

FT-HHRX-1000-SC-MINI-V2 CATV FTTH Receiver User Manual





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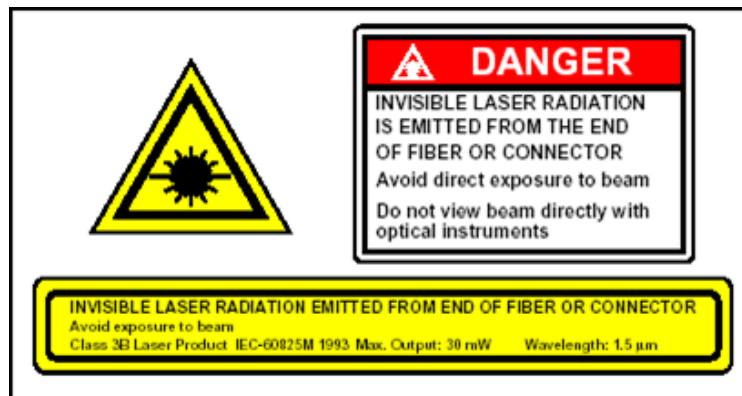


Preface

This manual is designed for FT-HHRX-1000-SC-MINI-V2 CATV fiber optic receiver with detailed description of product feature, specification and installation. To install this receiver successfully and use it safely, users must read the manual before installation, and perform the installation and adjustment according to this manual. Otherwise, some practices may lead to property damage or personal injury. Please contact North American Cable Equipment if you have any questions.

Important User Information

- **Caution:** There are invisible laser beams from Optical output ports, which may cause permanent injury to skin or eyes.
- UPS power supply and air condition environment are highly recommended for the stable and long term optical receiver operation.



Chapter 1 Overview

FT-HHRX-1000-SC-MINI-V2 is designed to receive FTTH 1310nm/1550nm analog TV or QAM RF optical signal from Passive Optical Network (PON). With a built-in low-noise amplifier and AGC circuit, FT-HHRX-1000-SC-MINI-V2 outputs high quality CATV RF for TVs in the residential premises.

Chapter 2 Features

- Compact plastic flame retarding housing
- High Linearity Photodiode for CATV RF
- 45 - 1000MHz (downstream) RF Output (45 - 1218MHz optional)
- Optical AGC range: -10dBm - 0dBm
- Optional MGC range: 0 - 15dB
- DC Power and optical input LED indicator
- 12V DC power adapter



Chapter 3 Specifications

RF and Optical Characteristics	
Item	Parameter
Input CATV Optical Wavelength	1260nm - 1650 nm (1550nm - 1560nm only on Request)
Working Optical Power	-8dBm - +2dBm (Analog TV RF), -15dBm - +2dBm (DVB-C QAM RF)
Optical AGC Range	10dBm - 0dBm
Optical Connector	SC/APC
Optical Return Loss	45 dB
RF Bandwidth	45 - 1000 MHz (1218MHz optional)
RF Connector	American F
RF Output Impedance	75Ω
RF Output Level	>76dBμV@-8dBm (No MGC)
MGC Range	0~15dB (Optional)
RF Flatness	± 1.0dB (45-1000MHz)
RF Return Loss	>14 dB
CNR	>46 dBc @ -6dBm (Analog TV RF)
CSO	<-63 dBc @77ch NTSC (Analog TV RF)
CTB	<-63 dBc @77ch NTSC (Analog TV RF)
MER	>34 dB @ -12dBm (BER: <1.0E-9)
Power LED	Green when DC power is ON
Optical Input LED	Red (<-15dBm) Green (-15dBm - +2dBm)
Environment	
Power Supply	12 V 0.5A (UL or CE approved)
Power Consumption	<2W (not including power adapter)
Working Temperature	14 - 122°F (-10 - +50°C)
Board Dimension (L*W*H)	4.17 x 2.44 x 0.98" (106 x 62 x 25mm)
Weight (without power adapter)	0.44 lbs. (200g)
HDMI Output	1080p/60Hz, 720p/60Hz
Warranty	1 year - Can be extended to 3 years



FT-HHRX-1000-SC-MINI-V2 Optical Receiver Test Results in MER		
Optical Rx Input	Output RF Level	MER(dB)
+2dBm	79dB μ V	38.8
+1dBm	79dB μ V	38.8
+0dBm	78dB μ V	38.8
-1dBm	78dB μ V	38.8
-2dBm	78dB μ V	38.7
-3dBm	78dB μ V	38.6
-4dBm	78dB μ V	38.6
-5dBm	78dB μ V	38.5
-6dBm	78dB μ V	38.5
-7dBm	78dB μ V	38.5
-8dBm	78dB μ V	38.4
-9dBm	78dB μ V	38.2
-10dBm	77dB μ V	38.1
-11dBm	75dB μ V	37.8
-12dBm	73dB μ V	37.7
-13dBm	71dB μ V	37.5
-14dBm	69dB μ V	37.3
-15dBm	67dB μ V	37.1
-16dBm	65dB μ V	35.9
-17dBm	63dB μ V	34.8
-18dBm	62dB μ V	33.5

