Nexus® 1262/1272

Accu-Measure™
Auto-Calibrating
Metrology

High Performance Utility Billing Meters
With Communication & Advanced Power Quality

- 0.06% Watt/Hr Revenue Meter
- Auto-Calibrating Metrology
- Multi-Point CT & PT and Loss Compensation
- Advanced Power Quality Recording
- Eight Totalizing Registers
- Data Logging & Event Recording
- Unique Powerful Display Configurator
- Multiple Communication Paths
- Combination Modem & Ethernet

New! Total Web Solutions
WebExplorer  WebReacher  WebXML
WebAlarm  WebMod  WebDNP

XML Web Server
Email on Alarms
DNP 3.0 over Ethernet

For Smart Grid and Intelligent
Substation Applications

Electro Industries/GaugeTech
The Leader in Power Monitoring and Smart Grid Solutions
The Nexus® 1262/1272 meters are designed for demanding smart grid and intelligent substation applications. They provide one of the most profound analyses of electricity available in a socket meter. The units offer extensive advanced monitoring features to meet the most critical power monitoring requirements. Using advanced DSP technology, the Nexus® meters offer immediate and stored revenue power data coupled with superior power quality and communication. To meet the sophisticated standards required by utility companies and de-regulated power providers, the Nexus® meters' basic package starts where most other meters end. Standard features in Nexus® units provide the ability to meet your future advanced metering needs.

**ACCU-MEASURE™ AUTO-CALIBRATING METROLOGY**

EIG’s Accu-Measure™ Auto-Calibrating Metrology provides unmatched accuracy.

- Energy and Power Accuracy to Within 0.06%
- Auto-calibration over Time
- Automatic Temperature Drift Adjustments

**4 QUADRANT MEASUREMENT**

The unit is a full four quadrant meter and gathers hour data information in every quadrant.

- kWh Delivered and Received
- kVAh in Each Quadrant
- kVARh in Each Quadrant
- Q Hours

**TIME OF USE**

The 1262/1272 offers robust time of use functionality. Standard capabilities include:

- 8 TOU Schedules
- 4 Seasons/Year
- 20 Year Calendar
- Prior Month and Prior Season
- Programmable Freeze Registers

**TRANSFORMER OR LINE LOSS COMPENSATION**

Loss Compensation adjusts for both copper and iron losses with a simple user setup.

**FIELD TEST MODE**

- Test All Energy Readings
- Enable/Disable in Test Mode
- Preset Accumulators
- Freezable Accumulators

**LOAD AGGREGATION/UNIVERSAL METERING**

Using standard pulse inputs, the Nexus® 1262/1272 can count pulses from external meters and accumulate usage. The pulse inputs can be used to totalize electrical usage and utility values, such as water or gas use data.

- 8 Pulse Inputs
- Individual Accumulating Registers
- 4 Totalizing Registers (Add or Subtract)

**CT & PT COMPENSATION**

The Nexus® units compensate for errors in current transformers and potential transformers.

- Voltage Compensation
- Multipoint Current Compensation
- Multipoint Phase Angle Compensation
- Better than 0.01% Resolution

**MULTIPLE DEMAND WINDOWS**

The Nexus® 1262/1272 simultaneously monitors five demand structures.

- Interval Length from 1 Second to Many Hours
- End of Interval Pulse Output
- End of Interval Pulse Input
- Cold Load Pickup

**TIME STAMPED MAX. DEMANDS**

The units gather demand information for all power values. Each value is date/time stamped.

- kW Demand, Delivered & Received, Max/Min
- kVAR Coincident with kW Demand
- kW Demand, Max/Min
- kVA Demand, Max/Min
- Amps Demand, Max/Min
- Voltage, Max/Min
Unique Display Configurator

The Nexus® 1262/1272 is designed with one of the industry’s most advanced LCD display configuration technologies. With this highly customizable display, choose from multitudes of pre-programmed display screens and create fully customized displays for any specific application. Build, from scratch, user display screens as needed that provide information on anything the meter measures (which is almost everything). Use the display to view not only electrical, but water or gas usage. Also use the meter as an aggregator for total usage. Provide ambient and transformer temperature or any other desired critical operational data on the display.

