

# FOM-3901 and FOM-3902

## FIBER OPTIC MODULE

### Description

The FOM-3901 and FOM-3902 both provide complete electrical isolation for Nortel's Meridian™ M2000 and M3000 series digital telephones. The FOM-3901 connects to the digital line card and automatically senses and corrects any improper polarity reversals on the RJ-11. The bidirectional signaling between the digital line card and telephone is then carried across a duplex fiber optic cable. The FOM-3902 reproduces the digital signaling at the isolated end of the fiber optic link and provides power sufficient to operate M2000 and M3000 series digital telephones. The FOM-3902 also provides +42VDC power to auxiliary relays in the M2016S telephone.



The module can be used in areas of high electrical noise or in and out of RF shielded enclosures. The module enhances privacy of communications because fiber can not be tapped without being detected and does not radiate any emissions. The fiber optic cable is not susceptible to interference caused by impulse noise, crosstalk, or EMI. The potential problem of creating ground loops or ground offsets is also eliminated because there is no conductive path through the glass fiber for ground.

In addition, fiber optic cable offers much longer transmission distance than traditional telephone line cord wiring. Nortel's Meridian™ digital telephones are limited to a maximum distance of 1750 feet (458m) from the PBX to the telephone on 24 gauge wire, but multimode and singlemode optics on the module extend the distance to 2km. A typical link consists of an FOM-3901 at the PBX and an FOM-3902 at the telephone with a duplex fiber optic cable between them as shown under "TYPICAL APPLICATION".

### Telephone

#### Northern Telecom (Nortel)™ Meridian Telephone System

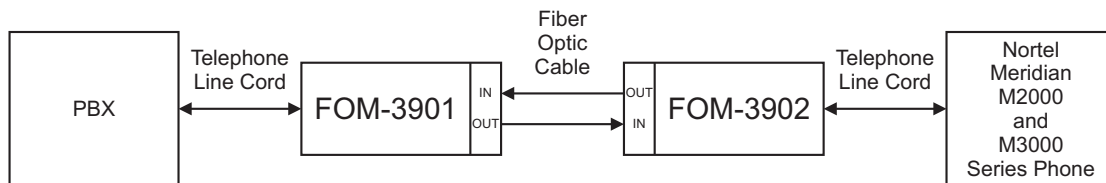
**FOM-3901:** To PBX

**FOM-3902:** To Phone

### Features

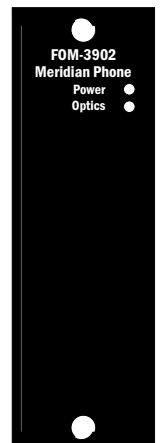
- Supports all system features on Nortel's Meridian™ M2000 and M3000 series digital telephones.
- Supports balanced 2-wire signaling between PBX and digital telephone.
- FOM-3901 provides automatic polarity correction. If the wiring to pins 3 and 4 are reversed, the module will swap the pair internally.
- FOM-3902 supplies ±15VDC @ 50mA to power digital telephones.
- FOM-3902 will power auxiliary relays in M2016S telephone.

### Typical Application



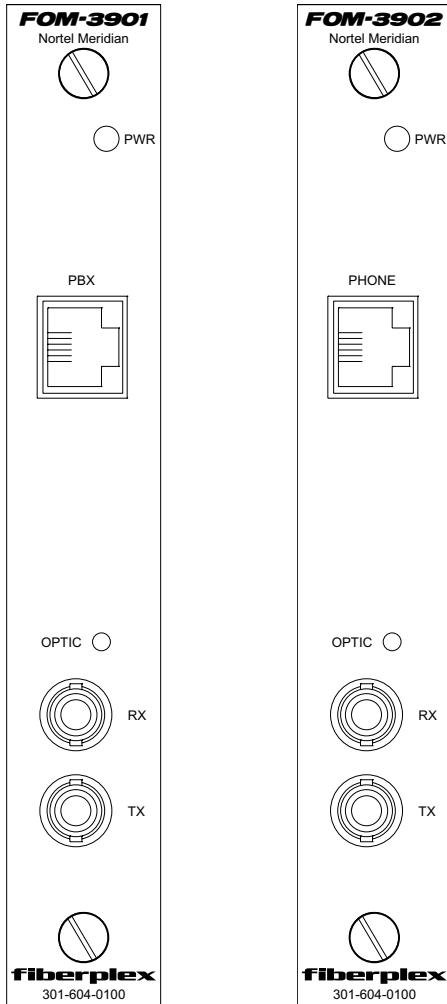
### LED Indicators

| Label                                       | Color       | Description   |
|---|-------------|---|
| <b>3901</b><br><b>3902</b><br>(front panel) | Green       | Power supply on FOM card is operating properly.   |
|   | Off         | No power from the power supply or open fuse on the FOM card. Check that the power supply is operating properly. If the power supply is good, unplug the power supply from the FOM card for 30 seconds and then plug in again so that the fuse on the FOM card has time to reset. If the PWR led is still off or not constant, replace the FOM card. |
| <b>POWER</b><br>(back panel)                |             |   |
| <b>OPTIC</b>                                | Green Solid | Card is in sync.  |
|   | Green Flash | Optical signal in detected.   |
|   | Off         | No optical signal in or optical level too low. Check that the opposite card has power and that the fiber optic cables are properly connected. The transmit output from one end should go to the receive input at the opposite end as shown under "TYPICAL APPLICATION".   |



