units are tested per the Test / Link Configuration Table
5. Noise figure for the EDFA = 4.5 ~ 5.5 dB
6. Corning SMF-28 single mode fiber
7. Receiver responsivity is 0.95 mA/mW, Equivalent noise current is 7 pA/(Hz)1/2
8. Fiber lengths from 0 to 100 km can be supported. See Figure 2 for CSO performance.
9. The lowest frequency of all channel plans shall be > 119.25 MHz. A 2 dB penalty of CNR may occur for channels from 85 to 112.25 MHz. See the Electrical Specifications Table for correct input power for other channel plans.

Test/Link Configuration

Property	EDFA	Link	Received Power[2]
I-Type	16 dBm	65 Km	0.0 dBm at the receiver

Figure 1

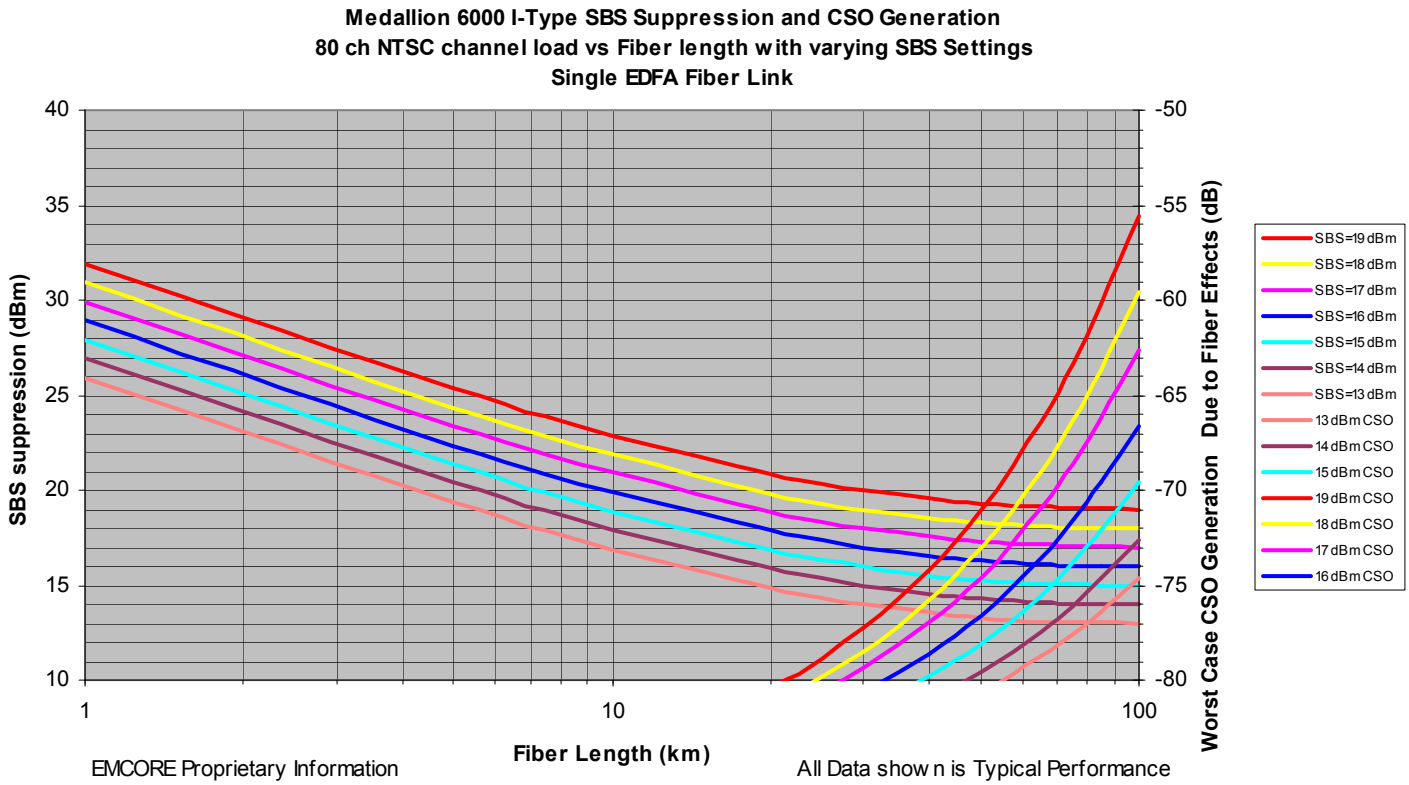


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Electrical Specifications

Property	Requirement	Comments
CATV Nominal Input Power	18 dBmV/ch (78 dBuV/ch) 19 dBmV/ch (79 dBuV/ch)	80 NTSC channels 60 PAL channels
CATV Composite Level	-11.7 dBm	0 dB on FP Display (All Channel Plans)
CATV Input Range	+2/-8 dB from nominal input	Optimal performance at nominal input
CATV RF Gain / OMI Adjustment Range	+2/-8 dB from nominal setting	CATV Performance may vary slightly over range
CATV Frequency Range	45 MHz – 1003 MHz	
CATV Flatness	+/- 0.50 dB +/- 0.75 dB	45 MHz – 550 MHz 45 MHz – 1003 MHz
CATV Input impedance	75Ω	
CATV Input Return Loss	16 dB min	45 MHz – 1003 MHz
CATV Front Panel RF Tap	-20 +/- 1 dB down from RF input	
