OMNISTAR GX2

GX2-EM870 Series

1550 nm Broadcast Transmitter

MOTOROLA
intelligence everywhere™

The OmniStar GX2-EM870 series of 1550 nm Broadcast Transmitters uses advanced optical linearization technology to provide low noise and superior distortion performance.

The suite of products satisfies various applications: full band loading or split band loading, super-trunking or distribution to nodes, long-distance transport or short hops. Also, the transmitters are optimized to specific channel plans for 4 MHz or 5 MHz transmission system standards. A patented amplitude modulation technique provides Stimulated Brillouin Scattering (SBS) suppression up to 16 dBm to enable long links when used in conjunction with optical amplifiers.

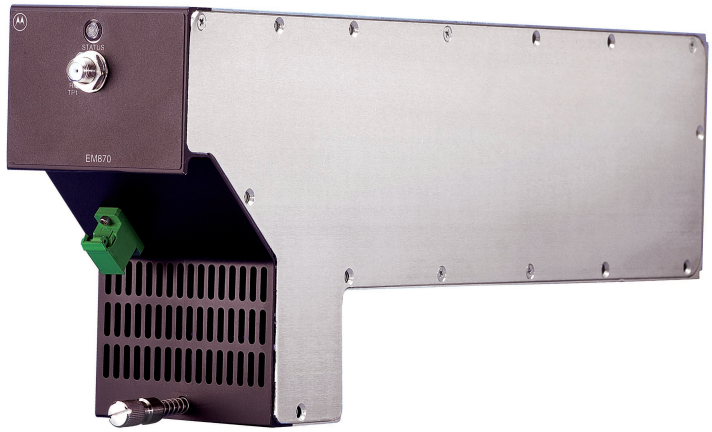
The transmitter uses a 1550 nm DFB laser diode as a precision light source, which is modulated by an optically linearized Mach Zehnder modulator. Use of external modulation technology eliminates laser chirp and allows designs of transport systems for distances well beyond 100 kilometers.

Enhanced with PowerPC technology by Motorola, the GX2-EM870 series introduces a new found intelligence to traditional headend equipment. The system performance is continuously monitored and a sophisticated control algorithm assures optimum performance.

Motorola's patented amplitude modulation technique provides high SBS suppression to enable long links.

BENEFITS INCLUDE:

- Provides full performance 50 - 870 MHz forward bandwidth
- Designed for combination analog/digital operation
- SBS suppression up to +16 dBm
- Test point for RF input
- PowerPC provides advanced control to assure optimum performance



applications

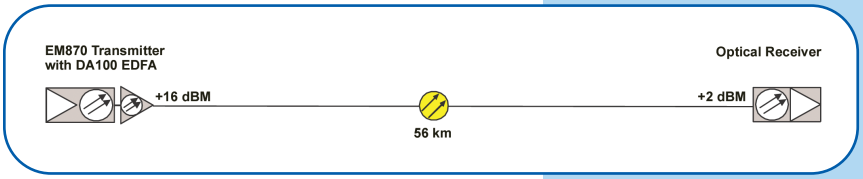


Figure 1

Supertrunking

The EM870 transmitter, operating in conjunction with OmniStar GX2 EDFA's, provides an effective solution for supertrunks. With SBS suppression available up to 16 dBm, links up to 65 km can be met with one Erbium-Doped Fiber Amplifier (EDFA). Longer links can be supported with multiple EDFA's while maintaining superior performance.

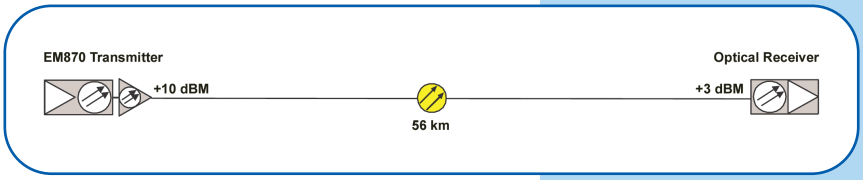


Figure 2

Short-Hop

The EM870 transmitter is available in optical power at +10 dBm. This transmitter, with higher power, can transport up to 40 km without the use of an optical amplifier, providing a cost-effective supertrunk solution.

