

F. FIBER OPTIC DOWNSTREAM RECEIVER

RF

Frequency Range	54 to 1002 MHz; 70 to 1002 MHz; 85 to 1002 MHz
Output Level	21 dBmV @ -4 dBm optical input, 80 NTSC channels and 300 MHz digital loading, -6 dB relative to analog loading

OPTICAL

Bandwidth	1200 to 1620 nm
Input Power	-6 to +2 dBm
Connector	SC/APC - standard (Other types available)
Return Loss	> 55 dB with UPC connector; > 60 dB with APC connector

LINK PERFORMANCE

CNR	> 51 dB @ -1 dBm optical input
CSO	< -65 @ -1 dBm optical input
CTB	< -67 @ -1 dBm optical input
Impedance	75 Ohms
Output Return Loss	> 16 dB
Flatness	±1 dB

G. FIBER OPTIC UPSTREAM TRANSMITTER *

OPTICAL

Output Power	FB: 0 dBm; DFB: +3 dBm
Connector	SC/APC - standard (Other types available)
Return Loss	> 55 dB with UPC connector; > 60 dB with APC connector

RF

Frequency Range	5 to 42 MHz, 5 to 55 MHz, 5 to 65 MHz
Input Level	25 dBmV / Ch
Input Return Loss	> 16 dB
RF Gain Flatness	± 1.5 dB

RETURN INSERTION

Frequency Range	5 to 500 MHz
Input Level	35 dBmV / Ch
Input Return Loss	> 16 dB
RF Gain Flatness	± 1.5 dB

LINK PERFORMANCE

	FP Laser (4 Ch Loading)	DFB Laser (16 Ch Loading)
CNR	≥ 48 dB	≥ 51 dB
CSO	≤ -55 dBc	≤ -60 dBc
CTB	≤ -55 dBc	≤ -60 dBc

* Not applicable to **Receiver Only** configuration.

H. ELECTRICAL / ENVIRONMENTAL / MECHANICAL

Test Points	-20 dB forward output & return input
Power	15 VDC / 500 mA F-type connector AC / DC power adapter to PWR input or RF output with optional power inserter
Surge Withstand	IEEE C62.41-1991 Cat. A3 (6 KV) for all ports
F Ports	Conform to SCTE 01 2006, sealed to hold 15 psi
Operating Temperature	-40 to +60 °C (-40 to +145 °F) ambient
Humidity	Up to 95% non-condensing
Dimensions (W x H x D)	152 x 91.5 x 33 mm (6 x 3.6 x 1.3 in)
Weight	435 g (14 oz)

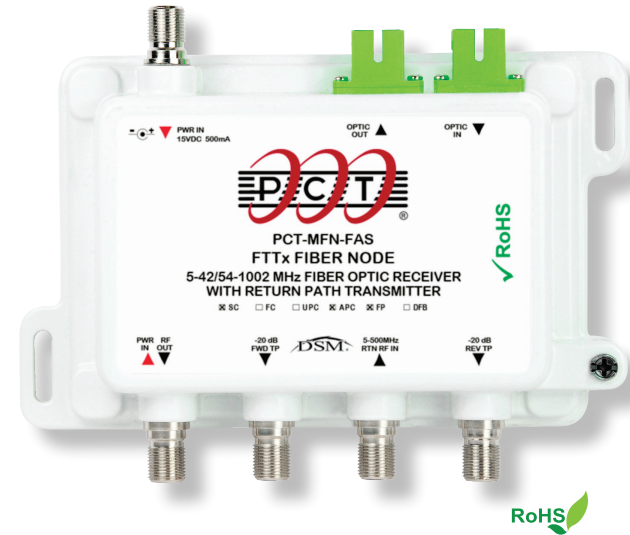
I. CONFIGURATION / ORDERING OPTIONS

The PCT-MFN-xAS needs to be ordered with the appropriate power adapter, based on the country in which it is going to be used. Please refer to PCT International, Inc. product literature for specific information on the proper power adapter needed.

INSTALLATION GUIDE

PCT-MFN-xAS MINI FIBER NODE Ver 20150723a

(PCT-MFN-AS, PCT-MFN-xFAS, PCT-MFN-xDAS, PCT-MFN-CxxAS)



CONTENTS

A. Product Description	1
B. Features	1
C. Packing List	1
D. Installation	1
E. Maintenance	2
F. Fiber Optic Downstream Receiver	3
G. Fiber Optic Upstream Receiver	3
H. Electrical / Environmental / Mechanical	3
I. Configuration / Ordering Options	3

Pursuant to the pertinent sections of Title 21 (United States) Code Of Federal Regulation (CFR), Chapter I, Subchapter J, and administered by the Center For Devices And Radiological Health (CDRH), operating under the Food And Drug Administration (FDA), this product, which produces or receives an optical signal composed of Laser Radiation, complies with 21 CFR Chapter I, Subchapter J, as applicable to Class I laser products.



