

Transponder for Prisma® Model 6940/6942/6944 Optical Nodes

Description

This full frequency agile transponder is designed to interface with Scientific-Atlanta's Prisma® Model 6940, 6942, and 6944 Optical Nodes. It is controlled by Scientific-Atlanta's Transmission Network Control System (TNCS) software.

The transponder monitors the operational parameters of the node and allows remote control of certain node functions. Communications to and from the transponder are accomplished via the built in forward RF data carrier receiver and reverse RF data carrier transmitter.



The unit monitors a wide range of operational parameters, including:

- Optical receive power for up to four receivers
- Optical transmit power for up to four transmitters
- RF level of the forward status monitor data carrier
- AC and DC power supply voltages
- Internal station temperature
- Open/closed housing status

If the status of any monitored parameter is outside of established thresholds an alarm can be activated by the centrally located TNCS console. All alarm thresholds are remotely adjustable from the console. The transponder also enables remote control of the reverse "On/-6 dB/Off" RF switches (for remote isolation of ingress) and of the power supply.

The transponder is packaged in an aluminum housing that mounts in the lid of the Model 6940 and 6944 Optical Nodes. The input, output, and power cables that interface between the transponder and node are easily routed and plugged into quick connect sockets. No tools are required to mount the transponder. Once installed, LEDs on the transponder indicate; "Power On", "Receiving Data", and / or "Error" condition.

Features

- "Plug-in" compatibility with the Model 6940, 6942, and 6944 Optical Nodes
- Frequency agile 5 to 65 MHz for reverse path
- Frequency agile 45 to 174 MHz for forward path
- Monitors all critical internal station parameters
- Controls all switches within the node
- Simple and efficient installation
- Wide operating temperature range

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Specifications

Agile Transmitter

Parameter	Specification	Units	Notes
Carrier frequency	5 - 65	MHz	Remotely adjustable
Frequency step size	200	kHz	
Modulation type	FSK	-	
Deviation	± 67	kHz	
Occupied bandwidth	400	kHz	
RF output level	24 to 50	dBmV	Remotely adjustable
Output level step size	2.0	dB	
Level stability	$< \pm 2.0$	dB	Over full temperature and frequency range
Frequency stability	± 7.5	kHz	Over full temperature and frequency range
Spurious and harmonics (5-2000 MHz)	> 55	dBc	
Extinction ratio	> 60	dBc	From operational output level

Agile Receiver

Parameter	Specification	Units	Notes
Receive carrier frequency	45-174	MHz	Remotely adjustable
Frequency step size	200	kHz	
RF input level range	-25 to 20	dBmV	
Selectivity at frequency offset of:			Specifies the amount an adjacent carrier's level can exceed the transponder receive carrier's level at the transponder input, without causing interference
200 kHz	+30	dBc	
400 kHz	+40	dBc	
800 kHz	+50	dBc	

Monitored Parameters

Device	Parameter	Units
Optical Receivers (RX 's 1- 4)	Optical Receive Power	mW / dBm
Optical Transmitters (TX's 1-4)	Optical Transmit Power	mW / dBm
Transponder	RF Input Level	dBmV
Node	Internal Temperature	deg C / deg F
Power Supply	+ 24 V DC Output Voltage	V DC
Power Supply	+ 15 V DC Output Voltage	V DC
Power Supply	- 6 V DC Output Voltage	V DC

Controllable Parameters

Device	Control Variables
Optical RX 1 & 2 Select Switch	Primary / Secondary
Optical RX 3 & 4 Select Switch	Primary / Secondary
Optical RX 1 & 2 Switch Level	0-2mW Optical Receive Power
Optical RX 3 & 4 Switch Level	0-2mW Optical Receive Power
Power Supply Monitor	Monitor 1 / Monitor 2
Primary Optic Restore Time <i>Time primary Optical level must be present before returning to primary</i>	0-255 Seconds

