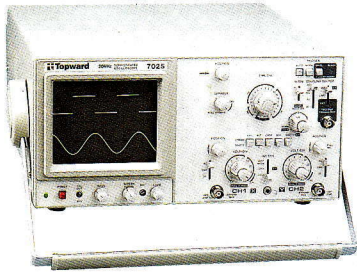


 **Topward**

GENERAL CATALOGUE

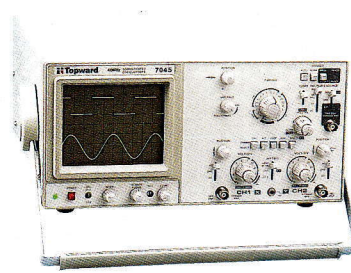


7000 SERIES OSCILLOSCOPE



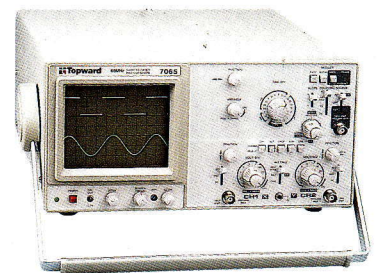
7025 (20MHz)

- Dual Trace
- Vert Mode Trigger



7045 (40MHz)

- CH1 Output
- X-Y Operation



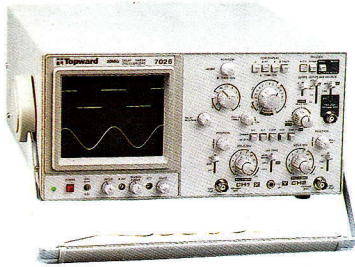
7065 (60MHz)

- Hold Off
- Z Axis

Specification

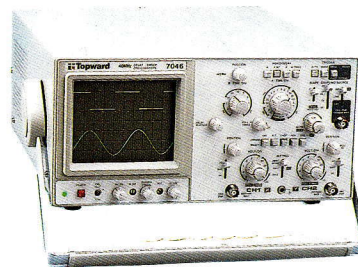
ITEM	Model	7025	7045	7065
Vertical Axis	CH1, CH2 Sensitivity	5mV / DIV ~ 5V / DIV $\pm 3\%$, 10 Calibrated Steps, Selectable 1-2-5 Sequence X5 MAG : 1mV / DIV ~ 1V / DIV $\pm 5\%$		
	CH1, CH2 Bandwidth(-3dB)	DC(AC : 10Hz) ~ 20MHz, X5 MAG : 15MHz	DC(AC : 10Hz) ~ 40MHz, X5 MAG : 20MHz	DC(AC : 10Hz) ~ 60MHz, X5 MAG : 30MHz
	Display Mode	CH1, ADD, CH2(ALT / CHOP)		
	Rise Time	17.5nS, 23nS(X5 MAG)	8.8nS, 17.5nS(X5 MAG)	5.8nS, 11.7nS(X5 MAG)
	Input Impedance	1M Ω // 25pF		
	Input Coupling	AC, DC, GND		
	Max. Input Volt	400V DC+Peak AC		
	Delay Line	N / A	Signal Delay About 40nS with a Delay Cable About 100nS	
	Output Signal	50mV / DIV AT 50 Ω (CH1 only)		
Horizontal Axis	Main Time Base	0.2 μ S / DIV ~ 0.5S / DIV $\pm 3\%$, Selectable 1-2-5 Sequence 20 Calibrated Steps X10 MAG : 20nS / DIV ~ 50mS / DIV $\pm 5\%$		
Trigger	Mode	Auto, Norm, Single		
	Source	CH1, CH2, VERT MODE, LINE, EXT		
	Coupling	AC, HF-REJ, TV, DC		
	Polarity	+, -		
	Sensitivity INT(EXT)	DC-10MHz : 0.5DIV(0.1V) DC-20MHz : 1.5DIV(0.2V) Video Signal : 2.0DIV(0.2V)	DC-10MHz : 0.5DIV(0.1V) DC-40MHz : 1.5DIV(0.2V) Video Signal : 2.0DIV(0.2V)	DC-10MHz : 0.5DIV(0.1V) DC-60MHz : 2.2DIV(0.3V) Video Signal : 2.0DIV(0.2V)
	Level Lock / Hold off	Yes / Yes		
X-Y	Mode	CH1 : X, CH2 : Y or EXT : X, CH2 : Y for X-Y Operation		
	Sensitivity	5mV / DIV ~ 5V / DIV		
	Bandwidth(-3dB)	DC ~ 1MHz, -3dB	DC ~ 2MHz, -3dB	
	Phase Difference	Less Than 3 $^\circ$ at DC ~ 50KHz	Less Than 3 $^\circ$ at DC ~ 100KHz	Less Than 3 $^\circ$ at DC ~ 200KHz
Z Axis	Sensitivity / Impedance	3 Vp-p TTL Compatible Positive-going Input Decreases Intensity / 5k Ω		
Power Source		ACV 110V / 120V / 220V / 240V, $\pm 10\%$, 60Hz / 50Hz		
Dimension		352(W) \times 167(H) \times 430(D)mm		
Net Weight		8.0Kg	8.0kg	8.0kg
Accessories		Operation Manual X1		
Option		ACS-011		