3 DISPLAY MODES/75 SCREEN SLOTS

The meter’s memory has 75 slots for custom and/or pre-programmed screens. These slots can be allocated to any view mode with any number of slots used in each of the modes.

CUSTOM DISPLAY CONFIGURATOR TO CREATE EXACTLY WHAT’S NEEDED

- Make Custom Screens Based on Modbus Registers
- Make Any Custom Labels
- Customize Screen Numbering and Order
- Display Up To 5 Pieces of Information Per Screen
- Display Water, Gas and Other Types of Usage
- Add Diagnostic Information

NORMAL MODE

- kWh Delivered and Received
- kVARh Delivered and Received
- Peak Rolling Window Demand

TIME OF USE MODE

- kWh and kW Demand Delivered and Received Total
- kVARh and kVAR Demand Delivered and Received for Each Register
- kVAh Delivered and Received for Each Register
- kVAh Delivered and Received Total

PRE-CONFIGURED DIAGNOSTIC SCREENS

Select from a large offering of diagnostic screens such as:

- Voltages
- Harmonic Magnitudes
- Meter Status
- Per Phase Amps
- Many More Diagnostic Screens Available

INFRARED TEST PULSE

The meter provides an infrared test pulse that can pulse for +Watt-Hour, -Watt-Hour, +VAR-Hour, -VAR-Hour and VA-Hour. This pulse uses a time modulated pulse integration, allowing the pulse to be accurate during short duration pulse tests using industry accepted reference standards.
Total Web Solutions—Providing Advanced Metering Data Integration With the Web

Total Web Solutions is an advanced Ethernet communication architecture that lets you design custom webpages, display metering data and host your meter power information website directly on a Nexus® meter. The Nexus® meter directly hosts the web data without any need for dedicated server software, ActiveX Controls or Java Applets. The meter does the data collection, the formatting and the page hosting.

**ADVANCED FEATURES INCLUDE:**
- Fully Customizable Webpage Development
- Direct Webpage Hosting With Live Readings
- Multiple Meter Hosting
- Read Direct From Meters (No Server Software Needed)
- No Active Controls or Java Downloads
- IT Dept Friendly; Works Through Firewalls; Low-Cost/High Functionality
- Instant Alarm Emails – Direct from the Meter

**WEBEXPLORER**
(Directly Host Metering Data)
EIG’s WebExplorer provides you with direct access to all power data through Internet Explorer in standard HTML format, without needing to download ActiveX controls or Java applets. WebExplorer is fully programmable, so you can customize your own SCADA quality webpages, graphics and configurations.
- Easily Incorporated Into Any Existing Web Applications
- Fully Programmable Webpage Generator
- Brings in Direct XML Links, Displaying Many Meters on One Page

**WEBXML**
Creates Real Time Data in XML Format. WebXML allows the Nexus® meter to gather data from the Nexus® Host or through other meters and put the data directly into an XML format. This allows you to share data through the web with multiple applications and create custom webpages, using WebExplorer.
WEBA LARM – EMAIL ALERTS

EIG’s WebAlarm sends real time email alerts via the Internet to up to 9 recipients simultaneously for any combination of event notifications.

- Real Time Alerts
- Simultaneous Emails to Multiple Recipients
- Update Users on Virtually Any Abnormality
- Uses Standard SMTP — Just Assign Email Addresses
- Shows the Last 10 Emails on Website for Later Investigation

WEBMOD

(Open Architecture 3rd Party Integration)

The 10/100BaseT design allows the unit to speak with 12 simultaneous sockets of Modbus TCP. EIG’s WebMod features Modbus TCP open protocol that can be easily integrated with most other software or hardware. And, with the built-in Modbus data concentrator, you can poll up to 8 devices or 512 unique polling items from any device that can speak Modbus RTU and/or Modbus TCP protocols.

