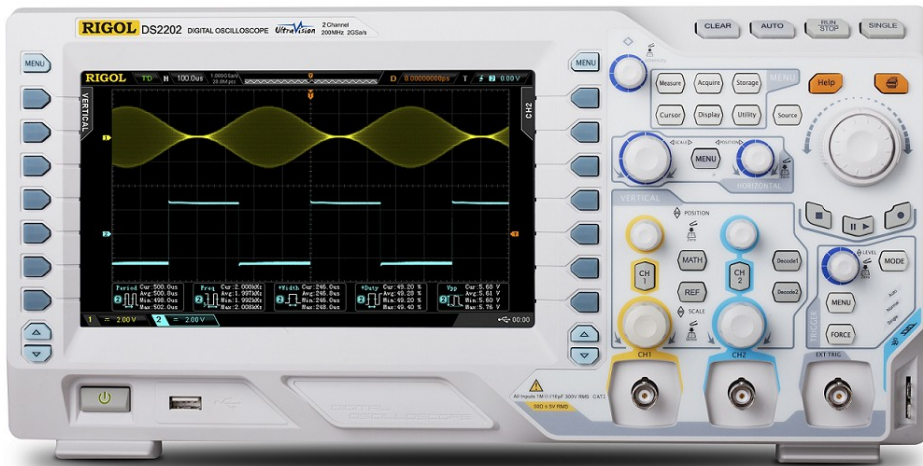


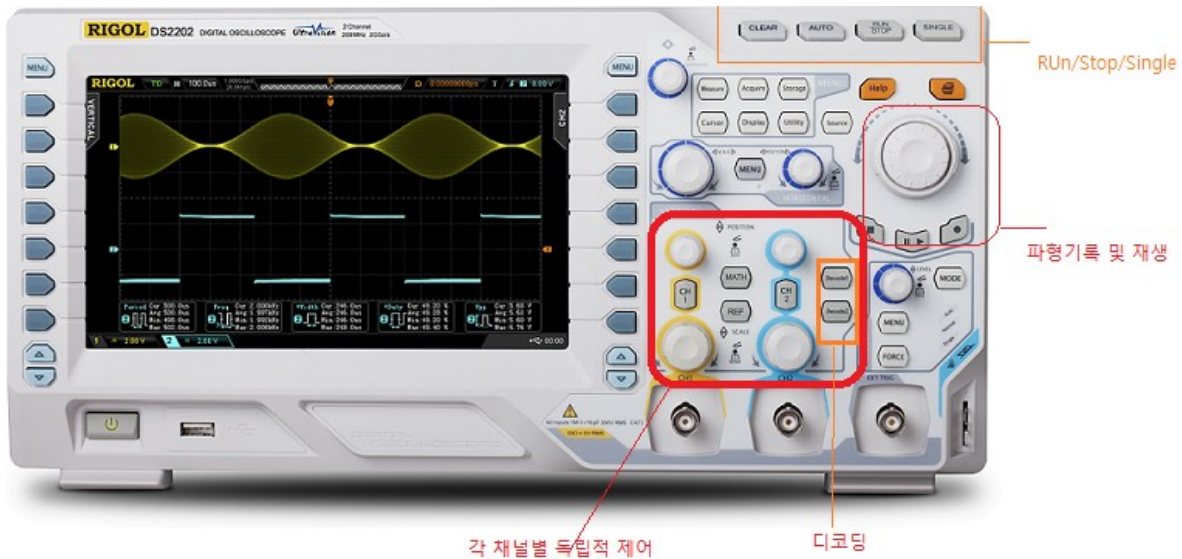
DS2000A Series Digital Oscilloscope



UltraVision

- ✓주파수대역: 300,200,100,70MHz
- ✓샘플링 : 2 GSa/s
- ✓표준메모리 : 14 Mpts(기본), 56Mpts(opt)
- ✓ 전대역에서 낮은 잡음(noise)특성
- ✓ 입력임피던스 : 1Mohm / 50 ohm
- ✓파형포착속도 (50,000 wfms/s)
- ✓실시간 파형기록,재생,분석 (최대 65,000 frames)
- ✓수직축 감도 : 500uV/div~10V/div
- ✓혁신적인 "UltraVision" 기술채용
- ✓다양한 트리거 지원
- ✓ Serial bus 트리거 및 디코딩(Opt.)
- ✓ 25Mhz,2ch 함수발생기 내장(DS2000A-S)
- ✓Interface: USB Host& Device, LAN(LXI-C), AUX
- ✓USB-GPIB(Opt.)
- ✓화면 : 8 inch WVGA(800X480), 256 레벨의 파형밝기 지원

