



MULTIPLE RF ACTIVE SPLITTERS/COMBINERS

ULTRA WIDE BAND = 50-3.000 MHz with 10 MHz PASS

Rover RF
ACTIVE
SPLITTER
Series

mod. **RAS1-X-X-F75**

Rover RF
ACTIVE
COMBINER
Series

mod. **RAC1-X-X-F75**



EASY ASSEMBLY & FUTURE EXPANDABLE



From 1 to 4 Swappable RF INPUT AMPLIFIERS with: RF Monitor Port, RF Sensor, RF Atten., LNB^s Control and Alarms

From 4 to 32 RF OUTPUTS/INPUTS with: OPTICAL RECEIVER and REDUNDANT POWER SUPPLY all in 1 U19" RACK



- 5 YEARS WARRANTY • RF & OPTICAL INPUT
- MEETS OIP-3, RL and FLATNESS STRICT SPECIFICATIONS
- SPECIALLY DESIGNED for EXTENDED BAND LNB^s : 250 - 2.350 MHz
- WITH ONLY 4 mod. PARTS OBTAIN MORE THAN 70 SYMMETRICAL & ASYMMETRICAL RF SPLITTER/COMBINERS CONFIGURATIONS

**INNOVATIVE
PERFORMANCE**

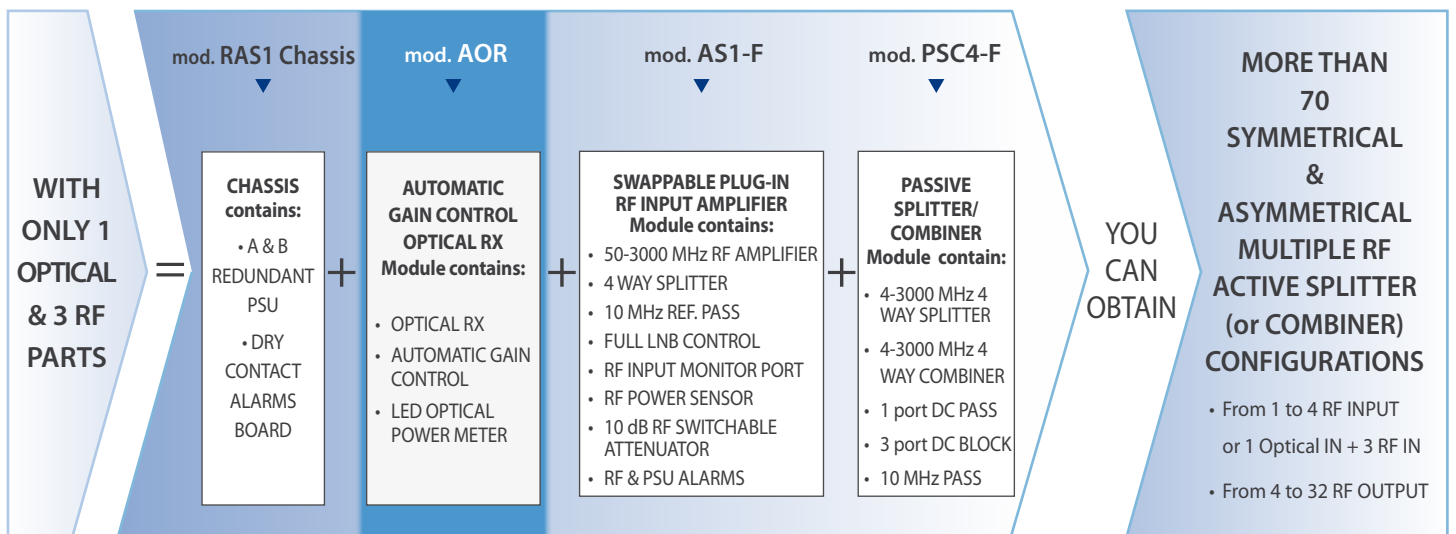
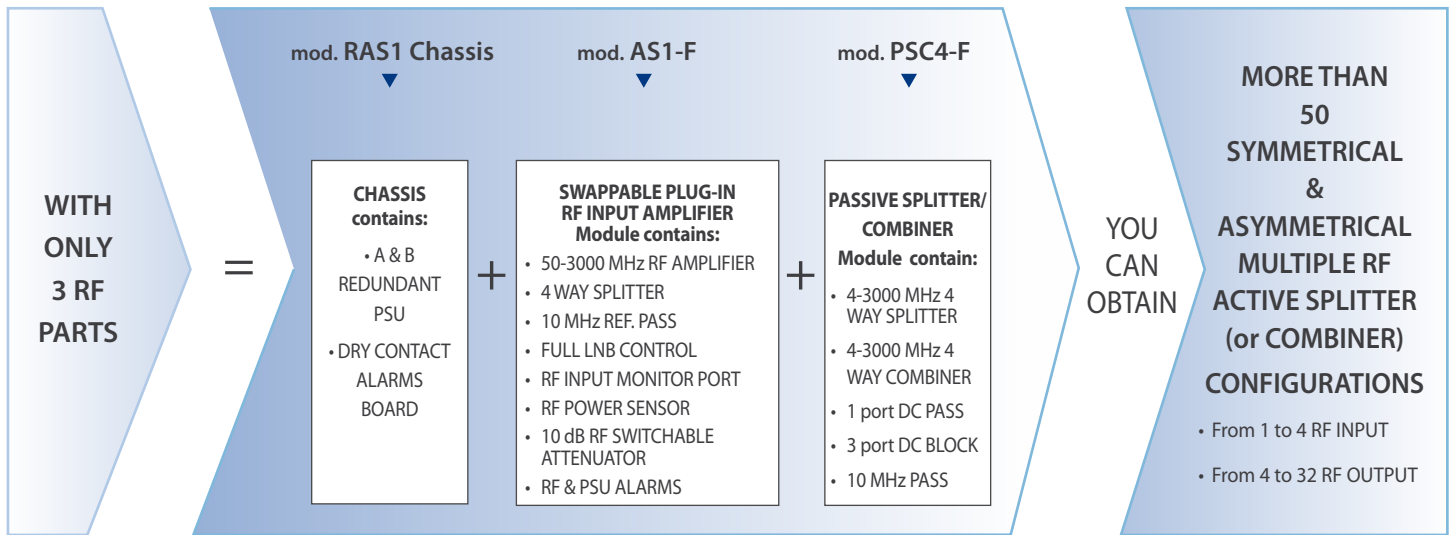
for: SYSTEM INTEGRATOR,
TELEPORT, BROADCASTER,
CABLE NETWORK, GOVERNMENT
& MILITARY COMMUNICATIONS



1972 > 2019 >>

47 YEARS OF INNOVATION

SMALL STOCK = LARGE CONFIGURATION PRODUCT RANGE



"RAS1" BENEFIT

- Ultra WIDE BAND 50-3.000 MHz flat with 10 MHz PASS
- Especially designed for the NEW Extended LNB^s band: 250-2.350 MHz, (only 1 coax cable for the entire V. or H. Polarization Band)
- Splitter & Combiner function, all in 1 U 19" Rack
- Easy assembly and fully configurable, from 1 Input to 4 Outputs, up to 4 Inputs to 32 Outputs
- 10 MHz Reference PASS at all SLOTS
- Optical Input with AGC RX module (opt.)
- Each Plug-in RF Input Amplifier have on front panel:
 - RF Monitor Port, LNB Power Control, 10 dB RF Attenuator
 - LED for RF Sensor, LNBs and Power Supply Alarms
- Full Custom expandable and rack space optimization
- Intuitive and self-explaining descriptions labels, for Connector, LEDs and Switches

"RAS1" MAIN FEATURES

- Especially designed for SATCOM SYSTEM INTEGRATOR
- Meets strict specifications like: OIP3, R.L. and Flatness
- Up to 4 RF Input Swappable Plug-in Amplifier, or 1 Optical Input Receiver and up-to 3 RF Input
- SPLITTER/COMBINER PORT per SLOT:
 - N.1 RF IN/OUT port with 10 MHz & DC PASS
 - N.1 RF OUT/IN port with 10 MHz PASS
 - N.3 RF OUT/IN port with Blocked DC
- 10 dB switchable RF Attenuator
- Available optional RF connectors: F, SMA, BNC 75 & 50 ohm
- Available Optional Optical Connectors: SC-APC, LC-APC, E2000, FC-APC
- Redundant PSU from 2 different Power lines
- Dry contact Alarm for: RF Power Sensor, PSU and LNBs
- Fully compatible with all existing System

"RAS1" TECHNICAL SPECIFICATIONS (COMPLETE RACK)

RF PORT CAPACITY:

- Input Port Number: 1, 2, 3 or 4 (all Swappable Plug-In module)
- Output Port Number: 4, 8, 12, 16, 20, 24, 28, 31 or 32 (8 slots, 4 way each slot)
- Optical Input port Number: 1 (SC-APC, LC-APC, E2000, FC-APC opt.)
- 10 MHz Reference PASS (through dedicated port N. 1)

RF SPECIFICATIONS:

- Frequency Range = 50-3.000 MHz
- Connectors = F (or BNC or SMA opt.)
- Impedance = 75 Ohm (or 50 Ohm opt.)
- Max INPUT Level = 0 dBm typ. +5 max. (with 10 dB attenuator ON)
- OP1dB = +17 dBm direct (+3 dBm with 4 way splitter)
- Damage Input Level = 15 dBm
- Input R.L. = >16 dB, 14 dB min.
- Output R.L. = >16 dB, 14 dB min.
- Total Gain/Loss = 0 dB, $\pm 1,5$ dB typ, 2 dB max
- Temperature gain variation = 1,5 dB from -30° to +60° C
- L Band Flatness = ± 1 dB, 1,5 dB max
- Full Band Flatness = $\pm 1,5$ dB, 2 dB max
- Flatness in 36 Mhz interval = $\pm 0,3$ dB, 0,5 dB max
- Isolation between adjacent out Port = > 24 dB, 22 min.
- IMD = > - 40 dB (2 Tones at -13 dBm)
- Noise Figure = 9 dB