WebXML technology is easy to configure and extremely flexible. With WebXML, your data is instantly available to a host of software applications including standard web browsers and documentation software.
- Automatically Process and Present Data In Readable XML Format
- Add Scale Factors, Multipliers or Other Desired HTML Capability
- Display Data From Host Meter and/or Any Other Meter Using Modbus RTU or TCP/IP (WebReacher)
- Customized Programming
- Easily Viewed By Different Applications
- Modbus Data Concentrator

WEBREACHER

With EIG’s exclusive WebReacher technology, you can now access remote meters around the world, retrieve data and consolidate it onto one webpage or website without any separate software SCADA package or client-side ActiveX controls or Java applets.
- No Additional Software Application Costs
- No Server System Required
- No Complex Integration
- No Costly Point Charges (Up to 32 Devices)

Web Solutions allows a meter to display data from many remote meters.
The processing capability and accuracy of the Nexus® 1272 makes it possible to gather power quality information with unmatched precision. The Nexus® 1272 is ideally suited for application on all critical loads. From health care to micro-electronics, the 1272 has what it takes to capture every anomaly. This insures that when there is a power problem, you have the information required to act. All Power Quality logs are time stamped to the nearest millisecond to insure accurate recording. The meter's Advanced Download Logic collects only new data to minimize download times.

**EVENT/OUT OF LIMIT LOG**
- Records 1024 Events
- Out of Limit Recording
- High-Speed Input Event Recording
- Outage Detection
- Extensive Limit Setting Capabilities with Multiple Limits per Selected Quantity

**WAVEFORM LOG**
The waveform recording capability of the Nexus® 1272 is unparalleled by any meter. Waveform records of this quality have historically been reserved only for transmission lines. The power of the Nexus® 1272 now makes this quality available to your critical customers.
- Extraordinary Resolution through 16 bit A/D Input
- Sample Rates from 16 to 512 Samples per Cycle
- Total Recording Times over 100 Seconds
- Up to Six Channels
- Voltage and Current Triggers
- External Event Trigger
- Voltage Surge/Sag Recording
- Current Fault Analysis

**HARMONIC DISTORTION ANALYSIS**
- Log Harmonics into Historical Log for Later Analysis
- Recorded Waveforms Provide Harmonics to the 255th Order
- View Waveform Record
- Extraordinary Resolution through 16 bit A/D Input
- Sample Rates from 16 to 512 Samples per Cycle
- Total Recording Times over 100 Seconds

**CBEMA/ITIC LOG**
The separate CBEMA/ITIC Log captures all voltage transients that fall outside these standards. The onboard log holds 1024 events. The data is downloaded to a separate log in the meter database for easy analysis. See all voltage disturbances on one screen through the Communicator EXT software.
- Sag/Swell Analysis
- Transient Recording
The accuracy and precision of the Nexus® 1272 coupled with its extraordinary logging capability makes it an ideal tool for system performance and reliability analysis. For the first time, at the revenue metering site, users have the accuracy and precision of a digital fault recorder without the expense. The Nexus® 1272 meter’s 16-bit accuracy and resolution for waveform records actually exceeds many digital fault recorder products. Combine the Nexus® 1272 with EIG’s suite of software solutions to further expand the level of understanding during any monitoring situation.

## AIREPORTS – PQ ANALYSIS

AiReports provides automated analysis and reports (1272 Only) for abnormal events.
- Uses Artificial Intelligence
- Evaluates All Data from Nexus® Monitor
- Rates Events for Severity
- Identifies Probable Causes
- Identifies Possible Impacts
- Recommends Corrective Actions or Solutions
- Prepares and Formats Report of All Power Quality Events
- PQDIF File Format Converter Allows Nexus® Data to be Read by Standard EPRI Power Quality Viewing Software
- COMTRADE File Converter Changes Fault Records to Standard Fault Analysis File Formats

## COMMUNICATOR EXT FAULT ANALYSIS

- Compares Multiple Fault Records
- Measures Waveform Traces
- Inserts Timing Marks to Analyze Waveform Transients
- Views CBEMA Logs

## AT THE INTERCHANGE POINT

The Nexus® meter gives you the power of a sequence of events recorder on every transmission line or interchange point. The unit is always watching, and has extended memory capability, which can record multiple faults, or even frequency swings, during stability problems. Capture all voltages and currents.

