

# Signatone CAP-946 Computer Aided Probe / Micropositioner



## ❖ FEATURES / APPLICATIONS

Signatone offers an extensive line of Micropositioners to address virtually every probing and measurement application, ranging from the very simple to the highly complex sub-micron high-resolution positioners.

The CAP 946 and Thumb-drive Joystick controller gives you 20nm resolution accommodates the majority of Signatone’s Probe arms and single needle probes, RF Heads, 4-point probes, glass slides... allowing for a variety of test configurations. Available with magnetic or bolt-down base. The CAP 946 and Thumb-drive, is arguably the most accurate and easy to use motorized micropositioner available on the market.

### Designed for a Variety of Probing Applications

- Device Characterization and Modeling
- RF Probing
- Failure Analysis
- Ultra-low Noise Measurements
- Material Transfer Systems
- Resistivity Measurements
- MEMS Test
- Internal Node Probing

❖ **SPECIFICATIONS**

**Model CAP-946**

Travel range " X "	25 mm
Travel range " Y "	22 mm
Travel range " Z "	12.5 mm
Feature resolution	50 nm
Encoder resolution	20 nm
Mounting	Magnetic – Bolt down

**Application**

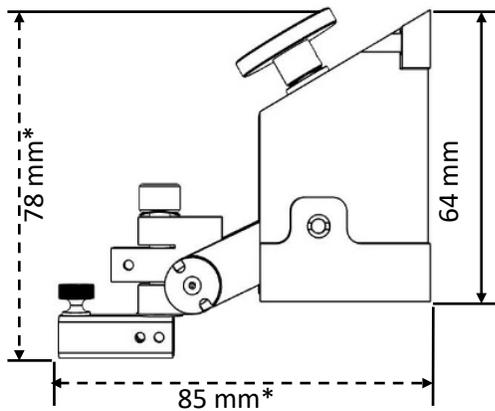
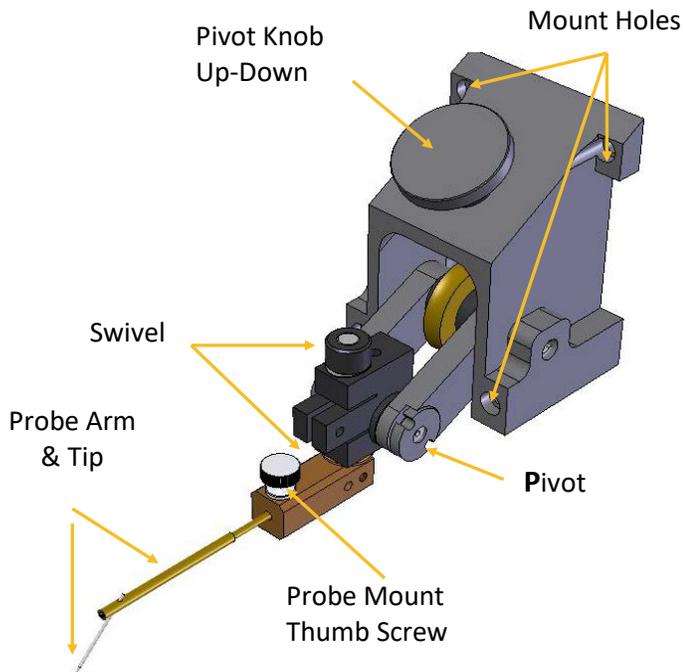
- Ultra-precision – Ultra fine resolution probing
- High-performance CV/IV probing
- Failure analysis
- Sub-micron structures
- Internal node probing
- Material Transfer Systems
- RF & mmW probing



## ❖ Pivot Head Mounting Configurations

The CAP-946 (Computer Aided Probe) comes standard with a multi-purpose pivot head for easy set-up of traditional style probes including but not limited to DC, Coax, Triax, Kelvin, Hi-Voltage, Blade, and other single point probes. The pivot-head assembly allows for the probe to swivel and pivot up or down. The probe mount thumb-screw allows for easy and quick installation of the probe.

