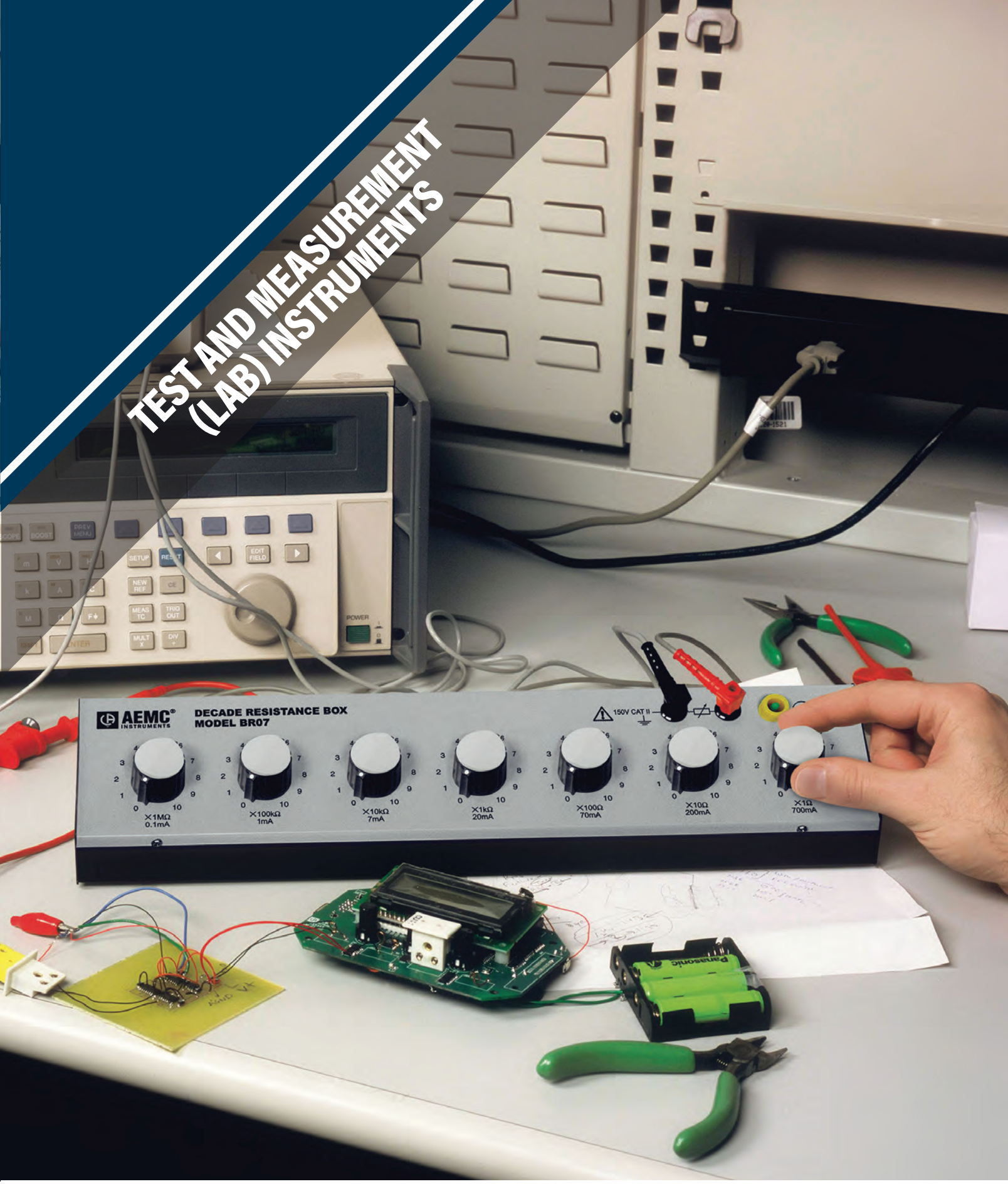
TEST AND MEASUREMENT (LAB) INSTRUMENTS



MODELS AX502 & AX503

Rugged and accurate power supplies can handle a direct short without causing damage

