



NEC3 Supply

Short Contract (SSC3)

A contract between Eskom Holdings SOC Ltd (Reg No. 2002/015527/30)

and

for **The supply and delivery of one (1) Protection Relay Test Set for PTM Lethabo PS and one (1) Portable Multifunction Secondary Injection Test Set suitable for the testing and calibration of energy meters, transducers, and protection relays for PTM Metering.**

Contents:	Compiled in accordance with CIDB Standard for Uniformity in Construction Procurement (May 2010) amendments	Page No.
Part C1	Agreements & Contract Data	
	C1.1 Form of Offer and Acceptance	1-4
	C1.2 Contract Data provided by the <i>Purchaser</i>	5-12
	C1.2 Contract Data provided by the <i>Supplier</i>	13
Part C2	Pricing Data	
	C2.1 Pricing assumptions	14
	C2.2 Price Schedule	15-17
Part C3	Scope of Work	
	C3.1 Goods Information	18-25

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Contract Number:

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C1 Agreements & Contract Data

C1.1 Form of Offer and Acceptance

Offer

The Purchaser, identified in the Acceptance page signature block on the next page, has solicited offers to enter into a contract for the procurement of:

The supply and delivery of one (1) Protection Relay Test Set for PTM Lethabo PS and one (1) Portable Multifunction Secondary Injection Test Set suitable for the testing and calibration of energy meters, transducers, and protection relays for PTM Metering.

The tenderer, identified in the signature block below, has

<i>either</i>	examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender.
<i>or</i>	examined the draft contract as listed in the Acceptance section and agreed to provide this Offer.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the Supplier under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the Contract Data.

The offered total of the Prices exclusive of VAT is	
Value Added Tax @ 15% is	
The offered total of the Prices inclusive of VAT is	
Amount In Words (Excl. VAT)	

This Offer may be accepted by the Purchaser by signing the form of Acceptance overleaf and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the Supplier in the conditions of contract identified in the Contract Data.

Signature

Name

Capacity

Date

Address:

For the Tenderer:

Witness

Name

Signature

Date

Acceptance

By signing this part of this Form of Offer and Acceptance, the Purchaser identified below accepts the tenderer's Offer. In consideration thereof, the Purchaser shall pay the Supplier the amount due in accordance with the conditions of contract identified in the Contract Data. Acceptance of the tenderer's Offer shall form an Agreement between the Purchaser and the tenderer upon the terms and conditions contained in this Agreement and in the Contract that is the subject of this Agreement.

The terms of the Contract, are contained in:

Part 1 Agreements and Contract Data, (which includes this Form of Offer and Acceptance)

Part 2 Pricing Data

Part 3 Scope of Work: Goods Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Purchaser during this process of Offer and Acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be signed by the duly authorised representative(s) for both parties.

The tenderer shall within one week of receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Purchaser's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the Contract Data at, or just after, the date this Agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the tenderer receives one fully completed copy of this document, including the Schedule of Deviations (if any) together with all the terms of the contract as listed above.

Unless the tenderer (now *Supplier*) within five working days of the date of such receipt notifies the Purchaser in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

Signature

Name

Capacity

Date

Address:

For the purchaser:

Witness

Name

Signature

Date

Schedule of Deviations

Note:

1. To be completed by the Purchaser prior to award of contract. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Purchaser prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1		
2		
3		
4		
5		

By the duly authorised representatives signing this Schedule of Deviations below, the Purchaser and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Purchaser during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

For the Tenderer:

For the Purchaser

Signature

Name

Capacity

Date

On behalf of:

Witness

Name

Signature

Date

C1.2 Contract Data

Data provided by the *Purchaser*.

Completion of the data in full is essential to create a complete contract.

