R&S®HMC804x
Power Supply
100 W and 1, 2 or 3 Channels

ROHDE&SCHWARZ

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
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
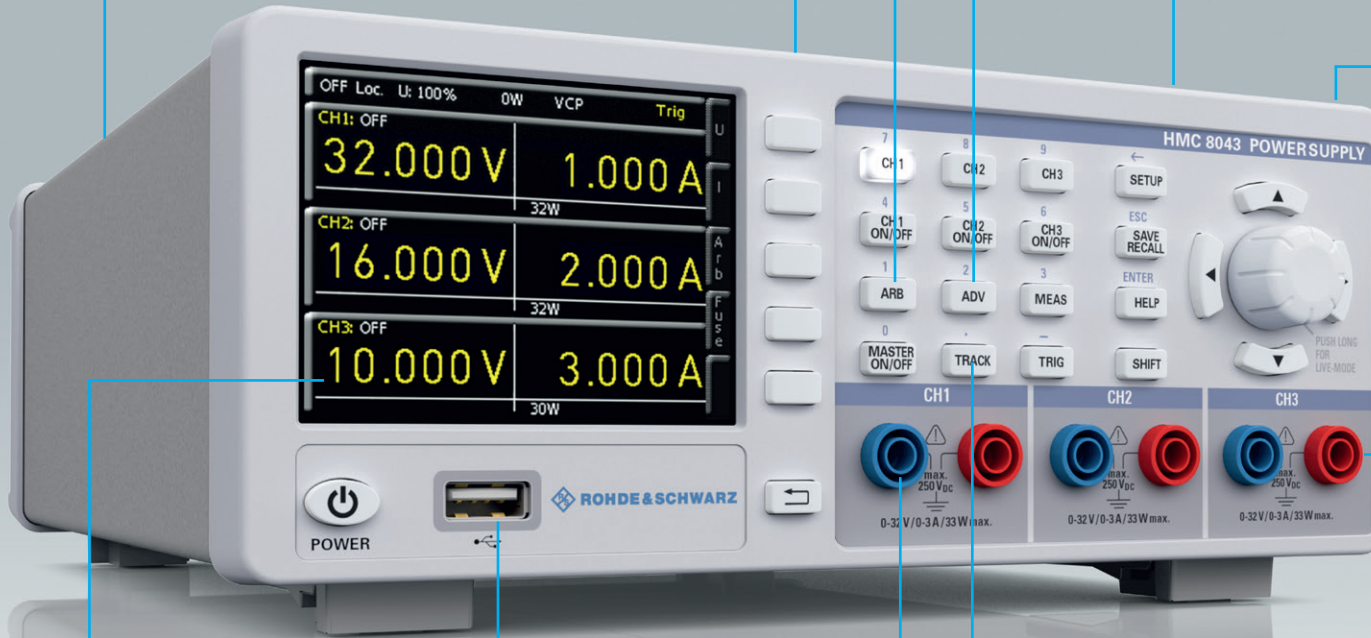with external voltage and
current

High energy efficiency
Low heat dissipation and
quiet fan

UI-Tracking
Convenient parallel and
serial operation

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

Data logging
To USB flash drive in CSV format

Brilliant Screen
QVGA TFT Display
with 320 x 240 Pixels

OFF Loc. U: 100%   0W   VCP   Trig
CH1: OFF
32.000 V   1.000 A
32W
CH2: OFF
16.000 V   2.000 A
32W
CH3: OFF
10.000 V   3.000 A
30W

U
I
Arb
Fuse

HMC 8043 POWER SUPPLY

CH1 CH2 CH3
CH1 ON/OFF CH2 ON/OFF CH3 ON/OFF
ARB ADV MEAS
MASTER ON/OFF TRACK TRIG

SETUP
SAVE RECALL
HELP
SHIFT

PUSH LONG FOR LIVE-MODE

CH1   CH2   CH3
max. 250 VDC
0-32 V/0-3 A/33 W max.

ROHDE&SCHWARZ
POWER

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

from firmware version 01.104

Electrical Specifications

Total power output	100 W
Maximum power per channel	
R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	33 W 50 W 100 W
Voltage output	
all models	0 V to 32 V
Current output	
R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	max 3 A max 5 A max 10 A
Number of outputs	
R&S®HMC8043 R&S®HMC8042 R&S®HMC8041	3 2 1
Line & load regulation (SENSE connected)	
Constant voltage mode	
R&S®HMC8043	<0.02% + 3 mV
R&S®HMC8042 R&S®HMC8041	<0.03% + 5 mV
Constant current mode	
R&S®HMC8043	<0.03% + 200 µA
R&S®HMC8042 R&S®HMC8041	<0.03% + 300 µA
Voltage ripple 20 Hz to 20 MHz (front connector) (V=16V, I=Imax*0.5)	
R&S®HMC8043 R&S®HMC8042	450 µV$_{rms}$ / 4 mV$_{pp}$
R&S®HMC8041	1 mV$_{rms}$ / 5 mV$_{pp}$
Current ripple 20 Hz to 20 Mhz (V=16V, I=Imax*0.5)	
all models	typ. <1 mA$_{rms}$
Response time with SENSE compensation (10% to 90% load change)	1 ms (±20 mV)
Max SENSE compensation	1 V
Programming accuracy (23°C ±5°C)	

