

OTS-RFS-1

Optiva RF Splitter (RFS) Installation Manual

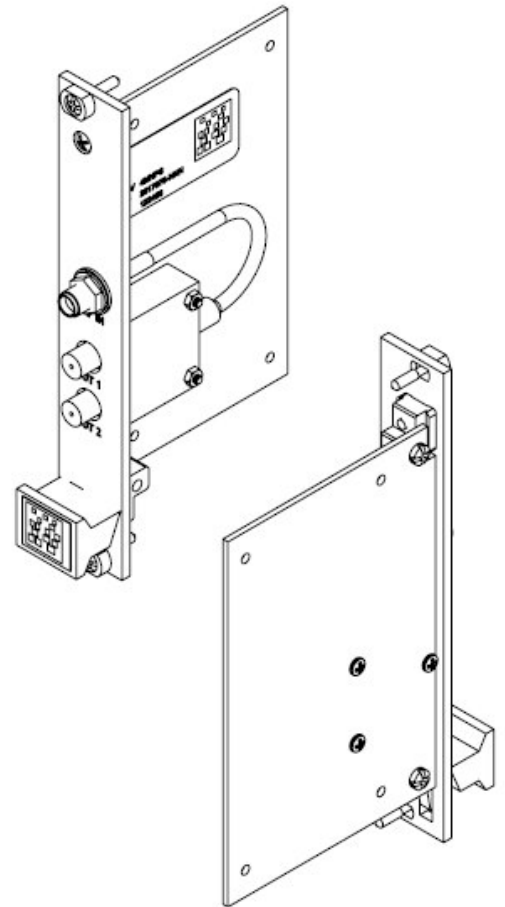


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EMCORE Corporation offers a broad portfolio of compound semiconductor-based components and systems for the broadband, fiber optic, satellite communication, defense and solar power markets. EMCORE has two primary operating segments: Fiber Optics and Photovoltaics. The company's integrated solutions philosophy embodies state-of-the-art technology, material science expertise, and a shared vision of our customer's goals and objectives to be leaders in fiber optics and photovoltaics.

EMCORE's solutions include: optical components and subsystems for fiber-to-the-premise, cable television, high speed data and telecommunication networks; defense photonics products for commercial and military applications including lasers, modulators, spectrometers, sensors, fiber gyro components and diagnostic instruments; solar cells, solar panels, and fiber optic ground station links for global satellite communications.



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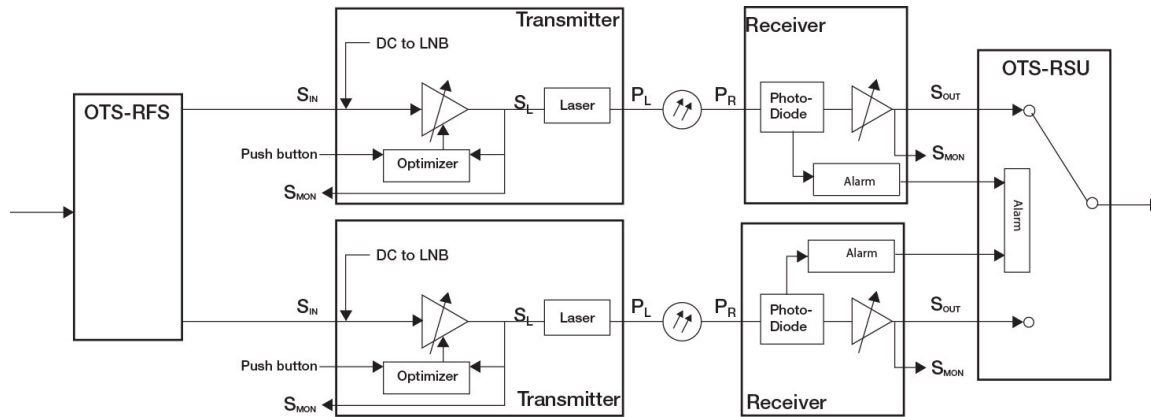
General

This document describes the form, fit, and function of the Optiva 1:2 RF Splitter.

