

# Handheld XRF Spectrometers

## Bruker S1 TITAN

The S1 TITAN is among the lightest (1.5 kg, including battery) tube-based handheld XRF analyzers on the market today. Fast analysis speed and exceptional accuracy are two key attributes that help define the S1 TITAN.

Other innovative features include an integrated touch-screen color display, SharpBeam™ opti-mized X-ray geometry, Silicon Drift Detector (SDD), and an extremely tough housing that is sealed against humid and dusty environments.

The S1 TITAN series is available in three (3) configurations: models 800, 500 and 500S. All models use Bruker's SharpBeam™ technology and Graphene window SDD detector to give you incredibly fast analysis times. In addition, the S1 TITAN can be configured with calibrations that are optimized for a variety of sample materials- including a wide range of alloys, various mining and environmental samples, as well as restricted materials.

### BENEFITS

- **Available calibrations include:**  
Alloy, gold and precious metals, bulk material (E-scrap and catalytic converters), soil, mining, restricted materials, and customer specific
- **Superior Graphene window SDD detector technology**
- **Superior count rates and resolution**  
(compared to previous generation SiPIN instruments)
- **Faster than previous generations**
- **Lower detection limits**
- **Easy analysis of light elements, such as:**  
Magnesium, aluminum and silicon, without the need for vacuum or helium atmosphere (S1 TITAN 800 and 600 only)
- **Li-Ion battery; Battery Charger; AC Adapter**
- **512 MB Internal storage; external USB Data storage**

### SHARPBEAM™

The S1 TITAN's patent pending SharpBeam™ technology optimizes the detector and tube geometry. The optimized geometry has many desirable effects, including:

- **Reduces power requirements**
- **Reduces weight**
- **Improves measurement precision**
- **Improved detection limits**
- **Increases battery life**

### APPLICATIONS

- Positive Material Identification (PMI)
- Scrap Metal Recycling & Sorting
- Aerospace Alloys
- Gold Testing
- Precious Metal Alloy
- Mining and Exploration
- Ore Grade Control
- Core Analysis
- Food Safety & Agriculture Solutions
- Geochemical Mapping
- Soil Analysis
- Metal Recovery
- Art and Archaeology
- ASTM-F963
- Toxics in Packaging Clearing House (TPCH)
- Lead in Children's Products & Clothing
- Proposition 65 Compliance
- RoHS
- More



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### SPECIFICATIONS

Module	Model 800	Model 500S	Model 500
<b>Excitation Source</b>	Rh target X-ray tube, 4W. 6-50kV, 5-200µA	Rh target X-ray tube, 2W. 15-29kV, 5-100µA	Rh target X-ray tube, 2W. 15-40kV, 5-100µA
<b>Detector</b>	Graphene window SDD, 20mm <sup>2</sup> active area Typical resolution < 145eV at 450kcps		
<b>Spot size</b>	8 mm standard, 5 or 3mm optional	8 mm	
<b>Filter</b>	Five (5) position automatic filter changer	No filter	Fixed filter
<b>Elemental Range</b>	Mg – U		Ti – U
<b>Color CMOS Camera</b>	Optional		
<b>Sample Temperature</b>	Default to 150°C (302°F) with Ultralene® window. Up to 500°C (932°F) with Kapton® window and hot surface adapter.		Default to 350°C (662°F) with Kapton® window. (Max. 5 sec measurement, min. 60 sec cool down)
<b>Pressure/Temperature Compensation</b>	No		
<b>Detector Shield™</b>	Included		
<b>Geometry</b>	Features patented SharpBeam™ beam path for best performance at low power		
<b>Beam Path</b>	Air		
<b>Weight</b>	1.5 kg (3.3 lbs.) with battery		
<b>Dimensions L x W x H</b>	25 cm x 28 cm x 9 cm (10 in. x 11 in. x 3.7 in.)		
<b>Testing Modes</b>	Assay, Grade ID, Grade Pass/Fail, Limit testing		
<b>Convenience</b>	Wrist strap, optional holster		
<b>Operating Environment</b>	Operating Temp: -10°C to +50°C (+14°F to 122°F); Altitude < 2,500 meters (8,200ft.) Splash/dust resistant enclosure.		
<b>Power</b>	Li-Ion battery; AC Adapter; Battery Charger		
<b>Interactive Touchscreen</b>	9.4 cm (3.7 in.) integrated color touchscreen LCD; TFT active matrix; 640 x 480 pixels; 64k color; resistive touchscreen.		
<b>Control Software</b>	Full control OS on analyzer and on PC software		
<b>PC Operating System</b>	Windows® 7 or Windows® 10; Microsoft Excel or Bruker proprietary software for report generation & spectrum viewing.		
<b>Analysis Software</b>	Point-and-shoot and live spectra on analyzer; point-and-shoot, live spectra and full qualitative, semi-quantitative and quantitative software on PC.(Artax & EasyCal software optional)		
<b>Data Storage</b>	512MB Internal; external USB data storage		
<b>Data Transfer</b>	USB Data storage, I/O ports, Wi-Fi and Bluetooth connectivity to save and transmit data from the field.		
<b>System Safety</b>	Password protection; no sample (backscatter) shutoff, IR proximity sensor		
<b>Languages</b>	Chinese, Chinese simplified, Dutch, English, French, French Canadian, German, Indonesian, Italian, Japanese, Korean, Polish, PortugueseBR, Russian, SpanishMEX, SpanishSPN, Thai, Turkish		
<b>Certification</b>	CE, cTUVus, IEC 61010-1:2010 by TÜV SÜD, EN 61326-1:2006		

Specifications subject to change without notice.

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### NEW OPTIONS

The S1 TITAN can now be configured with optional integrated camera and/or small spot collimator.

Thanks to the S1 TITAN's SharpBeam™ optimized geometry, the precision and accuracy of the measurement are the same as for the normal spot- there is no need to extend the measurement time to achieve the desired precision. The camera options is available for S1 TITAN 800 and 600. The 5mm spot size is standard for all models, however the S1 TITAN 800 can be configured with either an optional 8mm or 3mm spot.

### CALIBRATIONS

Calibration	Model 800	Model 500S	Model 500
Heavy Metals and Elemental Nutrients in Soil	*		
Mudrock	*		
Alloy LE	*		
Soil LE	*		
GeoChem LE	*		
GeoExploration	*		
Limestone	*		
Restricted Materials	*		
Food Safety	*		
Food Quality	*		
Ceramics	*		
Industrial LIP	*	*	*
Precious Metal LE	*		
LowPbiCu	*		
Maritime Sulfur	*	*	*
Filter and Dust Wipe	*	*	*
Alloy		*	*
Precious Metals		*	*
Soil			
GeoChem			
Regulated Plastics			
Regulated Metals			



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