RF INPUT MONITOR PORT:

- Level = 20 dB down the Input Level
- Connector = SMA
- Impedance = 50 Ω
- Flatness = ± 2 dB

LNB POWER CONTROL (on each AS1 INPUT AMPLIF.):

- D.C. VOLTAGE = OFF, 13V, 18V (or 24 optional) max 600 mA for each Input
- TONE = 22 KHz ON/OFF
- LED = green = OK, red = dc short circuit Alarm
- ALARM INDICATION = Via LED and dry contact

RF POWER SENSING:

- POWER THRESHOLD = - 45 dBm (RMS)
- ALARM INDICATION = Red LED and dry contact alarm

DRY CONTACT ALARM BOARD:

- CONNECTOR = SUB-D9 Male
- CONTACT LOAD = 65 V - 400 mA
- A & B MAINS PSU = one defective or both
- LNB = dc Short Circuit
- RF POWER SENSING = RF TOO LOW or NO RF Signal

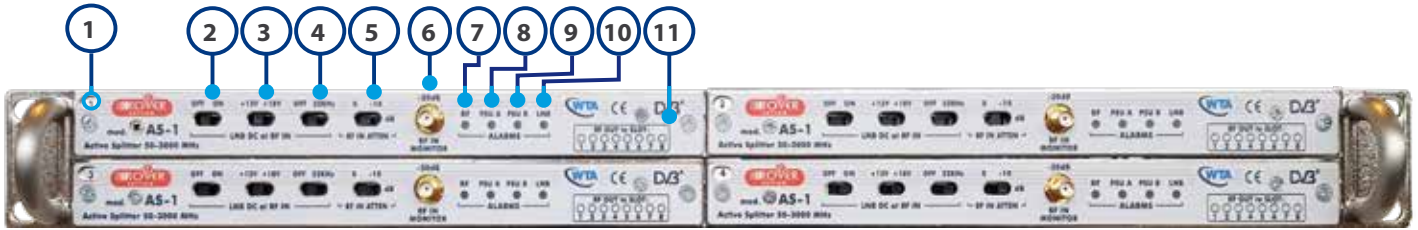
REDUNDANT POWER SUPPLY:

- N. 2 AC MAINS PSU = 110-240 VAC (with 2 separate receptacle for 2 separate Power LINE)
- AC POWER CONSUMPTION = < 25 VA
- N. 1 EXT DC PSU = 48 V D.C. (optional)

GENERAL SPECIFICATIONS:

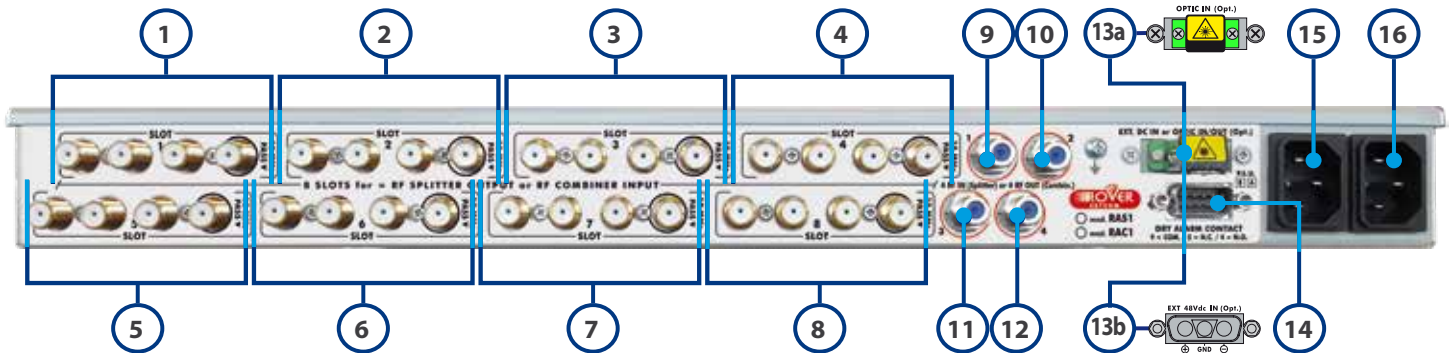
- SLIM CASE = 19" 1U Rack (43 cm deep)
- NET WEIGHT = from 3 to 5 Kg related to the IN/OUT modules
- SAFETY = EN 50 083-1 and EN 60 950.
- ENVIRONMENT:
 - Temperature range: -30° / + 55° (max 60°)
 - Umidity 95%
- EMC = EN 50 083-2

FRONT PANEL VIEW with 4 SWAPPABLE PLUG-IN RF INPUT AMPLIFIER MODULES



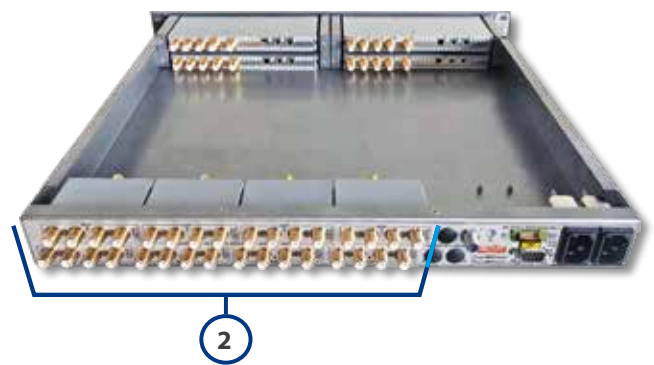
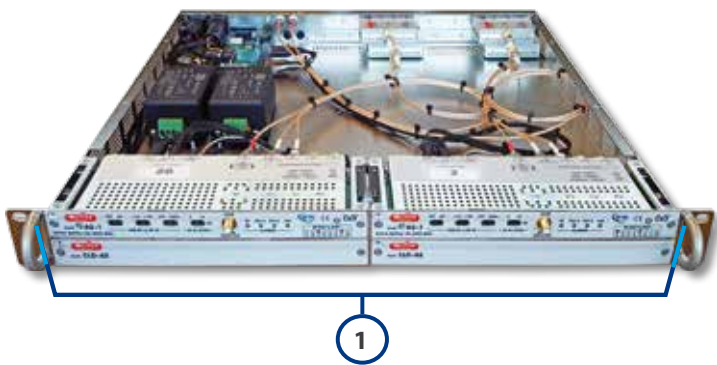
- | | | |
|---|---------------------------------------|--|
| 1. Amplifier Module position N. from 1 to 4 | 5. RF IN ATTENUATOR SWITCH (0/-10 dB) | 9. PSU "B" LED Alarm |
| 2. LNB ON/OFF Switch (DC@RF IN) | 6. RF INPUT Monitor (SMA connector) | 10. LNB Led (DC@RF IN) Alarm |
| 3. LNB 13/18 V Switch (DC@RF IN) | 7. RF Power Sensor LED Alarm | 11. LABEL indicating OUT/IN RF SLOT position (from n° 1 to 8, see footer page) |
| 4. LNB 22 Hz TONE Switch (DC@RF IN) | 8. PSU "A" LED Alarm | |

REAR PANEL VIEW with 8 SLOTS for PASSIVE SPLITTER/COMBINER MODULES



- | | | |
|---|--|--|
| 1/8. N. 8 SLOT for: 4 way splitter OUT or combiner IN | 11. RF IN N.3 (DC & 10 MHz PASS) | 14. Dry Contact Remote Alarms Connector: "SUB-D9" Male |
| 9. RF IN N.1 (DC & 10 MHz PASS) | 12. RF IN N.4 (DC & 10 MHz PASS) | 15. AC REDUNDANT MAINS "B" (supplied) |
| 10. RF IN N.2 (DC & 10 MHz PASS) | 13. a: OPTIC IN (opt.)
b: EXT DC PS.U. 48 V IN (opt.) | 16. AC MAINS "A" |

PLUG-IN MODULES INTERNAL VIEW



1. Up to N. 4 "AS-1" Plug-in Input Amplifier Modules

2. Up to N. 8 SLOTS for "PSC-4" Passive Splitters/Combiner Modules

"AS-1" RF INPUT AMPLIFIER LABEL EXPLANATION EXAMPLE

AS-1 Module Position:
Connect to RF-Input N.1

1

(Printed on the Front panel)

AS-1 Splitter Labels example:



According to your RF cable assembling fill in the related position N. indicating the related SLOT OUT on the rear.

AC-1 Module Position:
Connect to RF-Output N.1

1

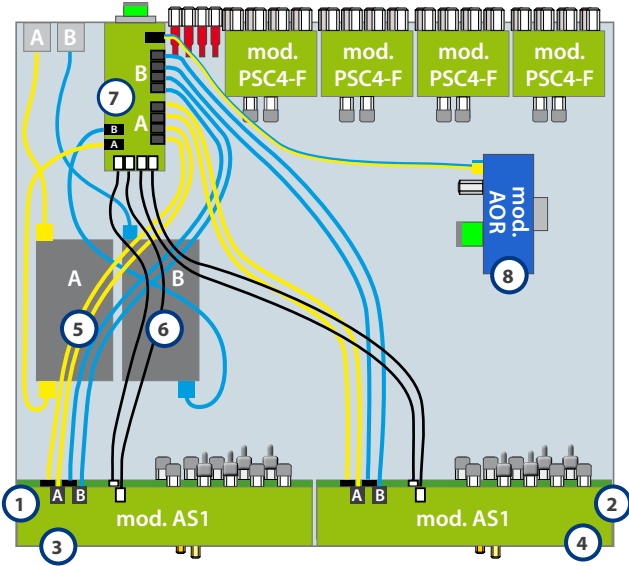
(Printed on the Front panel)

AC-1 Combiner Labels example:



According to your RF cable assembling fill in the related position N. indicating the related SLOT IN on the rear.