Download the data and open the files with Communicator EXT. Compare multiple channels; measure amplitudes and timing with millisecond resolution; see system reliability events that lasted for several seconds.

## TEST PROTECTIVE EQUIPMENT

Need to test protective equipment performance? Simply take the Nexus® record and convert to COMTRADE format. Insert the file directly to protective test equipment to verify relay performance.

## AT THE CUSTOMER

When that key customer calls, simply perform a download from the Nexus® 1272. In a few minutes, all the data related to any event is on your desktop. A completed report is ready to review internally or email to the customer. Probable causes are identified and corrective actions recommended.

Need to perform a more detailed evaluation? Simply open the viewer to look at the waveforms and see exactly what happened to voltages and currents throughout the event. Only the Nexus® meter provides precise pictures for many seconds.

## Supported Meter Forms

<table>
<thead>
<tr>
<th>FORM</th>
<th>RATED VOLTAGE</th>
<th>HOOKUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>9S</td>
<td>0 to 277V</td>
<td>3E, 4W, Wye</td>
</tr>
<tr>
<td></td>
<td>L-N</td>
<td></td>
</tr>
<tr>
<td>36S</td>
<td>0 to 277V</td>
<td>2½E, 4W, Wye with Neutral</td>
</tr>
<tr>
<td></td>
<td>L-N</td>
<td></td>
</tr>
<tr>
<td>45S</td>
<td>0 to 480V</td>
<td>2E, 3W, Delta</td>
</tr>
<tr>
<td></td>
<td>L-L</td>
<td></td>
</tr>
<tr>
<td>SWB2</td>
<td>0 to 277V</td>
<td>Programmable (Universal Forms)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9A</td>
<td>0 to 277V</td>
<td>A Base Form</td>
</tr>
<tr>
<td></td>
<td>L-N</td>
<td></td>
</tr>
</tbody>
</table>

## Accuracy

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>ACCURACY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>0.02%</td>
</tr>
<tr>
<td>Current</td>
<td>0.05%</td>
</tr>
<tr>
<td>Frequency</td>
<td>0.001Hz</td>
</tr>
<tr>
<td>kW</td>
<td>0.06%</td>
</tr>
<tr>
<td><a href="mailto:kWh@1.0PF">kWh@1.0PF</a></td>
<td>0.06%</td>
</tr>
<tr>
<td><a href="mailto:kWh@0.5PF">kWh@0.5PF</a></td>
<td>0.10%</td>
</tr>
<tr>
<td>kVAR</td>
<td>0.10%</td>
</tr>
<tr>
<td>kVA</td>
<td>0.10%</td>
</tr>
<tr>
<td>PF</td>
<td>0.10%</td>
</tr>
</tbody>
</table>
Data and Event Monitoring/Recording

MULTIPLE MEMORY LOGS

Nexus® meters provide many logs to record historical, alarm and system event data. These logs can be used for profiling, recording events and logging electrical power parameters over time. Additionally, using the advanced I/O available with the product, you can also log process measurements, including temperature, pressure, flow, etc.

TWO HISTORICAL TREND LOGS

These logs allow you to trend virtually any electrical parameter over time. This includes all electrical and I/O parameters.

- Up To 64 Values per Log
- Programmable Trend Times
- Provides Magnitude and Duration of Event
- Millisecond Resolution
- 2 Separately Programmable Logs
- Separately Recorded Time Base
- Records Alarms For Electrical and I/O Channels

OUT OF LIMITS LOG

This log records all out-of-limit alarms, including the magnitude and the duration of the alarm.

SYSTEM EVENTS LOG

The unit records the following system events for security and anti-tampering.

- Power Up
- Power Down
- Password Access
- Password Modification
- Change of Programmable Settings
- Change of a Run Time
- Change of Clock Time by Communication (Modbus or DNP)
- Test Mode Usage
- Meter Resets (Logs, Max/Min, Energy)

INPUT STATUS LOG

This log records when a digital status change occurred in either the internal or external inputs.

