Green is life tmg

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Test & Measurement

- sales
- rentals
- calibration
- repair
- disposal

Complimentary Reference Material

This PDF has been made available as a complimentary service for you to assist in evaluating this model for your testing requirements.

TMG offers a wide range of test equipment solutions, from renting short to long term, buying refurbished and purchasing new. Financing options, such as Financial Rental, and Leasing are also available on application.

TMG will assist if you are unsure whether this model will suit your requirements.

Call TMG if you need to organise repair and/or calibrate your unit.

If you click on the "Click-to-Call" logo below, you can all us for FREE!

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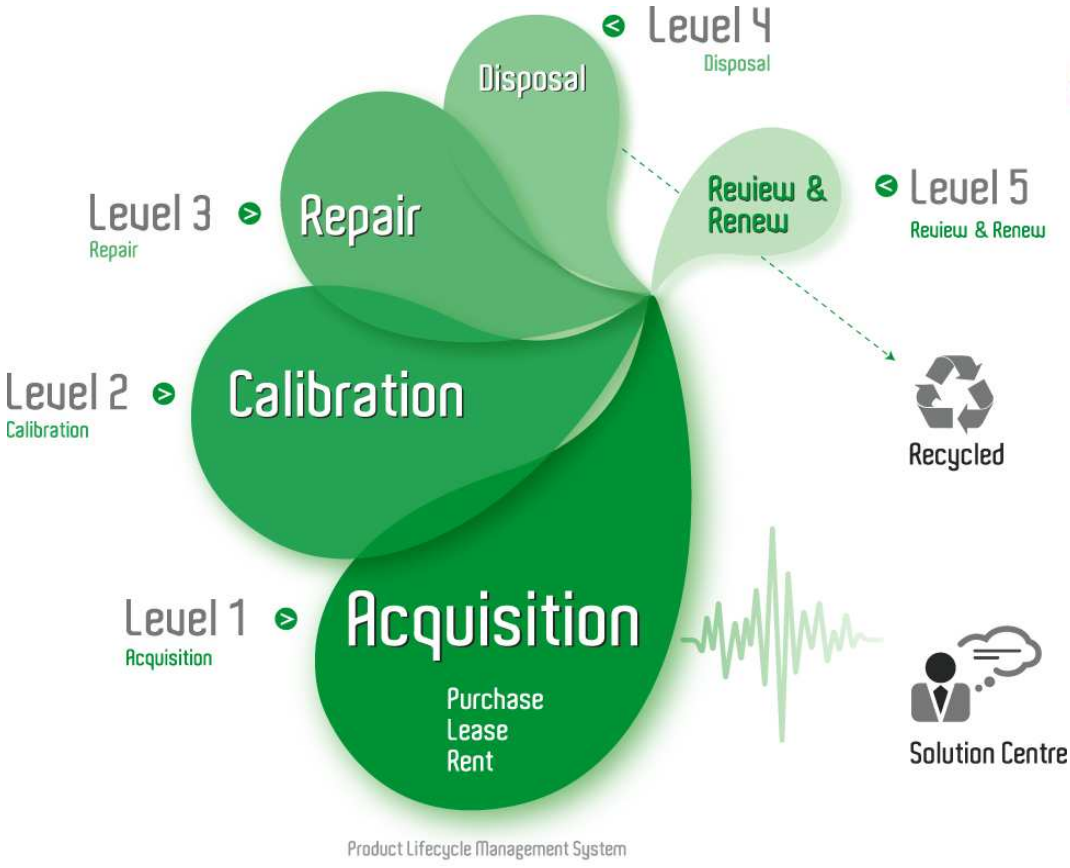


