

TRINITY METALS – RWANDA

We thank you for your enquiry and take pleasure in offering the following quotation for your perusal.



QUOTATION NO: BS1T-190724

BRUKER S1 TITAN 800 HANDHELD XRF ANALYSER WITH Mining calibration



BRUKER S1 TITAN 800 HANDHELD XRF ANALYSER

- Premium 4W Rhodium (Rh) thin window X-ray tube based 50kV handheld XRF analyser. Wide Range X-Ray Generator 5-50kV with 200 μ A max. current
- Large area silicon drift detector and optimized high count rate DPP and Graphene Window for enhanced light element performance
- Protected against detector puncture with the patented TITAN Detector Shield (TDS)
- Capable of detecting elements from Magnesium (Mg) to Uranium (U)
- Automated five (5) position primary beam Filter changer with four (4) pre-fitted filters optimized for Alloys, Restricted Materials, Plastic and Geo
- Light weight, <1.5kg with batteries
- Patented SharpBeam™ optical beam path for best performance at lowest power settings extending battery life and avoiding overheating as well as defined beam spot
- IP54 rated industrial grade hard moulded housing with no-slip rubberized grip
- S1 TITAN OS embedded SW with multilingual support and easy to use interface
- Measurement and testing modes include Pass/Fail / Grade ID / Limits / Chemistry mode
- Bluetooth™, USB and Wi-Fi connectivity (where allowed by local regulations)
- Includes two (2) high performance Li-Ion batteries with smart charger
- USB stick for data storage and easy reporting
- Bruker Instrument Toolbox software package for reporting, qualitative spectral analysis, live spectrum functionality, flexible grade table, user field editor and remote instrument control
- Bruker Data Stream software package for seamless data transfer
- 5 spare PROLENE™ protective windows
- Extensive manuals and safety video
- Waterproof and pressure equilibrated PELICAN™ transport case
- 1 year standard factory warranty

GeoExploration Application Package

Multiphase calibration package including GeoExploration calibration for Geochemical exploration and GeoMining for mining and ore processing.

Automated and user selectable calibrations for oxide and sulphide matrices.

Includes powdered check sample

Desktop Stand Kit

Includes desktop stand, AC adapter. Fits into 1550 PELICAN™ case. No external power required.

100 sample cups

1 roll 4 micron Prolene Foil

Delivery CIF to an International Airport estimated at 9 weeks

1 day user training

TOTAL USD 33 000 - 00

Customisation of calibration by a Bruker application specialist
Prepared reference samples to be supplied by the end user

USD 1 000 – 00 per day

The following generic application is included:

GeoMining - Oxides

GeoMining (Oxide Concentrates)	MgO	Al2O3	SiO2	P	S	Cl	K2O	Ca	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Analysis range [%]	0.5-70	0.12-69	100	0.015-13.2	0.03-3.7	0.025-4.0	0.016-15.4	0.01-31.1	0.01-60	0.008-56	0.014-27	0.005-46	0.005-70	0.001-73	0.2-79	0.003-80	0.001-80	0.001-0.02
LOD [ppm] on pure SiO2	1400	350	NA	45	85	75	50	30	30	25	45	16	16	4	4	3	3	2

GeoMining (Oxide Concentrates)	As	Se	Rb	Sr	Y	Zr	Nb	Mo	Rh	Pd	Ag	Cd	Sn	Sb	Ba	La	Ce	Hf
Analysis range [%]	0.001-76	0.001-0.01	0.001-0.07	0.001-5.4	0.001-0.22	0.001-39	0.002-70	0.003-67	0.004-0.04	0.004-0.04	0.004-0.22	0.003-0.015	0.007-88	0.01-3.6	0.015-6.0	0.013-3.0	0.02-4.1	0.001-1.1
LOD [ppm] on pure SiO2	3	3	2	2	2	2	4	8	9	12	9	7	20	30	45	40	60	1

GeoMining (Oxide Concentrates)	Ta	W	Pt	Au	Hg	Tl	Pb	Bi	Th	U
Analysis range [%]	0.014-82	0.004-80	0.004-0.18	0.003-0.1	0.005-0.07	0.002-0.02	0.002-93	0.002-90	0.002-0.7	0.001-0.2
LOD [ppm] on pure SiO2	45	11	12	9	10	5	5	5	7	1

