FOM-3941 and FOM-3942

FIBER OPTIC MODULE

Description

The FOM-3941 and FOM-3942 both provide complete electrical isolation for Nortel's Meridian™ M2000 and M3000 series digital telephones. The FOM-3941 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-3942 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 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-3941 at the PBX and an FOM-3942 at the telephone with a duplex fiber optic cable between them as shown under "TYPICAL APPLICATION".

Telephone

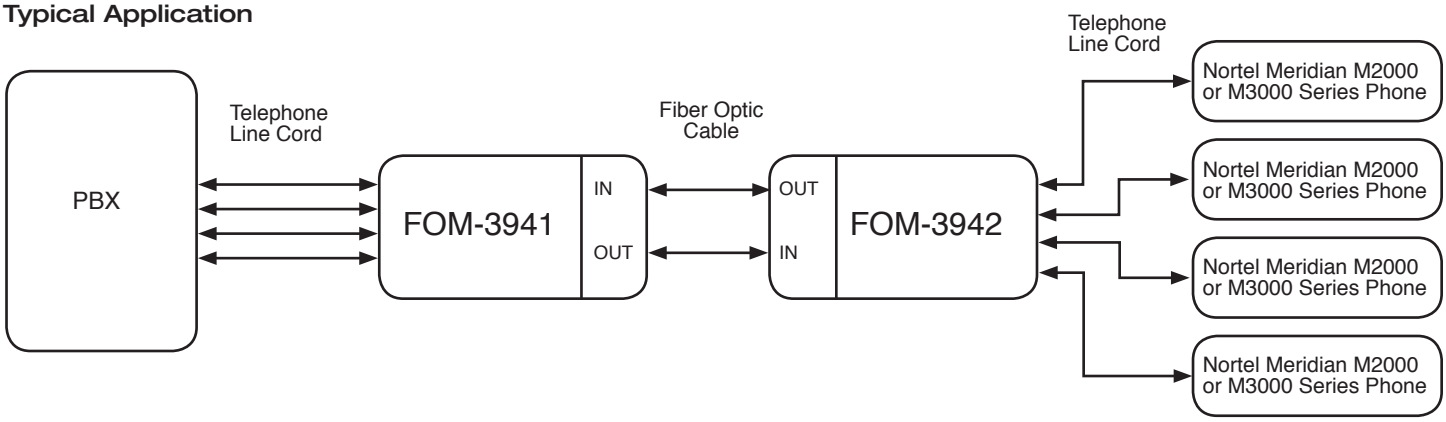
Northern Telecom (Nortel)™ Meridian Telephone System

FOM-3941: To PBX
FOM-3942: 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-3941 provides automatic polarity correction. If the wiring to pins 3 and 4 are reversed, the module will swap the pair internally.
- FOM-3942 supplies ±15VDC @ 50mA to power digital telephones.

Typical Application

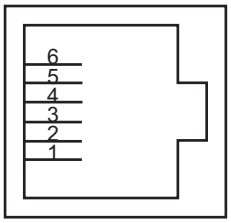


FOM-3941 and FOM-3942
FIBER OPTIC MODULE

LED Indicators

Label	Color	Description
POWER	Green	Power supply operating properly
	Red	Power supply error
	Off	Power supply error or no primary power
OPTIC	Green	RX optics in sync
	Green (flash)	RX optic bit error
	Yellow	Remote RX optic error
	Yellow (flash)	RX optic signal detected but no sync found
	Red	No RX optic signal
	Orange	Other sync failure
Each Channel:		
PBX SIG	Green	Signal detected from PBX
	Red	Hardware failure
	Off	No Signal
PHONE SIG	Green	Signal detected from phone
	Red	Hardware failure
	Off	No Signal
FOM-3941 POWER DETECT	Green	Power detected
	Yellow	Reversed power detected
	Off	No power detected
	Red	Other power error
FOM-3942 PHONE POWER	Green	Phone power normal
	Off	Phone power failure
	Red	Phone power over current detect

Pinouts



FOM-3941 RJ-11 pinout

Pin	Wire Color	Description
1	White	
2	Black	
3	Red	Ring (-) -15VDC or +15VDC[2]
4	Green	Tip (+) +15VDC or -15VDC[2]
5	Yellow	
6	Blue	

FOM-3942 RJ-11 pinout

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

NOTE: When Used with M2016-S Secure Handset Telephones:

The FOM-3941 and FOM-3942 pair will support M2016-S secure phones, but will not provide the external voltage on pins 1 and 6 that is required for handset operation. This voltage must be supplied using the feed-through power supply adapter included with the M2016-S instrument.

2 The FOM-3941 has an automatic polarity correction that will internally swap pins 3 and 4 if the pair is reversed.

FOM-3941 and FOM-3942

FIBER OPTIC MODULE

Electrical Specifications

		Min	Typ	Max
Power Requirement	Voltage Range (V)	20	24	34
	FOM-3941 Supply Current (mA)	-	200	-
	FOM-3942 Supply Current (mA)	-	360	-
Data Rate	512 kbps			
Line Encoding	Balanced Differential AMI (Alternate Mark Inversion)			
Receiver Sensitivity	400 mVpk-pk (-15 dB loss)			
Environmental	Storage Temperature (°C)	-40	-	85
	Operating Temperature (°C)	0	-	50
Interface Connector		RJ-11 x 4		

Physical Specifications

	Length	Width	Height	Weight
Card Dimensions	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)	λ (nm)	Bandwidth Typ (dB)	Loss (dB)	Connector
T12	Multimode	OM2	1.88	850	15.5	10.14	ST
L12	Multimode	OM2	1.88	850	14.5	10.14	LC
T5B	Singlemode	OS1, OS2	20	1310	20	12.5	ST
L5B	Singlemode	OS1, OS2	20	1310	13.5	12.5	LC
C	SFP Cage with no Optical Module Installed						

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

Accessories

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

Ordering Information

FOM - 3941 -

Optical Interface:
T12 = multimode, 850nm, 2km, ST
L12 = multimode, 850nm, 2km, LC
T5B = singlemode, 1300nm, 20km, LC
L5B = singlemode, 1300nm, 20km, LC
C = SFP cage, no optical module

Other Optical interfaces available on our custom Catalog

Model :
3941 = To PBX
3942 = To Phone

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