



# S1 TITAN

## ● Scrap Metal Sorting

Handheld XRF has become standard equipment in the metal recycling industry. The S1 TITAN is among the lightest on the market, making it the ideal choice for scrap yard use. All models are equipped with modern SDD (silicon drift detector) technology, allowing faster scrap sorting compared to traditional Si-PIN based analyzers. The analysis provides elemental concentration, alloy identification and scrap value.

Versatility is just one of the S1 TITAN's strengths. Metal sorting is the most common recycling application, but the S1 TITAN can also help with the recycling of many other materials. The S1 TITAN can accurately determine precious metal and restricted element content in recycled catalytic converters. In foundry applications, XRF can also determine tramp element concentration.

### Benefits:

- TITAN Detector Shield™
- Light weight - only 1.5 kg
- Rugged & weatherproof (IP54)
- Rapid sorting and analysis
- SMART Grade™ automatic timing
- Large grade library (400+)
- Detection of up to 37 elements (including Mg and Al)
- Exceptional analysis of Al alloys
- In yard/field measurement
- Averaging for load analysis
- Ease of use- just point and shoot

Handheld XRF

# Scrap Metal Sorting

## Applications Include:

- Metal sorting
- Metal valuation
- Precious metals
- E-scrap
- Catalytic converter scrap

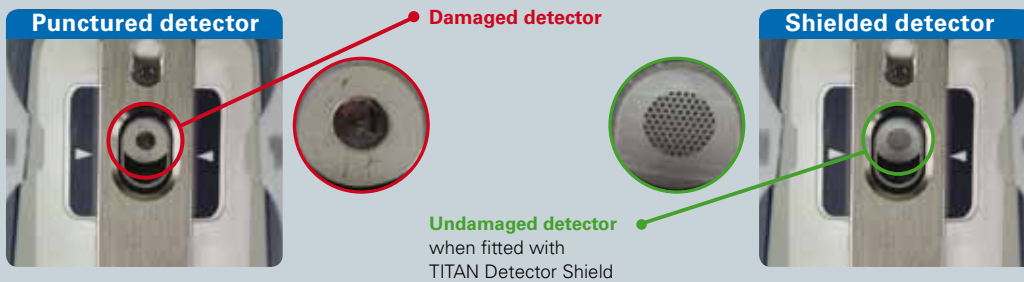
## Calibrations:

- Accurate measurement for metal samples
- Elemental range: up to 37 elements, including Mg and Al
- Modes: Assay, Grade ID, Grade pass/fail, Limit testing
- Automatic selection of calibrations
- Multiple specific matrix calibrations based on traceable standards
- FP based approach for universal multi-matrix calibration
- Continuous Automatic Gain Calibration (CAGC)

## TITAN Detector Shield™:

The ultimate defense against punctured detectors. This unique patent pending S1 TITAN accessory protects the detector window from being punctured by sharp objects like wires or shavings, while still allowing rapid and accurate analysis of almost any material.

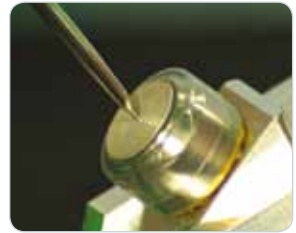
- Minimizes costly detector punctures
- Increases equipment up-time
- No need to change window or calibration when measuring light elements
- No sacrifice to analytical performance, even when measuring light elements such as Mg, Al or Si



## Environmental conditions:

IP54 rated; the S1 TITAN is designed to withstand field operation in all environments, including humid and dusty conditions.

- Sealed against moisture and dust
- Ruggedized with rubber over-molding
- Protected from dirt and windblown dust
- Operating Temperature: -10°C to +50°C



### SMART Grade™ (System Monitored Automatic Run Time):

The S1 TITAN 800 and 600, when ordered with an Alloy calibration, are automatically equipped with Bruker's patent pending SMART Grade™ calibration. **This application automatically determines the proper conditions and measurement times for each alloy measured.**

- Pull the trigger and the analyzer does the rest
- Like having an expert operate your analyzer
- Optimum measurement conditions for each alloy
- Multiple condition measurement when required
- Fast measurement (1-3 sec) for standard alloys
- Automatically extended times (10-30 sec) for alloys containing light elements

### Grade Library:

All S1 TITANS ordered with Alloy calibration includes extensive grade libraries (400+ grade definitions) covering various international standards. User selectable libraries: UNS, DIN and others. These libraries cover the following alloy classes:

- Low alloy steels
- Cr-Mo steels
- Tool steels
- Stainless steel
- Specialty alloys
- Nickel alloys
- Zirconium alloys
- Brasses
- Bronzes
- Cobalt alloys
- Zinc alloys
- Aluminum alloys
- Titanium alloys
- Exotic alloys

Model Number	Standard alloys	Light element alloys (Al, Mg, Si)
Model 600 & 800	1 - 3 seconds	10 - 20 seconds
Model 500	2 - 5 seconds	N/A

### Easy to use:

The S1 TITAN is among the lightest portable tube-based XRF analyzers available on the market today. The user interface has been designed to provide intuitive operation and results presentation. Data management and transfer are exceedingly easy to use.

