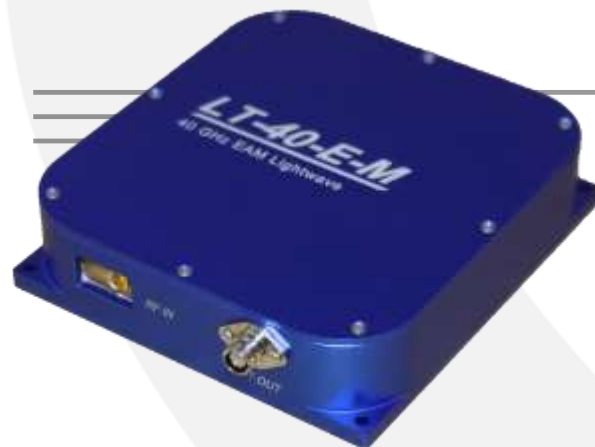


# LT-40-E-M



## 40 GHz EAM Lightwave Transmitter Module

### OVERVIEW

The Optilab LT-40-E-M is a 40 GHz lightwave transmitter module designed for RF over fiber, antenna remoting and broadband digital communication. It utilizes a C-band distributed feedback (DFB) laser monolithically integrated with a high-speed electro-absorption modulator (EAM), together with an integrated DC bias circuit for lightwave modulation. Its USB port provides bias setting and status monitoring function based on RS485 protocol. Contact Optilab for more details.

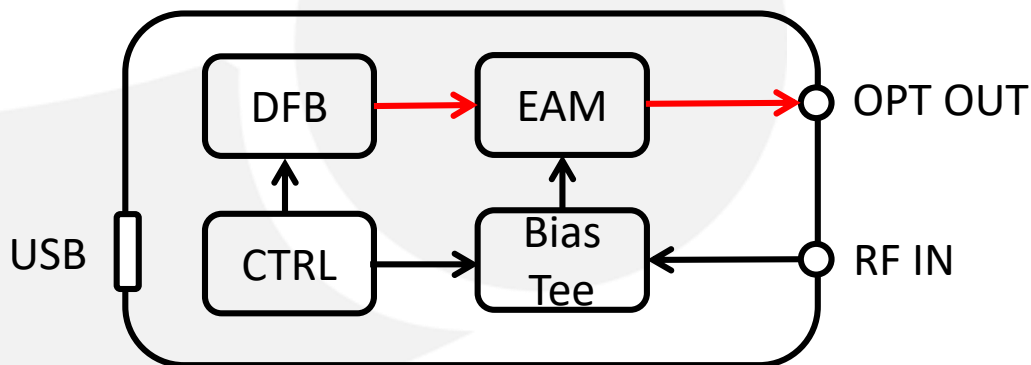
### FEATURES

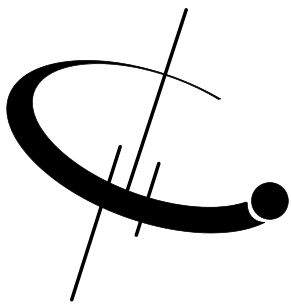
- Wide Bandwidth up to 40 GHz
- RS485 Control and Monitor via USB
- Integrated Bias-Tee Design
- Low RF Drive Voltage

### APPLICATIONS

- 40 GHz RF over Fiber
- Phased and Interferometric Array Antenna
- 40 Gb/s NRZ / RZ Data Communication
- RF/IF Signal Distribution

### FUNCTIONAL DIAGRAM





# LT-40-E-M

## ABSOLUTE MAXIMUM RATINGS

| Parameter             | Symbol   | Conditions             | Min | Max  | Unit |
|-----------------------|----------|------------------------|-----|------|------|
| Operation Temperature | $T_{op}$ | Case Temperature       | 0   | 50   | °C   |
| Storage Temperature   | $T_{st}$ |                        | -20 | 75   | °C   |
| LD Forward Current    | I        | Under Modulation Input |     | 110  | mA   |
| EAM Bias Voltage      | $V_b$    |                        |     | 0.5  | V    |
| RF Input Power*       | Pin      |                        |     | 13.5 | dBm  |

\*  $V_b + \frac{1}{2} V_{pp\_in}$  should be less than 1.0V.

