Your Benefits
Complete, Future-Proof Networking System
DRAGON PTN with HiProvision offers a fully integrated Ethernet-based backbone transmission system. Due to Ethernet’s simplicity, interoperability, predictability and cost efficiency, these networks are becoming more popular for large transmission networks. MPLS-TP provisioning is similar to SDH/SONET provisioning, but comes with a powerful network management system that makes it easier to provision and maintain the network. It guarantees bandwidth with the same deterministic behavior as guaranteed in circuit switched networks. DRAGON PTN with HiProvision is essentially a circuit switched network, transforming large networks cost efficiently and be better prepared for future technology changes.

The DRAGON PTN network node is offered in fully modular variants and can be configured as a completely redundant system through central switching modules and power supplies, which means administrators can ensure network availability in case of device or path failure.

Applications
Seamlessly integrate legacy systems through modular interface cards for transporting legacy equipment. This backbone device, configured using HiProvision software, offers a variety of redundant interface card options.

Technical Information

**Assessment (continued)**

<table>
<thead>
<tr>
<th>Type</th>
<th>DRAGON PTN2210</th>
<th>DRAGON PTN2209</th>
<th>DRAGON PTN2206</th>
<th>DRAGON PTN1104</th>
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<tbody>
<tr>
<td>Interface</td>
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</tbody>
</table>

**User Benefits**

- Ensure dedicated bandwidth with low-cost, interoperable MPLS-TP technology.
- Easily configure and manage complex networks with intuitive provisioning software.
- Fully redundant system with multiple switching modules and power supply options.
- Seamlessly integrate legacy systems through variety of redundant interface card options.

**Key Features**

- MPLS-TP technology delivers dedicated bandwidth for different classes and SLMs protection switching.
- HiProvision software for easy control and management of large transmission networks.
- Industrial release integrates for backbone and access network.
- Variety of interface-modules and port types to ensure flexibility and seamless integration of legacy systems.
- Resilient against harsh conditions with operating temperatures varying from -20 °C to +55 °C.
- Redundant central switching modules and power supplies guarantee high network availability.

**Type DRAGON-PTN-WITH-HIPROVISION_PB00136_INIT_HIR_0318_ENG**
MPLS-TP technology delivers resilient against harsh conditions. This backbone device, configured using Hi Provision provisioning software, offers a reliable, packet-based MPLS-TP technology to transport mission-critical data through large networks.

Key Features
- MPLS-TP technology delivers dedicated bandwidth for different types of traffic and 50ms protection switching
- Hi Provision software for easy configuration and management of large transmission networks
- Industrial resilience for backbone and access network
- Variety of interface modules and port types to ensure flexibility and seamless integration of legacy systems
- Resilient against harsh conditions operating temperatures varying from -30°C to +65°C
- Redundant central switching modules and power supplies guarantee high network availability

Ensure dedicated bandwidth with low-cost, interoperable MPLS-TP technology.
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Technical Information

<table>
<thead>
<tr>
<th>Accessory (channel)</th>
<th>Type</th>
<th>Part No.</th>
<th>Qty</th>
<th>Description</th>
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<tbody>
<tr>
<td>PTN-XFP-DWDM-ZR-xx</td>
<td>(xx = Channel Number)</td>
<td>942 248-0xx XFP DWDM - ZR (Channel xx)</td>
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<tr>
<td>PTN-XFP-DWDM-ER-xx</td>
<td>(xx = Channel Number)</td>
<td>942 247-0xx XFP DWDM - ER (Channel xx)</td>
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<tr>
<td>PTN-XFP-XR-1550</td>
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<td>942 246-005 XFP 1550 nm - XR</td>
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<td>PTN-XFP-ER-1550</td>
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<td>942 246-003 XFP 1550 nm - ER</td>
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<td>PTN-XFP-LR-1310</td>
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<td>942 246-002 XFP 1310 nm - LR</td>
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<tr>
<td>PTN-XFP-SR-850</td>
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<td>942 246-001 XFP 850 nm - SR (Multimode)</td>
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Accessories

