Loop-O9400R STM-1/4/16 (OC-3/12/48) is a standard compliant high density NGN SDH/SONET ADM/TM with full T1/E1 cross-connect rack system. The O9400R designs to have full add and drop capability up to:

- For controller STM-1/4 (OC-3/12) aggregate cross-connect module, the capability up to:
  - 1 STM-4 tributaries
  - 8 STM-1 tributaries
  - 18 E3/T3 tributaries
  - 378 E1/T1 tributaries
  - 48 10/100M Ethernet EoS tributaries
  - 6 GbE EoS tributaries

- For controller STM-1/4/16 (OC-3/12/48) aggregate cross connect module, the capability up to:
  - 4 STM-4 tributaries
  - 16 STM-1 tributaries
  - 24 E3/T3 tributaries
  - 504 E1/T1 tributaries
  - 64 10/100M Ethernet EoS tributaries
  - 8 GbE EoS tributaries
  - 56 FOM tributaries

With up to 4 STM-1/4/16 (OC-3/12/48) aggregate interfaces on cross-connect modules and 16 STM-1 (OC-3) interfaces on tributaries, the Loop-O9400R can offer the service provider a versatile protection scheme including SNCP(UPSR), and MSP (1+1) protection for both ring and linear network topology.

All interfaces are fully compliant with the relevant ETSI standards and ITU recommendations. The Loop-O9400R provides powerful Operation, Administration, Maintenance and Provisioning (OAM&P) functionality, including fault management, performance monitoring, configuration management, and network security management. Through console port, LAN port, In-band E1, and DCC channel, the OAM&P can be achieved both locally and remotely via SNMP or menu-driven interfaces.

**Powerful SDH Loop’s EMS/NMS**

The Loop-O9400R provides a complete set of operation interfaces that are consistent with the Telecommunication Management Network (TMN) concept (ITU Recommendation M.30, G.784) for SDH/SONET Network Element/Operations System (NE/OE), NE/NE, and NE/Craft communications. A user can easily operate the Loop-O9400R locally or remotely for centralized management.
**Ordering Information**

To specify options, choose from list below:

**Note:** RoHS compliant units are identified by the letter G appearing immediately at the end of the ordering code.

**Note:** If different environmental requirements are needed, please contact Loop’s Marketing & Sales Team regarding availability.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main Unit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loop-O9400-R-CHA-G</td>
<td>6U height Rack chassis for O9400 without CPU and power modules</td>
<td></td>
</tr>
<tr>
<td><strong>CPU Modules and Supporting Plug-in Modules</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loop-O9400-R-CC16-G</td>
<td>CPU module with cross-connect unit and two STM-1/4/16 (OC-3/12/48) interfaces without SFP (mini-GBIC) optical modules</td>
<td>One required for each chassis Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-CC4-G</td>
<td>CPU module with cross-connect unit and two STM-1/4 (OC-3/12) interfaces without SFP (mini-GBIC) optical modules</td>
<td>One required for each chassis Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-CBA-G</td>
<td>Connector Board</td>
<td>One required for each chassis</td>
</tr>
<tr>
<td>Loop-O9400-R-FANA-G</td>
<td>Fan Tray with temperature controlled board</td>
<td>One required for each chassis</td>
</tr>
<tr>
<td>Loop-O9400R-FILRCMA-G</td>
<td>Air Filter Rack with cable management for O9400R, 2U (88mm), air filter included</td>
<td></td>
</tr>
<tr>
<td><strong>Tributary Plug-in Modules</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loop-O9400-R-16TE-G</td>
<td>16 E1(120 ohm) or 16 T1 software programmable interface plug-in module</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-32TE-G</td>
<td>32 E1(120 ohm) or 32 T1 software programmable interface plug-in module</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-63TE-G</td>
<td>63 E1(120 ohm) or 63 T1 software programmable interface plug-in module</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-16E75-G</td>
<td>16 E1(75 ohm) interface plug-in module</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-32E75-G</td>
<td>32 E1(75 ohm) interface plug-in module</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-63E75-G</td>
<td>63 E1(75 ohm) interface plug-in module</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-B16-G</td>
<td>STM-1/4 (OC-3/12) software programmable interface plug-in module without SFP (mini-GBIC) optical modules</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-9EoS4NSW-G</td>
<td>1 GbE or 8FE software programmable interface plug-in module without L2 switch</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-9EoS4SW-G</td>
<td>1 GbE and 8FE interface plug-in module with L2 switch</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-3TE3-G</td>
<td>3 T3 or 3 E3 software programmable interface plug-in modules</td>
<td>Order two for redundancy</td>
</tr>
<tr>
<td>Loop-O9400-R-7FOM-G</td>
<td>7-port Fiber Optical Interface with 7 SFP housings (SFP not included)</td>
<td>Order two for redundancy 7 FOM plug-in card only applies to O94000R-CC16</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loop-O9400-R-3M13</td>
<td>A software key to activate the 3TE3 module to have M13 /Mx3 function for T3 interface only</td>
<td></td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User’s Manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loop-O9400-R-UMA</td>
<td>Optional, paper copy of User Manual. A CD version of the manual is already included as part of the standard package.</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>

**Power Modules**

<table>
<thead>
<tr>
<th>Loop-O9400-R-SD48-G</th>
<th>Single -48Vdc (-36 to -72Vdc) power module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop-O9400-R-SAD-G</td>
<td>Single AC and DC (coexistent) power module (90 to 240Vac, 50/60Hz and -36 to -72Vdc)</td>
</tr>
</tbody>
</table>

- For redundancy purposes, ordering a second plug-in module will provide dual power.
- For AC power module, choose an appropriate power module.