POWER SUPPLY & ALARMS CABLING EXAMPLES

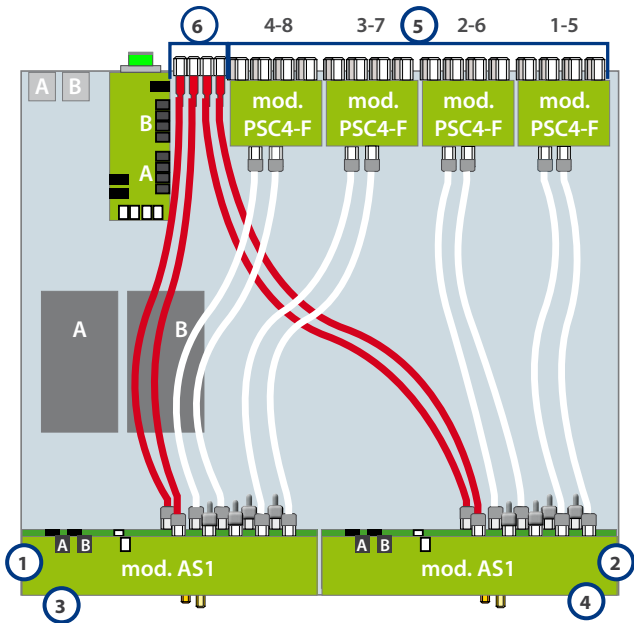


- 1/4. Swappable Plug-In RF INPUT AMPLIFIER
5. AC MAINS P.S.U. "A"
6. AC REDUNDANT P.S.U. "B" (supplied)
7. Dry Contact Alarm and PSU board
8. Optical Receiver (opt.)

INTERNAL CABLING: Power Supply & Alarms only

- = PSU A
- = PSU B
- — = PSU A+B (1 WIRE)
- = ALARMS

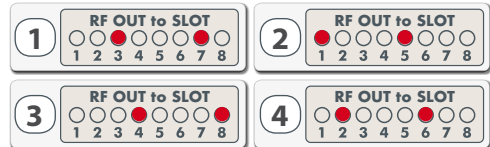
RF SPLITTER CABLING EXAMPLES (4 INPUTS & 8+8+8+8 OUTPUTS)



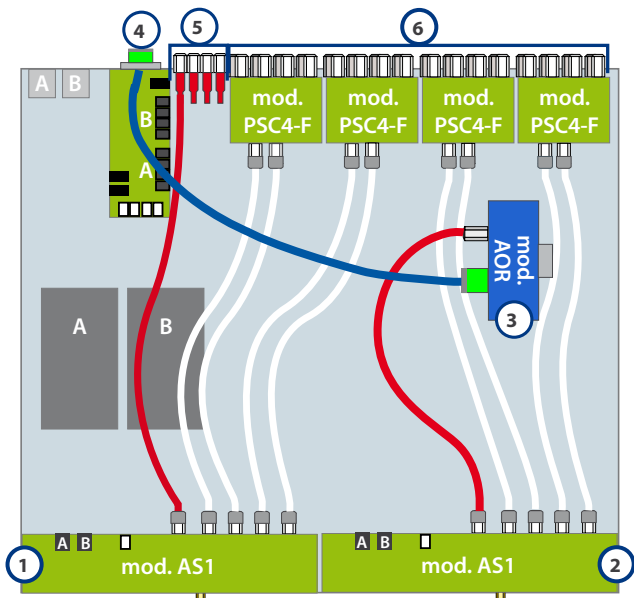
- 1/4. N. 4 Swappable Plug-In RF INPUT AMPLIFIER
5. N. 8 RF OUT Splitter/Combiner SLOTS (4 WAY each)
6. N. 4 RF INPUT, connected to related RF INPUT Amplifier

INTERNAL CABLING: IN/OUT coax cables

- = RF Inputs cables
- = RF Output cables



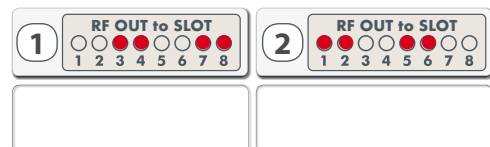
MIXED OPTICAL & RF SPLITTER CABLING EXAMPLES (1 OPTICAL INPUT 16 RF OUTPUTS & 1 RF INPUT 16 OUTPUTS)



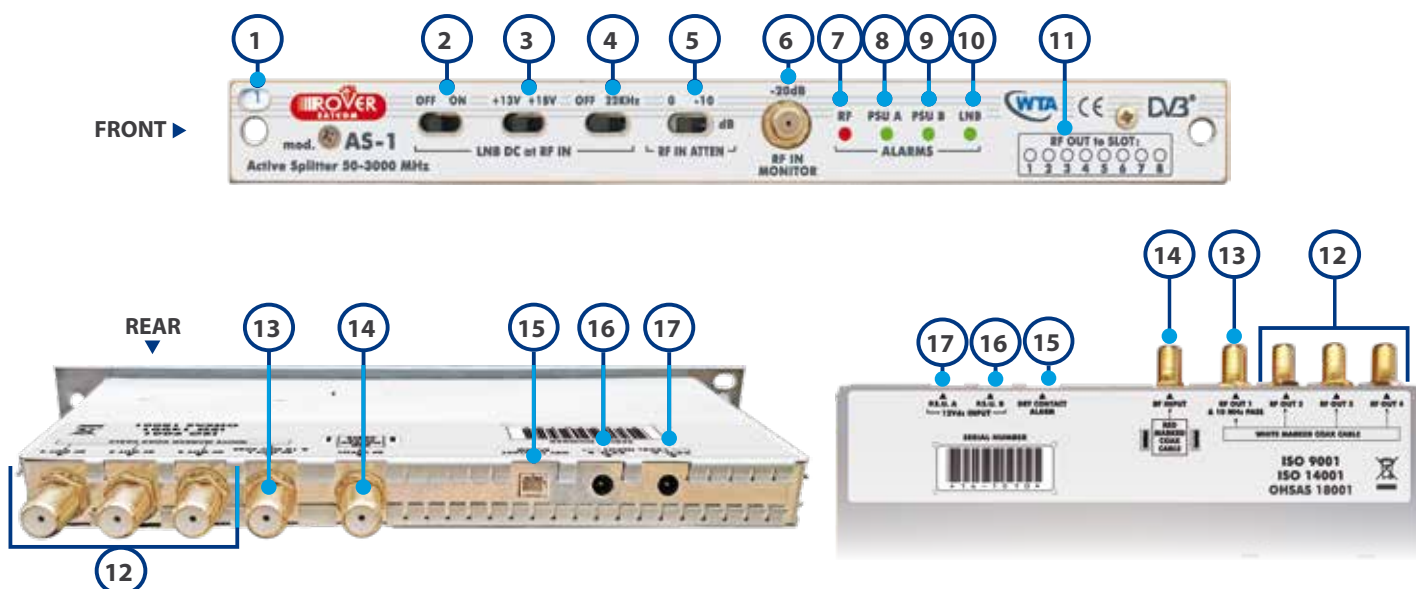
- 1/2. N. 2 Swappable Plug-in INPUT AMPLIFIER
3. N. 1 Optical receiver (mod. AOR-X-X-X) opz.
4. Optic Input (SC/APC)
5. N. 4 RF IN, connected to related RF INPUT Amplifier
6. N. 8 RF OUT Splitter/Combiner SLOTS (4 WAY each module)

INTERNAL CABLING: IN/OUT, OPTIC & RF, Fiber & Coax

- = FIBER Input
- = RF Input cables
- = RF Outputs cables



"AS-1" SWAPPABLE PLUG-IN RF INPUT AMPLIFIER/SPLITTER MODULE



- | | | |
|---------------------------------------|--|--|
| 1. Module position number from 1 to 4 | 7. RF Power Sensor LED | 12. N. 3 RF OUT CONNECTORS |
| 2. LNB ON/OFF Switch (DC@RF IN) | 8. PSU A LED | 13. N.1 RF OUT & 10 MHz PASS CONNECT |
| 3. LNB 13/18 V Switch (DC@RF IN) | 9. PSU B LED | 14. RF IN CONNECTOR (DC & 10 MHz PASS) |
| 4. LNB 22 KHz TONE Switch (DC@RF IN) | 10. LNB LED (DC@RF IN) | 15. DRY Contact Alarm connector |
| 5. RF IN ATTENUATOR SWITCH (0/-10 dB) | 11. LABEL INDICATING OUT/IN RF SLOT (from n° 1 to 8) | 16. P.S.U. B 12 Vdc IN connector |
| 6. RF INPUT Monitor (SMA connector) | | 17. P.S.U. A 12 Vdc IN connector |

RF PORT CAPACITY:

- Input Port : N. 1
- Output Port : N. 4
- Optical Input port: N. 1 (SC-APC, LC-APC, E2000, FC-APC opt.)
- 10 MHz Reference PASS = through dedicated RF OUT N. 1

RF SPECIFICATIONS:

- Frequency Range = 50-3.000 MHz
- Connectors = F (or BNC or SMA opt.)
- Impedance = 75 Ohm (or 50 Ohm opt.)
- Max INPUT Level = 0 dBm typ. +5 max. (with 10 dB attenuator ON)
- OP1dB = +17 dBm direct
- Damage Input Level = 15 dBm
- Input R.L. = >14 dB, 16 dB typ.
- Output R.L. = >14 dB, 16 dB typ.
- Gain with 5 dB positive slope:
 - at 50 MHz = 10 dB typ. ± 1 dB, 1,5 dB max
 - at 1500 MHz = 12,5 dB typ. ± 1 dB, 1,5 max
 - at 3000 MHz = 15 dB typ. ± 1 dB, 1,5 dB max
- Temperature gain variation = 1,5 dB from -30° to + 60° C
- L Band Flatness = ± 1 dB typ.
- Full Band Flatness = ± 1,5 dB typ.
- Flatness in 36 Mhz interval = ± 0,3 dB typ
- Isolation between adjacent out Port = > 24 dB, 26 typ.
- IMD = < - 40 dB (2 Tones at -13 dBm)
- Noise Figure = 9 dB

RF INPUT MONITOR PORT:

- Level = 20 dB down the Input Level
- Connector = SMA
- Impedance = 50 Ω
- Flatness = ± 2 dB

