

Probing Solution Guide

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Optically Isolated Voltage Probes - FireFly®

- Ideal for GaN / SiC high-side VGS Measurements
- Best-in-class >1.5 GHz Bandwidth, <250 ps Rise Time
- Stable over wide Temperature Range, low Offset Drift
- >180 dB CMRR from DC to 500 kHz, >115 dB at 1 GHz
- ±60 kV Common Mode Voltage
- Wide Range of Differential Input Voltage Tips
- Compatible with 1 GHz UFCS Current Shunt Series
- Quiet Operation, no Fan
- Complete Galvanic Isolation
- Universal BNC Interface - Use with any Oscilloscope
- <0.05%/°C Temperature Drift
- Termination: 50 Ω
- Available as 2 m or 10 m cable length version



FireFly®	Bandwidth (-3dB)	Rise time	Attenu- ation	Input Impedance	Common Mode Voltage	Linear Input Voltage Range (DC + Peak AC)	Max. Non-Destructive Differential Input Voltage (DC + Peak AC)	Noise (input referred)
FF-1500A*	> 1.5 GHz	<250 ps	1:1	200 kΩ 5.1 pF	± 60 kV (DC + Peak AC)	± 1 V	5 V	SMA Input (1X): < 2 mV rms With tip cable: (SMA Input noise) · (Tip cable input attenuation) scales proportionally to tip attenuation
FF-1500A-10M*	> 1.5 GHz	<250 ps	1:1	200 kΩ 5.1 pF		± 1 V	5 V	
FF-MMCX-1V	> 1.5 GHz	<250 ps	1:1	50 Ω		± 1 V	5 V	
FF-MMCX-10V	> 1.3 GHz	<280 ps	10:1	2 MΩ 3.4 pF		±10 V	50 V	
FF-MMCX-25V	> 1.3 GHz	<280 ps	25:1	4.9 MΩ 2.1 pF		± 25 V	100 V	
FF-MMCX-50V	> 1.3 GHz	<280 ps	50:1	10 MΩ 2 pF		± 50 V	100 V	
FF-MMCX-250V	> 1.3 GHz	<280 ps	250:1	20 MΩ 2.1 pF		± 250 V	300 V	
FF-WSQ-500V	> 1 GHz	<300 ps	500:1	40 MΩ 2.8 pF		± 500 V	3000 V	
FF-WSQ-1000V	> 1 GHz	<300 ps	1000:1	40 MΩ 2.9 pF		± 1000 V	3000 V	
FF-WSQ-1500V	> 1 GHz	<300 ps	1500:1	40 MΩ 2.7 pF		± 1500 V	3000 V	
FF-WSQ-2500V	> 1 GHz	<300 ps	2500:1	40 MΩ 2.5 pF		± 2500 V	3000 V	

*Power supply is required and needs to be ordered separately, Remote control possible
For isolated Current Measurements, the 1 GHz UFCS Shunt Series is recommended

Power over Fiber Adapter for FireFly®

- Ideal for Production Line Testing and Automation
- Enabling 24/7 continuous FireFly® Operation
- Field upgradable
- Remote Control Capabilities
- Replaces 18650 Battery
- Additional PS02/03/06 Power Supply Channel needed
- Order No.: FF-POF-A01



High Voltage Differential Probes - BumbleBee®

- Ideal for Switching Power Supplies & GaN / SiC Power Devices
- ± 200 V, ± 400 V, ± 1000 V up to ± 2000 V Models
- Each with four User selectable Input Attenuator Ranges
- 400 MHz / 500 MHz Bandwidth
- Up to 7 m Cable Length for reaching Test Points far away
- Universal Use with BNC Connector
- Termination: 50 Ω



