



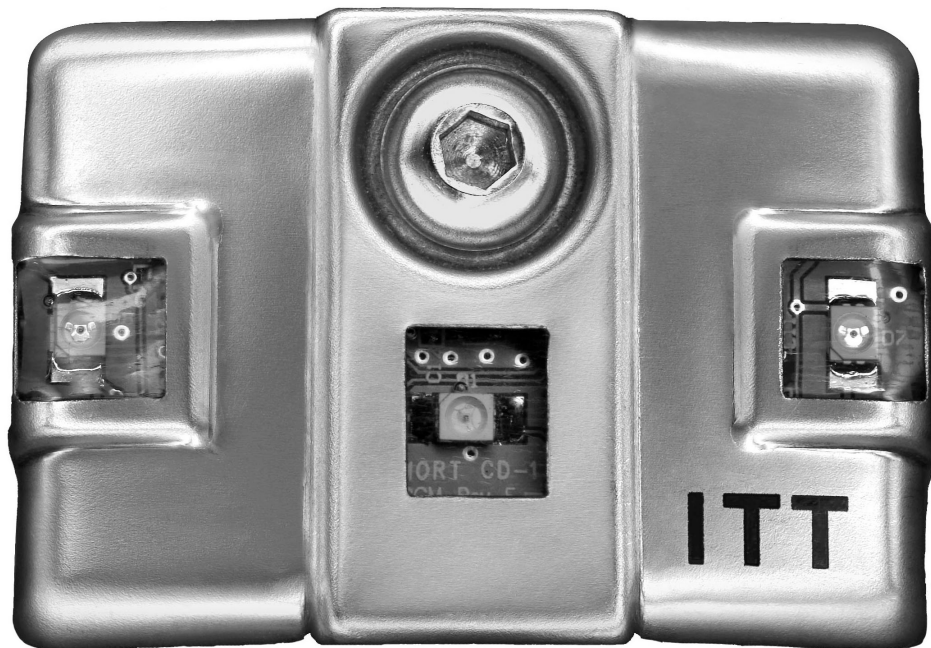
# ITT

**Bell & Gossett**

---

## Installation, Operation, and Maintenance Manual

**i-ALERT™ Condition Monitor**



*Engineered for life*



---

# Table of Contents

<b>Introduction and Safety</b> .....	2
Introduction.....	2
Requesting other information.....	2
Inspect the package.....	2
Product warranty.....	2
Safety.....	3
Safety terminology and symbols.....	3
Certificate of conformance.....	5
<b>Product Description</b> .....	7
General description i-ALERT™ Condition Monitor.....	7
<b>Installation</b> .....	8
Attach the i-Alert ConditionMonitor to the pump.....	8
<b>Commissioning, Startup, Operation, and Shutdown</b> .....	9
Activate the i-Alert™ Condition Monitor.....	9
i-ALERT™ Condition Monitor routine operation.....	10
Deactivate the i-ALERT™ Condition Monitor.....	10
Reset the i-ALERT™ Condition Monitor.....	10
<b>Maintenance</b> .....	11
Guidelines for i-ALERT™ Condition Monitor disposal.....	11
<b>Troubleshooting</b> .....	12
i-ALERT™ Condition Monitor troubleshooting.....	12

# Introduction and Safety

## Introduction

### Purpose of this manual

The purpose of this manual is to provide necessary information for:

- Installation
- Operation
- Maintenance



---

### CAUTION:

Read this manual carefully before installing and using the product. Improper use of the product can cause personal injury and damage to property, and may void the warranty.

---

### NOTICE:

Save this manual for future reference, and keep it readily available at the location of the unit.

---

### Requesting other information

Special versions can be supplied with supplementary instruction leaflets. See the sales contract for any modifications or special version characteristics. For instructions, situations, or events that are not considered in this manual or in the sales documents, please contact the nearest ITT representative.

Always specify the exact product type and identification code when requesting technical information or spare parts.