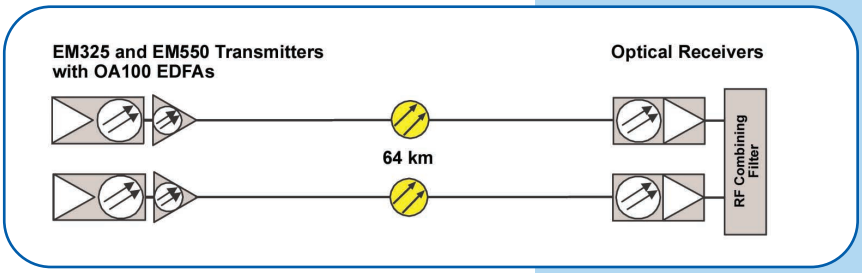


Figure 3

Split-Band Supertrunk

To get even better noise performance on a supertrunk, the EM325 and EM550 can be used to split the broadcast signal. The RF signals are split and fed into the transmitters. The EM325 transmits the signals in the lower band and the EM550 transmits the signals in the higher band. The signals can then be re-combined at the receiving location. If the fiber is constrained, the split band optical signals can be wavelength division multi-plexed onto a single fiber.

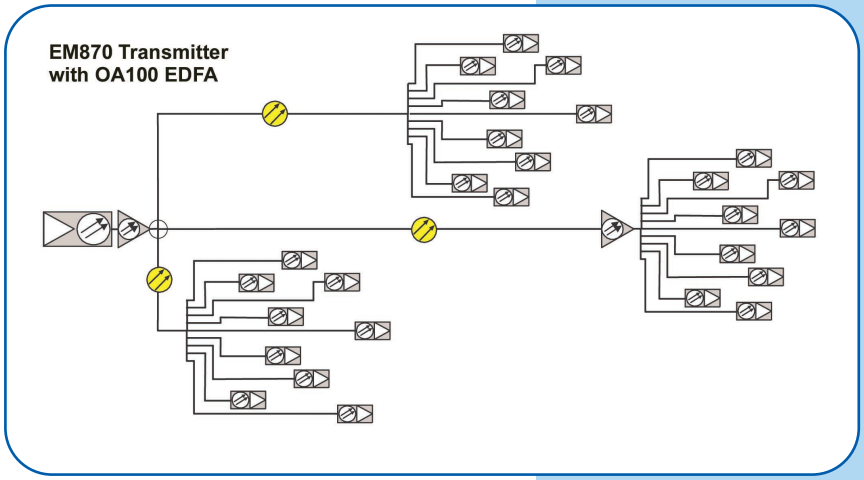


Figure 4

Distribution to Nodes

Used with OmniStar GX2 EDFA's up to +24 dBm, the EM870 transmitter can serve a large number of optical nodes. With an optical coupler network and remote EDFA's, an endless combination of nodes and distances can be satisfied.

performance

	EM870*7/16	EM870*7/13	EM870*10/11	EM325*7/16	EM550*7/16
Carrier-to-Noise Ratio					
79 NTSC Channels + 320 MHz Digital	52.5 dB	52.5 dB	54.5 dB		
40 NTSC Channelsl				56.0 dB	56.0 dB
64 PAL B/G Channels + 264 MHz Digital	51.5 dB	51.5 dB	53.5 dB		
32 PAL B/G Channelsl				55.5 dB	55.5 dB
58 PAL D/K Channels + 264 MHz Digital	51.5 dB	51.5 dB	53.5 dB		
29 PAL D/K Channels				55.5 dB	55.5 dB
Composite Second Order	-66 dBc	-66 dBc	-65 dBc	-68 dBc	-68 dBc
Composite Triple Beat	-66 dBc	-66 dBc	-65 dBc	-66 dBc	-66 dBc
Distortion Test Conditions	Note 1	Note 2	Note 3	Note 1, 4	Note 1, 4