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>PTN-SMART-SFP-STM-4/OC-12</td>
<td>Smart SFP to transport STM-4/OC-12 transparent (S1 Optic)</td>
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<td>PTN-SFP-C37.94-850</td>
<td>SFP for C37.94 - 850 nm Multimode</td>
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<tr>
<td>PTN-RJ45-SFP</td>
<td>Electrical Gigabit Ethernet SFP module RJ45</td>
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<tr>
<td>PTN-SFP-BIDI-1550-80</td>
<td>SFP 1550 nm - BIDI - 80 km</td>
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<td>PTN-SFP-BIDI-1490-80</td>
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<td>PTN-SFP-BIDI-1310-20</td>
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<td>SFP 1550 nm - EZ</td>
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<td>PTN-SFP-OX-1550</td>
<td>SFP 1550 nm - OX</td>
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<td>PTN-SFP-ZX-1550</td>
<td>SFP 1550 nm - ZX</td>
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<td>SFP 850 nm - SX (Multimode)</td>
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<td>PTN-SFP-CWDM-ZX-1611</td>
<td>SFP CWDM - ZX - 1611 nm</td>
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Key Features

- MPLS-TP technology delivers dedicated bandwidth for different types of traffic and 50ms protection switching
- Hi Provision software for easy configuration and management of large transmission networks
- Industrial resilience for backbone and access network
- Variety of interface modules and port types to ensure flexibility and seamless integration of legacy systems
- Resilient against harsh conditions operating temperatures varying from -30°C to +65°C
- Redundant central switching modules and power supplies guarantee high network availability

Your Benefits

Complete, Future-Proof Networking System
DRAGON PTN with Hi Provision offers a fully integrated Ethernet-based backbone transmission system. Due to Ethernet’s simplicity, interoperability, predictability and cost efficiency, these networks are becoming more popular than legacy transmission systems.

MPLS-TP provisioning is similar to SDH/SONET provisioning, but comes with a cost efficiency, these networks are becoming more popular than legacy technologies. transmission system. Due to Ethernet’s simplicity, interoperability, predictability and cost efficiency, these networks are becoming more popular than legacy technologies.

SDH/SONET eliminating their disadvantages for packet based communication. Using MPLS-TP technology in the new device family guarantees bandwidth and makes it easy for engineers to deploy services inside the network including redundant data transmission.

The cost efficient DRAGON PTN network node is offered in fully modular variants and can be configured as a completely redundant system through central switching modules and power supplies, which means administrators can ensure network availability in case of device or path failure.

The Hirschmann DRAGON PTN managed by the HiProvision software offers a variety of interface options for flexible integration in your network.

Key Features

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Easily configure and manage complex networks with intuitive provisioning software.
Fully redundant system with multiple switching modules and power supply options.
Seamlessly integrate legacy systems through variety of redundant interface card options.
Product Description

**HiProvision Order No.**
- 942 252-001
- 942 252-002
- 942 252-003
- 942 252-004

**HiProvision 3.0 Node License**
- HiPro-R3x-PTN2210
- HiPro-R3x-PTN2209
- HiPro-R3x-PTN2206
- HiPro-R3x-PTN1104

**Software Features**
- Power Requirements
  - Line / Star Topology any
- Network Size

**Product Description**
- Basic Units
  - Module
  - (Node Support
  - (continued)

**Diagnostics**
- Advanced monitoring capabilities based on MPLS-TP OAM enhancements

**Management Software**
- HiProvision platform for user friendly and fast deployment of the network. Supported by the automatic setup of the DCN and OAM features for

**Network Security**
- Sticky MAC for easy locking of MAC address per service; MAC and IP based ACL; SNMPv3 encryption and authentication; Disable unused ports

**Layer 2 Ethernet Aggregation**
- MSTP (multiple spanning tree); Multicast handling through IGMP; Virtual forwarding instances; VLAN handling; Broadcast and multicast storm control