## Inspect the package

1. Inspect the package for damaged or missing items upon delivery.
2. Note any damaged or missing items on the receipt and freight bill.
3. File a claim with the shipping company if anything is out of order.

If the product has been picked up at a distributor, make a claim directly to the distributor.

## Product warranty

### Coverage

ITT undertakes to remedy faults in products from ITT under these conditions:

- The faults are due to defects in design, materials, or workmanship.
- The faults are reported to an ITT representative within the warranty period.
- The product is used only under the conditions described in this manual.
- The monitoring equipment incorporated in the product is correctly connected and in use.
- All service and repair work is done by ITT-authorized personnel.
- Genuine ITT parts are used.
- Only Ex-approved spare parts and accessories authorized by ITT are used in Ex-approved products.

### Limitations

The warranty does not cover faults caused by these situations:

- Deficient maintenance
- Improper installation
- Modifications or changes to the product and installation made without consulting ITT
- Incorrectly executed repair work
- Normal wear and tear

ITT assumes no liability for these situations:

- Bodily injuries
- Material damages
- Economic losses

### Warranty claim

ITT products are high-quality products with expected reliable operation and long life. However, should the need arise for a warranty claim, then contact your ITT representative.

## Safety



### WARNING:

- The operator must be aware of safety precautions to prevent physical injury.
- Any pressure-containing device can explode, rupture, or discharge its contents if it is over-pressurized. Take all necessary measures to avoid over-pressurization.
- Operating, installing, or maintaining the unit in any way that is not covered in this manual could cause death, serious personal injury, or damage to the equipment. This includes any modification to the equipment or use of parts not provided by ITT. If there is a question regarding the intended use of the equipment, please contact an ITT representative before proceeding.
- This manual clearly identifies accepted methods for disassembling units. These methods must be adhered to. Trapped liquid can rapidly expand and result in a violent explosion and injury. Never apply heat to impellers, propellers, or their retaining devices to aid in their removal.
- Do not change the service application without the approval of an authorized ITT representative.
- Never operate the pump below the minimum rated flow, when dry, or without prime.
- Never operate the pump without safety devices installed.
- Never operate the pump with the discharge valve closed.
- Never operate the pump with the suction valve closed.



## Safety terminology and symbols


### About safety messages

It is extremely important that you read, understand, and follow the safety messages and regulations carefully before handling the product. They are published to help prevent these hazards:

- Personal accidents and health problems
- Damage to the product
- Product malfunction

### Hazard levels

Hazard level	Indication
 <p><b>DANGER:</b></p>	A hazardous situation which, if not avoided, will result in death or serious injury
 <p><b>WARNING:</b></p>	A hazardous situation which, if not avoided, could result in death or serious injury

Hazard level	Indication
 <p><b>CAUTION:</b></p>	<p>A hazardous situation which, if not avoided, could result in minor or moderate injury</p>
<p><b>NOTICE:</b></p>	<ul style="list-style-type: none"> <li>• A potential situation which, if not avoided, could result in undesirable conditions</li> <li>• A practice not related to personal injury</li> </ul>

**Hazard categories**

Hazard categories can either fall under hazard levels or let specific symbols replace the ordinary hazard level symbols.

Electrical hazards are indicated by the following specific symbol:





**Electrical Hazard:**

These are examples of other categories that can occur. They fall under the ordinary hazard levels and may use complementing symbols:

- Crush hazard
- Cutting hazard
- Arc flash hazard

# Certificate of conformance

CSA Certificate

 CSA INTERNATIONAL	
<h2 style="color: blue;">Certificate of Compliance</h2>	
<b>Certificate:</b> 1992883	<b>Master Contract:</b> 236924
<b>Project:</b> 2254252	<b>Date Issued:</b> 2009/12/16
<b>Issued to:</b> ITT Corporation 240 Fall St Seneca Falls, NY 13148 USA Attention: Anthony Stavale	
<p><i>The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.</i></p>	
	