Emcore's Model OTS-RFS Series of RF Splitters (RSU) provide protection against fiber, amplifier and/or laser failure. The most common configuration is shown in Figure 1.

Optiva RFS / Fiberoptic Transmission System

Figure 1



- Fully compatible with Optiva™ multi platform enclosures, providing RF, video, audio and data links.
- 16 “Mix and match” slots per chassis with redundant power supply
- 75 & 50 Ohm SMA version

Optiva™ L-band fiber optic intra-facility links are a high-performance, cost-effective alternative to coaxial cable. They provide much longer transmission distances than copper cables, which simplify network design, ease installation and even enhance immunity from EMI, RFI and lightning. These transmitters and receivers take the best RF design features of Emcore's extensive families of products and combine them into a compact package compatible with the Optiva™ OT-CC-16 chassis.

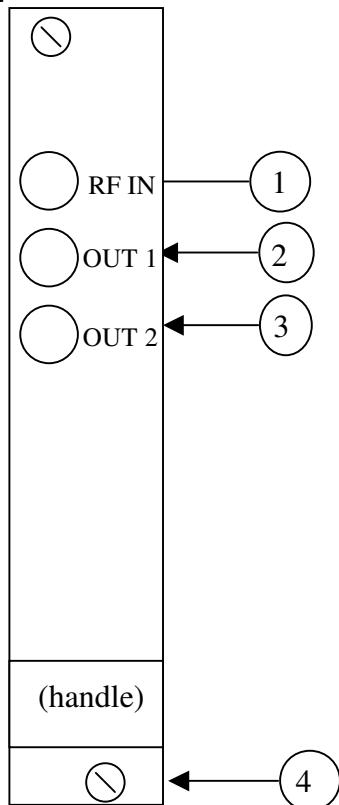
The Optiva™ family's wide range of RF, video, audio and data transport products include a unique data bus design that provides a higher level of monitoring and control with a single chassis mix and match flexibility. The final result is a chassis system that can be factory or user custom configured to meet a wide range of fiber transport applications.

All units come as an insert card version. The cards can be inserted into the Optiva 3RU 16-slot, 19" rack-mountable card cage (OT-CC-16), 1RU 4-slot 19" rack (OT-CC-4-1U) or one of the smaller Optiva™ Desktop Card Racks (OT-DTCR Series). The power supply must be the 12-volt version.

Interface and Controls

RF Splitter (RFS)

Figure 2



RF Splitter (RFS) – 50 ohm

1. 50 Ω SMA RF IN
2. 50 Ω SMA OUT 1
3. 50 Ω SMA OUT 2
4. The chassis retention screws will secure the seated module into the chassis

OR

RF Splitter (RFS) – 75 ohm

1. 75 Ω BNC RF IN
2. 75 Ω BNC OUT 1
3. 75 Ω BNC OUT 2
4. The chassis retention screws will secure the seated module into the chassis

Installation

RFS Installation

- Align the top and bottom card edges in the chassis channel and slide firmly into the back plane.
- Tighten the top and bottom module screws to secure in chassis.
- Connect cables to J1 and J3.
- With both the RFS and Tx units installed connect the input RF connectors. Refer to Figures 1 and 2.
- Connect the RF In of the Tx “A” to J1 of the RFS and the RF In of the Tx “B” to J3 of the RFS. Refer to Figure 2.

Operation

The RF Splitter is an passive 1:2 splitter with a operating frequency from 50 MHz to 18 GHz. The front panel of the Redundancy Switch Unit is shown in Figure 2.

