

Optoelectronics

## Prisma II™ Ancillary Modules

### Description

The Prisma II™ optical network is an advanced transmission system designed to optimize network architectures and increase reliability, scalability, and cost effectiveness. Ancillary modules such as the Forward and Reverse Headend Driver Amplifiers and the Optical Switch support the main optical transmission modules of the Prisma II network. The modules are designed for easy insertion, setup, and administration.

### Ancillary Modules

The Prisma II Ancillary Modules include the following:

- Headend Driver Amplifiers (HEDA)
- 1310/1550 nm Optical Switches

### Features

- Multiple set-up and control options for Optical Switch and HEDA
  - Local control via Local Craft Interface (LCI)
  - Local control via Intelligent Communications Interface Module (ICIM)
  - Remote monitoring via ROSA / TNCS software



Forward/Reverse  
Headend Driver Amplifier



Optical Switch

# Prisma II Ancillary Modules

## Head End Driver Amplifiers

### Description

The Prisma II™ platform is capable of utilizing a combination of modules which address a variety of applications. The platform also supports important reliability-enhancing features such as redundant power supplies, network switching, and element management (with ICIM). The Prisma II Forward and Reverse Headend Driver Amplifiers (FHEDA and RHEDA) are designed to add to this flexibility.

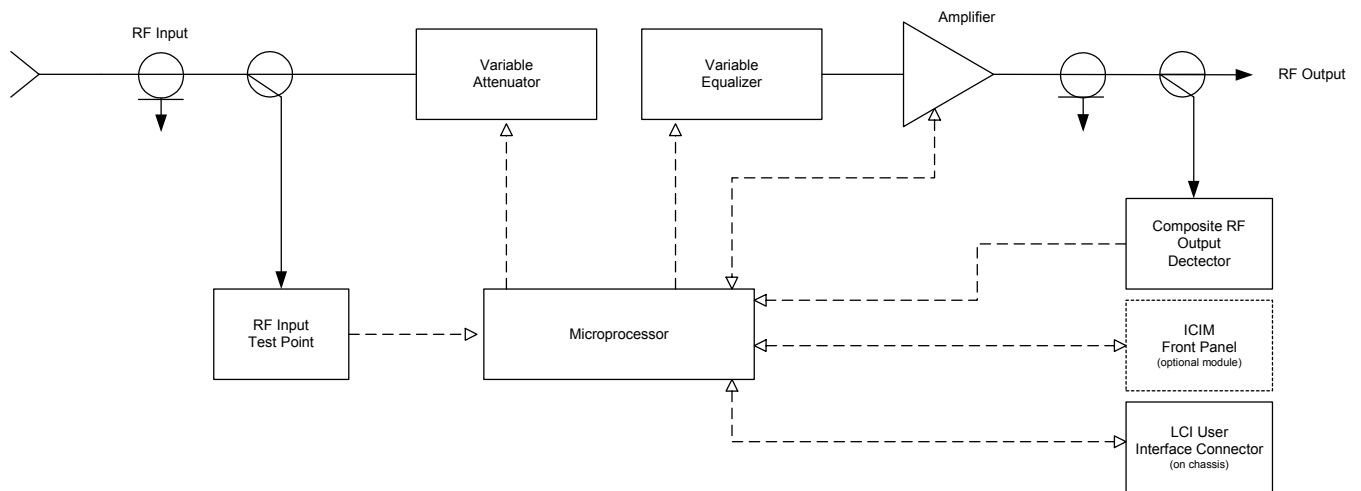
The FHEDA/RHEDA provide amplification and are typically an integral part of the RF network in the headend or hub. The FHEDA/RHEDA feature a firmware controllable, variable attenuator and equalizer to provide optimum signal levels. The FHEDA/RHEDA are powered externally by the Prisma II power supply, which reduces heat and extends the life of the amplification circuit.



