R&S®HMC804x

Power Supply
100 W and 1, 2 or 3 Channels

ROHDE&SCHWARZ

Test & Measurement

Product Brochure | 02.00

Total output power
All models: 100 W

Output current per channel
R&S®HMC8041: max. 10 A
R&S®HMC8042: max. 5 A
R&S®HMC8043: max. 3 A

EasyArb
Create individual V/I curves directly on the device

FuseLink
Combine electronic fuses as required

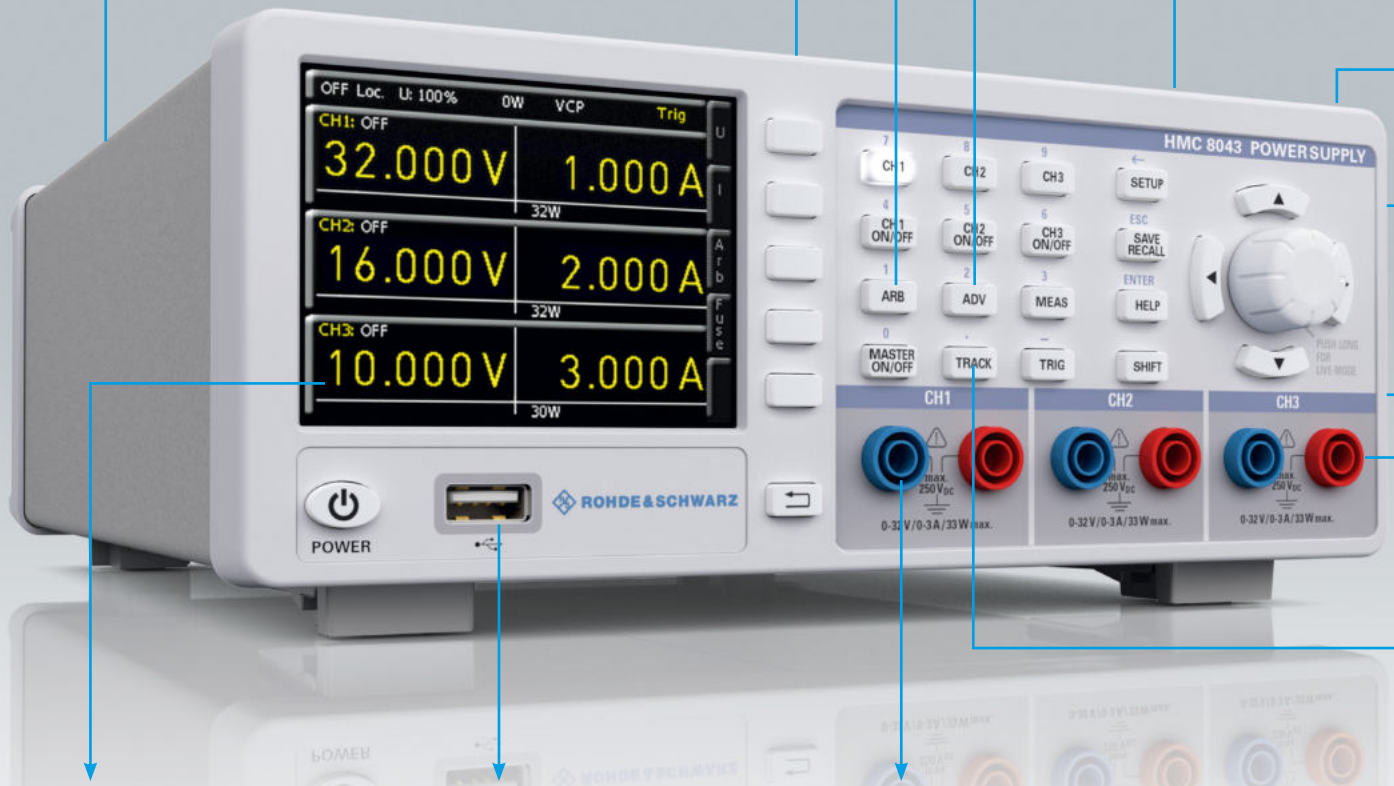
EasyRamp
Program a startup curve directly on the device

Sequencing
Sequenced start of channels

Trigger input
Start and control EasyArb, et al.

