

Taikan Company Inc

Networking the world

ON-860-4-x-x-R-x

Optical Node

User Manual



Fiber

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

TAIKAN 4 PORT OPTICAL NODE OWNERS MANUAL

This manual is intended for use by purchasers of ON-860-4-x-x -R-x Optical Node and their qualified technicians. This document is the property of Taikan Corporation (Taikan) 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 product are expressly reserved by Taikan.

SAFETY PRECAUTIONS

Taikan Company strongly advises you to read and understand all safety instructions prior to installing or operating the ON-860-4-x-x-R-x

1. Read instructions

All the safety and operating instructions should be read before the product is operated

2. Retain instructions

The safety and operating instructions should be retained for future reference.

3. Heed warnings

All warnings on the product and in the operating instructions should be adhered to.

4. Follow instructions

All operating and use instructions should be followed.

5. Power

The optical input power must not be more than 3mW(4.8dB), otherwise the optical receiving module may be damaged.

6. Ventilation

Install the optical node in a well ventilated location.

7. Grounding or Polarization

Make sure to adhere to proper grounding practices to ensure the optical node is not damaged from lightning and extraordinary high voltage.

8. Servicing

Do not attempt to service this equipment yourself as opening or removing covers may expose you to dangerous voltage or other hazards, refer all servicing to Taikan Company. A Taikan representative can be reached at support@taikan.com

9. Optical Output Safety, General.

The Optical Node may emit harmful invisible laser radiation when the product is powered on or the case is opened to expose the beam path.

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I. Product Features & Benefits

- Four high level output ports with GaAs power double amplifier module.
- 15 ampere current capacity (steady state) and 25 ampere surge survivability
- Surge resistant circuitry ensures gain stage protection without fuses or from failure causing devices.
- 40-90V AC high efficiency switch mode power supply.
- Standard fiber management tray provides fiber and connector storage for up to 6 connector pairs.
- Select 1, 2, or 4 reverse path optical transmitters
- Local test points and LED indicators on optical receivers, and transmitters simplify installation and maintenance.
- Optical status monitoring and control.
- The ON-860-4-x-x-R-D-x launch amplifier uses fixed-value plug-in accessories.
- Forward output test point and reverse input test point for each port on the launch amplifier ensures optimum design and alignment.
- FP or DFB Reverse transmitter options available

II. Optical Nodes from Taikan

Model Number	Description
ON-860-4-1-X-R-X	4 port, 1 Reverse Transmitter, FP or DFB, 1 Receiver, 42/54 or 65/85
ON-860-4-2-X-R-X	4 port, 2 Reverse Transmitter, FP or DFB, 1 Receiver, 42/54 or 65/85
ON-860-4-4-X-R-X	4 port, 4 Reverse Transmitter, FP or DFB, 1 Receiver, 42/54 or 65/85
ON-860-2-0-R-BD	2 port optical node