Clause	Statement	Data
General		
10.1	The <i>Purchaser</i> is (Name):	Eskom Holdings SOC Limited (reg no: 2002/015527/30), a state-owned company incorporated in terms of the company laws of the Republic of South Africa
	Address	Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg
	Tel No.	013 693 2194
	E-mail address	RamsamD@eskom.co.za
11.2(4)	The <i>delivery date</i> is	31 March 2026
11.2(5)	The Goods Information is in	the document called 'Goods Information' in Part 3 of this contract.
11.2(8)	The <i>goods</i> are	Secondary Relay Injection Test Sets
12.2	The <i>law of the contract</i> is	South Africa
13.2	The <i>period for reply</i> is	2 days
15.1	The <i>premises</i> are	Eskom Park Witbank - Emalaheni
23.1	The <i>Purchaser</i> requires the <i>Supplier</i> to Provide the Goods when instructed by batch Order.	N/A
23.1	If the <i>goods</i> are instructed by Batch Order, the batch order interval is _____	N/A
	the end date is _____	
	the quantity range of <i>goods</i> in a batch is	from _____ to _____
30.1	The <i>starting date</i> is.	TBA
41.1	The <i>defects date</i> is	TBA
42.2	The period for the correction of Defects after Delivery is	5 years
50.1	The <i>assessment day</i> is the	N/A
50.5	The <i>delay damages</i> are	0.5% per week , capped at 10% of the contract value.
51.2	The interest rate on late payment is	N/A

86.1	The <i>Supplier's</i> liability to the <i>Purchaser</i> for indirect or consequential loss, including loss of profit, revenue and goodwill is limited to	Zero
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86.2	The <i>Supplier</i> is not liable to the <i>Purchaser</i> for loss of or damage to the <i>Purchaser's</i> property in excess of	The value of the goods.
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93.1	The <i>Adjudicator</i> is	the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).
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93.2(2)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the Institution of Civil Engineers (UK) or its successor body (See www.ice-sa.org.za).
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93.4	The <i>tribunal</i> is: If the <i>tribunal</i> is arbitration, the arbitration procedure is	arbitration. the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.
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11.1	The <i>conditions of contract</i> are the NEC3 Supply Short Contract (April 2013)^{1 2} and the following additional conditions.	
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X3	Multiple Currency	
	X3.1 The Purchaser will pay for these items in the currencies stated.	
	X3.1 The exchange rates are those published in2025.....on 21 October (date)	
X3.1	The items will be paid in the other currency - to a foreign Bank account nominated by the Supplier	
	- to a valid SARB approved CFC account in South Africa	
	- in accordance with an alternative payment method agreed with the Purchaser before the Contract Date.	

Z1	Cession delegation and assignment	
Z1.1	The <i>Supplier</i> does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the <i>Purchaser</i> .	
Z1.2	Notwithstanding the above, the <i>Purchaser</i> may on written notice to the <i>Supplier</i> cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry and the Electricity Distribution Industry.	

¹ Can be obtained from Engineering Contract Strategies on www.ecs.co.za, Tel 011 803 3008, Fax 086 539 1902

² If the December 2009 edition is being used, replace April 2013 with December 2009

Z2 Change of Broad Based Black Economic Empowerment (B-BBEE) status

- Z2.1 Where a change in the *Supplier's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Supplier's* B-BBEE status, the *Supplier* notifies the *Purchaser* within seven days of the change.
- Z2.2 The *Supplier* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Purchaser* within thirty days of the notification or as otherwise instructed by the *Purchaser*.
- Z2.3 Where, as a result, the *Supplier's* B-BBEE status has decreased since the Contract Date the *Purchaser* may either re-negotiate this contract or alternatively, terminate the *Supplier's* obligation to Provide the Goods.
- Z2.4 Failure by the *Supplier* to notify the *Purchaser* of a change in its B-BBEE status may constitute a reason for termination. If the *Purchaser* terminates in terms of this clause, the procedures on termination are the same as for Reason 3 identified in clause 90.3.

Z3 Waiver and estoppel: Add to clause 12.3:

- Z3.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, or the *Adjudicator* does not constitute a waiver of rights and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

Z4 Provision of a Tax Invoice and interest. Add to clause 51

- Z4.1 The *Supplier* provides the *Purchaser* with a tax invoice in accordance with the *Purchaser's* procedures stated in the Goods Information, showing the correctly assessed amount due.
- Z4.2 If the *Supplier* does not provide a tax invoice by the time required in this contract for his assessment of each amount due, the time by when the *Purchaser* is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the *Purchaser* in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.
- Z4.3 The *Supplier* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Purchaser's* VAT number 4740101508 on each invoice he submits for payment.

