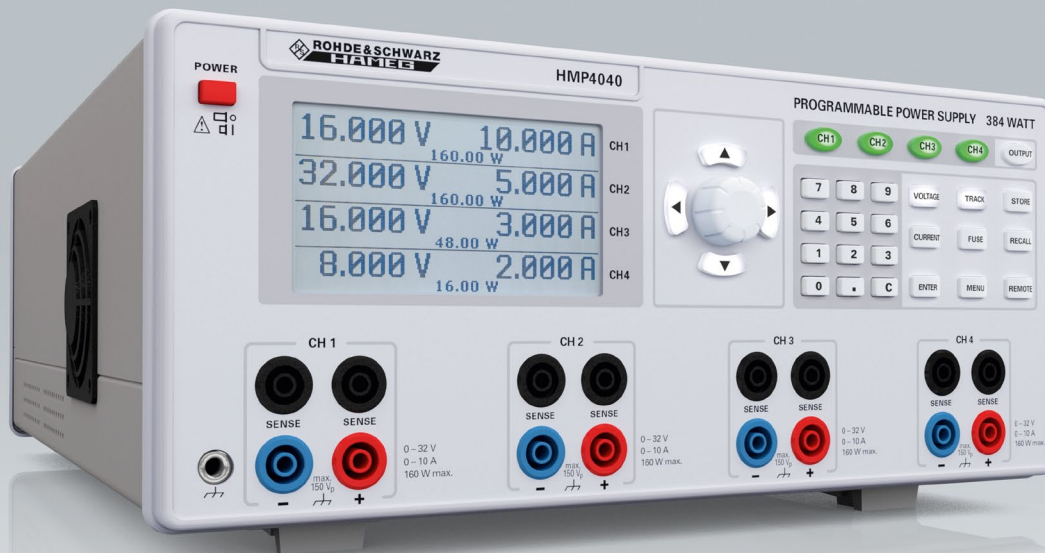


Programmable Power Supplies

188 W | 384 W

HMP Series

HAMEG[®]
Instruments
A Rohde & Schwarz Company



The HMP Series



Key facts

- Low residual ripple due to linear post-regulators
- Real-time voltage, current and watt values
- High setting and read-back resolution: 1 mV and 0.1 / 0.2 / 1.0 A (current output and model dependent)
- FuseLink (electronic fuse) freely combinable for all channels
- FuseDelay tunable up to 250 ms
- EasyArb function directly programmable at the device
- PC software (free of charge) to easily generate user-defined waveforms
- Independently adjustable over-voltage protection (OVP) for each channel
- Advanced parallel- and serial operation through V/I tracking
- Front connectors: 4 mm safety sockets
- Rear connectors for all channels including SENSE
- RS-232/USB dual interface, remote control via SCPI based commands