7000 SERIES OSCILLOSCOPE (DELAY SWEEP)



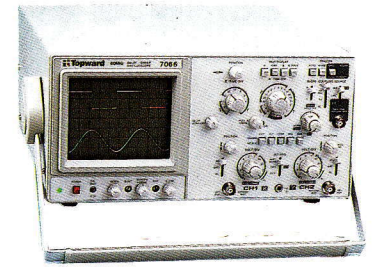
7026 (20MHz)

- Dual Trace, Delay Sweep
- Vert Mode Trigger



7046 (40MHz)

- CH1 Output
- X-Y Operation



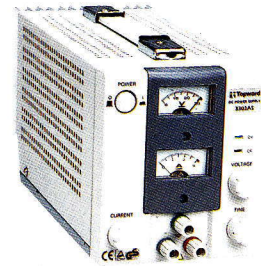
7066 (60MHz)

- Hold Off
- Z Axis

Specification

ITEM	Model	7026	7046	7066
Vertical Axis	CH1, CH2 Sensitivity	5mV / DIV ~ 5V / DIV $\pm 3\%$, 10 Calibrated Steps, Selectable 1-2-5 Sequence X5 MAG : 1mV / DIV ~ 1V / DIV $\pm 5\%$		
	CH1, CH2 Bandwidth(-3dB)	DC(AC : 10Hz) ~ 20MHz, X5 MAG : 15MHz	DC(AC : 10Hz) ~ 40MHz, X5 MAG : 20MHz	DC(AC : 10Hz) ~ 60MHz, X5 MAG : 30MHz
	Display Mode	CH1, ADD, CH2(ALT / CHOP)		
	Rise Time	17.5nS, 23nS(X5 MAG)	8.8nS, 17.5nS(X5 MAG)	5.8nS, 11.7nS(X5 MAG)
	Input Impedance	1M Ω // 25pF		
	Input Coupling	AC, DC, GND		
	Max. Input Volt	400V DC+Peak AC		
	Delay Line	N / A	Signal Delay About 40nS with a Delay Cable About 100nS	
	Output Signal	50mV / DIV AT 50 Ω (CH1 only)		
Horizontal Axis	Main Time Base	0.2 μ S / DIV ~ 0.5S / DIV $\pm 3\%$, Selectable 1-2-5 Sequence 20 Calibrated Steps X10 MAG : 20nS / DIV ~ 50mS / DIV $\pm 5\%$		
	Delayed Time Base	0.2 μ S / DIV-0.5mS / DIV, 11 Steps		
	Display Mode	A, A INT, B, B TRIG' D		
Trigger	Mode	Auto, Norm, Single		
	Source	CH1, CH2, VERT MODE, LINE, EXT		
	Coupling	AC, HF-REJ, TV, DC		
	Polarity	+, -		
	Sensitivity INT(EXT)	DC-10MHz : 0.5DIV(0.1V) DC-20MHz : 1.5DIV(0.2V) Video Signal : 2.0DIV(0.2V)	DC-10MHz : 0.5DIV(0.1V) DC-40MHz : 1.5DIV(0.2V) Video Signal : 2.0DIV(0.2V)	DC-10MHz : 0.5DIV(0.1V) DC-60MHz : 2.2DIV(0.3V) Video Signal : 2.0DIV(0.2V)
	B Trigger	Yes		
Level Lock / Hold Off	Yes / Yes			
X-Y	Mode	CH1 : X, CH2 : Y or EXT : X, CH2 : Y for X-Y Operation		
	Sensitivity	5mV / DIV ~ 5V / DIV		
	Bandwidth(-3dB)	DC ~ 1MHz, -3dB	DC ~ 2MHz, -3dB	
	Phase Difference	Less Than 3° at DC~50KHz	Less Than 3° at DC ~ 100KHz	Less Than 3° at DC ~ 200KHz
Z Axis	Sensitivity / Impedance	3 Vp-p TTL Compatible Positive-going Input Decreases Intensity / 5k Ω		
Power Source		ACV ,110V / 120V / 220V / 240V, $\pm 10\%$, 60Hz / 50Hz		
Dimension		352(W) \times 167(H) \times 430(D)mm		
Net Weight		8.0kg	8.0kg	8.0kg
Accessories		Operation Manual X1		
Option		ACS-011		