CATV Front Panel RF Tap Flatness	+/- 1 dB	45 MHz – 1003 MHz

Figure 2



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General and Mechanical Specifications

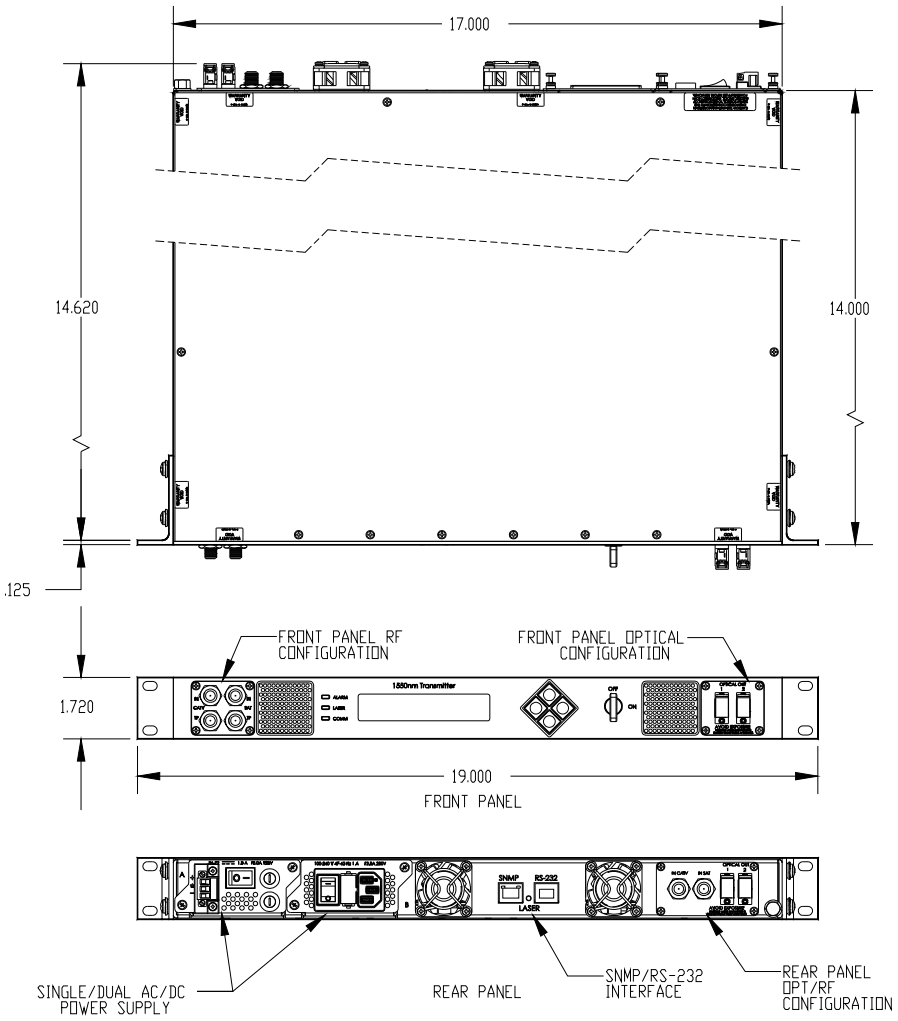
Property	Requirement	Comments
Wavelength	1555+/-5 nm	Various Options + ITU-grid available – see Model Number Information
Channel Plan	Various – See Specification Tables	
Optical Connector	SC/APC	Other styles available
Monitoring Interfaces	100 Base-T Ethernet (SNMP) Rear Panel RS-232 interface VFD Screen Front Panel Controls	VFD- (Vacuum Fluorescent Display)
Operating Temperature	0°C to 50°C	
Storage Temperature	-20°C to 70°C	
Power Consumption	65 W max	
Agency Listings	**EMI**: EN50083-2:2006 (US CATV) EN55022:2006 (US IT) EN61000-3-2 (Harmonics) EN61000-3-3 (Flicker) FCC: Part 15, Subpart B, class "A" Unintentional Radiators ICES-003 (Canada) AN/NZS 3548, Class A (Australia) VCCI, Class A (Japan)	**Safety**: FDA/CDRH Laser Safety Governed by Code of Federal Regulations Title 21, Volume 8, Part 1040 IEC 60950-1 IEC 60728-11 Laser IEC 60825-1 CB Certification
Transportation Vibration	GR-2853-CORE	In Shipping package
Transportation Shock	GR-2853-CORE	In Shipping package
Operating Humidity	20% to 85%	Non-condensing
Supply Range (VAC) (VDC)	90 to 265 VAC, 50/60 Hz +/- (36 – 72) VDC	
Dimensions	19.0" W x 15.0" D x 1.72" H	(width includes 19" front panel ears, depth includes, connectors, fans & front panel) – see drawing

