

# AnomAlert\* Generator Anomaly Detector

## Bently Nevada\* Asset Condition Monitoring



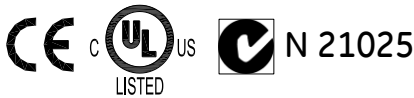
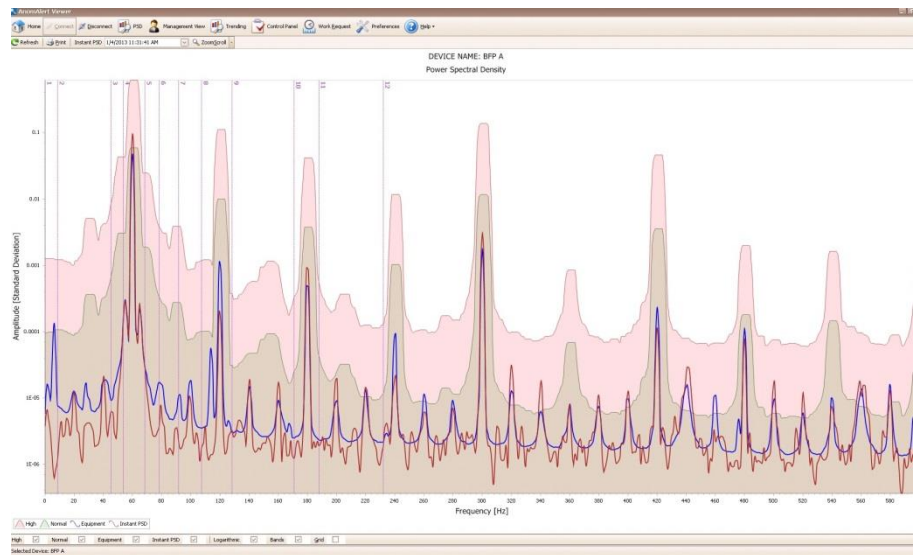
### Description

AnomAlert\* Generator Anomaly Detector continuously identifies existing and developing faults on three-phase AC generators and their prime movers, effectively using the generator itself as a sophisticated transducer. AnomAlert Generator Anomaly Detector utilizes an intelligent, model-based approach to provide anomaly detection by simply measuring the generator current and voltage. It is permanently mounted, generally in the generator control center.

AnomAlert Generator Anomaly Detector provides both mechanical (unbalance, misalignment, roller bearings, etc.) and electrical (loose windings, short circuits, etc.) anomaly detection as well as electrical parameters such as voltage and current imbalances and power factor.

Each generator requires one AnomAlert Anomaly Detector, and it can be configured entirely from the front panel. Additionally, the AnomAlert Enterprise Software is available that obtains and displays real-time data from the device. It configures the performance of the device, and stores data that can be retrieved for display from its database.

A System 1\* Software Extender is also available that adds generators to your overall machinery enterprise hierarchy. It enables viewing real-time data and generating sophisticated alerts and alarms and produces intelligent advisories that deliver Actionable Information to designated users.



Specifications and Ordering Information  
 Part Number 288496-01  
 Rev. C (07/15)



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## Specifications AnomAlert Hardware

### General Information

#### Generator Type

Three-phase, AC  
Generator current variation must be less than 15% during 6 sec data acquisition period

### Environmental

#### Operating Temperature

32 – 104° F (0 – 40° C)

#### Humidity

Up to 90% RH, non-condensing

### Inputs

#### Power Input Required

100-240 Vac (-15%, +10%), 47 – 64 Hz, 19 VA, 200 mA

or

120-300 Vdc, 19 VA, 200 mA

(Use UL listed fuse with proper voltage rating.)

### Measurement Voltage Inputs

*Low Voltage AnomAlert Models (≤480 Vac)*

Can tap directly off voltage lines to generator

*Medium/High Voltage AnomAlert Models (>480Vac)*

Three Cat II Voltage Transformers (supplied by customer): 0.3% to 0.6% accuracy; 100 V, 110 V, or 120 V secondary voltages

NOTE: Voltage transformers must meet local standards and

regulations. For North America, voltage transformers must be certified by an OSHA appointed NRTL to appropriate product safety standards such as UL or CSA.

### Measurement Current Inputs

Three 250 Vac, Cat II Current Transformers (supplied by customer): 0.3% to 0.6% accuracy, with either 5A or 1A secondary outputs depending on AnomAlert model.

**Note:** Current transformers must meet local standards and regulations. For North America, current transformers must be certified by an OSHA appointed NRTL to appropriate product safety standards such as UL or CSA.

*All AnomAlert Generator Models*

Three 250 Vac, Cat II Current Transformers (supplied by customer): 0.3% to 0.6% accuracy, with either 5A or 1A secondary outputs depending on AnomAlert model.

### Outputs

#### Alarms

*4 Alarm Parameters:*

Line Change (unexpected change in incoming power)

Load Change (unexpected change in process)

Examine 1: plan maintenance

Examine 2: perform maintenance

### Warnings

Any measured or calculated parameter outside its expected range based on internal database and learned mode.