Z5 Purchaser's limitation of liability

- Z5.1 The *Purchaser's* liability to the *Supplier* for the *Supplier's* indirect or consequential loss is limited to R0.00 (zero Rand)
- Z5.2 The *Supplier's* entitlement under the indemnity in 83.1 is provided for in 60.1(8) and the *Purchaser's* liability under the indemnity is limited.

Z6 Termination: Add to clause 90.2 before (Reason 1)

- Z6.1 or had a judicial management order granted against it.

Z7 Addition to clause 50.5

- Z7.1 If the amount due for the *Supplier's* payment of *delay damages* reaches the limits stated in this Contract Data (if any), the *Purchaser* may terminate the *Supplier's* obligation to Provide the

Goods using the same procedures and payment on termination as those applied for Reason 3. Identified in clause 90.3.

Z8 Ethics

For the purposes of this Z-clause, the following definitions apply:

- Affected Party** means, as the context requires, any party, irrespective of whether it is the *Supplier* or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,
- Coercive Action** means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,
- Collusive Action** means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,
- Committing Party** means, as the context requires, the *Supplier*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's employees,
- Corrupt Action** means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,
- Fraudulent Action** means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,
- Obstructive Action** means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and
- Prohibited Action** means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

- Z8.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.
- Z8.2 The *Purchaser* may terminate the *Supplier's* obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Supplier* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Purchaser* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Purchaser* can terminate the *Supplier's* obligation to Provide the Services for this reason.
- Z8.3 If the *Purchaser* terminates the *Supplier's* obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.
- Z8.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Purchaser* does not have a contractual bond with the Committing Party, the *Supplier* ensures that the Committing Party co-operates fully with an investigation.

9 Insurance

Replace condition of contract 84 with the following:

Insurance cover 84

- 84.1** When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in

force.

84.2 The *Supplier* provides the insurances in this Insurance Table A from the *starting date* until Delivery and against any risks he carries under this contract between Delivery and the *defects date*.

INSURANCE TABLE A

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage to the <i>goods</i> , plant and materials	The replacement cost where not covered by the <i>Purchaser's</i> insurance. The <i>Purchaser's</i> policy deductible as at contract date where covered by the <i>Purchaser's</i> insurance.
Liability for loss of or damage to property (except the <i>goods</i> , plant and materials and equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Supplier</i>) caused by activity in connection with this contract	<p><u>Loss of and / or damage to property</u></p> <p><u><i>Purchaser's</i> property</u></p> The replacement cost where not covered by the <i>Purchaser's</i> insurance. The <i>Purchaser's</i> policy deductible as at contract date, where covered by the <i>Purchaser's</i> insurance. <p><u>Other property</u></p> The replacement cost <p>Death of or bodily injury</p> The amount required by the applicable law.
Liability for death of or bodily injury to employees of the <i>Supplier</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

84.2 The Purchaser provides the insurances in this Insurance Table B

INSURANCE TABLE B

Insurance against or name of policy	Minimum amount of cover or minimum limit of indemnity
Assets All Risk	Per the insurance policy document
Contract Works insurance	Per the insurance policy document
Environmental Liability	Per the insurance policy document
General and Public Liability	Per the insurance policy document
Transportation (Marine)	Per the insurance policy document
Motor Fleet and Mobile Plant	Per the insurance policy document
Terrorism	Per the insurance policy document
Cyber Liability	Per the insurance policy document
Nuclear Material Damage and Business Interruption	Per the insurance policy document
Nuclear Material Damage Terrorism	Per the insurance policy document

Data provided by the Supplier (the Supplier's Offer)

The tendering Supplier is advised to read both the NEC3 Supply Short Contract (April 2013) and the relevant parts of its Guidance Notes (SSC3-GN)³ in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on page 28 of the SSC3 Guidance Notes and Flow Charts.

Completion of the data in full is essential to create a complete contract.