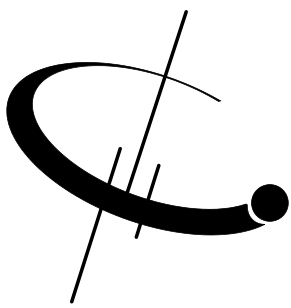
## E/O SPECIFICATIONS

| Parameter                    | Symbol     | Conditions  | Min  | Typ  | Max  | Unit     |
|------------------------------|------------|-------------|------|------|------|----------|
| Output Wavelength            | $\lambda$  |             | 1530 |      | 1565 | nm       |
| Output Power                 | $P_{opt}$  | @ 0V Bias   | 6    | 8.5  |      | dBm      |
| Side Mode Suppression Ratio  | SMSR       |             | 35   |      |      | dB       |
| LD Operation Current         | $I_{op}$   |             |      | 100  |      | mA       |
| RF Bandwidth (S21)           | $f_{3dB}$  | 3dB         | 32   | 34   |      | GHz      |
| Low Cutoff Frequency         | $f_{low}$  |             |      |      | 500  | Hz       |
| Electrical Return Loss (S22) | $S_{22}$   | 0 to 18 GHz |      |      | -10  | dB       |
| RF Input Impedance           | $R_{term}$ |             |      | 50   |      | $\Omega$ |
| Static Extinction Ratio      | ER         | CW          | 15   |      |      | dB       |
| EAM Operation Bias Voltage   | $V_{bop}$  |             | -3   | -1.5 | 0    | V        |
| RF Input Amplitude           | $V_{pp}$   |             |      |      | 3    | V        |

## MECHANICAL SPECIFICATIONS

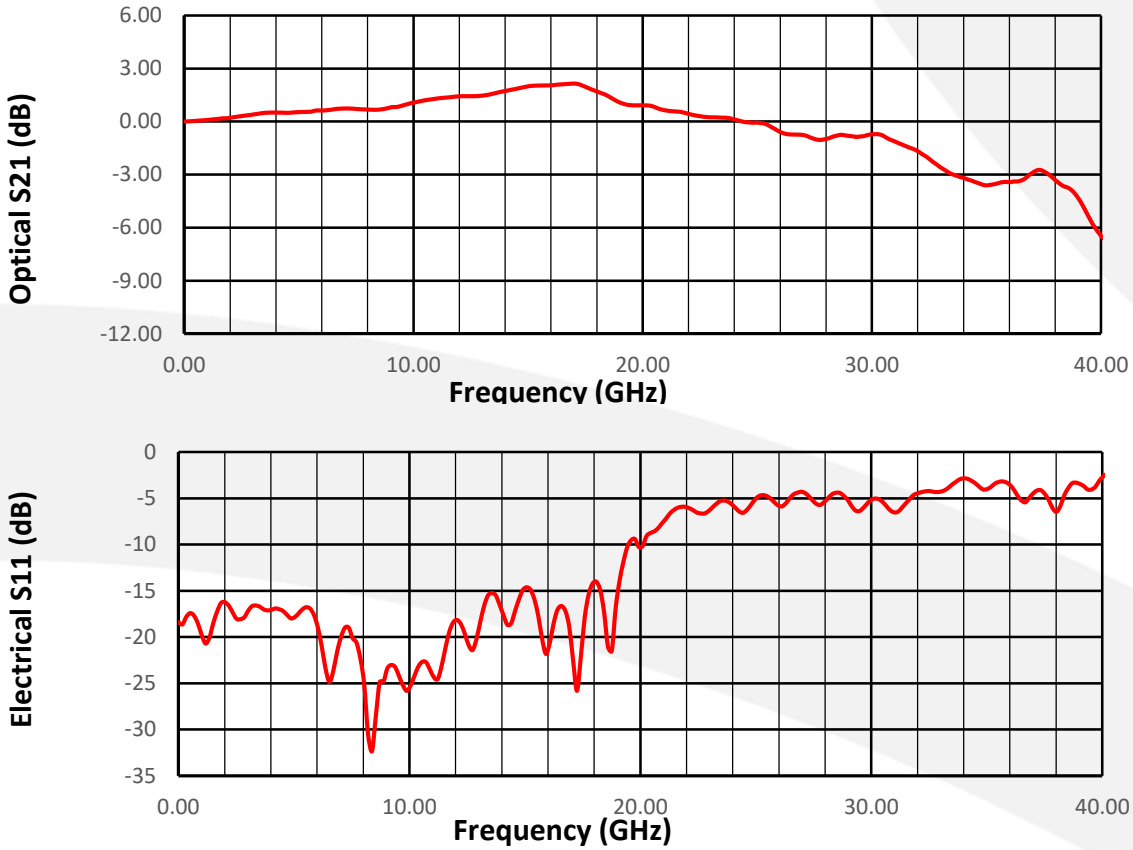
| Parameter                | Values  |
|--------------------------|---|
| Module Size              | 115 mm x 106 mm x 24.5 mm                     |
| Fiber Type               | 9/125 $\mu$ m G625.D Equivalent Single Mode   |
| Fiber Connector          | FC/APC by default, Other options available    |
| RF Output Connector      | GPPO male                                     |
| Power Supply Requirement | +/- 5 VDC, 2A max                             |
| Power Supply Connector   | 4-pin Molex Connector (Power cable included)  |
| Remote Control           | RS485 via USB                                 |
| Accessories Included     | Power Cable & USB Cable                       |
| Matching Power Supply    | +/-5VDC Power Supply PS-5-M (sold separately) |