Order No.*	Attenuation Ranges	Bandwidth (-3dB)	Max. Input voltage	Differential Input Impedance	Rise time	Noise (AC rms)	Common Mode Rejection Ratio (CMRR)		
880-102-501	500 : 1 / 250 : 1	400 MHz	2000V	10 MΩ 2.5 pF	0.9 ns	500:1, 250:1: 75 mV	DC: > 80dB 100 kHz: > 70dB 1 MHz: > 70dB 3.2 MHz: > 62dB 10 MHz: > 50dB 50 MHz: > 45dB 100 MHz: > 40dB 400 MHz: > 35dB		
	100 : 1 / 50 : 1				1.0 ns				
500 : 1 / 250 : 1	0.9 ns								
100 : 1 / 50 : 1	1.0 ns								
880-106-501	500 : 1 / 250 : 1				0.9 ns	100:1, 50:1: 55 mV			
	100 : 1 / 50 : 1				1.0 ns				
880-107-501	500 : 1 / 250 : 1	0.9 ns	100:1, 50:1: 55 mV						
	100 : 1 / 50 : 1	1.0 ns							
880-132-501	250 : 1 / 125 : 1	500 MHz	1000V	5 MΩ 2.5 pF	0.8 ns	250:1, 125:1: 37 mV			
	50 : 1 / 25 : 1	400 MHz			0.95 ns			50:1, 25:1: 27 mV	
880-137-501	250 : 1 / 125 : 1	500 MHz			0.8 ns				
	50 : 1 / 25 : 1	400 MHz			0.95 ns				
880-122-501	100 : 1 / 50 : 1	500 MHz			400V	2.5 MΩ 2.5 pF		0.8 ns	100:1, 50:1: 14 mV
	20 : 1 / 10 : 1	400 MHz						0.95 ns	
880-127-501	100 : 1 / 50 : 1	500 MHz	0.8 ns						
	20 : 1 / 10 : 1	400 MHz	0.95 ns						
880-112-501	50 : 1 / 25 : 1	500 MHz	200V	1 MΩ 2.5 pF			0.8 ns	50:1, 25:1: 7 mV	
	10 : 1 / 5 : 1	400 MHz					0.95 ns		10:1, 5:1: 15 mV
880-117-501	50 : 1 / 25 : 1	500 MHz			0.8 ns				
	10 : 1 / 5:1	400 MHz			0.95 ns				

*Power supply is required and needs to be ordered separately, Remote control possible

High Voltage Differential Probes - HORNET®

- Ideal for Switching Power Supplies, IGBTs, Si / SiC Power Devices
- ± 4000 V Input Voltage
- With four User selectable Input Attenuator Ranges
- >300 MHz Bandwidth with High CMRR
- For Tester Applications
- Universal Use with BNC Connector
- Termination: 50 Ω



Order No.*	Attenuation Ranges	Bandwidth (-3dB)	Max. Input voltage	Differential Input Impedance	Rise time	Noise (AC RMS)	Common Mode Rejection Ratio (CMRR)
HORNET4kV	1000 : 1 / 500 : 1	≥ 300 MHz	4000 V	20 M Ω 2.5 pF	1.0 ns	400V, 800V: 0.11 V	DC: > 70 dB 100 kHz: > 60 dB 1 MHz: > 60 dB 3.2 MHz: > 60 dB
	200 : 1 / 100 : 1				1.1 ns	2000V, 4000V: 0.14 V	10 MHz: > 50 dB 50 MHz: > 40 dB 100 MHz: > 30 dB 300 MHz: > 25 dB

*Power supply is required and needs to be ordered separately, Remote control recommended

Test Point to 4mm Adapters

Article	Max. non-destructive Input Voltage	Input Connector
4mm-MMCX-M	250V DC + AC pk, 500V pulse	MMCX (male)
4mm-MMCX-F		MMCX (female)
4mm-SMA-M	500V DC + AC pk, 1000V pulse	SMA (male)
4mm-SMA-F		SMA (female)
4mm-BNC-M	750V DC + AC pk, 1500V pulse	BNC (male)
4mm-BNC-F		BNC (female)
4mm-WSQ-5.08		5.08mm pitch holes, (-) (+) (-)



Power Supplies

Article	Order No.	Max. Input voltage	Output Current (max.)	Noise	Channels	Output Voltage	Power	Communication
PS-02	889-09V-PS2	100-240 V AC 47-63 Hz	550 mA /Channel	8 mV	2	± 9 V	20 W	USB
PS-02-L; LAN	889-09V-PS2-L							USB, LAN
PS-03	889-09V-PS3			4 mV	4		40 W	USB
PS-03-L; LAN	889-09V-PS3-L							USB, LAN
PS-06	889-09V-PS6						60 W	USB
PS-06-L; LAN	889-09V-PS6-L							USB, LAN
AP-01 (Battery Pack)	889-09V-AP01	-	700 mA/Channel	250 µV rms	1	20 W	---	
Probe connection cable 0.6m	890-520-900	included in probe / standard accessory						
Probe connection cable 1.5m	890-520-915							



Passive Probes - PML Series

- High-Z Series up to 500 MHz Bandwidth
- Low-Z Series up to 1.5 GHz Bandwidth
- Slim $\varnothing 2.5\text{mm}$ Probe Tip
- Replacable 0.5 mm Spring Tip
- Variety of Accessories for Individual Contacting
- Universal BNC - Use with any Oscilloscope
- W/o read-out available