SPECIFICATIONS

MODELS	AX502	AX503
Number of Outputs	2	3
VOLTAGE		
Output 1 & 2	0 to 30VDC	0 to 30VDC
Output 3 (No display)	–	2.7 to 5.5VDC
Display Resolution	100mV	100mV
Basic Accuracy	±0.5% of Reading ±1ct	±0.5% of Reading ±1ct
Residual Ripple	±1mVrms	±1mVrms
LINE REGULATION		
±10% Line Voltage	±0.03% of Reading ±2mV	
LOAD REGULATION		
0 to 2.5A	±0.02% of Reading ±5mV	
0 to 5A	–	±0.2% Reading ±10mV
CURRENT		
Output 1 & 2	0 to 2.5A	0 to 2.5A
Output 3	–	5A max (no adjustment)
Resolution	10mA	10mA
Basic Accuracy	±0.5% of Reading ±1ct	±0.5% of Reading ±1ct
Limit Indicator	LED, Outputs 1 and 2	LED, Outputs 1, 2 and 3
Short-circuit Protection	Electronic current limitation with voltage shutdown	
Overheating Protection	Thermal protection	
OUTPUT COUPLING		
Tracking	Output 1: Master/Output 2: Slave Proportional Slave Tracking (0 to 100% of Master)	
Series Mode	0 to 60VDC/0 to 2.5A	
Parallel Mode	0 to 30VDC/0 to 5A	
Power Source	110V, 50/60Hz (220V optional)	

CE

FEATURES

- Dual 0 to 30Vdc/0 to 2.5A outputs
- 5.5V/5A output (Model AX503)
- Series and parallel operation permit 0 to 60V or 0 to 5A output
- Low noise (<1mV ripple) and stable linear technology for clean output
- High efficiency toroidal transformers: no fan and low electromagnetic emissions
- Active protection against overloads, short circuits and overheating
- Unique variable tracking mode for master/slave operation: slave or master track proportionally to the original setting
- Simultaneous display of voltage and current
- Highly visible green (V) and red (A) LED displays

ACCESSORIES

Optional lead set includes two color-coded leads, one ground lead (stripped), two alligator clips and two grip probes. Catalog #2117.78

CATALOG NO.	DESCRIPTION
2130.06	DC Power Supply Model AX502 (110V, 60Hz, US Plug)
2130.07	DC Power Supply Model AX503 (110V, 60Hz, US Plug)
2117.78	Lead – Set of 3, (2 Color-coded Safety Leads, 1 Ground Lead, 2 Color-coded Alligator Clips and 2 Color-coded Grip Probes) for Power Supply Models AX501-AX503

MODELS BR07 & BC05

Bench top decade boxes that stand up to the task

SPECIFICATIONS

TYPES	Multiplying factor in Ω						
	1	10	100	1k	10k	100k	1M
BR07	+	+	+	+	+	+	+
Accuracy	1% ±10mΩ	1% ±10mΩ	1% ±10mΩ	1% ±10mΩ	1% ±10mΩ	1% ±10mΩ	1% ±10mΩ
Max current mADC	700mA	200mA	70mA	20mA	7mA	1mA	0.1mA

TYPE	Multiplying factor in nF				
	0.1	1	10	100	1k
BC05	+	+	+	+	+

Operating Temperature:	14° to 131°F (-10° to + 55°C)
Storage Temperature:	-40° to 158°F (-40° to + 70°C)
Relative Humidity:	20% < RH < 96%
Altitude:	2000m
Dimensions - BC05:	12 x 3.4 x 3" (310 x 86 x 76mm)
Weight - BC05:	2.2 lbs (1kg)
Dimensions - BR07:	16 x 3.4 x 3" (410 x 86 x 76mm)
Weight - BR07:	3 lbs (1.4kg)
Watertightness (as per EN 60529 Ed. 92):	Protection index IP 40
Rated Voltage:	150V
Installation Category II - Pollution level 2	

FEATURES

RESISTANCE DECADE BOX MODEL BR07

- Resistance box: 7 decades covering a range from 1Ω to 11.11111MΩ
- 11-position switches
- Output on safety sockets Ø 4mm
- Accuracy: 1% ± 10mΩ on all ranges