### Pivot Head Mounting Arm



Coax Isolated DC Probe



Triax Isolated DC Probe



Coax Kelvin Probe



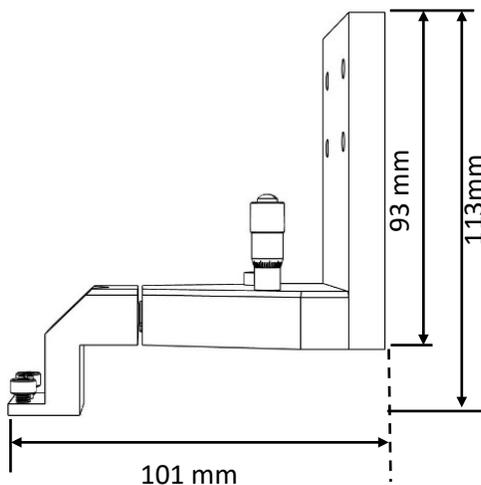
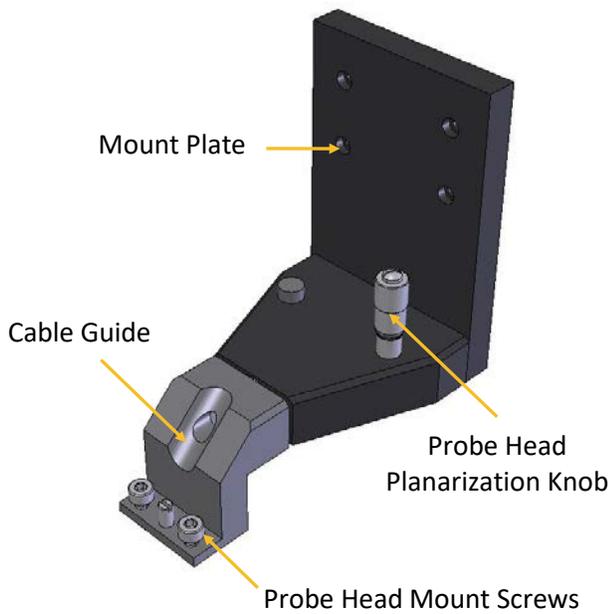
High Voltage 3KV Triax Probe



## ❖ Distinct Head Mounting Configurations

The CAP-946 (Computer Aided Probe) may be configured with a mounting arm for “Distinct” style probes including but not limited to RF, High Current, Material Transfer, Resistivity, Wedge Cards. The distinct head mounting arm may be used in a North/South (90°) or East/West (shown below) configuration and includes head planarization. (sample of popular configurations shown below)

### Distinct Head Mounting Arm



RF Probe Head



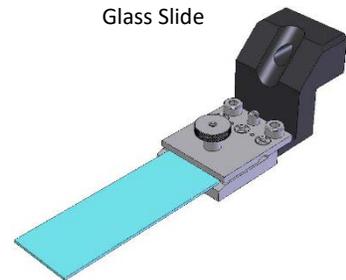
Used in measuring RF devices

High Current Probe Head



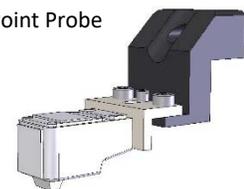
Used in High Current applications

Glass Slide



Used in Material Transfer

Four Point Probe



Used in Resistivity Measurements

❖ **DC PROBE –SELECTION GUIDE**

	Coax Probe (C)	Triax Probe (T)	Kelvin Probe (K)
Max voltage	500 V	500 V	500 V
Temperature range	-60 °C to 300 °C	-60 °C to 300 °C	-60 °C to 300 °C
Leakage current	< 50fA	< 20fA	< 20fA
Connectivity	BNC	Standard Triax	SSMC
Connectivity type	Single Coaxial	Single low noise Triaxial	Force/Sense Coax
Characteristics impedance	50 Ohms	50 Ohms	50 Ohms
Residual capacitance	< 80fF	< 80fF	< 80fF
Probe holder material	Brass	Brass	Brass
Probe tips material	Tungsten	Tungsten	Tungsten
Probe tips sizes	0.5 µm – 25 µm	0.5 µm – 25 µm	0.5 µm – 25 µm
Minimum pad size	25 µm x 25 µm	25 µm x 25 µm	25 µm x 25 µm



Coax Probe



Triax Probe



Coax Kelvin Probe

❖ **High Voltage/High Current PROBE –SELECTION**

Model	High Voltage Probes			High Current Probe
	HVP-CX-3	HVP-TX-3	HVP-CX-10	HCP 100
Max Voltage	3 kV	3 kV	10 kV	500 V
Max Current	1 A DC/30 A Pulsed	120 mA DC	20 mA DC	10 A DC/100 A Pulsed
Temperature Range	-60°C to 300°C	-60°C to 300°C	-60°C to 300°C	-60°C to 300°C
Leakage Current	< 200 pA @ 3 kV, < 5 pA @ 10 V	< 1 pA @ 3 kV, < 100 fA @ 10 V	< 100 pA @ 10 kV	N/A
Connector Type	SHV	HV Triax	UHV Coax	HV Banana
Replaceable Tip	Yes	Yes	Yes	Yes
Probe Material	W	W	W	BeCu or W



