

Corrigendum- I

TPNODL/OT/2021-2022/104 Dtd.19.11.21

PO for supply of CT-PT Error tester in TPNODL Area.

Dated 30th Nov 2021

Following changes in Calendar of Events of tender document is made;

Annexure-II (Technical Specification)

Page no 70-76

Revised Technical Specification is hereby attached.

Page number: 5

(a) Last Date of receipt of Tender Fee	08.12.2021 ; 15:00 Hrs
(e	 Last date and time of receipt of Bids 	10.12.2021 up to 15:00 Hrs
(f)	Date & Time of opening technical bids & EMD	10.12.2021 up to 15:30 Hrs

Note :- In the event of last date specified for submission of bids and date of opening of bids is declared as a closed holiday for TPNODL, the last date of submission of bids and date of opening of bids will be the following working day at appointed times.

All other terms and conditions of the above tender shall remain unaltered.

Yours faithfully, -sd-

HoD - Contracts TPNODL, Balasore

TP NORTHERN ODISHA DISTRIBUTION LIMITED (A Tata Power & Odisha Government Joint Venture) Registered & Corporate Office: Januganj, Remuna Golei, Balasore – 756 019, Odisha, India Phone: +91 6782 244865, Email: contactus@tpnodl.com, Website: www.tpnodl.com CIN: U40106OR2021SGC035951

Page 1 of 1

TPNØDL	TP NORTHERN ODISHA DISTRIBUTION LIMITED TECHNICAL SPECIFICATIONS				
Doc. Title	Specification for CTPT Error Tester				
Doc. No:		-	Eff. Date: 29.11.2021		
Rev No:	00		Page		
Prepared by: DHEERAJ MEHTA	Reviewed by:	Approved by:	Issued by:		

1. SCOPE : CT/PT TESTER is mainly used for field testing of Metering Cubical / Metering Unit , it can finish the measurements (M) and protection (P) class CT, PT and TYP class CT. Adopt LCD, self-equipped mini type printer supporting field printing supporting to use USB flash disk to dump data, with simple and convenient operation .

It is used for many routine workshop tests, as well as field testing, to an accuracy of 0.02%. It is optimised for testing me- tering C.T.s, but can also test protection C.T.s for current and phase error at normal burden.

2. GENERAL REQUIREMENT :

Testing P.T.s and C.T.s TO 0.02% accuracy offline in the field with primary side voltage/ current out of service. Both 50hz and 60hz versions.

Tests for CT current and phase error from 2.5/5 up to 75,000/5 or 15,000/1.

Tests PT turns ratio and phase error from 2.2kv/110v up to 300 kv/110 V.

Calculates overall CT errors under load from admittance measurement on secondary winding. (does not require expensive primary current injection testing.)

Calculates offline admittance at 1.6khz. this can provide a blueprint to be used as a reference for future routine live CT tests and carries out live Admittance tests rapidly during normal operation with the Does not interrupt supply.

Measures the burden of CT and PT secondary circuits to ensure CT & PT not overloaded

User shall be able to create their own set of injection and burden test points.

CT batch testing shall be possible.

It shall be able at least to store up to 1000 CT and PT records each.

It shall be able to provide intelligent class (pass or fail) results assessment and also provide best class fit determination.

It shall be able to up-load and down-load information to a pc via usb interface.

It shall be works with intuitive pc results software

3. HARDWARE FEATURES :

3.1. Power Source : It shall have its own internal solid state voltage source to test P.T.s and C.T.s. The source can generate up to 160V at 50Hz or 60Hz, and 2V at 1.6kHz. To avoid spurious results caused by 50Hz pickup from nearby equipment, the tests are carried out at 51Hz and the micro-processor control locks on to the 51Hz signal only. The software extrapolates the 51Hz test results for an actual 50Hz performance.

3.2. Interface : The keyboard shall be alphanumeric on the panel can be used to enter information about the item to be tested. The keyboard shall be at least 6 inch graphic LCD screen which displays the keyed information and final test results.

TPNØDL	TP NORTHERN ODISHA DISTRIBUTION LIMITED TECHNICAL SPECIFICATIONS				
Doc. Title	Specification for CTPT Error Tester				
Doc. No:			Eff. Date: 29.11.2021		
Rev No:	00		Page		
Prepared by: DHEERAJ MEHTA	Reviewed by:	Approved by:	Issued by:		

3.3. Weight : The weight of transit case shall more than 7 kG and weight of Test leads & accessories 3kgs .

3 OPERATING RANGES :

3.1 P.T. Measurable Test ranges

No load voltage ratio only Maximum ratio 510kV / 110V Minimum ratio 2.5kV / 100V VA rating from 1 to 300VA.