Specifications

RF Specifications w/ cables – 50 ohm, 3.0 GHz

| Description | Min | Typ. | Max | Units |
|-----------------------------|------|------|-----|-------|
| Frequency Band | 0.02 | | 3.0 | GHz |
| Insertion Loss | -- | 3.4 | 3.9 | dB |
| Isolation | 20 | 21 | -- | dB |
| Input Return Loss | -10 | -- | -- | dB |
| Output Return Loss | -10 | -- | -- | dB |
| Forward Power Handling (CW) | -- | -- | 20 | W |
| Reverse Power Handling (CW) | -- | -- | 3 | W |

RF Specifications w/ cables – 50 ohm, 18.0 GHz

| Description | Min | Typ. | Max | Units |
|-----------------------------|-----|------|------|-------|
| Frequency Band | 2.0 | | 18.0 | GHz |
| Insertion Loss | -- | 3.4 | 3.9 | dB |
| Isolation | 20 | 21 | -- | dB |
| Input Return Loss | -10 | -- | -- | dB |
| Output Return Loss | -10 | -- | -- | dB |
| Forward Power Handling (CW) | -- | -- | 20 | W |
| Reverse Power Handling (CW) | -- | -- | 3 | W |

RF Specifications w/ cables – 75 ohm, 2.3 GHz

| Description | Min | Typ. | Max | Units |
|-----------------------------|-------|------|-----|-------|
| Frequency Band | 0.005 | | 2.3 | GHz |
| Insertion Loss | -- | 3.4 | 3.9 | dB |
| Isolation | 20 | 21 | -- | dB |
| Input Return Loss | -10 | -- | -- | dB |
| Output Return Loss | -10 | -- | -- | dB |
| Forward Power Handling (CW) | -- | -- | 20 | W |
| Reverse Power Handling (CW) | -- | -- | 3 | W |

Ordering Information**Model Number Description**

| RSU | |
|----------------------------------|--|
| OTS-RFS-1-S5-3 | RFS Only, 20-3000 MHz, SMA, 50 ohm |
| OTS-RFS-1-S5-3-SS | RFS, 20-3000 MHz, SMA, 50 ohm, with 2 SMA to SMA 50 ohm jumpers |
| OTS-RFS-1-S5-3-SB | RFS, 20-18000 MHz, SMA, 50 ohm, with 2 SMA to BNC 50 ohm jumpers |
| OTS-RFS-1-S5-18 | RFS Only, 2000-18000 MHz, SMA, 50 ohm |
| OTS-RFS-1-S5-18-SS | RFS, 2000-18000 MHz, SMA, 50 ohm, with 2 SMA to SMA 50 ohm jumpers |
| OTS-RFS-1-S5-18-SB | RFS, 50-3000 MHz, SMA, 50 ohm, with 2 SMA to BNC 50 ohm jumpers |
| OTS-RFS-1-B7 | RFS Only, 5-2300 MHz, BNC, 75 ohm |
| OTS-RFS-1-B7-BB | RFS, 5-2300 MHz, BNC, 75 ohm, with 2 BNC to BNC 75 ohm jumpers |
| Network Control | |
| OPV-CTLR-IC | NMS SNMP Controller Card, MIB software |
| Chassis & Accessories | |
| OT-CC-16 | Optiva chassis 3RU 16 Slot front access |
| OT-CC-16-01 | Optiva chassis 3RU 16 Slot rear access |
| OT-CC-16-F | Optiva chassis 3RU 16 Slot , Fan Cooled |
| OT-CC-4-1U | Optiva chassis 1RU 4 Slot |
| OT-DTCR-1 / 2 | Optiva chassis Desk-top/wall mount 1 Slot / 2 Slot |
| PS-200-NA/UK/EU | Power Supply for OT-CC-16 (No. American, United Kingdom, European AC cord) |
| PS-9012 | Power Supply for OT-DTCR Universal AC Adaptor |

Disclaimer

Every attempt has been made to make this material complete, accurate and up-to-date. Users are cautioned that EMCORE reserves the right to make changes without notice and shall not be held responsible for any damages, including consequential, caused by reliance on the material presented, including, but not limited to, typographical, arithmetical, or listing errors.

Optics Handling & Safety

Working with fiber optic cables and interfaces require a clean dust free environment. The optical power is confined in the optical core only a few microns in diameter. Small particles of dust can block the proper transfer of light through the connectors. It is therefore important to keep connectors as clean as possible, and

when in doubt of the cleanliness of a connector, clean it prior to inserting into a transmitter or receiver receptacle.