**Power Cord**

<table>
<thead>
<tr>
<th>Loop-ACC-PC-USA</th>
<th>AC power cord for Taiwan/America</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop-ACC-PC-EU</td>
<td>AC power cord for Europe</td>
</tr>
<tr>
<td>Loop-ACC-PC-UK</td>
<td>AC power cord for UK</td>
</tr>
<tr>
<td>Loop-ACC-PC-AUS</td>
<td>AC power cord for Australia</td>
</tr>
<tr>
<td>Loop-ACC-PC-CH</td>
<td>AC power cord for China</td>
</tr>
</tbody>
</table>

**Air Filter**

| Loop-O9400R-FIL   | Air Filter to fit Loop-O9400R-FILR Air Filter Rack                                                        |

**Order Wire Phone**

| Loop-O9400-R-OW-G | Ethernet Order Wire Phone (using VoIP Technology)                                                          |

**SIP Proxy Server**

| Loop-O9400-R-SIP | SIP proxy server basic software                                                                            |

Customer must provide a MAC address so that a license key can be generated to operate the software at that address.

**Conversion Panels**

<table>
<thead>
<tr>
<th>Loop-ACC-P-1SCSI-16RJ-G</th>
<th>One SCSI to sixteen RJ (1u height) without cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop-ACC-P-1SCSI-16WW-G</td>
<td>One SCSI to sixteen Wire Wrap (1u height) without cable</td>
</tr>
<tr>
<td>Loop-ACC-P-1SCSI-16BNC-G</td>
<td>One SCSI to sixteen BNC (1.5u height) without cable</td>
</tr>
</tbody>
</table>

Used with:
- Loop-O9400-R-16TE-G,
- Loop-O9400-R-32TE-G,
- Loop-O9400-R-63TE-G

**Y-box Panels for 120/100 ohm**

- E1 (120 ohm) or T1 (SCSI)  
- E1 (120 ohm) or T1 (SCSI)  

Y-Box  
(120/100 ohm)

- E1 (120 ohm) or T1  
  (SCSI)  

- E1 (120 ohm) or T1  
  (SCSI)  

- E1 (120 ohm) or T1  
  (SCSI)  

**Y-box Panels for 120/100 ohm**

<table>
<thead>
<tr>
<th>Loop-O9400-R-16TE-G</th>
<th>1u Y-box 16-port panel for two SCSI (E1(120 ohm) or T1) to 16 RJ (E1(120 ohm) or T1) connectors without cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop-O9400-R-16E75-G</td>
<td>1u Y-box 16-port panel for two SCSI (E1(120 ohm) or T1) to 16 Wire Wrap (E1(120 ohm) or T1) without cable</td>
</tr>
<tr>
<td>Loop-O9400-R-63E75-G</td>
<td>1u Y-box 16-port panel in (E1(120 ohm) or T1) for two SCSI to two TELCO 50 (E1(120 ohm) or T1) connectors (8 ports per TELCO connector) without cable</td>
</tr>
</tbody>
</table>

Using with:
- Loop-O9400-R-16TE-G,
- Loop-O9400-R-16E75-G,
- Loop-O9400-R-63E75-G,
Loop-ACC-Y-2SCSI-2T50P12-16TE-G
1u 16-port Y-box panel in (E1(120 ohm) or T1) for two SCSI to two TELCO 50 (E1(120 ohm) or T1) connectors (12 ports to the first TELCO connector, 4 ports to the second TELCO connector) without cable
Using with Loop-O9400-R-16TE-G,

Loop-ACC-Y-2SCSI-1T64P16-16TE-G
1u 16-port Y-box panel in (E1(120 ohm) or T1) for two SCSI to one TELCO 64 (E1(120 ohm) or T1) connectors (8 ports per TELCO connector) without cable
Using with Loop-O9400-R-16TE-G,

Loop-ACC-Y-4SCSI-4T50P8-32TE-G
1u 32-port Y-box panel in (E1(120 ohm) or T1) for four SCSI to four TELCO 50 (E1(120 ohm) or T1) connectors (8 ports per TELCO connector) without cable
Using with Loop-O9400-R-32TE-G, Loop-O9400-R-63TE-G,

Loop-ACC-Y-4SCSI-3T50P12-32TE-G
1u 32-port Y-box panel in (E1(120 ohm) or T1) for four SCSI to three TELCO 50 (E1(120 ohm) or T1) connectors (12 ports to the first TELCO connector, 12 ports to the second TELCO connector and 8 ports to the third TELCO connector) without cable
Using with Loop-O9400-R-32TE-G, Loop-O9400-R-63TE-G,

Loop-ACC-Y-4SCSI-2T64P16-32TE-G
1u 32-port Y-box panel in E1 120 ohm or T1 for four SCSI to two TELCO 64 (E1(120 ohm) or T1) connectors (16 ports per TELCO connector) without cable
Using with Loop-O9400-R-32TE-G, Loop-O9400-R-63TE-G,

**Y-box Panels for 75 ohm**

Loop-ACC-Y-2SCSI-2T50P8-16E75-G
1u 16-port Y-box panel for two SCSI (E1(120 ohm)) to two TELCO 50 (E1(75 ohm)) connectors (8 ports per TELCO connector) without cable
Using with Loop-O9400-R-16TE-G,

Loop-ACC-Y-2SCSI-2T50P12-16E75-G
1u 16-port Y-box panel for two SCSI (E1(120 ohm)) to two TELCO 50 (E1(75 ohm)) connectors (12 ports to the first TELCO connector, 4 ports to the second TELCO connector) straight without cable
Using with Loop-O9400-R-32TE-G, Loop-O9400-R-63TE-G,

Loop-ACC-Y-2SCSI-1T64P16-16E75-G
1u 16-port Y-box panel for two SCSI (E1(120 ohm)) to one TELCO 64 (E1(75 ohm)) connectors (16 ports per TELCO connector) straight without cable
Using with Loop-O9400-R-16TE-G,

