

# TRANSFORMER DIFFERENTIAL RELAY

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## TEST DATA

### Test Data No. :

Station : \_\_\_\_\_  
Protected Eqpt. ID : \_\_\_\_\_  
Date of Test : \_\_\_\_\_  
CT Ratio HV/Connection : \_\_\_\_\_  
CT Ratio MV/Connection : \_\_\_\_\_  
CT Ratio LV/Connection : \_\_\_\_\_  
CT Ratio LV/Connection : \_\_\_\_\_  
Breakers Tripped : \_\_\_\_\_

### Relay Specifications:

Brand: \_\_\_\_\_  
Model: \_\_\_\_\_  
Serial No. \_\_\_\_\_  
Voltage Rating: \_\_\_\_\_  
Current Rating: \_\_\_\_\_  
Serial No. \_\_\_\_\_  
Manufacturing Date: \_\_\_\_\_

### A. TRANSFORMER DATA

WINDING	W1 (HV)	W2 (LV)	W3 (TV)
POWER RATING, MVA			
VOLTAGE RATING			
WINDING CONNECTION			

### B. RELAY SETTINGS

PARAMETERS	SET VALUE
TAP 1 (WINDING 1)	
TAP 2 (WINDING 2)	
OPERATING PICK-UP	
UNRESTRAINED PICK-UP	
BASE POINT 1	
BASE POINT 2	
BASE POINT 3	
SLOPE 1	
SLOPE 2	
SLOPE 3	

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## C. PICK-UP TEST

WDG	Type of Test	PHASE A	PHASE B	PHASE C	3 PHASE
1-CT1	Pick-up				
	Drop-out				
1-CT2	Pick-up				
	Drop-out				
2-CT1	Pick-up				
	Drop-out				
2-CT2	Pick-up				
	Drop-out				
3-CT1	Pick-up				
	Drop-out				
3-CT2	Pick-up				
	Drop-out				
RELAY TARGET/INDICATION					

## D. TIME TEST

WDG	MULTIPLES $I_{DIFF}$	PHASE A		PHASE B		PHASE C	
		AMP	SEC	AMP	SEC	AMP	SEC
1	$I_{DIFF} > @ \text{ } \_\_\_ \times I_{pick-up}$						
2	$I_{DIFF} > @ \text{ } \_\_\_ \times I_{pick-up}$						
3	$I_{DIFF} > @ \text{ } \_\_\_ \times I_{pick-up}$						

## E. SLOPE/CHARACTERISTIC TEST

Test No.	CT1 HVS (A)	CT1MVS (A)	$I_d$ pu	$I_{res}$ pu	Remarks
1	$I_A =$	$I_A =$			
	$I_B =$	$I_B =$			
	$I_C =$	$I_C =$			
2	$I_A =$	$I_A =$			
	$I_B =$	$I_B =$			
	$I_C =$	$I_C =$			
3	$I_A =$	$I_A =$			
	$I_B =$	$I_B =$			
	$I_C =$	$I_C =$			
4	$I_A =$	$I_A =$			
	$I_B =$	$I_B =$			
	$I_C =$	$I_C =$			
5	$I_A =$	$I_A =$			
	$I_B =$	$I_B =$			
	$I_C =$	$I_C =$			
6	$I_A =$	$I_A =$			
	$I_B =$	$I_B =$			
	$I_C =$	$I_C =$			
COMPUTED M1 =					
COMPUTED M2 =					

## F. STABILITY TEST

% FULL LOAD	CURRENT		PHASE A			PHASE B			PHASE C		
	W1	W2	$I_{RES} T$	$I_{DIFF}$	TRIP	$I_{RES} T$	$I_{DIFF}$	TRIP	$I_{RES} T$	$I_{DIFF}$	TRIP
100%											

REMARKS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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## G. GROUND OVERCURRENT SETTING

### 1. MINIMUM PICK-UP

PARAMETERS	PHASE A	PHASE B	PHASE C	GROUND
LOW SET CURRENT PICK-UP (A)				
LOW SET CURRENT DROP OUT (A)				
RELAY INDICATION/TARGET				
HIGH SET CURRENT PICK-UP (A)				
HIGH SET TIME (ms)				
RELAY INDICATION/TARGET				

### 2. TIME-ELEMENT OPERATING TIME CHARACTERISTIC

MULTIPLES OF TAP VALUE	A		B		C		MULTIPLES OF TAP VALUE	GROUND	
	AMP	SEC	AMP	SEC	AMP	SEC		AMP	SEC
% Set Tap									
% Set Tap									
% Set Tap									
% Set Tap									
% Set Tap									
% Set Tap									
% Set Tap									
% Set Tap									

## H. FUNCTIONAL TESTING / SIMULATION

FUNCTION	CONTROLLING BREAKERS	SIMULATION USED		BREAKERS TRIPPED	REMARKS
		INJECTION	SIGNALLING		

Tested by :

Concurred by :

Contractor - Test Engineer

Owner's Representative

### TEST INSTRUMENTS:

(Eqpt.ID/Make/Model/SN/  
Date of last calibration)