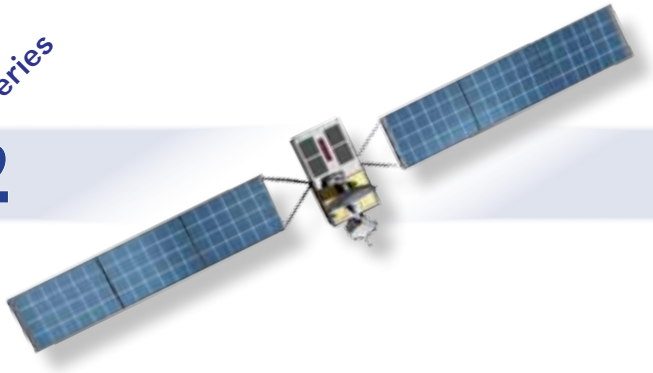

# HOT-SWAP RF Over FIBER LINK

## WIDE BAND = 50 – 3.000 MHz

RF Over FIBER Series

## mod. ROF–2




All Rover Satcom Products are especially designed for new extended SAT Band:

250 MHz ← NEW EXTENDED SAT BAND → 2.350 MHz

ALL VERTICAL SAT BAND POLARIZATIONS

LOW VERTICAL SAT BAND POL.

950 MHz ← LOW STANDARD SAT BAND → 2.150 MHz

HIGH VERTICAL SAT BAND POL.

950 MHz ← HIGH STANDARD SAT BAND → 2.150 MHz

**INNOVATIVE PERFORMANCE**

for: SYSTEM INTEGRATOR, TELEPORT BROADCASTER, CABLE NETWORK, GOVERNMENT & MILITARY COMMUNICATIONS

CE DVB WTA MEMBER

1972 > 2018 >> 46 YEARS OF INNOVATION

# ROF – X – X

- Professional RF-over-Fiber link, designed for the New Ultra Wide Band LNBS (250-2.350 MHz)
- Outdoor and Indoor Chassis providing 1+1 or 4+1 Redundant Link Configuration
- Front and Rear Ethernet plus 2 SFP Slots for Ethernet over Fiber allows perfect integration in any customer system
- All Optical RX & Optical TX modules are HOT-SWAPPABLE including Power Supply and Network Controller
- The ROF-x-x link system can be completely Configurated, Controlled and Monitored via the front panel Controller or via WEB GUI or SNMP
- All 3 Chassis are specially designed to allow mixed configurations and support all the main Optical & RF Connectors
- Internal LNB Powering or an integrated Bias-T built-in the RF Connector Adapter module allows powering any kind of connected equipment, e.g. LNB

## BENEFIT

- TX & RX 5 years warranty
- Suggested for NEW ULTRA WIDE BAND LNBS (250-2350 MHz)
- All OPTICAL Connections in the Front
- All RF Connections in the Rear
- Front accessable RF Monitoring Ports
- External or Internal LNB powering with current monitoring
- Superior RF, OMI Linearity and Low Noise

## FEATURES

- Monitoring with key Board Controller , SNMP or WEB-GUI
- LED Alarms available in all HOT-SWAP Modules
- RF & OPTICAL Power Sensor Monitor & Alarms
- 50 & 75 Ohm available with F, SMA, BNC, N RF-Connectors
- Fully Compatible with existing Systems
- Ideal for HTS (High Throughtput Satellite)
- Serve all Up-Link dedicated Requirements

## INDOOR CHASSIS

### mod. ROF 1-X-X

- 1 Unit 19" Rack Chassis
- Front Hot-Swap Slots:
  - N.1 Key Board Controller with (opt.) Ethernet LAN
  - N.2 Indoor Redundant Power Supply
  - N.3 Optical RX or TX module capacity
- Rear Slot and Connections
  - N.3 RF Connector Adapter or 1+1 Redundancy
  - N.1 Hot-swap fan
  - N.1 Copper Ethernet LAN
  - N.2 SFP (opt.) for Fiber or Copper Ethernet LAN
  - N.1 SUB-D9 Dry contact Alarm & Remote Reset

