



TRANSMISSION EQUIPMENT CONDITION ASSESSMENT MONITOR

WITH ONLINE FREQUENCY RESPONSE ANALYSIS (FRA)

24/7 MONITORING FOR YOUR POWER TRANSFORMERS

Capture
Transients
from
Switching
Devices

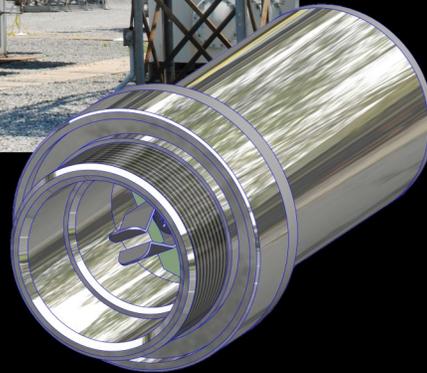
Monitor
Bushing
Condition

Record
Lightning
Transients



Monitor
Online
FRA Signature

Capture
LTC Switching
Transients



A TRUE, REAL-TIME TRANSFORMER MONITOR IS NOW AVAILABLE FOR USE ON ENERGIZED POWER TRANSFORMERS. THIS SYSTEM MONITORS THE TRANSIENTS AT THE TERMINALS OF YOUR POWER TRANSFORMER AND ALLOWS YOU TO PERFORM FRA ANALYSIS WHILE THE TRANSFORMER IS ENERGIZED

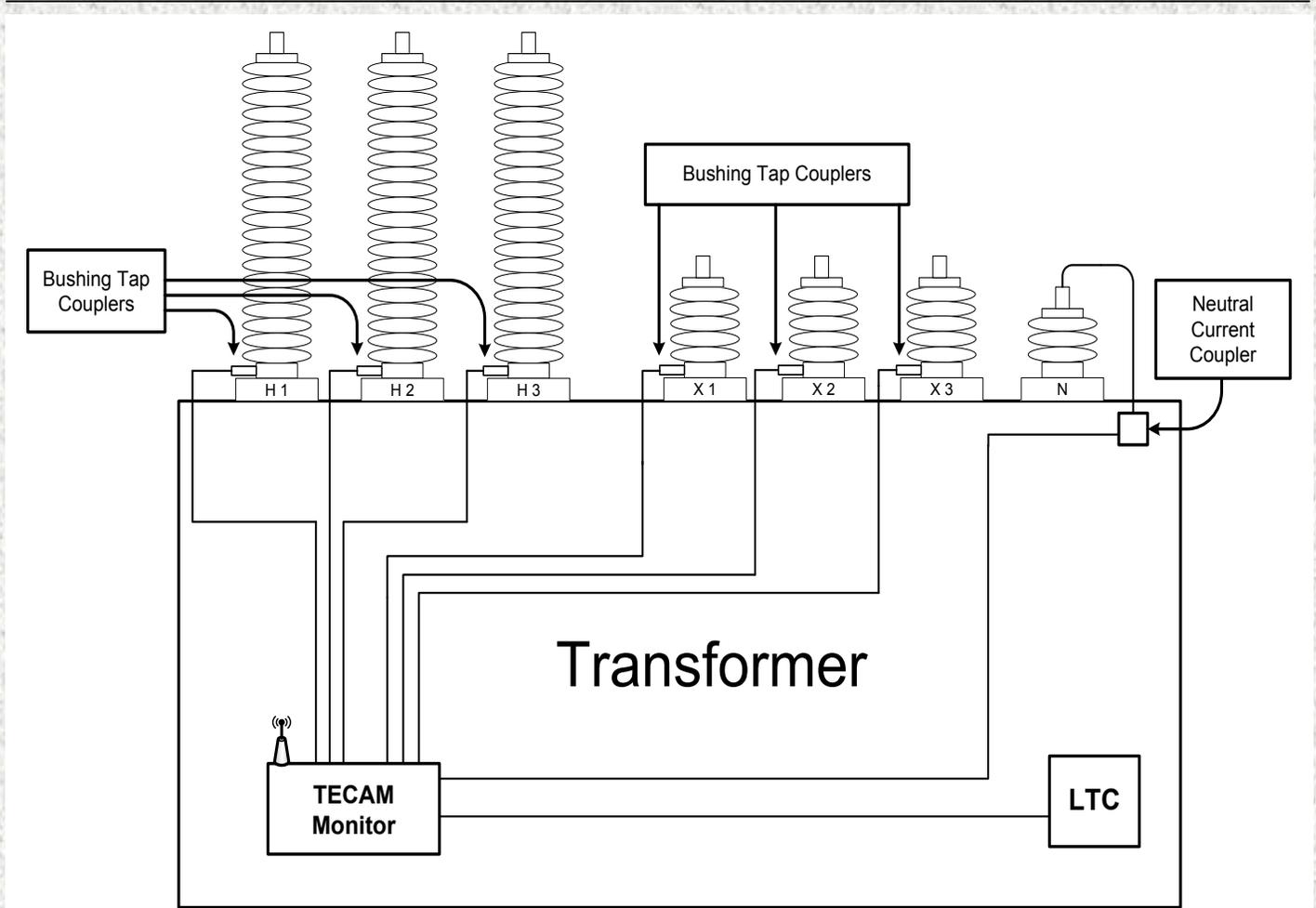
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SYSTEM COUPLER AND LAYOUT



SYSTEM ATTACHES TO EXISTING BUSHINGS

SYSTEM MONITORS TRANSIENTS WITHOUT CHANGING THE CIRCUIT BY USING EXISTING BUSHING VOLTAGE AND TEST TAPS. PROTECTIVE GAPS PREVENT OVERVOLTAGE OF BUSHING TAPS. CONTINUOUS REMOTE SYSTEM MONITORING PROVIDES VERIFICATION THAT THE MONITOR IS FUNCTIONING PROPERLY. SYSTEM IS SEALED TO PREVENT MOISTURE OR CONTAMINATION FROM ENTERING THE COUPLING DEVICE. INDIVIDUAL COUPLER RESPONSE IS DE-CONVOLVED TO PRODUCE ACTUAL TERMINAL TRANSIENT VOLTAGES.