DS2000A Series Digital Oscilloscope



Width X Height X Depth = 361.60mm X 79.6 mm X 130.8 mm Weight: 3.9 kg ± 0.2 kg (Without Package)

◆ 혁신적인 Ultravision 기술



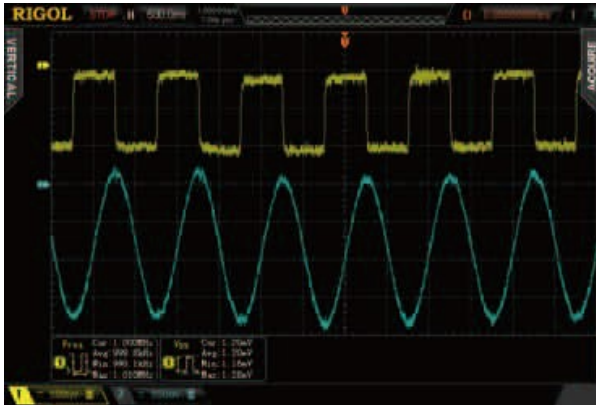
- ◆ 대용량 메모리 (표준 14Mpts)
- ◆ 고속의 파형 포착속도(최대 50,000wfms/s)
- ◆ 실시간 파형기록 및 재생(최대 65,000frames)
- ◆ 파형표시에 대한 강도조절(256 레벨)

◆ Model / key Specifications

Model	DS2072A	DS2072A-S	DS2102A	DS2102A-S	DS2202A	DS2202A-S	DS2302A	DS2302A-S
주파수대역	70MHz		100MHz		200MHz		300MHz	
채널	2							
샘플링율(Max)	2GSa/s (single channel), 1GSa/s(dual Channel)							
메모리(Max)	14Mpts(표준), 56Mpts(opt)							
파형포착속도	50,000 wfm/s(Max)							
수직축감도	500uV/div ~ 10V/div							
실시간 파형기록	Max 65,000 frames(표준)							
기본 Probe	RP3300A 350MHz BW probe(2ea)							
25MHz,FG 내장	X	O	X	O	X	O	X	O

◆ 주요특징 및 장점

수직축감도(500uV~10V/div)



전대역(낮은 오버슈트 <5%)



Ultravision :메모리(기본 14Mpts)



Ultravision :최대 파형포착속도 30,000wfms/s

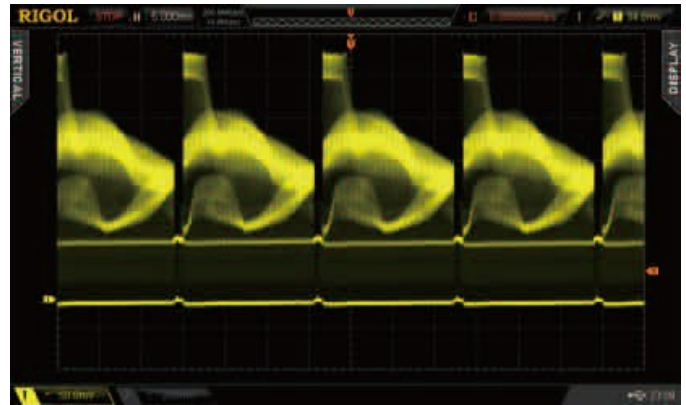


(이상신호의 손쉬운 포착 확인)

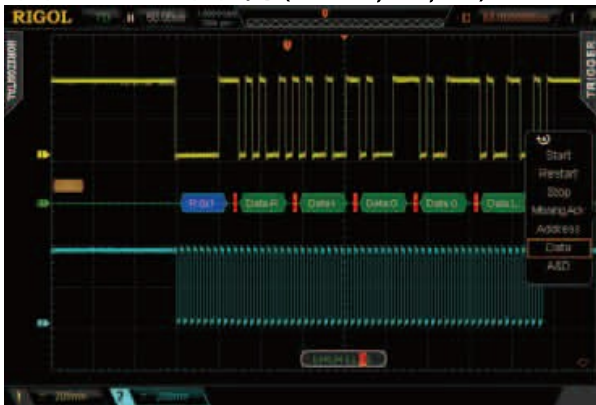
Ultravision :실시간 파형기록,재생,분석(opt)