GeoMining - Sulfides

GeoMining (Sulfide Concentrates)	MgO	Al2O3	SiO2	P	S	K2O	Ca	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	As
Analysis range [%]	0.5-24	0.15-12.2	100	0.02-13.2	0.02-41	0.02-3.7	0.01-31.1	0.015-1.4	0.01-0.17	0.01-3.7	0.007-3.0	0.003-45.4	0.006-0.15	0.001	0.003-24	0.001-57	0.002-0.003	0.001-2.3
LOD [ppm] on pure SiO2	1400	450	NA	55	45	55	30	45	30	20	20	8	16	2	2	3	7	3

GeoMining (Sulfide Concentrates)	Se	Rb	Sr	Y	Zr	Mo	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	Ba	W	Pt	Au
Analysis range [%]	0.001-0.05	0.001-0.01	0.001-0.03	0.001-0.11	0.002-1.6	0.005-1.5	0.004-0.006	0.003-0.006	0.008-0.7	0.004-0.8	0.01-0.06	0.025-1.8	0.006-19	0.001-0.02	0.02-11	0.001-0.36	0.005-0.012	0.003-0.004
LOD [ppm] on pure SiO2	3	2	2	2	5	16	1	25	12	25	55	18	2	60	2	2	15	2

GeoMining (Sulfide Concentrates)	Hg	Pb	Bi	Th	U
Analysis range [%]	0.001-86	0.001-23	0.02-0.1	0.002-0.02	0.003-0.014
LOD [ppm] on pure SiO2	2	3	6	6	7

GeoMining application: This calibration is intended for elemental analysis of geological samples. For best results sample should be firmly packed in a sample cup using 4um Prolene film.

Analysis Range: The concentration range that calibration is intended. The minimum concentration is determined by the Limit of Quantification (LOQ) or based on other analytical limitations.

Limit of Detection (LOD): The smallest concentration which can be detected in ideal condition when the sample fully covers the analysis spot

- a) In this document LOD is specified for a given matrix in three sigma 99.7% confidence level (3 sigma); 60 sec analysis time/ phase
- b) Individual elemental LOD's improve as a function of the square root of the analysis time.
- c) Actual LOD depends on several factors such as matrix interferences, overlapping elements, level of statistical confidence and testing time.

Limit of Quantification (LOQ): Limit of Quantification (LOQ): The smallest concentration which can be reliably analyzed in ideal conditions is 3.3 times LOD (10 sigma).

NOTE: Conversion factors, MgO > Mg: 0.603, Al2O3 > Mg: 0.529, SiO2 > Si: 0.467, K2O > K: 0.83

NOTE 2: This calibration sheet is only valid for 8 mm and 5 mm measurement spot

GeoMining - Oxides

GeoMining (Oxide Concentrates)	MgO	Al2O3	SiO2	P	S	Cl	K2O	Ca	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga
Analysis range [%]	0.5-70	0.12-69	100	0.015-13.2	0.03-3.7	0.025-4.0	0.016-15.4	0.01-31.1	0.01-60	0.008-56	0.014-27	0.005-46	0.005-70	0.001-73	0.2-79	0.003-80	0.001-80	0.001-0.02
LOD [ppm] on pure SiO2	1400	350	NA	45	85	75	50	30	30	25	45	16	16	4	4	3	3	2

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Analysis range [%]	0.001-76	0.001-0.01	0.001-0.07	0.001-5.4	0.001-0.22	0.001-39	0.002-70	0.003-67	0.004-0.04	0.004-0.04	0.004-0.22	0.003-0.015	0.007-88	0.01-3.6	0.015-6.0	0.013-3.0	0.02-4.1	0.001-1.1
LOD [ppm] on pure SiO2	3	3	2	2	2	2	4	8	9	12	9	7	20	30	45	40	60	1

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LOD [ppm] on pure SiO2	3	2	2	2	5	16	1	25	12	25	55	18	2	60	2	2	15	2

GeoMining (Sulfide Concentrates)	Hg	Pb	Bi	Th	U
Analysis range [%]	0.001-86	0.001-23	0.02-0.1	0.002-0.02	0.003-0.014
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NOTE 2: This calibration sheet is only valid for 8 mm and 5 mm measurement spot

SPECIFIC CONDITIONS OF SALE

DELIVERY:

Estimated 8-10 weeks from order

VALIDITY:

This quotation is valid for 30 days.

RATE OF EXCHANGE:

The Quotation is subject to rate of exchange fluctuations between the quoted rate and the Rand. The rate of exchange will be determined by:

- (a) any Standard Bank forward exchange contracts concluded within 2 (two) days after written instruction to do so has been received from the Purchaser, or
- (b) by a Standard Bank forward exchange contract concluded on the date of the Vendor's invoice with the value date being the agreed upon date of payment of the Vendor's invoice plus 10 (ten) working days.