III. Specifications

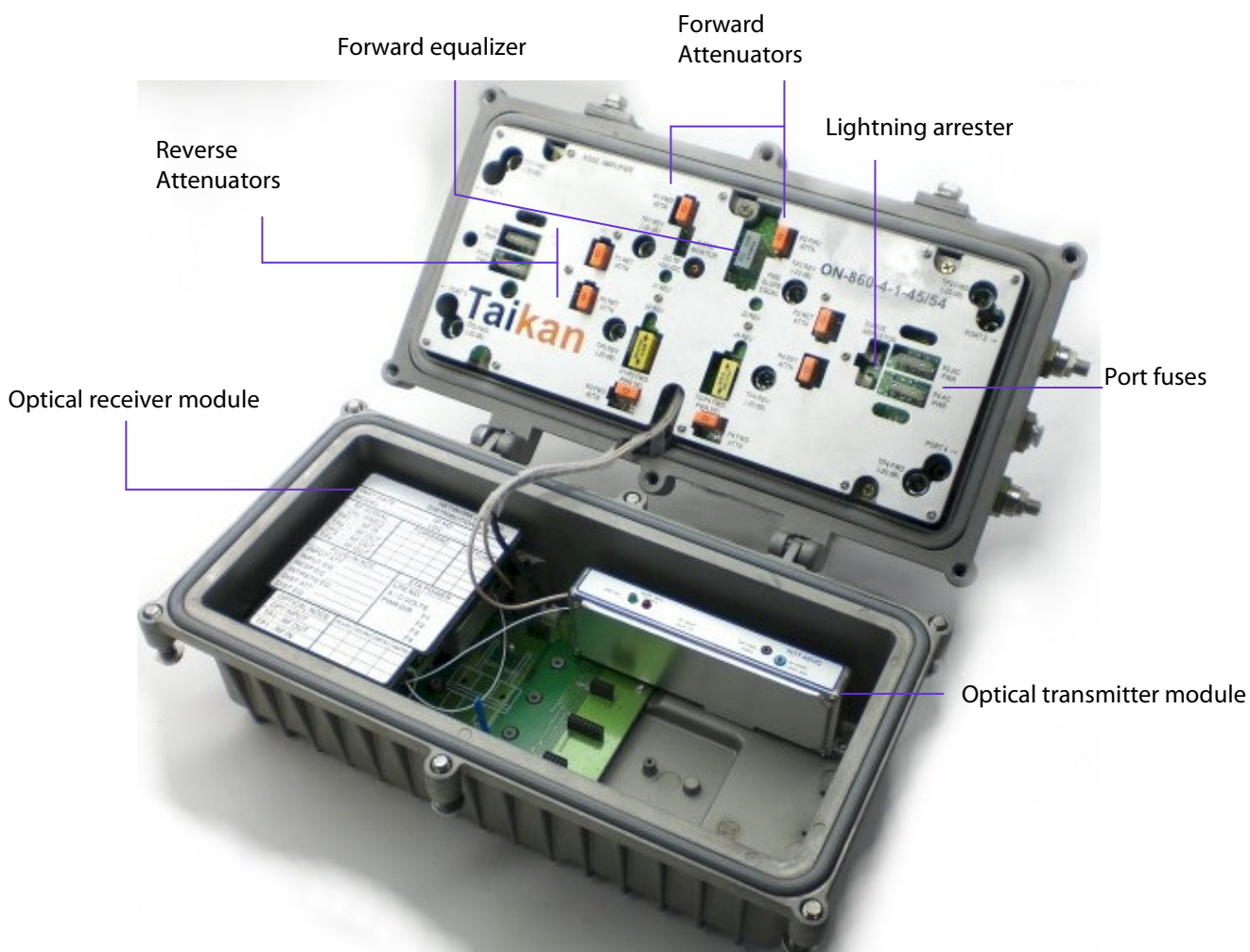
Forward Optical Receiver Module		Units
Optical wavelength	1000~1600	nm
Input optical reflection loss	>45	dB
Photoelectric module response	0.85	A/W
Max optical input power	3	mW
Optical input test point	1±0.2	V/mW
RF Amplifier Characteristics		
Forward bandwidth (option)	54-860 or(85-860)	MHz
Frequency Response	0.5	dB
Noise Figure	< 9.5	dB
Output Reflection Loss	> 16	dB
Output Level	107	dBuV
Distortion: CTB	<-72	dBc
Distortion: CSO	<-68	dBc
Test Level	77 Analog Channels +200 MHz Digital	
	-20	dB