3.2 C.T. Measurable Test ranges

Maximum ratio 75,000/5 or 15,000/1 Minimum ratio 2.5/5 or 10/1 VA RATING 1A Secondary Typically 150VA VA RATING 5A Secondary Typically 300VA Selectable % Primary I 1% to 400%. Selectable % BURDEN 10% to 100% Selectable PF 0.5 to 1.0 Mains Supply 85 - 264 VAC, 50/60Hz Computes the C.T. performance at the selected PF. C.T. TYPES: Single and multiple primary turn, parallel winding compensation, composite core.

3.3. Admittance measurement range

Admittance measurement range 1.6kHz 100uS to 50mS. + 0.5%

3.4 C.T. Burden measurement range

C.T. Burden measurement range 5A Type 0 to 12 Ohms / 300VA

3.5. P.T. Secondary burden range

100V / 110V 0 to 300VA

4.0. MEASUREMENT ACCURACY

4.1. C.T. Ratio accuracy:

Ratio Range Ratio Accuracy

2.5/5 to 20,000/5 0.02%. Typical 20,000/5 to 75.000/5 0.05%. Typical

%Injection Range Ratio Accuracy

5% to 120% 0.02% 120% to 200% 0.03% to 0.05% 200% to 400% 0.05% to 0.1%

4.2. C.T. Phase error accuracy

5 to 120% Primary I: 1 min

4.3. Winding Resistance Accuracy

Resolution to 1 m Ω + 0.2 %

TPNØDL	TP NORTHERN ODISHA DISTRIBUTION LIMITED TECHNICAL SPECIFICATIONS				
Doc. Title	Specification for CTPT Error Tester				
Doc. No:			Eff. Date: 29.11.2021		
Rev No:	00		Page		
Prepared by: DHEERAJ MEHTA	Reviewed by:	Approved by:	Issued by:		

4.4. External Burden

Resolution to 1 m $_{\Omega}$ + 0.2 %

4.5. P.T. Turns ratio measurement accuracy

To 0.02% from 1.5kV/100V to 500kV/110V. To 0.03% from 500kV/110V to 1000kV/110V

4.6. P.T. Phase error resolution

To 1min

5.0. PROTECTION FEATURES

Fuses for Mains input, 12V battery supply and internal power amplifier. Flashing LED when terminals are live Buzzer to indicate error conditions

6.0. POWER SUPPLY & CONSUMPTION

Mains Supply 85 - 264 VAC, 50/60Hz Power Rating Min 20VA Power Rating Max 50VA Auxiliary Supply 12V DC car battery

Aux supply and battery monitoring feature Standby current consumption: 1.1A Maximum current consumption: 6.0A Includes a low battery shutdown feature