### mod. ROF 2-X-X

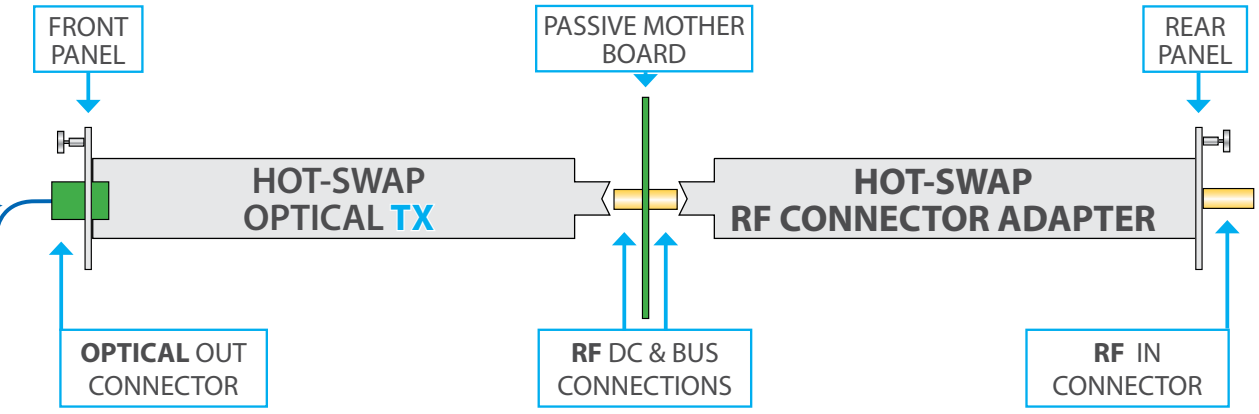
- 2 Unit 19" Rack Chassis
- Front Hot-Swap Slots:
  - N.1 Key Board Controller with (opt.) Ethernet LAN
  - N.2 Indoor Redundant Power Supply
  - N.20 Optical RX or TX module capacity
- Rear Slot and Connections
  - N.20 RF connect. Adapt. or 1+1 & 4+1 Redundancy Switch
  - N.2 Hot-swap fans
  - N.1 Copper Ethernet LAN
  - N.2 SFP (opt.) Slots for Fiber or Copper Ethernet LAN
  - N.1 SUB-D9 Dry contact Alarm

## OUTDOOR CHASSIS

### mod. ROF 6-X-X

- 6 Unit 17" Rack Chassis
- Front Hot-Swap Slots:
  - N. 1 Key Board Controller with (opt.) Ethernet LAN
  - N. 2 Outdoor Redundant Power Supply
  - N. 12 Plug-in Optical RX or TX module capacity
  - N. 12 RF connect. Adapt. or 1+1 & 4+1 Redundancy Switch
  - N. 2 Copper Ethernet
  - N. 2 SFP (opt.) for Fiber or Copper Ethernet LAN
  - N. 1 SUB-D9 Dry contact Alarm & Remote Reset
  - N. 2 Hot-swap fans
- Optical Patch panel (opt.)
- RF Patch panel (opt.)
- Thermostat controlled Hether (opt.)
- Sun Shade to protect from direct sunlights (opt.)

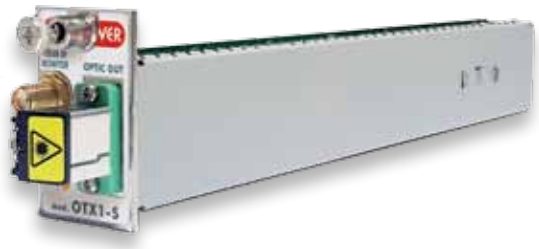
# INNOVATIVE HOT-SWAP PLUG-IN PHILOSOPHY

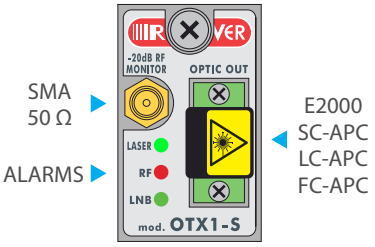



OPTICAL LINK BUDGET: 24,5 dB • distance up to 60 Km at 1.310 n.m. • distance up to 90 Km at 1.550 n.m.