Notes:

1. Measured through 65 km fiber with +16 dBm EDFA into optical receiver at 0 dBm.

2. Measured through 45 km fiber with +13 dBm EDFA into optical receiver at 0 dBm.

3. Measured through 35 km fiber into optical receiver at 0 dBm.

4. Measured with split band analog loading: EM325 loaded from 50-325 MHz and EM550 from 325-550 MHz.

SPECIFICATIONS

Optical	**EM870*7/16**	**EM870*7/13**	**EM870*10/11**	**EM325*7/16**	**EM550*7/16**
Center Wavelength	1544 to 1548 nm	1544 to 1548 nm	1544 to 1560 nm	1544 to 1548 nm	1555 to 1560 nm
Optical Output Power (min)	+7 dBm	+7 dBm	+9.5 dBm	+7 dBm	+7 dBm
SBS Suppression (min)	+16 dBm	+13 dBm	+11 dBm	+16 dBm	+16 dBm

RF

Operational Bandwidth	47-870 MHz
RF Input Level	
79 NTSC, 64 PAL, B/G, 58 PAL, D/K	25 ±1 dBmv per channel
40 NTSC, 32 PAL, B/G, 29 PAL, D/K	26.5 ±1.5 dBmv per channel
RF Input Return Loss	16 dB Minimum
Frequency Response	
47-750 MHz	±0.5 dB
50-870 MHz	±0.75 dB
RF Tilt, 50-870 MHz	-0.5 dB to 1.0 dB
RF Input Test Point	
47-550 MHz	-20 ±0.5 dB Relative to input RF level
47-870 MHz	-20 ±1.0 dB Relative to input RF level

Electrical/Environmental/Mechanical

Dimensions	3-wide module, 3" W X 5.9" H X 15" D (7.5 cm X 15 cm X 38 cm)
Weight	6.8 lbs. (3.0 kg)
Mounting	GX2-HSG* Equipment Shelf
Operating Temperature Range	0°C to 50°C
RF Connector Types	
Input	F-type (using G-to-F adaptor on chassis)
Test point	F-type
Storage Temperature Range	-40°C to 80°C

Model Number	**Description**
GX2-EM870B7/16	1550 nm Broadcast Tx, 79 NTSC channels, 7 dBm Tx, SBS suppression 16 dBm minimum
GX2-EM870B7/13	1550 nm Broadcast Tx, 79 NTSC channels, 7 dBm Tx, SBS suppression 13 dBm minimum
GX2-EM870B10/11	1550 nm Broadcast Tx, 79 NTSC channels, 10 dBm Tx, SBS suppression 11 dBm minimum
GX2-EM325B7/16	1550 nm Broadcast Tx, 40 NTSC channels low, 7 dBm Tx, SBS suppression 16 dBm minimum
GX2-EM550B7/16	1550 nm Broadcast Tx, 39 NTSC channels high, 7 dBm Tx, SBS suppression 16 dBm minimum
GX2-EM870D7/16	1550 nm Broadcast Tx, 64 PAL channels, 7 dBm Tx, SBS suppression 16 dBm minimum
GX2-EM870D7/13	1550 nm Broadcast Tx, 64 PAL channels, 7 dBm Tx, SBS suppression 13 dBm minimum
GX2-EM870D10/11	1550 nm Broadcast Tx, 64 PAL channels, 10 dBm Tx, SBS suppression 11 dBm minimum
GX2-EM325D7/16	1550 nm Broadcast Tx, 32 PAL channels low, 7 dBm Tx, SBS suppression 16 dBm minimum
GX2-EM550D7/16	1550 nm Broadcast Tx, 32 PAL channels high, 7 dBm Tx, SBS suppression 16 dBm minimum

*SC/APC optical connector is standard. Add /E to model designate E2000 optical connector

Specifications are subject to change without notice.

MGBI

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