AnomAlert Motor Anomaly Detector
Bently Nevada* Asset Condition Monitoring

Description
AnomAlert Motor Anomaly Detector continuously identifies existing and developing faults on electric motors and their driven equipment. AnomAlert utilizes an intelligent, model-based approach to provide anomaly detection by measuring the current and voltage signals from the electrical supply to the motor. It is permanently mounted, generally in the motor control center and is applicable to 3-phase AC, induction or synchronous, fixed or variable speed motors. Accompanying AnomAlert Software is used to view the data.

AnomAlert 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. In addition, it can detect changes in the load the motor is experiencing due to anomalies in the driven equipment or process such as cavitations or plugged filters and screens. Since it doesn't require any sensor installation on the motor itself or associated load, AnomAlert is especially attractive for inaccessible driven equipment and is applicable to most types of pumps, compressors, and similar loads.

Each motor requires one AnomAlert and it can be configured entirely from the front panel. Additionally, each AnomAlert includes the AnomAlert Software necessary to obtain and display data in real-time from the device, to configure the performance of the device, and to save and subsequently retrieve data for display from its database. Networking protocols enable monitoring of motors and processes on remote machines using TCP/IP protocols over the Ethernet.
### Specifications

#### General Information

**Motor Type**
- 3-phase, AC (not suitable for DC motors)
- Fixed speed (line driven)
- Variable speed (inverter driven)
- Motor current load variation must be less than 15% during 6 sec data acquisition period
- Not for use with soft-starter systems unless they are automatically bypassed immediately after motor start-up and during subsequent use

**Operation Type**
- Continuous

#### Environmental

**Operating Temperature**
- 32 – 104°F (0 – 40°C)

**Humidity**
- Up to 90% RH, non-condensing

### Measurement

#### Voltage Inputs

**Low Voltage AnomAlert Models (less than 480 Vac)**
- Can tap directly off voltage lines to motor

**High Voltage AnomAlert Models ≥ 480 Vac**
- 3 Cat II Voltage Transformers (supplied by customer): 0.3% to 0.6% accuracy; 100 V, 110 V, or 120 V secondary voltages

#### Current Inputs

**Fixed Speed (Line Driven) AnomAlert Models**
- 3 Cat II Current Transformers (supplied by customer): 0.3% to 0.6% accuracy, with either 5A or 1A secondary outputs depending on AnomAlert model, secondaries to be SELV

### Power Input Required

- Use UL listed fuse with proper voltage rating:
  - 100-240 Vac (-15%, +10%), 47 – 64 Hz, 19 VA, 200 mA
  - or
  - 120-300 Vdc, 19 VA, 200 mA

**NOTE:** Voltage transformers must meet local standards and regulations. For North America, current and voltage transformers must be certified by an OSHA appointed NRTL to appropriate product safety standards such as UL or CSA.
Variable Speed
(Inverter Driven)
AnomAlert
Models

3 Hall-effect Current Sensors
(supplied by customer); selected
based on the power of the motor to
be monitored; secondaries to be
50-400 mA output

Note: Hall-effect Current Sensors
need external power sources,
generally installed in the motor
control panel, too.

Outputs
Alarms

4 Alarm
Parameters:

Line Change (unexpected change in
incoming power)
Load Change (unexpected change in
process)
Existing Faults
Developing Faults

Warnings

Any measured or calculated
parameter outside its expected
range based on internal data base
and learned mode

Relay

One assignable relay output, user
programmable; NC/NO contacts

Communications

RS422/485
RS232 (with additional appropriate
converter)
Ethernet (with additional
appropriate converter)

Physical

Weight

Line: 2.58 lb (1170 g)
Inverter: 2.16 lb (980 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

Compliance &
Certifications

EMC:

Europe:

EMC Directive 2004/108/EC
EN 61000-6-2 Immunity for
Industrial Environments
EN 61000-6-4 Emissions for
Industrial Environments

Australia/New Zealand:

C-tick

IEC 61000-6-2 Immunity for
Industrial Environments
IEC 61000-6-4 Emissions 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

**Ordering Information**

Order one AnomAlert per motor to be monitored. Each AnomAlert includes the AnomAlert Software on CD. Additionally, the CD includes the AnomAlert Manual, AnomAlert Software Manual and Quick Install Guides.

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

**AnomAlert Motor Anomaly Detector**

390100 – AXX – BXX - CXX

A: Motor Voltage
   0 1 Low (< 480 Vac)
   0 2 Medium/High (≥ 480 Vac)

B: Motor Speed Type
   0 1 Fixed (line driven)
   0 2 Variable (inverter driven)

C: Motor Amperage
   0 1 1 A
   0 2 1 - 5 A
   0 3 5 - 100 A
   0 4 100 - 500 A
   0 5 500 - 1000 A
   0 6 1000 - 2000 A

D: Language
   0 1 English

**Converters**

287127-01 RS 232/485 to RS 422 converter, with power supply adapter. 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).

287128-01 Moxa* Nport* DE-311 RS422 to TCP/IP Ethernet converter with null modem mini adapter. Kit includes sample cable for connection to AnomAlert and a sample cross-cable for Ethernet connection.

**AnomAlert Manuals**

Are included in electronic format on AnomAlert Software disk that comes with each AnomAlert. Can be ordered as hardcopies using the following part numbers.

286868-01 Software Manual
286869-01 Users Manual

**AnomAlert Quick Install Guides**

Are included in electronic format on AnomAlert Software disk that comes with each AnomAlert. Can be ordered as hardcopies using the following part numbers.

286870-01 Low Voltage, Line
286871-01 Low Voltage Inverter
286872-01 Med/High Voltage, Line Model
286873-01 Med/High Voltage, Inverter Model
286874-01 RS485-RS422
286875-01 TCP/IP
286876-01 Software TCP/IP

**AnomAlert Software**

Comes with each AnomAlert unit. Can be ordered separately using the following part number.

390120-01 AnomAlert Software
Figure 1: Model Number Selection: Fixed Speed
Figure 2: Model Number Selection: Variable Speed, Low Voltage
Figure 3: Model Number Selection: Variable Speed, Medium Voltage