AnomAlert Generator Anomaly Detector
Datasheet

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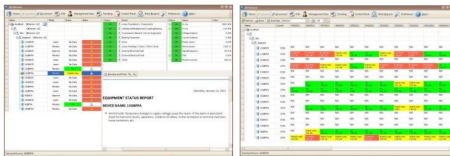
Each generator requires one AnomAlert Anomaly Detector, and it can be configured entirely from the front panel. Additionally, the AnomAlert Enterprise Software is available that obtains and displays real-time data from the device. It configures the performance of the device, and stores data that can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

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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	$32 - 104^\circ$ F ($0 - 40^\circ$ 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 🖉 Voltage transformers must meet local standards and regulations. For North America, voltage

Measurement Current Inputs	🖉 transformers must be certified by an OSHA appointed NRTL to appropriate product safety standards such as UL or CSA.
	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. 🖉 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)

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	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

AnomAlert Enterprise Software

AnomAlert Enterprise Software is a stand-alone system or serves as the gateway between AnomAlert units and System 1. 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.

AES	Artesis Enterprise Server
AAviewer	AnomAlert Display
Maximum Hardware Connections	Up to 200 AnomAlerts through serial and TCP/IP per computer (Refer to System Architecture) 10 AnomAlerts per serial or TCP/IP channel Multiple AES instances can share a single SQL database and OPC server 100 AnomAlert units per System 1
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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Compliance and Certifications

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

EMC

EN 61326-1

EN 61000-6-2

EN 61000-6-4

EMC Directive 2014/30/EU

Electrical Safety

EN 61010-1

LV Directive 2014/35/EU

RoHS

RoHS Directive 2011/65/EU

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Ordering Information

> 🖉 For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) available from Bently.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. See Graphs and Figures on page 8.

Order at least one version of the software. For integration into System 1, refer to the System 1 datasheet 174590 for the AnomAlert Extender.

For motor monitoring see AnomAlert datasheet 286754.

AnomAlert Generator Anomaly Detector

> 🖉 Order one per generator.

390150-AA-BB-CC-DD

A: Generator Voltage	
0 1	Low (≤ 480 Vac)
0 2	Medium/High (> 480 Vac)
B: Generator Speed Type	
0 1	Fixed (line driven)
C: Generator Amperage (CT secondary output)	
0 1	1 A
0 2	1 - 5 A
D: Language	
0 1	English

AnomAlert Enterprise Server Software

> 🖉 Must be ordered separately. Order 1 per enterprise computer. See Graphs and Figures on page 8.

Includes ability to change data presentation from English to Spanish, Portuguese, Russian or Turkish. Includes step-by-step setup movies, manuals, quick install guides.

AnonAlert Enterprise Software

390125-01

> 🖉 To bring data into System 1 see datasheet 174590-01 to order AnomAlert System Extender.

Converter Kits

Up to 10 AnomAlerts can be connected through each converter to a computer. See Graphs and Figures on page 8.

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-AA

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.

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A: Power Plug Type

0 1	American (US, Canada, Japan, Mexico)
0 2	British (UK, Hong Kong)
0 3	European (Turkey, Germany, Russia…)
0 4	Australian

AnomAlert Manual

286869-01 User Guide

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 above part number, if desired.

AnomAlert Quick Install Guides

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

> Not required to be ordered. They 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 above part numbers, if required.

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Graphs and Figures
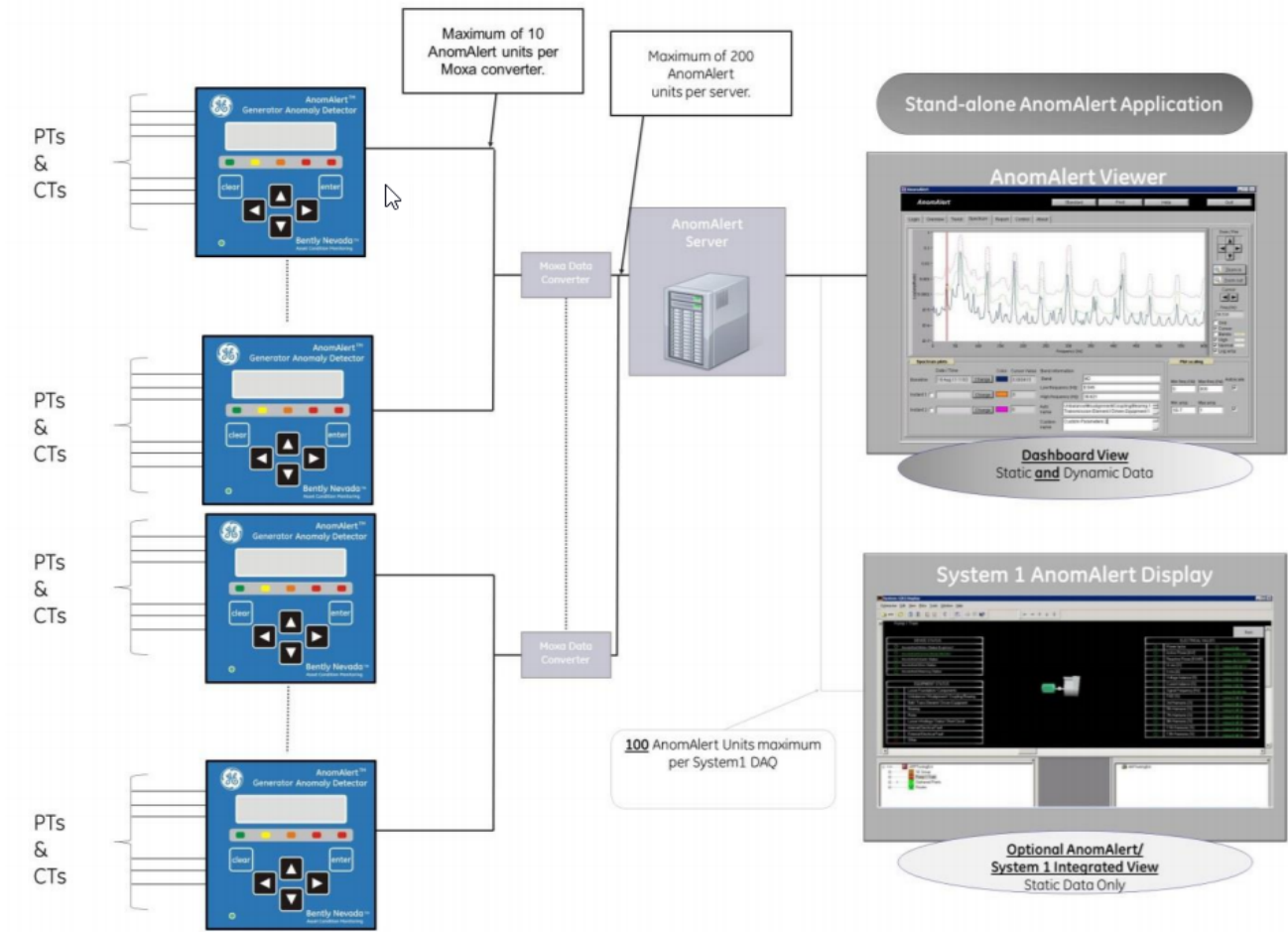
Figure 1: System Architecture

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