R&S®HMC804x

Power Supply
100 W and 1, 2 or 3 Channels

ROHDE&SCHWARZ

Test & Measurement

Product Brochure | 01.00

Total output power
All models: 100 W

Output current per channel
HMC8041: max. 10 A
HMC8042: max. 5 A
HMC8043: max. 3 A

EasyArb
Create individual V/I curves directly on the device

FuseLink
Combine electronic fuses as required

EasyRamp
Simulate a startup curve, programmable 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 linear 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. Linear switching power supplies ensure 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 value instruments 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 postregulation
- 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) and 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

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) and 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®HMC804xG models)

Ideal for industrial environments

Power supply units in industrial production environments are often found in 19" racks. The HMC804x series instruments are very suitable for this use as all models can be integrated into 19" racks with the rack mounting kits HZC95. Two 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 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. The complementary part is available as option HZC40.

Base unit	Channels	Power	GPIB-Interface
R&S®HMC8043G	3	99 W (33 W/Channel, 3 A (max.))	✔
R&S®HMC8043	3	99 W (33 W/Channel, 3 A (max.))	✗
R&S®HMC8042G	2	100 W (50 W/Channel, 5 A (max.))	✔
R&S®HMC8042	2	100 W (50 W/Channel, 5 A (max.))	✗
R&S®HMC8041G	1	100 W (10 A (max.))	✔
R&S®HMC8041	1	100 W (10 A (max.))	✗

R&S®HMC8043, R&S®HMC8042, R&S®HMC8041 Power Supply

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

Electrical Specifications	
Total power output	100W
Maximum power per Channel R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	 33W 50W 100W
Voltage Output	0-32V
Current Output R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	 3A max (power limit) 5A max 10A max
Number of outputs R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	 3 2 1
Line & load regulation (Sense connected)	
Constant voltage R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	 <0.02% + 3mV <0.03% + 5mV <0.03% + 5mV
Constant Current R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	 <0.03% 200µA <0.03% 200µA <0.03% 200µA
Voltage ripple 20Hz to 20MHz (Front connector)	450µV_{rms} / 4mV_{pp}
Current ripple 20Hz to 20Mhz	typ. <1mA_{rms}
Response time (10%...90% load change)	1ms (±20mV)
Remote Sense max. voltage	1V
Programming accuracy (23° C ±5° C)	
voltage: all models	<0.05% +2mV
current: R&S®HMC8043 R&S®HMC8042/41	0.05% +2mA 0.1% +5mA
Readback accuracy (23° C ± 5° C)	
voltage: all models	<0.05%+2mV
current: R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	0.05% +2mA 0.05% +7mA 0.05% +4mA
Resolution	
voltage	1mV
current	0.1mA (I<1A) 1mA (I>=1A)
Voltage to earth	250V_{DC}
Reverse Voltage	33V max.
Inverse Voltage	0.4V max.
Max. current allowed in case of inverse voltage	3A
Supplemental characteristics	
Front connectors	4 mm saftey sockets
Rear connectors	Wago male connector (713-1428/037-000), 8x2-pole, pin spacing 3.5 mm / 0.138 in
Temperature coefficient for 12 months (per K) ±(% of output + offset)	voltage: >0,02% +3mV current: >0,02%+3mA
Output voltage overshoot during turn-off of AC power and channel output on	100mV
Over temperature protection	Yes
Voltage programming speed (within 1 % of total excursion)	
Positive voltage change	
no load	10ms + µC-time
with resistive load	10ms + µC-time
Negative voltage change	
no load	500ms + µC-time
with resistive load	10ms + µC-time
Command processing time	<30ms
Over Voltage Protection	Yes
Over Power Protection	Yes
Energiemeter	Yes
EasyRamp	Yes
EasyRamp time	10ms ... 10s
Electronic Fuse	
Fuse trip time	<100us
Fuse linking	<100us + trip time of linked channel
Fuse delay	10ms ... 10s

Analog Interface	
Shunt resistance 4…20mA	250 Ohm
Input resistance 0…10V	>10 kOhm
Update rate V/I interface	10 changes/sec
Response time V/I interface	<150ms
Trigger level	TTL
Trigger response time	<1ms
Resolution	14 bit
Arbitrary (EasyARB)	
Parameter	Voltage, current, time and interpolation mode
Number of Points	512
Dwell time	10ms … 10min
Repetition rate	continous or burst mode with 1…255 repetitions
Trigger	manually, interface or trigger input
Logging	
Sampling speed	1000,100,10,1…3600 Sa/s
Resolution R&S®HMC8043	1mV / 0.1mA (<100Sa/s); 10mV / 1mA (1000Sa/s)
Resolution R&S®HMC8042/41	1mV / 1mA (<100Sa/s); 10mV / 10mA (1000Sa/s)
Memory	Internal memory and External memory (USB-Stick)
Maximum number of Points	limited by memory
Sequencing	
Synchronicity	<100us
Delay per channel	1ms … 60s
Remote interfaces	USB-TMC, USB-CDC (Virtual COM), LAN (LXI), GPIB (optional)

Miscellaneous	
Input power option	100-240 VAC +/-10% 50/60 Hz
Maximum input power	200W
Fuse	T3, 15L 250V
Operating temperature	+0°C ..+40°C
Storage temperature	-20°C..+70°C
Humidity	5...80%
Display	3,5" / QVGA
Dimensions (H x W x D)	222 x 88 x 280 mm
Rack mount capability 1/2 19"	Yes
Weight	2,6kg