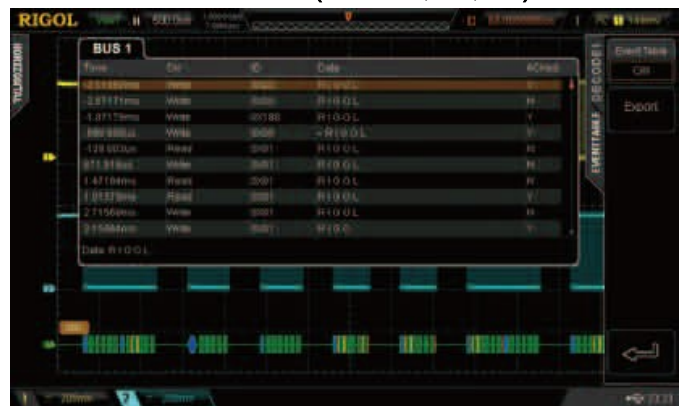
Ultravision :256 레벨의 파형밝기조절



시리얼버스 트리거기능(RS232C, I2C, SPI)



시리얼 버스 트리거 기능(RS232C,I2C,SPI)



다양한 트리거(runt,Nth edge,Setup/Hold..)



Runt Trigger



고급 연산(Math)기능



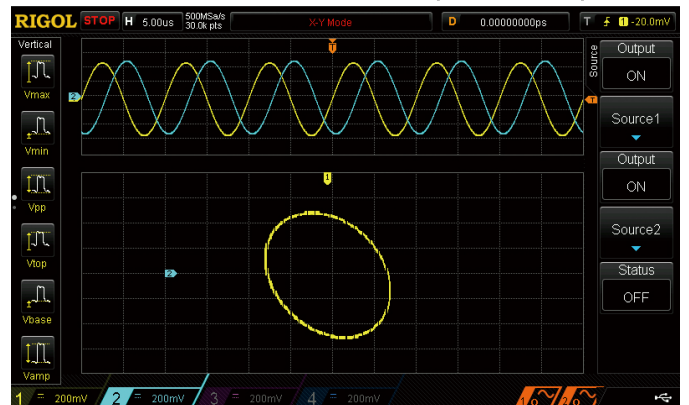
Mask 기능



통계를 포함한 자동측정



25MHz,2 채널의 함수발생기 내장(DS2000A-S)



Interface(USB/LAN)




DS2000A에 사용 가능한 Probes

▶ RIGOL Passive Probes

Model Number	Type	Description
	High Z Probe	1X: DC~7MHz 10X:DC~150MHz Compatibility: All RIGOL Scopes.
RP2200		
	High Z Probe	1X: DC~8MHz 10X:DC~350MHz Compatibility: All RIGOL Scopes.
RP3300A		
	High Z Probe	DC~500MHz Compatibility: All RIGOL Scopes.
RP3500A		
	High Voltage Probe	DC~300MHz CATI 2000V(DC+AC), CATII 1500 V(DC+AC) Compatibility: All RIGOL Scopes.
RP1300H		
	High Voltage Probe	DC~50MHz DC:0~15KV DC,AC:pulse <=30KVp-p, AC:sine wave <=10KVrms Compatibility: All RIGOL Scopes.
RP1050H		
		50ohm Impedance adapter(2W,1GHz)
RT50J		