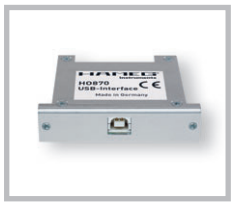
HAMEG Instruments

15 MHz Arbitrary Function Generator
HM8131-2

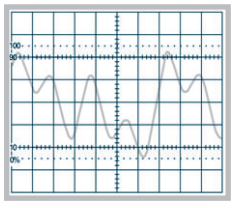
HM8131-2

RS-232 | optional IEEE-488 | optional USB | inclusive

HO870 USB Interface



AF arbitrary signal



Option HO831
SRAM Memory Card 1 x MB

- Frequency range from 100 µHz to 15 MHz
- Output voltage 20 mV_{pp} – 20 V_{pp} (open circuit)
- Direct Digital frequency Synthesis (DDS)
- Input for external time base (10 MHz)
- Sine wave, triangle, square wave, sawtooth, white and pink noise, arbitrary
- Arbitrary waveform generator (40 MSa/s, 12 bit)
- Modulation modes: AM, FSK, PSK, Phase
- Master-slave mode for up to 3 generators
- Software (for RS-232) for remote control and for creation of Arbitrary waveforms
- SRAM memory card for signal storage (Option HO831)
- RS-232 Interface, optional: USB, IEEE-488

15 MHz Arbitrary Function Generator HM8131-2

Valid at 23 °C after a 30 minute warm-up period

Frequency specifications

Range:	100 µHz to 15 MHz
Resolution:	100 µHz; 100 mHz (sweep mode)
Display:	‹ 10 ms (without band change) ‹ 60 ms (with band change)
Accuracy:	±(10 ppm x freq.+ 30 µHz) HM8125 (ext. reference frequency): ± 30 µHz
Temperature coefficient:	2 ppm/°C
Ageing:	10 ppm/year

Waveforms

Sine wave

Frequency range:	100 µHz to 15 MHz	
Amplitude:	0 – 20 V_{pp} (open circuit)	
Distortion:	10 Hz to 20 kHz:	‹ 0.1 %
	20 kHz–3 MHz:	‹ 1 %
	3 MHz–15 MHz:	‹ 3 %
Nonharmonic distortions:	100 µHz–1 MHz:	‹ -65 dBc
	1 MHz–15 MHz:	‹ -(65 dBc + 6 dBc/Octave)
Phase noise:	‹ -90 dBc / √Hz (0 dBm, 1 kHz from carrier)	

Rectangle

Frequency range:	10 µHz to 15 MHz
Amplitude:	0 – 20 V_{pp} (open circuit)
Rise/fall time:	‹ 10 ns
Overshoot:	‹ 5 % (U_{out} ≤ 200 mV)
Symmetry:	50 % ±(5 %+10 ns)

Ramp

Frequency range:	100 µHz to 100 kHz
Amplitude:	0 - 20 V_{pp} (open circuit)
Linearity:	better than 1 % (‹ 100 kHz)
Polarity:	positive/negative
Rise/fall time:	45 ns

Triangle

Frequency range:	100 µHz to 1 MHz
Amplitude:	0-20 V_{pp} (open circuit)
Linearity:	better than 1 % (‹ 100 kHz)

Noise

White noise:	Bandwidth 10 MHz
Pink noise:	Bandwidth 100 kHz

Arbitrary

Frequency range:	100 µHz to 10 MHz
Amplitude:	max. 20 V_{pp} (open circuit)
Output rate:	40 MSa/s
Resolution:	12 bit (amplitude)
Filter:	Bessel, 7th order, b=10 MHz
Memories:	1x 4 K-words not volatile 1x 16 K-words volatile
Jitter:	‹ 25 ns

Inputs

Gate/trigger	
Impedance:	5 kΩ II 100 pF (protected to 30 V)
Amplitude modulation	
Impedance:	1 kΩ (protected to ±30 V)
External reference	
Frequency:	10 MHz ± 2 ppm
Input voltage:	1 V_{rms}
Impedance:	500 Ω (protected to ±30 V)