Accessories included:
Line cord, printed operating manual, software-CD

Printed operating manual

Software-CD

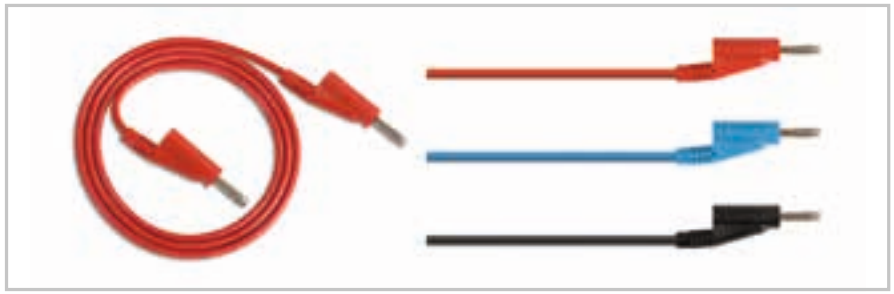
Recommended Accessories

HZC95
19" rackmount kit
for HMC series, 2 HE

HZC40
Female connector
with ejectors, 8x2-pole

HZ72
IEEE-488 (GPIB) bus
interface cable

HZ10
5x silicon test lead
HZ10S: black, HZ10R: red, HZ10B: blue



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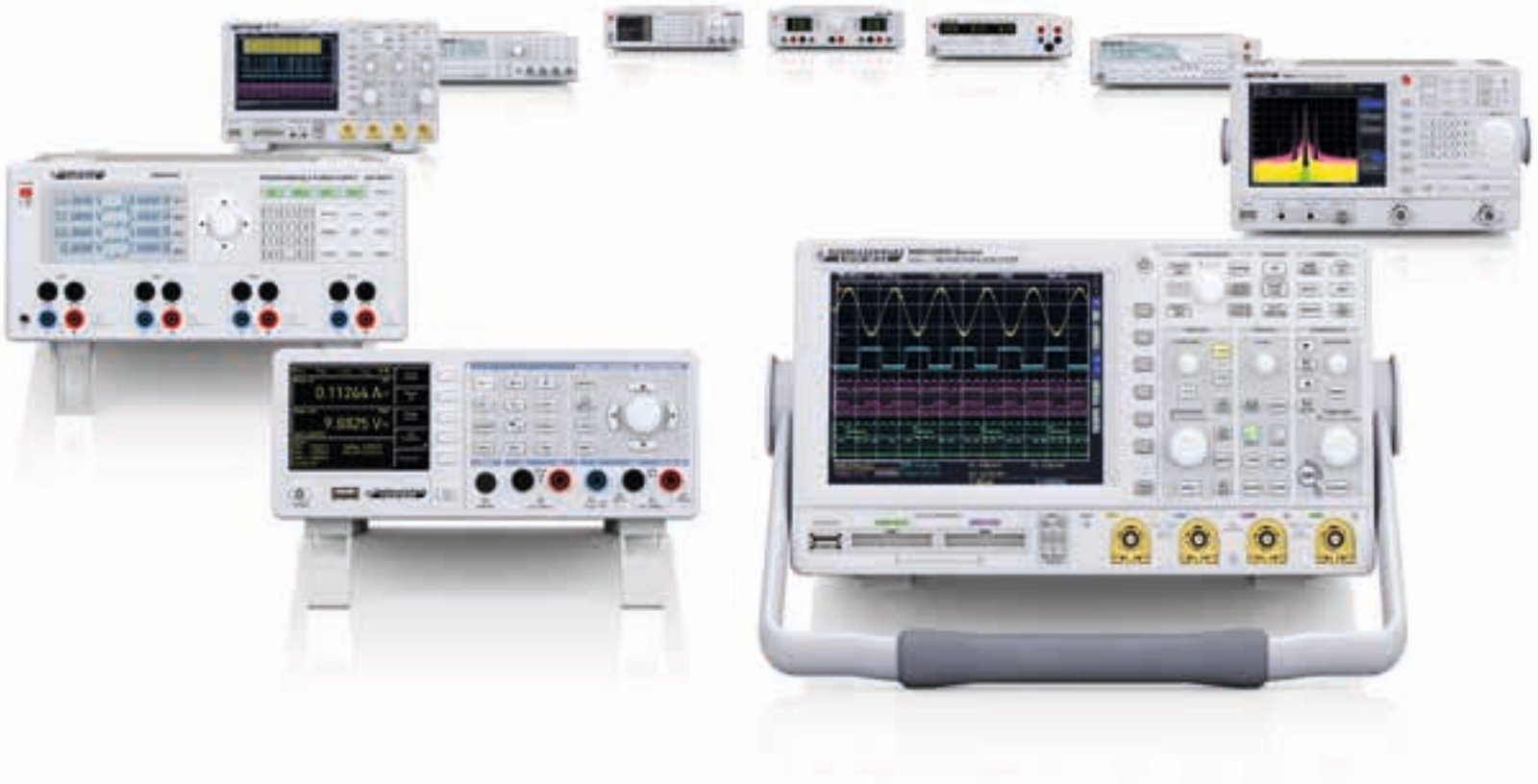

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