Test condition: 80ch DVB-C, 64QAM, Transmitter OMI 4.0%



Chapter 4 Function Guide



- | | |
|--|--------------------------|
| 1. Optical Input SC/APC connector | 5. LED for Optical Input |
| 2. Optical connector to ONU (optional) | 6. RF Output port |
| 3. DC power adapter | 7. MGC Port (optional) |
| 4. LED for Power Supply | |

LED	Function
PWR	Green LED ON when DC power is ON
OPT	Green LED ON when optical input power $\geq -15\text{dBm}$

Chapter 5 Installation & Adjustment

5.1 Opening the cover

- 5.1.1 Inspect the package. If there is any damage, please contact North American Cable Equipment.
- 5.1.2 After unpacking, check equipment and accessories according to the packing list. Any question, please contact North American Cable Equipment.
- 5.1.3 If you think the equipment has been damaged, please do not power on the device as it may cause more damage. Please contact North American Cable Equipment.

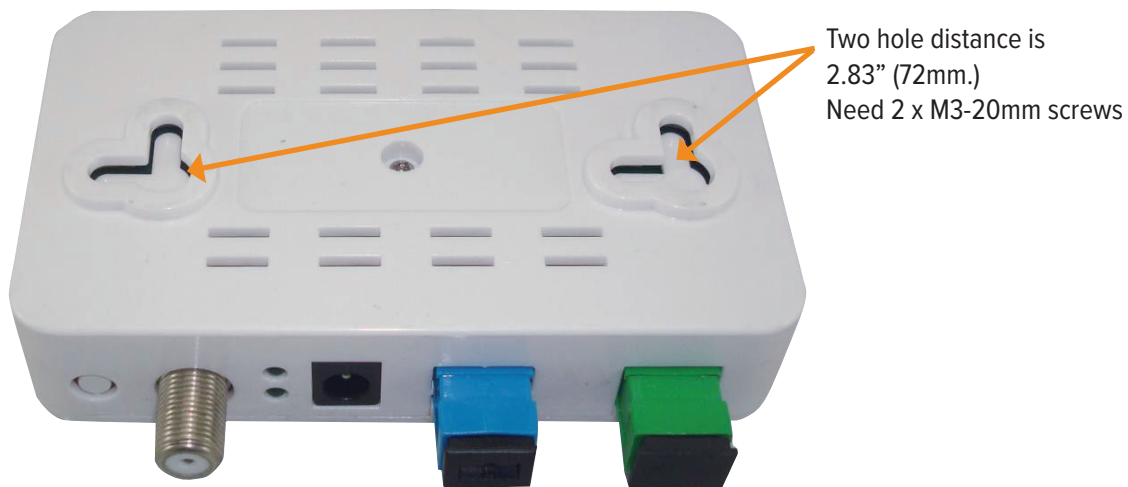
5.2 Apparatuses & Tools

- An optical power meter
- A digital multimeter
- A standard fiber test jumper (SC/APC)
- Waterless alcohol and nosocomial degrease cotton



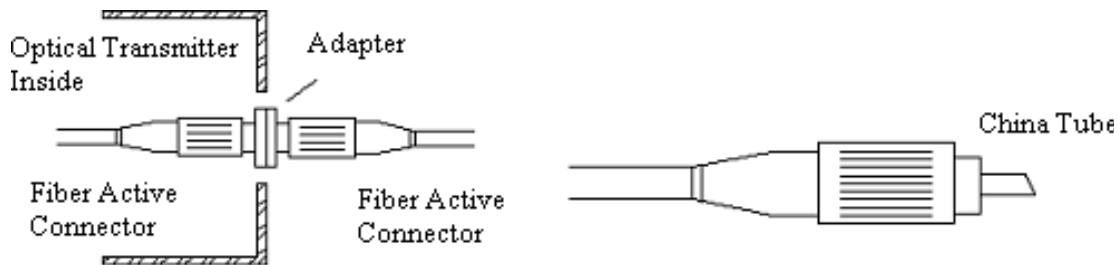
5.3 Installation

- 5.3.1 Receiver easily attaches to the wall using the mounting holes on the rear of the device.
- 5.3.2 Check 12V voltage by digital multimeter in accordance with power requirement. . Then plug in DC power adapter. FT-HHRX-1000-SC-MINI-V2 can be powered by 10-18V DC power adapter. When DC power is ON, the DC power LED shall be Green.
- 5.3.3 Check the input power to FT-HHRX-1000-SC-MINI-V2 optical receiver (higher than -15dBm@1550nm). Make sure that the fiber connector to FT-HHRX-1000-SC-MINI-V2 is SC/APC or the required connector. The OPT LED will be Green when the input optical power is higher than -15dBm.
- 5.3.4 Connect FT-HHRX-1000-SC-MINI-V2 with coaxial cable to TV or DVB-C STB.



