SYSTEM CONFIGURATION OPTIONS AND APPLICATIONS

Easy-to-replace lithium ion battery for up to 4.5 h of operation

Altogether ten R&S®FSH models for different applications and frequency ranges are available (models .04/.08/.14/.18/.24/.28/.13/.23/.20/.30). The R&S®FSH can perform measurements up to an upper frequency limit of 3.6 GHz, 8 GHz, 13.6 GHz or 20 GHz. Models featuring a built-in tracking generator can also be used to determine the transmission characteristics of cables, filters, amplifiers, etc.

Additional models with built-in tracking generator and internal VSWR bridge are available for distance-to-fault (DTF) measurements, matching measurements and vector network analysis.

All models have an adjustable preamplifier, making them suitable for measuring very small signals. Two power sensors are available as accessories – for precise terminating power measurements up to 110 GHz and for directional power measurements up to 4 GHz.

The following tables show possible configurations for different standard functions and applications as well as an overview of available models.

Models

	Frequency range	Preamplifier	Tracking generator	Built-in VSWR bridge	DC voltage supply (bias) for port 1/2
R&S®FSH4, model .04	9 kHz to 3.6 GHz	•	–	–	–
R&S®FSH4, model .14	9 kHz to 3.6 GHz	•	•	–	–
R&S®FSH4, model .24	100 kHz to 3.6 GHz	•	•	•	•
R&S®FSH8, model .08	9 kHz to 8 GHz	•	–	–	–
R&S®FSH8, model .18	9 kHz to 8 GHz	•	•	–	–
R&S®FSH8, model .28	100 kHz to 8 GHz	•	•	•	•
R&S®FSH13, model .13	9 kHz to 13.6 GHz	•	–	–	–
R&S®FSH13, model .23	9 kHz to 13.6 GHz	•	•	•	–
R&S®FSH20, model .20	9 kHz to 20 GHz	•	–	–	–
R&S®FSH20, model .30	9 kHz to 20 GHz	•	•	•	–

Standard functions

Models	.04/.08/.13/.20	.14/.18	.24/.28	.23/.30
TDMA power measurements	•	•	•	•
Channel power measurements	•	•	•	•
Field strength measurements/ measurements with isotropic antennas	•	•	•	•
Occupied bandwidth measurements	•	•	•	•
Frequency settings via channel tables	•	•	•	•
Scalar transmission measurements	–	•	•	–
Scalar reflection measurements	–	–	•	–
Vector transmission (S_{12}) and reflection (S_{22}) measurements	–	–	–	•
One-port cable loss measurements	–	–	–	•
Channel power meter	•	•	•	•

Options

Models	.04/.08/.13/.20	.14/.18	.24/.28	.23/.30
Spectrogram measurements	R&S®FSH-K14	R&S®FSH-K14	R&S®FSH-K14	R&S®FSH-K14
Interference analysis	R&S®FSH-K15	R&S®FSH-K15	R&S®FSH-K15	R&S®FSH-K15
Geotagging	R&S®FSH-K16	R&S®FSH-K16	R&S®FSH-K16	R&S®FSH-K16
Indoor mapping	R&S®FSH-K17	R&S®FSH-K17	R&S®FSH-K17	R&S®FSH-K17
Receiver mode and channel scan measurements	R&S®FSH-K43	R&S®FSH-K43	R&S®FSH-K43	R&S®FSH-K43
Analysis of GSM/GPRS/EDGE transmit signals	R&S®FSH-K10	R&S®FSH-K10	R&S®FSH-K10	R&S®FSH-K10
Analysis of WCDMA/HSDPA/HSPA+ transmit signals	R&S®FSH-K44, R&S®FSH-K44E	R&S®FSH-K44, R&S®FSH-K44E	R&S®FSH-K44, R&S®FSH-K44E	R&S®FSH-K44, R&S®FSH-K44E
Analysis of CDMA2000® signals	R&S®FSH-K46, R&S®FSH-K46E	R&S®FSH-K46, R&S®FSH-K46E	R&S®FSH-K46, R&S®FSH-K46E	R&S®FSH-K46, R&S®FSH-K46E
Analysis of 1xEV-DO signals	R&S®FSH-K47, R&S®FSH-K47E	R&S®FSH-K47, R&S®FSH-K47E	R&S®FSH-K47, R&S®FSH-K47E	R&S®FSH-K47, R&S®FSH-K47E
Analysis of TD-SCDMA/HSDPA signals	R&S®FSH-K48, R&S®FSH-K48E	R&S®FSH-K48, R&S®FSH-K48E	R&S®FSH-K48, R&S®FSH-K48E	R&S®FSH-K48, R&S®FSH-K48E
Analysis of LTE FDD signals	R&S®FSH-K50[5], R&S®FSH-K50E	R&S®FSH-K50[5], R&S®FSH-K50E	R&S®FSH-K50[5], R&S®FSH-K50E	R&S®FSH-K50[5], R&S®FSH-K50E
Analysis of LTE TDD signals	R&S®FSH-K51[5], R&S®FSH-K51E	R&S®FSH-K51[5], R&S®FSH-K51E	R&S®FSH-K51[5], R&S®FSH-K51E	R&S®FSH-K51[5], R&S®FSH-K51E
Analysis of NB-IoT downlink signals	R&S®FSH-K56[5]	R&S®FSH-K56[5]	R&S®FSH-K56[5]	R&S®FSH-K56[5]
Distance-to-fault (DTF) measurements	–	–	R&S®FSH-K41	R&S®FSH-K41
Vector reflection and transmission measurements (S_{11}, S_{22}, S_{21}, S_{12})	–	–	R&S®FSH-K42	• (S_{12}, S_{22} only)
One-port cable loss measurements	–	–	R&S®FSH-K42	•
Vector voltmeter	–	–	R&S®FSH-K45	R&S®FSH-K45
Power measurements up to 110 GHz	see power sensors on page 33			
Directional power measurements up to 1 GHz	R&S®FSH-Z14	R&S®FSH-Z14	R&S®FSH-Z14	R&S®FSH-Z14
Directional power measurements up to 4 GHz	R&S®FSH-Z44	R&S®FSH-Z44	R&S®FSH-Z44	R&S®FSH-Z44
Pulse measurements with power sensor[6]	R&S®FSH-K29	R&S®FSH-K29	R&S®FSH-K29	R&S®FSH-K29
Remote control via LAN or USB	R&S®FSH-K40	R&S®FSH-K40	R&S®FSH-K40	R&S®FSH-K40
EMF measurement application	R&S®FSH-K105	R&S®FSH-K105	R&S®FSH-K105	R&S®FSH-K105

[5] Available for R&S®FSH analyzers with serial numbers ≥ 105000.
[6] R&S®FSH-Z129 required for R&S®FSH4/8/13/20 with serial numbers as indicated in the data sheet.