

## Signatone WL-1160 | 150mm - 200mm Manual Probe System designed for reliable and accurate test of RF/mmW, DC, and High Power applications.

### ❖ FEATURES / BENEFITS

#### Multi – Use

- Designed for a wide variety of RF/DC/HP test.
- Robust design and multiple setup and configuration options allow for a maximum of measurement dynamics

#### Ergonomics and Optional Configurations

- Ease of use , single-handed X-Y Stage knobs for quick movement plus fine knob control
- Quick platen lift with adjustable platen separation
- Chuck fine rotation and lock
- Steel platen accepts RF/DC/HP Positioners (Magnetic-Vacuum or Hard Mount)
- Available in multiple configurations including a variety of chuck options, DC/RF/10KV, Micro positioners, microscopes, camera's, PCB holders,...
- Optional Instrumentation racks, Vibration Isolation tables, Thermal chucks,...



### ❖ SPECIFICATIONS

#### Chuck XY Stage (Standard)

Travel range	203mm X 203mm (8 x 8 in)
Fine-travel range	12mm x 12mm (0.5" x 0.5") (optional)*
Fine-travel resolution	<1µm (0.001mm) @ 250µm/rev
Planarity	< 10 µm
Theta travel (Standard)	360°
Theta travel (Fine )	± 6.0° (optional)*
Theta resolution	1.5 x 10 <sup>-5</sup> gradient
Motion Control	Coaxial Knob Gear Drive Stage

#### Chuck to Platen

Chuck to Platen Separation (Quick Lift)	9.375mm (3/8")
Chuck to Platen Separation (Fine Adjust)	38.1mm (1.5")

\*All data are relevant with optional configuration

**Manual Microscope Stage (Linear)**

Movement range	50 X 50mm (2" x 2")
Resolution	1° = 2.54µ (0.0001")
Scope lift	Tiltback * (optional use with low power or monozoom scopes)
Motion Control	Independently controlled X and Y knobs

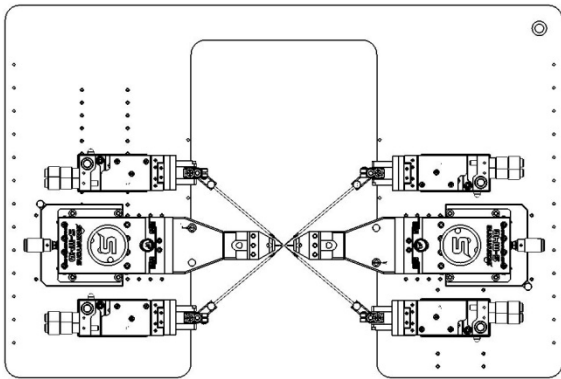
\*All data are relevant with optional configuration

**PROBE PLATEN**

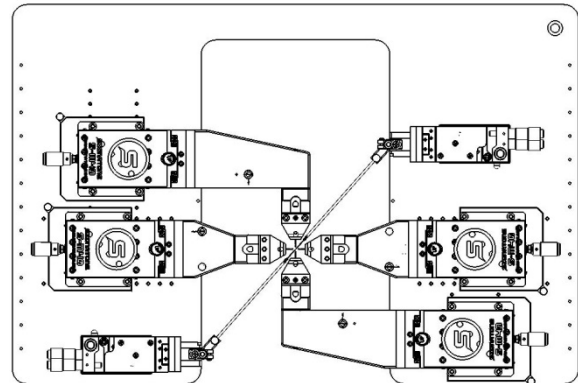
**Specifications**

Design	Four Post Support
Dimension	L = 406.5mm x W = 610mm x H = 12.7mm 16" x 24" x 0.5"
Chuck to platen Top	Min. 14.7mm (Variable Separation with Fine Platen Adjust)
Max. No of Micro Positioners	2xRF + 4DC or 2xmmW + 1x RF + 3 DC or 4 x RF+2DC or 10x DC
Quick Platen Lift Control (CVL)	Continuous Variable Lift (0 to 9.375mm)
Contact Repeatability	< 1 µm (0.04 mils) by Manual Control
mmW MicroPositioner mounting	Bolt Down
RF MicroPositioner mounting	Magnetic or Bolt Down
DC MicroPositioner mounting	Magnetic or Vacuum