- Status Log for External Events
- Internally Labeled to Define Events

CONTROL OUTPUT LOG

This log records the logic and state that triggered a control output. The graphical log shows all the steps that led up to the event.

- Displays Pre- and Post-Analysis
- Internally Labeled to Define Events
- Advanced I/O Analysis

Logging Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Memory</th>
<th>Historical Log 1</th>
<th>Historical Log 2</th>
<th>CBEMA / ITIC</th>
<th>Out of Limit Log</th>
<th>Waveform Log</th>
<th>Output Log</th>
<th>Input Log</th>
<th>System Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1272</td>
<td>Standard</td>
<td>85 Days</td>
<td>133 Days</td>
<td>512</td>
<td>1024</td>
<td>63</td>
<td>256</td>
<td>1024</td>
<td>1024</td>
</tr>
<tr>
<td>1272</td>
<td>Advanced</td>
<td>555 Days</td>
<td>133 Days</td>
<td>512</td>
<td>1024</td>
<td>95</td>
<td>256</td>
<td>1024</td>
<td>1024</td>
</tr>
<tr>
<td>1262</td>
<td>Standard</td>
<td>69 Days</td>
<td>32 Days</td>
<td>N/A</td>
<td>512</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
<td>1024</td>
</tr>
<tr>
<td>1262</td>
<td>Advanced</td>
<td>480 Days</td>
<td>133 Days</td>
<td>N/A</td>
<td>512</td>
<td>N/A</td>
<td>512</td>
<td>1024</td>
<td>1024</td>
</tr>
</tbody>
</table>

1  Assumes Logs store 4 scaled energy readings every 15 minutes
2  Number of Events Recorded (assumes 14 parameters monitored)
3  Number of Waveform Records. Each record may be from 8 to 64 cycles in duration depending upon meter setup
DIAL-OUT ON OUTAGE

The INP2 modem has a dial-out circuit with a battery that detects when voltage is lost and dials out to provide outage notification. Additionally, the circuit can be configured to dial out when many other circumstances occur. The Nexus® 1262/1272 dials to the EIG Dial-In Server which allows users to be paged or emailed with notification of events. When the modem option card is installed, the meter also includes a gateway port. This allows the meter to act as a master for up to 7 additional meters and dial out on alarm for any of these meters.

DIAL-OUT FOR OTHER EVENTS

The meter will dial out for the following circumstances:

- Limits/Status Change
- High Speed Input Change
- Waveform Record Capture
- CBEMA Power Quality Event
- Control Output Change
- Cycling of Control Power
- Password Failure on a Call
- Coming into the Modem
- Meter Communication Failure

DIAL-IN SERVER CAPABILITIES

The EIG Dial-In Server will record all notifications, accept downloads from the meter and allows users to be notified by email and paged automatically. Features of the Dial-In Server include:

- Unlimited Meters
- Email Notification
- Audible System Alarm
- Scalable Multi-server Architecture
- Paging Notification
Specifications

**Sense Inputs:**
- Current (ac)
  - Transformer (CT) rated
  - 2 or 3 current inputs depending on form (a, b, c)
- Class 2 – 1A nominal, burden 0.000312VA/2.5A
- Class 10, 20 – 5A nominal, burden 0.0125VA/25A
- 0.1% of nominal pickup current
- 120% over range of meter class
- Current surge withstand (at 22°C) – 100 Amps for 10 seconds, 300 Amps for 3 seconds, 500 Amps for 1 second

**Voltage (Ac):**
- Blade powered unit, standard voltage (option S): 480V max phase to reference (Va, Vb, Vc to Vref).
  - Burden total 12VA max.
  - polymethyl vinyl ether (PMVE) rezistive RAM
- Standard external (option SE):
  - 2V pickup voltage
  - 20% over range of rated voltage
- Externally powered units (options SE, DE):
  - 120% over range of meter class
  - 0.1% of nominal pickup current
- Class 2 – 1A nominal, burden 0.000312VA/2.5A
- Transformer (CT) rated