Analog input
Control output channel with external voltage and current

High energy efficiency
Low heat dissipation and quiet fan



Brilliant Screen
QVGA TFT Display with 320 x 240 Pixels

Data logging
To USB flash drive in CSV format

Protection
Overvoltage (OVP) and Overpower protection (OPP) for all outputs

UI-Tracking
Convenient parallel and serial operation

USB · TCP/IP · optional IEEE-488 · LXI · Lab-VIEW · Software · Printed Manual

At a glance

One, two or three channels – R&S®HMC804x power supplies with their specifications and wide range of functions are ideal for use in development labs and industrial environments. Thanks to their high energy efficiency, the power supplies remain cool and quiet, even at maximum load. Practical interfaces and connectors allow users to work quickly and conveniently with the R&S®HMC804x, even in 19" racks.

The R&S®HMC804x family consists of three models with a maximum total power of up to 100 W and a continuous voltage range from 0 V to 32 V. The one-channel R&S®HMC8041 delivers a maximum of 10 A, the two-channel R&S®HMC8042 a maximum of 5 A and the three-channel R&S®HMC8043 a maximum of 3 A per channel. The two-channel and three-channel models enable users to connect multiple outputs in parallel or in series to increase the voltage or current. The outputs are galvanically isolated, floating, and protected against overloading and short circuits. Voltage, current and power values are output on a brilliant QVGA display.

The R&S®HMC804x offers a wide range of logging functions, an integrated energy meter and electronic fuses that can be individually combined for each channel, making it ideal for hardware developers, labs and industrial environments. Switching technology ensures high efficiency, for minimum heat dissipation even at full load. Developers and industrial users benefit from useful functions such as sequenced start of channels, EasyArb and EasyRamp functions that are directly programmable on the device, an analog input for external control of voltage values, an external trigger input for controlling channels and arb steps, and adjustable overvoltage/overpower protection for each channel.

All connectors, including SENSE, are available on the rear panel. A cage clamp facilitates rack installation and deinstallation. The LXI-compliant power supply can be controlled via LAN, USB or an optional GPIB interface. The CDC (virtual COM port) and TMC classes are supported for communications via USB. The remote control commands are based on the SCPI standard.

The R&S®HMC804x power supplies from the Rohde&Schwarz product range offer top quality and intelligent, practical functions at an extremely attractive price.

Key facts

Clear display of all measured parameters

- Brilliant QVGA color display (320 x 240 pixel)
- Realtime voltage, current and power values
- High setting and readback resolution: 1 mV and 0.1 mA/1.0 mA (depending on current and model)
- Low residual ripple due to linear post regulation
- High energy efficiency, low heat dissipation and quiet fan

Galvanically isolated, floating and short-circuit-proof outputs

- Front panel: 4 mm (0.16 in) safety sockets (R&S®HMC8041 including SENSE)
- Rear panel: WAGO cage clamp for all channels including SENSE
- Convenient parallel and serial operation via V/I tracking

Protective functions adjustable for each channel

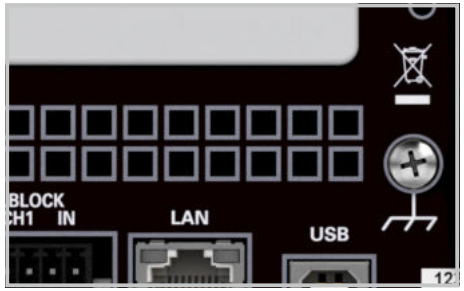
- Overvoltage protection (OVP) for all outputs
- Overpower protection (OPP) for all outputs
- FuseLink (freely combinable electronic fuses)
- FuseDelay (fuse activation delay)

Ideal power supply for hardware developers and labs

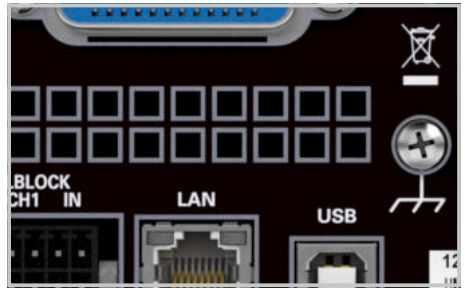
- EasyArb function for user-definable V/I curves
- EasyRamp for simulating a start-up curve (directly programmable on device)
- Sequencing (sequenced start of channels)
- Energy meter (measurement of energy output)
- Analog input for external control via voltage (0 V to 10 V) or current (4 mA to 20 mA)
- Trigger input for starting/controlling EasyArb
- Data logging to USB flash drive in CSV format

Remote control

- USB interface (CDC/virtual COM port, TMC)
- LAN interface, LXI-compliant
- Optional GPIB interface
- Remote control via SCPI-based commands