TX CHASSIS

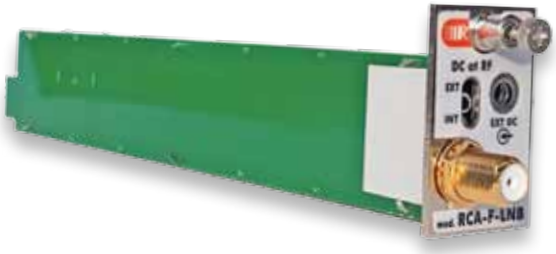
## FRONT PLUG-IN

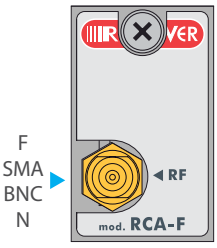




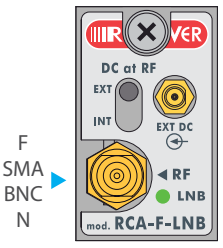

***HOT-SWAP OPTICAL TX MODULE***

## REAR PLUG-IN



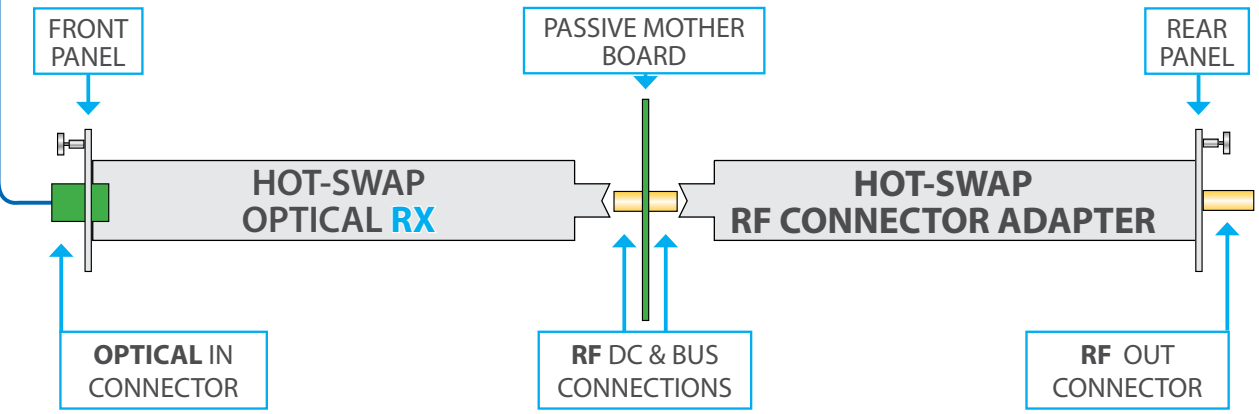


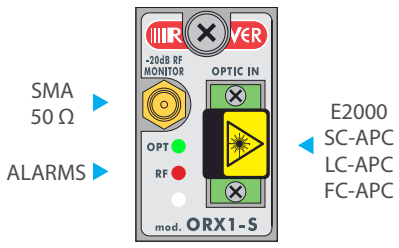

***HOT-SWAP RF CONNECTOR ADAPTER MODULE** with Internal LNB Powering and current monitoring*



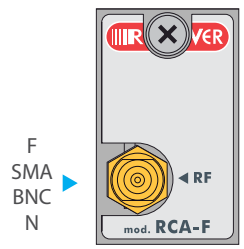

***HOT-SWAP RF CONNECTOR ADAPTER MODULE** with Internal or External Bias-T LNB Powering and current monitoring*

RX CHASSIS



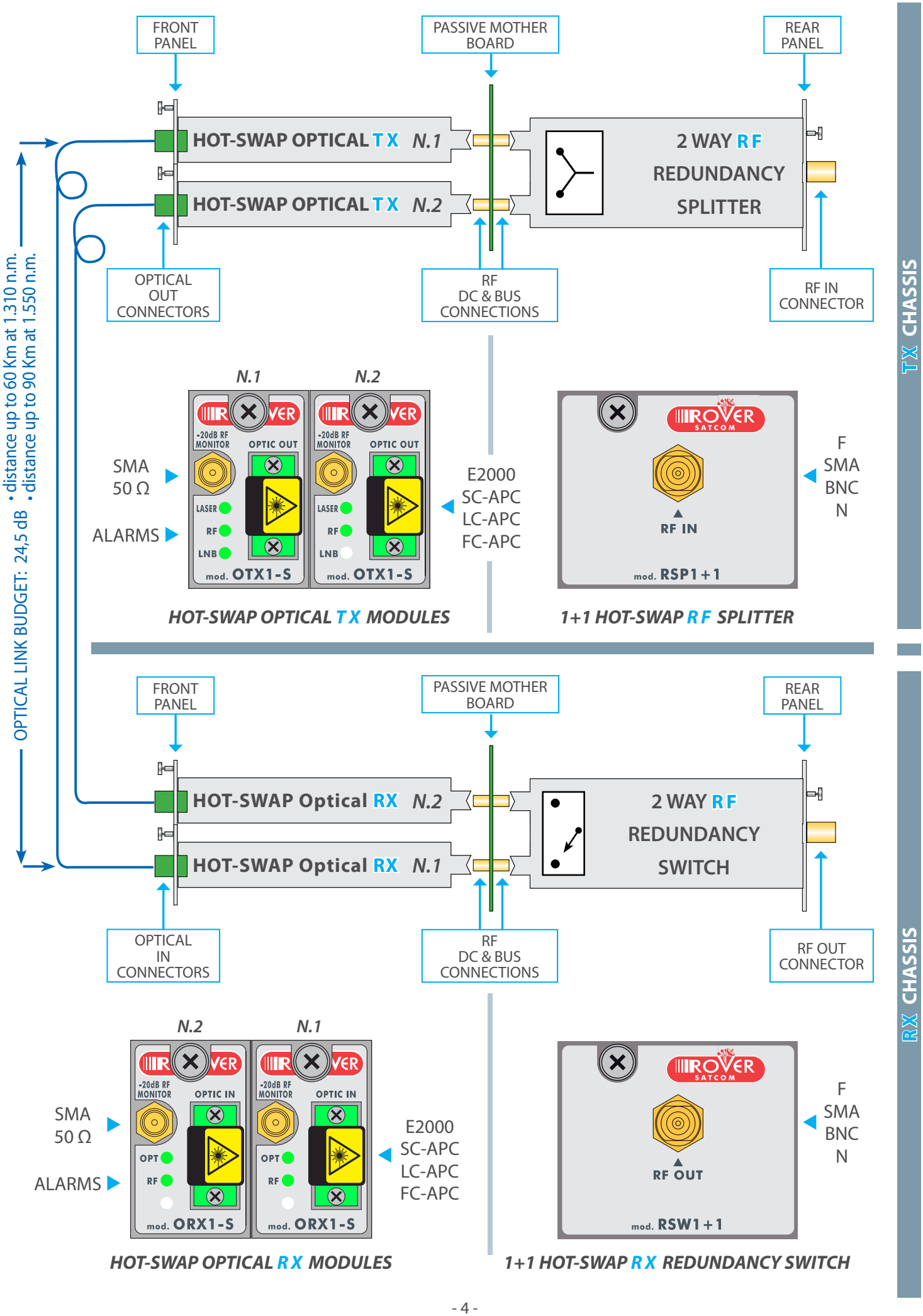