Outputs

Signal output	BNC socket, short-circuit-proof ext. voltage max. ±15 V f. 30 s.	
Impedance:	50 Ω	
Output voltage:	Range 1:	2.1 – 20 V_{pp} (open circuit)
	Range 2:	0.21 – 2.0 V_{pp} (open circuit)
	Range 3:	20 – 200 mV_{pp} (open circuit)
Resolution:	3½ digit (100 / 10 / 1 mV) Display of V_{pp} or RMS (except in arbitrary mode)	
Setting accuracy:	Sine wave 1 kHz: ±(1% x amplitude + 5 digits) Rectangle 1 kHz: ±(3 % x amplitude + 5 digits)	
Frequency response:	‹ 100 kHz:	±0.2 dB
	100 kHz – 1 MHz:	±0.3 dB
	1 MHz – 15 MHz:	+0.5 dB
Temperature stability:	±0.1 % / °C	
Trigger output	BNC socket, short-circuit proof	
Level:	5V / TTL level	
Ramp output		
Voltage progression:	0–5 V; synchronous with sweep	
Impedance:	1 kΩ	

DC offset

Output voltage:	Range 1:	-5 V... +5 V (open circuit)
	Range 2:	-0.5 V... +0.5 V (open circuit)
	Range 3:	-50 mV +50 mV (open circuit)
Resolution:	3 digit	
Accuracy:	±(1 % x offset voltage + 5 digits)	
Temperature stability:	±0.1%/°C	

Phase

Range:	0 – 359.9°
Resolution:	0.1°
Reference:	declining slope of the synch. signal
Jitter:	‹ 25 ns
Accuracy:	except for rectangle: ± (0.1 + freq. / Hz x 10^{-6}) degrees
	for rectangle: ± (5 + freq. / Hz x 30 x 10^{-6}) degrees

Sweep (internal)

Internal sweep:	all waveforms, linear or log.
Ranges:	100 mHz to max. signal frequency selectable beginning and end frequencies
Sweep time:	from 10 ms to 40 s, continuous or triggered (ext. signal, front panel keypad, interface)

Modulation

FSK/PSK:	all signals	
Frequency range:	100 µHz to max. frequency	
Triggering:	by external signal	
Minimum duration:	25 µs	
Delay:	PSK:	typ. 10 µs
	FSK:	typ. 15 µs

Amplitude modulation

Modulation source:	internal or external
Modulation depth:	0 to 100 %
Bandwidth:	DC – 20 kHz (-3 dB)
Carrier frequency:	100 µHz to max. signal frequency
Accuracy:	± (5 % of reading + 2 %)
Internal modulation:	1 kHz sine wave
External modulation:	20 Hz – 20 kHz
Gate:	(asynchronous)
Delay time:	‹ 150 ns
Input signal:	TTL
Trigger function:	(synchronous)
Frequency range:	‹ 500 kHz

Burst mode via ext. trigger or interface

Miscellaneous

Optional memory card:	PCMCIA II format up to 1 MB for storage of up to 16 ARB signals
Memories:	10 for device settings; 1 for ARB signal storage
Interface:	RS-232 (standard), IEEE-488 (optional), USB (optional)
Safety class:	Safety Class I (EN 61010-1)
Supply voltage:	115 / 230 V ± 10 %, 50 / 60 Hz
Power consumption:	approx. 30 VA
Operating temperature:	+10 °C to + 40 °C
Max. relative humidity:	10 %–90 % (without condensation)
Dimensions (W x H x D):	285 x 75 x 365 mm
Weight:	approx. 5 kg

Accessories supplied: Operator's Manual, power cable, Software (for RS-232)
Optional accessories: HZ33/HZ34 Test Cable 50 Ω (BNC-BNC), HO831 Memory Card 1 MB, HZ10S/R Silicone test lead, HZ20 Adapter plug, HO870 USB Interface, HO880 IEEE-488 (GPIB) Interface

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