	Article	Order No.	Attenuation	Bandwidth (-3dB)	Input Voltage	Input Impedance	Rise Time	Cable Length	Termination
High-Z Probes	PML 711A	855-711-A00	10:1	500 MHz	300 V CAT II	10 MΩ 9.5 pF	700 ps	1.3 m	1 MΩ
	PML 711A-RO	855-711-A01							
	PML 712	855-712-000		350 MHz		10 MΩ 11.5 pF	1 ns	2 m	
	PML 712-RO	855-712-001							
	PML 713	855-713-000		250 MHz		10 MΩ 14.5 pF	1.4 ns	3 m	
	PML 713-RO	855-713-001							
	PML 721	855-721-000	20:1	500 MHz	20 MΩ 5.6 pF	700 ps	1.4 m		
	PML 721-RO	855-721-004							
Low-Z Probes	PML 701	855-701-000	1:1	38 MHz	30 V rms / 60 V DC	39 pF + Scope	9 ns	1.3 m	50 Ω
	PML 701-RO	855-701-00E							
	PML 751	855-751-000	10:1	1.5 GHz	12V DC incl. AC peak	500 Ω 1.8 pF	240 ps		
	PML 751-RO	855-751-001							
	PML 751 SMA	855-751-SMA	100:1		30V DC incl. AC peak	5 kΩ 2.2 pF			
	PML 791	855-791-000							
	PML 791-RO	855-791-002							
	PML 791 SMA	855-791-SMA							

Passive Probes - ENVI® - Extreme Temperature Probe for Environmental Testing

- Operating Temperature Range -55°C to +200°C
- 500 MHz, 400 V / 1250 V peak
- High Input Impedance 4.5 M Ω
- Replacable Spring or Rigid Tip
- Universal BNC - Use with any Oscilloscope
- Wide Range of High Temperature Accessories
- Termination: 1 M Ω



Article	Order No.	Attenuation	Bandwidth (-3dB)	Input Voltage	Input Impedance	Rise Time	Cable Length	Temperature Range
ENVI® PHT	835-312-Z01	10:1	500 MHz	400V / 1250V peak	4.5 M Ω 20 pF	1.2 ns	2 m	-55 °C to +155 °C
ENVI® PUHT	835-312-U01	10:1	500 MHz	400V / 1250V peak	4.5 M Ω 20 pF	1.2 ns	2 m	-55 °C to +200 °C

Passive / Active Probes - MMCX Series

- Ideal for Test, Debug, and Design Validation
- Up to >1GHz Bandwidth
- $\pm 42\text{ V}$ Peak, 30 V RMS, $\pm 60\text{ V}$ DC Input Voltage
- As low as <4 pF Input Capacitance
- Large Variety of Tip Adapters and Accessories
- Universal BNC - Use with any Oscilloscope



Article / Order No.	Attenuation	Bandwidth (-3dB)	Input Voltage	Input Impedance	Rise Time	Termination	Operating Temperature	Probe Type
MMCX-P0725	25:1	> 700 MHz	$\pm 42\text{V}$ peak, 30 V rms, $\pm 60\text{ V}$ DC	19.5 M Ω < 4 pF	< 570 ps	1 M Ω	-40 °C to +60 °C	passive
MMCX-P0610	10:1	> 600 MHz		10 M Ω < 8 pF	< 630 ps			
MMCX-P0610RO	10:1	> 600 MHz		19.5 M Ω < 4 pF	< 425 ps			
MMCX-A1025*	25:1	> 1 GHz				50 Ω		active

*Power supply is required and needs to be ordered separately

High Voltage Passive Probes - PHVX Series

- Ideal for switching Power Supplies, IGBTs, Si /SiC Power Components
- 4000V Input Voltage, 100:1, >600MHz Bandwidth
- <3pF Input Capacitance, 50M Ω Input Impedance
- Compact Form Factor
- Variety of Accessories for individual Contacting
- For Tester Applications
- Universal Use with BNC Connector
- Termination 1M Ω

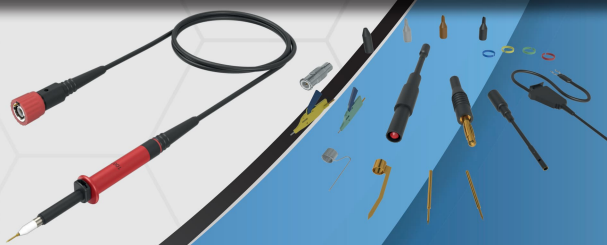


Order No.*	Attenuation	Bandwidth (-3dB)	Input Voltage	Input Impedance	Rise Time	Compensation Range	Cable Length	Operating Temp. Range
PHVX4kV-2-0	100:1	>600 MHz	4000 V peak	50 M Ω 3 pF	<800 ps	10 pF - 25 pF	2 m	-40°C - +60°C
PHVX4kV-3-0		>600 MHz			<1.3 ns		3 m	
PHVX4kV-5-0		>150 MHz			<2.6 ns		5 m	

*All models are available with optional Read-out (RO) and Silicon Insulation (S). eg. PHVX4kV-2-0-RO, PHVX4kV-2-S, PHVX4kV-2-S-RO