CAUTION: There are no user serviceable parts contained within the housing. Refer all servicing to qualified service personnel. Other than specific measurements, adjustments, and tests specified in this manual, make no attempt to modify or alter any circuit or assembly in any manner.

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A. PRODUCT DESCRIPTION

The Mini Fiber Node (MFN) is a low cost fiber optic receiver (with and without return path transmitter), that is engineered and manufactured to a micro-sized “footprint”. Requiring minimal installation and maintenance effort, the MFN is designed for complete functionality in applications where a full-featured node is not required.

Suited for limited space component setups, the MFN’s applications include: FTTC, FTTH, PON, HFC architectures, communications and closed-circuit security systems, CATV operations, data services, as well as special events installations, emergency restorations, and rebuild, upgrade, and retrofit projects.

B. FEATURES

- Small footprint
- 5 to 500 MHz return RF insertion capability
- -20 dB test points for both forward and reverse RF path
- Standard +21 dBmV output at -1 dBm optical input
- Excellent distortion specs
- Low power consumption RX only 3 W, bi-directional 5 W
- Powered through dedicated F-port or RF output port
- -6 dBm to +2 dBm and 1200 nm to 1620 nm forward receiver operation
- FP (1310 nm) and DFB (1310 and 1550 nm plus CWDM C11 through C18) return path lasers available
- Configurable for different frequency splits

C. PACKING LIST

- Mini Fiber Node unit
- Power Transformer (per customer specification)
- Product Manual

TECHNICAL ASSISTANCE



For further assistance concerning equipment installation, technical questions, or troubleshooting, contact PCT International, Inc.

D. INSTALLATION

1. FIBER OPTIC DOWNSTREAM RECEIVER

- a. Measure optical power at input to receiver
 - 1) If optical power > +2 dBm, add an optical attenuator until optical level is between -6 to +2 dBm (optimum = -1 dBm).
 - 2) If optical power < -6 dBm, performance will be degraded. Check fiber optic jumpers, ensuring the connectors are clean.
- b. Clean optical connector per maintenance instructions. (See section E.)
- c. Verify correct optical connector is being used.
Example: SC/APC for part number PCT-MFN-55DAS
- d. Insert optical connector into socket labeled “OPTIC IN”.

2. FIBER OPTIC RETURN PATH TRANSMITTER*

- a. Verify correct optical connector is being used.
Example: SC/APC for part number PCT-MFN-55DAS
- b. Clean optical connector per maintenance instructions. (See section E.)
- c. Insert optical connector into socket labeled “OPTIC OUT”.
 * Not applicable to “Receiver Only” configuration.

3. RF CABLE

- a. Install type F-male connectorized RF coaxial cable to “RF OUT” port.

4. POWERING

- a. Verify AC voltage rating on the included power adaptor is correct for the available power source.
- b. Connect F-male connectorized RF coaxial cable to the power adaptor and the “POWER IN” port.
- c. **Optional:** In case of reverse powering through the RF port:
 - 1) Connect an F-male connectorized RF coaxial cable between “RF OUT” port on the Mini Fiber Node and the port labeled “TO AMP” on the power inserter (PCT-MPI -1G).
 - 2) Connect the F-male connectorized RF coaxial cable to the power adaptor and the port labeled “DC IN” on the power inserter.
 - 3) Connect F-male connectorized RF coaxial cable from “TO TV” port on the power inserter to network.
- d. Connect the power adaptor to AC voltage source.

5. POWERING ON

- a. Check for power light on the MFN, i.e. green LED indicator next to the “POWER IN” port.

6. RF OUTPUT LEVEL

- a. Verify RF output level with a spectrum analyzer or RF field strength meter.
NOTE: If powering through an optional power inserter (PCT-MPI-1G), check the RF output level at the “TO TV” port of the power inserter.
NOTE: Typical levels will be +21 dBmV with -1 dBm optical input to the “OPTIC IN” port.



E. MAINTENANCE

DANGER: AVOID DIRECT EXPOSURE TO THE LASER BEAM.



Invisible radiation continues when open or when operating with fiber optic cable disconnected. Never operate unit with a broken fiber or with fiber connector disconnected.

1. PCT recommends using the following cleaners to properly clean optical adapters and connectors.
 - a. Optical Fiber Adapters
 - 1) See PCT-FAC-500 Optical Fiber Adapter Cleaner instruction guide.
 - b. Optical Fiber Connectors
 - 1) See PCT-FCC-500 Optical Fiber Connector Cleaner instruction guide.



CAUTION: To prevent dust-particle abrasion, do NOT spray compressed air directly onto the connector’s end face.
To avoid eye injury, NEVER look directly into the connector’s end face.