Any variation in the rate of exchange will be for the Purchaser's account.

In the event that payments, for which forward cover has been purchased, are delayed or advanced, the cost of variation of the forward cover purchased will be borne by the party to whom such delay or advance is attributable.

PRICES EXCLUDE:

Value Added Tax unless specifically shown on the quotation. Prices also exclude the cost of providing services to run the equipment (water, gases, electrical points, gas regulators, gas extraction, etc.).



PAYMENT TERMS:

Our payment terms are 60% on order and 40% with delivery.

GUARANTEE:

The equipment offered is guaranteed for a period of 12 (twelve) months from date of installation. Service contracts are available after expiry of guarantee.

SERVICE:

After sales service and spares will be available through our Johannesburg, Durban, Middelburg, Port Elizabeth, Potchefstroom and Cape Town Offices.

STANDARD TERMS AND CONDITIONS OF SALE:

This quotation is subject to our Standard Terms and Conditions of Sale attached herewith.

SPS STANDARD TERMS AND CONDITIONS OF SALE (Rev 2014.02) (Page 1/2)

DEFINITIONS:

"Vendor" means Scientific and Precision Solutions (Pty) Ltd, Corner Commissioner and Christopher Street, Boksburg, South Africa.

"Purchaser" means the company, institute, or authorized representative issuing the order.

"Goods" means the items described in the order and any associated items implicit in that description.

"Specification" means the technical specification (if any) of the goods contained in, or referred to, in the order.

"Order" means the order placed by the Purchaser for the supply of goods.

"Quotation" means an officially issued description including specification and prices issued by the Vendor.

"Hand Over" means the compliance with the Specifications in terms of the Purchaser's Order

GENERAL

The Purchaser's order must be accompanied by sufficient information to enable the Vendor to proceed forthwith with the order but shall not constitute an Order until accepted by the Vendor in writing. All Orders are accepted, Goods supplied and Quotations submitted subject to and upon these general conditions and no addition or variation thereto shall apply unless specifically agreed in writing by an authorized representative of the Vendor.

RISK

Responsibility and risk of loss, except as stated under warranty, shall pass from the Vendor to the Purchaser upon delivery to the Purchaser, irrespective of the method of payment.

TITLE

Neither the legal nor the equitable title of the Goods shall pass to the Purchaser until the Goods have been paid for in full.

USE OF GOODS

Should the Purchaser use the Goods, or part thereof, before Hand Over, such usage shall be deemed as Hand Over of the Goods, or part thereof, and on request by the Vendor, the Purchaser shall issue the Vendor with a Hand Over Certificate for the Goods, or parts used thereof.

PAYMENT MILESTONES

The payment milestones are stipulated on the Quote.

PAYMENT

All prices are strictly net and payable in accordance with the Vendor's terms of payment. The Vendor's terms of payment are COD or 30 days from date of invoice if an account is held with the Vendor. The Vendor reserves the right to charge interest at the ruling prime interest rate plus 3% from the due date if payment is not made by that date.

RATE OF EXCHANGE

The Quotation is subject to rate of exchange fluctuations between the quoted rate and the Rand. The rate of exchange will be determined by:

(a) any Standard Bank forward exchange contracts concluded within 2 (two) days after written instruction to do so has been received from the Purchaser, or

(b) by a Standard Bank forward exchange contract concluded on the date of the Vendor's invoice with the value date being the agreed upon date of payment of the Vendor's invoice plus 10 (ten) working days.

Any variation in the rate of exchange will be for the Purchaser's account.

In the event that payments, for which forward cover has been purchased, are delayed or advanced, the cost of variation of the forward cover purchased will be borne by the party to whom such delay or advance is attributable.

PENALTY CHARGES

No penalty charges are applicable to the Vendor for any reason unless specifically agreed in writing prior to the order being placed.

DELIVERY

Any delivery date named by the Vendor for delivery is intended as estimation only. The Vendor shall not be liable to make good any damages or loss whether caused directly or indirectly out of delay in delivery.

If delivery is delayed at the Purchaser's request, the portion of the purchase price payable on delivery will nevertheless be due as if delivery took place as per original Order. Any additional cartage and storage costs which result from the delay will be for the Purchaser's account.

STORAGE

If forwarding instructions are not provided by the Purchaser within 7 days after notification by the Vendor that the Goods are ready for dispatch, the Goods will be stored by the Vendor at the Purchaser's risk and expense.