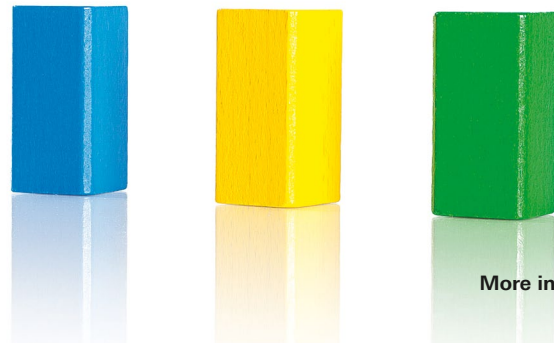
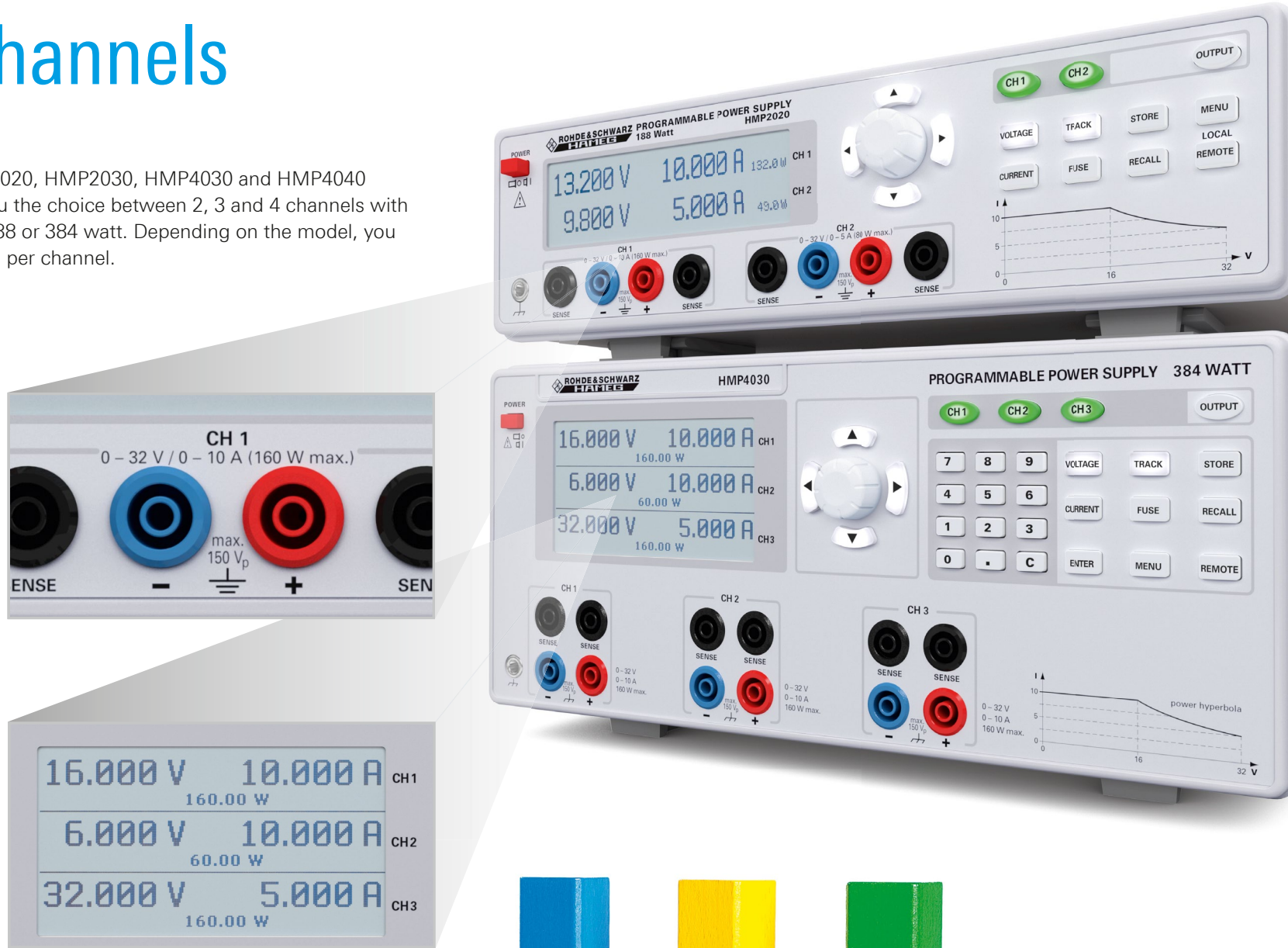
HMP series model overview:	HMP4040	HMP4030	HMP2030	HMP2020
Output voltage per channel	0V to 32V			
Output current per channel	0A to 10A		0A to 5A	1 x 0A to 10A 1 x 0A to 5A
Maximum output power per channel	160W		80W	1 x 160W 1 x 80W
Total output power	384W		188W	
Channels	4	3	3	2

2, 3 or 4 Channels

The four power supply units HMP2020, HMP2030, HMP4030 and HMP4040 from HAMEG Instruments offer you the choice between 2, 3 and 4 channels with a total operating performance of 188 or 384 watt. Depending on the model, you have up to 80 or 160 watt available per channel.

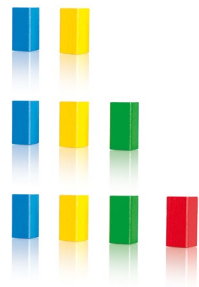
In addition to the 80 watt channel the HMP2020 model also offers you a 160 watt channel.