Section 1: Introduction

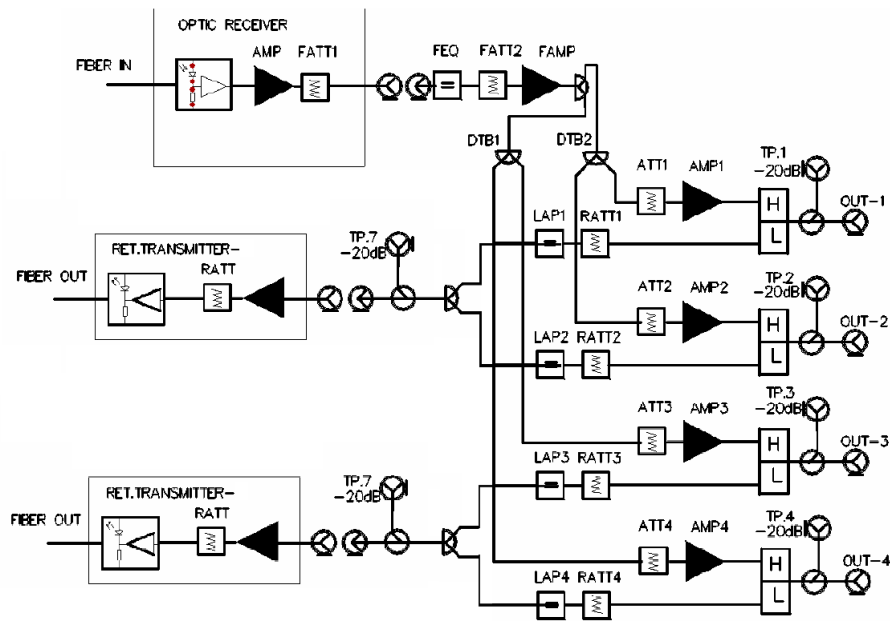
Return Optical Transmission (option)			
Bandwidth (option)	5-42 or (5-65)		MHz
Duplex Filter (option)	42/54 or (65/85)		MHz
Optical Output Power Level	FP: 1	DFB: 2	mW
Wave Length	FP: 1310	DFB: 1310	nm
Optical Connector	SC/APC		
Optical output test point	1		V/mW
Electrical Characteristics			
Voltage	40-90		VAC
Frequency	47-63		Hz
Power consumption	70 watts typical, 94 watts maximum		W

FP Advantage: Economical and ideal for less stringent performance systems

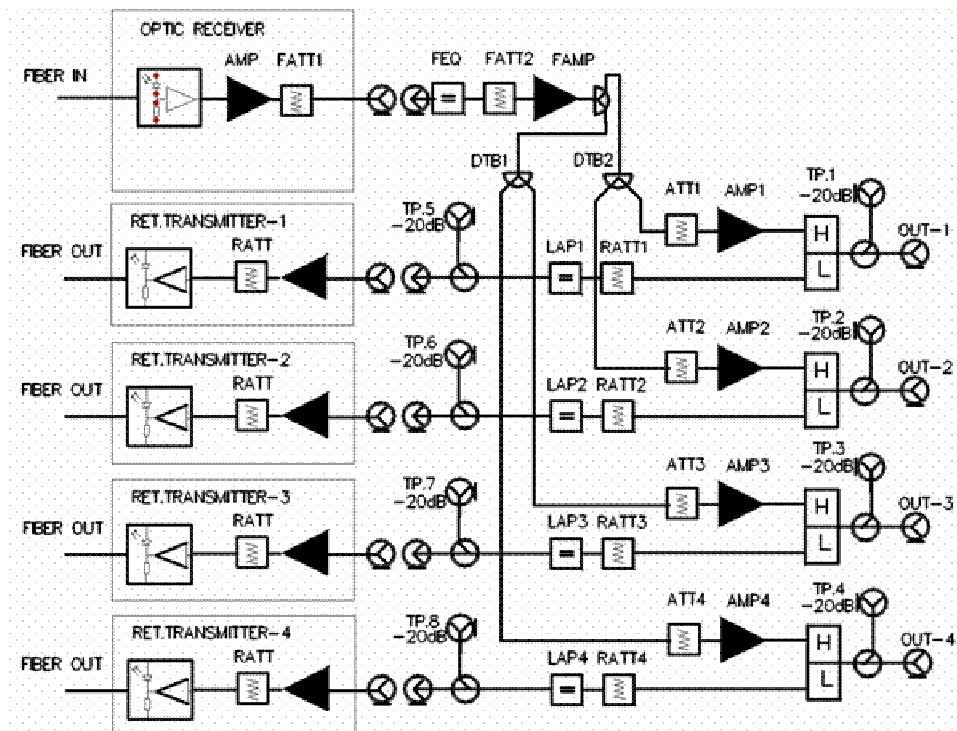
DFB Advantage: Designed for high capacity reverse traffic and analog video carrier transmission



ON-860-4-2-X-R-X Schematic



ON-860-4-4-X-R-X Schematic



Section 3: Installation & Operation

I. Unpacking the Unit

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

- ON-860-4-X-R-BD Optical Receiver
- Optical transmitter module (1)*
- Optical receiver module (1) *
- 25 ampere current fuse (4)
- 25 ampere discharge
- Surge resistance (option)
- Fixed attenuator (0dB) (8)
- Fixed Equalizer (0dB)
- User Manual