LNB POWER CONTROL (on each AS1 INPUT AMPLIFIER):

- D.C. VOLTAGE = OFF, 13V, 18V (or 24 optional) max 600 mA for each Input
- TONE = 22 KHz ON/OFF
- LED = green = OK, red = dc short circuit Alarm

RF POWER SENSING:

- POWER THRESHOLD = - 45 dBm (RMS)

ALARM INDICATIONS LED & DRY CONTACTS:

- A & B MAINS PSU = one defective or both
- LNB = dc Short Circuit
- RF POWER SENSING = RF TOO LOW or NO RF Signal

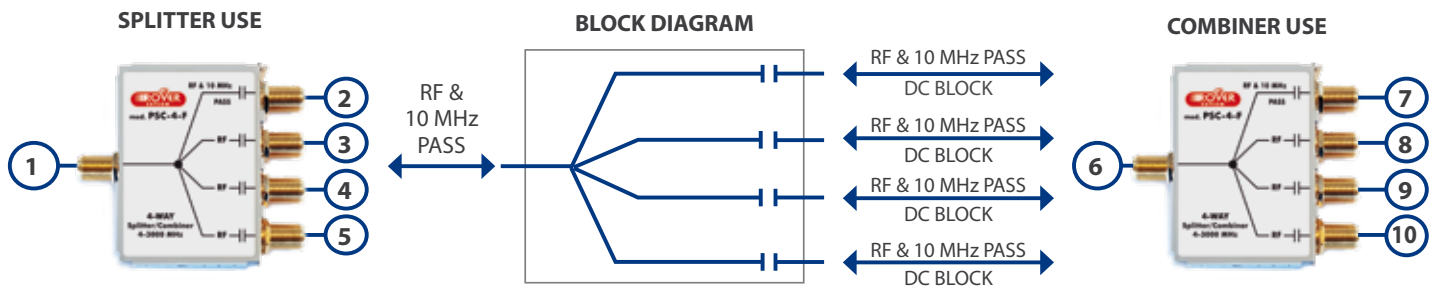
POWER SUPPLY:

- 12 V d.c., 450 mA module
- 13/18 V d.c., 600 mA LNB

GENERAL SPECIFICATIONS:

- Module size: H 2,2, W 21,5, D 8,0 cm
- NET WEIGHT = 0,3 Kg
- ENVIRONMENT:
 - Temperature range: -30° / + 55° (max 60°)
 - Umidity 95%
- EMC = EN 50 083-2

"PSC-4" 4 WAY PASSIVE SPLITTER/COMBINER MODULE



1. RF INPUT
2. RF OUTPUT & 10 MHz PASS (DC BLOCK)
- 3/5. RF OUTPUT (DC BLOCK)

6. RF OUT
7. RF INPUT & 10 MHz PASS (DC BLOCK)
- 8/10. RF INPUT (DC BLOCK)

RF PORT CAPACITY

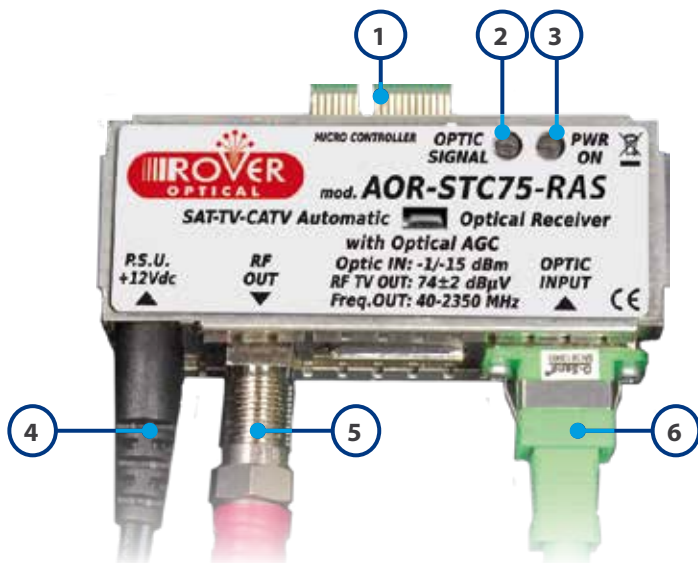
- 1 IN/OUT = RF & 10 MHz PASS, DC BLOCK
- 1 OUT/IN = RF & 10 MHz PASS, DC BLOCK
- 3 OUT/IN = RF & 10 MHz PASS, DC BLOCK

RF SPECIFICATIONS

- Frequency Range = 4-3000 MHz
- Insertion Loss :
 - 4 dB at 4 MHz
 - 6 dB at 1500 MHz
 - 8 dB at 3000 MHz
 - Ref. to 6 dB teory (included PAD. ATT.)

- Ripple in all band = 1 dB typ., 1,5 max
- Band Slope = 4 dB typ. 5 max (see Insertion Loss)
- L Band Slope = 1 dB
- Input RL = > 14 dB, 16 dB typ.
- Output RL = > 14 dB, 16 dB typ.
- Isolation = > 24 dB, 26 dB typ.v
- Fase Balance = 2°
- Amplitude Balance = 0,5 dB

"AOR" AUTOMATIC GAIN CONTROL OPTICAL RX MODULE



1. Connector for SW up-grade
2. Optical Power Meter LED
3. Power ON LED
4. P.S.U. + 12Vdc (for both A&B PSU)
5. RF OUT (& 12V on line dc)
6. OPTICAL INPUT (SC-APC, LC-APC, E2000 & FC-APC)

OPTICAL SPECIFICATIONS

- Optical Wavelength = 128-1610 nm
- Optical Input Power = -1 to 15 dBm (0-18 dBm max)
- Optical Noise = $5 \pm 1 \text{ pA}/\text{Hz}$
- Optical R.L. = 45 dB
- Optical Connector = SC-APC (LC-APC, E2000, FC-APC opz.)

RF SPECIFICATIONS

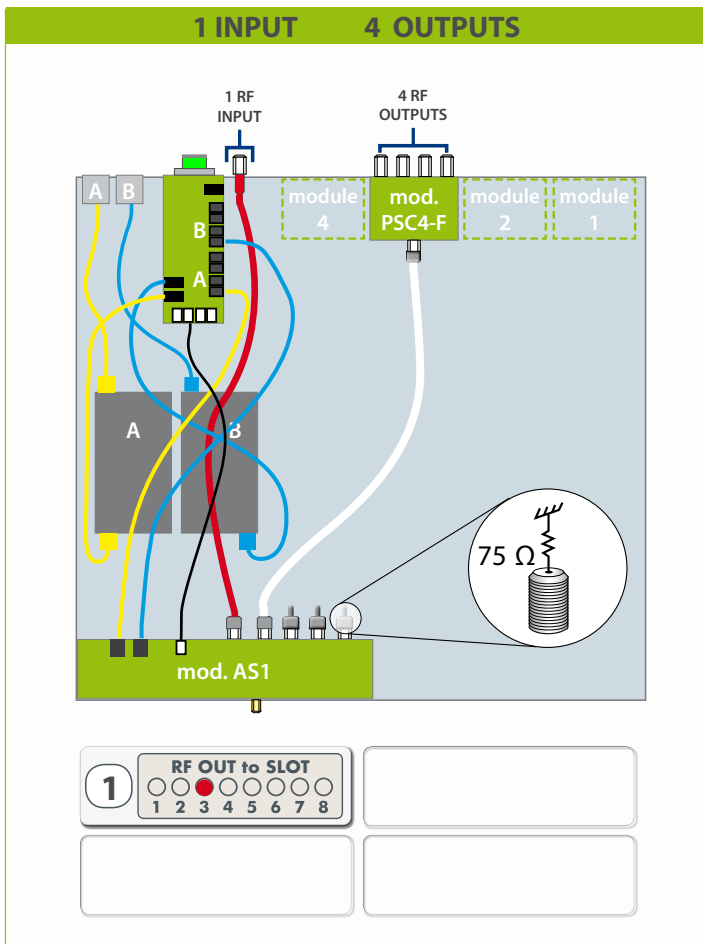
- Frequency Range = 40-2350 MHz (2500 MHz MAX)
- RF Output Level = -30 dBm RMS (stable, from -1 to -15 dBm)
- RF Flatness = 2 dB, 3 max

- RF Impedance = 75 Ohm
- RF Connector = F
- RF RL = > 14 dB 12 min.
- Operation Temperature = -30 + 60° C

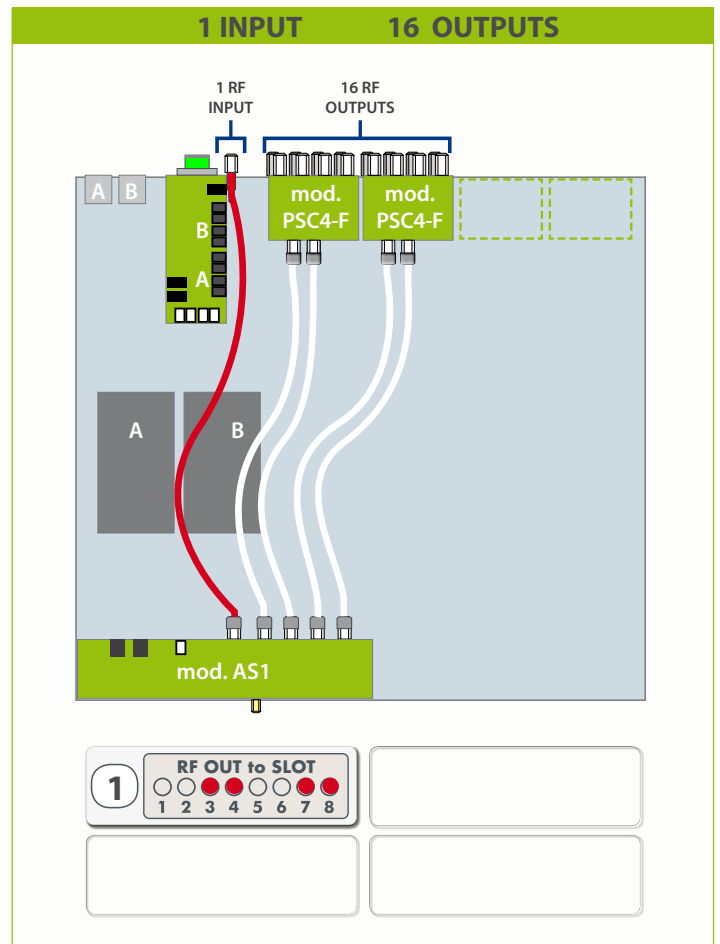
OPTICAL POWER METER LED:

- Green LED = Optical PWR OK = from -1 to -15 dBm
- Orange LED = Optical PWR to Low = < 15 dBm
- Red LED = NO Optical PWR K= < 18 dBm
- Red flashing = Optical PWR to HIGH = > -1 dBm

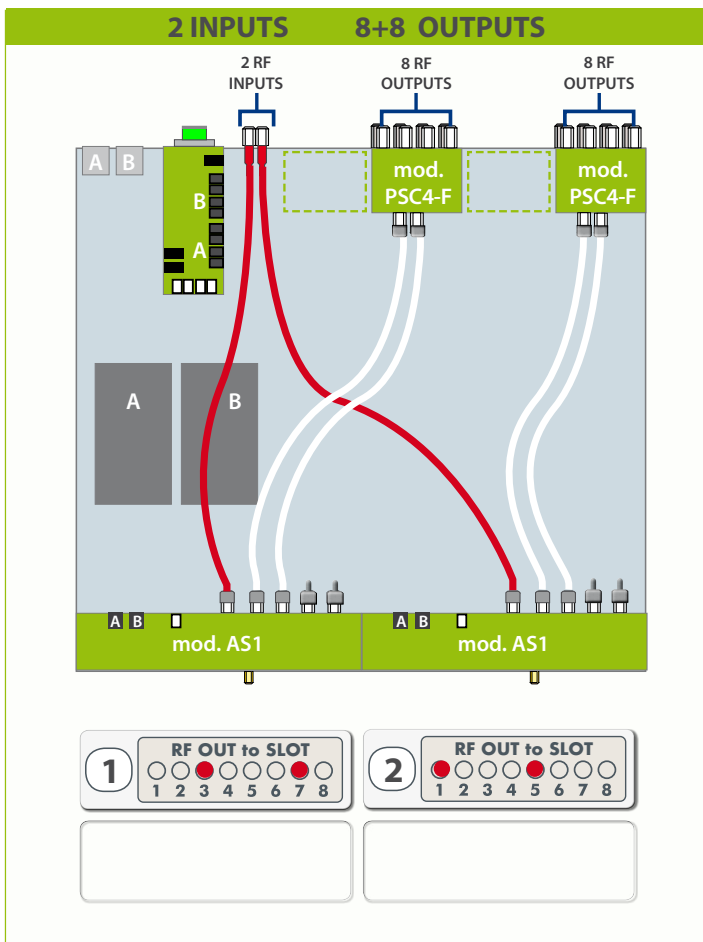
SYMMETRICAL RF MULTIPLE SPLITTER ASSEMBLY EXAMPLES



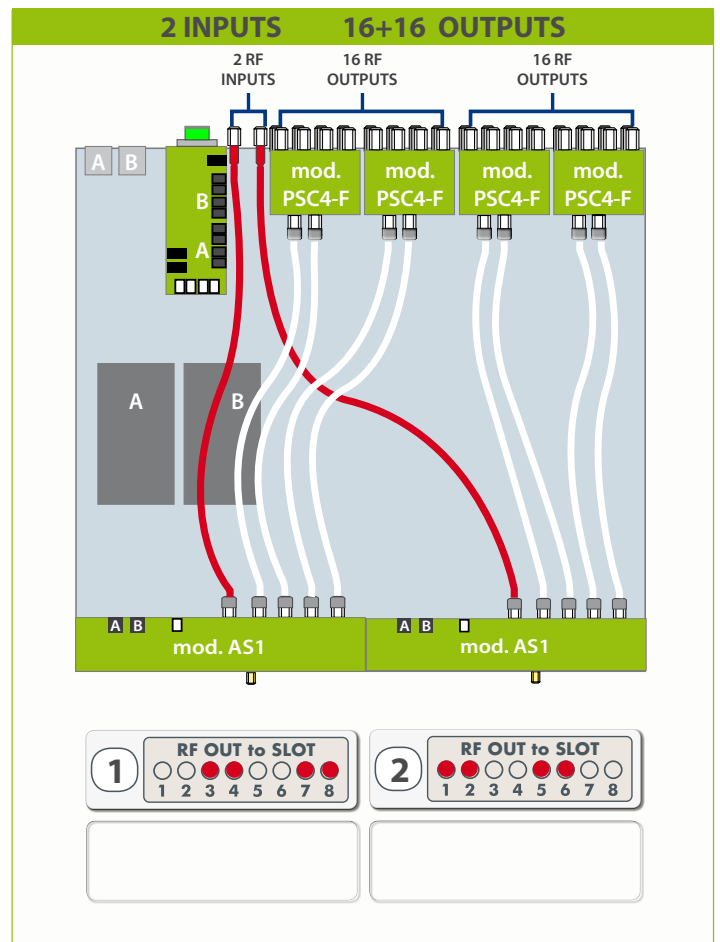
COMPLETE ORDERING CODE: mod. RAS1-1-4-F75



