Taikan

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USER MANUAL

Single Fiber Optical Node

Please read this manual thoroughly before use.
Retain this manual for future reference.

Taikan Single Fiber Optical Node Owner's Manual

This manual is intended for use by purchasers of Taikan's family of single port optical mini nodes and their qualified technicians. This document is the property of Taikan Company Inc. ("**Tai**kan") and embodies proprietary subject matter. All design, manufacture, reproduction, use and sale rights regarding these products are expressly reserved. This manual may not be reproduced without written consent from Taikan. All copyright, patent and trade secrets for this manual and products are expressly reserved by Taikan. Specifications are also subject to change without notice.

SAFETY PRECAUTIONS

Please be cognizant of all safety guidelines and adhere to the recommendations listed.

> Read the user manual carefully before proceeding with any part of the product.

> Installation and operation of the product must be performed only by qualified personnel and always in accordance with applicable electrical codes.

> Unplug the product from the power outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth. For the optical connector, it is recommended that you use Greenlee Communications' 948 fiber connector cleaner.

> Do not block or cover openings. These are provided for ventilation and protection from overheating. The maximum operating temperature is 50°C (122°F).

> This product should be operated only from the type of power sources indicated on the marking label.

> This product may be equipped with a polarized AC line plug (i.e. a plug having one blade wider than the other or a different shape). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug into the outlet, try reversing the plug. Contact your electrician to replace the obsolete outlet if this still does not work. Do not compromise the safety purpose of the polarized plug.

> For added protection during a lightning storm or when the equipment is left unattended or unused for long periods, unplug it from the power outlet and disconnect the cables between the equipment and the fiber subsystem. These precautions will prevent damage to the equipment that could be caused by lightning strikes or power line surges.

> Do not attempt to service this equipment yourself as opening or removing the cover may expose you to dangerous voltages or other hazards. Refer all servicing to Taikan. A Taikan representative can be reached at support@taikan.com or call 1-800-255-0247.

> Notify a Taikan representative at support@taikan.com if any parts need to be replaced.

> Unauthorized alteration or inappropriate repair is NOT allowed and may cause irreparable damage to product. Taikan does not assume any responsibility for these modifications.

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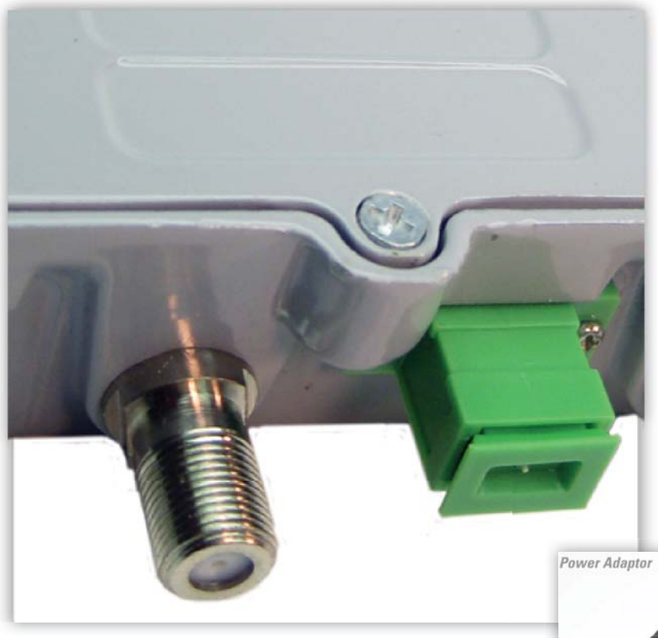
// INTRODUCTION



PRODUCT SUMMARY

Taikan's OFCNS is a compact fiber optic node designed for applications including: FTTC, FTTH, PON, HFC architectures. The unit is available with various return path transmitters and utilizes WDM to allow for single port functionality. In addition the RFoG node version has the built in burst functionality. The OFCNS-x-x-x-x-x (an optical mini node) bi-directionally converts fiber signals to RF signals for distribution throughout a client's premises and back. The OFCNS unit is available with a FP or DFB laser type, SC/APC or FC/APC connector, 1 or 2 mW output power.

STANDARD FEATURES

- RFoG ready**
- 1 GHz Frequency Design
- Single Fiber Transport Forward and Return Signals
- Compact Aluminum Alloy Housing for Easy Installation
- Output Level 17-19 dBmV with -4 dBm Optical Input
- -20 dB Test Points for Forward and Return Testing
- RF Power Port or Through Designated F Port (via Power Inserter)
- FP or DFB Return Transmitter Lasers Available
- Power Adapter Included

**B: Burst Mode Option (Required for RFoG)

NOMINAL SPECIFICATIONS

Optical Receiver (Downstream)

Optical Wavelength	1300 - 1320 or 1540 - 1565 nm	
Input Optical Power	-8 dBm	0 dbm
Optical Connector Type	SC / APC	

Optical Return Transmitter (Upstream)

Wavelength	1310 nm - 1610 nm*
Laser Type	Fabry-Perot (FP) or DFB
Optical Output Power	2 - 4 dBm
Optical Return Loss	50 dB

**31, 47, 49, 51, 53, 55, 57, 59, 61 Transmit Wavelength (1xx0 nm)*

RF / Optical Receiver (Downstream)

Forward Frequency Range	47/54/70/85 - 1002 MHz
RF Output Level (@ -4 dB Input OMI = 3.7%)	17 - 19 dBmV
Flatness	± 1 dB
Output Return Loss	> 16 dB F port at 75 Ohms
Distortion Testing (@ -4 dBm Optical Input)	
CNR	> 48 dB
CSO	> 60 dB
CTB	> 65 dB

RF/Return Transmitter (Upstream)

Frequency Range	5-30/42/55/65 MHz
Flatness	± 1.0 dB
Return Loss	> 16 dB
Input Level	20 - 45 dBmV
Turn On Threshold	10 dBmV

SECTION TWO

// UNPACKING

UNPACKING

Carefully open the package and adhere to all safety guidelines outlined in the safety section. Check the packaging material for the following components.