In the HMP series, the measured output voltage and current as well as the resulting output power are displayed in real time.



Easy to operate. Easy to explain.

Aside from electricity our power supply units in the HMP series provide many useful functions for practical use. For example, the output power is displayed in real time and a safety shutdown is available for any combination of channels.



2, 3 and 4 channels

Depending on the application and your needs you can select our power supply units with 2, 3, or 4 channels.



Parallel operation mode

In the parallel operation mode you can bundle the channels to achieve higher currents. The integrated power management function also ensures an intelligent power distribution over each channel in this operation mode.



Serial operation mode

In the serial operation mode you can combine the channels for a maximum of up to 120 volt. The V/I tracking function of the instrument is also available in this operation mode.



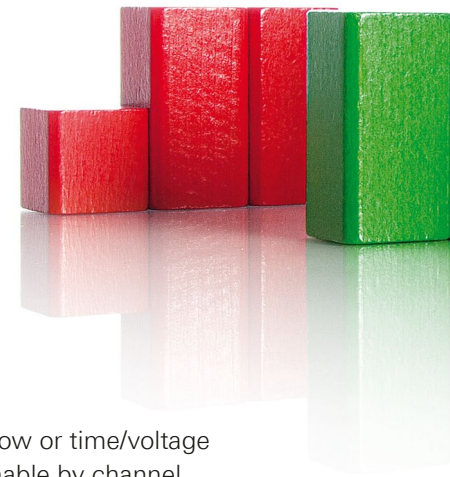
EasyArb

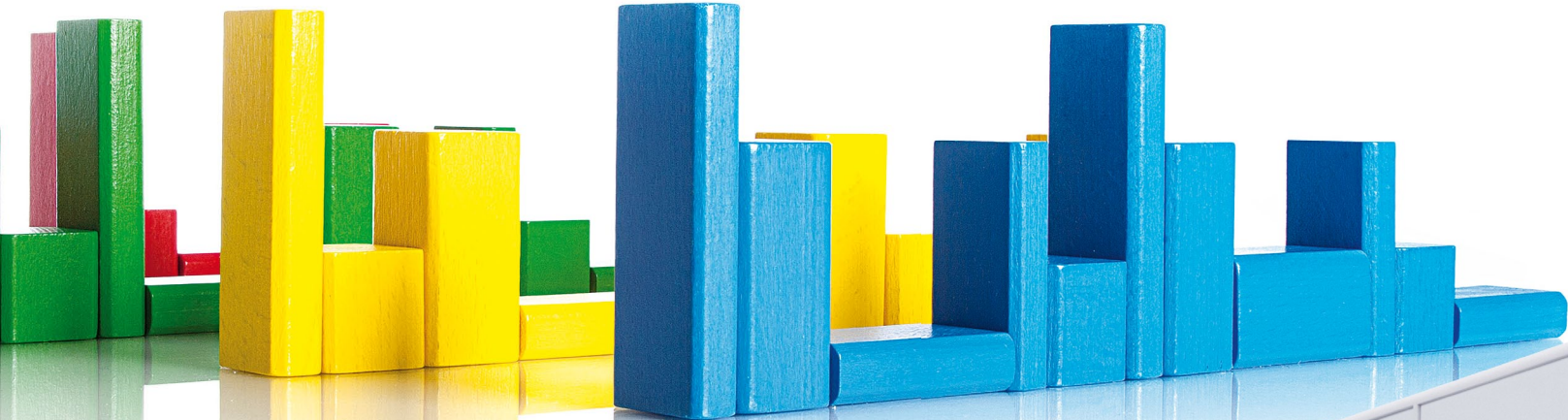
EasyArb is the time/current flow or time/voltage curve that is freely programmable by channel. Our instruments allow you to program the process either via remote software or directly on the instrument. Several different EasyArb curves can run at the same time - independently programmable.



FuseLink

Overcurrent or voltage surge protection can be set for each channel individually. In addition instruments of the HMP series also allow any combination of the overcurrent protection with other channels. For instance, a channel with a connected fan can continue to run while all other channels have been switched off.