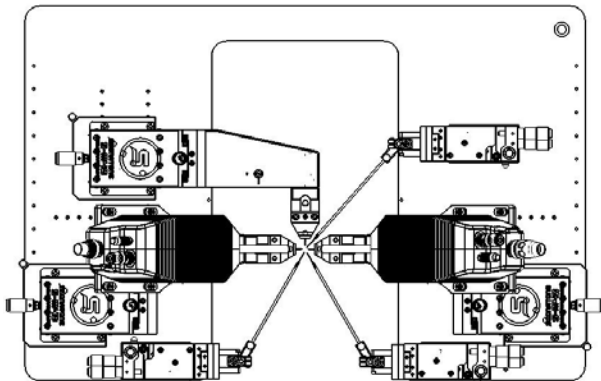
Universal Platen Designed for Multiple Probe Configurations



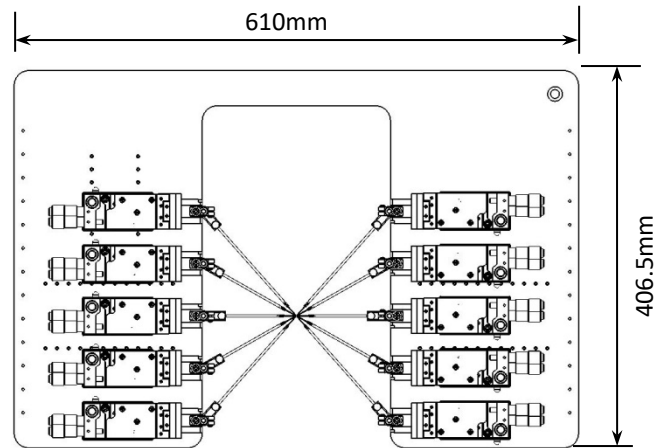
Sample Configured with 2 RF + 4 DC Probes



Sample Configured with 4 RF + 2 DC Probes



Sample Configured with 2mmW +1RF + 3 DC Probes



Sample Configured with 10 DC Probes

### ❖ ONE PLATEN - Multiple BENFITS

**Signatone Multi Benefit Ergonomically Correct Platen Adjust and Features:**

- “Quick Lift” with Continuous Variable Lift (CVL) for easy probe to pad separation and alignment
- “Fine Adjust” for Probe card and variable Chucks and DUT thickness setup

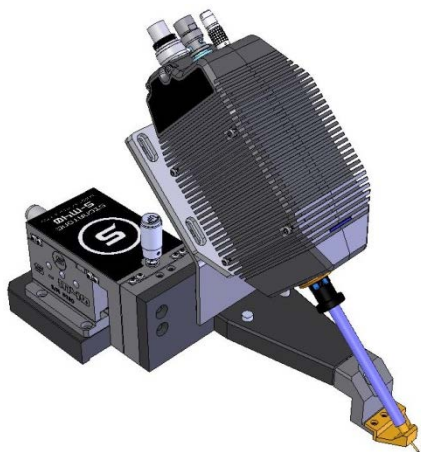


Platen “Quick Lift”

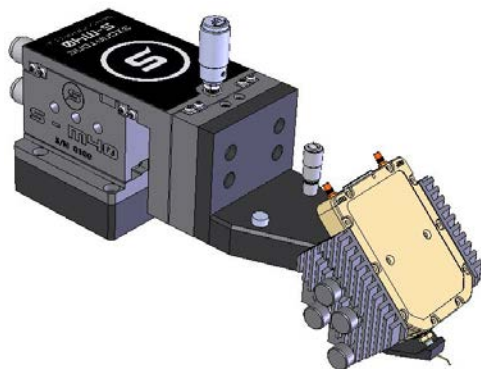
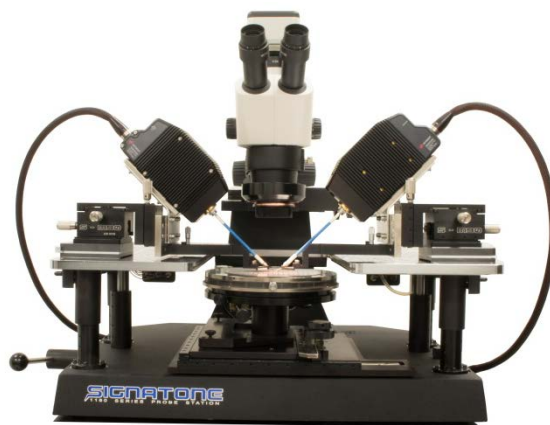


Platen “Fine Adjust”

### ❖ Frequency Extenders - Sample Configurations



KeySight 110 GHz Frequency Extender  
Mounted on S-M40 Positioner



ANRITSU 110GHz Frequency Extender  
Mounted on S-M40 Positioner

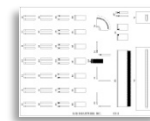
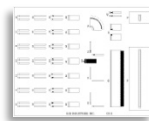


