### R&S®ASMS02 Automatic Switching Main Standby Unit for R&S®M3SR Series4100 radios





Product Brochure | 01.00

Secure Communications

## R&S<sup>®</sup>ASMS02 **Automatic** Switching Main **Standby Unit** At a glance

The R&S®ASMS02 provides automatic main/standby switching for R&S®M3SR Series4100 radios.

In order to provide reliable and highly available radiocommunications solutions, the communications infrastructure should have a redundant setup. To achieve complete redundancy, it would be necessary to duplicate the entire system - from the controller working position all the way to the antenna.

A typical HF radiocommunications system configuration consists of radios, antenna tuning units (ATU) and antennas. Since ATUs and antennas are costly and/or the space for antenna installations is limited, solutions are needed that allow redundant radio installations to work with a single antenna. This is especially true in the 1.5 MHz to 30 MHz frequency range where antennas require a lot of space.

The R&S®ASMS02 automatic switching main standby unit provides a solution for this challenge. It uses one antenna system (antenna and ATU) and two R&S®M3SR Series4100 radios (main and standby radio). In normal operation, the main and standby radios are powered up. The R&S®ASMS02 shuts off the standby radio via the remote power on contact at the standby R&S®M3SR Series4100 radio. Only the main radio is used for operation. LEDs on the front panel of the R&S®ASMS02 show the power and the operating status of each radio.

Two types of R&S<sup>®</sup>M3SR Series4100 radio failures are evaluated:

Power failure of the main radio

Detection of an internal error in the main radio

If the main R&S®M3SR Series4100 radio fails, the R&S®ASMS02 immediately switches the control signals for the ATU and the RF signal to the standby radio. It then automatically boots the standby radio so that it is ready for operation.

When the main radio is again operating normally and is switched on, the R&S®ASMS02 recognizes the status change and switches the necessary control and RF signals back to the main radio. The R&S®ASMS02 shuts off the standby radio via remote power on contact.

Switching between the main and standby radios is done completely automatically. The R&S®ASMS02 is designed for integration into 19" standard racks.

#### Model overview

There are two models available for the R&S®ASMS02. Model .02 supports the R&S®XK4115 150 W transceiver and the R&S®EK4100 VLF-HF receiver. Model .03 supports the 500/1000 W HF transceiver consisting of the R&S®GX4100 HF receiver/exciter, the R&S®VK4150/ R&S<sup>®</sup>VK4190 HF power amplifier and the R&S<sup>®</sup>IN4150/ R&S®IN4190 power supply. The difference between the two R&S®ASMS02 versions is in the control signals to the ATU.

With the R&S®ASMS02 model .02, the R&S®M3SR Series4100 radios use a fiber optic signal to control the ATU (R&S FK4115M, model .03, or built into the R&S®HX002H1 and R&S®HX002H2). The R&S®ASMS02 unit uses a fiber optic relay to switch between the two incoming fiber optic signals of the main and standby radios and provides the RF signal of the operating radio to the ATU.

With the R&S®ASMS02 model .03, the R&S®M3SR Series4100 radios use an electrical signal to control the ATU (R&S°FK2900M, R&S°FK4150M or R&S°FK4190M). Therefore a relay switching box is used to switch the control signal from the main or standby radio to the ATU.



# **Specifications**

### Specifications in brief

Electrical data		
External power supply, DC	R&S®ASMS02 models .02 and .03	nominal +24 V
Fuse	R&S®ASMS02 models .02 and .03	1 A, antisurge
Power consumption, operation	R&S®ASMS02 model .02	7.2 W
	R&S®ASMS02 model .03	19.2 W
Switching time (internal failure or interruption of main radio's power supply)	R&S®ASMS02 models .02 and .03	R&S®ASMS02 responds within 20 ms
Mechanical resistance		
Vibration, sinusoidal	R&S®ASMS02 models .02 and .03	in line with EN 60068-2-6, 5 Hz to 55 Hz, 0.15 mm amplitude, 55 Hz to 150 Hz, 0.5 g constant, 12 minutes per axis
Vibration, random	R&S®ASMS02 models .02 and .03	in line with EN 60068-2-64, 10 Hz to 300 Hz, 0.003 g²/Hz
Shock	R&S®ASMS02 models .02 and .03	in line with MIL-STD 810, method no. 516, procedure 1, 45 Hz to 2000 Hz, max 40 g
General data		
Operating temperature range	R&S®ASMS02 models .02 and .03	-20°C to +40°C
Storage temperature range	R&S®ASMS02 models .02 and .03	-20°C to +70°C
Humidity	R&S®ASMS02 models .02 and .03	in line with EN 60068-2-30, ≤ 95% at +40°C
Altitude, operating	R&S®ASMS02 models .02 and .03	3500 m asl
Altitude, storage	R&S®ASMS02 models .02 and .03	10000 m asl
Dimensions (W x H x D)	R&S®ASMS02 models .02 and .03	465 mm × 93 mm × 495 mm (18.3 in × 3.7 in × 19.5 in)
Weight	R&S®ASMS02 model .02	4.78 kg (10.54 lb)
	R&S®ASMS02 model .03	5.70 kg (12.57 lb)

# **Ordering information**

Designation	Compatibility	Туре	Order No.	
Automatic Switching Main Standby Unit, model .02	R&S <sup>®</sup> XK4115 150 W transceiver, R&S <sup>®</sup> EK4100 VLF-HF receiver, R&S FK4115M, model .03, antenna tuning unit, R&S <sup>®</sup> HX002H1 antenna (including ATU), R&S <sup>®</sup> HX002H2 antenna (including ATU)	R&S®ASMS02	6188.2761.02	
Automatic Switching Main Standby Unit, model .03	R&S <sup>®</sup> GX4100 HF receiver/exciter, R&S <sup>®</sup> VK4150 500W HF power amplifier, R&S <sup>®</sup> VK4190 1000 W HF power amplifier, R&S <sup>®</sup> FK2900M HF antenna tuning unit, R&S <sup>®</sup> FK4150M HF antenna tuning unit, R&S <sup>®</sup> FK4190M HF antenna tuning unit	R&S®ASMS02	6188.2761.03	
Telescope Slides		C-300-S-120	5140.9330.00	
Scope of delivery: ordered model of the R&S®ASMS02, plugin power supply (+24 V/1.5 A; order no. 5149.2039.00), manual				

Your local Rohde&Schwarz expert will help you determine the optimum solution for your requirements. To find your nearest Rohde&Schwarz representative, visit www.sales.rohde-schwarz.com

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The Rohde&Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, radiomonitoring and radiolocation. Founded more than 80 years ago, the independent company which is headquartered in Munich, Germany, has an extensive sales and service network with locations in more than 70 countries.

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- I Environmental compatibility and eco-footprint
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