A number of events can damage fiber optic connectors. Unprotected connector ends can experience damage by impact, airborne dust particles, or excess humidity or moisture. Never touch the fiber end face of the connector.

When cleaning fiber optic connectors use only Industrial grade 99% pure isopropyl alcohol, lens-grade, lint-free tissue, and optionally canned dry air. Alternatively, there are a number of simple, effective products that are specifically designed for cleaning fiber optic connectors.

Never look into an illuminated fiber end.

WARNINGS, CAUTIONS, LIABILITY, WARRANTY AND GENERAL NOTES

Safety Considerations

When installing or using this product, observe all safety precautions during handling and operation. Refer to the manual and / or data sheet for the optical transmitter for the precautions appropriate to the power and wavelength of that device. Failure to comply with the following general safety precautions and with specific precautions described elsewhere in the manual violates the safety standards of the design, manufacture, and intended use of this product. Emcore assumes no liability for the customer's failure to comply with these precautions.



Electrostatic Sensitivity

Observe electrostatic precautionary procedures. Semiconductor laser transmitters and receivers provide highly reliable performance when operated in conformity with their intended design. However, a semiconductor laser may be damaged by an electrostatic charge inadvertently imposed by careless handling.

Static electricity can be conducted to the laser chip from the center pin of the RF input connector, and through the DC connector pins. When unpacking and otherwise handling the transmitter, follow ESD precautionary procedures including use of grounded wrist straps, grounded workbench surfaces, and grounded floor mats.

Exposure to electrostatic charge is greatly reduced after the transmitter or receiver has been installed in an operational circuit.

Service

Do not attempt to modify or service any part of the system other than in accordance with procedures outlined in this Operation Manual. If the system does not meet its warranted specifications, or if a problem is encountered that requires service, return the apparently faulty plug-in or assembly to Emcore for evaluation in accordance with Emcore's warranty policy.

When returning a plug-in or assembly for service, include the following information: Owner, Model Number, Serial Number, Return Authorization Number (obtained in advance from Emcore's Customer Service Dept.), service required and/or description of the problem encountered.

Warranty

Emcore warrants to the original purchaser all standard products sold by Emcore to be free of defects in material and workmanship for three (3) years from date of shipment from Emcore. During the warranty period, Emcore's obligation, at our option, is limited to repair or replacement of any product that Emcore proves to be defective. This warranty does not apply to any product that has been subject to alteration, abuse, improper installation or application, accident, electrical or environmental over-stress, negligence in use, storage, transportation, or handling.

This warranty is the only warranty made by Emcore and is in lieu of all other warranties, expressed or implied, except as to title, and can be amended only by a written instrument signed by an officer of Emcore. Emcore sales agents or representatives are not authorized to make commitments on warranty returns.

Limitations of Liabilities

Emcore's liability on any claim of any kind, including negligence, for any loss or damage arising from, connected with, or resulting from the purchase order, contract, or quotation, or from the performance or breach thereof, or from the design, manufacture, sale, delivery, installation, inspection, operation or use of any equipment covered by or furnished under this contract, shall in no case exceed the purchase price of the device which gives rise to the claim.

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Emcore will not be responsible for loss of output or reduced output of opto-electronic devices if the customer performs chip mounting, ribbon bonding, wire bonding, fiber coupling, fiber connectorization, or similar operations. These processes are critical and may damage the device or may affect the device's output or the fiber output.

Emcore test reports or data indicating mean-time-to-failure, mean-time-between-failure, or other reliability data are design guides and are not intended to imply that individual products or samples of products will achieve the same results. These numbers are to be used as management and engineering tools, and are not necessarily indicative of expected field operation. These numbers assume a mature design, good parts, and no degradation of reliability due to manufacturing procedures and processes.

Emcore is not liable for normal laser output degradation or fiber coupling efficiency degradation over the life of the device.

Every attempt has been made to make this material as complete and accurate and up to date. Users are cautioned that Emcore reserves the right to make changes without notice and shall not be held responsible for any damages, including consequential, caused by reliance on the material presented, including, but not limited to, typographical, arithmetical, or listing errors.

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