**❖ RF PROBE –SELECTION GUIDE**



**Cable Interface**

	<b>SP-40A</b>	<b>SP-50A</b>	<b>SP-67A</b>	<b>SP-110H</b>	<b>SP-145</b>
<b>Frequency</b>	DC-40GHz	DC-50GHz	DC-67GHz	DC-110GHz	DC-145GHz
<b>Connector</b>	2.92mm	2.4mm	1.85mm	1.0mm	0.8mm
<b>Tip Configuration</b>	GS/SG/GSG	GS/SG/GSG	GS/SG/GSG	GS/SG/GSG	GSG
<b>Pitch Range</b>	50μ - 2540μ	50μ - 1250μ	50μ - 1250μ	50μ - 1250μ	50μ - 200μ
<b>Insertion Loss</b>	<.8db	<1.0db	<1.1db	<1.5db	<1.75db
<b>Return Loss</b>	> 18db	>18db	>14db	>15db	>15db



**Calibration Substrates**

<b>GSG</b>	<b>SP-CS-5</b>	<b>SP-CS-9</b>	<b>SP-CS-10</b>	<b>SP-CS-18</b>
Pad Size	50μ X 50μ	100μ X 100μ	150μ X 150μ	300μ X 300μ
	100μ X 100μ			
	150μ X 150μ			
Pitch Range	75μ - 250μ	250μ - 600μ	600μ - 1250μ	1250μ - 2540μ

<b>GS/SG</b>	<b>SP-CS-8</b>	<b>SP-CS-14</b>	<b>SP-CS-11</b>	<b>SP-CS-17</b>
Pad Size	50μ X 50μ	100μ X 100μ	150μ X 150μ	300μ X 300μ
	100μ X 100μ			
	150μ X 150μ			
Pitch Range	50μ - 200μ	200μ - 400μ	400μ - 1250μ	750μ - 2540μ

<b>GSG &gt; 110GHz</b>	<b>SP-CS-15</b>
Pad Size	25μ X 25μ
Pitch Range	40μ - 150μ (SOLT) 30μ - 150μ (LRM)



**RF Cables**

	<b>RFC-40</b>	<b>RFC-50</b>	<b>RFC-67</b>	<b>RFC-110</b>
<b>Frequency Range</b>	DC - 40GHz	DC - 50GHz	DC - 67GHz	DC - 110GHz
<b>Length</b>	4 Ft.	4 Ft.	3 Ft.	*
<b>Connectors</b>	2.92 M – 2.92 F	2.4 M – 2.4 F	1.85 M - 1.85 F	1.0 M - 1.0 F

\* Contact Factory

**❖ NON-THERMAL CHUCKS**

**Standard Wafer Chuck**

Connectivity	Coax BNC (m)
Diameter	203mm
Material	Nickel Plated Brass (gold optional)
Chuck surface	Zone selector knob with Pin Hole vacuum patterns
Vacuum hole pattern sections(diameter)	22mm, 50mm, 91mm, 135mm, 168mm
Vacuum actuation	Selector Knob allows individual activation of vacuum zones
Supported DUT sizes	25mm, 75mm, 100mm, 150mm, 200mm
Surface planarity	±6.5μ
Rigidity	<3μ / 10N at edge of the chuck

**Electrical Specification (Coax)**

Operation voltage	Designed for operation at -200V to + 200VDC
Maximum voltage between chuck top and GND	500 V DC
Isolation	> 150 GΩ

**Wafer Chuck (Triaxial)**

Connectivity	Triax (m)
Diameter	203mm
Material	Gold Plated Brass
Chuck surface	Independent Vacuum zones with Pin Hole vacuum patterns
Vacuum hole pattern sections(diameter)	0mm, 65mm, 112mm, 162mm
Vacuum actuation	Multi-Zone Adjustable Control
Supported DUT sizes	3mm, 75mm, 125mm, 200mm
Surface planarity	± 5μm
Rigidity	<3μm / 10N near at edge of the chuck

**Electrical Specification (Triax)**

Chuck isolation	Measured @ 10V DC
Force to guard	> 2 TΩ
Guard to shield	> 7 TΩ
Force to shield	> 15 TΩ

**Auxiliary Chuck**

Quantity	1 AUX chucks (2 <sup>nd</sup> optional)
Position	Independently isolated (located on back left and right )
Substrate Size (L x W)	Max 25mm x 25mm (1"x 1")
Material	NI plated brass (Ceramic, Ultem-Optional)
Surface Planarity	≤± 5μm
Vacuum Control	Controlled independently, separate from wafer chucks