Industrial production environment

Power supply units in industrial production environments are often found in 19" racks. The HMP series instruments are very suitable for this use as all models can be integrated into 19" racks with the rack mounting kits HZ42 (for HMP20x0 instruments) and HZP91 (for HMP40x0 instruments). Additionally, all front panel connectors, including SENSE lines, are also located at the back panel of the instrument. And last but not least, the existing USB and serial connector card (HO720) in all HMP models can alternatively be replaced by an Ethernet/USB (HO730) or GPIB card (HO740) for remote control capability purposes.



Rear connectors for all channels including SENSE

Recommended Accessories

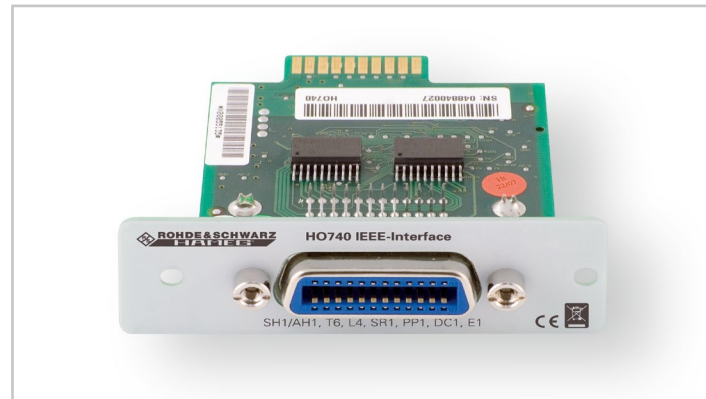
HO730

Ethernet/USB dual interface card



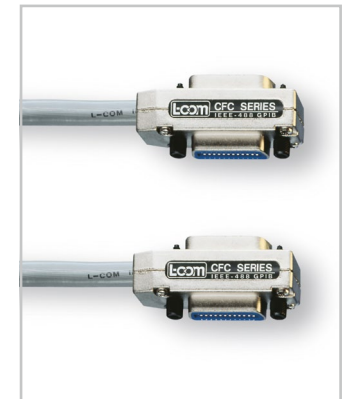
HO740

Interface IEEE-488 (GPIB), galvanically isolated



HZ72

IEEE-488 (GPIB), cable 2 m



HZ42

2RU 19" rackmount kit



HZP91

4RU 19" rackmount kit



Programmable power supplies
2/3/4 channels
HMP2020 HMP2030 HMP4030 HMP4040

Outputs	
Advanced parallel and series operation: simultaneous switching on/off of active channels via "output" button, common voltage- and current control using tracking mode (individual channel linking), individual mapping of channels which shall be affected by FuseLink overcurrent protection (switch-off), all channels galvanically isolated from each other and the protective earth	
HMP4040:	4 x 0...32V/0...10A
HMP4030:	3 x 0...32V/0...10A
HMP2030:	3 x 0...32V/0...5A
HMP2020:	1 x 0...32V/0...10A 1 x 0...32V/0...5A
Output terminals:	4 mm safety sockets frontside, screw-type terminal rear side (4 units per channel)
Output power:	188 W max.
HMP4030/HMP4040	384 W max.
HMP2020/HMP2030	188 W max.
Compensation of lead resistances [SENSE]:	1 V
Overvoltage/overcurrent protection [OVP/OCP]:	Adjustable for each channel
Electronic fuse:	Adjustable for each channel, may be combined using FuseLink
Response time:	<10 ms

32V channels	
Output values:	
HMP4040	4 x 0...32V/0...10A, (5A at 32V, 160W max.)
HMP4030	3 x 0...32V/0...10A, (5A at 32V, 160W max.)
HMP2030	3 x 0...32V/0...5A, (2.5A at 32V, 80W max.)
HMP2020 10A	1 x 0...32V/0...10A, (5A at 32V, 160W max.)
HMP2020 5A	1 x 0...32V/0...5A, (2.5A at 32V, 80W max.)
Resolution:	
Voltage	1 mV
Current	
HMP4030/HMP4040	<1 A: 0.2 mA; ≥1 A: 1 mA
HMP2030	<1 A: 0.1 mA; ≥1 A: 1 mA
HMP2020 10A	<1 A: 0.2 mA; ≥1 A: 1 mA
HMP2020 5A	<1 A: 0.1 mA; ≥1 A: 1 mA