Chapter 6 Cleaning & Maintenance

Each fiber connector may be polluted by dust or dirt in the operation process, which can result in increased optical link loss. If optical receive power and output level of the receiver decline, you should clean and maintain fiber active connector. The clean methods are recommended below:



- Carefully screw off fiber active connector from the adapter and avoid the fiber active connector with laser to aim at any human body or eye.
- Using a nosocomial degrease alcohol cotton patch, carefully cleanse the fiber, allowing 1-2 minutes for connection to air dry.
- Ensure connection is properly secured to avoid damage to the fiber connector.
- If optical power is still low after cleaning , it is recommended to clean the other end of the fiber optic cable. If optical power is still low after cleaning both ends, it is recommended to use an OTDR to ensure there are no faults in the fiber run.

Notice:

- Avoid looking into any active fiber optic connection, as damage to the eye may occur. Unless you are able to see both ends of the fiber cable, assume the connection is live2. Assembly the fiber adapter in a proper way with gentle action to prevent the china tube inside the adapter from breaking up.





Chapter 7 Customer Service

- a. In the event that there is a failure with the equipment, please contact North American Cable Equipment.
- b. To avoid further damage, repairs should only be done by qualified individuals

Notice: Any unauthorized removal of the security seal will void the warranty

FIBERTRONIX 1-Year Limited Warranty

FIBERTRONIX. (the “Company”) warrants to the Original Purchaser that the item purchased is free from defects in workmanship or material under normal use. This warranty starts on the date of shipment of the hardware to the Original Purchaser.

During the warranty period, the Company agrees to repair or replace, at its sole option, without charge to Original Purchaser, any defective component. To obtain service, the Original Purchaser must return the item to the Company properly packaged for shipping. All defective products must be returned to the Company within thirty (30) days of failure. Products must be returned with a description of the failure and Return Merchandise Authorization (RMA) number supplied by the Company. To receive a RMA number and a return shipping address on where to deliver the hardware, call 610-429-1821. The shipping, and insurance charges incurred in shipping to the Company will be paid by Original Purchaser, and all risk for the hardware shall remain with the Original Purchaser until such time as Company takes receipt of the hardware. Upon receipt, the Company will promptly repair or replace the defective unit, and then return said unit to Original Purchaser, shipping prepaid. The Company may use reconditioned or like-new parts or units, at its sole option, when repairing any hardware. Repaired products shall carry the same amount of outstanding warranty as from original purchase. Any claim under the warranty must include dated proof of purchase or invoice. In any event, the Company’s liability for defective hardware is limited to repairing or replacing the hardware.

This warranty is contingent upon proper use of the hardware by Original Purchaser and does not cover: if damage is due to Acts of God (including fire, flood, earthquake, storm, hurricane or other natural disaster), accident, unusual physical, electrical, or electromechanical stress, modifications, neglect, misuse, operation with media not approved by the Company, tampering with or altering of the hardware, riot, war, invasion, act of foreign enemies, hostilities (regardless of whether war is declared), civil war, rebellion, revolution, insurrection, military or usurped power or confiscation, terrorist activities, nationalization, government sanction, blockage, embargo, labor dispute, strike, lockout or interruption or failure of electricity, air conditioning, or humidity control, Internet, network, or telephone service.





The warranties given herein, together with any implied warranties covering the hardware, including any warranties of merchantability or fitness for a particular purpose, are limited in duration to one year from the date of shipment to the Original Purchaser. Jurisdictions vary with regard to the enforceability of warranty limitations, and you should check the laws of your local jurisdiction to find out whether the above limitation applies to you.

The Company shall not be liable to your for loss of data, loss of profits, lost savings, special, incidental, consequential, indirect, or other similar damages arising from breach of warranty, breach of contract, negligence, or other legal action even if the Company or its agent has been advised of the possibility of such damages, or for any claim brought against your by another party. Jurisdictions vary with regard to the enforceability of provisions excluding or limiting liability for incidental or consequential damages. You should check the laws of your local jurisdiction to find out whether the above exclusion applies to you.

This warranty allocates risks of product failure between Original Purchaser and the Company. The Company's hardware pricing reflects this allocation of risk and the limitations of liability contained in this warranty. The warranty set forth above is in lieu of all other express warranties, whether oral or written. The agents, employees, distributors, and dealers of the Company are not authorized to make modification to this warranty, or additional warranties binding on the Company. Accordingly, additional statements such as dealer advertising or presentations, whether oral or written, do not constitute warranties by the Company and should not be relied upon.

This warranty gives you specific legal rights. You may also have other rights which vary from one jurisdiction to another.