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Outline Drawing



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Model Number Information[Note 3]

6000 – □ □ □ □ - □ □ □ □ □

Logo & Customer Specific	Link Type	Pout (dBm min) Note 1	Loading Type	Optics	RF	Wavelength (nm)	Power Supply
0 – EMCORE Logo	**I –** 0 to 100 km	**D –** 10/10 Note 4	**1** – All Channel Plans	**1** – SC/APC, Rear	**1** – RF IN Rear, TP Front	**00** –1555+/- 5.0 nm	**1** – AC primary, no secondary
1 – no Logo		**A** – 7.0/7.0		**2** – FC/APC, Rear	**2** – RF IN Front, TP Front	**01** – 1550+/- 5.0 nm	**2** – DC primary, no secondary
				3 – E2000/APC, Rear	**3** – RF IN Front, TP Rear	**xx** – ITU Channel +/- 0.1 nm Note 2	**3** – AC primary, AC secondary
				4 – SC/APC, Front	**4** – RF IN Rear, TP Rear		**4** – AC primary, DC secondary
				5 – FC/APC, Front			**5** – DC primary, DC secondary
				6 – E2000/APC, Front			

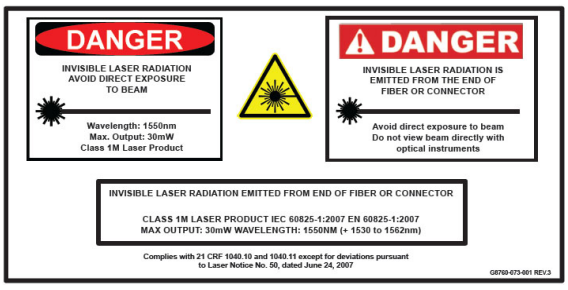
Note 1: Options available for Indicated types only
Note 2: ITU grid wavelengths can be specified from channel 18 to 40
Note 3: Not all configurations are available, contact factory
Note 4: CSO port 2 degraded by 1dB
Note 5: Contact Factory for Model type availability

Additional Kits

G3708-006-001 - Replaceable AC power supply modules
G3708-005-001 - Replaceable DC power supply modules
G7914-076-001 - Replaceable Blank power module plate
G3906-008-001 - Replaceable fans

Laser Safety Information

This product meets the applicable requirements of 21 CFR 1010 & 1040 and is classified as a Class 1M laser product. During use as intended, the laser energy is fully contained within the fiber network such that there is no accessible laser radiation. This product has been issued accession number 0820466-001.



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