Loop-ACC-Y-4SCSI-4T50P8-32E75-G
1u 32-port Y-box panel for four SCSI (E1(120 ohm)) to four TELCO 50 (E1(75 ohm)) connectors (8 ports per TELCO connector) without cable
Using with Loop-O9400-R-16TE-G,

Loop-ACC-Y-4SCSI-3T50P12-32E75-G
1u 32-port Y-box panel for four SCSI (E1(120 ohm)) to three TELCO 50 (E1(75 ohm)) connectors (12 ports to the first TELCO connector, 12 ports to the second TELCO connector and 8 ports to the third TELCO connector) without cable
Using for Loop-O9400-R-32TE-G, Loop-O9400-R-63TE-G,

Conversion Cable
Loop-ACC-CAB-SCSI68M-200-1SCSI68M-G
SCSI68/ Male to one SCSI68/Male; Length 200 cm
Used for all Conversion Panels and Y-box Panels

**Note:** Please contact sales representative near you for further detail info.

**Blank Panels**
### SFP Optical/Electrical Module Plug-in Tables

#### 2.5G Optical SFP Module Characteristic

| 2.5G (mini GBIC) | PLB2D | Single-mode optical module with dual uni-directional fiber, 2.5G, 1310nm, 15Km, LC connector with DDM | Use 2 fibers for all SFP optical modules |
| Dual Fiber Commercial (0 to 70°C) | PLB4D | Single-mode optical module with dual uni-directional fiber, 2.5G, 1310nm, 40Km, LC connector with DDM |
| | PLC8D | Single-mode optical module with dual uni-directional fiber, 2.5G, 1550nm, 80Km, LC connector with DDM |

#### 622M bps Optical SFP Module Characteristic

| 622M~1.25G mini GBIC Dual Fiber | PKB1W | Single mode optical module with dual uni-directional fiber, 622M~1.25G, 1310nm, 10Km, LC connector w/o DDM, S-4.1/IR1/1000Base-LX |
| 155~622Mbps mini GBIC Dual Fiber | PJB2W | Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 15~20Km, LC connector w/o DDM, S-4.1/IR1 |
| | PJB5W | Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 50Km, LC connector w/o DDM, L-4.1/LR1 |
| | PJC8W | Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 80Km, LC connector w/o DDM, S-4.2/LR2 |
| | PJB2D | Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 15~20Km, LC connector with DDM, S-4.1/IR1 |
| | PJB4D | Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 40Km, LC connector with DDM, L-4.1/LR1 |
| | PJB5D | Single mode optical module with dual uni-directional fiber, 155~622M, 1310nm, 50Km, LC connector with DDM, L-4.1/LR1 |
| | PJC8D | Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 80Km, LC connector with DDM, L-4.2/LR2 |
| | PJ CXW | Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 120Km, LC connector w/o DDM, L-4.2 extended distance |
| | PJ CXD | Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 120Km, LC connector with DDM, L-4.2 extended distance |
| | PJ CRD | Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 160Km, LC connector with DDM, L-4.2 extended distance |
| | PJ CYD | Single mode optical module with dual uni-directional fiber, 155~622M, 1550nm, 200Km, LC connector with DDM, L-4.2 extended distance |

#### 155~622Mbps Bi-directional Single Fiber Commercial (0 to 70°C)

| 155~622Mbps Bi-directional | PJD2W | Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1310 nm / Rx 1550 nm, 20Km, LC connector w/o DDM, S-4.1/IR1 |
| Single Fiber Commercial | PJE2W | Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1550 nm / Rx 1310 nm, 20Km, LC connector w/o DDM, S-4.2/IR2 |

* 1310 nm from master to slave
  - Order PJD2W to use with PJE2W
  - Use 1 fiber
* 1550 nm from slave to master
  - Order PJE2W to use with PJD2W
  - Use 1 fiber
### PJD4W
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1310 nm / Rx 1550 nm, 40Km, LC connector w/o DDM, S-4.1/IR1
- 1310 nm from master to slave
- Order PJD4W to use with PJE4W
- Use 1 fiber

### PJE4W
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1550 nm / Rx 1310 nm, 40Km, LC connector w/o DDM, S-4.2/IR2
- 1550 nm from slave to master
- Order PJE4W to use with PJD4W
- Use 1 fiber

### PJD6W
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1310 nm / Rx 1550 nm, 60Km, LC connector w/o DDM, L-4.1/LR1
- 1310 nm from master to slave
- Order PJD6W to use with PJE6W
- Use 1 fiber

### PJE6W
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1550 nm / Rx 1310 nm, 60Km, LC connector w/o DDM, L-4.2/LR2
- 1550 nm from slave to master
- Order PJE6W to use with PJD6W
- Use 1 fiber

### PJQ8W
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1510 nm / Rx 1590 nm, 80Km, LC connector w/o DDM, L-4.1/LR1
- 1310 nm from master to slave
- Order PJQ8W to use with PJR8W
- Use 1 fiber

### PJR8W
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1590 nm / Rx 1510 nm, 80Km, LC connector w/o DDM, L-4.2/LR2
- 1550 nm from slave to master
- Order PJR8W to use with PJQ8W
- Use 1 fiber

### PJQXW
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1510 nm / Rx 1590 nm, 120Km, LC connector w/o DDM, L-4.1/LR1
- 1310 nm from master to slave
- Order PJQXW to use with PJRXW
- Use 1 fiber

### PJRXW
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1590 nm / Rx 1510 nm, 120Km, LC connector w/o DDM, L-4.2/LR2
- 1550 nm from slave to master
- Order PJRXW to use with PJQXW
- Use 1 fiber

### PJD2D
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1310 nm / Rx 1550 nm, 20Km, LC connector with DDM, S-4.1/IR1
- 1310 nm from master to slave
- Order PJD2D to use with PJE2D
- Use 1 fiber