High Voltage Passive Probes - PHV Series

- Up to 400 MHz Bandwidth
- Up to 4000 V peak
- 50 M Ω Input Impedance
- Replaceable Spring Tip
- Variety of Accessories for Individual Contacting
- Universal Use with BNC Connector
- Termination: 1 M Ω



Article	Order No.	Attenuation	Bandwidth (-3dB)	Input Voltage	Input Impedance	Rise Time	Compensation Range	Cable Length
PHV 1000	860-622-800	100:1	400 MHz	2000 V peak	50 M Ω 7.5 pF	900 ps	10 pF - 25 pF	2 m
PHV 1000-3	860-623-800		250 MHz			1.4 ns		3 m
PHV 1000-5	860-625-800		120 MHz			2.4 ns		5 m
PHV 2000	870-622-A00		400 MHz	4000 V peak	50 M Ω 7.5 pF	900 ps		2 m
PHV 2000-3	870-623-A02		250 MHz			1.4 ns		3 m
PHV 2000-5	870-625-A02		120 MHz			2.4 ns		5 m
PHVS 2000	870-722-A00	1000:1	400 MHz			900 ps		2 m
PHVS 2000-3	870-723-A00		250 MHz			1.4 ns		3 m
PHVS 2000-5	870-725-A00		120 MHz			2.4 ns		5 m

All models are available with optional Read-out (RO) eg. PHV1000-RO

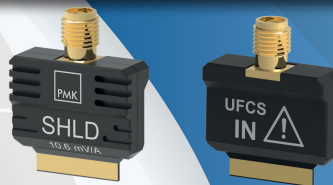
High Voltage Passive Probes - HV Probe for Omicron Lab Bode 100

PHV 1000-0 / Bode 100	860-512-000	100:1	see Bode 100	2000 V peak	50 M Ω 7.5 pF	----	10 pF - 25 pF	1.2 m
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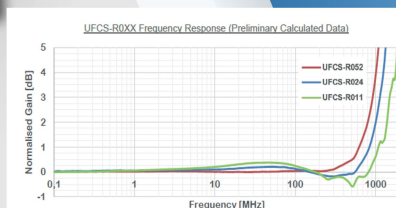
Ultra-Fast Current Shunt UFCS

- Ideal for Double Pulse Testing and Pulse Current Measurements
- Ultra-low <200 pH Insertion Inductance
- Market-leading >1GHz Bandwidth with non-inductive Output
- Various Sizes available: 1m Ω , 5m Ω , 11m Ω , 24m Ω , 52m Ω
- Universal Use – SMA Output Connector
- Can be used with FireFly® to perform isolated Current Measurements
- Termination: 50 Ω



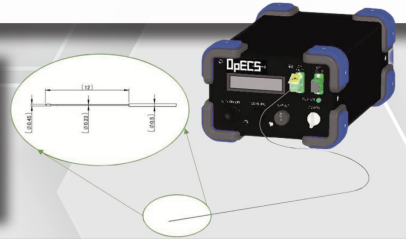
Order No.*	Output	Resistance	Bandwidth (+3dB)	Insertion Inductance	Maximum 100 μ s pulse current	Info
UFCS-R001	SMA (F)	1m Ω	>600 MHz	<200pH	Please Enquire	Single Pack
UFCS-R005	SMA (F)	5m Ω	>800 MHz	<200pH	Please Enquire	Single Pack
UFCS-R011	SMA (F)	11m Ω	>1 GHz	110pH	105 A	Single Pack
UFCS-R024	SMA (F)	24m Ω	>1 GHz	140pH	70 A	Single Pack
UFCS-R052	SMA (F)	52m Ω	>900 MHz	150pH	50 A	Single Pack

* All Versions are available as Single Pack, Pack of 10 Units („Order No.“x10) and Pack of 25 Units („Order No.“x25)



Optical Electric Current Sensor - OpECS

- Ideal for Current Measurements on Wire Bonding Packages of Power Semiconductors and for Switching Waveform Measurements of SiC/GaN Devices
- Ultra-small Sensor Head (Ø 0.45 mm at Tip)
- Non-invasive Current Measurement
- ±140 A maximum Current and 150 MHz Bandwidth, No Derating
- Universal BNC - Use with any Oscilloscope



Article	Bandwidth	Measurable current	Sensitivity	Output Voltage	Noise	Linearity (full BW)	Tip shape (φ×L)	Termination
OpECS	DC - 150 MHz	± 140 A *	25.78 mV/A * (0.073 mV/A · m ⁻¹)	± 4.7 V	6.3 mV rms	± 1 %	φ0.45 × 1 mm	50 Ω

* When making measurements that exceed the measurable current, see the graphs of measurable current with distance from center wire