3000 SERIES SYSTEM POWER SUPPLY



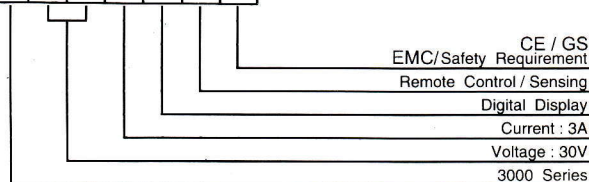
- 2 Built-In Analog / Digital Display
- Constant Voltage / Current
- Series / Parallel Available
- Short Circuit / External Input Protection
- Compact Size
- Master / Slave Selectable
- Remote Sensing Available
- Output ON / OFF Controllable
- Output Voltage Controllable By External Variable Voltage or Resistance
- Output Current Controllable By External Variable Voltage or Resistance
- Voltage / Current Readback Available
- Patent : 048495

Specification

	3000 Series	3000 Series (Remote Series)
CONSTANT VOLTAGE		
Load Regulation	$\pm 0.01\% + 2mV$	$\pm 0.01\% + 2mV$
Line Regulation	$\pm 0.01\% + 2mV$	$\pm 0.01\% + 2mV$
Ripple & Noise ($\leq 100W$)	$\leq 0.5mVrms$	$\leq 1mVrms$
Ripple & Noise ($\geq 100W$)	$\leq 1mVrms$	$\leq 2mVrms$
CONSTANT CURRENT		
Load Regulation ($\leq 100W$)	$\leq 10mA$	$\leq 10mA$
Load Regulation ($\geq 100W$)	$\leq 15mA$	$\leq 15mA$
Line Regulation	$\pm 0.01\% + 2mA$	$\pm 0.01\% + 2mA$
Ripple & Noise ($\leq 100W$)	$\leq 2mArms$	$\leq 2mArms$
Ripple & Noise ($\geq 100W$)	$\leq 3mArms$	$\leq 3mArms$
DISPLAY ACCURACY		
Analog Display (A)	Full Scale 3%	
Digital Display (D)	$\leq 0.1\% + 2d$	
PROGRAMMING SPEED		
Rise Time (No Load)	$\leq 100mS$	
(Load)	$\leq 200mS (<6A), \leq 500mS (<10A), \leq 1S (\geq 10A)$	
Fall Time (No Load)	$\leq 2.5 S$	
(Load)	$\leq 250mS$	
OUTPUT IMPEDANCE	$< 2m\Omega + 2uH$	
RECOVERY TIME	$\leq 100uS$ to Within 0.1% of Set Voltage (50% TO 100% Load Change)	
FUNCTIONS		
Series Connection	Different Models Can Be Connected In Series ($\leq 240V$)	Different Models Can Be Connected In Series ($\leq 240V$)
Parallel Connection	Same Model Can Be Connected In Parallel ($\leq 24A$)	Same Model Can Be Connected In Parallel ($\leq 24A$)
Master-Slave	N/A	YES
REMOTE CONTROL		
Voltage Programmable		
By External DC Voltage		0 to 10V Control 0 to Voltage-Setting
By External Resistance	N/A	0 to 10k Ω Control 0 to Voltage-Setting
Current Programmable		
By External DC Voltage		0 to 10V Control 0 to Current-Setting
By External Resistance		0 to 10k Ω Control 0 to Current-Setting
VOLTAGE / CURRENT READBACK AVAILABLE		
Voltage / Current Readback Voltage:		
Voltage Readback	N/A	0 to 10V Proportional to Output Voltage
Current Readback		0 to 0.3V Proportional to Output Current
OUTPUT ON / OFF CONTROL	N/A	YES
REMOTE SENSING	N/A	Compensate Voltage Drop Up to 2VDC
POWER SOURCE	ACV 100V / 120V / 220V / 240V, $\pm 10\%$, 60Hz / 50Hz (* ACV 230V, 50Hz)	
ACCESSORIES	ACS-002 X1, (ACS-016 X 1 for CE / GS Models), Operation Manual X1	