### PJE2D
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1550 nm / Rx 1310 nm, 20Km, LC connector with DDM, S-4.2/IR2
- 1550 nm from slave to master
- Order PJE2D to use with PJD2D
- Use 1 fiber

### PJD4D
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1310 nm / Rx 1550 nm, 40Km, LC connector with DDM, S-4.1/IR1
- 1310 nm from master to slave
- Order PJD4D to use with PJE4D
- Use 1 fiber

### PJE4D
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1550 nm / Rx 1310 nm, 40Km, LC connector with DDM, S-4.2/IR2
- 1550 nm from slave to master
- Order PJE4D to use with PJD4D
- Use 1 fiber

### PJD6D
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1310 nm / Rx 1550 nm, 60Km, LC connector with DDM, L-4.1/LR1
- 1310 nm from master to slave
- Order PJD6D to use with PJE6D
- Use 1 fiber

### PJE6D
- Single mode optical module with single bi-directional fiber, 155~622Mbps, Tx 1550 nm / Rx 1310 nm, 60Km, LC connector with DDM, L-4.2/LR2
- 1550 nm from slave to master
- Order PJE6D to use with PJD6D
- Use 1 fiber

### 155Mbps Optical SFP Module Characteristic

<table>
<thead>
<tr>
<th>SFP</th>
<th>MHATW</th>
<th>Use 2 fibers for all SFP optical modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>155 Mbps</td>
<td>Multi mode optical module with dual uni-directional fiber, 155M, 850nm, 2Km, LC connector w/o DDM, Fast Ethernet and compliant with ITU G.987</td>
<td></td>
</tr>
<tr>
<td>Dual Fiber</td>
<td>Description</td>
<td>Features</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>MHBTW</td>
<td>Multi mode optical module with dual uni-directional fiber, 155M, 1310nm, 2Km, LC connector w/o DDM, Fast Ethernet and compliant with ITU G.957</td>
<td></td>
</tr>
<tr>
<td>PHB3W</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 30Km, LC connector w/o DDM, S-1.1/IR1/Fast Ethernet</td>
<td></td>
</tr>
<tr>
<td>PHB5W</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 50Km, LC connector w/o DDM, L-1.1/LR1/Fast Ethernet</td>
<td></td>
</tr>
<tr>
<td>PHCUW</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 100Km, LC connector w/o DDM, L-1.2/LR2/Fast Ethernet</td>
<td></td>
</tr>
<tr>
<td>PHCXW</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 120Km, LC connector w/o DDM, L-1.2 extended distance</td>
<td></td>
</tr>
<tr>
<td>PHB3D</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 30Km, LC connector with DDM, S-1.1/IR1/Fast Ethernet</td>
<td></td>
</tr>
<tr>
<td>PHB5D</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1310nm, 50Km, LC connector with DDM, L-1.1/LR1/Fast Ethernet</td>
<td></td>
</tr>
<tr>
<td>PHC8D</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 80Km, LC connector with DDM, L-1.2/LR2</td>
<td></td>
</tr>
<tr>
<td>PHCUD</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 100Km, LC connector with DDM, L-1.2/LR2/Fast Ethernet</td>
<td></td>
</tr>
<tr>
<td>PHCXD</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 120Km, LC connector with DDM, L-1.2 extended distance</td>
<td></td>
</tr>
<tr>
<td>PHCRD</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 160Km, LC connector with DDM, L-1.2 extended distance</td>
<td></td>
</tr>
<tr>
<td>PHCYD</td>
<td>Single mode optical module with dual uni-directional fiber, 155M, 1550nm, 200Km, LC connector with DDM, L-1.2 extended distance</td>
<td></td>
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<tr>
<td>PHCZD</td>
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<td>PHD2W</td>
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<td>PHD4W</td>
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<td>PHD6W</td>
<td>Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1550 nm / Rx 1310 nm, 60Km, LC connector w/o DDM, Extend distance L4.2</td>
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**155 Mbps Bi-directional Single Fiber Commercial (0 to 70°C)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Features</th>
<th>Notes</th>
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- 1310 nm from master to slave
- 1550 nm from slave to master
- Order PHD2W to use with PHE2W
- Order PHE2W to use with PHD2W
- Use 1 fiber
- Order PHD4W to use with PHE4W
- Order PHE4W to use with PHD4W
- Use 1 fiber
- Order PHD6W to use with PHE6W
- Order PHE6W to use with PHD6W
- Use 1 fiber
<table>
<thead>
<tr>
<th>Model</th>
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</table>
| PHD8W  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1310 nm / Rx 1550 nm, 80Km, LC connector w/o DDM, Extend distance L4.2 | • 1490 nm from master to slave  
• Order PHD8W to use with PHE8W  
• Use 1 fiber |
| PHE8W  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1550 nm / Rx 1310 nm, 80Km, LC connector w/o DDM, Extend distance L4.2 | • 1570 nm from slave to master  
• Order PHE8W to use with PHD8W  
• Use 1 fiber |
| PHQ8W  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1490 nm / Rx 1570 nm, 80Km, LC connector w/o DDM, Fast Ethernet and compliant with ITU G.957 | • 1490 nm from master to slave  
• Order PHQ8W to use with PHR8W  
• Use 1 fiber |
| PHR8W  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1570 nm / Rx 1490 nm, 80Km, LC connector w/o DDM, Fast Ethernet and compliant with ITU G.957 | • 1570 nm from slave to master  
• Order PHR8W to use with PHQ8W  
• Use 1 fiber |
| PHQXW  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1590 nm / Rx 1590 nm, 120Km, LC connector w/o DDM, Extend distance L4.2 | • 1490 nm from master to slave  
• Order PHQXW to use with PHRXW  
• Use 1 fiber |
| PHRXW  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1590 nm / Rx 1510 nm, 120Km, LC connector w/o DDM, Extend distance L4.2 | • 1570 nm from slave to master  
• Order PHRXW to use with PHQXW  
• Use 1 fiber |
| PHQRW  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1510 nm / Rx 1590 nm, 160Km, LC connector w/o DDM, Extend distance L4.2 | • 1490 nm from master to slave  
• Order PHQRW to use with PHRRW  
• Use 1 fiber |
| PHRRW  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1590 nm / Rx 1510 nm, 160Km, LC connector w/o DDM, Extend distance L4.2 | • 1570 nm from slave to master  
• Order PHRRW to use with PHQRW  
• Use 1 fiber |
| PHQYW  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1510 nm / Rx 1590 nm, 200Km, LC connector w/o DDM, Extend distance L4.2 | • 1490 nm from master to slave  
• Order PHQYW to use with PHRYW  
• Use 1 fiber |
| PHRYW  | Single mode optical module with single bi-directional fiber, 155Mbps, Tx 1590 nm / Rx 1510 nm, 200Km, LC connector w/o DDM, Extend distance L4.2 | • 1570 nm from slave to master  
• Order PHRYW to use with PHQYW  
• Use 1 fiber |