HVP-CX-3



HVP-TX-3



HVP-CX-10

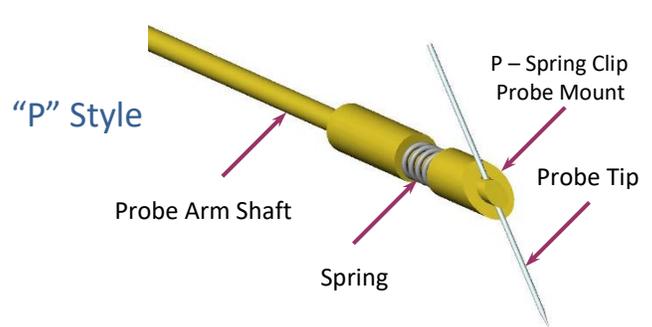
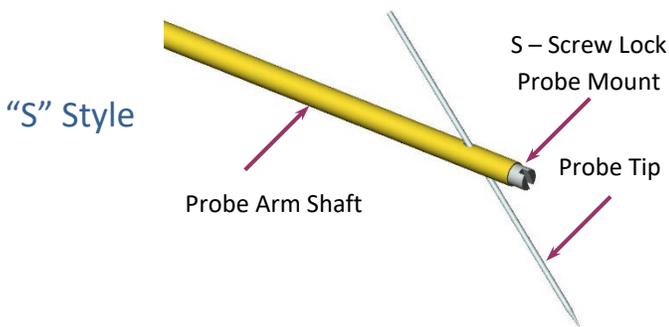
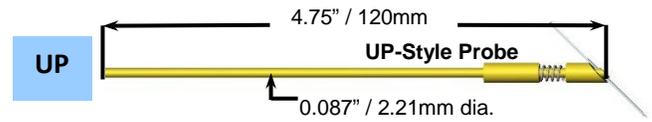
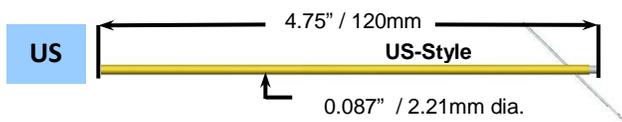


HCP-100

# Signatone Probe Holder Series

Offering a wide variety of probe holders to suit virtually every probing requirement. This Signatone selection guide is for our standard and coax isolated probe holders designed for use with all Signatone Micropositioners

The Signatone “U” Series probe tip holder comes in one universal length of 4.75”. This holder is made to be bent or cut to length by the customer. The “U” style holder is available in the following Signatone “Tip-Mount” Options



The Signatone “S” or screw locking option probe tip mount secures the probe tip with a set screw allows for easy and quick probe replacement.

The Signatone “P” or Spring Clip option probe tip mount allows for a quick and easy probe change without the need for any tools.

## General Purpose Probing

PART #	Material	Length	Probe Mount	Connection	Typical Use
US	Brass	120mm	Screw- Lock	Mini-banana jack	$\geq 1\mu\text{A}$
UP	Brass	120mm	Spring- Clip	Mini-banana jack	$\geq 1\mu\text{A}$

## Signatone Probe Tips

Offering a wide variety of passive probe tips to suit virtually every probing requirement. This selection guide is our standard offering / special sizes and materials available.

Model Number	Material	TIP Diameter	Shank Diameter	Length
SE-10T	Tungsten	1 µm	0.254mm	31.75mm
SE-10TZ	Tungsten	1 µm	0.254mm	31.75mm
SE-20BC	Beryllium Copper	12 µm	0.51mm	31.75mm
SE-20T	Tungsten	3.5 µm	0.51mm	31.75mm
SE-20TB	Tungsten	20 µm	0.51mm	31.75mm
SE-20TBL	Tungsten	20 µm	0.51mm	50.1mm
SE-20TZ	Tungsten	3.5 µm	0.51mm	31.75mm
SE-O	Osmium	12 µm	0.63mm	19mm
SE-P	Palladium	12 µm	0.63mm	19mm
SE-S	Steel	12 µm	0.63mm	28.45mm
SE-SM	Tungsten	1 µm	0.51mm	50.1mm
SE-SMS	Tungsten	0.2 µm	0.51mm	50.1mm
SE-T	Tungsten	5 µm	0.63mm	31.75mm
SE-TB	Tungsten	25 µm	0.63mm	31.75mm
SE-TC	Tungsten Carbide	12 µm	0.63mm	31.75mm
SE-TG	Gold Plated Tungsten	12 µm	0.63mm	31.75mm
SE-TL	Tungsten	5 µm	0.63mm	50.1mm
SE-TZ	Tungsten	5 µm	0.63mm	31.75mm
SM-10	Tungsten	0.2 µm	0.51mm	30.5mm
SM-35	Tungsten	0.7 µm	0.51mm	30.5mm

Probes with tungsten shank can be cut and bent to a particular shape by the end user.