**Dimensions (W x H x D)**
- 434 mm x 132.5 mm x 210 mm
- 434 mm x 132.5 mm x 210 mm
- 354 mm x 132.5 mm x 210 mm
- 214 mm x 132.5 mm x 210 mm

**Protection Class**
- IP20

**Scalability**
- From 10/100 Mbps to 40 Gbps aggregation of traffic; Scalable switching capacity from 64 Gbps to 720 Gbps;

**Power Supplies (ordered separately)**
- PTN-ACPoE-A
- 942 235-001
  - PoE PSU, DIN Rail, Input range: 100-240 V AC, Output Power: 480 W

**Modules - Interface Building Blocks (ordered separately)**
- Type
  - DRAGON PTN2210
  - DRAGON PTN2209
  - DRAGON PTN2206
  - DRAGON PTN1104

**Input/Output (I/O) Ports**
- 32k MAC addresses; 4k Layer 2 Multicast entries; 2k VFI; 4k MPLS entries; BFD hardware support

**Approvals**
- CE, FCC, cULus, TÜV, UL, NRTL, K-GB, BIS, ITC, BSMI, C-Tick, TUV, VDE, etc.
- Emissions Class B
- Compliance with DIN 68027, EN 50081, EN 50082, EN 50027, EN 50028, EN 50087, EN 55011, CISPR 22

**Technical Data**
- Basic Units
- Power Supplies (ordered separately)

**Ambient Conditions**
- Temperature: 0°C to 40°C
- Humidity: 95% at 25°C non-condensing

**Mechanical Data**
- 2 x T1 RJ45 ports;

**Network Connectivity**
- Service: HiProLan; power over Ethernet source

**Storage Temperature**
- -30 ºC to 75 ºC

**Strand Count**
- 4

**NOTE:**
- These are general technical specifications. For complete technical specifications, see www.hirschmann.com

**For further technical data see page 5.**
## Technical Information

### Product Description Basic Units

<table>
<thead>
<tr>
<th>Type</th>
<th>DRAGON PTN2210</th>
<th>DRAGON PTN2209</th>
<th>DRAGON PTN2206</th>
<th>DRAGON PTN1104</th>
</tr>
</thead>
</table>

### Technical Specifications

#### Node Support
- Software Features
  - Line - / Star Topology any Type
  - DRAGON PTN2210
  - DRAGON PTN2209
  - DRAGON PTN2206
  - DRAGON PTN1104

#### Switching Performance
- Sub 50ms protection switching in all network topologies (MPLS-TP)
- Non-blocking 64 Gbps
- 95 Mpps (Layer 2 throughput)
- MTU up to 9k

#### Network Management
- Auto provisioned and auto setup DCN for management
- Full SNMP v3 management (no CLI needed)
- Management port on each CSM module

#### Network Security
- Sticky MAC for easy locking of MAC address per service
- MAC and IP based ACL
- SNMPv3 encryption and authentication
- Disable unused ports

#### Central Switching
- HiPro-Large-Net 942 255-004 Large Network Monitor Function (one per serial key)
- 942 229-001 Alarm contacts for local notification (2 output contacts) or alarm forwarding (2 input contacts) to HiProvision (NMS)
- Dual PoE power input for
- 32k MAC addresses
- 4k Layer 2 Multicast entries
- 2k VFI
- 4k MPLS entries
- BFD hardware support via BFD
- Performance monitoring based on Y.1731 Loss and Delay

#### Power Supplies (ordered separately)
- PTN-9-L3A-L (35 W / 80 Y)
- PTN-9-L3EA-L (5 W / Pending)
- PTN-4-DSL-LW (7.3 W / 104 Y)
- PTN-4-E1(/T1)-L (7.7 W / 95 Y)
- PTN-4-GC-LW (6 W / 80 Y)
- PTN-4-GCB-LW (6 W / 80 Y)
- PTN-4-GO-LW (7.5 W / 170 Y)
- PTN-1-10G-LW (12 W / 117 Y)
- DRAGON PTN Chassis (- / 665 Y)
- PTN-NSM-A & B (2 W / 437 Y)
- PTN-CSM310-A (27 W / 71 Y)
- PTN-PSU > ( - / 34 Y)