155 Mbps Electrical transceiver EHNAC Electrical transceiver module, 155M, 100m, mini-BNC coaxial connector

**NOTE:** For other special optical modules, please contact your nearest Loop sales representative.

**LOOP-O9400R SDH/SONET ADM/TM PRODUCT SPECIFICATIONS**

**Max. Number of Cross-connect Modules**
- 4 STM-1/4 (OC-3/12) aggregate lines
- 4 STM-1/4/16 (OC-3/12/48) aggregate lines

**Max. Number of Tributary Modules for STM1/4 (OC3/12) Cross-connect Module**
- 1 STM-4 (OC-12) tributaries
- 8 STM-1 (OC-3) tributaries
- 18 E3/T3 tributaries
- 378 E1/T1 tributaries
- 6 GbE EoS tributaries
- 48 10/100M Ethernet EoS tributaries

**Max. Number of Tributary Modules for STM1/4/16 (OC3/12/48) Cross-connect Module**
- 4 STM-4 (OC-12) tributaries
- 16 STM-1 (OC-3) tributaries
- 24 E3/T3 tributaries
- 504 E1/T1 tributaries
- 8 GbE EoS tributaries
- 64 10/100M Ethernet EoS tributaries
### SFP Module Characteristics

#### Aggregate Lines and STM-1/4/16 (OC-3/12/48) tributary Modules Characteristics

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<th>Wavelength(nm)</th>
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<td>LC without DDM</td>
<td>200 Km</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SFP Electrical Module</th>
<th>Direction</th>
<th>Data Rate</th>
<th>Wavelength(nm)</th>
<th>Connector</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHNAC</td>
<td>Dual uni-directional</td>
<td>155M</td>
<td>n.a.</td>
<td>Mini-BNC</td>
<td>100 m</td>
</tr>
</tbody>
</table>

**E1 Interface**

<table>
<thead>
<tr>
<th>Line Rate</th>
<th>2.048 Mbps ± 50 ppm</th>
<th>Jitter</th>
<th>ITU G.823</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Code</td>
<td>AMI/HDB3</td>
<td>Framing</td>
<td>Unframed with a framing monitor on receiving side</td>
</tr>
<tr>
<td>Input Signal</td>
<td>ITU G.703</td>
<td>Impedance</td>
<td>75 ohm coax/120Ω twisted pair</td>
</tr>
<tr>
<td>Output Signal</td>
<td>ITU G.703</td>
<td>Connector</td>
<td>SCSI-II 68-pin</td>
</tr>
</tbody>
</table>

Output Mask: ETS 300 689 Sec.4.2.1.2 ITU G.703

**T1 Interface**

<table>
<thead>
<tr>
<th>Line Rate</th>
<th>1.544 Mbps ± 32 ppm</th>
<th>Jitter</th>
<th>ITU G.824</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Code</td>
<td>AMI/B8ZS</td>
<td>Framing</td>
<td>Unframed with a framing monitor on receiving side</td>
</tr>
<tr>
<td>Input Signal</td>
<td>ITU G.703</td>
<td>Impedance</td>
<td>100 ohm twisted pair</td>
</tr>
<tr>
<td>Output Signal</td>
<td>ITU G.703</td>
<td>Connector</td>
<td>SCSI-II 68-pin</td>
</tr>
</tbody>
</table>

Output Mask: Bellcore GR-499-core

**E3 Interface**

<table>
<thead>
<tr>
<th>Line Rate</th>
<th>34.368 Mbps ± 20ppm</th>
<th>Jitter</th>
<th>ITU G.823</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Code</td>
<td>HDB3</td>
<td>Framing</td>
<td>Unframed, G.751</td>
</tr>
<tr>
<td>Input Signal</td>
<td>ITU G.703</td>
<td>Impedance</td>
<td>75 ohm coax</td>
</tr>
<tr>
<td>Output Signal</td>
<td>ITU G.703</td>
<td>Connector</td>
<td>BNC connector</td>
</tr>
<tr>
<td>Output Mask</td>
<td>ETS 300 689 Sec.4.2.1.2 ITU G.703</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**T3 interface**

- **Line Rate**: 44.736 Mbps ± 20ppm
- **Line Code**: B3ZS
- **Framing**: Unframed, M13/Mx3 (unframed E1/T1), G.747
- **Input Signal**: ITU G.703
- **Output Signal**: ITU G.703
- **Output Mask**: Bellcore GR-499-core
- **Jitter**: ITU G.824
- **Impedance**: 75Ω coax