▶ RIGOL Active & Current Probes

Model Number	Type	Description
	Current Probe	BW:DC~300kHz, Max.DC: ± 100A, AC P-P:200A,AC RMS:70A Compatibility: All RIGOL Scopes.
RP1001C		
	Current Probe	BW:DC~1MHz, Max.DC: ± 70A, AC P-P:140A,AC RMS:50A Compatibility: All RIGOL Scopes.
RP1002C		
	Current Probe	BW:DC~50MHz, Max.AC RMS:30A AC Peak:50A(Noncontinuous) Compatibility: All RIGOL Scopes. Must order RP1000P Power supply.
RP1003C		
	Current Probe	BW:DC~100MHz, Max. AC RMS:30A, AC Peak:50A(Noncontinuous) Compatibility: All RIGOL Scopes. Must order RP1000P Power supply.
RP1004C		
	Current Probe	BW:DC~10MHz, Max.150 A rms, 300 A peak (Noncontinuous), 500 A peak (@pulse width <=30 ms) Compatibility: All RIGOL Scopes. Must order RP1000P Power supply.
RP1005C		
	Power Supply	Power supply for RP1003C,RP1004C,RP1005C, support 4 channels.
RP1000P		
	High Voltage Differential Probe	BW:25MHz; Max. Voltage ≤ 1400Vpp Compatibility: All RIGOL Scopes.
RP1025D		
	High Voltage Differential Probe	BW:50MHz; Max. Voltage ≤ 7000Vpp Compatibility: All RIGOL Scopes.
RP1050D		
	High Voltage Differential Probe	BW:100MHz; Max. Voltage ≤ 7000Vpp Compatibility: All RIGOL scopes
RP1100D		

◆ Specifications

All the specifications are guaranteed except parameters marked with "Typical" and the oscilloscope needs to operate for more than 30 minutes under the specified operation temperature.

Sampling system		Trigger	
Sample Mode	Realtime Sample	Trigger Level Range	Internal(± 5 div from the center of the screen)
Real time sample rate	2GSa/s(single channel),1GSa/s(Dual Channel)		EXT (± 4 V)
Peak Detect	500ps(Single channel) 1ns(dual channel)	Trigger Mode	Auto, Normal, Single
Averaging	2,4,6,8,16,32,64,128,256, 512,1024,2048,4096 or 8192	Holdoff Range	100 ns to 10 s
High Resolution	12bit of resolution when ≥ 5 us/div@1GSa/s (or ≥ 10 us/div @500MSa/s)	High Frequency Rejection	75 kHz
Memory Depth	Single : Auto, 14k,140k,1.4M,14M,56M(opt) Dual : Auto,7k,70k,700k,7M,28M(op)	Trigger sensitivity	1div(below 10mV), 0.3div(above 10mV)
Input		Edge Trigger	
Number of Channel	Dual	Edge Type	Rising, Falling, Rising&Falling
Input Coupling	DC,AC,GND	Windows Trigger	
Input Resistance	(1 M Ω $\pm 1\%$) (16 pF ± 3 pF), 50 Ω $\pm 1.5\%$	Windows type	Rising,Falling,Rising & Falling
Probe	0.01X-1000X 1-2-5 step	Trigger position	Enter,Exit,Time
Maximum Input Voltage (1M Ω)	Maximum Input Voltage of the Analog Channel CAT I 300 Vrms, CAT II 100 Vrms, Transient Overvoltage 1000V pk with RP2200 10:1 probe: CAT II 300 Vrms with RP3300A 10:1 probe: CAT II 300 Vrms with RP3500A 10:1 probe: CAT II 300 Vrms	Windows time	16ns to 4S
Horizontal		Pulse Trigger	
Timebase Scale	DS2302A : 1ns/div to 1000S/div DS2202A : 2ns/div to 1000S/div DS2102A/2072A : 5ns/div to 1000S/div	Pulse Condition	Positive Pulse Width (greater than, lower than, within specified interval) Negative Pulse Width (greater than, lower than, within specified interval)
Time Base Accuracy	± 25 ppm	Pulse Width Range	2 ns to 4 s
Time Base Drift	$\leq \pm 5$ ppm/Year	Slope Trigger	
Delay Range	Pre-trigger (negative delay): ≥ 1 screen width	Slope Condition	Positive Slope (greater than, lower than, within specified interval) Negative Slope (greater than, lower than, within specified interval)
Time Base Mode	Post-trigger (positive delay): 1 s to 1000 s	Time setting	2ns to 4 s
Number of X-Y	Y-T, X-Y, Roll, Delayed	Video trigger	
Waveform Capture rate	1 path 50,000 wfms/s (dots display)	Signal Standard	NTSC,PAL,SECAM
Vertical		HDTV Standard(option)	Support 480P, 576P, 720P, 1080P and 1080I HDTV standards
Bandwidth(-3dB)	DS2302A : DC to 300MHz , 200MHz(DS2202A) DS2102A : DC to 100MHz, 70MHz(DS2072A)	Pattern Trigger	
Vertical resolution	8 bits(two channel sample at same time)	Pattern Setting	H,L,X,Rising,Falling
Vertical scale	500uV/div to 10V/div(1Mohm), 1V/div(50ohm)	RS232C/UART Trigger	
Offset Range	500uV/div to 50mV/div: ± 2 V 51mV mV/div to 200m V/div: ± 10 V 205mV mV/div to 2 V/div: ± 50 V 2.05V mV/div to 10 V/div: ± 100 V	Trigger Condition	Start, Error, Check Error, Data 2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps, User 5 bit, 6 bit, 7 bit, 8 bit
Bandwidth Limit	DS2302A & 2202A : 20MHz/100MHz DS2102A & 2072A : 20MHz	Data Bits	
Low Frequency Response	≤ 5 Hz (on BNC) (AC coupling -3dB)	I2C Trigger	
Rise Time	DS2302A : 1.2ns , DS220A(1.8ns) DS2102A : 3.5ns , DS2072A(5ns)	Trigger Condition	Start, Restart, Stop, Missing ACK, Address, Data, A&D
DC Gain Accuracy	$\pm 2\%$ full scale	Address Bit	7 bit, 10 bit
DC offset Accuracy	0.1 div ± 2 mV $\pm 1\%$ offset	Address Range	0 to 127, 0 to 1023
Isolation(CH to CH)	>40dB	Byte Length	1 to 5
		SPI Trigger	
		Trigger Condition	Timeout
		Timeout Value	100 ns to 1s
		Data bits	4 bit to 32 bit
		Data Line Setting	H, L, X
		Clock Edge	Rising Edge, Falling Edge
		Setup and Hold trigger;	
		Edge type	Rising, Falling
		Date type	H, L
		Setup time	2ns to 1s
		Keeping time	2ns to 1s