***HOT-SWAP OPTICAL RX MODULE***

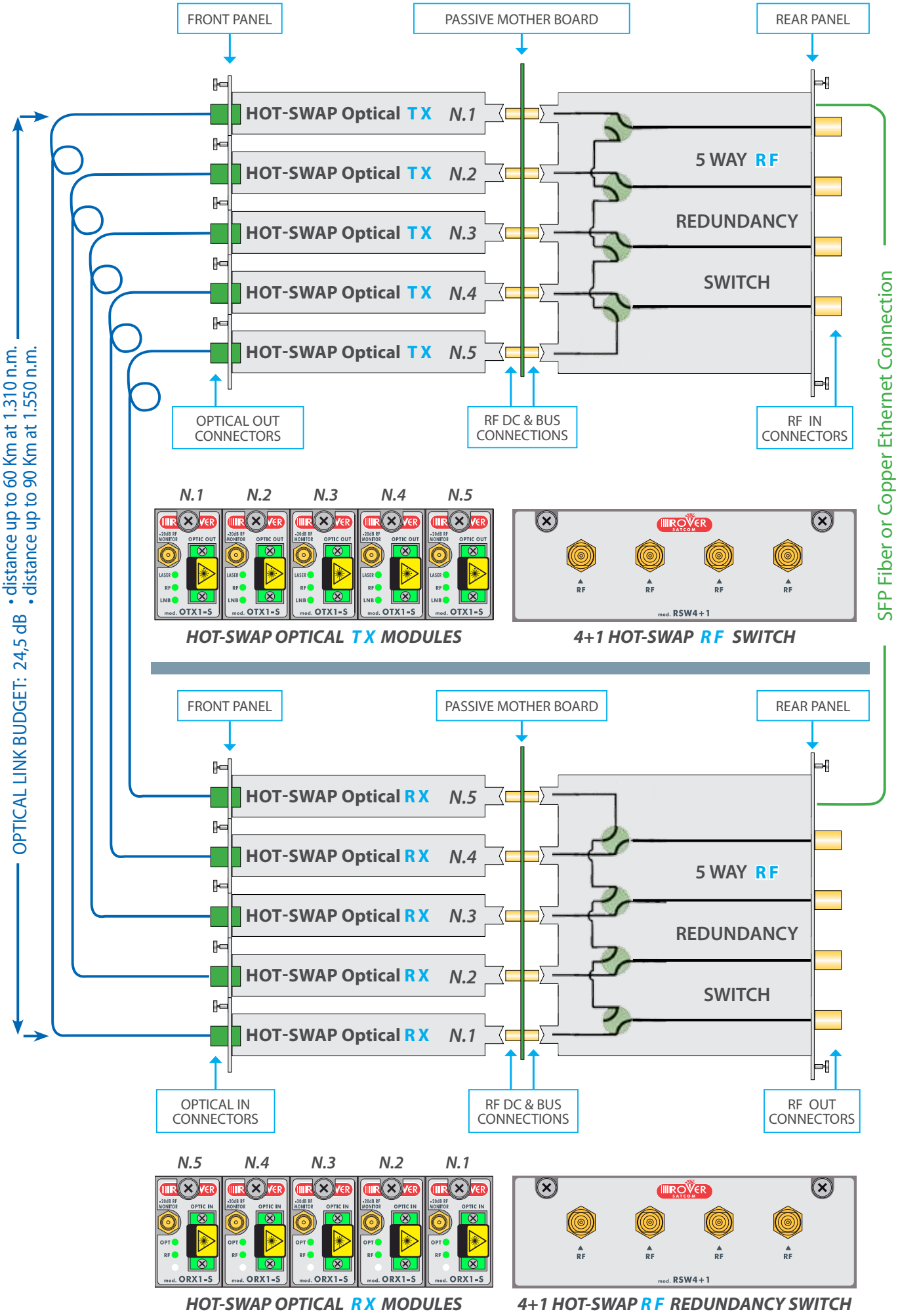



***HOT-SWAP RF CONNECTOR ADAPTER MODULE***

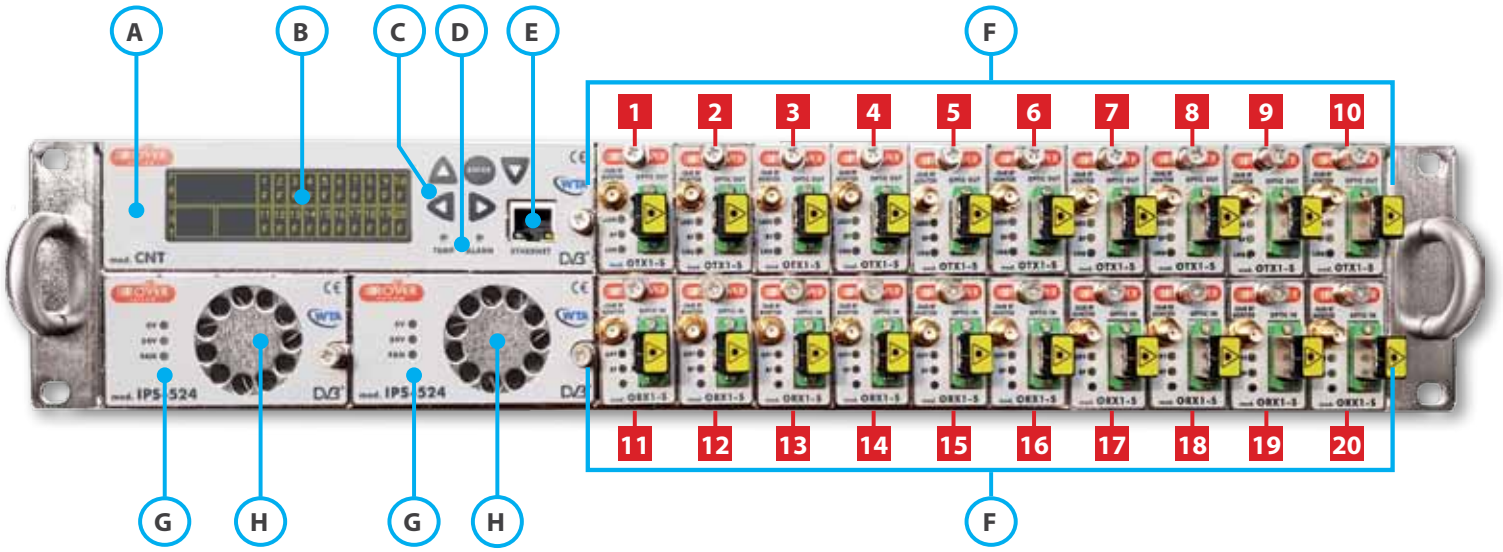
# 1+1 INNOVATIVE HOT-SWAP OPTICAL LINK REDUNDANCY PHILOSOPHY



# 4+1 INNOVATIVE HOT-SWAP OPTICAL LINK REDUNDANCY PHILOSOPHY

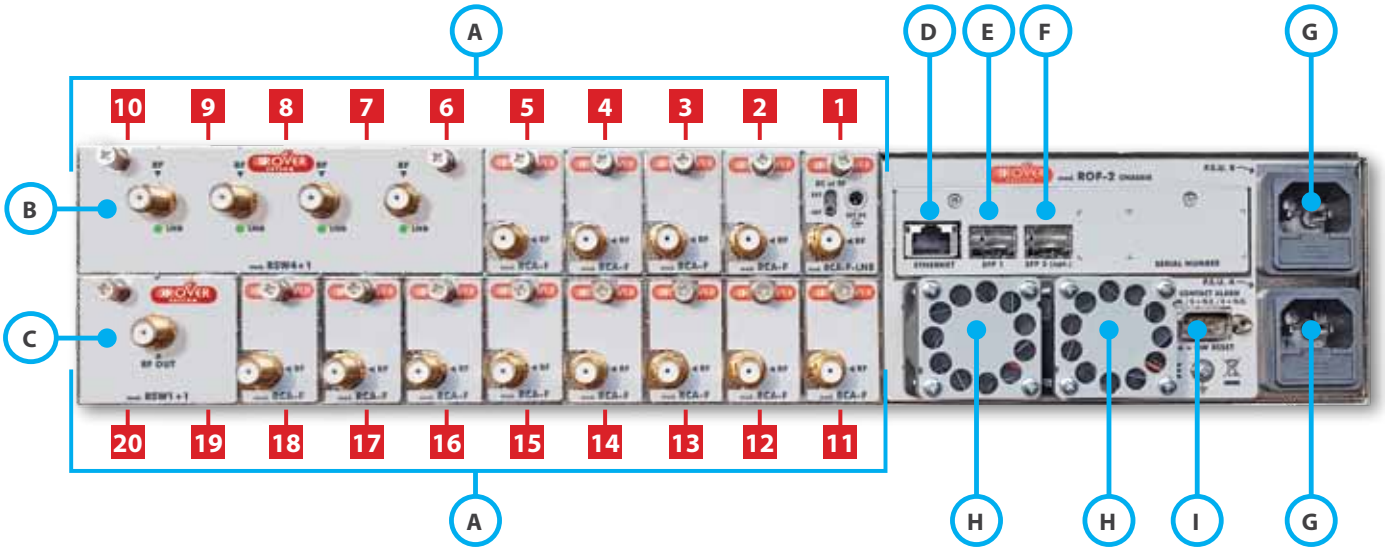


## FRONT PANEL DESCRIPTIONS




A. Plug-in Controller Module
B. Oled Display
C. Keypad
D. TEMP & ALARM Leds
E. Ethernet connector (opt.)
F. N. 20 Slot for Hot-swap Optical TX or RX Modules
G. Hot-swap Indoor Power Supply Module
H. Built-in Fan

## REAR PANEL DESCRIPTIONS

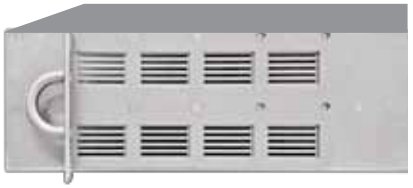