COMPLETE ORDERING CODE: mod. RAS1-1-16-F75

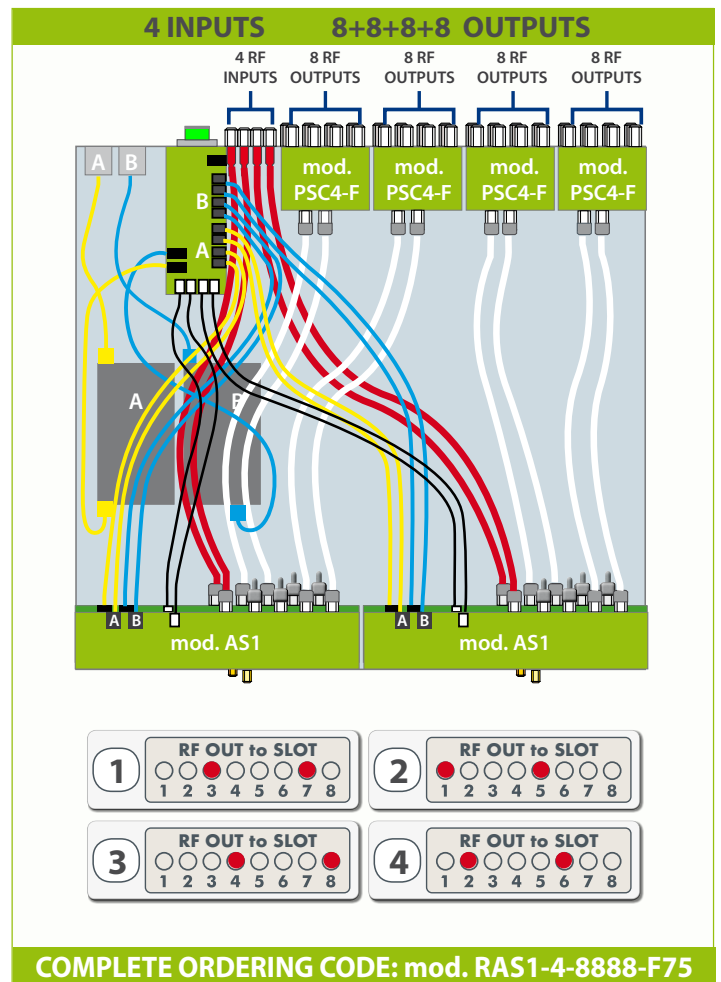
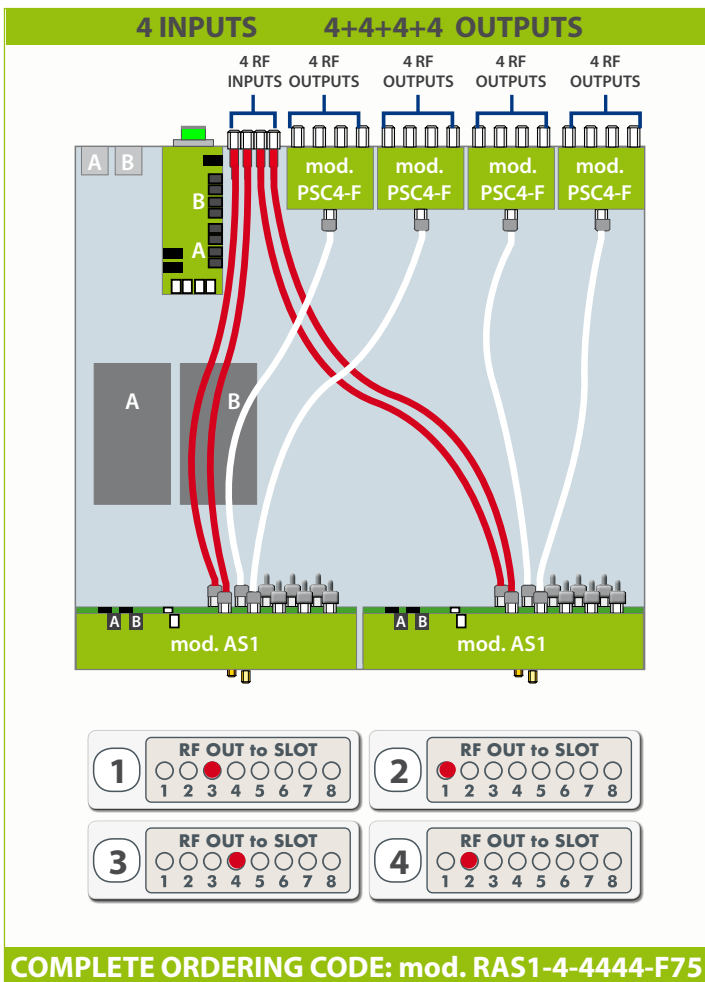
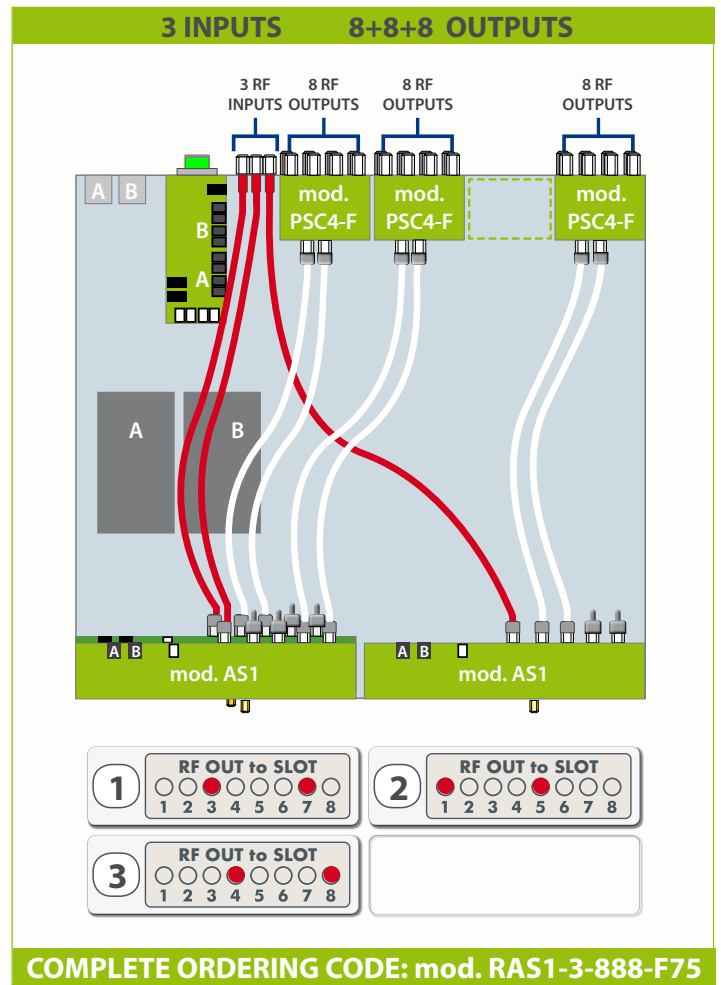
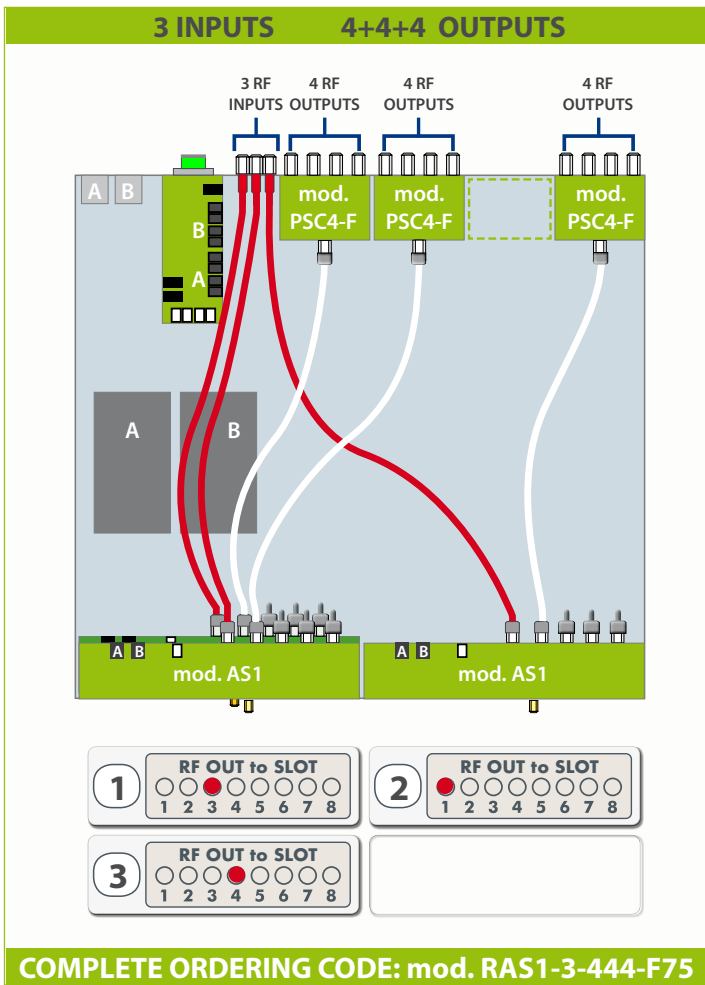


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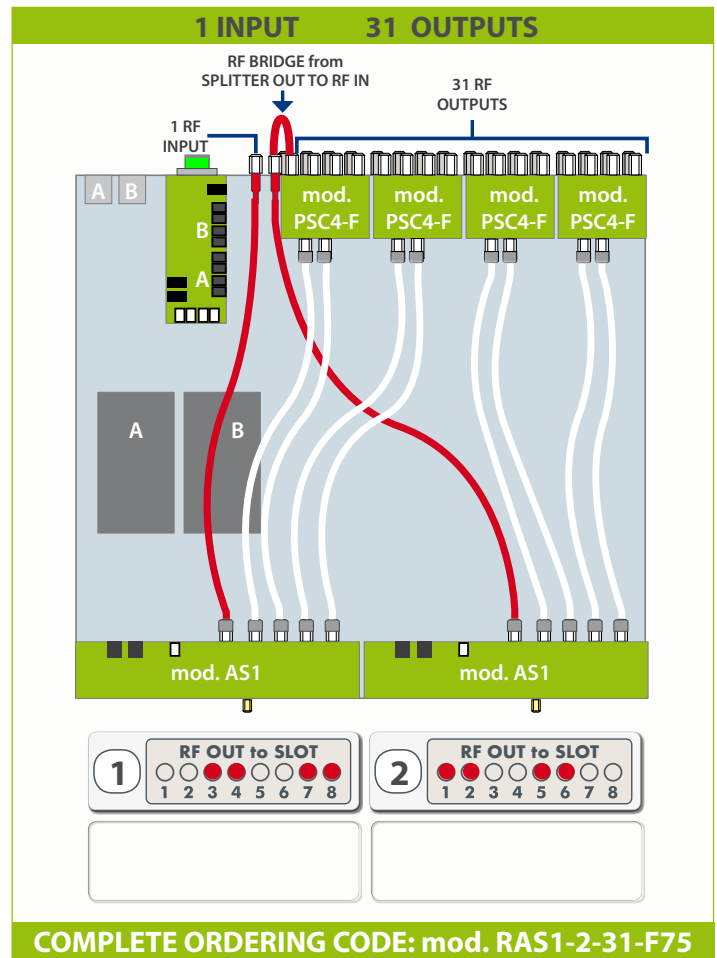
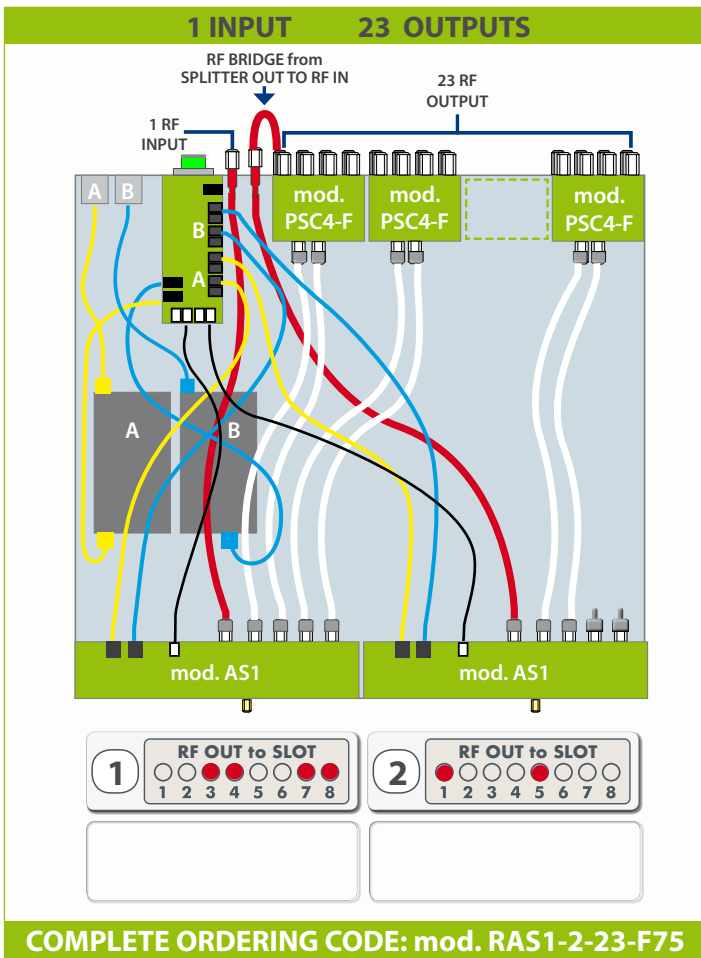