TYPICAL TRANSFORMER CONNECTIONS

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WEBSITE INTERFACE

The screenshot displays the TECAM website interface for sensor 12-112-1254. The header includes the TECAM logo and navigation tabs: Home, Summary, RTF's, Transient Pulses, Transient Events, Bushing Data, OLTC Data, Comments, and Profile. The main content area shows a summary of the sensor, including its location, contact information, and transformer data (230kV, Delta-Wye w/OLTC). A table lists bushing data for H1, H2, H3, X1, X2, X3, Y1, Y2, and Y3. Several graphs are highlighted with black boxes: a magnitude vs. frequency graph for ENG H1-X1 #612, a bushing AC data graph for H1, H2, and H3, and three terminal voltage graphs for H1, H2, and H3 over time.

WEBSITE FEATURES

- SECURE WEB INTERFACE PROVIDES SPECIFIC ACCESS TO ONLY AUTHORIZED PERSONNEL
- WEBSITE IS OPTIMIZED FOR MOBILE DEVICES TO ALLOW CONVENIENT DATA ACCESS
- SYSTEM AUTOMATICALLY DISPLAYS PROCESSED TRANSIENT AND BUSHING DATA TO WEBSITE IN NEAR REAL-TIME
- USER IS PRESENTED WITH GEOGRAPHIC AND IMAGE DATA TO POSITIVELY IDENTIFY SITE AND CONDITION DATA
- ANNUAL MONITORING FEE PROVIDES COMPONENT WARRANTY, TRANSFORMER EXPERT DATA ANALYSIS, AND SOFTWARE UPGRADES

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SYSTEM SPECIFICATIONS

CAPTURE SYSTEM AND LIGHTNING TRANSIENTS

SYSTEM WILL MONITOR THE TRANSIENTS FROM CAPACITOR BANKS, DISCONNECT SWITCHES, BREAKERS, REACTORS, LIGHTNING, AND SYSTEM FAULTS. THE SYSTEM CAN CAPTURE ENERGIZATION TRANSIENTS. IT WILL ALLOW YOU TO SEE THE EXACT TRANSIENT IMPOSED ON YOUR TRANSFORMER WINDING. THIS ALLOWS SYSTEM ENGINEERS TO VERIFY TRANSIENT SIMULATIONS AND MAKE REPAIRS, ADD SURGE PROTECTION, OR MAKE UPGRADES AS DEEMED NECESSARY.

MONITOR LOAD TAP CHANGER (LTC) TRANSIENTS

SYSTEM MONITORS AND LOGS TRANSIENTS FROM TAP CHANGE OPERATIONS. MONITORS THE TRANSIENTS TO ALLOW FOR POSSIBLE DETECTION OF CONTACT ARCING PRIOR TO A TAP CHANGER FAILURE.

MONITOR TRANSFORMER BUSHING

SYSTEM MONITORS TRANSFORMER BUSHINGS IN TWO WAYS. THE FRA SIGNATURE OF THE BUSHING IS INCLUDED IN THE TRANSFORMER'S FRA RESPONSE. IN ADDITION, THE SYSTEM ALLOWS FOR THE SIMULTANEOUS MONITORING OF THE BUSHING RELATIVE POWER FACTOR. SYSTEM ALSO MONITORS AC TAP VOLTAGE ON REGULAR INTERVALS.

MONITOR ONLINE FRA SIGNATURE OF TRANSFORMER WINDING

SYSTEM WILL UTILIZE THE TRANSIENTS FROM THE SYSTEM TO CHARACTERIZE THE ONLINE FRA SIGNATURE OF THE TRANSFORMER WINDING. THIS WILL ALLOW FOR POSSIBLE DETECTION OF WINDING DEFORMATION OR MOVEMENT BEFORE A CATASTROPHIC TRANSFORMER FAILURE.

SYSTEM DESCRIPTION

- CAPTURES TRANSIENTS WITH SYSTEM BANDWIDTH FROM 5 HZ - 5MHZ
- WIRELESS CONNECTION FOR MONITORING TRANSFORMER REMOTELY
- POWERED BY SUBSTATION DC FOR UPTIME AND CAPTURING ENERGIZATION TRANSIENTS
- ONLINE SYSTEM ALLOWS FOR PROACTIVE MONITORING
- SYSTEM RELIABILITY MONITORED REMOTELY ON DATABASE SERVERS

CENTRALIZED SERVER BASED ANALYSIS AND BACKUP OF TRANSIENT DATA

- EASY ACCESS TO MULTIPLE REMOTE SITES FROM A SINGLE INTERFACE
- ADVANCED SERVER BASED ANALYSIS OF GATHERED DATA FOR CONDITION ASSESSMENT
- PROACTIVE SELF-DIAGNOSTICS INSURES HEALTH OF TECAM SYSTEM MONITOR
- TRANSIENT DATA BACKUP TO SECURE REMOTE DATA CENTER

OPERATING CONDITIONS

- BUILT FOR PERFORMANCE IN HARSH WEATHER AND ELECTRICAL ENVIRONMENTS
- DESIGNED FOR INSTALLATION WITH AMBIENT TEMPERATURE RANGE -40°C TO +45°C

MECHANICAL

- EMI SHIELDED ENCLOSURE
- DIMENSIONS: (WXHXD)24"x24"x8"

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