INSTALLATION

If installation by the Vendor is stipulated on the Quote, the Purchaser must provide, at own expense, all services that are required to operate the Goods. The Vendor reserves the right to charge the Purchaser at the prevailing rates, for any time lost by employees of the Vendor due to delays in providing a suitably prepared site in accordance with the above description.

The installation shall be deemed to be complete when all functions have been mechanically and electronically tested according to the QA report supplied by the Vendor. The completion of installation will be evidenced by an installation report provided by the Vendor and signed by the Purchaser.

ACCESS TO SITE

Where applicable, two weeks prior to the Purchaser awarding the Vendor occupation of the Site, the Purchaser shall afford the Vendor the opportunity to inspect the Site to verify that it is in a state that will not compromise the Date for Completion of the Goods.

WARRANTY

The Vendor warrants that the Goods will operate substantially in conformance with the Original Equipment Manufacturer (OEM) published specifications, when subjected to normal, proper and intended usage by properly trained personnel. The Vendor also warrants that the Goods supplied shall be free of defects in materials or workmanship for a period as stipulated by the OEM after Hand Over, or 18 (eighteen) months from date of delivery, whichever occurs first. When delivery is delayed at the Purchaser's request the warranty period shall commence on the day that the Goods become available for delivery. During the warranty period all manufacturing defects or faulty components, will be repaired or replaced free of charge. This warranty specifically excludes travel and accommodation costs of the Vendor's technicians.

DOCUMENTATION

One set of documentation will be delivered with the Goods. The Vendor shall retain copyright of all documentation. No documentation shall be reproduced in whole or in part without the prior written consent of the Vendor.

TERMINATION OF ORDER

If the Purchaser breaches, or fails to fulfill, any of this or any other Order with the Vendor, or suffer distress or execution, or commit an act of bankruptcy, make an arrangement with creditors or go into liquidation (except for amalgamation, or reconstruction), or have a receiver appointed, the Vendor may, without prejudice to any other claim or remedy forthwith suspend performance of, or terminate, this Order by written notice and shall be entitled to payment for Goods already delivered and work in progress in accordance with the Cancellation clause hereunder.

INSTALMENTS

Where the Order permits the delivery by instalments, each delivery shall be considered to be a separate Order. Failure by the Purchaser to pay for any instalment shall entitle the Vendor to terminate the whole Order by notice in writing to the Purchaser.

CANCELLATION

The Order may only be cancelled if accepted by the Vendor in writing. Upon cancellation, the Purchaser shall pay the Vendor the value of the work done which shall include:

- (a) the amounts payable for any work carried out for which a price is stated in the Order;
- (b) the cost of Plant and Materials ordered for the Order which have been delivered to the Vendor, or of which the Vendor is liable to accept delivery: this Plant and Material shall become the property of (and be at the risk of) the Purchaser when paid for by the Purchaser, and the Vendor shall place the same at the Purchaser's disposal;
- (c) any other cost or liability which in the circumstances was reasonably incurred by the Vendor in the expectation of completing the Order.
- (d) The cost of removal of temporary works and Vendor's equipment from the site and the return of these items to the Vendor's works in his country (or to any other destination at no greater cost); and (e) The cost of repatriation of the Vendor's staff and labour employed wholly in connection with the Order at the date of termination.

CONSEQUENTIAL DAMAGES

The Vendor shall not be liable in any circumstances for consequential loss whatever or however caused for any indirect, special, consequential or incidental damages including, but not limited to, damages for loss of use of facilities or equipment, loss of revenue, loss of profits or loss of goodwill regardless of (a) the negligence (either sole or concurrent) of the Vendor; and (b) whether the Vendor has been informed of the possibility of such damages.

FORCE MAJEURE

The Vendor shall not be under any liability of whatsoever kind for non-performance in whole or in part of its obligation under the Order due to cause beyond the control of either the Vendor or of the Vendor's suppliers, including but not limited to acts of God,

sabotage, insurrection, government regulations, embargoes, strikes, labour disputes, flood, fire and tempest, and all other factors out of control of the Vendor. In such event the Vendor may, without liability, cancel or vary the terms of the Order, including but not limited to extending the time for performance of the Order for a period at least equal to the time lost by reason of such event.



AMENDMENTS

This agreement contains all the terms and conditions between the parties and no variation, alteration, deletion or addition shall be of any force or effect unless reduced to writing and signed by both parties hereto.