R&S®HMC804x: standard version



R&S®HMC804x-G: GPIB version

Application	How the HAMEG R&S®HMC804x meets your needs
Engineering lab	▪ FuseLink (freely combinable electronic fuses) ▪ EasyArb function for user-definable V/I curves ▪ EasyRamp for simulating a start-up curve (directly programmable on device) ▪ Built-in energy meter ▪ Data logging to USB flash drive in CSV format
Automatic test equipment (ATE)	▪ Analog input for external control via voltage (0 V to 10 V) or current (4 mA to 20 mA) ▪ Trigger input for starting/controlling EasyArb ▪ Sequencing (sequenced start of channels)
Production environment	▪ Rear connectors for all channels, including SENSE ▪ WAGO cage clamp on the rear panel for easy installation and deinstallation ▪ Remote control via SCPI-based commands ▪ LAN interface, integrated web server, LXI-compliant ▪ Optional GPIB interface (R&S®HMC804x-G models)

Ideal for industrial environments

Power supply units in industrial production environments are often found in 19" racks. The R&S®HMC804x series instruments are very suitable for this use as all models can be integrated into 19" racks with the rack mounting kits R&S®HZC95. Two R&S®HMC8043 models built side by side result in 6 channels on 2 rack units. Please ensure sufficient space is available in the rack for adequate cooling (required minimum space above a R&S®HMC804x: 1 rack unit).

Additionally, all front panel connectors plus SENSE lines are located at the back panel of the instrument. In order to facilitate the regular fitting-out for calibration the rear panel connector was designed with a WAGO cage clamp.

Base unit	Channels	Power	GPIB-Interface
R&S®HMC8043-G	3	100 W (33 W/Channel, 3 A (max.))	✓
R&S®HMC8043	3	100 W (33 W/Channel, 3 A (max.))	×
R&S®HMC8042-G	2	100 W (50 W/Channel, 5 A (max.))	✓
R&S®HMC8042	2	100 W (50 W/Channel, 5 A (max.))	×
R&S®HMC8041-G	1	100 W (10 A (max.))	✓
R&S®HMC8041	1	100 W (10 A (max.))	×

R&S®HMC8043
R&S®HMC8042
R&S®HMC8041

1/2/3 channel power supply

from firmware version 01.104

Electrical specifications	
Maximum output power	100 W
Maximum output power per channel	
R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	33 W 50 W 100 W
Output voltage per channel	
all models	0 V to 32 V
Maximum output current per channel	
R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	3 A 5 A 10 A
Number of output channels	
R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	3 2 1
Line & load regulation	
Voltage	
R&S®HMC8043	< 0.02 % + 3 mV (meas.)
R&S®HMC8042 R&S®HMC8041	< 0.03 % + 5 mV (meas.)
Current	
R&S®HMC8043	< 0.03 % + 200 µA (meas.)
R&S®HMC8042 R&S®HMC8041	< 0.03 % + 300 µA (meas.)
Load recovery time (10 % to 90 % load change)	< 1 ms (meas.) (to within a band of ±20 mV of the set voltage)
Voltage ripple and noise (20 Hz to 20 MHz)	
R&S®HMC8043 R&S®HMC8042	< 450 µV (RMS) /< 4 mV (peak to peak) (meas.)
R&S®HMC8041	< 1 mV (RMS) /< 5 mV (peak to peak) (meas.)
Current ripple and noise (20 Hz to 20 MHz)	
R&S®HMC8043 R&S®HMC8042	< 1 mA (RMS) (meas.)
R&S®HMC8041	< 1.5 mA (RMS) (meas.)
Max SENSE compensation	1 V (meas.)

Programming accuracy (+23 °C ±5 °C)	
Voltage	
all models	< 0.05 % + 2 mV
Current	
R&S®HMC8043	< 0.05 % + 2 mA
R&S®HMC8042	< 0.1 % + 5 mA
R&S®HMC8041	< 0.2 % +10 mA
Readback accuracy (+23 °C ±5 °C)	
Voltage	
all models	< 0.05 % + 2 mV
Current	
R&S®HMC8043	< 0.05 % + 2 mA
R&S®HMC8042	< 0.05 % + 4 mA
R&S®HMC8041	< 0.15 % + 10 mA
Resolution	
Voltage	
all models	1 mV
Current	
R&S®HMC8043 R&S®HMC8042	I < 1 A: 0.1 mA I ≥ 1 A: 1 mA
R&S®HMC8041	I < 1 A: 0.5 mA I ≥ 1 A: 1 mA
Maximum voltage to ground	250 V DC
Maximum counter voltage	33 V
Maximum reverse voltage	0.4 V
Maximum reverse current	3 A
Supplemental characteristics	
Front connectors	4 mm safety sockets
Rear connectors	Wago male connector (713-1428/037-000), 8 x 2-pole, pin spacing 3.5 mm / 0.138 in
Temperature coefficient ± (% of output + offset) (per °C)	voltage: < 0.02 % + 3 mV current: < 0.02 % + 3 mA
Output voltage overshoot during turn-off of AC power with activated channel output	< 100 mV (meas.)
Over temperature protection	yes