Rogowski Coil Current Probes

- Bandwidths from 0.4 Hz to 100 MHz
- Peak Currents up to 120 kA, 10 kV max.
- Different Coil Length from 14mm to 1100mm
- Extrem thin Models available - 1mm
- Universal BNC - Use with any Oscilloscope
- Customized Models on Request



Series		Current Range [A]	Max. Frequency Bandwidth [-3dB]	Max. Voltage [V]	Openable Loop	Termination	Temperature range	Coil length (L) Coil diameter (Ø) Coil thickness (T)
SS-280	A	30 A - 30 kA	30 MHz	1200	yes	1 MΩ	-40°C - +125°C	L= 84 mm / Ø= 25 mm / T= 1.7 mm
	A-H						-40°C - +150°C	
SS-290	XL	1.2 kA - 120 kA	5 MHz	10000	yes		-40°C - +125°C	L= 1100 mm / Ø= 345 mm / T= 8.5 mm
	L		10 MHz					L= 700 mm / Ø= 220 mm / T= 8.5 mm
	M		15 MHz					L= 500 mm / Ø= 155 mm / T= 8.5 mm
	S		20 MHz					L= 300 mm / Ø= 90 mm / T= 8.5 mm
SS-620	XL	60 A - 30 kA	10 MHz	5000	yes			L= 500 mm / Ø= 155 mm / T= 3 mm
	L		15 MHz					L= 300 mm / Ø= 90 mm / T= 3 mm
	M		20 MHz					L= 200 mm / Ø= 60 mm / T= 3 mm
	S		25 MHz					L= 100 mm / Ø= 30 mm / T= 3 mm
SS-660	non P	60 A - 1.2 kA	30 MHz	600	yes	L= 84 mm / Ø= 25 mm / T= 1 mm		
	P			1200		L= 84 mm / Ø= 25 mm / T= 1.2 mm		
SS-680		120 A - 12 kA	up to 100 MHz	1200	no	50 Ω	-10°C - +70°C	L= 24 mm / Ø= 14 mm / T= 5.8 mm

Current Probe Series SS-500

- Bandwidths From DC to 120MHz
- 0.5A rms to 500A rms Models
- Low Noise, High Sensitivity
- Ideal for 100µA ripple Currents
- Selectable Ranges 30A, 5A, 0.5A
- For 5mm to 20mm Cable Diameters
- Universal Use with BNC Connector



Order No.*	Bandwidth (-3 dB)	Rise time	Max. rated current	Amplitude accuracy**	Noise level	Output rate	Ø Cable diameter (max.)	Termination
SS-530	DC - 50 MHz	7.0 ns	30A range: 30A rms / 50A peak (2s or less) 5A range: 5Arms / 7.5A peak 0.5A range: 0.5A rms / 0.75A peak	30A range : Typ.±1.0%rdg.±1mV, ±3.0%rdg.±1 mV 5A range : Typ.±1.0%rdg.±1mV, ±3.0%rdg.±1 mV 0.5A range : Typ.±1.0%rdg.±1mV, ±3.0%rdg.±10 mV	75 µA rms or less	30A range: 0.1 V/A 5 A range: 1 V/A 0.5 A range: 10 V/A	φ 5 mm or less	1 MΩ
SS-531	DC - 120 MHz	2.9 ns				1 V/A		
SS-520	DC - 50 MHz	7.0 ns	5 A rms / 7.5 A peak	Typ.±1.0%rdg.±1mV, ±3.0%rdg.±1 mV		0.1 V/A		
SS-521	DC - 120 MHz	2.9 ns						
SS-540	DC - 50 MHz	7.0 ns	30 A rms / 50 A peak	30A: Typ. ±1.0%rdg.±1mV, 50Apeak: ±2.0%rdg.	2.5 mA rms or less	0.01 V/A		
SS-550	DC - 100 MHz	3.5 ns						
SS-560	DC - 10 MHz	35 ns	150 A / 300 A peak	150A: Typ. ±1.0%rdg.±5mV, 300Apeak: ±2.0%rdg.			φ20 mm or less	
SS-570	DC - 2 MHz	175 ns	500 A / 700 A peak	500A: Typ. ±1.0%rdg.±5mV, 700Apeak: ±2.0%rdg.				