❖ **SIGNATONE THERMAL CHUCKS**

**Typical Specifications of *Signatone* Thermal Technology**

	<b>200mm Standard Hot</b>	<b>200mm Hot/ Triax</b>	<b>200mm Hot/ 3kV Triax</b>
Temperature Range	+25°C to +300°C	+25°C to +200°C	+25°C to +200°C
Connectivity	Coax (m)	Triax (m)	SHV Triax (m)
Temperature control method	Liquid Cooled / Resistance heater	Liquid Cooled / Resistance heater	Liquid Cooled / Resistance heater
Coolant	Water	Water	Water
Smallest temperature selection step	0.1°C	0.1°C	0.1°C
Chuck temperature display resolution	0.01°C	0.01°C	0.01°C
External touchscreen display operation	Yes	Yes	Yes
Temperature stability	±0.1°C	±0.1°C	±0.1°C
Temperature accuracy	±0.5°C	±0.5°C	±0.5°C
Control method	Low noise DC/PID	Low noise DC/PID	Low noise DC/PID
Interfaces	RS232C	RS232C	RS232C
Optional Interfaces	GP-IB	GP-IB	GP-IB
Chuck surface plating	Nickel	Gold	Gold
Temperature sensor	RTD	RTD	RTD
Temperature uniformity	±0.5°C at ≤ 200°C ±1. °C at > 200°C	±0.5°C at ≤ 100°C ±2.5°C at 200°C	±0.5°C at ≤ 100°C ±3.5°C at 200°C
Surface flatness	< ±1 µm	< ±8µm	< ±15µm
Electrical isolation - Coax BNC (m) / SHV Triax	150nA	> 5TΩ	> 5TΩ
Heating Rates	25°C to 300°C < 12 min	25°C to 200°C < 9 min	25°C to 200°C < 28 min
Cooling Rates	300°C to 25°C < 9 min	200°C to 25°C < 8 min	200°C to 25°C < 8 min
Leakage @ 10 V Kelvin Triax	N/A	<25fA	<400fA
Residual Capacitance		<200fF	<1pF
Maximum voltage between chuck top and GND	500V	500V	3kV
3 Safety Circuits	Yes	Yes	Yes
Vacuum Pattern	Rings	Pin hole	Pin hole
Vacuum Zone (DUT Size)	50, 100, 150, 200mm	2, 50, 100, 150, 200mm	2, 50, 100, 150, 200mm

**System Controller / Dimensions /Weight / Power Consumption**

System Model	W x D x H (mm)	Weight (kg)	Weight (Lbs.)	Power cons. (VA)
S-1080	432 x 483 x 267	20.4	45	2000
TC-II	355 x 711 x 610	50.8	112	1500

❖ **ERS HIGH POWER THERMAL CHUCKS**

**Specifications of ERS/ SIGNATONE Technology HV 200mm Chucks**

Temperature Range	25°C to 200°C	25°C to 300°C
Connectivity	Kelvin Triax (M),3kV or 10 kV Coaxial	Kelvin Triax (M),3kV or 10 kV Coaxial
Temperature control method	Cooling air / Resistance heater	Cooling air / Resistance heater
Coolant	Air (user supplied)	Air (user supplied)
Smallest temperature selection step	0.1°C	0.1°C
Chuck temperature display resolution	0.01°C	0.01°C
External touchscreen display (optional)	Yes	Yes
Temperature stability	±0.08°C	±0.08°C
Temperature accuracy	±0.1°C	±0.1°C
Control method	Low noise DC/PID	Low noise DC/PID
Interfaces	RS232C	RS232C
Chuck surface plating	Gold plated with pinhole surface	Gold plated with pinhole surface
Temperature sensor	Pt100 1/3DIN 4-line wired	Pt100 1/3DIN 4-line wired
Temperature uniformity	< ±0.5°C at ≤ 200°C	< ±0.5°C at ≤ 300°C
Surface flatness and base parallelism	< ±10 µm	< ±10 µm
Heating and Cooling Rates*	25°C to 200°C <30min 200°C to 25°C <30min	25°C to 300°C <35min 300°C to 25°C <35min
Leakage @ 3000V Kelvin Triax (M)		
25°C	5pA	5pA
200 °C	10pA	10pA
300°C	--	15pA
Leakage @ 10kV Coax UHV/SHV (M)		
25°C	6nA	6nA
200 °C	6nA	6nA
300°C	--	6nA
Maximum voltage between chuck top and GND	10 kV DC	10 kV DC