CAPACITANCE DECADE BOX MODEL BC05

- Capacitance box with 5 decades; 11 position switches
- Total capacitance 11.111µF
- Very high insulation
- Output on safety sockets Ø 4mm
- The residual capacitance is approximately 25 pF
- Accuracy: 3% on all the ranges (residual capacitance deducted)

CATALOG NO.	DESCRIPTION
2131.25	Resistance Decade Box Model BR07 (x1Ω, x10Ω, x100Ω, x1kΩ, x10kΩ, x100kΩ, x1MΩ, 1%)
2131.26	Capacitance Decade Box Model BC05 (x0, 1nF, x1nF, x10nF, x100nF, x1knF, 3%)
2131.35	Lead – Replacement, 6ft Safety Lead, 4mm Female to Female for use with Decade Boxes

MODELS C.A 6116N & C.A 6117

Safety for your electrical installations and high performance with these unique instruments

SPECIFICATIONS

MODELS	C.A 6116N	C.A 6117
CONTINUITY / RESISTANCE		
I Rated/Range/Resolution	I > 200mA/39.99Ω/0.01Ω/±(1.5% of measurement + 2cts) 12mA/39.99Ω & 399.9Ω/0.01 & 0.1Ω/±(1.5% of measurement + 5cts) with beep	
Range/Resolution/Accuracy	4kΩ/1Ω/±(1.5% of measurement + 5cts) 40 to 400kΩ/10 to 100Ω/±(1.5% of measurement + 2cts)	
INSULATION		
Rated Voltage	50/100/250/500/1000VDC	
Range/Resolution/Accuracy	0.01MΩ to 2GΩ/10kΩ to 1MΩ/±(5% of measurement + 3cts)	
Short-Circuit Current	≤ 3mA	
GROUND RESISTANCE		
3-Point		
Range/Resolution/Accuracy	0.50 to 40Ω/0.01Ω/±(2% of measurement + 10cts) 40Ω to 15kΩ/0.1 to 1Ω/±(2% of measurement + 2cts) 15 to 40kΩ/10Ω/±(10% of measurement + 2cts)	
Ufk	Complies with SEV 3569	
1-Point Selective		
Range/Resolution/Accuracy	0.20 to 39.99Ω – 40 to 399.9Ω/0.01 to 0.1Ω/±(10% of measurement + 10cts) (ISel via clamp)	
LOOP IMPEDANCE (ZS (L-PE) & ZI (L-N OR L-L)) / 1-POINT LIVE GROUND		
Live Ground		
Installation Voltage/Frequency	90 to 500V/15.8 to 17.5Hz – 45 to 65Hz	
HIGH-CURRENT MODE WITH TRIP ZS (L-PE) & ZI (L-N OR L-L)		
Range/Resolution/Accuracy	Max. test current: 7.5 A (0.050) 0.100 to 0.5Ω/0.001Ω/±(10% of measurement + 20cts); 0.5 to 3.999Ω/0.001Ω/±(5% of measurement + 20cts) 3.999 to 39.99Ω/0.01Ω/±(5% of measurement + 2cts); 39.99 to 399.99Ω/0.1Ω/±(5% of measurement + 2cts)	
No TRIP Mode (Zs (L-PE) only)	Test current: 6mA – 9mA – 12mA (as required) 0.20 to 0.99Ω/0.01Ω/±(15% of measurement + 10cts) 1.00 to 1.99Ω/0.01Ω/±(15% of measurement + 3cts) 2.00 to 39.99Ω/0.01Ω/±(10% of measurement + 3cts) 40.00 to 399.9Ω/0.1Ω/±(5% of measurement + 2cts) 400 to 3999Ω/1Ω /±(5% of measurement + 2cts)	
Calculation of Ik Short-Circuit Current (PFC (Zs)), I Sc PSCC (Zi)	Fault current and short-circuit current: 0.1A to 20kA	
Integrated Fuse Table	–	Yes
Voltage Drop ΔV% (Zi)	–	-40% to 40%
Others	Measurement of the resistive and inductive components of the Zs and Zi impedances	
AC & A-TYPE RCDS		
Installation Voltage/Frequency	90 to 500V/15.8 to 17.5Hz and 45 to 65Hz	
IΔn	10/30/100/300/500/650/1000mA (90 to 280V) or variable – 10/30/100/300/500mA (280 to 550V) or variable Ramp and pulse test	
No TRIP Test	at ½ IΔn – Duration: 1000 or 2000ms	
Ramp Mode	0.2 to 0.5 x IΔn (Uf)/0.3 x IΔn to 1.06 x IΔn in increments of 3.3% x IΔn	
TRIP Time Measurement		
Range/Resolution/Accuracy	0.50 to 40Ω/0.01Ω/±(2% of measurement + 10cts) 40Ω to 15kΩ/0.1 to 1Ω/±(2% of measurement + 2cts) 15 to 40kΩ/10Ω/±(10% of measurement + 2cts)	
B-TYPE RCDS		
Installation Voltage/Frequency	–	90 to 275V/15.8 to 17.5Hz and 45 to 65Hz
IΔn: Ramp/Pulse 2 x IΔn Pulse 4 x IΔn	–	10/30/100/300/500mA and 10/30/100mA with pulse 4IΔn Duration: 150ms with 4 x IΔn or 300ms with 2 x IΔn
Test in Ramp Mode	–	0.2 x IΔn to 2.2 x IΔn
TRIP Test: 2 x IΔn & 4 x IΔn	–	IΔN ≤ 200mA: 2.2 x 2 x IΔn IΔN > 200mA: 1.1 x 2 x IΔn IΔN ≤ 100mA: 2.2 x 4 x IΔn