### Features

- Designed to operate in the Prisma II platform
- Compact size saves headend space
- 46 to 1002 MHz pass band (FHEDA)
- 5 to 200 MHz pass band (RHEDA)
- Internal current-sensing circuitry monitors the operation of the amplification circuit
- Full ROSA / TNCS control & monitoring capable
- Variable Gain (14 to 24 dB) and Variable EQ (0 to 9 dB)

### Forward and Reverse Headend Driver Amps



## Head End Driver Amplifiers, continued

### Specifications

RF	Units	Forward	Reverse	Notes
RF Bandwidth	MHz	46 to 1002	5 to 200	
Frequency Response				
Flatness	dB	± 0.50 (typical)	± 0.50	1
Initial Tilt	dB	± 0.75		
Return Loss - Input				1
46 – 870 MHz	dB	18	18 ( 5-200 MHz)	
871 – 1002 MHz		16		
Return Loss – Output				1
46 – 870 MHz	dB	16	18 ( 5-200 MHz)	
871 – 1002 MHz		18		
Noise Figure	dB	8 max. (7 typical)	7 max. (6.2 typical)	
Module Gain (minimum)	dB	23.5 (typical)	21	1
Variable Attenuator	dB	0 - 10 in 0.5 dB steps	0 - 3 in 0.5 dB steps	
Variable Equalizer	dB	0 - 9 in 1.5 dB steps	0.5 - 5.5 in 0.5 dB steps	
Distortions (max)				2
Composite Triple Beat (CTB)	dB	-72	-79	
Composite Second Order (CSO)	dB	-72	-72	
Cross Modulation	dB	-72	-75	
RF Test Points	dB	-20 ± 1.0	-20 ± 1.0	
<b>Electrical</b>				
Power Consumption	W DC	15 max.	15 max.	
<b>Environmental</b>				
Temperature Range				
Full Specs and Operational	°C	-40 to +65	-40 to +65	
	°F	-40 to +149	-40 to +149	
Humidity Range	%	0 to 95	0 to 95	3
<b>Mechanical</b>				
Physical Dimensions				
Depth	in.	9.8	9.8	
	cm	24.9	24.9	
Width	in.	1.0	1.0	
	cm	2.5	2.5	
Height	in.	7.6	7.6	
	cm	19.3	19.3	
Weight	lb	3.0	3.0	
	kg	1.4	1.4	
Module Width	slots	1	1	

#### Notes:

- With attenuator and equalizer set to 0.0 dB. Flatness ± 0.75 over full temperature range.
- FHEDA distortions measured with 112 unmodulated (CW) NTSC analog channels at 38 dBmV flat output (46 – 1002 MHz). Distortions may degrade 0.5 dB at high temperature. RHEDA distortions measured with 38 dBmV/channel output level for 26 unmodulated (CW) NTSC channels between 5 MHz and 200 MHz.
- Recommended for use only in non-condensing environments.

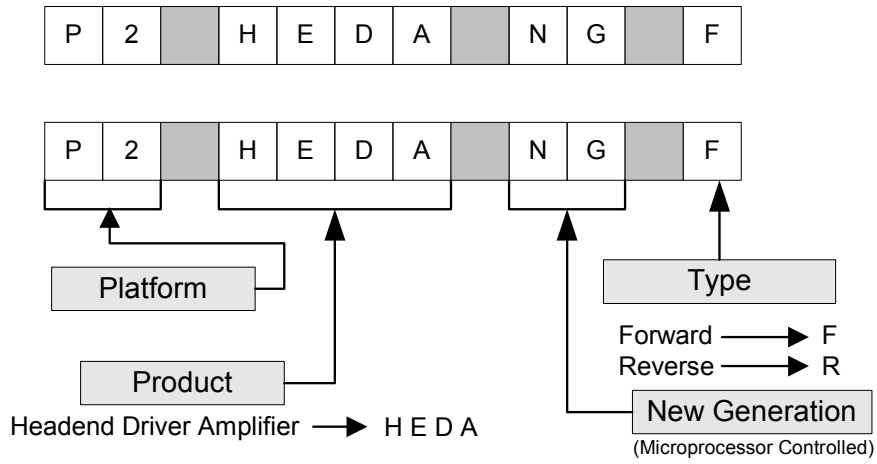
Unless otherwise noted, specifications reflect typical performance and are referenced to 68°F (20°C). Specifications are based upon measurements made in accordance with SCTE/ANSI standards (where applicable), using standard frequency assignments.

