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BSRF
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User Manual

AFR-250S

Version 01

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Start

Table of contents

Read first:

- First of all read this manual.
- Clean the device with a slightly damp cloth.
- This device must'nt be exposed to rain, moisture.
- Do not install the device near any heat sources.
- This device must be serviced by a qualified service personnel.
- Specifications are subject to change without notice.
- BSRF is not responsible of any injuries, destruction resulting of improper usage of equipments.

Warning:

Do not look to the end of a fiber directly or with an optical microscope while equipement are ON. Laser used are invisible. Use proper EPI for cleaning and inspecting fiber.

Manual

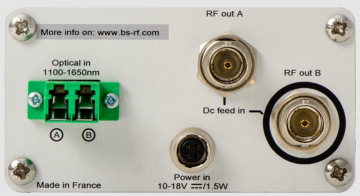
About AS-250S

Introduction :

The AFR-250S is dual radio over fiber receiver in a small form factor. Remoting antenna through radio over fiber system allows to take advantages of transmission over fiber.

Advantages of fiber optic :

- Low loss, 0.5dBm/km to all frequencies
- Monomode fiber is low cost
- electromagnetic isolation
- light weight: 150m on drum is 2.3kg
  much easy to deploy, low radius of curvature.
- complete isolation between antenna and receiver.



What is needed with AFR-250S :

-Power source (9 -18V) and power cable (4 point push pull type)

-Two 50ohms coax for antennas(BNC), coax for receivers(SMA) and SMA loads for unused ports (recommended)

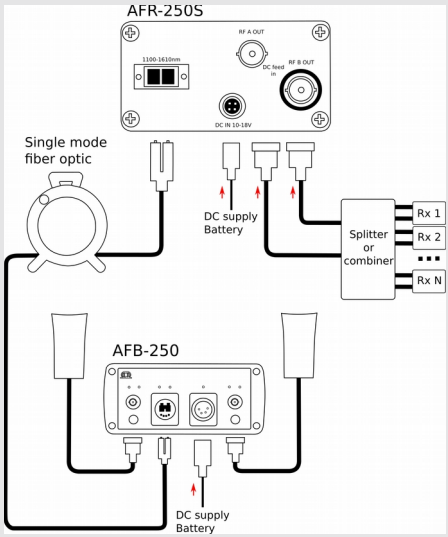
-LC/APC DUO fiber and AFB-250

Description

Connecting :

- Connects outputs to wireless receiver inputs (or combiner, splitter). Note that AFR-250S can be powered with DC feed of the receiver
- Connect power to DC in (if needed)

  Pinout : 1,2:GND 3,4:VIN
- Connects a monomode LC/APC DUO fiber to the AFR-250S
- Set up the AFB-250



Leds :

RF A&B :

- Those leds light up when the signal exceed the RF threshold → peak power at the input of AFB-250 inputs. Try to move antennas to reduce those peaks.

OP A&B :

- Those leds light up when the optical power loss exceed the alert OP threshold → this indicate that the optical path must be checked, optical connectors must be checked, cleaned.

Display

Oled display :

Main screen displays :

- internal temperature
- voltage at the DC in port
- voltage from DC feed
- RF power (from -30 to 0dB)
- OPtical loss (from – 15 to +5dB)
- ATTenuation level (from 0 to 31dB)

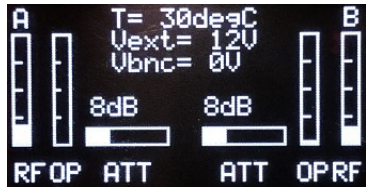


Illustration 1: Main display

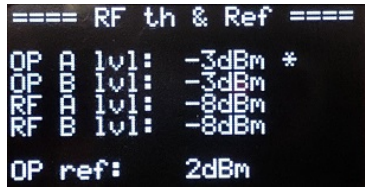


Illustration 2: Threshold and optical ref power

RF attenuator :

- Press switch to select A or B attenuator. Turn CW to increase attenuation or CCW to decrase attenuation.