Test Report software shall be the easy to understand results Sample

General Information			CT Rule o	A Phan	# Etruca									
Recent #		.11	-		n %(A)		ion % (A)	2	action %-)	AJ .	injection 1	ETM:	it justice	n 75 (A)
Operation		OPERATOR 2		and a state of the	20		100	-	50	-	31		-	
Test Date & Time		10223114-01/94	Elurden (% VAL	Rate .	Phana Ercor	Ratio	Phas				Ratio Essir	Phase Error	Ratio	Puter
Vbdel #		-	1025	1%)	0	1963	- 17	1	W. S	0	(%)	71	(50	17
Sector #		-7	100	\$ 00300		0.0050	N. G. I. C. M. C.			12112		1990	0.0.6188	3.786
Lecalist		-	25	8.00900	0.968	\$ 0000	0 1.88	0.00	UD0 1.	240 0	007766	1.570	0.00488	1.5140
Class Code & Name		. 9695			TT Ballet	-					ICT P	Taxa Cons		
Feet Class Accuracy Code & Na	me	- 0000				1	1.100	62	100	1.1	1.1	1.1	-	
CT Parameter Settings			100-			-	-							_
Primary Current Rating (Artent)		-8030.0	1. 1.00	1						0.1	_			
Secondary Clarent Rating (Ampr	6	6.8	1 mil	1.					Fal	X	-			
VA Rating (VA)		8.29					÷		3				-	
Power Factor		1.00	1.000			11		- 1				-		
Une Prequency (Hz)			+5			++				++		-		
Test pertinents DEFAULT TEST POINTS														
Fact point menu mena	DEP AU	LT TEST POINTS	1.000				1					1 1	-	
	DEFAU	LT TEST POINTS \$558	- 200 j.	4.4.4	-	14	14		+	1.4	-	1.4	-	
The point manufal CT Marin Etram			Magnetia		-	1 L	14		4	11		÷ +		
Twar point meric la CT Mailin Excerne Search Ruler (N.1)	190,88348		•	ation C	urve Po		10		*	1.4	And and a			3
Face point marka lat C T Marine Ecclore Galek Rater (N.1) Westing DC Residance (Ohme)	199/88340 8/960	5008	Magnetia	etion C	urve Po	P#13	naur.	ner f	Poet2	1 4 1	**************************************	Farra	in in	1
Text point menu là CT Marin Errorn Gales Ratio (N. 1) Westing DC Resistance (Chron) Text Ratio (N. 1), resourced at	190,88348	5008	•	ation C	urve Po		10 Nation 0.017	mired 0.014	40415 0.012		And and a		Part 10	
Fact point mana lit CT Marin Ernam Gent Ratio (4.1) Winding DC Resistance (Ohme) Facilitation (V.1), measured at roltage (V)	199/38348 0.960 0.960 199/30129	3358	Magnetia	etion C	urve Po Perda 0.927	marts 0.821	0.017				Rue10 0.007	Parrie 0.002		
Fast point menu lá CT Marin Electron Sociel Ratio (N. 1) Winding D.C. Resistance (Ohma) Praid Ratio (N. 1), measured at oktape (N. Marine Factor	199/383348 0.950 1992/1129 0.99000	3558	Kagneta Curret (A)	0.035 81.310	0.927 78210	0.821 74.920	0.017	0.014	0.012 \$5.010	0.009	45250	France 0.005 20.725	0 300 13 628	
Fair point meta (d) CT Marin Ernorn Sociel Ratio (M.1) Windhig D.C. Rosidancia (Chirne) Yasi Bato (M.1), reasonaired at roltago (W. Kato Carrietter Factor Stric Care Admittance (p.S)	199/38340 0.980 Pseid1109 0.99000 124 421	3558 37368 -713542)	Kagneta Curret (A)	0.035 81.310	urve Po Perda 0.927	0.821 74.920	0.017	0.014	0.012 65.010 Have	0.009 55.550 Poet	Rue10 0.007	France 9,005 28,725	0.007	
Face point menu la CT Marine Extrem Danis Ratio (N-1) Windrog DC Resistance (Chrwi) Facili Ratio (N-1), menu and at roltopo (N- Ratio Conscient Factor Stric Cons Admittance (pS) 1.6His Cons Admittance (pS)	199385348 0.990 Pso.811829 0.99000 134.421 0.000	3558 37366 -513542) 0.865j	Magnetia Current (A) Votage (M)	0.035 81.310	0.927 78210	0.821 74.920	0.017	0.014	0.012 65.010 Have	0.009	45250 Vote	France 9.005 20.725	0 000 13 620 Corneti	
Pace point mateu (d CT Falaer, Extrans. Earch Ratio (H T) Weisling DC Resistances (Chrms) Frain Ratus (H T), research at voltage (X) Mate Cannether Factor SHI Cannether Factor SHI Cannether Factor Child Can Admittance (US) External Chirden (Chrms)	199.83348 0.950 199.811123 0.0000 124.421 0.000 0.000	3558 37368 -713542)	Kagneta Curret (A)	0.035 81.310	0.927 78210	0.821 74.920	0.017	0.014	0.012 65.010 Noise 4	0.009 55.550 Poet	45250 Vota (Vota	Frame 0.005 20.725 71	0.007 13:629 Corneti (Ay	
Procipciel metro (d) CE Maine Encore Dans Ratio (N.1) Weiding Dic Fonditations (Chema) Paral Rate (N.1), interestant all ontope (N) Ratio Connection Factor Strict Course Admitisterio (SS) Sterral Enclose (Chema) Classer Accourse(p) Limite (3	1993.85348 0.950 0.950 11129 0.0000 134.421 0.000 0.000 0.000	3558 37 366 -713 543) 0.845) 0.845) 0.845)	Magnetia Current (A) Votage (M)	0.035 81.310	urw Po Parez 0.527 78210	0.821 74.920	0.017	0.014	0.013 55.010 Rose 4 A/	0.009 55.550 Part F* VSI	45.250 Vota (M 65.8 55.0	France 9.005 20.725 00 1 71 74	0 303 13 629 Corrett [Ay E 998 E 919	
Tradi golel meta (d CT Marie Entern Back Ratio (H 1) Winding DC Resistance (Chrini) Yand Satu (H 1) Winding (W) Wats Carrietter Factor Shift Core Admittance (sti) Shift Core Admittance (sti) Class Account (Chris)	1993.85348 0.950 0.950 11129 0.0000 134.421 0.000 0.000 0.000	3555 37.305 -113.542j 3.805j 	Magnetia Current (A) Votage (M)	0.035 81.310	urw Po Parez 0.527 78210	0.821 74.920	0.017	0.014	0.013 55.010 Rose 4 A/	0.009 55.550 Part F*	Runte 0.007 45250 Volta (M 66.8	France 9.005 20.725 00 1 71 74	0 300 13 620 Corrant [A] E 908	
The port result of GT Main Entern East Rate (N.1) Working DC Neutralianse (Ohme) Fasil Rate (N.1), measured at othing (N), Rate Connection Factor Stric Connection Factor Stric Connection (Ohme) Bornal Studies (Ohme) Gibere Annihasse (SI) Domai Studies (Ohme) Gibere Annihasse (SI)	199.80348 0.980 0.980 0.980 0.980 0.980 124.421 0.0000 0.0000 0.000 0.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000000	3558 37 366 -713 543) 0.845) 0.845) 0.845)	Magnetia Current (A) Votage (M)	0.035 81.310	urw Po Parez 0.527 78210	0.821 74.920	0.017	0.014	0.013 55.010 Rose 4 A/	0.009 55.550 Part F* VSI	45.250 Vota (M 65.8 55.0	France 9.005 20.725 00 1 71 74	0 303 13 629 Corrett [Ay E 998 E 919	