* Power Supply PS-52 or PS-54 required, **DC, sine, 45 Hz - 66Hz

IWATSU

IWATSU

Power Supplies for Current Probes

Model / Order No.	Channels	Output	Rated output current (sum total of all channels)	Ripple Voltage	Maximum rated power	Compatible Probes
PS-52	2	±12 V ±0.5 V	600 mA	3 mV pp or less	20 VA	SS-521, SS-520, SS-570, SS-560, SS-550, SS-540
PS-54	4		2.5 A	50 mV pp or less	170 VA	SS-531, SS-530, SS-521, SS-520, SS-570, SS-560, SS-550, SS-540

LILCO® Precision Wide-Band Current Transformers

- Bandwidth from 0.004 Hz to > 60MHz
- Input Currents from mA up to 25 kA
- Ultra low Droop
- Very high DC Saturation Currents
- High I-t Capability up to 24 A s
- Customized Models on Request
- Termination: 50 Ω and 1 MΩ possible (please see datasheet for more information)



Order No.	Hole Size Ø	Output Sensitivity	Max. Peak Current Ipeak	DC Saturation Current Isat	Max. Droop	Rise Time	Max It with DC Bias	Max RMS Current Irms	Band-width LF (-3dB)	Band-width HF (-3dB)	Ipeak/f
	[mm] (in.)	[V/A]	[A]	[A]	[%/ms]	[ns]	[mA · s]	[A]	[Hz]	[MHz]	[A/Hz]
13E1000	13 (0.512)	1	500	22	880	7	4.5	7	1400	60	0.016
13G1000	13 (0.512)	1	500	3	70	7	7	7	130	60	0.3
13W1000	13 (0.512)	1	500	0.25	12	7	7	7	30	60	0.02
13E0500	13 (0.512)	0.5	1000	22	220	10	18	14	360	40	0.062
13G0500	13 (0.512)	0.5	1000	3	20	10	30	14	35	40	0.12
13E0200	13 (0.512)	0.2	2500	22	37	14	110	33	60	30	0.38
13G0200	13 (0.512)	0.2	2500	3	4	14	200	33	10	30	0.7
13W0200	13 (0.512)	0.2	5000	0.25	0.6	14	70	33	1	30	0.25
13E0100	13 (0.512)	0.1	5000	22	10	16	400	60	16	25	1.4
13G0100	13 (0.512)	0.1	5000	3	1	16	700	60	1.6	25	2.5
13W0100	13 (0.512)	0.1	5000	0.25	0.15	16	540	60	0.3	25	2
13E0050	13 (0.512)	0.05	10000	22	3.3	40	1200	100	5.3	10	4.1
13G0050	13 (0.512)	0.05	10000	3	0.25	40	2200	100	0.5	10	8
13W0050	13 (0.512)	0.05	10000	0.25	0.06	40	2200	100	0.1	10	3
58M1000	58 (2.291)	1	500	2	25	14	18	12	40	30	0.06
58M0500	58 (2.291)	0.5	1000	2	9	20	70	20	15	20	0.2
58E0200	58 (2.291)	0.2	2500	55	25	20	360	50	40	20	1
58M0200	58 (2.291)	0.2	2500	2	2	20	360	50	4	20	1
58E0100	58 (2.291)	0.1	5000	55	6.3	40	1800	100	10	10	6
58EH100	58 (2.291)	0.1	2500	55	12.6	20	700	100	20	20	2
58M0100	58 (2.291)	0.1	5000	2	0.3	40	1800	100	0.5	10	6
58MH100	58 (2.291)	0.1	2500	2	0.6	20	700	100	1	20	2
58E0050	58 (2.291)	0.05	10000	55	1.57	80	6000	200	2.5	5	20
58M0050	58 (2.291)	0.05	10000	2	0.1	80	6000	200	0.15	5	20
58E0020	58 (2.291)	0.02	20000	55	0.5	200	2000	500	0.8	2	70
58M0020	58 (2.291)	0.02	20000	2	0.04	200	20000	500	0.06	2	70
58EH010	58 (2.291)	0.01	20000	55	0.38	80	24000	400	0.5	5	85
58MH010	58 (2.291)	0.01	20000	2	0.025	80	24000	400	0.04	5	85
89M0100	89 (3.504)	0.1	5000	5	0.33	40	2600	100	0.5	10	9

High Voltage Passive Probes - HV-P Series

HV-P30A

- Max. Input Voltage: 30 kV DC, 40 kV Pulse
- Attenuation Ratio: 1000:1
- Low Input Capacitance: < 7pF
- High Input Impedance
- System Bandwidth: 50 MHz



HV-P60A

- Max. Input Voltage: 60 kV DC, 80 kV pulse
- Attenuation Ratio: 2000:1
- Low Input Capacitance: < 7pF
- High Input Impedance
- System Bandwidth: 50 MHz



IWATSU



Article	Order No.	Attenuation	Bandwidth (-3dB)	Input Voltage	Input Impedance	Compensation Range	Cable Length
HV-P30A	HV-P30A	1000:1	50 MHz	30 kV DC / 40 kV pulse	100 MΩ <7 pF	15 pF - 50 pF	3 m
HV-P60A	HV-P60A	2000:1		60 kV DC / 80 kV pulse	1000 MΩ <7 pF	20 pF - 50 pF	4 m