A. N. 20 Slots for Hot-swap RF connector Adapter Modules with Internal or External LNB Powering
B. 4+1 RF Redundant Switching Module
C. 1+1 RF Redundant Switching Module
D. Copper Ethernet connector
E. SFP Slot for Fiber or Copper Ethernet (opz.)
F. SFP Slot for Fiber or Copper Ethernet (opz.)
G. Mains and Fuse receptacle
H. Hot-swappable chassis Fan
I. Sub-D dry 9 contact Alarm and Remote Reset

## ADJUSTABLE RACK HANDLE POSITION

Handle: external to the Front Panel
(Position suggested to protect the Front Optical Connectors)

Handle: aligned to the Front Panel



Handle: internal to the Front Panel

# TECHNICAL SPECIFICATIONS

## mod. OTX1-x (Hot-Swap Optical TX Module)

### RF

- Frequency range : 50-3000 MHz
- Range Flatness : ± 1,5 dB
- 36 MHz Flatness : ± 0,3 dB
- RF Connector (via RCA adapter) : F-SMA-BNC-N
- Return Loss (to RCA adapter) : > 14 dB
- Noise Figure : < 10 dB@ max gain
- IMD : > 40 dBc@2 tones -13 dBm
- IP1 : +5 dBm (RMS)
- RF Monitor front panel port : - 20 dB (SMA)
- RF Power Sensor Alarm : - 50 to +10 dBm (RMS)
- RF Input Power Range : - 50 to +10 dBm (RMS)
- RF Damage Input Level : +15 dBm (RMS)
- RF Adjustable gain : 60 dB (Auto/Manual)
- RF Gain Stability : (24h=±0,25 dB) (over range=±3dB)