#### Supply + Interface Cards

<table>
<thead>
<tr>
<th>Type</th>
<th>Supply + 1 x Interface Cards</th>
<th>Supply + 9 x Interface Cards</th>
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<tbody>
<tr>
<td>Total Slots</td>
<td>2 x CPU + 2 x Power</td>
<td>2 x CPU + 2 x Power</td>
</tr>
</tbody>
</table>

### Product-Description Basic Units (continued)

#### Transmission
- 115200 (different port settings possible within a single service), Databits: 6,7,8, Parity: None, Odd, Even, Mark, Space
- Support for handshaking packet loss switchover between active and backup connection; Testing: Loopback, BERT; LAN operation
- Switching (zero packet loss switchover between active and backup connection); Testing: Loopback, BERT; LAN operation
- Switching (zero packet loss with 1+1 protection); Testing: Loopback, BERT; LAN operation
- 64 kbps cross connect per card; Up to 16 independent circuit emulated streams; packet formats: CESoPSN and SAToP circuit emulation packet formats; Hitless transparent clocking; Port mode is WAN or LAN per port
- 3 x 10/100/1000 TX Gigabit Ethernet ports; 1 x Combo 10/100/1000 TX or 100/1000 Gigabit fiber port (SFP based); Sync-E; IEEE1588v2 transparent clocking; Port mode is WAN or LAN
- 8 x 100/1000 Gigabit fiber port (SFP based); 1 x 10Gig Ethernet port (XFP); MSTP , ERPS compliant; IEEE1588v2 transparent clocking; LAG based on IP and

#### SFPs (ordered separately)

<table>
<thead>
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<th>Type</th>
<th>Description</th>
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<td>SFP CWDM - ZX - 1551 nm</td>
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<td>PTN-SFP-CWDM-ZX-1491</td>
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<td>PTN-SFP-CWDM-EX-1531</td>
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### Environmental Data

#### Basic Data, Model Numbers and Power Supplies

<table>
<thead>
<tr>
<th>Ambient Conditions</th>
<th>Type</th>
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<tbody>
<tr>
<td>Storage Temperature</td>
<td>-30 ºC to 75 ºC</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 °C to 70 °C</td>
</tr>
</tbody>
</table>

### Notes

- These are the prominent technical specifications. For complete technical specifications visit: www.hirschmann.com

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*Be Certain. Belden.*
Module (Node Support)

- PTN-NSM-A
- PTN HiProvision 3.0 Node License
- HiPro-R3x-PTN2210
- HiPro-R3x-PTN2209
- HiPro-R3x-PTN2206
- HiPro-R3x-PTN1104

Quality of Service (QoS)
Service priority scheduling independent from user traffic to ensure transport functionality of all traffic; End to end traffic engineering through

Software Features
Mounting 19" Control Cabinet or DIN-Rail

Line - / Star Topology any

Network Size
Up to 4 x 10 Gigabit Ethernet and 24 x 1 Gigabit Ethernet, modular design with various module configurations (PTN-4-E1T1-L, PTN-7-SERIAL, etc.),

Dimensions (W x H x D)
434 mm x 132.5 mm x 210 mm

Scalability
From 10/100 Mbps to 40 Gbps aggregation of traffic; Scalability through MPLS-TP; Scalable switching capacity from 64 Gbps to 720 Gbps;

MTU up to 9k;

Port Type and Quantity
Total Slots: 2 x CPU + 2 x Power

Number of Interface Slots
PTN-9-L3A-L (35 W / 80 Y); PTN-9-L3EA-L (5 W / Pending); PTN-4-DSL-LW (7.3 W / 104 Y); PTN-4-E1(/T1)-L (7.7 W / 95 Y);

Automatic Protection Switching based on BFD; ERPS ring protection for multipoint Ethernet services; Node configuration stored on swappable Micro SD