Runt Trigger		Function generator (Source)	
Pulse Condition	None,>,<,<>	Output Channels	2
Polarity	Positive,Negative	Sampling rate	200MSa/s
Pulse Width Range	2 ns to 4 s	Resolution	14bits
Duration Trigger		Frequency	Max 25MHz
Pattern	H, L, X (don't care)	Waveform(STD)	Sine,Square,Ramp,Pulse,Noise,DC
Trigger Condition	>,<,<>,><	Arbitrary waveforms	ince, Exp.Rise, EXP.Fall, ECG, Gauss, Lorentz, Haversine
Delay Time	2ns to 4s	Sine	Freq Range 0.1 Hz to 25MHz
Nth Edge Trigger			Flatness $\pm 0.5dB$
Edge type	Rising, Falling;		Harmonic Distortion -40dBc
Idle time	16ns to 10s	Square/pulse	Freq Range 0.1Hz to 15MHz
The number of edge	1 to 65535		Rise/falling time <15ns
Delay Trigger:			Overshoot <5%
Edge type	Rising edge, Falling edge,		Duty cycle 10% to 90%
Delay type	More than, Less than, in the range, out of range;		Pulse width resolution 5ns
Delay time	2ns to 4s		Jitter 500ps
USB Trigger		Triangle	Freq Range 0.1Hz to 100kHz
Signal Speed	Low speed,Full Speed		Linearity <1%
Trigger condition	SOP,EOP,RC,Suspended,ExitSuspend		Symmetry 0 to 100%
Time out trigger;			
Edge type	Rising edge, Falling edge, Rising & Falling	Arbitrary	Freq Range 0.1Hz to 10MHz
Time out time	16ns to 4s		Points 2~16k
Measure			internal(storage) 10
Cursor		Noise	Bandwidth 25MHz
Manual Mode	Voltage deviation between cursors (ΔV) Time deviation between cursors ($\Delta T, 1/\Delta T$)	Oscillator(Freq)	Accuracy 100ppm(< 10kHz) 50ppm(>10kHz)
Track Mode	Voltage and time values of the waveform point		
Auto Mode	Allow to display cursors during auto measurement	Amplitude	Range 20mVpp to 5V(high) 10mVpp to 2.5Vpp(50ohm)
Auto Measurement	Maximum, Minimum, Peak-Peak Value, Top Value, Bottom Value, Amplitude, Average, Mean Square Root, Overshoot, Pre-shoot, Frequency, Period, Rise Time, Fall Time, Positive Pulse Width, Negative Pulse Width, Positive Duty Cycle, Negative Duty Cycle, Delay A~B , Delay A~B , Phase A~B , Phase A~B	DC offset	Range $\pm 2.5V$ (High), $\pm 1.25V$ (50ohm) Resolution 100uV or 3bit Accuracy 2%
Number of Measurements	Display 4 measurements at same time	Display	
Measurement Range	Screen Region or Cursor Region	Display Type	8 inches (203 mm) TFT LCD display
Measurement Statistic	Average, Max, Min, Standard Deviation, Number of Measurements	Display Resolution	800 horizontalxRGBx480 vertical pixel
Counter	Hardware 6 bits counter (channels are selectable)	Display Color	160,000 color
Math		Persistence Time	Min, 50ms, 100ms, 200ms, 500ms, 1 s, 2 s, 5 s, 10 s, 20 s, Infinite
Waveform Operation	A+B, A-B, AxB, A/B, FFT, Editable Advanced Operation, Logic Operation	Display Type	Dots, Vectors
FFT Window	Rectangle, Hanning, Blackman, Hamming	Real-time Clock	Time and Date (user adjustable)
FFT Display	Split, Full Screen	I/O	
FFT Vertical Scale	Vrms , dBVrms	Standards Port	USB HOST, USB DEVICE, LAN, AUX(Pass/Fail)
Logic Operation	AND, OR, NOT, XOR	Printer supports	Picbridge
Math Function	Intg, Diff, Log, Exp, Sqrt, Sine, Cosine, Tangent	General Specifications	
Number of Buses	2	Probe Compensations	
Decoding type	Parallel (standard), RS232 /UART (option), I2C (option), SPI (option),	Output Voltage	About 3 V, peak-peak
Mechanical		Frequency	1 kHz
Dimensions	WxHxD (361.6mmx179.6mmx130.8mm)	Power	
Weight	4.8 kg \pm 0.2 kg (without package) 7.1 kg \pm 1.0kg (With package)	Power Voltage	100~240VAC, 45 ~ 440Hz
Regulation Standard		Power	Max 50W
EMC	2004/108/EC Execution standard EN 61326-1:2006 EN 61326-2-1:2006	Fuse	2 A, T degree, 250 V
Safety	UL 61010-1:2004; CAN/CSA-C22.2 ,NO 61010-1-2004; EN 61010-1:2001; IEC 61010-1:2001	Environment	
		Temperature Range	In operation: 0 °C to +50 °C Out of operation: -20 °C to +70 °C
		Cooling method	Fan
		Humidity Range	Under +35 °C: $\leq 90\%$ relative humidity +35 °C to +50 °C: $\leq 60\%$ relative humidity
		Altitude	In operation: under 3,000 meters Out of operation: under 15,000 meters