OTHER MEASUREMENTS	
Current by Clamps C177	5.0mA to 199.9A
Current by Clamp MN77	(1mA*) 5.0mA to 19.99A
Voltage	0 to 550VAC/DC and 15.8 to 500Hz
Frequency	10 to 500Hz
Phase Rotation	20 to 500VAC
Active Power	0 to 110kW single-phase – 0 to 330kW three-phase Simultaneous display of voltage and current waveforms
Harmonics	Voltage and current/up to 50th order/THD-F/THD-R
GENERAL SPECIFICATIONS	
Display	Large 5.7" backlit graphic color, LCD screen, 320 x 240 points
Storage/Communication	via USB for data transfer and report creation
Power Supply (rechargeable battery)	Lithium-ion 10.8V rated 5.8 Ah
Battery Life	up to 30 hours
Dimensions/Weight	11.02 x 7.48 x 5.04" (280 x 190 x 128mm)/ 4.85lbs (2.2kg)
Protection	IP53/IK04
EMC	IEC 61326-1
Electrical Safety	IEC 61010 -1/600V CAT III & 300V CAT IV/IEC 61557

*If a voltage is connected to the instrument

FEATURES

- Testing according to the international standards: IEC 60364-6, NF C 15-100, VDE 100, XP C 16-600, etc.
- Simple, reliable connection thanks to the contextual help for each function, including all the connection diagrams
- Suitable for all neutral systems (TT, TN, IT)
- Type-B RCD testing available (Model C.A 6117)
- Li-Ion battery for a longer battery life
- Measurements: voltage, current via clamp, power, waveforms and harmonics.
- Measurement of voltage drop for correct sizing of conductor diameters
- Loop measurement with 1mΩ resolution
- 3-level storage
- Includes FREE DataView® analysis software for programming, downloading, storing and report generation of test data
- Integrated fuse table for quick reading of the results on the instrument

PRODUCT INCLUDES

C.A 6116N & C.A 6117

carrying bag, US power cord and charger, Li-Ion battery pack, USB A/B cable, set of three 3-prong safety voltage leads, set of three test probes & set of three alligator clips (red/blue/green), set of two color-coded safety leads (red/black) 4mm straight plug, 3-prong US measurement cord, remote test probe, wrist strap, hands-free strap, and a USB drive with DataView® software and user manual.