- Intuitive user interface - just point and shoot
- Requires very little operator training
- Multiple fields for sample identification
- Lightweight – only 1.5kg / 3.3 lbs, including battery



**304SS**

42 Match 9.6 01-04 22:38  
Time 1.0

El	Min	%	Max	+/-
Fe	66.35	71.80	74.00	0.37
Cr	18.00	18.05	20.00	0.16
Ni	8.00	8.36	10.50	0.16
Mn	0.00	1.22	2.00	0.09
Cu	0.00	0.17	0.50	0.03
Mo	0.00	0.13	0.50	0.01
Co		0.28		0.03

**Inco 792**

42 Match 9.8 01-04 19:38  
Time 3.0

El	Min	%	Max	+/-
Ni	60.00	62.50	69.00	1.76
Cr	11.00	12.36	13.00	0.32
Co	8.00	8.94	10.00	0.28
W	3.60	3.98	4.59	0.17
Ti	3.50	3.75	4.50	0.20
Ta	3.50	3.60	4.50	0.15
Mo	1.60	2.00	2.40	0.09



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### Exceptional analysis of Al alloys:

Thanks to Bruker's SharpBeam™ geometry and SMART Grade™ calibration, sorting aluminum-based metals has never been faster or easier. Using the S1 TITAN 500 with standard SDD and fixed filter, about half of the Al grades can be indirectly determined based on the concentration of heavy elements. Using the FAST SDD® based S1 TITAN 600 or 800, all aluminum and magnesium grades can be determined based on direct measurement of both light and heavy elements. Using the S1 TITAN 600 and 800's SMART Grade calibration, all the guess work is eliminated- the calibration automatically determines the proper conditions and measurement times for each alloy measured.

**A356/357**  
180 Match 9.9 12:30 17:25  
Time 10.0

El	Min	%	Max	+/- [%]
Mg	0.20	0.36	0.45	0.34
Al	87.00	91.96	96.00	0.94
Si	6.50	7.00	7.50	0.18
Ti	0.00	0.16	0.25	0.01
Mn	0.00	0.05	0.35	0.02
Fe	0.00	0.13	0.60	0.02
Ni		0.02		0.01
Cu	0.00	0.16	0.25	0.01
Zn	0.00	0.08	0.35	0.01

Use in Average  
Averaging Calculate Average  
Spectrum Edit Info Back

### Load averaging, valuation and tramp elements library:

By averaging several readings from a load of scrap and using a valuation source (such as the London Metal Exchange pricing), it is possible to quickly calculate the value of the scrap. When used to examine incoming scrap, the S1 TITAN can determine not only the analysis of the material, but identify situations where there might be mixed scrap. Averaging allows assaying a larger lot of material, including its grade, as well as highlighting problematic melt elements via the S1 TITAN's tramp element library. If a tramp element is above the threshold, its concentration will be displayed in red, along with a ">TR" notation in the display's Min column.

**C614/623-Al Brz**  
89 Match 9.9 03:05 12:03  
AVG 75 76 77 78 79 80 81 82 83 84 85 86

El	Min	%	Max	+/- [%]
Cu	80.00	87.00	99.00	0.56
Al	6.00	6.28	10.00	1.87
Fe	1.50	3.66	4.00	0.06
Si	0.00	0.60	0.25	0.42
Mn	0.00	0.27	1.00	0.05
S	> TR	0.05	0.02	0.02
Sn	0.00	< LOD	0.60	0.08
Ni	0.00	< LOD	1.00	0.05
Ti	< TR	0.03	0.15	0.02

Averaging  
Spectrum Edit Info Back

### Signature Service:

Bruker has been in the instrument business for many years and supplied products and services to companies just like yours. We understand the critical importance of post-sales support to our clients. Our Signature Service program provides the highest level of service in the industry.

- Guaranteed loaner program\*
- Extended warranties
- Standard warranty
- Service contracts
- Rental services



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