## Relay

One assignable relay output, user programmable; NC/NO contacts (2 A, 30 Vdc)

## Communications

RS422/485

RS232 (with additional appropriate converter)

Ethernet (with additional appropriate converter)

## Physical

### Weight

2.58 lb (1170 g)

### Dimensions WxHxL

3.78 in x 3.78 in x 5.51 in

(96 mm x 96 mm x 140 mm)

### Mounting

Front Panel Mounting (indoor)

### Protection Class

Front Panel: IP 40

Whole Unit: IP 20

### Indicators

6 LEDs and LCD Readout

### Keypad

6 tactile membrane keys

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## Compliance & Certifications

### EMC:

Europe:

EMC Directive 2004/108/EC

EN 61326-1: 2006  
Measurement Control and  
Laboratory Use for Industrial  
Environments

Australia/New Zealand:

C-tick

IEC 61326-1: 2005  
Measurement Control and  
Laboratory Use for Industrial  
Environments

### Electrical Safety:

Europe:

Electrical Safety Directive 2006/95/EC

EN 61010-1 Safety  
Requirements for Electrical  
Equipment

North America:

UL Listed, Canada and US

UL 61010-1 Safety  
Requirements for Electrical  
Equipment

Australia/New Zealand:

C-Tick

IEC 61010-1 Safety  
Requirements for Electrical  
Equipment

For further certification and approvals information, please visit the following website: [www.GEmeasurement.com](http://www.GEmeasurement.com)

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## Specifications AnomAlert Enterprise Software

AnomAlert Enterprise Software is a stand-alone system or serves as the gateway between AnomAlert units and System1. Simple configuration process covers set-up of system, devices, and connected machinery. Includes ability to change data presentation from English to Spanish, Portuguese, Russian or Turkish. Built-in OPC server provides all computed values and statuses and allows remote control of devices. Software DVD also includes step-by-step setup movies and manuals.

### System Features

#### AES

Artesis\*\* Enterprise Server

#### AAviewer

AnomAlert Display

### Maximum Hardware Connections

Up to 200 AnomAlerts through serial and TCP/IP per computer (Refer to Figure 1)

10 AnomAlerts per serial or TCP/IP channel

Multiple AES instances can share a single SQL database and OPC server

100 AnomAlert units per System1

**OPC Server**

1 per system (on master AES instance)

**Number of tags per AnomAlert**

Over 180, supplying full range of measurement and status information

**Tag update rate**

90 seconds

**Communication**

**Network support**

Ethernet and RS232 (with appropriate converter)

**Protocols**

Input: TCP/IP

Output: OPC DA 2.0

**Computer Requirements**

**Operating System**

Microsoft Windows\*\* XP, Windows Server 2003, Windows Server 2008, Windows Vista, or Windows 7

**Processor Speed**

2 GHz recommended

**Memory**

2 GB RAM or higher

10 GB hard disk space

**Peripherals**

Super VGA (1024x768) or higher resolution video adapter and monitor

Keyboard and mouse or compatible pointing device

**Database Software**

Includes Microsoft SQL Express enabling enterprise with up to 20 AnomAlerts; for enterprises of greater than 20 the full version of SQL is required (purchased separately)

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**Ordering Information**

For a detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (document 108M1756) located at the following website: [www.GEmeasurement.com](http://www.GEmeasurement.com).

Order one AnomAlert per generator to be monitored.

The CTs, PTs, and CSs are customer supplied. Refer to Measurement Inputs section of Specifications Section above for requirements.

Order the type and number of converters as required for your network of AnomAlerts. Refer to Figure 1.

Order at least one version of the software. For integration into System1 refer to datasheet 174590-01 for the AnomAlert Extender.

For motor monitoring see AnomAlert datasheet 286754-01.

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**AnomAlert Generator Anomaly Detector**

Order one per generator.

**390150 - AXX - BXX - CXX - DXX**

- A:** Generator Voltage
  - 01** Low ( $\leq 480$  Vac)
  - 02** Medium/High ( $> 480$  Vac)
- B:** Generator Speed Type
  - 01** Fixed (line driven)
- C:** Generator Amperage (CT secondary output)
  - 01** 1 A
  - 02** 1 - 5 A
- D:** Language
  - 01** English

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### AnomAlert Enterprise Server Software

**Must be** ordered separately. Order 1 per enterprise computer. Refer to Figure 1. Includes ability to change data presentation from English to Spanish, Portuguese, Russian or Turkish. Includes step-by-step setup movies, manuals, quick install guides.

**390125-01** AnomAlert Enterprise Software

**Note:** To bring data into System 1 see datasheet 174590-01 to order AnomAlert System Extender.

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### Converter Kits

Up to 10 AnomAlerts can be connected through each converter to a computer. Refer to Figure 1.