CATALOG NO.	DESCRIPTION
2138.06	Multi-Function Installation Tester Model C.A 6116N (US) (Includes DataView® software)
2138.07	Multi-Function Installation Tester Model C.A 6117 (Includes DataView® software)
2138.10	Multi-Function Installation Tester Model C.A 6116N w/ CI77A Probe (US) (DataView® software)
2138.11	Multi-Function Installation Tester Model C.A 6117 w/ CI77A Probe (US) (DataView® software)

MODEL GX320

Cascade arrangement for simulating complex signals with 20MHz and integrated external frequency meter

SPECIFICATIONS

MODEL	GX320
INTERFACE	
Display	LCD 4.92 x 1.77" (125 x 45mm) – Adjustable brightness Display of frequency on 5 digits 0.79" (20mm) high
Commands	19 direct-access commands (9 backlit and adjustable) 1 Line Out On/Off key – 1 digital encoder wheel
Adjustment of Signal Parameters	Continuous by the encoder, automatic frequency and level ranges, selection of the increment digit (F,P,N...)
BNC Output Terminals	TTL, Sweep, Clock and Synch outputs
BNC Intput Terminals	VCG, Gate, Clock and Synch inputs
CONTINUOUS SIGNAL GENERATION	
Frequency	0.001Hz to 20.000MHz (11 ranges)
Resolution/Accuracy	5-digit display – resolution from 1mHz to 1kHz according to frequency range, ±20ppm for F > 10kHz, ±30ppm for F < 10kHz
Amplitude	1mV to 20.0Vpp with open circuit in 3 automatic ranges – 3-digit Vpp or Vrms display
Flatness	±1dB up to 20MHz (specs. for level from 0.1Vpp to 20Vpp)
Vdc Offset	±10VDC with open circuit – accuracy ±5% ±5mV
Waveforms	Sine/Triangle (max frequency 2MHz)/Square & "LOGIC"/TTL output
FREQUENCY	
Modes	LIN (linear) or LOG (logarithmic)
"INT" internal sweep	"Sawtooth" or "Triangle" mode Unlimited excursion between "F Start" & "F Stop" (256 steps) Sweep time adjustable from 10ms to 100s
"EXT" internal sweep	Sweep by signal < 15kHz, amplitude ±10V VCF IN input impedance 10kΩ approx.
MODULATIONS	
Internal AM	Modulation by a sine signal with a frequency of 1kHz Modulation rate 20% or 80%
External AM	Modulation by a signal with a frequency < 15kHz
Internal FM	Modulation by a sine signal with a frequency of 1kHz
External FM	Modulation by a signal with a frequency < 15kHz
FUNCTIONS	
Shift K	FSK (Internal/External) = switching between F start & F stop PSK (Internal/External) = phase switching ±180°
Burst Internal External	1 to 65,535 impulsions pulse train period from 10ms to 100s 1 to 65,535 impulsions – Synch/Period by a TTL signal with a frequency <200 kHz (VCG IN input)
Gate	Validation of the AC component of "Line Out" by a TTL signal with a frequency <2MHz (GATE IN input)
Synch	Maximum frequency of signals generated 100kHz Adjustment of phase shift across ±180° (resolution 1°)
EXTERNAL FREQUENCYMETER	
Measurement Range	5Hz to 100MHz
Accuracy	±0.05% + 1 count
Max Acceptable Voltage	300VRMS
GENERAL	
Configuration Memories	Storage/Recall of 15 complete instrument configurations
Communication Interface	"USB A/B" link for the programmable versions and Ethernet interface
Power Supply	115V ±10% or 230V ±10%; 50/60Hz – 20VA max. – Internal selection
Safety/EMC	Safety as per IEC 61010-1 – EMC as per EN 61326-1

CE

FEATURES

- Frequency range from 20MHz
- DDS technology and frequency accuracy of ±20ppm
- Frequency adjustment stable to the nearest digit
- "LOGIC signal" function for direct adjustment of high and low levels
- LIN or LOG sweep, triangle or sawtooth, with adjustable duration from 10ms to 100s
- Internal and external AM & FM modulation, GATE, BURST, FSK and PSK functions
- Adjustable phase synchronization of several generators in a cascade arrangement
- 100MHz frequency meter
- Storage of 15 complete instrument configurations
- Versions programmable via USB link and Ethernet with standard SCPI protocol

CATALOG NO.	DESCRIPTION
2138.02	Function Generator Model GX320 (DDS, 20MHz, USB)