10.1	The <i>Supplier</i> is (Name): Address Tel No. Fax No. E-mail address	_____ _____ _____ _____
11.2(7)	The Price Schedule is in	the document called 'Price Schedule' in Part 2 of this contract. (Annexure L - BOQ Secondary Relay Injection Test Sets)
11.2(7)	The offered total of the Prices	See C1.1 Form of Offer and Acceptance
63.2	The percentage for overheads and profit added to the Defined Cost is	0%

³ Available from Engineering Contract Strategies on www.ecs.co.za Tel 011 803 3008, Fax 086 539 1902.

C2 Pricing Data

C2.1 Pricing assumptions

If the *Supplier* is to be paid an amount for the item of goods which is the rate for the goods multiplied by the quantity supplied, the tenderer enters a rate for each item and multiplies it by the Quantity to produce the Price, to be entered in the final column.

The rates and Prices entered for each item includes for all work and other things necessary to supply the item.

NB! If the *Supplier* cannot fix and firm the price for a period of 180 days, Eskom's foreign exchange (FOREX) policy will be applied to all foreign transactions for this purchase.

Fixed Quantities and Descriptions: The line items, including descriptions and quantities, are fixed and may not be altered by the Supplier under any circumstances.

C2.2 Price Schedule

Item No.	Description	Unit	Qty	Foreign Currency Portion			Local Currency Portion	
				Currency	Rate	Amount	Rate	Amount
	Notes:							
	<i>The foreign portion section to be priced as per the applicable currency of the country of origin where the spares will be imported from i.e (USD, EUR and / or GBP etc.) Bidders to indicate the applicable currency symbol thereof i.e (\$, € and / or £ etc.) The local portion section is to be priced in South African Rands Currency (ZAR) for costs incurred in South African Rands (ZAR) for handling fees, overheads and / or profits etc. The South African Reserve Bank exchange control regulations will be adhered to on this transaction.</i>							
	ITEM 1							
1	ANALYZER: PROFESSIONAL PROTECTION; 0 - 100 FOR PTM LETHABO PS							
1.1	Secondary Injection Test Set — complete package in full compliance with Technical Specification No. 240-102634558, titled Multi-Function Secondary Plant Test Set Specification.”	Once Off	1					
1.2	IEC 61850 analysis and configuration software capable of GOOSE, Sampled Values, and client/server testing	Once Off	1					
	Total for Item 1 (Analyzer: Professional Protection)							
	ITEM 2							
2	ANALYZER: PROFESSIONAL PROTECTION WITH METERING MODULES; 0 - 100 FOR PTM METERING							
2.1	Multi-function electrical test system with minimum 6 voltage outputs and 3 current outputs, Ethernet and USB communication, manual quick-start testing, automated transducer and energy meter testing, optical pulse scanning head, and rugged wheeled transport case for field use. Complete package in full compliance with	Once off	1					

	Technical Specification and Technical specification document No. 240-102634558, titled Multi-Function Secondary Plant Test Set Specification							
2.1	IEC 61850 analysis and configuration software capable of GOOSE, Sampled Values, and client/server testing	Once off						
	Total for Item 2 (Analyzer: Professional Protection With Metering Modules)							
	Final Total (Excl Vat)							

C3: Scope of Work

C3.1 Goods Information

1. SCOPE OF WORK

- 1.1 The supply and delivery of one (1) Secondary Injection Test Set — complete package with full simulation, disturbance analysis, synchronising, training and OEM support for PTM Lethabo PS.
- 1.2 The supply and delivery of one (1) portable multifunction secondary injection test set suitable for the testing and calibration of energy meters, transducers, and protection relays for PTM Metering.

2. TECHNICAL SPECIFICATION - SECONDARY INJECTION TEST SET — COMPLETE PACKAGE WITH FULL SIMULATION, DISTURBANCE ANALYSIS, SYNCHRONISING, TRAINING AND OEM SUPPORT FOR PTM LETHABO PS.

