

Advanced Power Technologies

Partial ECLIPSE ™



Compact Design Without Compromising Power, The Partial ECLIPSE Is The First Step Into The ECLIPSE Family Product Line Featuring USB for APT Term or Access to Internal Web GUI and Ethernet Communications

- ◆ No Calibration Required, Ever
- ◆ LC Fiber Ethernet Communication to SCADA via TCP/IP
- ◆ Optional Analog Output (0-1 or 4-20 mA)
- ◆ Real-Time Loading Prediction
- ◆ Integrated Test Mode
- ◆ Automatic E-mail Notifications
- ◆ Integrated Condition Based Assessment for OLTCs
- ◆ Analog and Digital Input Data Concentrator
- ◆ Real-Time “Loss-of-Life” Calculations



Monitor With Confidence™

Partial ECLIPSE™

A Complete Monitoring Platform

ACTIVE

ALARM

Up to **4** Temperature Probes

Up to **8** Relay Outputs

Up to **9** CT Inputs

Up to **8** Analog Inputs

Either **12** or **18** Digital Inputs

Data Concentrator

Collect data around your transformer for use in QuickMath™ equations, or simply communicate it back to SCADA

Patented **Dual-Algorithm OLTC Condition Monitoring™**

Patented **Sensorless OLTC Position Monitoring™**

Patented **Load Pickup Cooling™**

Event and Data Logging

Monitor With Flexibility

QuickMath™

QuickMath™ allows you to take full control of your monitoring through easily programmable logic.

- Math **Functions**: +, -, x, ÷, e^x , $\ln x$, y^x , x^2 , $\sqrt{\quad}$, $1/x$, ()

- Perform Comparisons: =, >, <, ≥, ≤, ≠

- Program Your Own Condition-Based Assessment Criteria Including **Loss of Life**.

- Automatic OLTC Voltage Control

- **Create** Your Own Set Points

- Up to **16** User Equations

- Up to **32** Comparison Evaluations

- Include the Following **Directly** into QuickMath:

Liquid and Winding Temperatures

Analog Inputs

Aux CT Inputs

Constants

Security Suite

User Selectable Functionality ensures self compliance to NERC CIP-007-6.

- ◆ Password Protected
- ◆ Multi-factor Authentication
- ◆ Ability to block specific IP Address
- ◆ Define Roles and Permissions
- ◆ Security Log

Alarm Reporting

- ◆ User Programmable Names & Targets
- ◆ Events Log with User Selected Events
- ◆ Time Synchronization via DNP

Test Mode

- ◆ Interactively test set points using temperature and current ramps

E-mail Notifications

- ◆ Receive e-mail notifications for user-customizable events

Security

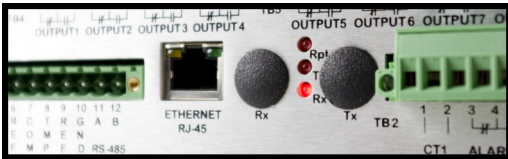
Visualize Your Transformer's Health

Ethernet

Monitor EVERYTHING related to Transformer Health, including Dissolved Gas Analysis Data, Moisture, Bushing Monitor Health and more. Use that data directly in QuickMath™ equations, communicate it back to SCADA, or simply view it through real-time remote access via a Browser-Based GUI implementing TLS

Ethernet Simultaneously Supports

- ◆ IEC61850 w/ GOOSE Messaging
- ◆ DNP 3.0 or MODBUS TCP/IP
- ◆ Automatic E-Mail Notifications
- ◆ Secure HTML Browser-Based GUI Access for:
 - Data logging and Event Data
 - Alarms
 - Settings View/Edit
 - File Transfer



Web-Based GUI



Browser-Based Graphical User Interface For Monitoring, Alarms, Settings, File Transfer, and Data Log