**Sense Inputs:**
- Standard external (option SE):
  - 2V pickup voltage
  - 20% over range of rated voltage
- Blade powered unit low voltage (option LV):
  - 69V max between Vref and Va, Vb, Vc inputs.
  - Burden total 12VA max (including power supply)
- External powered units (options SE, DE):
  - 120% over range of meter class
  - 0.1% of nominal pickup current
- Class 2 – 1A nominal, burden 0.000312VA/2.5A

**Specifications:**
- **Ordering Information (To order, please use this guide):**
  - **Accessories Options:**
    - **Optional I/O Modules**
      - 1mA0N4: 4 Analog Outputs, 0-1mA
      - 1mA0N8: 8 Analog Outputs, 0-1mA
      - 20mA0N4: 4 Analog Outputs, 4-20mA
      - 20mA0N8: 8 Analog Outputs, 4-20mA
      - 4R01: 4 Relay Outputs
      - 4PO1: 4 Solid State Pulse Outputs
      - 8AI1: +/−1mA, 8 Analog Inputs
      - 8AI2: +/−0.2mA, 8 Analog Inputs
      - 8AI3: +/−0.5VDC, 8 Analog Inputs
      - 8AI4: +/−0.10VDC, 8 Analog Inputs
      - 8DI1: 8 Status Inputs, Wet/Dry
  - **Power Options**
    - PSIO: I/O Power Supply (Required with I/O Module)
    - BAT1: External Replaceable Battery for Dial Out on Outage
  - **Mounting Options**
    - MBIO: I/O Module Mounting Bracket
  - **Software Options**
    - COMEX3.1C: Communicator EXT 3.0 for Windows © Single-Computer License (One Site)
    - COMEX3.MC: Communicator EXT 3.0 for Windows © Multiple-Computer License (One Site)
    - AIEXT.1C: AReports EXT Power Analysis Software for Windows © Single-Computer License (One Site)
    - AIEXT.MC: Multiple-Computer License (One Site)
    - DISEXT.1C: Dial-In Server Single-Computer License (One Site)
    - DISEXT.MC: Dial-In Server Multi-Computer License (One Site)

**Accessories Options:**
- **External Power Supply Options:**
  - Standard external (option SE):
    - 102 to 270V AC/DC @50/60Hz. 12VA max.
    - Burden 0.33VA@576V
    - 480V max between Vref and Va, Vb, Vc inputs.
    - 120V max between Va, Vb, Vc inputs
    - Burden total 12VA max (including power supply)
    - 69V max between Vref and Va, Vb, Vc inputs.
    - 480V max Phase to reference (Va, Vb, Vc to Vref).
  - Blade powered unit low voltage (option LV):
    - 120% over range of Meter Class
    - 0.1% of nominal pickup current
    - Class 2 – 1A nominal, burden 0.000312VA/2.5A
  - Transformer (CT) rated

**Ordering Information:**
- **Example:**
  - Option Numbers:
    - 1272: Std Ext Modem
    - 45S: 4 Relay Outputs
    - 20: 4 Analog Outputs, 0-1mA
    - 50: 4 Analog Outputs, 4-20mA
    - DE: Dial-in Server Single-Computer License (One Site)
    - INP200: I/O Power Supply (Required with I/O Module)
  - **Ordering Information (To order, please use this guide):**
    - **Optional I/O Modules**
      - 1mA0N4: 4 Analog Outputs, 0-1mA
      - 1mA0N8: 8 Analog Outputs, 0-1mA
      - 20mA0N4: 4 Analog Outputs, 4-20mA
      - 20mA0N8: 8 Analog Outputs, 4-20mA
      - 4R01: 4 Relay Outputs
      - 4PO1: 4 Solid State Pulse Outputs
      - 8AI1: +/−1mA, 8 Analog Inputs
      - 8AI2: +/−0.2mA, 8 Analog Inputs
      - 8AI3: +/−0.5VDC, 8 Analog Inputs
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