Setting accuracy:	
Voltage	<0.05% + 5 mV (typ. ±2 mV)
Current	
HMP4030/HMP4040	<0.1% + 5 mA (typ. ±1 mA at I <500 mA)
HMP2030	<0.1% + 5 mA (typ. ±0.5 mA bei I <500 mA)
HMP2020 10A	<0.1% + 5 mA (typ. ±1 mA at I <500 mA)
HMP2020 5A	<0.1% + 5 mA (typ. ±0.5 mA at I <500 mA)
Measurement accuracy:	
Voltage	<0.05% + 2 mV
Current	
HMP4030/HMP4040	<500 mA: <0.05% + 0.5 mA, typ. ±0.5 mA ≥500 mA: <0.05% + 2 mA, typ. ±2 mA
HMP2030	<500 mA: <0.05% + 0.5 mA, typ. ±0.2 mA ≥500 mA: <0.05% + 2 mA, typ. ±1 mA
HMP2020 10A	<500 mA: <0.05% + 0.5 mA, typ. ±0.5 mA; ≥500 mA: <0.05% + 2 mA, typ. ±2 mA
HMP2020 5A	<500 mA: <0.05% + 0.5 mA, typ. ±0.2 mA; ≥500 mA: <0.05% + 2 mA, typ. ±1 mA
Residual ripple::	3 Hz...100 kHz 3 Hz...20 MHz
Voltage	<150 μV _{rms} 1,5 mV _{rms} typ.
Current	<1 mA _{rms}
Residual deviation after a load change (10 to 90%):	
Voltage	<0.01% + 2 mV
Current	<0.01% + 250 μA
Residual deviation after a line voltage change (±10%):	
Voltage	<0.01% + 2 mV
Current	<0.01% + 250 μA
Recovery time after a load step from 10 to 90% for return within a ±10 mV window:	<100 μs

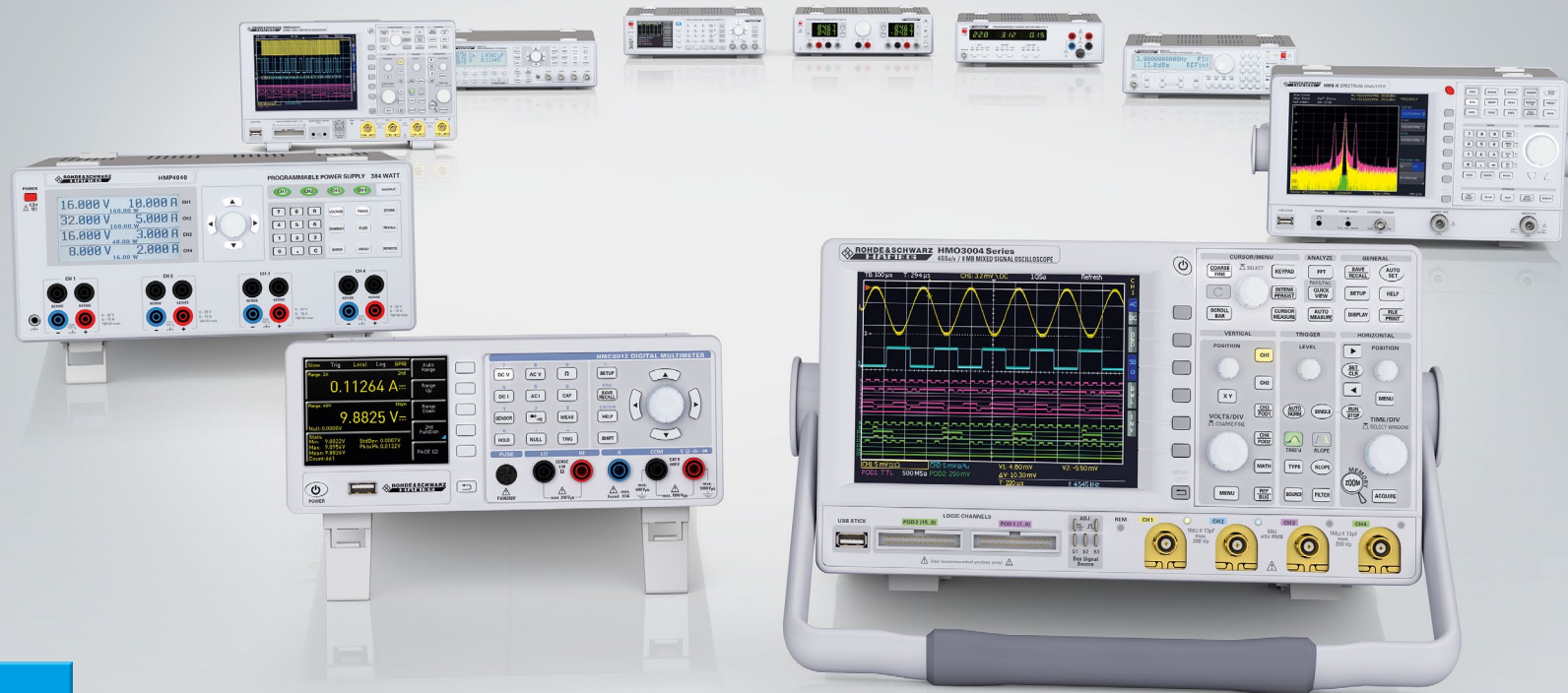
Arbitrary function EasyArb	
Parameters of points:	Voltage, current, time
Number of points:	128
Dwell time:	10 ms to 60 s
Repetition rate:	Continuous or burst mode with 1 to 255 repetitions
Trigger:	Manually via keyboard or via interface