Supply + 6 x Interface Cards

Useful information can be found at: www.hirschmann.com

Ambient Conditions

- Temperature:
  - Operating Temperature: 0°C to 70°C
  - Storage Temperature: -30°C to 75°C
- Humidity:
  - Operating Humidity: 95% non-condensing
  - Storage Humidity: 95% non-condensing

- Power:
  - Input range: 18-60 V DC, Output Power: 175 W
  - Input range: 90-264 V AC, Output Power: 175 W
  - UK AC Power Cord 942 256-101
  - EU AC Power Cord 942 256-100
  - Heavy Duty DIN Rail Kit PTN1104 942 256-005
  - Heavy Duty DIN Rail Kit PTN2206 942 256-004
  - 19" Mounting Kit PTN2206 942 256-001

- Power supplies:
  - Single 19" W cm (Rail Kit Module)
  - Single 19" W cm (DIN Rail Kit Module)
  - Single 19" W cm (DIN Rail Kit Module)

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For further technical details refer to page 5.

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DRAGON PTN with HiProvision offers a fully integrated Ethernet based backbone transmission system. Due to Ethernet's simplicity, interoperability, predictability and cost efficiency, these networks are becoming more popular that legacy technologies. MPLS-TP provisioning is similar to SDH/SONET provisioning, but comes with a powerful network management system that makes it easier to provision and maintain the networks. It guarantees bandwidth with the same deterministic behavior as SDH/SONET, and with the additional feature of its ability to celebrate its disadvantages for packet based communication. Using MPLS-TP engineer can gradually migrate networks using limited resources. The new powerful network management system that makes it easier to provision and maintain network effectively and be better prepared for future technology changes.

The cost efficient DRAGON PTN network node is offered in fully modular variants and can be configured as a completely redundant system through central switching modules and power supplies, which means administrators can ensure network availability in case of device or path failure.

With DRAGON PTN, customers get a complete, integrated solution for managing their networks from a single vendor, with MPLS-TP in the backbone layer and Layer 2/3 technologies. It is MEF in the access layer. With its fully modular design, DRAGON PTN with HiProvision is ready for use in extreme and harsh industrial environments. Due to the device's impressive deterministic capabilities, DRAGON PTN with HiProvision is best suited for transportation environments, including mass transit systems, railway and metro stations. The device is also ideal for other harsh, industrial environments that rely on mission-critical data transfer, including power transmission systems, railway and metro stations. The device is also ideal for other harsh, industrial environments.

Applications
DRAGON PTN with HiProvision is extremely valuable for scenarios where engineers need the ability to predict the behavior of data as it goes across the network. MPLS-TP technology in the new device family guarantees bandwidth and makes it easy for engineers to deploy services inside the network including redundant data transmission.

Markets
Due to its devices impressive deterministic capabilities, DRAGON PTN with HiProvision is perfect suited for transportation environments, including mass transit systems, railway and metro stations. The device is also ideal for other harsh, industrial environments that rely on mission-critical data transfer, including power transmission and distribution and oil and gas applications.

Technical Information

### Accessories (continued)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-SMART-SFP-STM-4/OC-12 942 245-029 Smart SFP to transport STM-4/OC-12 transparent (S1 Optic)</td>
</tr>
<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-SMART-SFP-STM-1/OC-3 942 245-028 Smart SFP to transport STM-1/OC-3 transparent (S1 Optic)</td>
</tr>
<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-RJ45-SFP 942 245-027 Electrical Gigabit Ethernet SFP module RJ45</td>
</tr>
<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-SFP-BIDI-1550-80 942 245-026 SFP 1550 nm - BIDI - 80 km</td>
</tr>
<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-SFP-BIDI-1490-80 942 245-025 SFP 1490 nm - BIDI - 80 km</td>
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<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-SFP-ZX-1550 942 245-020 SFP 1550 nm - ZX</td>
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<td>XFP DWDM (ordered separately)</td>
<td>PTN-SFP-EX-1310 942 245-019 SFP 1310 nm - EX</td>
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<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-SFP-SX-850 942 245-017 SFP 850 nm - SX (Multimode)</td>
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<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-SFP-CWDM-ZX-1611 942 245-016 SFP CWDM - ZX - 1611 nm</td>
</tr>
<tr>
<td>XFP DWDM (ordered separately)</td>
<td>PTN-SFP-CWDM-ZX-1591 942 245-015 SFP CWDM - ZX - 1591 nm</td>
</tr>
</tbody>
</table>