Active Voltage Probes - Sonic Series

- ± 8 V / ± 15 V Dynamic Input Range, up to 20 V Maximum
- ± 12 V / ± 15 V Input Offset Voltage
- Single-ended
- Short-circuit Prevention due to High-impedance Reference Connection
- Universal Use with BNC Connector
- Variety of Accessories for Individual Contacting
- Termination: 50 Ω



Order No.	Article	Power Supply	Attenuation	Bandwidth (-3 dB)	Max Input Voltage	Input Impedance	Dynamic Range
Sonic4000*	Sonic 4000	Power supply is required and needs to be ordered separately	10 : 1	4 GHz	± 20 V	2 M Ω 0.6 pF	± 8 V
Sonic4000-BUN1	Sonic 4000	comes with International Wall Plug Power Supply		4 GHz			
885-400-000	Sonic 4000 RF	comes with International Wall Plug Power Supply		220 Hz - 4 GHz			
Sonic2500*	Sonic 2500	Power supply is required and needs to be ordered separately		2.5 GHz	± 15 V	1 M Ω 0.9 pF	± 15 V
Sonic2500-BUN1	Sonic 2500	comes with International Wall Plug Power Supply		2.5 GHz			
Sonic1500*	Sonic 1500	Power supply is required and needs to be ordered separately		1.5 GHz			
Sonic1500-BUN1	Sonic 1500	comes with International Wall Plug Power Supply		1.5 GHz			
Sonic1000*	Sonic 1000	Power supply is required and needs to be ordered separately		1.0 GHz			
Sonic1000-BUN1	Sonic 1000	comes with International Wall Plug Power Supply		1.0 GHz			

* Remote control possible with Multi Channel Power Supply

Active Probe for Automated Test Equipment - ATE2000

- For use in automated 3D Positioning Systems
- 6m Cable Length for Remote Probing
- Measure Test Points with up to 50 mm apart
- High Impedance Probe Tip Reference Connection
 - For safe In-Circuit Testing of energized Circuits
 - Without Possibility for shorting directly to Earth Ground
- Universal Use with BNC Connector
- Termination: 50 Ω



Order No.*	Article	Attenuation	Bandwidth (-3 dB)	Dynamic Voltage Range	Offset Voltage Range	Non-Destructive Input Voltage	Noise	Input Impedance
ATE2000*	2.5 GHz active Probe, ± 8 V, 6 m cable length	10:1						
ATE-FLXGND50	50mm flexible GND reference lead		> 1.1 GHz	± 8 V (16V pp)	± 12 V	± 20 V	89 nV/ sqrt(Hz)	2 M Ω 0.6 pF
ATE-FLXGND30	30mm flexible GND reference lead		> 1.6 GHz					
890-400-812	Ground Blade		> 2.5 GHz					

*Power supply is required and needs to be ordered separately, Remote control possible with Multi Channel Power Supply

High Speed Differential Probes - HSDP Series

- >4 GHz Bandwidth, Low Noise, 1 M Ω || 0.6 pF Input
- ± 8 V, ± 20 V, ± 42 V Models
- ± 60 V Common Mode Voltage
- Ideal for Debugging and Verification of Serial Busses
- Up to 7.5m Cable Length for reaching Test Points far away
- Operating Temperature 0 °C to +50 °C
- Universal Use with BNC Connector
- Termination: 50 Ω

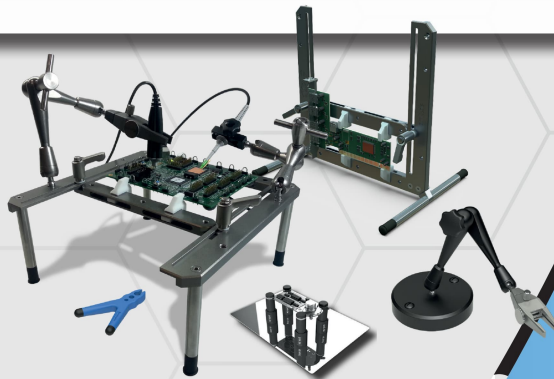


Article / Order No.*	Attenuation	Cable length	Bandwidth (-3 dB)	Differential Voltage Range (DC + AC peak)	Differential DC Offset Range	Rise Time	Differential Input Impedance	Noise	Max. Non-Destructive Voltage between signal and GND (from 10 Hz)	Common Mode Rejection Ratio (CMRR)								
HSDP4010	10:1	1.3 m	> 4 GHz	± 8 V (16 Vpp)	± 12 V	< 140 ps	1 MΩ 0.6 pF	< 2 mV rms	20 V	DC: > 70 dB 1 MHz: > 50 dB 10 MHz: > 45 dB 100 MHz: > 35 dB 500 MHz: > 25 dB 1 GHz: > 25 dB								
HSDP2010		1.3 m	> 2 GHz			< 200ps		< 1.5 mV rms										
HSDP2010L		7.5 m	> 1.8 GHz					< 2.5 mV rms										
HSDP2025	25:1	1.3 m	> 2 GHz	± 20 V (40 Vpp)	± 30 V			< 3 mV rms	50 V									
HSDP2025L		7.5 m	> 1.8 GHz					< 5 mV rms										
HSDP2050	50:1	1.3 m	> 2 GHz	± 42 V (84 Vpp)	± 60 V			< 6 mV rms	60 V									
HSDP2050M		3.5 m	> 1.8 GHz					< 6 mV rms										
HSDP2050L		7.5 m						< 6 mV rms										

