

**INDEPENDENT POWER TRANSMISSION
OPERATOR S.A.**

**TRANSMISSION SYSTEM MAINTENANCE
DEPARTMENT**

TECHNICAL DESCRIPTION

FOR

CIRCUIT BREAKER TEST SYSTEM

ATHENS FEBRUARY 2014

CIRCUIT BREAKER TEST SYSTEM

The a.m. system is as multi functional circuit breaker test system, which is going to be used in preventive maintenance meeting the following requirements.

A) TECHNICAL REQUIREMENTS

1	INPUTS	
1.1	ANALOGUE	Trip and close coil current inputs Three (3) linear travel transducers inputs Three (3) rotary travel transducers inputs
1.2	DIGITAL	Providing timing for six (6) breaking points/circuit breaker, (2 break points / phase)
2	RESISTIVITY CONTACT RANGE	35 Ω to 7 K Ω
3	ANALOGUE ACCURACY	<1 %
4	TIME ACCURACY	0,1 sec
5	OUTPUT	Two (2) contactors for trip & close coil initiation for current up to 25 A and voltage up to 250 V dc
6	TRIGGER	Internally or externally trigger capability
7	RECORDING RESOLUTION	12 bit A / D converter
8	SAMPLING RATE	100 μ sec – 10 kHz
9	CONTACTS STATE	The system should provide detailed information which will allow the evaluation of main contacts state
10	MODE OF DISPLAYED	The Results should be shown digitally on the device or via appropriate software on the laptop. Still should be the possibility of printing from the measuring device.
11	MODE OF MEASUREMENT	Trip, close, close-trip, trip-close, and trip-close-trip.
12	SOFTWARE	The system should be supported by appropriate software for the following operations a) Storing the result in a structured Data BASE b) Data presentation in a tabular form as well as in a graphical mode c) Zoom functions, distance measurements etc.

13	ENVIRONMENTAL CONDITIONS	Temperature - 10°C to +50° C Humidity 5-80 %
14	OPERATING	The system should be capable for field test at 400 kV substations, complying the relevant International standards as well as the safety standards.

B) GENERAL REQUIREMENTS

1	TRAINING	The Contractor will undertake the training-presentation cost of the offered device in our factory.
2	PROTECTION CASE	Portable type system delivered in suitable protection cases for on site transportation and use
3	TECHNICAL INSTRUCTIONS-ACCESORIES	Operation and maintenance instructions, three (3) linear and three (3) rotary transducers as well as all the necessary accessories (cables, terminal connectors, fittings etc) for an immediate use in accordance with the present specification, should be provided
4	SERVICE	One year good performance guarantee and five (5) years technical support for service and spare parts should be provided
5	MANUAL	The manual should be provided in Greek language.

C) OPTIONAL

1	ADDITIONAL INPUTS	Three (3) analogue voltage inputs and three (3) analogue current inputs up to 20 A
2	CAPACITANCE MEASUREMENT	Sequentially measurement the capacitance value in pF of grading capacitors in each breaker module
3	DATA BASE	Data base with all relevant breaker types and up to 10.000 different types

D) ADDITIONAL INFORMATION

DATA TO BE SUPPLIED BY THE BIDDER	Bidders are required to submit the following: <ul style="list-style-type: none"> • Three (3) copies of technical description (Documentation) of the complete system. • All data requested in SECTION A • Reference list including testing systems, which have been supplied, and the corresponding quantities.
Failing to submit the requested data and /or incomplete submission of SECTION A shall constitute sufficient ground at the opinion of Purchaser for rejection of the offer	

CIRCUIT BREAKER TEST SYSTEM

SECTION A

INFORMATION BY SELLER

1 ANALOGUE INPUTS

-Trip & close inputs

-Travel transducers inputs
Linear

Rotary

2 DIGITAL INPUTS

-Number of breaks per phase/phase

-User configurable inputs

-Input-voltage

3 RESISTIVITY CONTACT RANGE

4 ANALOGUE ACCURACY%

5 TIME ACCURACYsec

6 OUTPUT

7 TRIGGER

8 RECORDING

-RESOLUTION

-SAMPLING RATE	.....
9 MODE OF DISPLAYED	.....

10 MODE OF MEASUREMENT	.....
11 SOFTWARE	
Structural Data Base	.....
Data presentation in tabular form & graphical mode	.....
Zoom functions & distance measurements	.....
12 ENVIROMENTAL CONDITIONS	
Temperature	.....
Humidity	.....
Suitable for field tests at 400kV substations	.....
12 GENERAL REQUIREMENTS	
Acceptance of specified general requirements	.....
14 EXCEPTIONS IF ANY, TO PURCHASER'S SPECIFICATION AND THE REASONS THEREOF	
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