Z bend models are also available, for more information, contact [sales@signatone.com](mailto:sales@signatone.com)

Packaging: Tips are sold by the box including quantity of 5 tips.

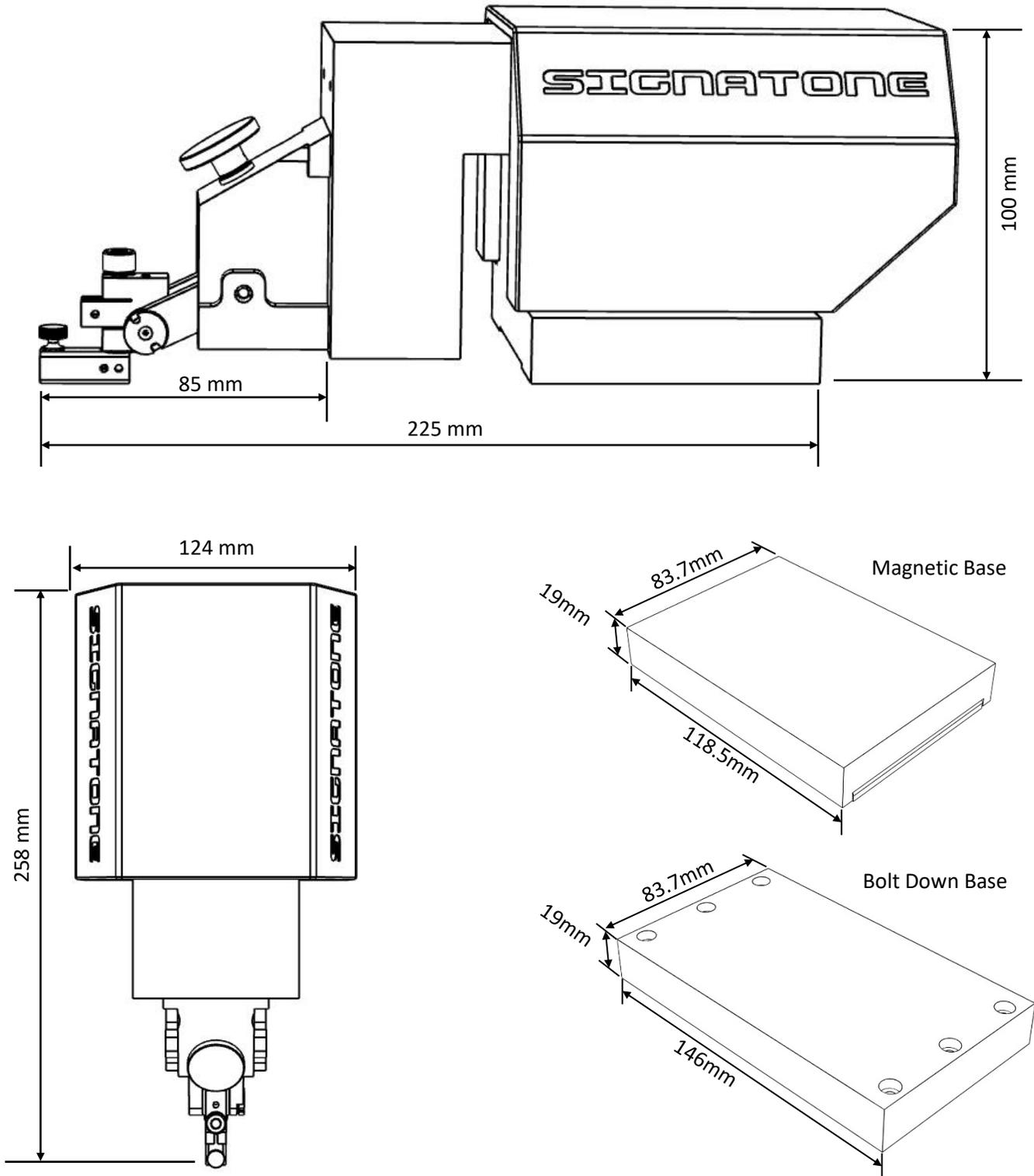
Discounts available on quantity purchases of 20-100 box, +100 boxes.