Ordering Information :

3 3 0 3 D R S



Dimension s size : 120 (W) \times 160 (H) \times 295 (D)

Dimension L size : 230 (W) \times 160 (H) \times 366 (D)

* Models with CE / GS Marks

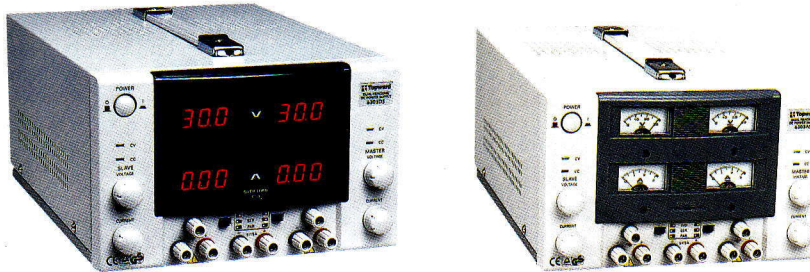
Model No.	Dimension	Model Type						
3203	S	A	D	AR	DR	AS*	DS*	
3302	S	A	D	AR	DR	AS*	DS*	
3303	S	A	D	AR	DR	AS*	DS*	
3601	S	A	D	AR	DR	AS*	DS*	
3306	L	/	D	/	DR	/	/	
3603	L	/	D	/	DR	/	/	
33010	L	/	D	/	DR	/	/	

Net Weight : (3203, 3302, 3303, 3601) \approx 5.5 kg

Net Weight : (3306, 3603) \approx 9.5kg

Net Weight : (33010) \approx 14.0kg

6000 SERIES SYSTEM POWER SUPPLY



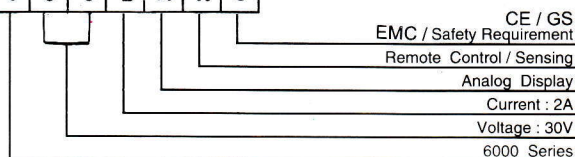
- 4 Built-In Analog / Digital Display
- Constant Voltage / Current
- Series / Parallel Available With Other Sets
- Short Circuit / External Input Protection
- Auto Series / Parallel Selectable
- Additional 5V / 5A Fixed Output
- Master / Slave Selectable
- Output Voltage Controllable By External Variable Voltage or Resistance
- Output Current Controllable By External Variable Voltage or Resistance
- Voltage / Current Readback Available
- Patent : 047730