**Fast Ethernet interface**

- **Line Rate**: 10/100M bps
- **Layer2 Protocol**: RSTP (802.1W), VLAN (802.1Q, 802.1P)
- **Flow Control**: (802.3X)
- **MSTP**: (802.1S)
- **IGMP Snooping**: QoS
- **Connector**: RJ45
- **Mapping**: n x VC12, n x VC3 or n x VC4

**Gigabit Ethernet interface**

- **Line Rate**: 10/100/1000Mbps
- **Layer2 Protocol**: RSTP (802.1W), VLAN (802.1Q, 802.1P)
- **Flow Control**: (802.3X)
- **MSTP**: (802.1S)
- **IGMP Snooping**: QoS
- **Connector**: RJ45
- **Mapping**: n x VC12, n x VC3 or n x VC4

**Fiber Optical Interface**

- **Port number**: 7
- **Source**: Laser
- **Wavelength**: 1310 ± 50 nm, 1550 ± 40 nm
- **Optical Line Rate**: 38.84Mbps
- **Connector**: SFP housing with LC type
- **Reach**: 2~240 Km
- **Protection**: 1+1 Line Protection

**System Clock**

- **Clock Source**: Internal clock
- **Clock Output**: 2 external output (E1 for STM-1/4, T1 for OC-3/12)
- **System Clock**: 4 aggregate lines clocks (STM-1/4 (OC-3/12))
- **6 tributary clocks**: 2 external input clocks (ITU-T G.703 - 2.048 Mhz or E1 for STM-1/4, T1 for OC-3/12)

**Management Interface**

- **LED**: Multi colors
- **Console**: Electrical: RS232, DCE
- **User interface**: Menu driven VT-100
- **SNMP**: SNMPv1, RFC1213
- **OSS interface**: 10/100BaseT FE (IEEE 802.3u )
- **NE/NE interface**: DCC/HDL/C/PPP/Ethernet type II, In-band E1

**Alarm Input/Output**

- **Inputs**: 4
- **Activation current**: 3 mA
- **Internal resistance**: 1K
- **Deactivation current**: 1.5 mA
- **Connectors**: RJ45
- **Max. rating of relay**: 3Vdc/1A; 125Vac/0.5A
- **Outputs**: 4
Initial insul. resist. Min. 100M ohm (at 500Vdc)
Connectors RJ45

**Diagnostics**

**XCU card**
Loopback Test Local loopback, payload loopback, line loopback
BERT Test Optical interface Direction: to optical lines

**B155/622 card**
Loopback Test Local loopback, payload loopback, line loopback:
BERT Test Optical interface Direction: to optical lines

**E1/T1 card**
Loopback Test Local loopback, line loopback:
BERT Test E1/T1 interface Direction: to optical lines, to tributary lines

**7 FOM card**
Optical Fiber Local and remote loopbacks
E1 Test Pattern To optical direction or backplane direction

**Performance Monitor**
Performance Parameters: Error Block (EB), Background Block Error (BBE), Error Second (ES), Burst Error Second (BES), Severe Error Second (SES), Unavailable Second (UAS)

Alarm History System Alarm
- Alarm Cut Off, Power Loss/Uneq, Fan Fail, Fan Module Uneq, RBC Uneq, Overheat, TS Sync Loss, Logon and Logout, Optical Port Uneq, Card In, Card Out, Card Type Mismatch, Card Port Number Mismatch, Card Fail, Card Registration, SNCP Switch, MSP Switch, Trib Protection Sync, Standby XCU Takeover, Standby Trib Takeover, XCU Sync, SFP Tx Fail, SFP Rx Fail, SFP Temperature

**Power**
AC and DC coexistent module 90 to 240Vac, 50/60Hz, -48Vdc (-36 to -72Vdc)
DC module -48Vdc (-36 to -72Vdc)

**Physical and Environmental**
Dimensions for 6U 433 x 264 x 223.5mm (W/H/D)
Dimension for Air Filter Rack 433 x 22 x 223.5mm (WxHxD)
Dimension for Air Filter Rack A with cable management 433 x 88 x 223.5mm (WxHxD)
Dimension for Y-Box 432 x 44 x 100 mm (Wx HxD)
Dimension for Conversion Panel RJ connector: 432 x 44 x 23mm (WxHxD)
WW connector: 432 x 44 x 40mm (WxHxD)
BNC connector: 432 x 66 x 53mm (WxHxD)
Temperature 0 to 50°C
Humidity 0-95%RH (non-condensing)
Mounting Desk-top stackable, 19/23 inch rack mountable
**Standards Compliance**

ITU-T  

ANSI  
T1.105, T1.107  

IEEE  
802.1q (VLAN), 802.1w (RSTP), 802.1s(MSTP), 802.1ad (stack VLAN), 802.3x (flow control), 802.3u, 802.1p (QoS)  

**Certification**

EMC  
FCC Part 15 Subpart B, Class A;  
EN 55022, Class A;  
EN55024;  
EN300 386  

Safety  
IEC60950-1/EN 60 950-1

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**Loop-O9400R Front Panel**

*Controller STM-1/4 (OC-3/12)*

---

**Controller STM-1/4/16 (OC-3/12/48)**
### Loop-O9400R Card Type and Capacity Reference Table

**Table 1 STM-1/4 (OC3/12) aggregate line**

In this table, STM-4 could also be OC-12; STM-1 could also be OC-3; E1 could also be T1; and E3 could also be T3.