#### 287127-01

RS 232/485 to RS 422 converter, with power supply and plug adapters. Kit includes sample cable for connection to AnomAlert, and sample cable for interconnection between converter and PC (1 required for each PC to which daisy-chained AnomAlerts will be connected).

#### 287128 – AXX

Moxa\* Nport\* DE-311 RS422 to TCP/IP Ethernet converter with null modem mini adapter and power supply. Kit includes sample cable for connection to AnomAlert and a sample cross-cable for Ethernet connection.

#### A: Power Plug Type

- 01** American (US, Canada, Japan, Mexico)
- 02** British (UK, Hong Kong)
- 03** European (Turkey, Germany, Russia...)
- 04** Australian

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### AnomAlert Manual

Hardware and software manuals can be found in electronic format on the DVD that contains the software itself. However, the hardware manual can be ordered in hardcopy format using the following part number, if desired.

**286869-01** User's Manual

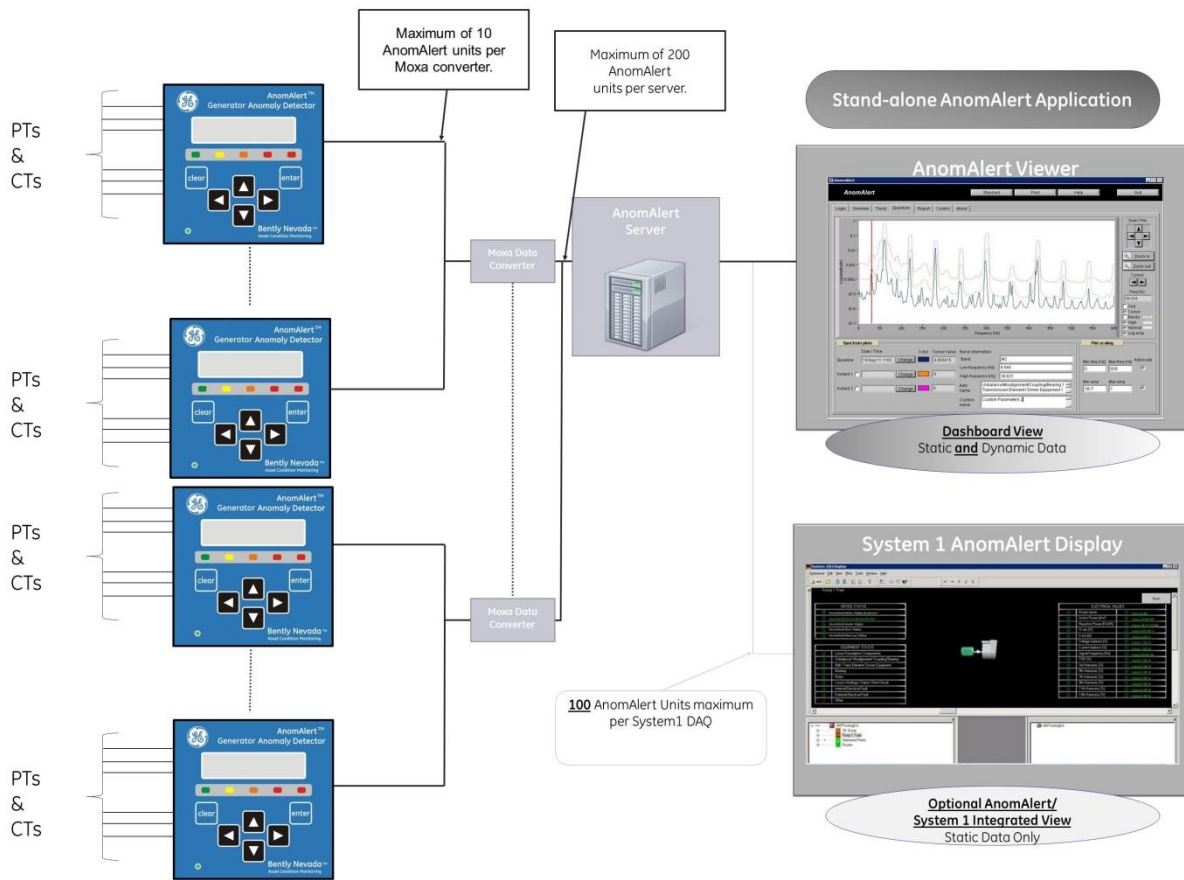
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### AnomAlert Quick Install Guides

Not required to be ordered. Are included in electronic format on the AnomAlert Enterprise Software DVD and come in hardcopy with the appropriate monitors and converter kits. They can also be ordered as hardcopies using the following part numbers, if required.

**288497-01** Low Voltage Generator  
**288525-01** Med/High Voltage Generator  
**286874-01** RS485-RS422  
**286875-01** TCP/IP  
**286876-01** Software TCP/IP

# Graphs and Figures



**Figure 1: System Architecture**

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 AnomAlert  
 System 1

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<http://www.GEmeasurement.com>