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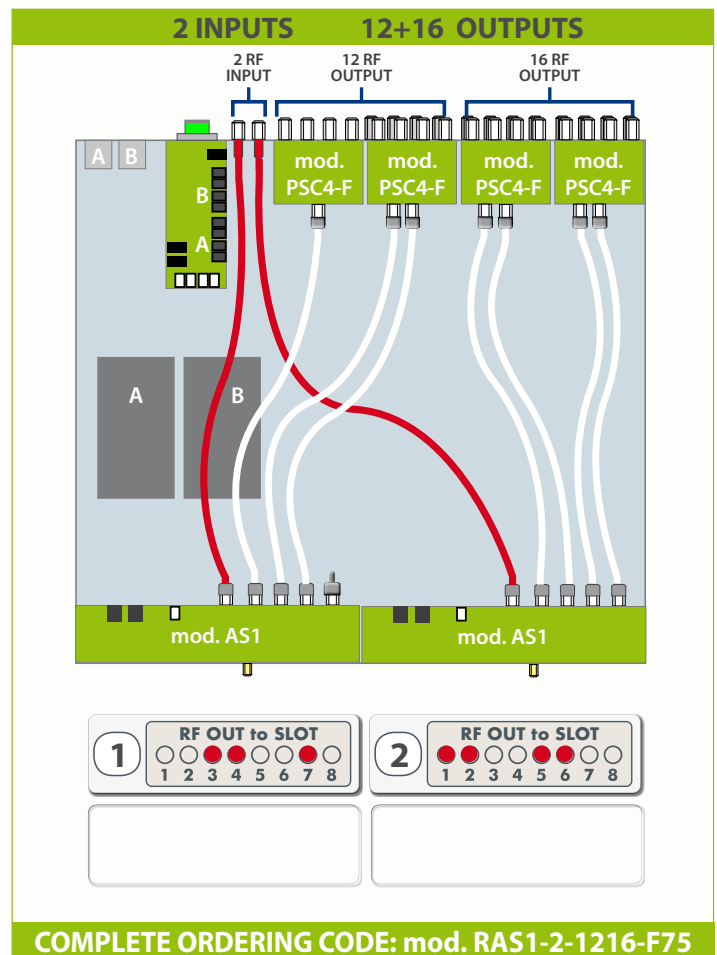
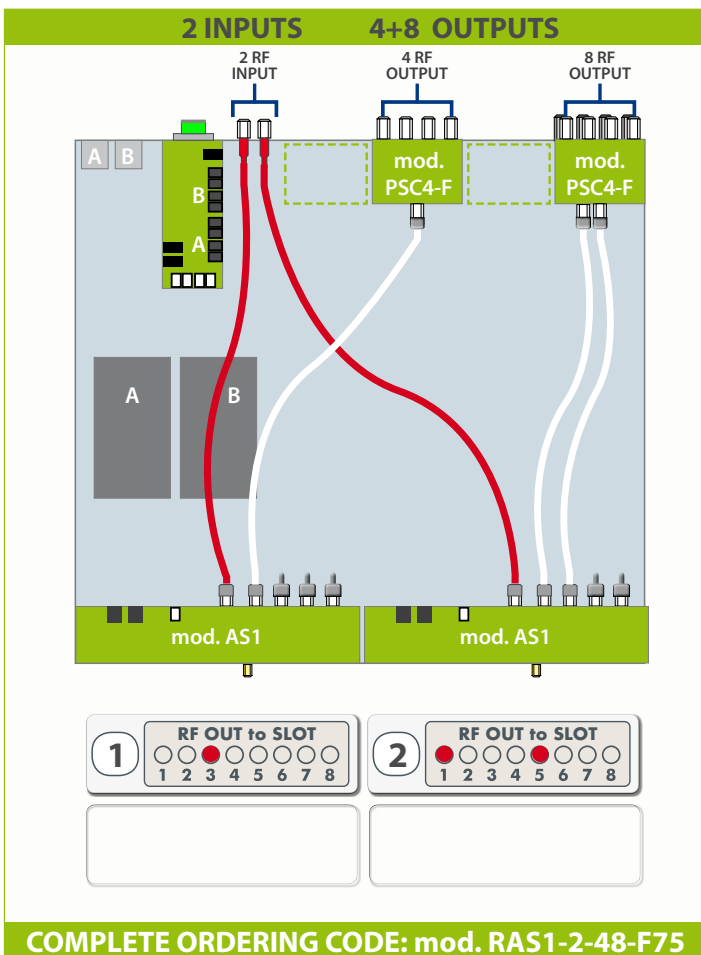
SYMMETRICAL RF MULTIPLE SPLITTER ASSEMBLY EXAMPLES



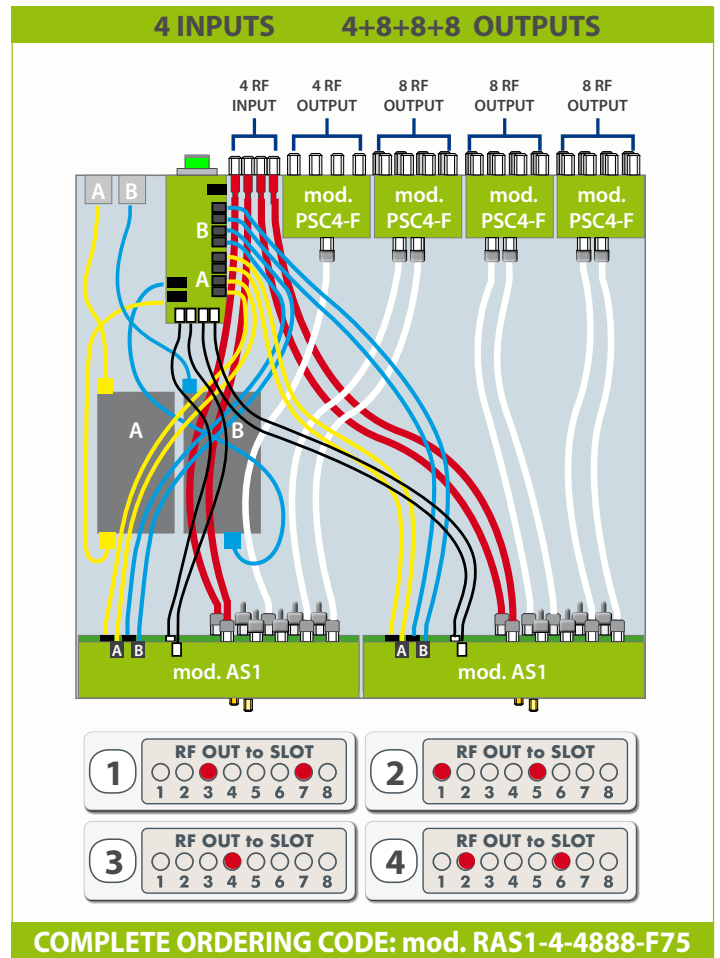
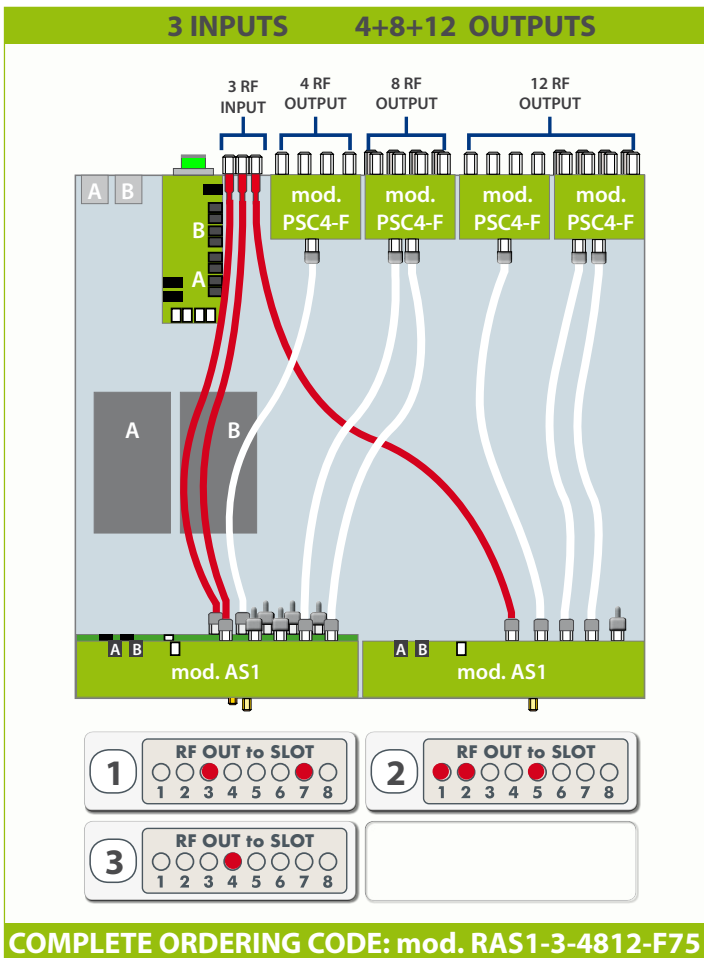
SYMMETRICAL RF MULTIPLE SPLITTER ASSEMBLY EXAMPLES



