

# 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



TM

## 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

### 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

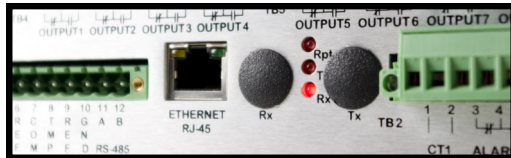
## Visualize Your Transformer's Health

### 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
  - Annunciation
  - Settings View/Edit
  - File Transfer

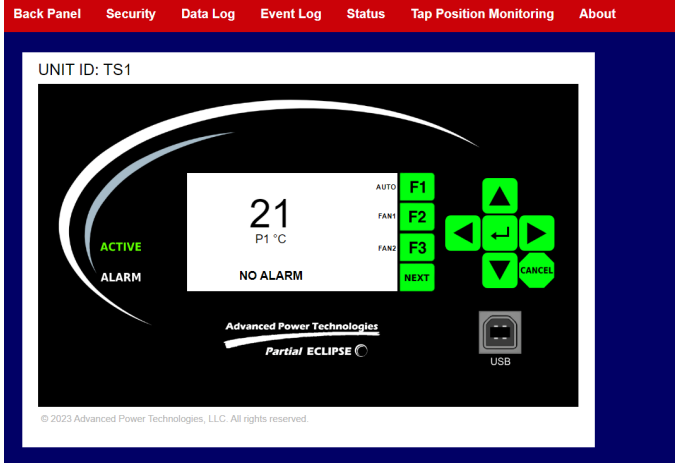


## Web-Based GUI

Advanced Power Technologies

# Partial Eclipse

World Class Monitoring



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

### Additional Communication Options

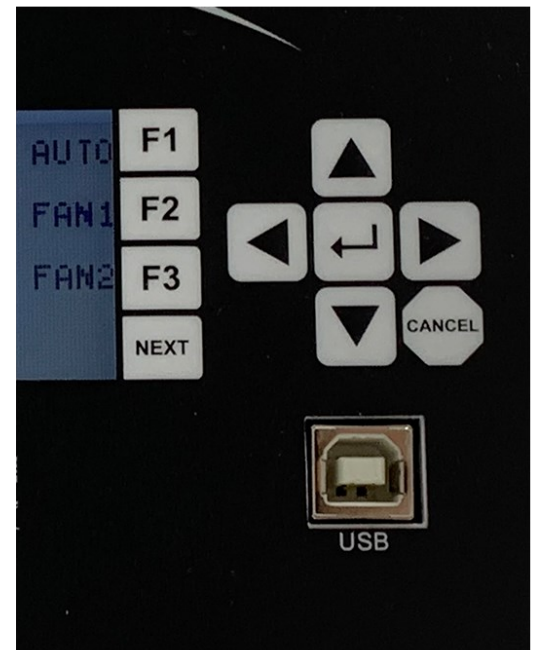
- ◆ Dedicated Fiber for DNP 3.0 or MODBUS
- ◆ Wired RS-485 for DNP 3.0 or MODBUS
- ◆ USB B Serial Communications

### Built-In Function Buttons

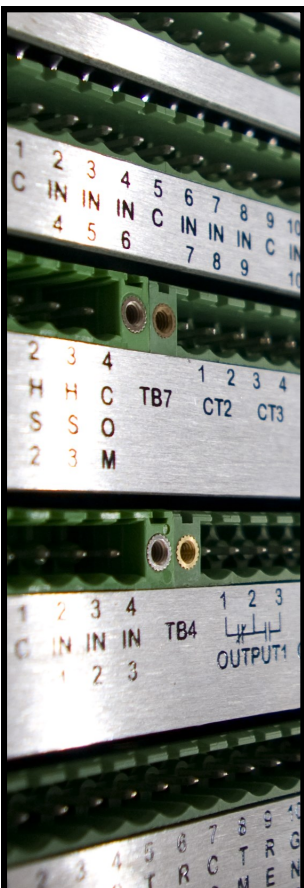
The **3** built-in **function buttons** allow replacement of switches normally found in the transformer control cabinet for manual fan or tap changer control

### 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



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# Partial ECLIPSE Model Options

ECLIPSE - **Package Option** - **Main Board** - **Slot #1** - **Slot #2** - **Slot #3**

Build your number : ECLIPSE - **03** - **00** - **040** - **000** - **000**

## Standard Features:

- 3 RTD Inputs
- 1 CT Input for Winding Hotspot Calculation
- 8 Relay Outputs
- Selectable IEC61850/DNP/MODBUS on TCP/IP
- Built-In Web Server accessible from Ethernet or USB-B front port
- Selectable DNP/MODBUS on serial
- Graphic LCD Display
- NERC CIP-007-6 Complied Security
- Programmable Function Buttons

## Package Option

Partial ECLIPSE Panel Mount	03
Partial ECLIPSE Custom Enclosure on Request	97

## Main Board

Serial : RS-485 ; Ethernet : RJ45	00
Serial : RS-485 ; Ethernet : Fiber (LC)	01
Serial : Multimode Fiber (ST) ; Ethernet : RJ45	10
Serial : Multimode Fiber (ST) ; Ethernet : Fiber (LC)	11
Serial : Multimode Fiber (V-Pin) ; Ethernet : RJ45	20
Serial : Multimode Fiber (V-PIN) ; Ethernet : Fiber (LC)	21

Analog Module Options		Analog Module Options + 1 RTD Input <sup>(1)</sup>	Analog Module Options + 4 Analog Output <sup>(2)</sup>
8 CT Inputs	101	201	301
8 Analog Inputs	102	202	302
2 CT Inputs, 6 Analog Inputs	103	203	303
4 CT Inputs, 4 Analog Inputs	104	204	304
6 CT Inputs, 2 Analog Inputs	105	205	305
4 Analog output <sup>(2)</sup>	300		

## Notes :

- (1) Only 1 module from the 200 Module Series can be used per monitor - Max total of 8 Analog Inputs  
 (2) Only 1 module from the 300 Module Series can be used per monitor - Max total of 9 CT Inputs  
 (3) Slot #1 is fixed to Relay Module #040 - Max total of 4 RTD Inputs  
 (4) Digital Input Module can only be used in Slot #3  
 - Slot #3 can only accept Modules 060, 061, 102, 300 or 302

## 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 Ohms (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

## Relay Module <sup>(3)</sup>

8 Output Relay + 3 Digital Input	040
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## Digital Inputs Module <sup>(4)</sup>

12 Optically Isolated Dis	060
18 Optically Isolated Dis	061

## Configuration Summary

(Updates after part validation)

Part number :	
Output Relay :	
RTD Inputs :	
CT Inputs :	
Digital Inputs :	
Analog Inputs :	
Analog Outputs :	
Serial Communication :	
Ethernet Communication :	
Mounting :	

Use the electronic version of this document to validate your part number.

<https://advpowertech.com/transformer-monitoring-products/partial-eclipse/>

**Advanced Power Technologies**

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