# Prisma II Ancillary Modules

## Head End Driver Amplifiers, continued

### Ordering Information

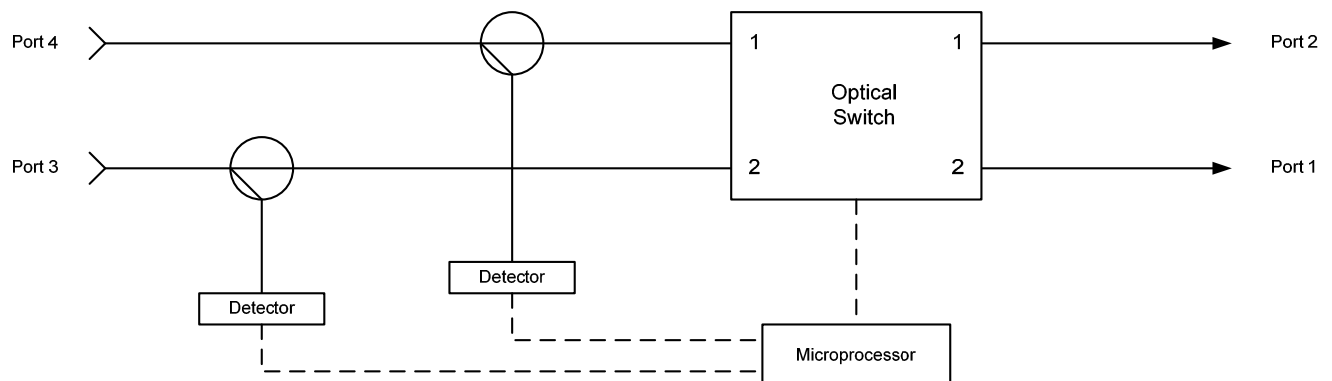
Sample



## Prisma II 1310/1550 nm Optical Switches

### Features

- 2X2 switch component for outstanding flexibility
- Provides redundancy for 1550 nm or 1310 nm systems
- Switch hysteresis prevents the switch from returning to primary input until input is stable
- Large optical power dynamic range:
  - Standard Input**
  - 13 to +18 dBm @ 1550 nm
  - 13 to +13 dBm @ 1310 nm
  - Low Input**
  - 30 to 0 dBm @ 1550 nm
  - 30 to 0 dBm @ 1310 nm
- Activated by one of three methods
  - Loss of light
  - Local Craft Interface (LCI)
  - ROSA / TNCS software
- Status LEDs indicate module condition and simplify troubleshooting
- Time delay setting (set by user) prevents false reactivation of switch before a reliable signal has been restored
- Input power threshold set by user determines when switching occurs
- Can be connected to an external alarm system
- Multiple set-up and control options
  - Local control via Local Craft Interface (LCI)
  - Local control via Intelligent Communications Interface Module (ICIM)
  - Remote monitoring via ROSA / TNCS software



## Prisma II 1310/1550 nm Optical Switches, continued

### Specifications

Optical	Units		Notes
Optical Interface SC/APC FC/UPC SC/UPC E2000		Standard Optional Optional Optional	
Nominal Optical Wavelength	nm nm	1310+/- 20 1550+/-20	
Input Optical Power Range ( <i>standard version</i> ) @ 1550 nm @ 1310 nm	dBm dBm	-13 to +18 -13 to +13	1
Input Optical Power Range ( <i>low input version</i> ) @ 1550 nm @ 1310 nm	dBm dBm	-30 to 0 -30 to 0	1
Insertion Loss	dB	< 2.5	2
Cross Talk	dB	< -70	
Return Loss	dB	<-55 dB	3
<b>Electrical</b>			
Sense and Switch Time (from Primary to Redundant state)	ms	< 50	7
Power Consumption	W DC	< 5	4
Switching Threshold	dB	1 – 10 (user changeable)	
Restore Threshold	dB	0.5 to 9.5	
Wait Time before Restoration	minutes	0 to 10 in 1 second steps	
<b>Environmental</b>			
Temperature Range Full Specs and Operational	°C °F	-40 to +65 -40 to +149	5
Humidity Range	%	0 to 95	6
<b>Mechanical</b>			
Physical Dimensions Depth	in. cm	9.8 24.9	
Width	in. cm	1.0 2.5	
Height	in. cm	7.6 19.3	
Weight	lb kg	3.0 1.4	
Module Width	slot	1	