\*All data are relevant for chucks in ECO mode

**System Controller / Chiller Dimensions and Power / Air Consumption**

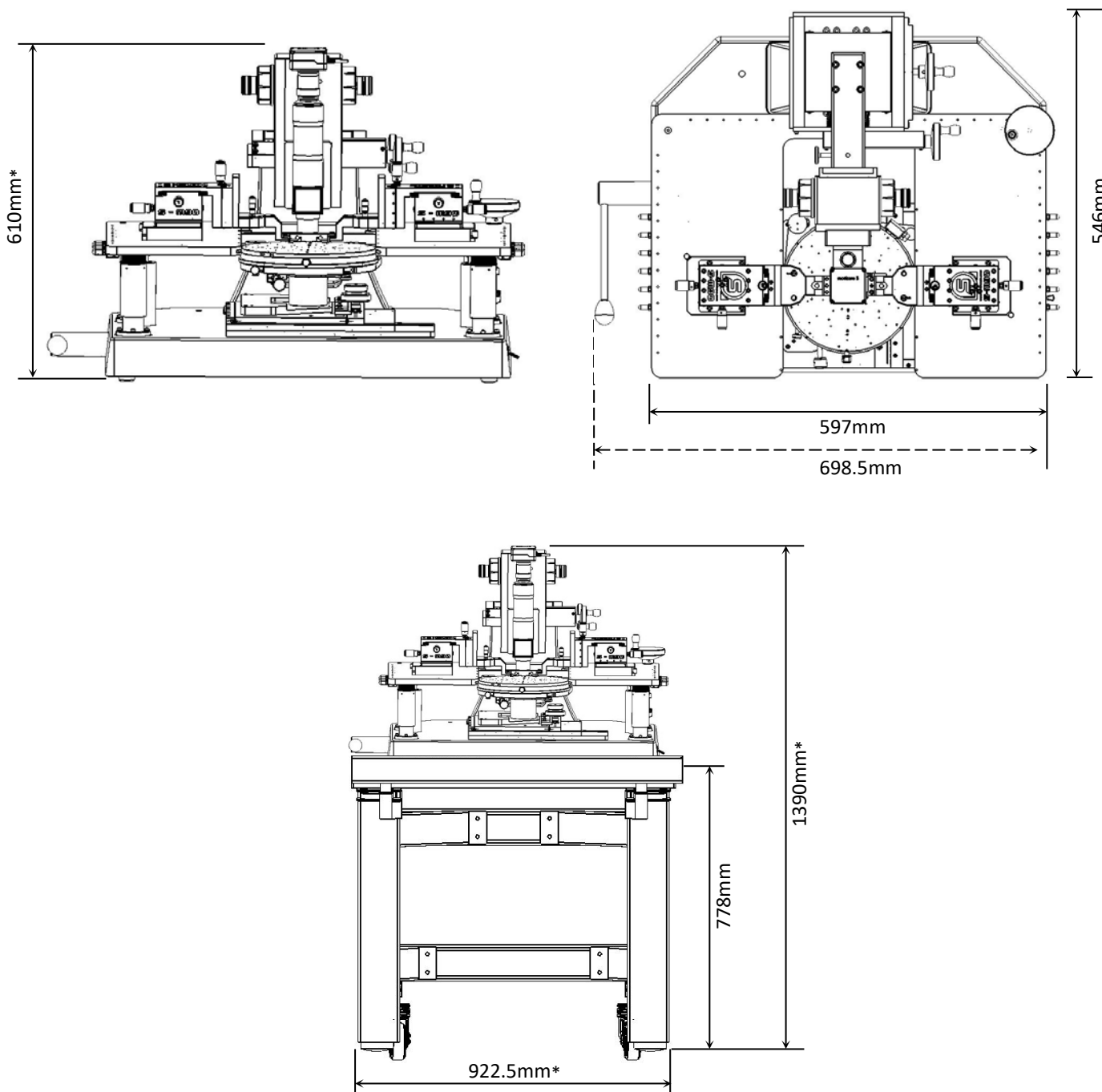
System type	W x D x H (mm)	Weight (kg)	Power cons. (VA)	max. Air flow (l/min)
25 to 200 °C	300 x 360 x 135	12	1300	220
25 to 300 °C	300 x 360 x 135	12	1300	220

❖ **SYSTEM DIMENSIONS – TABLE OPTIONAL**

**WL-1160 / including microscope\***

Dimensions (L x D x H)	546x 597 x 610mm	(21.5" x 23.5" x 24")
Weight	56.7kg	(125 lbs.)

\* Can vary dependent on monitor, probes, shelf, and microscope selection





## ❖ WARRANTY

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- 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.

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- **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)