Maximum ratings	
Reverse voltage:	33 V max.
Reverse polarized voltage:	0.4 V max.
Max. permitted current in case of reverse voltage:	5 A max.
Voltage to earth:	150 V max.

Miscellaneous	
Temperature coefficient/°C:	
Voltage	0.01% + 2 mV
Current	0.02% + 3 mA
Display:	
HMP4030/HMP4040	240 x 128 pixel LCD (full graphical)
HMP2020/HMP2030	240 x 64 pixel LCD (full graphical)
Memory:	
Non volatile memory for 3 arbitrary functions and 10 device settings	
Interface:	
Dual interface USB/RS-232 (HO720)	
Processing time:	<50 ms
Protection class:	Safety class I (EN61010-1)
Power supply:	115/230 V ± 10%; 50 to 60 Hz, CAT II
Mains fuses:	
HMP4030/HMP4040	115 V: 2 x 10 A slow blow 5 x 20 mm 230 V: 2 x 5 A slow blow 5 x 20 mm
HMP2020/HMP2030	115 V: 2 x 6 A slow blow 5 x 20 mm 230 V: 2 x 3.15 A slow blow 5 x 20 mm
Power consumption:	
HMP4030/HMP4040	550 VA max.
HMP2020/HMP2030	350 VA max.
Operating temperature:	+5...+40 °C
Storage temperature:	-20...+70 °C
Rel. humidity:	5...80% (non condensing)
Dimensions (W x H x D):	
HMP4030/HMP4040	285 x 125 x 365 mm
HMP2020/HMP2030	285 x 75 x 365 mm
Weight:	
HMP4030/HMP4040	approx. 10 kg
HMP2020/HMP2030	8.5 kg

Accessories supplied:
 Line cord, operating manual, CD, software

Recommended accessories:	
HO730	Dual interface ethernet/USB
HO740	Interface IEEE-488 (GPIB), galvanically isolated
HZ10S	5 x silicone test lead (measurement connection in black)
HZ10R	5 x silicone test lead (measurement connection in red)
HZ10B	5 x silicone test lead (measurement connection in blue)
HZ13	Interface cable (USB) 1.8 m
HZ14	Interface cable (serial) 1:1
HZ42	2RU 19" rackmount kit
HZ72	GPIB-cable 2 m
HZP91	19" rackmount kit 4RU



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