TPNØDL	TP NORTHERN ODISHA DISTRIBUTION LIMITED TECHNICAL SPECIFICATIONS				
Doc. Title	Specification for CTPT Error Tester				
Doc. No:			Eff. Date: 29.11.2021		
Rev No:	00		Page		
Prepared by: DHEERAJ MEHTA	Reviewed by:	Approved by:	Issued by:		

8.0 COMPLIANCE & CERTIFICATIONS

CE Compliance	Assessed against EN 61010-1:2001
In accordance with:	LVD 2006/95/EC
EMC Compliance	Assessed against EN 61326-1:2006 EN 61326-2-2:2006 EN 61000-3-2:2006 EN 61000-3-3:2008
In accordance with:	EMC 2004/108/EC

9. ACCESSORIES

9.1 Secondary C.T. cable and accessories



Cable

- 1 x Secondary cable : 8m (Minimum Length)
- 2 x Male to Female cables 150mm (Minimum Size)
- 2 x Female to spade cables 150mm (Minimum Size)

9.2 Primary C.T. cable and accessories



TPNØDL	TP NORTHERN ODISHA DISTRIBUTION LIMITED TECHNICAL SPECIFICATIONS				
Doc. Title	Specification for CTPT Error Tester				
Doc. No:			Eff. Date: 29.11.2021		
Rev No:	00		Page		
Prepared by: DHEERAJ MEHTA	Reviewed by:	Approved by:	Issued by:		

Cable	Length
1 x Primary cable :	8m (Min)
1 x Interconnection cable	350mm (Min)
2 x Female to spade cables	150mm (Min)
Other cables included	5m (Min)
1 x Battery cable & clamps	
1 x USB cable	1.8m (Min)

Existing accessory cables are also used for testing P.T.s. or require addition accessory cables for P.T. testing

FUNCTION:

I. Current Transformer (CT)	II. Voltage Transformer (PT)				
1. Magnetization curve	1. Excitation characteristic test				
2. Transformation ratio test	2. Transformation ratio test				
3. Polarity	3. Polarity				
4. 5% and 10% error curve	4. Ratio error, phases				
5. Current Injecting	5. Degauss				
6. Degauss	6. Calculation of knee point value				
7. Ratio error, phases	7. Actual secondary load (burden), test (burden)				
8. Automatic calculation of excitation knee point value	8. Resistance test				
9. Actual secondary load test (burden) (load test)					
10. Resistance test					
11. Secondary winding time constant (Ts)					
12. Remanence coefficient (Kr)					
13. Transient dimensioning factor (Ktd)					
14. Peak instantaneous error (Er)					
15. Magnetizing inductance (LU)					

TPNØDL	TP NORTHERN ODISHA DISTRIBUTION LIMITED TECHNICAL SPECIFICATIONS Specification for CTPT Error Tester				
Doc. Title					
Doc. No:			Eff. Date: 29.11.2021		
Rev No:	00		Page		
Prepared by: DHEERAJ MEHTA	Reviewed by:	Approved by:	Issued by:		

Standards	
Reference standards	GB1207-2006, GB1208-2006, GB16847-1997
	IEC60044-1, IEC60044-6, IEC61869-2-2012
Safety standards	GB 4793.1-2007
EMC	EMC standard 89/336/EEC
	FCC Subpart B of Part 15 Class A
	IEC 1000-4-2/3/4/6

MAIN FUNCTIONS

The test items mainly include	
Steady	Transient
excitation characteristic	secondary winding time constant (Ts)
transformation ratio	Remanence coefficient (Kr)
polarity	transient dimensioning factor (Ktd)
ratio error	peak instantaneous error (Er)
phases	magnetizing inductance (LU)
5% and 10% error curves	other parameters
resistance	
secondary load	