Voltage programming time (within 1 % of total excursion)	
Positive voltage change	
no load	10 ms + command processing-time
with resistive load	10 ms + command processing-time
Negative voltage change	
no load	500 ms + command processing-time
with resistive load	10 ms + command processing-time
Command processing time	< 30 ms (nom.)
Over voltage protection	yes
Over power protection	yes
Energy Meter	yes
EasyRamp	yes
EasyRamp time	10 ms to 10 s
Electronic fuse	
Fuse response time	< 10 ms (meas.)
Response time of linked channels	< 100 µs (meas.) + response time of linked channel
Fuse delay	10 ms to 10 s
Analog control interface	
Control parameter	voltage or current
Current / shunt resistance	4 mA to 20 mA / 250 Ω
Input voltage / max. resistance	0 V to 10 V / 10 kΩ
Acquisition rate V/I interface	10 sample/s
Maximum response time	150 ms
Resolution	14 bit
Trigger input	
Trigger response time	< 1 ms (meas.)
Min. trigger interval	10 ms
Input level	TTL
Edge direction	rising, falling
Arbitrary (EasyArb)	
Parameter	Voltage, current, time
Maximum number of points	512
Dwell time	10 ms to 600 s
Repetition rate	continuous or burst mode with 1 to 255 repetitions
Trigger	manually, remote control or via trigger input

Data logging	
Maximum acquisition rate	1000 sample/s
Resolution	
R&S®HMC8043	≤ 100 sample/s: 1 mV / 0.1 mA 1000 sample/s: 10 mV / 1 mA
R&S®HMC8042 R&S®HMC8041	≤ 100 sample/s: 1 mV / 1 mA ; 1000 sample/s: 10 mV / 10 mA
Memory	Internal: 512 kbyte External: USB memory stick (4 Gbyte max.)
Output sequencing	
Synchronicity	< 100 µs (meas.)
Delay per channel	1 ms to 60 s
Remote interfaces	
Connectors	USB-TMC, USB-CDC (Virtual COM), LAN (LXI), GPIB (optional)
General data	
Mains nominal voltage	100 V to 240 V (±10 %) 50 Hz / 60 Hz
Maximum power consumption	200 W
Mains fuse	T3, 15L 250 V
Operating temperature range	0 °C to + 40 °C
Storage temperature range	–20 °C to +70 °C
Humidity (noncondensing)	5 % to 80 %
Display	3.5" / QVGA
Dimensions (H x W x D)	97 mm x 222 mm x 291 mm
Rack mount capability (half 19“)	yes
Weight	2.6 kg

The specifications are based on a 30 min warm-up period.

Accessories included:
Line cord, printed operating manual

Printed operating manual

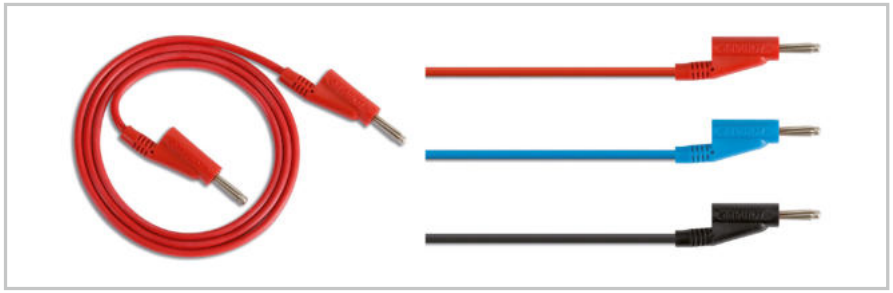
Recommended Accessories

R&S®HZC95

19" rackmount kit
for R&S®HMC series, 2 HE

R&S®HZ10

5x silicon test lead
R&S®HZ10S: black, R&S®HZ10R: red, R&S®HZ10B: blue



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