***one default unit unless otherwise specified at the time of ordering**

II. Connecting the Power Supply

Insert the relative fuse into the port you want to connect to the power supply. (refer to the diagram on the previous page: fuse 1 corresponds to PORT 1 and fuse 2 corresponds to PORT2)

III. Inserting the optical output signal

The transmitter will be activated after the power supply (40VAC to 90VAC has been attached). Use a piece of lens paper dipped in absolute alcohol to clean the input connector and optical adaptor prior to joining them together. Doing so, will ensure that the input power is below 3dBm. Once the input connector and optical adaptor are connected, the green LED on the optical receiver module will turn on.

To measure the optical power, attach one connector on your multi-meter to ground and the other to the testing point OPT.LVL. If the voltage measured is more than 2V and less than 0.4V you should consider reducing or increasing the optical input power. Not doing so will damage the optical node and compromise the SNR. The red LED light will also come on for your reference.

IV. Adjusting the forward output signal level

All output characteristics are measured to a specified output level of 106dBuV when the input power is at 0dBm. You can measure the output signal level by using an electric field instrument. (Note: there is a forward test point which level is -20dBc lower than the real port at each port). Change the corresponding attenuator to make the output level to be at 106dBuV. If you want to reach pre-equalization, change the equalizer.

note: normally the lowest frequency band is 9dB less than 870MHz.

V. Adjusting the reverse input signal level.

Note in the figure on previous page, there is a reverse test point with level -20dBc lower than the real port at each port. You may use an electric field instrument to confirm the difference in the input signal level. Change the corresponding attenuators to adjust the input levels to equal values. You can adjust the driver level attenuators on the optical transmitter module to reach your desired depth of modulation.

note: there is a reverse test point which level is -20dBc lower than the real port at this module.

Section 4: Transmitter Module

Up to 4 transmitter modules (ordering options include: one, two or four modules) can be added to the ON-860-X-R-BD Optical Node.

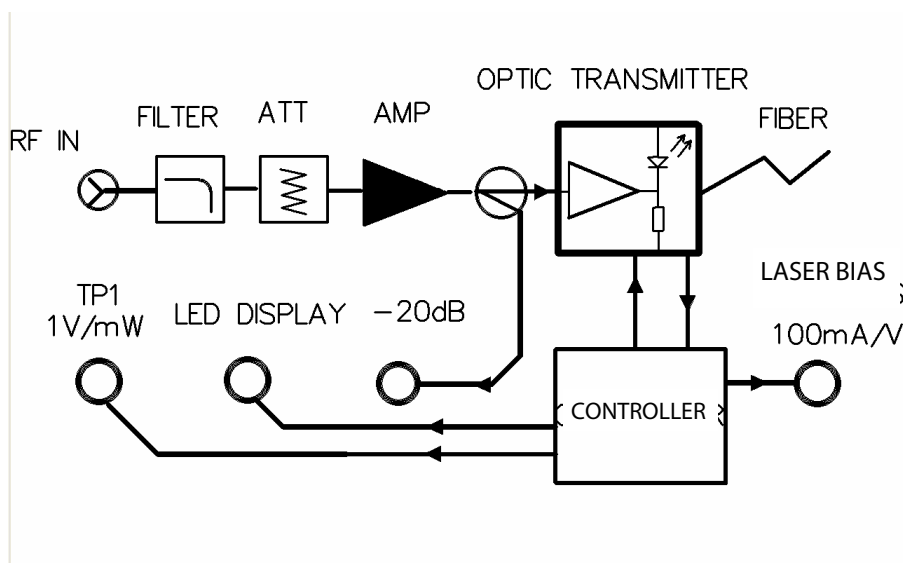
Please ask a Taikan representative at the time of ordering for pricing information on the extra transmitter.