Specification

	6000 Series	6000 Series (Remote Series)
CONSTANT VOLTAGE Load Regulation Line Regulation Ripple & Noise(≤ 200W) Ripple & Noise(≥ 200W)	± 0.01% + 2mV ± 0.01% + 2mV ≤ 0.5mVrms ≤ 1mVrms	± 0.01% + 2mV ± 0.01% + 2mV ≤ 1mVrms ≤ 1mVrms
CONSTANT CURRENT Load Regulation(≤ 200W) Load Regulation(≥ 200W) Line Regulation Ripple & Noise(≤ 200W) Ripple & Noise(≥ 200W)	≤ 10mA ≤ 15mA ± 0.01% + 2mA ≤ 2mAms ≤ 3mAms	≤ 10mA ≤ 15mA ± 0.01% + 2mA ≤ 2mAms ≤ 3mAms
DISPLAY ACCURACY Analog Display(A) Digital Display(D)	Full Scale 3% ≤ 0.1% + 2d	
PROGRAMMING SPEED Rise Time(No Load) (Load) Fall Time(No Load) (Load)	≤ 100mS ≤ 200mS(<6A), ≤500mS(<10A), ≤1S(≥10A) ≤ 2.5 S ≥ 250mS	
OUTPUT IMPEDANCE	< 2mΩ + 2uH	
RECOVERY TIME	≤ 100uS TO Within 0.1% of Set Voltage(50% TO 100% Load Change)	
FUNCTIONS Series Connection Parallel Connection Master-Slave	Different Models Can Be Connected in Series(≤ 240V) Same Model Can Be Connected In Parallel(≤ 24A) N / A	Different Models Can Be Connected In Series(≤ 240V) Same Model Can Be Connected In Parallel(≤ 24A) Yes
REMOTE CONTROL Voltage Programmable By External DC Voltage By External Resistance Current Programmable By External DC Voltage By External Resistance	N / A	0 to 10V Control 0 to Voltage-Setting 0 to 10kΩ Control 0 to Voltage-Setting 0 to 10V Control 0 to Current-Setting 0 to 10kΩ Control 0 to Current-Setting
TRACKING OPERATION Tracking Error Series Regulation	± 0.2% + 10mV ≤ 0.3% + 10mV	
5V FIX OUTPUT Load Regulation Line Regulation Ripple & Noise Voltage Accuracy Output Current	≤ 10mV ≤ 5mV ≤ 2mVrms 5V ± 0.25V 5A	
VOLTAGE / CURRENT READBACK AVAILABLE Voltage / Current Readback Voltage: Voltage Readback Current Readback	N / A	0 to 10V Proportional to Output Voltage 0 to 0.3V Proportional to Output Current
OPERATION MODE Independent Series Parallel	Two Independent Outputs and 5V Fixed Output Output From 0 to Rating Volts and 0 to Rating Amperes Output From 0 to ± Rating Volts at Rating Amperes Output From 0 to Double Rating Volts at Rating Amperes Output From 0 to Double Rating Ampere at Rating Volts	
POWER SOURCE	ACV 100V / 120V / 220V / 240V ±10%, 60Hz / 50Hz (* ACV 230V, 50Hz)	
ACCESSORIES	ACS-002 X2. (ACS-016 X 2 for CE / GS Models). Operation Manual X1	

Ordering Information :

6 3 0 2 A R S



Dimension L size : 230 (W) × 160 (H) × 366 (D)

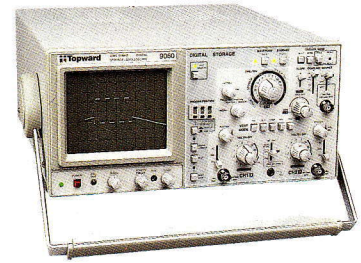
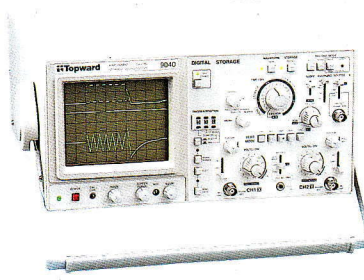
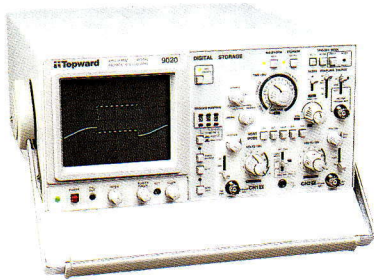
★ Models with CE / GS Marks