**PTN-SMART-SFP-STM-4/OC-12**

- **Type:** Smart SFP to transport STM-4/OC-12 transparent (S1 Optic)
- **Part Number:** 942 245-029

**PTN-SMART-SFP-STM-1/OC-3**

- **Type:** Smart SFP to transport STM-1/OC-3 transparent (S1 Optic)
- **Part Number:** 942 245-028

**PTN-RJ45-SFP**

- **Type:** Electrical Gigabit Ethernet SFP module RJ45
- **Part Number:** 942 245-027

**PTN-SFP-BIDI-1550-80**

- **Type:** SFP 1550 nm - BIDI - 80 km
- **Part Number:** 942 245-026

**PTN-SFP-BIDI-1490-80**

- **Type:** SFP 1490 nm - BIDI - 80 km
- **Part Number:** 942 245-025

**PTN-SFP-ZX-1550**

- **Type:** SFP 1550 nm - ZX
- **Part Number:** 942 245-020

**PTN-SFP-EX-1310**

- **Type:** SFP 1310 nm - EX
- **Part Number:** 942 245-019

**PTN-SFP-SX-850**

- **Type:** SFP 850 nm - SX (Multimode)
- **Part Number:** 942 245-017

**PTN-SFP-CWDM-ZX-1611**

- **Type:** SFP CWDM - ZX - 1611 nm
- **Part Number:** 942 245-016

**PTN-SFP-CWDM-ZX-1591**

- **Type:** SFP CWDM - ZX - 1591 nm
- **Part Number:** 942 245-015

**Notes:**

- **Type:** DWDM SFPs (ordered separately)
- **Part Numbers:**
  - PTN-SMART-SFP-STM-4/OC-12: 942 245-029
  - PTN-SMART-SFP-STM-1/OC-3: 942 245-028
  - PTN-RJ45-SFP: 942 245-027
  - PTN-SFP-BIDI-1550-80: 942 245-026
  - PTN-SFP-BIDI-1490-80: 942 245-025
  - PTN-SFP-ZX-1550: 942 245-020
  - PTN-SFP-EX-1310: 942 245-019
  - PTN-SFP-SX-850: 942 245-017
  - PTN-SFP-CWDM-ZX-1611: 942 245-016
  - PTN-SFP-CWDM-ZX-1591: 942 245-015

### Key Features

- **MPLS-TP Technology:** delivers dedicated bandwidth for different classes and gives most protection switching.
- **HiProvision software:** easy control and simple management of large transmission networks.
- **Industrial interface integrations for backbone and access network:** variety of interworking modules and part types to ensure flexibility and seamless integration of legacy systems.
- **Resilient against harsh conditions with operating temperatures:** varying from -30 °C to +55 °C.
- **Redundant central switching modules and power supplies:** guarantee high network availability.

### Applications

- **Easily configure and manage complex networks with intuitive provisioning software.**
- **Fully redundant system:** with multiple switching modules and power supply options.
- **Seamlessly integrate legacy systems through variety of redundant interface card options.**

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**DRAGON PTN with HiProvision**

MPLS-TP Product Family with Network Provisioning System

This backbone device, configured using HiProvision provisioning software, offers a reliable, packet-based MPLS-TP technology to transport mission-critical data through large networks.

- **Ensure dedicated bandwidth with low-cost, interoperable MPLS-TP technology.**
- **Easily configure and manage complex networks with intuitive provisioning software.**
- **Fully redundant system:** with multiple switching modules and power supply options.
- **Seamlessly integrate legacy systems through variety of redundant interface card options.**