> OFCNS Optical Mini Node
> User Manual
> Power Adapter
> (2) 2cm long mounting screws

It is highly recommended that the cover be left on the optical connector until you are ready to install the optical node at the client's premises. Not complying could "pollute" the connector thereby compromising the transmission quality.
The side effects include:

> Decrease in analog signal transmission quality
> Increased incorrect data rate for the digital signal
> Decrease in optical power
> Compromise of optical receiver's optical power
> Pollution of the other optical components

Please notify your Taikan representative (support@taikan.com) if any of the items appear lost or damaged.

STATIC SENSITIVITY

When opening or operating the product, please comply with standard static protection procedures, such as using a grounding metal wrist belt, grounding work top and grounding conductor. Adhering to these guidelines will minimize the risk of damaging the product.

SECTION THREE

// INSTALLATION

MINI NODE PLACEMENT

The optical mini node is designed to fit in a cabinet mounted on the exterior of a client's premises.

It is recommended that the mini node be placed in an environment that maintains a temperature of approximately 25° C (77°F).

GROUND CONNECTION

The optical mini node should have good grounding with a resistance < 4 Ohm. According to international standards, the 220 V plug-in adopts tri-wire rule, while the middle wire is the grounding wire.

To ground the optical mini node, insert a #6 - #14 gauge grounding wire in the hole at the top left edge of the unit. Secure it in place by tightening the seizure screw with a #2 Phillips head screwdriver. When using the DC input power supply, the equipment chassis must be grounded.

NOTE TO CATV SYSTEM INSTALLERS: This reminder is provided to call your attention to NEC Articles 810- 21, 820-22, and 820-40 that provide guidelines for proper grounding. In particular, these articles specify that the cable ground shall be connected to the building grounding system, as close to the point of cable entry as practical.

ELECTRICAL CONNECTION

To power the Optical Mini Node, prepare a length of coaxial cable with a male F-type connector at each end. Connect the power supply included with the Mini Optical node to the PWR in the side port.

When attaching the power supply, make sure to adhere to all standard safety practices.
Plug the wall adapter into a power outlet. The PWR on light will be lit when the power supply is successfully connected.

RF CONNECTION

Connect the RF cable and the connector on the optical mini node's RF output port. The RF Connector is a F type plug with a resistance of 75 Ohm.

OPTICAL CONNECTION

Connect the output fiber optic jumper to the proper input connector socket. The connector type is SC/APC.

SECTION FOUR

// OPERATION & TROUBLE SHOOTING

OPERATION

> The working status indicator (LED) will be lit when the unit is operating correctly.

> The LED status is indicated below:

> Light is green: Laser operation is OK

> Light is red: Laser output is below 50%

TROUBLE SHOOTING

> If the signal within the client's premises is scrambled or otherwise unclear, detach the SC/APC connections and clean per manual instructions. Reconnect, then power on the unit.

> If the LED is not lit, check all connections and wiring between electrical socket and optical node unit.

SECTION FIVE

// RETURN & WARRANTY

PRODUCT RETURN PROCEDURE

Follow these steps if you need to return the product for repair:

1. Contact a Taikan Representative at support@taikan.com to obtain a Return Authorization Number.

2. When sending back the product for repair please include the following information:

> Return Authorization Number

> Model Number

> Serial Number

> Reason for Return

3. Prior to repairing the device, we will inform you about the test results and any additional repair charges that may apply (in the event the damage was caused by improper handing/care). Once we have received your confirmation we will proceed with the repair.

4. The repair period will depend on the severity of the problem.

5. The product will still be under warranty after it is returned. The repair component is covered for 90 days after you have received the product. *(see below)*

STANDARD TAIKAN PRODUCT WARRANTY

Taikan Company Inc. provides a Limited 1 year Warranty ("Warranty") to original purchaser on its product against manufacturing defect and workmanship under normal use and service. Taikan Company Inc. will, during the Warranty period, repair or replace the product to correct defects in material and workmanship. *(Please note, fiber products carry a limited 3 year warranty)* 1 year parts and 2 years labor.

This Warranty shall not apply to a product which has been altered in any way so as to effect its stability or durability, nor which has been subject to misuse or negligence. This Warranty does not cover a product which has been damaged by severe weather conditions such as extreme wind, ice, storms, lightning, or other natural weather conditions over which Taikan Company Inc. has no control.

Claimants under this Warranty shall present their claim along with the defective product to Taikan Company Inc. Non-compliance with any part of this claim procedure may invalidate this Warranty in whole or in part.

This Warranty is expressly in lieu of all other agreements and warranties, expressed or implied.