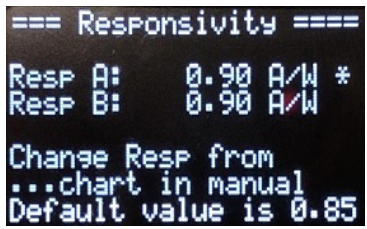


Illustration 3: Diode responsivity

Menu :

- 1 Press and hold switch, menu will be displayed.
- 2 Defines threshold for optical signal and RF signal. Optical reference power can be modified here.
- 3 Responsivity of diodes are set here.
- 4 Optical loss is displayed here, Low means that the optical power can'nt be measured by the AFR-250S

The '*' appears next item that can be modifed using the encoder.

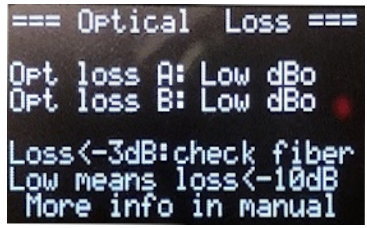
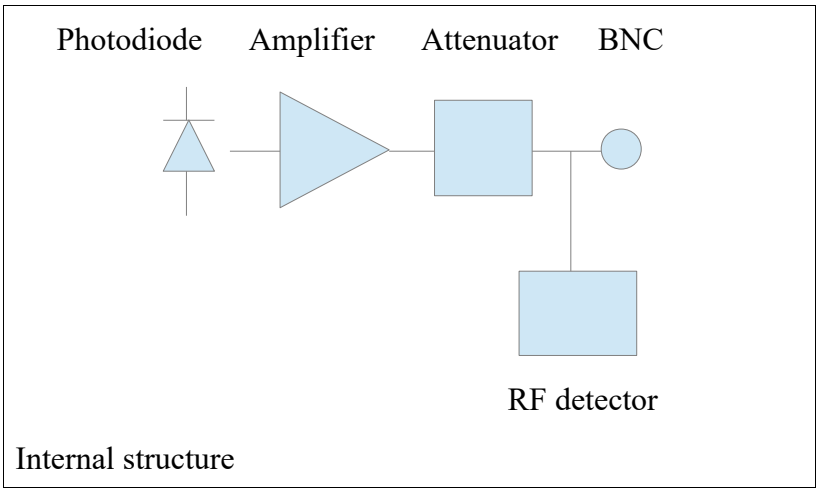


Illustration 4: Optical loss

Tips



Internal structure

RF power bargraph measure power after the attenuator while RF led measure power before the attenuator.

If RF led lights up frequently it means there is too much RF power at the input of the AFB-250 (RF to optical converter). In such a condition adding attenuation will not be the solution, you rather consider :

- moving antennas from the source of power
- filter signal from antenna

… to avoid saturation (intermodulation, rise of noise...)

OP level and led refer to optical loss that occurs between the AFB-250 and the AFR-250S. The more optical loss, the more RF loss you will get. One dB of optical loss is two dB of loss in the RF path. Check documentation available on our website for more informations.

Specifications

Specifications:

Bandwidth	100-1000MHz	@-3dB
Gain	0 to -31dB	1dB step
Max RF out	10dBm	
A/B isolation	65dB typ.	@650MHz
Output Matching	-15dB RL typ.	
Noise density	-154dBm/Hz	@0dB
DC feed	12V/86mA	
RF Out	2xBNC	50 ohms
DC In	4 pts	(-):1&2 (+):3&4
Supply	9-18V	150mA typ. without DC feed
Dimension	83x60x31mm	
Weigth	0,25kg	

(Subject to change without notice)

Warranty

Warranty:

This 2 year limited Warranty covers any defects in material or workmanship under normal use during the Warranty Period. During the Warranty Period, BSRF will repair or replace, at no charge, products or parts of a product that proves defective because of improper material or workmanship, under normal use and maintenance.

Send an email first at:

contact@bs-rf.com