Model No.	Dimension	Model Type					
6302	L	A	D	AR	DR	AS*	DS*
6303	L	A	D	AR	DR	AS*	DS*
6306	L	A	D	AR	DR	/	/
6603	L	A	D	AR	DR	/	/

Net Weigh : (6302,6303) ≈ 11kg

Net Weigh : (6306,6303) ≈ 14.5kg

9000 SERIES DIGITAL STORAGE OSCILLOSCOPE



9020 (20MHz)

- Sampling Speed 40MS Dual Trace
- Waveform Save, Recall, Search
- Signal Averaging(8 Times)

9040 (40MHz)

- Vertical Resolution 0.4%-8 bits A / D
- Roll Mode : 0.5S / DIV ~ 0.2S / DIV
- Pre-Trigger : 0 ~ 10 Divisions

9060 (60MHz)

- Post-Trigger : 0 ~ 990 Divisions
- X-Y Plotter Out, RS-232C Interface
- PC Compatible Software TWP-9000

Specification

ITEM	Mode	9020	9040	9060
Real Mode	Vertical(CH1, CH2) System	5mV / DIV ~ 5V / DIV $\pm 3\%$ X5 MAG : 1mV / DIV ~ 1V / DIV $\pm 5\%$ DC(AC : 10Hz) ~ 20MHz Bandwidth	5mV / DIV ~ 5V / DIV $\pm 3\%$ X5 MAG : 1mV / DIV ~ 1V / DIV $\pm 5\%$ DC(AC : 10Hz) ~ 40MHz Bandwidth	5mV / DIV ~ 5V / DIV $\pm 3\%$ X5 MAG : 1mV / DIV ~ 1V / DIV $\pm 5\%$ DC(AC : 10Hz) ~ 60MHz Bandwidth
	Horizontal(Time Base) System	0.2 μ S / DIV ~ 0.5S / DIV $\pm 3\%$ X10 MAG : 20nS / DIV ~ 50mS / DIV $\pm 5\%$		
	Trigger INT(EXT) Sensitivity	DC ~ 10MHz : 0.5DIV(0.1V) DC ~ 20MHz : 1.5DIV(0.2V) Video Signal : 2.0DIV(0.2V)	DC ~ 10MHz : 0.5DIV(0.1V) DC ~ 40MHz : 1.5DIV(0.2V) Video Signal : 2.0DIV(0.2V)	DC ~ 10MHz : 0.5DIV(0.1V) DC ~ 60MHz : 2.2DIV(0.3V) Video Signal : 2.0DIV(0.2V)
Storage Mode	Number of Channels	2, CH1 And CH2		
	Vertical Resolution	0.4%-8 BITS A / D		
	Maximum Digitizing Rate	40 MS / S At ALT or Single Channel Mode 20 MS / S At CHOP Mode		
	Memory Depth	2k(2048) Points Per Channel		
	Horizontal Time Base	2 μ S / DIV ~ 0.5S / DIV		
	Roll Mode	Auto At 0.2S / DIV And 0.5S / DIV		
	Pre-Trigger	0-10 Divisions		
	Post-Trigger	0-990 Divisions		
	Channel Select	CH1, CH2, ALT, CHOP, ADD		
	Waveform Storage	Save, Recall		
	Math	CH1+CH2, CH1-CH2 CH2 Invert, Signal Averaging(8 Times)		
Search	Continuous Segment With X10 MAG			
Magnification	X10 MAG			
Plot	X-Y Plotter Output, RS-232C Interface			
Software	TWP-9000 4 Traces Display, Cursor Read Out $\Delta t / \Delta v / \text{Period} / \text{Width} / Vp-p$			
Power Source	ACV 110V / 120V / 220V / 240V, $\pm 10\%$, 60Hz / 50Hz			
Dimension	352(W) \times 167(H) \times 430(D)mm			
Net Weight	10.0kg			
Accessories	Operation Manual X1			
Option	ACS-011, ACS-014, ACS-015, TWP-9000 Software			

