

Model 755MM-X (3980E) Optical Transmitter

1550 nm, 65 km, Low Distortion



Applications

- Video signal distribution to HFC CATV and FTTP nodes
- Video overlay in passive optical networks (PON)
- Replacement for Externally Modulated Transmitters

Features

- Enhanced Optical Spectrum Reshaping Technology
- Optimized RF integration of predistorter, amplifiers and laser
- Dual redundant power supplies
- Supports SNMP protocol
- Complete, efficient laser bias and TEC control circuitry
- OEM/ODM opportunities available through Ortel
- Digital monitoring and control
- ITU Wavelengths

Emcore's Model 755MM-X is a recently developed 1550 nm transmitter suitable for link lengths of up to 65 km. The 75Ω RF video input supports frequencies up to 870 MHz. Also integrated into the RF/Optical design are Emcore's low chirp control and noise suppression circuitry. Integrated within the design is Emcore's patented pre distortion technology to provide outstanding performance with any of Emcore's wide range of cooled broadband lasers. These modules may be made available with dual power supply options and SNMP capability.

The 755MM-X adopts the Hybrid Modulation (patent pending) scheme with superior performance, which is similar to that of External Modulation and easy tuning which is similar to that of Direct Modulation, making it ideal for either FTTP or HFC network applications. The performance specifications indicated below are subject to change.

Performance Highlights

Parameter	Min	Typ	Max	Unit
Operating Temperature Range	0	25	50	°C
Wavelength (Multiple Options)	1540	-	1560	nm
Optical Power	6	-	-	dBm
Frequency Response	47	-	870	MHz
CNR	-	52	-	dB
CSO	-	-	-65	dBc
CTB	-	-	-65	dBc
SBS Suppression Capability	-	-	16	dBm
RF Input Return Loss	16	-	-	dB
Optical Return Loss	40	-	-	dB

Noise performance above assumes 79 channel NTSC loading with no QAM, 0 dBm received optical power

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Min.	Max.	Unit
Operating Temperature Range	T _{OP}	0	50	° C
Storage Case Temperature Range	T _{stg}	-20	65	° C

RF Characteristics

Parameter	Condition	Min	Typ	Max	Unit
Bandwidth	-	47	-	870	MHz
Frequency Response	47-870 MHz	-	-	1.5 ¹	dB _{p-p}
RF Input Level	-	-13.7	-11.7	-9.7	dBm
CNR ²	-	-	52	-	dB
CSO ²	-	-	-	-65	dBc
CTB ²	-	-	-	-65	dBc
Input Impedance	47 – 870 MHz RF Input	-	75	-	Ohms
75Ω Video Input Return Loss	47 to 870 MHz	16	-	-	dB
75Ω Test Port Input Return Loss	47 to 870 MHz	16	-	-	dB

1.Excludes tilt component.

2.CW carriers, 79 channel NTSC channel plan, 4 MHz noise bandwidth, 0 dBm received power, SMF-28 or equivalent.

Optical Characteristics

Parameter	Condition	Min	Typ	Max	Unit
Optical Output Power	-	-	6	-	dBm
SBS Threshold	65 km SMF-28	-	-	16	dBm
Side Mode Suppression Ratio	-	30	-	-	dB
Optical Return Loss ¹	APC style connector	40	-	-	dB
RIN	Back to Back		-160		dBc/Hz

1. In order to prevent reflection-induced distortion, the laser must be connected to an optical cable having a return loss of at least 55 dB for discrete reflections and 30 dB for distributed reflections

Power Requirements

Parameter	Min.	Max.	Unit
AC Input Range	94 50	245 60	Vac Hz
DC Input Range	36	60	Vdc
Power	-	50	W

Package Characteristics

Parameter	Dimension	Unit
Height	1.75 (44), 1U	in. (mm.)
Width	19 (483)	in. (mm.)
Depth	17.77(452) with fans	in. (mm.)
Weight	9.0 (4)	lbs. (kg.)

Part Number / Ordering Information

755MM-X - - - - XX -

<i>Channel Plan</i>	<i>Output</i>	<i>SBS</i>	<i>Connectors</i>	<i>ITU Wavelengths</i>	<i>AC Power Cord</i>
A = NTSC 79-Ch	06=06 dBm (Std)	A = 16 dBm (Std)	SC = SC/APC FC = FC/APC EC = E2000/APC	ee= 21, 1560.61nm : ee= 45, 1541.35 nm	NA = N.AMERICA

ITU Wavelength Channel Designations

Channel	Wavelength (nm)
21	1560.61
23	1558.98
25	1557.36
27	1555.75
29	1554.13
31	1552.52
33	1550.92
35	1549.32
37	1547.72
39	1546.12
41	1544.53
43	1542.94
45	1541.35

Laser Safety Information

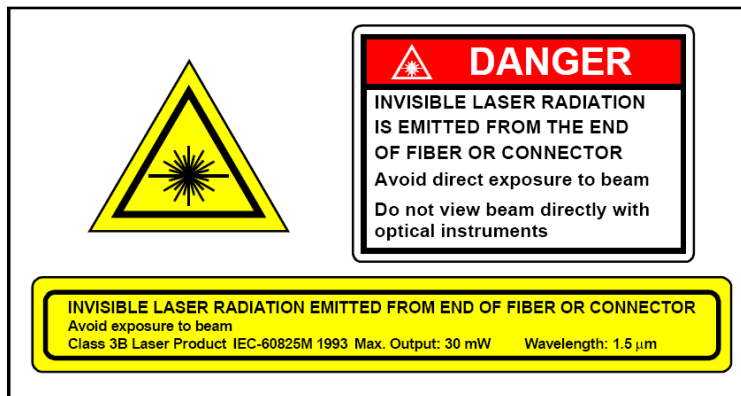
This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class IIIb laser product. This device has been classified with the FDA/CDRH under accession number 0220800.

Single-mode bulkhead receptacles with internal SC/APC connectors (standard).

Wavelength = 1.5 μm . Maximum power = 50 mW.

Product is shipped with internal AC/DC and DC/DC power supply converters.

Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.



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