Device	Control Variables
Port 3 Reverse Switch	Normal / -6 dB / Off
Port 4 Reverse Switch	Normal / -6 dB / Off
Port 5 Reverse Switch	Normal / -6 dB / Off
Port 6 Reverse Switch	Normal / -6 dB / Off
Common Reverse Switch	Normal / -6 dB / Off

Environmental Specifications

Parameter	Specification	Units	Notes
Operating Temperature	-40 to +85	°C	
Humidity	0 to 90	%	Non Condensing

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Ordering Information

Description	Part Number
Transponder for Model 6940/6944 Node - one required per optical node.	717600
6940 SMC Thru Jumper Board - one required per optical node. Has SMB connector to allow forward data carrier routing to transponder input. Replaces standard thru jumper board on optical interface board.	590955
Transponder Configuration Cable Kit - one per installation crew. Includes interface cable (connects transponder to laptop computer), software, and instructions.	730169

Related Equipment – TNCS HFC Modem (see HFC Modem data sheet for more information)

Description	Part Number
TNCS Agile RF Modem. Required for RF communications to/from transponder. Includes Chassis, Power Supply, Transmitter, HFC Modem, Receiver, & 50 ft DB-9 Extension Cable. Supports up to 4 additional Receiver/HFC Modem Plug-in Module Sets. Rx: 5.5-31.95 MHz, Tx: 54-88/107-175 MHz	717615
Receiver/HFC Modem Plug-in Module Set. Note: P/N:738667, RF Modem Expansion Kit also required – one per chassis.	717616
RF Modem Expansion Kit - 5 RF Modem Expansion Cables, Port Expander & Port Expander Input Cable	738667
RF Modem Transmitter Plug-in Module Tx: 54-88/107-175 MHz	717617
RF Modem Receiver Plug-in Module Rx: 5.5-31.95 MHz	717618
HFC Modem Plug-in Module	717619
RF Modem Power Supply Plug-in Module	717620
RF Modem Chassis	717621
RF Modem Blank Panel - Single	717622
RF Modem Blank Panel - Double	717623
RF Modem Air-Flow Unit	717624

Related Equipment – TNCS Bundled Computer/Software Packages (see Bundled Packages data sheet for more information)

Description	Part Number
TNCS Headend Bundle A: Includes Host Site License, TNCS Server Software, Rackmount Computer, Rackmount Flip-up Monitor & Keyboard, RS-232 & RS-485 Interface Cards, and RS-485 Cable Kit.	735733
TNCS Headend Bundle B: Includes Host Site License, TNCS Server Software, Rackmount Computer, 17" Monitor, Rackmount Monitor Cabinet, Rackmount Keyboard & mouse, RS-232 & RS-485 Interface Cards, and RS-485 Cable Kit.	735734
TNCS Headend Bundle C: Includes Host Site License, TNCS Server Software, Desktop Computer, 17" Monitor, RS-232 & RS-485 Interface Cards, RS-485 Cable Kit, and Rackmount Shelves (2).	592289
TNCS Hub Bundle A: Includes Hub Site License, TNCS Server Software, Rackmount Computer, Rackmount Flip-up Monitor & Keyboard, RS-232 & RS-485 Interface Cards, and RS-485 Cable Kit.	735737
TNCS Hub Bundle B: Includes Hub Site License, TNCS Server Software, Rackmount Computer, 17" Monitor, Rackmount Monitor Cabinet, Rackmount Keyboard & mouse, RS-232 & RS-485 Interface Cards, and RS-485 Cable Kit.	735738
TNCS Hub Bundle C: Includes Hub Site License, TNCS Server Software, Desktop Computer, 17" Monitor, RS-232 & RS-485 Interface Cards, RS-485 Cable Kit, and Rackmount Shelves (2).	592290
TNCS Single Client Laptop Bundle: Includes TNCS Client software, Laptop Computer, and Installation Phone Support.	717608
TNCS Single Client Desktop Bundle: Includes TNCS Client software, Desktop Computer, and Installation Phone Support.	717610



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