2.1 CORE HARDWARE CONFIGURATION

Feature	Specification	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
Configurable VI Channels	10 configurable voltage/current channels (selectable configurations: 4V6I, 3V7I, 1V9I, 10I, 6V4I)	
Output A (U)	4 × 30 A / 300 V	
Output B (S)	3 × 30 A / 300 V	
Output C (H)	3 × 60 A	
Auxiliary DC Output	Integrated DC supply output for external device power	
Measurement Option	3ADS Option – DC measuring input and 10 binary/analog measuring inputs	
Ports & Interfaces	3 × PoE ports, 1 × USB-C, 1 × USB-A, 4 × Expansion ports	
Protection & Safety	Interlock key system, automatic output shorting when inactive, overload and overtemperature protection, grounding provision	
Construction & Mobility	Portable, ruggedized enclosure supplied with transport trolley and soft bag	

2.2 SOFTWARE AND TEST MODULES

Software / Module	Description	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
Fully functional control software	Centralized control platform for all test operations	
Manual testing / State Sequencer / Ramping / Pulse Ramping	Rapid, sequential, and characteristic testing of protection relays	
TransPlay / Advanced TransPlay / Harmonics	Playback and harmonic generation for transient and stability testing	

Binary I/O / CB Configuration / Polarity Checker	Verification of binary signals and circuit breaker logic	
Overcurrent / Advanced Distance / Differential / Autoreclosure / VI Starting	Comprehensive suite of protection test applications	
Annunciator Checker / Advanced Power / Transient Ground Fault / Synchronising Devices	Specialized testing for automation and synchronizing equipment	
Relay test library for most commonly used relays	Setting-free, model-based relay testing	

Software / Module	Description	
Meter / Transducer / PQ Signal Generator Modules	Calibration of meters, transducers, and PQ analysis	
IEC 61850 Client/Server / GOOSE / Sampled Values Configuration	Full digital substation testing (GOOSE, MMS, SV)	
EnerLyzer / TransView compatible software capabilities	Signal analysis and transient recording software	
Wireless control application	Mobile control and monitoring via wireless connection	
Software must be compatible with the Omicron line of equipment.	Ability to load, import or convert current Omicron automated test files (*.OCC) created in Test universe 4.10.	

2.3 ACCESSORY PACKAGE

Accessory	Description / Part Numbers	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
Documentation & Safety Items	Safe Use Manual, Interlock Keys	
Connection Leads	Power cord, grounding cable, USB and Ethernet cables, test leads with safety plugs, flexible terminal adapters, test jumpers	
Transport Equipment	Accessory bag, soft bag, transport trolley case	
Additional Hardware	Wiring Accessories Package, Energy Meter Scanning Head, 3 × Combination Cables	
Wireless Connectivity	Wireless USB Adapter	
IED Scout Software and license	IEC61850 Analysing Software	

2.4 COMPLIANCE AND STANDARDS

- Conforms to **IEC 61850** standards (GOOSE, MMS, Sampled Values)
- CE-marked and tested for electrical safety, EMC, and measurement accuracy
- The Protection Relay Test Set and full accessory suite, offers a **complete, automated, and future-proof solution** for:
 - Protection relay testing (conventional and digital)
 - Metering and transducer calibration
 - IEC 61850-based relay and substation testing
- This configuration provides **maximum accuracy, efficiency, and interoperability** — ideal for laboratory, field, and commissioning applications.

3. TECHNICAL SPECIFICATION - MULTI-FUNCTION SECONDARY INJECTION TEST SET – MEASUREMENT AND METERING APPLICATIONS

3.1 Scope

The supply and delivery of a portable multifunction secondary injection test set suitable for the testing and calibration of energy meters, transducers, and protection relays.