Voltage	
all models	<0.05% + 2 mV
Current	
R&S®HMC8043	<0.05% + 2 mA typ. <0.05% + 1 mA (I <100 mA)
R&S®HMC8042	<0.1% + 5 mA typ. <0.05% + 2 mA (I <100 mA)
R&S®HMC8041	<0.2% +10 mA typ. <0.2% + 4 mA (I <100 mA)
Readback accuracy (23°C ±5°C)	
Voltage	
all models	<0.05% + 2 mV
Current	
R&S®HMC8043	<0.05% + 2 mA typ. <0.05% + 1 mA (I <100 mA)
R&S®HMC8042	<0.1% + 5 mA typ. <0.1% + 2 mA (I <100 mA)
R&S®HMC8041	<0.2% + 10 mA typ. <0.2% + 4 mA (I <100 mA)
Resolution	
Voltage	
all models	1 mV
Current	
R&S®HMC8043 R&S®HMC8042	0.1 mA (I <1 A) 1 mA (I >1 A)
R&S®HMC8041	0.5 mA (I <1 A) 1 mA (I >1 A)
Voltage to earth	250 VDC
Reverse voltage	max. 33 V
Inverse voltage	max. 0.4 V
Max. current allowed in case of inverse voltage	3 A

Supplemental characteristics

Front connectors	4 mm saftey 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 K)	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
Over temperature protection	Yes

Voltage programming speed (within 1% of total excursion)

Positive voltage change	
no load	10 ms + µC-time
with resistive load	10 ms + µC-time
Negative voltage change	
no load	500 ms + µC-time
with resistive load	10 ms + µC-time
Command processing time	<30 ms
Over Voltage Protection	Yes
Over Power Protection	Yes
Energy Meter	Yes
EasyRamp	Yes
EasyRamp time	10 ms to 10 s

Electronic Fuse

Fuse trip time	<10 ms
Fuse linking	<100 µs + trip time of linked channel
Fuse delay	10 ms to 10 s

Analog Interface

Shunt resistance (4 mA to 20 mA)	250 Ohm
Input resistance 0 V to 10 V	>10 kOhm
Acquisition rate V/I interface	10 Sa/s
Response time V/I interface	<150 ms
Resolution	14 bit

Trigger Input

Trigger response time	<1 ms
Min. trigger interval	10 ms
Trigger level	TTL
Edge direction	rising, falling

Arbitrary (EasyARB)

Parameter	Voltage, current, time, interpolation mode (y/n)
Number of Points	max. 512
Dwell time	10 ms to 600 s
Repetition rate	continous or burst mode with 1 to 255 repetitions
Trigger	manually, interface, trigger input

Logging

Sampling rate	1000 Sa/s, 100 Sa/s, 10 Sa/s, 1 to 3600 Sa/s

Resolution	
R&S®HMC8043	1 mV / 0.1 mA (<100 Sa/s) 10 mV / 1 mA (1000 Sa/s)
R&S®HMC8042 / R&S®HMC8041	1 mV / 1 mA (<100 Sa/s); 10 mV / 10 mA (1000 Sa/s)
Memory	Internal or external memory (USB memory sticks)
Maximum number of points	limited by memory
Output Sequencing	
Synchronicity	<100 µs
Delay per channel	1 ms to 60 s
Remote Interfaces	
Connectors	USB-TMC, USB-CDC (Virtual COM), LAN (LXI), GPIB (optional)
Miscellaneous	
Input power option	100 VAC to 240 VAC (±10 %) 50/60 Hz
Maximum input power	200 W
Fuse	T3, 15L 250 V
Operating temperature	0 °C to +40 °C
Storage temperature	-20 °C to +70 °C
Humidity	5 % to 80 %
Display	3.5" / QVGA
Dimensions (H x W x D)	88 x 222 x 280 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, software-CD