(contact factory for details)



❖ DIMENSIONS – Including standard Pivot head Configuration

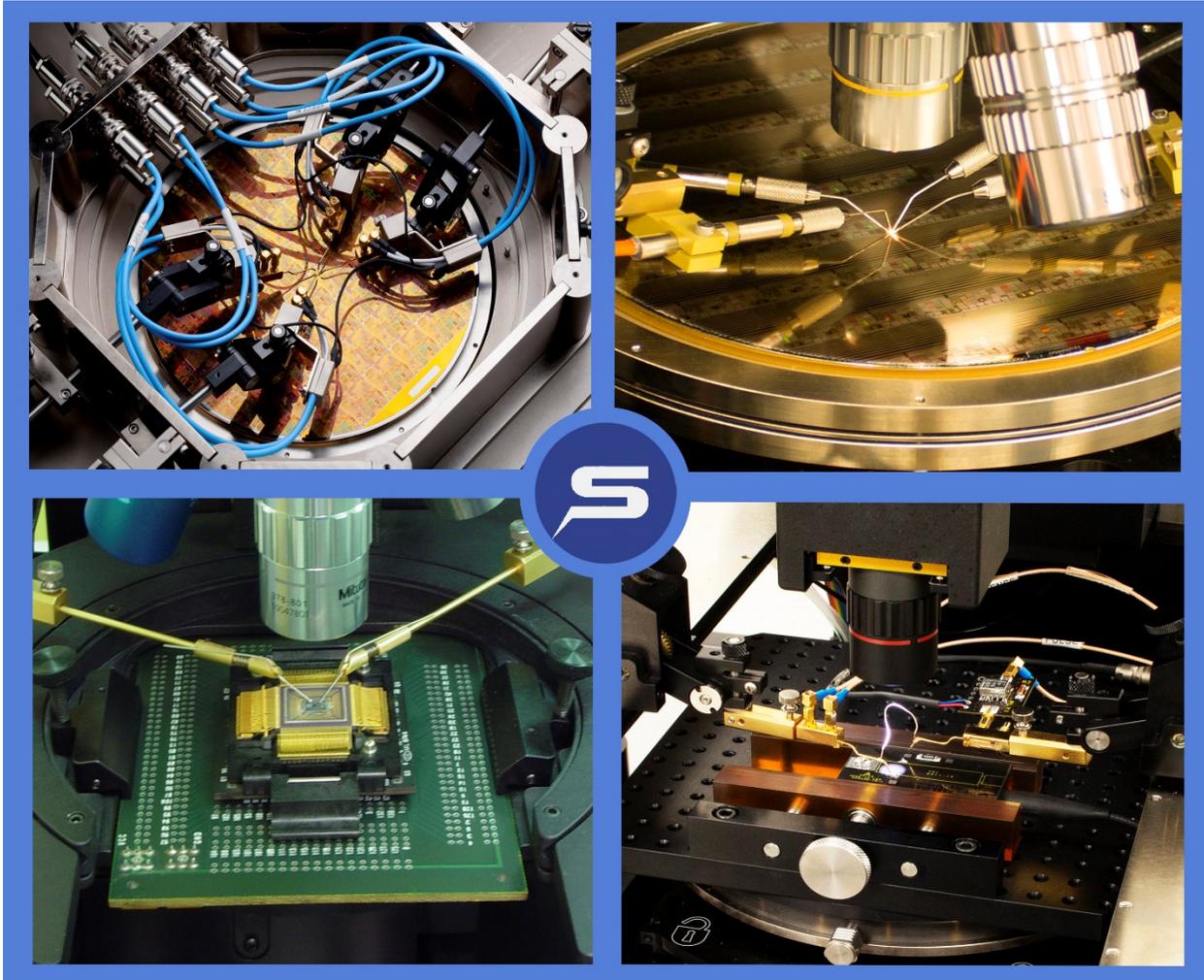
**CAP-946**



❖ **WARRANTY**

- Standard Warranty 12 months \*  
For Extended Warranty and Service Contracts contact Signatone Corp. for more information

\* See Signatone Corporate Terms and Conditions of Sale for further details.



- North America: [Sales.NA@signatone.com](mailto:Sales.NA@signatone.com)
- Europe: [Sales.Europe@signatone.com](mailto:Sales.Europe@signatone.com)
- Asia: [Sales.Asia@signatone.com](mailto:Sales.Asia@signatone.com)