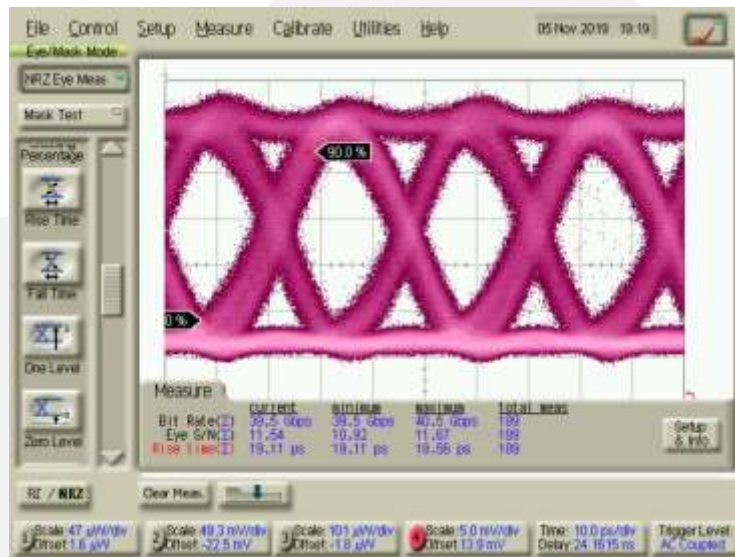


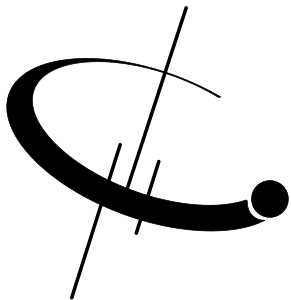
# LT-40-E-M

## TYPICAL FREQUENCY RESPONSE



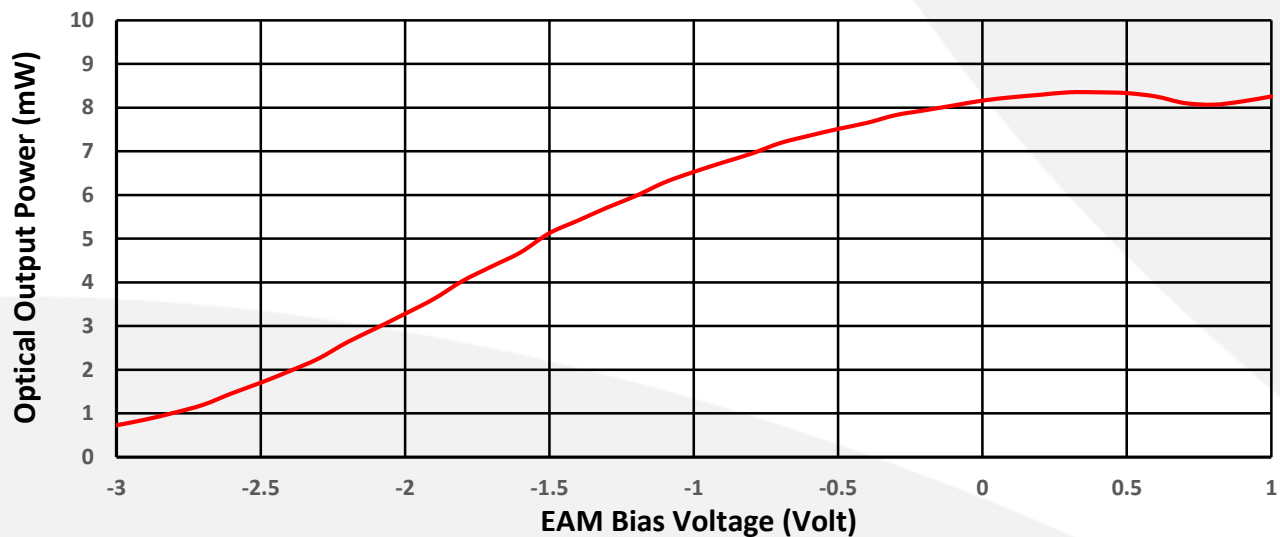
## 40 Gbps NRZ EYE DIAGRAM





# LT-40-E-M

## TYPICAL TRANSFER FUNCTION



## MECHANICAL DRAWING