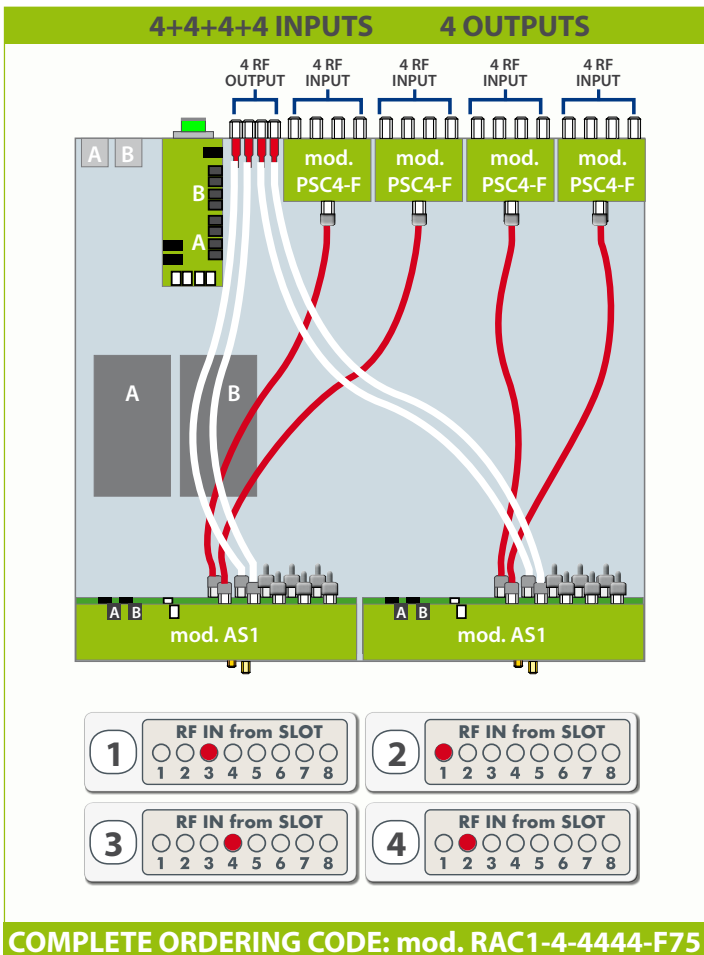
ASYMMETRICAL RF MULTIPLE SPLITTER ASSEMBLY EXAMPLES



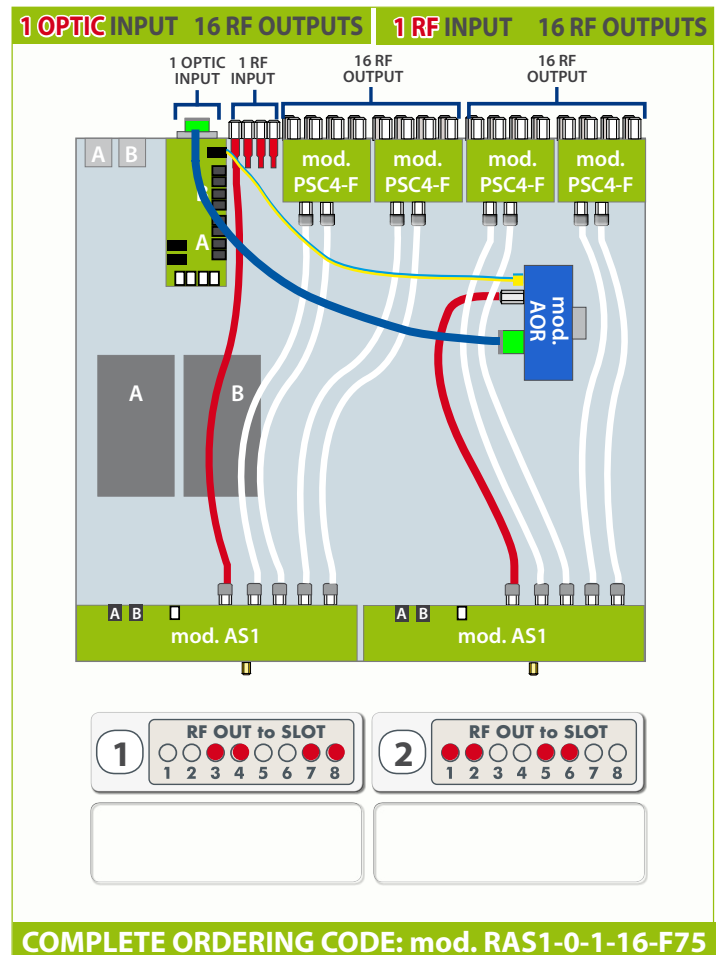
ASYMMETRICAL RF MULTIPLE SPLITTER ASSEMBLY EXAMPLES



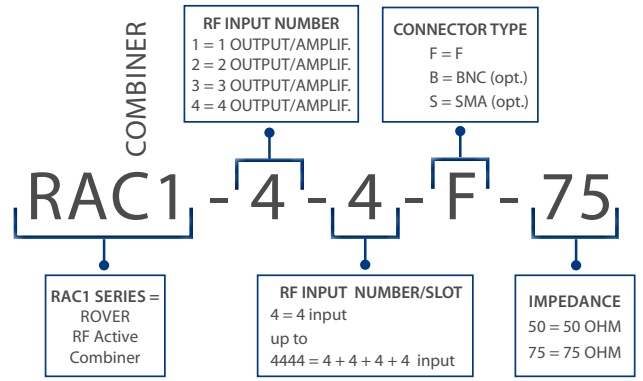
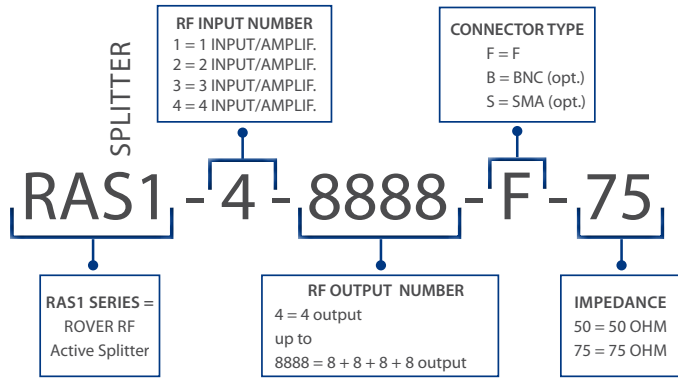
RF COMBINER ASSEMBLY EXAMPLES



MIXED: OPTICAL & RF (with OPTICAL RX)



COMPLETE MULTIPLE SPLITTER/COMBINER ORDERING CODE DEFINITION



COMPLETE SYMMETRICAL SPLITTERS

SYMMETRICAL ORDERING MOD.	RF INPUT /AMPLIF. N.	RF OUTPUT NUMBERS	CONNECT.	IMPED. Ω
RAS1-1-4-F75	1	4	F	75
RAS1-1-8-F75	1	8	F	75
RAS1-1-12-F75	1	12	F	75
RAS1-1-16-F75	1	16	F	75
RAS1-2-23-F75	1 (with 2 AMPLIFIERS)	23	F	75
RAS1-2-31-F75	1 (with 2 AMPLIFIERS)	31	F	75
RAS1-2-44-F75	2	4 + 4	F	75
RAS1-2-88-F75	2	8 + 8	F	75
RAS1-2-1212-F75	2	12 + 12	F	75
RAS1-2-1616-F75	2	16 + 16	F	75
RAS1-3-444-F75	3	4 + 4 + 4	F	75
RAS1-3-888-F75	3	8 + 8 + 8	F	75
RAS1-4-4444-F75	4	4 + 4 + 4 + 4	F	75
RAS1-4-8888-F75	4	8 + 8 + 8 + 8	F	75

COMPLETE ASYMMETRICAL SPLITTERS

ASYMMETRICAL ORDERING MOD.	RF INPUT /AMPLIF. N.	RF OUTPUT NUMBERS	CONNECT.	IMPED. Ω
RAS1-2-48-F75	2	4 + 8	F	75
RAS1-2-412-F75	2	4 + 12	F	75
RAS1-2-416-F75	2	4 + 16	F	75
RAS1-2-812-F75	2	8 + 12	F	75
RAS1-2-816-F75	2	8 + 16	F	75
RAS1-2-1216-F75	2	12 + 16	F	75
RAS1-3-488-F75	3	4 + 8 + 8	F	75
RAS1-3-4812-F75	3	4 + 8 + 12	F	75
RAS1-3-4816-F75	3	4 + 8 + 16	F	75
RAS1-3-41212-F75	3	4 + 12 + 12	F	75
RAS1-3-41216-F75	3	4 + 12 + 16	F	75
RAS1-4-4448-F75	3	4 + 4 + 4 + 8	F	75
RAS1-4-44412-F75	4	4 + 4 + 4 + 12	F	75
RAS1-4-44416-F75	4	4 + 4 + 4 + 16	F	75
RAS1-4-44812-F75	4	4 + 4 + 8 + 12	F	75
RAS1-4-44816-F75	4	4 + 4 + 8 + 16	F	75
RAS1-4-4888-F75	4	4 + 8 + 8 + 8	F	75
RAS1-4-48812-F75	4	4 + 8 + 8 + 12	F	75

COMPLETE COMBINER ORDERING CODE COMBINATIONS

COMBINER ORDERING MOD.	RF OUTPUT /AMPLIF. N.	RF INPUT NUMBERS	CONNECT.	IMPED. Ω	COMBINER ORDERING MOD.	RF OUTPUT /AMPLIF. N.	RF INPUT NUMBERS	CONNECT.	IMPED. Ω
RAC1-1-4-F75	1	4	F	75	RAC1-3-444-F75	3	4 + 4 + 4	F	75
RAC1-2-44-F75	2	4 + 4	F	75	RAC1-4-4444-F75	4	4 + 4 + 4 + 4	F	75

SINGLE PARTS ORDERING CODE DEFINITION

- mod. RAS 1 chassis:** 19" 1 U Rack chassis contains: 2 PSU, Dry Contact Alarm board (compatible also with AC1 combiner)
- mod. AS 1:** Swappable Plug-in RF input Amplifier contain: full LNB Control, RF Input Monitor Port, RF Power Sensor, RF Input Attenuator, 10 MHz PASS, RF & PSU Alarm, 4 way Active Splitter and LED indicator and Alarms
- mod. AC 1:** Swappable Plug-in RF input Amplifier contain: full LNB Control, RF Input Monitor Port, RF Power Sensor, RF Input Attenuator, RF & PSU Alarm, 4 way Active Splitter and LED indicator and Alarms
- mod. CLO-AS:** Blank closure cap for front panel
- mod. PSC4-F75:** 4 way Passive Splitter or Combiner, with "F" connector, from 4 to 3.000 MHz, 10 MHz PASS, DC BLOCK
- mod. C2-F-MM-60:** 60 cm Interconnection Coax Cable with 2 F Male connectors (WithE marked)
- mod. C2-F-MF-60:** 60 cm Interconnection Coax Cable with 1 F Male and 1 F Female connectors (RED marked)
- mod. J-PSC-60:** 60 cm Interconnection jack Power Supply Cable
- mod. W-AC-60:** 60 cm Interconnection wire for Alarms
- mod. AOR-STC-75-RAS:** High Dinamic Range Optical Receiver with Optical AGC and 70 dBμV (- 38 dBm) Output

V.8,2 22-1-19



Product
made in Italy by
Rover Broadcast.com

CERTIFICATES N°
1263 ISO 9001
1264 ISO 14001
1265 BS OHSAS 18001



Specifications and features are subject to change without notice.

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