3.2 Functional and Performance Requirements

Item / Function	Minimum Specification / Requirement	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
3.1 Voltage Sources	Minimum of 6 independent voltage channels, each capable of delivering ≥ 150 V r.m.s.	
3.2 Current Sources	Minimum of 3 independent current channels, each capable of delivering ≥ 12.5 A r.m.s.	
3.3 Output Accuracy	Voltage and current accuracy better than ± 0.05 % of range.	
3.4 Frequency Range	DC to at least 1 kHz.	
3.5 Phase Resolution	Minimum resolution of 0.001° or better.	
3.6 Total Harmonic Distortion	Less than 0.1 % at nominal output.	
3.7 Output Power	Minimum total apparent power output of 200 VA or greater.	
3.8 Binary I/O Channels	Minimum of 4 binary inputs/outputs for trigger, pulse, and logic functions.	
3.9 Communication Interfaces	Minimum of two Ethernet and two USB communication ports.	
3.10 Control Modes	Manual, semi-automatic, and fully automated operation.	
3.11 Load Simulation	Capable of balanced or unbalanced single-phase and three-phase injection.	
3.12 Waveform Generation	Ability to generate user-defined waveforms (sinusoidal, transient, and harmonic components).	
3.13 Energy-Meter Testing	Shall support closed-loop testing of Class 0.2 and Class 0.5 energy meters, including pulse counting and error computation.	

Item / Function	Minimum Specification / Requirement	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
3.14 Transducer Testing	Shall include capability to test and calibrate AC/DC transducers with linearity analysis.	
3.15 Relay Testing (Basic)	Capable of testing overcurrent, voltage, frequency, and directional relays.	
3.16 Timing Resolution	Minimum resolution of 1 μ s for timing measurements.	

3.3 Software Requirements

Item / Function	Minimum Specification / Requirement	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
3.17.1 Software Environment	Dedicated test-set control software for configuration, execution, and result analysis.	
3.17.2 Functional Modules	Software shall include modules for: (a) Manual control (Quick test), (b) Transducer testing, (c) Energy-meter testing with pulse counting, (d) Report generation.	
3.17.3 Closed-Loop Meter Testing	Automatic computation of energy errors (% error, Wh, varh) from optical pulse input.	
3.17.4 Data Handling	Capability to store, recall, and export results to PDF or Excel formats.	
3.17.5 Licensing	Software license shall be perpetual and supplied with the test set.	

3.4 Optical Scanning Head

Item / Function	Minimum Specification / Requirement	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
3.18.1 Function	Optical scanning head for detection of energy-meter LED pulses (active/reactive energy).	
3.18.2 Wavelength Range	Detectable light range from approximately 550 nm to 1000 nm.	
3.18.3 Mounting	Equipped with suction cup or reusable adhesive for various meter surfaces.	
3.18.4 Connection	Direct connection to the test set without external power source.	
3.18.5 Accessories	Shall include mounting adhesive, protective case, and connecting cable.	

3.5 Accessories and Cables

Item / Function	Minimum Specification / Requirement	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
3.19.1 Transport Case	Hard-shell transport case with wheels and handle.	
3.19.2 Power Leads	Country-specific mains power cable supplied.	
3.19.3 Test Leads	Full set of voltage and current test leads with connectors.	
3.19.4 Communication Cables	Ethernet and USB interface cables.	
3.19.5 Wireless Adapter	Mini wireless USB adapter or equivalent for PC communication.	
3.19.6 Documentation	User manual and quick-start guide (printed and electronic).	

3.6 Standards and Compliance

Item / Function	Minimum Specification / Requirement	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
3.20.1 Electrical Safety	Complies with IEC 61010-1 and IEC 61010-2-030.	
3.20.2 EMC Compliance	Complies with IEC 61326-1.	
3.20.3 Meter Testing Capability	Complies with IEC 62053-22 for Class 0.2 S meter verification.	
3.20.4 Communication Standards	Optional compliance with IEC 61850 for interoperability testing.	
3.20.5 Quality Assurance	Manufactured under ISO 9001-certified processes.	

3.7 Environmental and Operational Conditions

Item / Function	Minimum Specification / Requirement	Tenderer Proposal, Comments (must be completed in full for evaluation purposes)
4.1 Operating Temperature	0 °C to +50 °C	
4.2 Storage Temperature	-20 °C to +70 °C	
4.3 Relative Humidity	Up to 95 % non-condensing	
4.4 Power Supply	100–240 V AC, 50/60 Hz	
4.5 Weight	≤ 10 kg	
4.6 Enclosure	Rugged field-portable housing, minimum IP 20 protection	

3.8 Warranty and Support

- Minimum 24-month warranty covering hardware and software.
- Supplier shall provide local calibration, service, and user training support.