Printed operating manual   Software-CD

Recommended Accessories

HZC95
19" rackmount kit
for HMC series, 2 HE

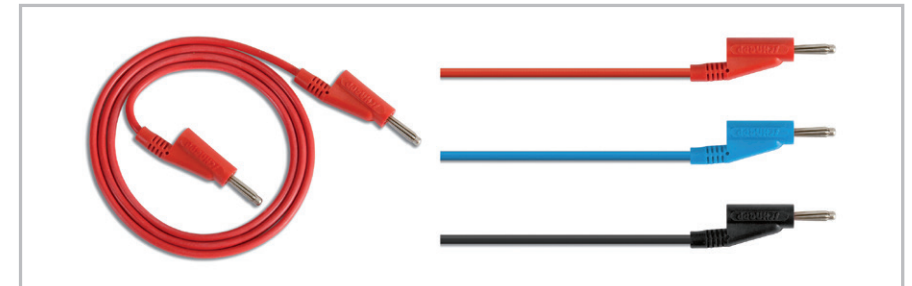
HZC40
Female connector
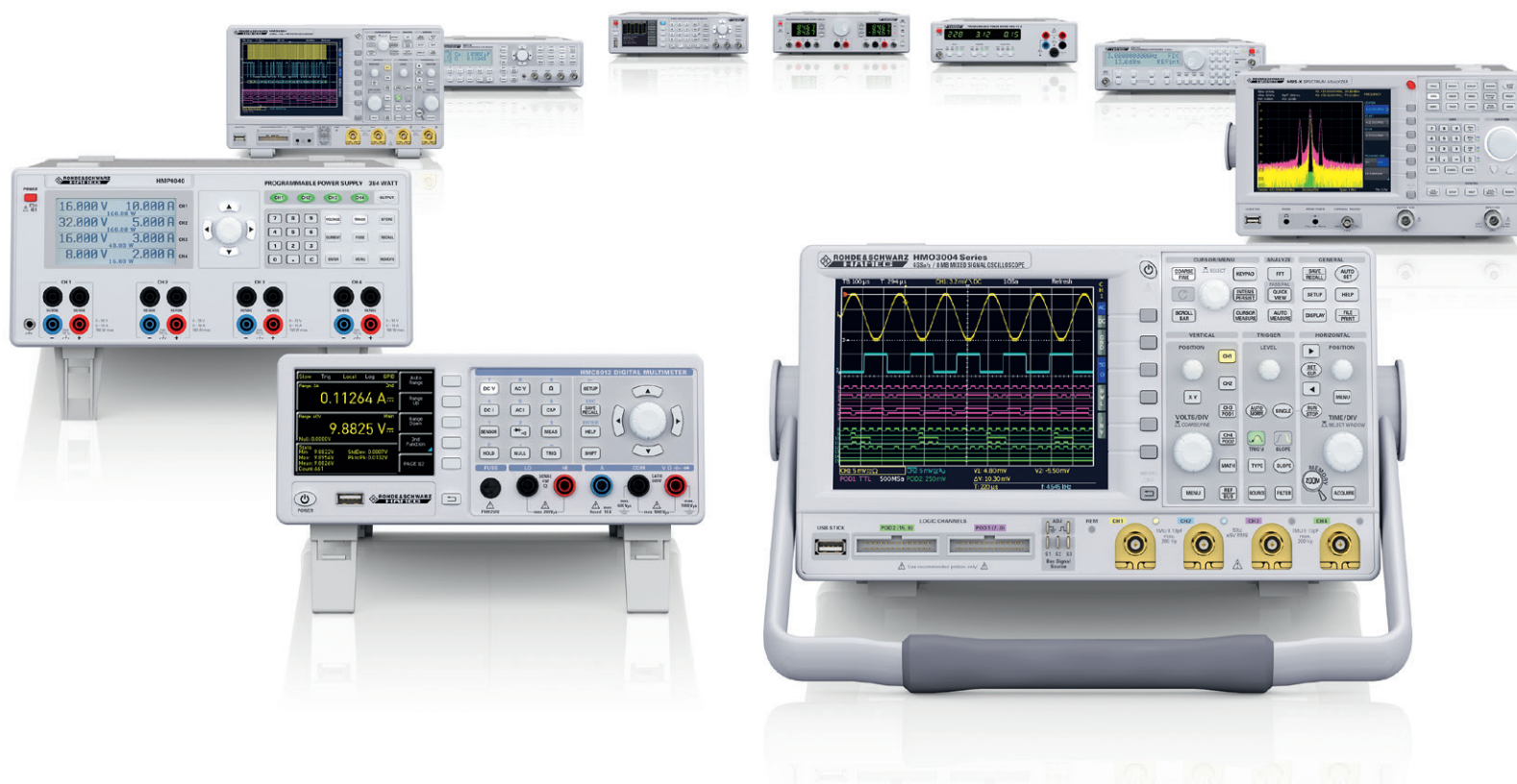with ejectors, 8x2-pole

HZ72
IEEE-488 (GPIB) bus
interface cable

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

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