Additional Communication Options

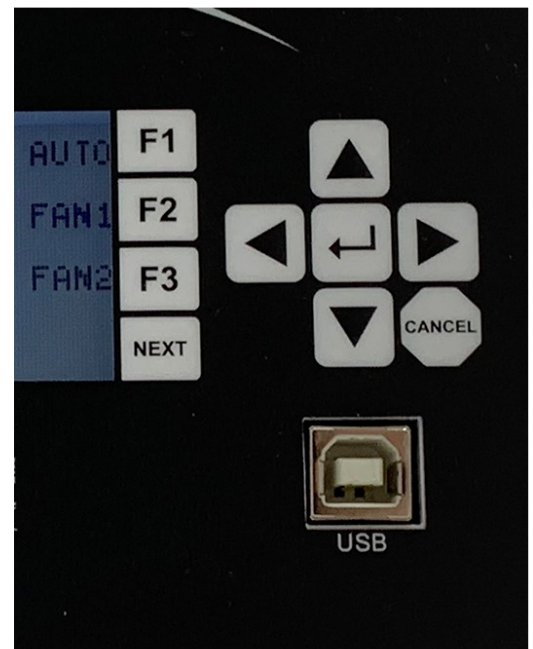
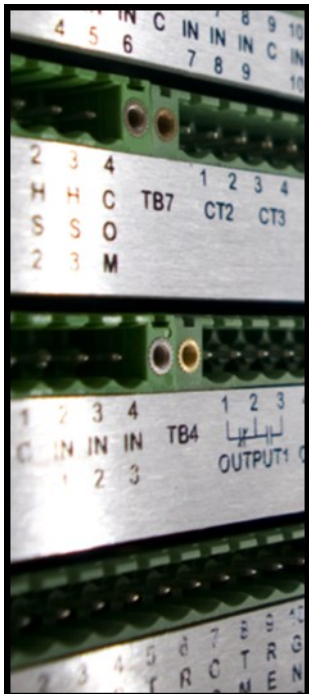
- ◆ Dedicated Fiber for DNP 3.0 or MODBUS
- ◆ Wired RS-485 for DNP 3.0 or MODBUS
- ◆ USB B Serial Communications

Built-In Function Buttons

The **3** built-in **function buttons** allow replacement of switches normally found in the transformer control cabinet for manual fan or tap changer control

Comprehensive LTC Condition Based Assessment

Dual-Algorithm OLTC Condition Monitoring™ along with OLTC Position Monitoring for comprehensive LTC Condition Monitoring. The true value of this feature is realized through reliable predictive maintenance of your OLTCs



Additional Specifications

Enclosure & Dimensions: 7.3 W x 3.7 H x 6 D Chromated Steel

Front Panel Dimensions: 7.559 W x 4.779 H

Power Supply Input Operating Range: 38 VDC to 290 VDC or 120 VAC +/- 10%, 10 Watts Max

Operating Temperature Range: -50 °C to +85 °C, 95% Relative Humidity (non condensing)

Temperature Measurement Accuracy: Avg error over entire measurement range ± 1 °C. Absolute error at any temperature ± 1.5 °C for temperatures within the range of 23°C - 160°C. Below 23 °C the error is ± 3.5 °C.

Output Contact Rating: 30 amps make for 250 msec, 8 amps continuous at 250VAC.

Optically Isolated Inputs: Operates from 38 to 290 VDC or 24 VAC to 260 VAC. External wetting voltage required.

Alarm Contact Rating: 0.4 amp continuous at 290 VDC (NEMA), 0.15 amp continuous at 290 VDC (Panel)

Analog Output: Self powered and selectable, 0 to 1 mA or 4 to 20 mA. Maximum load 10,000 Ohm (0 to 1mA), 510 Ohms (4 to 20 mA).

Analog Input: 0 to 10 VDC or -5 to +5 VDC, Accuracy +/- 1%

Auxiliary CT Inputs: 0 to 50 Amps or 0 to 100 Amps RMS ± 3.5 % of full scale

Communications Interfaces: USB B (USB-CDC class), Type 2, Full Speed 12 Mbps

Ethernet: LC 100BASE-FX fiber ethernet interface capable of accepting LC 1310 nm multimode fiber.

Current Measurement Range: 0 to 50 A or 0 to 100 A

Surge Withstand/Fast Transient: Relay outputs and station battery inputs: ANSI C37.90.1

EMI Withstand: ANSI C37.90.2

Electrostatic Discharge: IEC 801-2

EMC Directive (2004/108/EC): IEC61326-1 and CISPR-11

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