5000 SERIES LCR METER



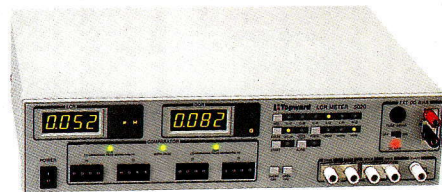
5010

- Accuracy : $\pm 0.2\%$
- 100Hz, 120Hz, 1KHz, Test Frequency
- Auto, Manual



5030

- Accuracy : $\pm 0.2\%$
- 100Hz, 120Hz, 1KHz, 10KHz Test Frequency
- Auto, Manual



5020

- Accuracy : $\pm 0.2\%$
- 100Hz, 120Hz, 1KHz, Test Frequency
- Auto, Manual
- Hi-Lo Limit Comparison



5040

- Accuracy : $\pm 0.2\%$
- 100Hz, 120Hz, 1KHz, 10KHz Test Frequency
- Auto, Manual
- Hi-Lo Limit Comparison

Specification

Parameters Tested	L / Q, L / R, C / D, C / Q, C / R, R / Q
Display Digit	L, C, R : 4 Digits, D, Q : 4 Digits, 0.56" LED Display
Equivalent Circuit	Series or Parallel
Test Frequency	100Hz, 120Hz, 1KHz, 10KHz* (*Model : 5030, 5040 only)
Test Level	50mV, 100mV, 250mV Auto Selected, $\pm 10\%$
DC Bias	External Bias 0 ~ 60V, 250mA Max
Display Range	L : 0.001 μ H ~ 9999H C : 0.001pF ~ 9999mF R : 0.001 Ω ~ 9999M Ω D : 0.001 ~ 9999 Q : 0.001 ~ 9999
Range	Automatic Ranging(6 Ranges)
Test Mode	Auto or Manual
Test Time	0.5 Sec / Test at 1KHz
Comparator	2 Sets of 4-Digit Code- Switch for L, C, R, Hi-Lo Comparison 2 Sets of 4-Digit Code- Switch for D, Q, Hi-Lo Comparison
Self Test & Calibration	Self Function Test, Open CAL, Short CAL
Power Source	ACV 115V / 230V, $\pm 10\%$, 60Hz / 50Hz
Dimension	404 (W) X 101 (H) X 328 (D) mm
Net Weight	5.1 Kg
Accessories	ACS-002 Banana-Clip X1, Operation Manual X1
Option	ACS-009, ACS-012, ACS-007

TEST LEAD & PROBE.

<p>ACS-001 Banana-Clip</p> 	<p>ACS-002 Banana-Clip</p> 	<p>ACS-003 BNC-Clip</p> 	<p>ACS-004 External Bias Lead</p> 
<p>ACS-006 X-Probe</p> 	<p>ACS-007 Axial Component Adaptor</p> 	<p>ACS-008 Kelvin Clip Lead Set</p> 	<p>ACS-009 Kelvin Clip Lead Set</p> 
<p>ACS-011 10:1/1:1 Select</p> 	<p>ACS-012 External Test Fixture</p> 	<p>ACS-013 Chip Component Test Fixture</p> 	<p>ACS-014 For TWP-9000 Software Data to Computer</p> 
<p>ACS-015 For DSO-9000 Series Data to X-Y Plotter (HPGL Format)</p> 	<p>ACS-016 Banana-Clip (For 3000S/6000S Series)</p> 	<p>ACS-017 Banana-Clip(For 3601DS/AS)</p> 	<p>ACS-018 Banana-Probe</p> 