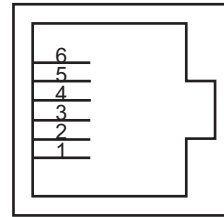
# FOM-3901 and FOM-3902

FIBER OPTIC MODULE



**FOM-3901-ST and FOM-3902-ST**  
Back Panels

## Pinouts



### FOM-3901 RJ-11 pinout

| Pin | Wire Color | Description                               |
|-----|------------|---|
| 1   | White      |   |
| 2   | Black      |   |
| 3   | Red        | Ring (-)<br>-15VDC or +15VDC <sup>2</sup> |
| 4   | Green      | Tip (+)<br>+15VDC or -15VDC <sup>2</sup>  |
| 5   | Yellow     |   |
| 6   | Blue       |   |

### FOM-3902 RJ-11 pinout

| Pin | Wire Color | Description        |
|-----|------------|--------------------|
| 1   | White      | GND                |
| 2   | Black      |                    |
| 3   | Red        | -15VDC (50mA max)  |
| 4   | Green      | +15VDC (50mA max)  |
| 5   | Yellow     |                    |
| 6   | Blue       | +42VDC (200mA max) |

<sup>2</sup> The FOM-3901 has an automatic polarity correction that will internally swap pins 3 and 4 if the pair is reversed.

# FOM-3901 and FOM-3902

FIBER OPTIC MODULE



## Electrical Specifications

|                             |   | Min | Typ | Max |
|-----------------------------|---|-----|-----|-----|
| <b>Power Requirement</b>    | Voltage Range (V)                                       | 20  | 24  | 34  |
|                             | FOM-3901 Supply Current (mA)                            | -   | 200 | -   |
|                             | FOM-3902 Supply Current (mA)                            | -   | 300 | -   |
|                             | FOM-3902 Supply Current when powering M2016S phone (mA) | -   | 700 | -   |
| <b>Data Rate</b>            | 512 kbps  |     |     |     |
| <b>Line Encoding</b>        | Balanced Differential AMI (Alternate Mark Inversion)    |     |     |     |
| <b>Receiver Sensitivity</b> | 400 mVpk-pk (-15 dB loss)                               |     |     |     |
| <b>Environmental</b>        | Storage Temperature (°C)                                | -40 | -   | 85  |
|                             | Operating Temperature (°C)                              | 0   | -   | 50  |
| <b>Interface Connector</b>  | RJ-11   |     |     |     |

## Physical Specifications

|                        | Length            | Width            | Height            | Weight         |
|------------------------|-------------------|------------------|-------------------|----------------|
| <b>Card Dimensions</b> | 11.25 in (286 mm) | 0.825 in (21 mm) | 5..25 in (133 mm) | 10 oz (0.3 kg) |

## Optical Characteristics - All

| Order Suffix | Fiber      | Fiber Type* | Max Dist (km) | $\lambda$ (nm) | Bandwidth Typ (dB) | Loss (dB) | Connector |
|--------------|------------|-------------|---------------|----------------|--------------------|-----------|-----------|
| T12          | Multimode  | OM2         | 1.88          | 850            | 15.5               | 10.14     | ST        |
| T5B          | Singlemode | OS1, OS2    | 20            | 1310           | 20                 | 12.5      | ST        |

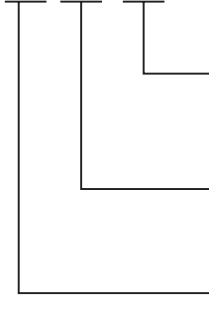
\* Specs obtained assuming fiber is as described in 'Fiber Type' with a 266MB Data Rate

## Accessories

|                  |  |
|------------------|--|
| <b>RMC-5000</b>  | 16 slot, 7.5" high (5U), 19" wide rack mount chassis Includes one PSM-5000 AC power supply |
| <b>RMC-5000D</b> | 16 slot, 7.5" high (5U), 19" wide rack mount chassis Includes one PSM-5048 DC power supply |
| <b>PSM-5000</b>  | RMC-5000 AC redundant power supply, 90-250 VAC input, 250W                                 |
| <b>PSM-5048</b>  | RMC-5000 DC redundant power supply, 35-56 VDC input, 250W                                  |
| <b>SAC-1AC</b>   | Single slot stand-alone chassis, 90-250 VAC or 120-370 VDC input, 15W                      |
| <b>SAC-1DC</b>   | Single slot stand-alone chassis, DC input  |

## Ordering Information

FOM - 3901 -



### Optical Interface:

T12 = multimode, 850nm, 2km, ST

T5B = singlemode, 1300nm, 20km, LC

Other Optical interfaces available on our custom Catalog

### Model:

3901 = To PBX

3902 = To Phone

### Card Type:

FOM = for use with RMC-5000 or SAC-1

FOM2 = dedicated standalone unit

**For special applications that require custom units, please call FiberPlex for more information.**