### LNBs

- Internal LNB Powering (via RCA adapter) : 0, 13, 18 (24)V, 22 KHz, 600 mA
- External LNB Powering (via RCA LNB adapter) : 0, 13, 18 (24)V, 22 KHz, 600 mA
- LNB Current Monitoring and Alarm : from Internal/External Powering

### OPTICAL

- OMI : Automatic or Manual
- Power output : + 4,5 dBm
- Wavelenght : 1310 n.m./1550 n.m.
- Connectors : E2000, SC-APC, LC-APC, FC-APC
- Laser : DFB, Class 1M (opt. CWDM)
- Transmission distance : 60 Km at 1310 n.m. or 90 Km at 1550 n.m.

### POWER SUPPLY

- Voltage : 5 & 24 Vdc
- Curent : 400 mA

### ALARMS

- Optical Power : Led, Display, SNMP, WEB GUI
- RF Power Sensor : Led, Display, SNMP, WEB GUI
- LNB Powering : Led, Display, SNMP, WEB GUI

## mod. ORX1-x (Hot-Swap Optical RX Module)

### RF

- Frequency range : 50-3000 MHz
- Range Flatness : ± 1,5 dB
- 36 MHz Flatness : ± 0,3 dB
- RF Connector (via RCA adapter) : F-SMA-BNC-N
- Return Loss (to RCA adapter) : < 14 dB
- IMD : > 40 dBc@2 tones -13 dBm
- OP1 : +10 dBm (RMS)
- RF Monitor front panel port : -20 dB (SMA)
- RF Power Sensor Alarm : -50 to 0 dBm (RMS)
- RF Output Power Range : - 50 to +10 dBm (RMS)
- RF Adjustable gain : 60 dB (AGC/Manual)
- RF Gain Stability : (24h=±0,25 dB) (over range=±3dB)

### OPTICAL

- Input Automatic Gain Control : Automatic or Manual
- Input Power sensitivity range : -20 to +4 dBm
- Wavelenght : 1100 to 1650 n.m.
- Connectors : E2000, SC-APC, LC-APC, FC-APC
- Input Power measurement range : -30 to +5 dBm
- Fotodiode : PIN

### POWER SUPPLY

- Voltage : 5 & 24 Vdc
- Curent : 300 mA

### ALARMS

- Optical Power : Led, Display, SNMP, WEB GUI
- RF Power Sensor : Led, Display, SNMP, WEB GUI

## mod. RCA-x (Hot-Swap RF Connector Adapter Module with Internal LNB Powering)

- RCA-F : RF "F" Female Connector
- RCA-S : RF "SMA" Female Connector
- RCA-B : RF "BNC 50 Ω" Female Connector
- RCA-N : RF "N50 Ω" Female Connector

## mod. RCA-x-LNB (Hot-Swap RF Connector Adapter Module with Internal/External LNB Powering switch)

- RCA-F-LNB : RF "F" Female Connector
- RCA-S-LNB : RF "SMA" Female Connector
- RCA-B-LNB : RF "BNC 50 Ω" Female Connector
- RCA-N-LNB : RF "N50 Ω" Female Connector

## mod. RSW1+1 (1+1 Hot-Swap Redundancy Switch Module)

- 2 Way RF Output switch (50-3000 MHz)
- "F" Output Connectors (opt. SMA-BNC-N)
- Automatic or Remote Manual Control

## mod. RSP1+1 (1+1 Hot-Swap Redundancy Splitter Module)

- 2 Way RF Input Splitter (250-2350 MHz or 5-3000 MHz)
- "F" Input Connector (opt. SMA-BNC-N)
- Insertion LOSS = 5 dB

## mod. RSW4+1 (4+1 Hot-Swap Redundancy Splitter Module)

- 5 Way RF Input or Output switch (50-3000 MHz)
- "F" Input or Output Connectors (opt. SMA-BNC-N)
- Automatic or Remote Manual Control

## mod. IPS-524 (INDOOR Hot-Swap dual Voltage 5+24 Vdc PSU)

- Input voltage : 100 to 240 Vac
- Output voltage : 5V and 24 V
- Max Output Current : 10A
- Alarm : Led, Display, SNMP, WEB GUI
- Fan : High Speed with alarm