#### Notes:

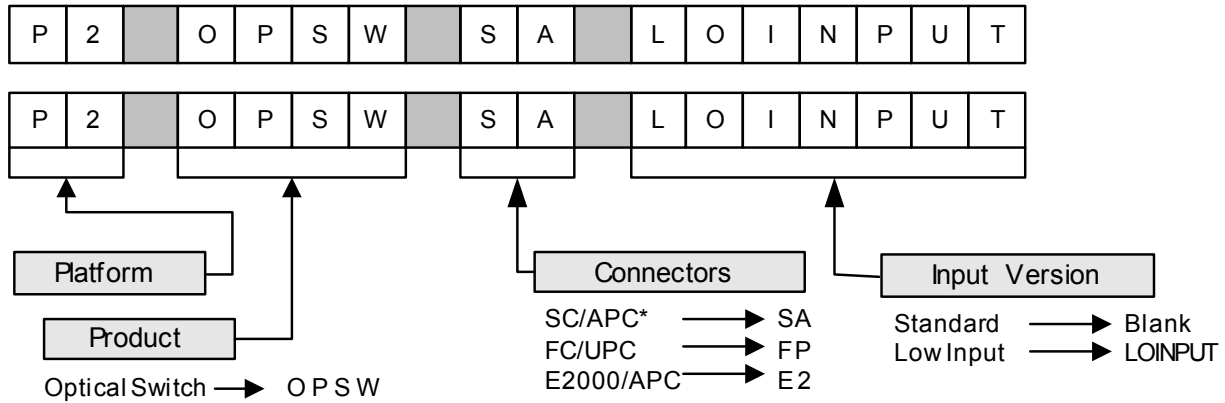
- Optical input power of -3.0 dBm (-20 dBm for the low input version) or greater is required to maintain the full user-settable threshold range. When the optical input power is less than -3.0 dBm (-20 dBm for low input version) there is a 1-for-1 reduction in threshold range. Module will remain in Primary (default) state regardless of Primary input level if Secondary input level is below its switching threshold.
- Insertion loss of module with 0.5 dB loss per mated connector pair for a total connector loss of 1.0 dB. Actual loss may be less depending on mating connector compatibility.
- With APC connectors.
- When operating at ambient temperatures below 0°C, the power consumption can be up to 15W.
- Air inlet temperature to Prisma II chassis in non-condensing environment. Up to 10 minute warm-up time required for start-up below 0°C (32°F).
- Recommended for use only in non-condensing environment.
- On low input version, switching time can be delayed from 0 to 1 second in 50 ms increments. 0 seconds is the default.

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## Prisma II 1310/1550 nm Optical Switches, continued

### Ordering Information

Sample



\* Standard connector

Prisma II products include some of the industry's most complete range of high performance optical components:

For more information please refer to:

- Platform**
- 1310 nm Transmitters**
- 1550 nm Transmitters**
- 1550 nm Optical Amplifiers**
- Receivers**
- bdr™ Digital Reverse 2:1 Multiplexing System**

- Prisma II Data Sheet Part Number 739199
- Prisma II Data Sheet Part Number 739200
- Prisma II Data Sheet Part Number 739201
- Prisma II Data Sheet Part Number 739202
- Prisma II Data Sheet Part Number 739203
- Prisma II Data Sheet Part Number 744484