<table>
<thead>
<tr>
<th>SLOTS</th>
<th>TRIB 1</th>
<th>TRIB 2</th>
<th>TRIB 3</th>
<th>TRIB 4</th>
<th>XCU1(W)</th>
<th>XCU2(E)</th>
<th>TRIB 5</th>
<th>TRIB 6</th>
<th>TRIB 7</th>
<th>TRIB 8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GLOBAL PAYLOAD</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SDH</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8 x 155M</td>
<td>8 x 155M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tributary (Plug-in Modules)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Link without MSP</td>
<td>STM-1</td>
<td>N/A</td>
<td>STM-1</td>
<td>N/A</td>
<td>STM-1/4 (2 ports)</td>
<td>STM-1/4 (2 ports)</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
</tr>
<tr>
<td>Link with MSP (1+1)</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1/4 (2 ports)</td>
<td>STM-1/4 (2 ports)</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
<td></td>
</tr>
<tr>
<td>Link with SCP Ring</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>STM-1/4 (2 ports)</td>
<td>STM-1/4 (2 ports)</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
</tr>
<tr>
<td>Link with SCP Ring &amp; MSP (1+1)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>STM-1/4 (2 ports)</td>
<td>STM-1/4 (2 ports)</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
<td>STM-1</td>
</tr>
<tr>
<td><strong>CONNECTOR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** (B) backup/protection

**Note 1:** XCU1(W) port 1 and XCU2(E) port 1 form Ring #1  
XCU1(W) port 2 and XCU2(E) port 2 form Ring #2  
Trib5 port 1 and Trib6 port 1 form Ring #3  
Trib7 port 1 and Trib8 port 1 form Ring #4  
Trib7 port 2 and Trib8 port 2 form Ring #5  
Total Capacity 5 Rings.

**Note 2:** XCU1(W) port 1 and XCU2(E) port 1 with MSP (1+1) protection  
XCU1(W) port 2 and XCU2(E) port 2 with MSP (1+1) protection  
XCU1(W) port 1 and XCU2(E) port 2 form a ring  
These four ports form one STM-1/4 Main Ring with MSP (1+1) protection

---

**Note:**  
1. XCU1(W) port 1 and XCU2(E) port 1 form Ring #1  
2. XCU1(W) port 2 and XCU2(E) port 2 form Ring #2  
3. Trib5 port 1 and Trib6 port 1 form Ring #3  
4. Trib7 port 1 and Trib8 port 1 form Ring #4  
5. Trib7 port 2 and Trib8 port 2 form Ring #5  
6. Total Capacity 5 Rings.

---

**Note 2:**  
1. XCU1(W) port 1 and XCU2(E) port 1 with MSP (1+1) protection  
2. XCU1(W) port 2 and XCU2(E) port 2 with MSP (1+1) protection  
3. XCU1(W) port 1 and XCU2(E) port 2 form a ring  
4. These four ports form one STM-1/4 Main Ring with MSP (1+1) protection
### Loop-O9400R Card Type and Capacity Reference Table

#### Table 2 STM-1/4/16 (OC3/12/48) aggregate line

In this table, STM-16 could be OC-48, STM-4 could also be OC-12; STM-1 could also be OC-3; E1 could also be T1; and E3 could also be T3.

<table>
<thead>
<tr>
<th>SLOTS</th>
<th>TRIB 1</th>
<th>TRIB 2</th>
<th>TRIB 3</th>
<th>TRIB 4</th>
<th>XCU1(W)</th>
<th>XCU2(E)</th>
<th>TRIB 5</th>
<th>TRIB 6</th>
<th>TRIB 7</th>
<th>TRIB 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOBAL PAYLOAD SDH</td>
<td>4 x 155M</td>
<td>N/A</td>
<td>4 x 155M</td>
<td>N/A</td>
<td>2 x 2.5G</td>
<td>4 x 155M</td>
<td>N/A</td>
<td>4 x 155M</td>
<td>N/A</td>
<td>2 x 2.5G</td>
</tr>
<tr>
<td></td>
<td>2 x 155M</td>
<td>2 x 155M</td>
<td>2 x 155M</td>
<td>2 x 155M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tributary (Plug-in Modules)**

| Link without MSP       | STM-1 (2 ports) | STM-1 (2 ports) | STM-1 (2 ports) | STM-1 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) |
|                        | STM-4 (N/A)     | STM-4 (N/A)     | STM-4 (N/A)     | STM-4 (N/A)     | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) |

| Link with MSP (1+1) See Note 1 | STM-1 (2 ports) | STM-1 (2 ports) | STM-1 (2 ports) | STM-1 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) |
|                                | STM-4 (N/A)     | STM-4 (N/A)     | STM-4 (N/A)     | STM-4 (N/A)     | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) | STM-1/4/16 (2 ports) |

| Max 504 E1 (Single)         | 63 E1           | 63 E1           | 63 E1           | 63 E1           | 63 E1             | 63 E1             | 63 E1           | 63 E1           |
| Max 252 E1 (Protection)     | 63 E1           | 63 E1 (B)       | 63 E1           | 63 E1           | 63 E1 (B)         | 63 E1 (B)         | 63 E1           | 63 E1           |
| Max. 24 E3 (Single)         | 3 E3            | 3 E3            | 3 E3            | 3 E3            | 3 E3              | 3 E3              | 3 E3            | 3 E3            |
| Max 12 E3 (Protection)      | 3 E3            | 3 E3 (B)        | 3 E3            | 3 E3            | 3 E3 (B)          | 3 E3 (B)          | 3 E3            | 3 E3            |

| Max 64 10/100 BT Single     | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT |
| Max 32 10/100 BT Single     | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT | 8x10/100BT 1 x 1000BT |
| Max 56FOM (Single)          | 7 FOM           | 7 FOM           | 7 FOM           | 7 FOM           | 7 FOM             | 7 FOM             | 7 FOM           | 7 FOM           |
| Max 28 FOM (Protection)     | 7 FOM           | 7 FOM (B)       | 7 FOM           | 7 FOM           | 7 FOM             | 7 FOM             | 7 FOM           | 7 FOM           |

**Note:** (B) backup/protection

**Note 1:** With MSP (1+1) protection, the protection pair on XCU (W) and XCU (E) are as follow:

![Connectors](image_url)
Applications:

1. **Total Solution for IP/Voice Data Application**

   - Rings with STM-1/4/16 (CC16) capability
     - With STM-16 (CC16) capability, multi-rings can share the bandwidth in one optical line.
     - The Node A, B, and C form a STM-16 Ring; Node A, B, and E form a STM-4 Ring; Node A, B, and D form STM-1 Ring, The Node A and Node B only need one optical line to connect these three Rings.
3. Rings with STM-1/4 Applications

4. Two Ring Protection (CC4)
5. Five Rings (CC4)

6. 2*STM-16 Ring + 2*STM-4 Ring (CC16)
7. 2*STM-16 Ring + 8*STM-1 Ring (CC16)
Note: One conversion panel has the capacity to handle sixteen ports. The sixteen port applications illustrated above require only one conversion panel. Thirty-two port (32TE, 32E75) applications will require two conversion panels and sixty-three port (63TE, 63E75) applications will require four conversion panels.
**Y-box Illustrations**

A. 16TE Card/Port Protection via Y-box Panel to 16 E1(120 ohm) or T1 WireWrap/RJ Connectors

- **Loop-O9400R**
  - TRIB1, 3, 5 or 7
  - TRIB2, 4, 6 or 8
  - 16TE Card
  - Ports 1-16
  - Ports 1-16 Wire Wrap or RJ Connectors for 16 E1(120 ohm) or T1
  - SCSI Cables

B. 16TE Card/Port Protection via Y-box Panel to Telco 16 E1(120 ohm) or T1 Connectors

- **Loop-O9400R**
  - TRIB1, 3, 5 or 7
  - TRIB2, 4, 6 or 8
  - 16TE Card
  - Ports 1-16
  - Ports 1-16 Telco Connectors for 16 E1(120 ohm) or T1
  - SCSI Cables

C. 16TE Card/Port Protection via Y-box Panel to Telco 16 E1(75ohm) Connectors

- **Loop-O9400R**
  - TRIB1, 3, 5 or 7
  - TRIB2, 4, 6 or 8
  - 16TE Card
  - Ports 1-16
  - Ports 1-16 Telco Connectors for 16 E1(75 ohm)
  - SCSI Cables
D 32TE Card/Port Protection via Y-box Panel to Telco 32 E1(120 ohm) or T1 Connectors

Loop-O9400R

TRIB1, 3, 5 or 7
Ports 17-32

TRIB2, 4, 6 or 8
Ports 17-32

32TE Card

Ports 1-16

32TE Card

SCSI Cables

Y-box Panel:
Loop-ACC-Y-4SCSI-4T50P8-32TE-G
or
Loop-ACC-Y-4SCSI-3T50P12-32TE-G
or
Loop-ACC-Y-4SCSI-2T64P16-32TE-G

Ports 17-32

Telco Connectors for 32 E1(120 ohm) or T1

E 32TE Card/Port Protection via Y-box Panel to Telco 32 E1(75 ohm) Connectors

Loop-O9400R

TRIB1, 3, 5 or 7
Ports 17-32

TRIB2, 4, 6 or 8
Ports 17-32

32TE Card

Ports 1-16

32TE Card

SCSI Cables

Y-box Panel:
Loop-ACC-Y-4SCSI-4T50P8-32E75-G
or
Loop-ACC-Y-4SCSI-3T50P12-32E75-G
or
Loop-ACC-Y-4SCSI-2T64P16-32E75-G

Ports 17-32

Telco Connectors for 32 E1(75 ohm)
63TE Card/Port Protection via Y-box Panel to Telco Connectors for 32 E1 (120 ohm) or T1 and Telco Connectors for 31 E1 (120 ohm) or T1

Loop-O9400R

TRIB1, 3, 5 or 7
63TE Card
Ports 17-32 49-63
Ports 1-16 33-48

TRIB2, 4, 6 or 8
63TE Card
Ports 17-32 49-63
Ports 1-16 33-48

Y-box Panel:
Loop-ACC-Y-4SCSI-4T50P8-32TE-G
or
Loop-ACC-Y-4SCSI-3T50P12-32TE-G
or
Loop-ACC-Y-4SCSI-2T64P16-32TE-G

Ports 49-63
Ports 33-48

Telco Connectors for 31 E1 (120 ohm) or T1

Y-box Panel:
Loop-ACC-Y-4SCSI-4T50P8-32TE-G
or
Loop-ACC-Y-4SCSI-3T50P12-32TE-G
or
Loop-ACC-Y-4SCSI-2T64P16-32TE-G

Ports 17-32
Ports 1-16

Telco Connectors for 32 E1 (120 ohm) or T1
63TE Card/Port Protection via Y-box Panel to Telco Connectors for 32 E1(75 ohm) and Telco Connectors for 31 E1(75 ohm)

Loop-O9400R

TRIB1, 3, 5 or 7

63TE
Card
Ports Ports
17-32 49-63
Ports Ports
1-16 33-48

Y-box Panel
Loop-ACC-Y-4SCSI-1T50P6-32E75-G
or
Loop-ACC-Y-4SCSI-3T50P12-32E75-G
or
Loop-ACC-Y-4SCSI-2T64P16-32E75-G

Telco Connectors for 31 E1(75 ohm)

TRIB2, 4, 6 or 8

63TE
Card
Ports Ports
17-32 49-63
Ports Ports
1-16 33-48

Y-box Panel
Loop-ACC-Y-4SCSI-1T50P8-32E75-G
or
Loop-ACC-Y-4SCSI-3T50P12-32E75-G
or
Loop-ACC-Y-4SCSI-2T64P16-32E75-G

Telco Connectors for 32 E1(75 ohm)

Data Comm for Business, Inc.
2949 CR 1000 E
Dewey, IL 61840
Voice 8004DCBNET (800.432.2638)
Fax 217.897.1331
Info www.dcbnet.com/contact.html
Web www.dcbnet.com