## mod. OPS-524 (OUTDOOR Hot-Swap dual Voltage PSU Module)

- Input voltage : 100 to 240 Vac
- Output voltage : 5V and 24 V
- Max Output Current : 10A
- Alarm : Led, Display, SNMP, WEB GUI
- Fan : High Speed with alarm

## mod. CNT (Plug-in Display Key Board Controller Module)

- Operational : Local or Remote SNMP, WEB GUI
- Connectivity : Front and Rear Copper & Fiber Ethernet LAN (opt.)
- Display : Oled type

## mod. ROF-1-INDOOR CHASSIS (N.1 Unit 19" Rack)

- Slot capacity : N.6 Front and N. 6 Rear
- Rear Connectivity : 1 Copper Ether. LAN + 1 Fiber SFP Ether. LAN
- Dry Contact Alarms : SUB-D9 connector

## mod. ROF-2-INDOOR CHASSIS (N.2 Unit 19" Rack)

- Slot capacity : N.23 Front and N. 20 Rear
- Rear Connectivity : 1 Copper Ether. LAN + 2 Fiber SFP Ether. LAN
- Dry Contact Alarms & Remote Reset : SUB-D9 connector

## mod. ROF-6-OUTDOOR CHASSIS (N.6 Unit 17" Rack)

- Slot capacity : N.27 all Front
- Connectivity : 1 Copper Ether. LAN + 2 Fiber SFP Ether. LAN
- Dry Contact Alarms & Remote Reset : SUB-D9 connector

## GENERAL SPECIFICATIONS

- TEMPERATURE Range: -30 to + 55° C (operating)
- UMIDITY: 90% not condensed

## ROF–x CHASSIS SERIES ORDERING CODE DEFINITION

RF over FIBER Chassis Series

CE = Controller Plug-in Module + Ethernet
C = Controller Plug-in Module

SF = SFP Fiber Ethernet Module
SC = SFP Copper Ethernet Module

**ROF - 2 - CE - 2 - SF**

1 = 1 Unit 19" Indoor Rack
2 = 2 Unit 19" Indoor Rack
6 = 6 Unit 17" Outdoor Rack

1 = N.1 Hot-swap Power Supply Module
2 = N.2 Hot-Swap Power Supply Redundant Module

## ORDERING MODEL / CODE EXAMPLE

| *MODEL / CODE* | *DESCRIPTION* | *APPLICATION* |
|---|---|---|
| **ROF-2-CE-2-SF** | RF Over Fiber Link, 2 Unit 19" Indoor Rack, controller Plug-in Module with Ethernet Port, N.2 Redundant PSU and N.1 SFP Fiber Ethernet Module | Teleport & Broadcast |

## MODEL OPTIONS

| *MODELS / CODES* | *DESCRIPTIONS* | *APPLICATIONS* |
|---|---|---|
| **mod. OTX1-x** | Hot-Swap Optical TX Module | RF over Fiber Link |
| **mod. ORX1-x** | Hot-Swap Optical RX Module | RF over Fiber Link |
| **mod. RCA-x** | Hot-Swap RF Connector Adapter Module (F-SMA-BNC-N connectors) | |
| **mod. RCA-x-LNB** | Hot-Swap RF Connector Adapter with Internal/External LNB Powering switch | Ext. Bias-T LNB Powering |
| **mod. RSW1+1–X** | 1+1 Hot-Swap Redundancy RF Switch Module (F-SMA-BNC-N connectors) | Link Redundancy |
| **mod. RSP1+1–X** | 1+1 Hot-Swap Redundancy RF Splitter Module (F-SMA-BNC-N connectors) | Link Redundancy |
| **mod. RSW4+1–X** | 4+1 Hot-Swap Redundancy RF Switch Module (F-SMA-BNC-N connectors) | Link Redundancy |
| **mod. IPS-524** | INDOOR Hot-Swap dual Voltage 5+24 Vdc Power Supply Module | |
| **mod. OPS-524** | OUTDOOR Hot-Swap dual Voltage 5+24 Vdc Power Supply Module | |
| **mod. CNT** | Plug-in Display Key Board Controller Module | |
| **mod. CNT + E** | Plug-in Display Key Board Controller Module with Ethernet LAN | |
| **mod.** | | |
| **mod.** | | |

## ACCESSORIES

| *MODELS / CODES* | *DESCRIPTIONS* | *APPLICATIONS* |
|---|---|---|
| | | |

ROVER Laboratories and offices

ROVER Goods entrance & production




RO.VE.R. Laboratories S.p.A.
Via Parini, 2 - 25019 Sirmione (BS) Italy
info@roverinstruments.com • www.roverbroadcast.com