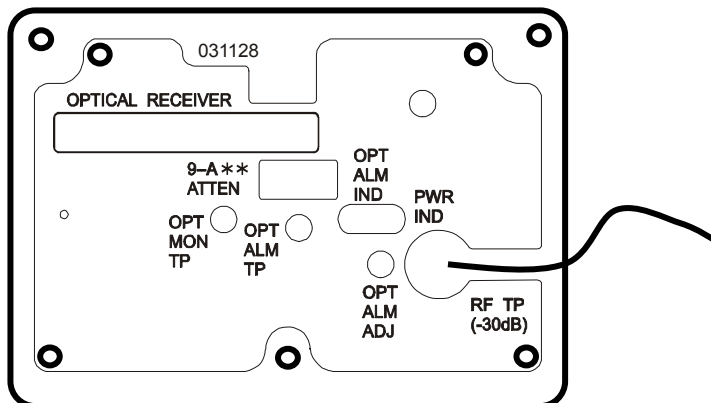
I. Technical data

Length of optical wave	1310±30nm
Optical power (option)	1,2 mW
Frequency Band (option)	5~42MHz / (5~65MHz)
Optical output power test point	1V/mW
Laser current test point	100mA/V
RF input level	65~95dBuV
Level adjust ranger	0~20dB
Return loss (impedance 75 Ω)	≥16dB
Frequency response	±0.5dB
RF driver level test point	-20dB (±1.0dB)
Input Voltage	DC24V
DC current	≤150mA
Operating temperature	-20°C~60°C

II. Schematic Diagram



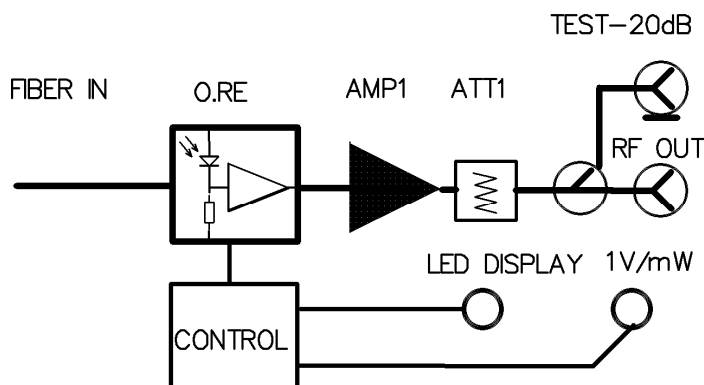
Section 4: Receiver Module



I. Technical data

Length of optical wave	1290~1600nm
Input optical level	-4~+3dBm
Optical input return loses	≥45dB
Equivalent noise input	≤7pa/Hz
Optical input power test point	1V/mW
Frequency band	54~870MHz
Return loss (Impedance 75)	≥14dB
Frequency response	±0.75dB
Frequency output test point	-20dB(±1.0dB)
Input voltage	DC24V
DC current	≤250mA
Operating temperature	-20°C~60°C

II. Schematic diagram



Section 5: Warranty Information

Return Procedure

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

- 1.) When sending back the product for repair please include the: Return Authorization Number, Model Number, serial number and cause for the return. You can obtain the Return Authorization Number from any Taikan representative.
- 2.) Prior to repairing the device, we will inform you about the test results and any additional repair charges (in the event the damage was caused by improper handling/care). Once we have received your confirmation we will proceed with the repair.
- 3.) The repair period will depend on the severity of the problem
- 4.) The product will still be under warranty after it is returned. The repair component is good 90 days after you have received the product.

Standard Taikan Product Warranty

Taikan Company Inc. provides a Limited 1 Year Warranty ("Warranty") to original purchaser on its product against manufacture 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 affect 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 unit to Taikan Company Inc. Immediately. Non compliance with any part of this claim procedure may invalidate this Warranty in whole or part.

This Warranty is expressly in lieu of all other agreements and warranties, expressed or implied. Taikan Company Inc. does not authorize any person to assume for it the obligations contained in this warranty and neither assumes nor authorizes any person to assume for it the obligations contained in this warranty and neither assumes nor authorizes any representative or other person to assume for it any other liabilities in connection with the product delivered or provided.

In no event shall Taikan Company Inc. be liable for any loss of profits, loss of use, interruption of business, or indirect, consequential damages of any kind. Taikan Company Inc. will not be liable for damages in any amount greater than the purchase price of the product.

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Specifications are subject to change without notice