Ordering Inforamtion		Order Number
Model	DS2072A(70MHz,2ch)	DS2072A
	DS2072A-S(70MHz,2ch) with 25MHz Function Gen-	DS2072A-S
	DS2102A(100MHz,2ch)	DS2102A
	DS2102A-S(100MHz,2ch) with 25MHz Function Gen-	DS2102A-S
	DS2202A(200MHz,2ch)	DS2202A
	DS2202A-S(200MHz,2ch) with 25MHz Function Gen-	DS2202A-S
	DS2302A(300MHz,2ch)	DS2302A
	DS2302A-S(300MHz,2ch) with 25MHz Function Gen-	DS2302A-S
Standard Accessories		
	Power Cord x1	
	USB Cable x1	CB-USB-150
	Passive Probes (350 MHz) x 2	RP3300A
	Quick Guide x 1	
	Resource CD (User's Guide and Application Software)	
Optional Accessories		
	Rack mount kit	RM-DS-2000A
	Memory Option(56M)	MEM-DS2000A
	Advanced Trigger Option*	AT-DS2000A
	Decoring Option(RS232/UART/I2C/SPI)	SD-DS2000A
	Decoring Option(CAN)	CAN-DS2000A
	Passive Probe(500MHz)	RP3500A
*Advanced Trigger option(AT-DS2) :		
	Runt Trigger	
	Nth Edge Trigger	
	Delay Trigger	
	Timeout trigger	
	HDTV Trigger	
	Duration Trigger	
	USB Trigger	