*Power supply is required and needs to be ordered separately, Remote control possible with Multi Channel Power Supply

Positioners - SKID®

- Hands-Free Testing & Debugging
- Compact & Robust Design
- Modular Design for Individual Needs
- Up to -55°C to +155°C Models
- Fast and Universal Setups
- Intuitive Clamping System



Order No.	Article	Width of span
893-500-000	SKID S	160 x 160 mm
893-500-START	SKID S Starter-Kit	160 x 160 mm
893-500-010	SKID M	160 x 240 mm
893-600-START	SKID M Starter-Kit	160 x 240 mm
893-500-020	SKID L	300 x 340 mm
893-700-START	SKID L Starter-Kit	300 x 340 mm
893-500-SECO	SKID'eco	DIN A5

Order No.	Article	Description	Connector
893-200-130	STV 130	PMK 3D Positioner, Spanwidth: 130 mm, black	M6 / M6
893-200-200	STV 200	PMK 3D Positioner, Spanwidth: 200 mm, black	M6 / M6
893-050-000	HAL 512	PMK Probe-Holder, Spanwidth: 5-12 mm	M6
893-090-000	UNIHOLDER	Universal Probe-Holder, Spanwidth: 17 mm	M6
893-000-M16	GAD 1/4" M6	Cameraadapter 1/4" to M6	1/4" / M6
893-000-M86	GAD M86	Thread Adapter M8 to M6, AF 13 mm	M8 / M6
890-880-104	TWINHOLD	PMK Twinholder accepting two 4 mm Banana plugs	M6
893-010-000	TWA-2xM6	PMK Twinadapter accepting two M6 threads	M6 / 2x M6

3D positioners



Order No.	Base	Arm	Probe Holder
893-350-001	1200 g Steel Base	200 mm	HAL 512
893-350-002	Table Clamp	200 mm	HAL 512
893-350-003	Vacuum Cup	200 mm	HAL 512
893-350-004	Magnet Foot	130 mm	HAL 512
893-350-005	Magnet Foot	200 mm	HAL 512
893-350-006*	1200 g Steel Base	200 mm	UNIHOLDER
893-350-008	1200 g Steel Base	130 mm	HAL 512
893-350-010	1200 g Steel Base	200 mm	TWINHOLDER
893-350-011	Magnet Foot	200 mm	UNIHOLDER
893-350-013	-	-	Holder for BumbleBee® / HORNET® Series
893-350-014**	1200 g Steel Base	130 mm	TWINHOLDER
893-350-015***	1200 g Steel Base	200 mm	Holder for BumbleBee® / HORNET® Series
FF-3DPOS200A	1200 g Steel Base	200 mm	FireFly® 10 kV Insulating Holder

Order No.	Article	Description	Connector
893-100-001	STS 100	1200 g Steel Base, 100 mm	M6
893-100-002	TIK 40	Table Clamp, Clamping Width: 40 mm	2 x M6
893-100-003	VAS 85	Vacuum Cup Ø 85 mm	M8
893-100-004	TM 170	Magnet Foot Ø 30 mm, 150 N	M6
893-100-005	TM 300	Magnet Foot Ø 40 mm, 300 N	M8
893-200-130	STV 130	PMK 3D Positioner, Spanwidth: 130 mm, black	M6 / M6
893-200-200	STV 200	PMK 3D Positioner, Spanwidth: 200 mm, black	M6 / M6
893-050-000	HAL 512	PMK Probe-Holder, Spanwidth: 5-12 mm	M6
893-090-000	UNIHOLDER	Universal Probe-Holder, Spanwidth: 17 mm	M6
890-880-104	TWINHOLD	PMK Twinholder accepting two 4 mm Bananaplugs	M6
893-010-000	TWA-2xM6	PMK Twinadapter accepting two M6 threads	M6 / 2x M6
893-000-M86	GAD M86	Thread Adapter M8 to M6, AF 13 mm	M8 / M6
893-000-M16	GAD 1/4" M6	Cameraadapter 1/4" to M6	1/4" / M6
893-000-SW7	ESCH-SW7	Wrench	AF7
893-250-001	2 Footer	Holds the probe in a safe position over the device under test	



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