

# **Technical Evaluation Criteria for Onsite Portable Circuit Breaker Analyzer**

## **Evaluation Methodology**

The evaluation will be performed by the Eskom evaluating representatives. It begins at Level 1 followed by Level 2 and then proceeds to Level 3.

Level 1 will include the desktop evaluation of the mandatory criteria. Submissions failing to meet the requirements at Level 1 will be deemed non-responsive and will be immediately disqualified and removed from further evaluation. Submissions meeting the requirements will proceed to Level 2.

Level 2 will include a desktop evaluation of the functional criteria. The submissions will be evaluated and scored. Submissions failing to meet the stipulated threshold at Level 2 will be deemed non-compliant and will be immediately disqualified and removed from further evaluation.

The Level 2 threshold is set at 80%.

Evidence required for Level 1 and Level 2 evaluations must be submitted by the tender closing date.

Submissions meeting the requirements will proceed to Level 3.

Level 3 is the sample evaluation. The Level 3 threshold is 100%. Failure to meet the threshold of 100% will be deemed non-compliant.

Deviations or deficiencies identified during functional evaluation and/or sample evaluation must be addressed prior to contract award.

## **Level 1 - Mandatory Criteria and Returnable**

No	Criterion	Returnable
1	The Equipment can analyse contact timing and travel, coil and motor current/voltage measurements, point on wave switching and fast trip and fast close online analysis. The unit also has to initiate a trip -close sequence by applying 110v DC to the trip and close circuits of the circuit breaker.	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures.  Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.
2	The unit must be able to carry out a static dynamic resistance test.	
3	The Unit must be able to perform a contact resistance test using a current of 200 Amperes or more.	
4	The unit should have a real time monitoring device for the analysis of the results eg Laptop/HMI or a Tablet that can be utilised during adverse weather conditions.	
5	The test unit must be portable and is suitable for outdoor use.	

## **Level 2 - Functional Criteria and Returnable**

The functional threshold is set at 80%. Submissions failing meet the threshold will not proceed further.

Part marks will be allowed as indicated in the scoring column of the criteria table.

The total available points = 100%.

No	Criterion	Returnable	Scoring
● <b>Test Unit Requirements</b>			
1	12 main contact timing channels: 6 auxiliary contact timing channels 3 digital or analogue transducer inputs 3 Auxiliary inputs namely, Uk, UI, Um	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures.  Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	10%
2	Supports both digital and analogue transducers		5%
3	Built in micro-ohm measuring function 200A		5%
4	Test equipment interface – HMI/Rugged Laptop or Rugged Tablet as the equipment is used in adverse weather conditions.		10%
5	Automatic measurement of coil and motor current/voltage.		5%
● <b>Sensor Requirements</b>			
6	Power supply input AC voltage: 85 – 265V, 50 – 60 Hz Power supply input DC voltage: 100 – 375 V Number of main contact timing channels: 12 (4x3) Number of auxiliary contact timing channels: 6 (2x3)Resistance measure range (200A): 0 – 1000 µOhm (± 2 µOhm)	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures.  Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	5%
7	Universal Transducer Fastening Kit Cable for Digital encoder 10m Digital Encoder RSI503 2500ppr Data Logger compatible with the SA10		5%
● <b>Features</b>			
8	Number of main contact timing channels: 12 Closed contact current with internal source: 100 mA Pre-insertion resistance range (standard version):50 – 5000 ohm	A product brochure confirming this	5%

	Current disturbance immunity :±10 mApk Number of auxiliary contact timing channels: 6 Closed auxiliary contact current with internal source: 1 mA External source contact voltage: +15 - +400 VDC Reaction time, any timing channel: ±20 µs Input connectors, any timing channel: Pairs of touch-protected banana jacks	requirement or letter from the OEM if the required information is not contained on existing brochures.	
9	Number of digital or analogue transducer inputs: 3 Digital input receiver type: RS422 Analogue input measuring range: 0 – 5 V Analogue input impedance: 200 kohm 30pF Analogue transducer minimum resistance: 100 ohm Power supply, both: 5 V, 100 mA Input connectors, transducer channels: LEMO Series 2K, 8 p Protection level any transducer input: 2	Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	5%
10	Number of operating coil srcs inputs (Uc, COM): 1 Source voltage measuring range DC:0 – 300 V ±1% or ±1 V Source voltage measuring range AC: 0 – 300 V ±2% or ±2 V Number of operating coil outputs (OPEN, CLOSE): 2 Coil current measuring range DC:0 – 30 A ±1% or ±0,1 A Coil current measuring range AC:0 – 30 A± 2% or± 0,2 A Coil trig reaction time: 20 ms Internal current limit: ≥ 35 A		5%
11	Number of contact resistance measuring inputs: 1 Resistance measuring range: 0 – 1000 ohm Resistance measuring accuracy: ± 2 µohm Resistance measure current: 200 A		5%
12	Number of auxiliary inputs (Uk, UI, Um, COM): 3 Input voltage measuring range DC:0 – 300 V± 1% or ±1 V Input voltage measuring range AC:0 – 300 V± 2% or 2 V Input impedance:1 Mohm 30pF Number of outputs (MOTOR supplied from Um): 1 Motor current measuring range DC:0 – 50 A± 1% or 0,1 A Motor current measuring range AC:0 – 5±0 A 2% or ±0,2 A		5%
• <b>Data and Storage</b>			
12	Serial communication interface type: RS232 Serial communication baud rate:115 kbps Serial communication connector type: 9 pole female D-sub Protection level serial communication: 2	A product brochure confirming this requirement or letter from the OEM if the required information is not contained on existing brochures.	5%
13	Input connector type: IEC320 Protection level power input pins: 3 Internal sampling rate: 50 kHz Ambient operating temperature range: -20 - +50 °C relative humidity (non-condensing): 0% - 97%	Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	5%
• <b>Components</b>			
14	Main equipment, analysis Software , Laptop or tablet , Mains cable, Communication cable, Transporting case, Digital encoder	A product brochure	Total = 15%

	or linear transducer, Accessories box, Connection cable for 4 main contacts, Transducer cable, Static/dynamic resistance test cables, Cable for motor, Cable for coils.	confirming this requirement or letter from the OEM if the required information is not contained on existing brochures.  Note the letter must be on the OEM's letterhead and must be signed by the relevant OEM representative.	1% per item
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### **Level 3 - Sample Criteria and Returnable**

The functional threshold is set at 100%. Submissions failing meet the threshold will not proceed further.

No part marks are allowed.

Eskom reserves the right to allow concessions related to deviations at this stage.

Note – due to the high cost of the item, Eskom reserves the right to perform the sample evaluation over MS Teams or in person, in a manner that effectively demonstrates the compliance of the product offered. The supplier will be allowed to be present to perform the required demonstrations.

No	Criterion	Returnable	Scoring Model
1	All components and parts stated in the evidence at level 2 are supplied with the sample.	1. Main test equipment, 2. analysis Software, 3. Laptop or tablet 4. Documentation 5. Mains cable 6. Communication cable. 7. Transporting case, 8. Soft cable bag, 9. Digital encoder or linear transducer, 10. Accessories box, 11. Connection cable for 4 main contacts, 12. Transducer cable 13. Static/dynamic resistance test cables, 14. Cable for motor, Cable for coils. 15. Universal transducer fastening kit	50%
2	Circuit breaker Analyser effectively works in real-time and the results analysed detailing	Demonstration	50%

	the results in Level 1.		
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