D. Simpson, Certifier Issued by: D. Simpson, Certifier	
<b><u>PRODUCTS</u></b> <b>CLASS 2258 03</b> - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non - Incendive Systems - For Hazardous Locations <b>CLASS 2258 83</b> - PROCESS CONTROL EQUIPMENT-Intrinsically Safe and Non-Incendive - Systems-For Hazardous Locations-Certified to U.S. Standards  Class I, Division 1, Group A, B, C and D; Class II, Group E, F and G; Class III: - Condition Monitor, Model LCCM, p/n C07667A, battery operated (non-replaceable, non-rechargeable), intrinsically safe, temperature code T4 (at max ambient of 100C).	
<b><u>APPLICABLE REQUIREMENTS</u></b> CAN/CSA-C22.2 No. 0-M91 - General Requirements – Canadian Electrical Code, Part II CAN/CSA-C22.2 No.157-92 - Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations UL Std No.913, Ed. 7 - Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II and III, Division 1, Hazardous Locations	
<small>DQD 507 Rev. 2009-09-01</small>	



**Certificate:** 1992883

**Master Contract:** 236924

**Project:** 2254252

**Date Issued:** 2009/12/16

---

UL Std No. 969, 4th Edition - UL standard for safety marking and labeling systems

**MARKINGS**

- submitter's identification
- model designation
- date code or serial number
- Hazardous Location designations
- temperature code rating
- maximum ambient temperature
- the CSA Mark, with the C/US indicator
- the warning, WARNING: NOT FOR USE IN ATMOSPHERES CONTAINING ACETIC ACID
- the words "Ex ia" and "Intrinsically safe"

DQD 507 Rev. 2009-09-01

# Product Description

## General description i-ALERT™ Condition Monitor

### Description

The i-ALERT Condition Monitor is a compact, battery-operated monitoring device that continuously measures the vibration and temperature of the pump power end. The condition monitor uses blinking red LEDs to alert the pump operator when the pump exceeds pre-set vibration and temperature limits. This allows the pump operator to make changes to the process or the pump before a catastrophic failure occurs. The condition monitor is also equipped with a single green LED to indicate when it is operational and has sufficient battery life.

### Alarm mode

The condition monitor enters alarm mode when either vibration or temperature limits are exceeded over two consecutive readings within a ten minute period. Alarm mode is indicated with two red flashing LEDs within two second intervals.

### Temperature and vibration limits

Variable	Limit
Temperature	195°F (91°C)
Vibration	100% increase over the baseline level

### Battery life

**The i-ALERT Condition Monitor battery is not replaceable.** You must replace the entire unit once the battery runs out of power.

The battery life is not covered as part of the standard pump warranty.

This table shows the average condition monitor battery life under normal and alarm-mode operating conditions.

Condition monitor operational state	Battery life
Normal operating and environmental conditions	Three to five years
Alarm mode	One year

# Installation

## Attach the i-Alert ConditionMonitor to the pump

---



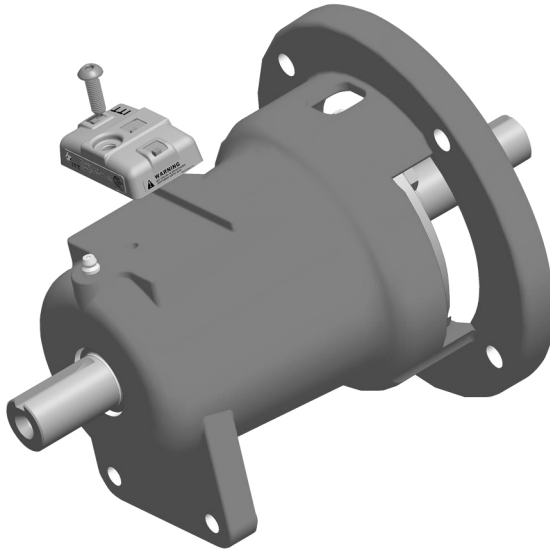
**CAUTION:**

Always wear protective gloves. The pump and condition monitor can be hot.

---

**Tools required:**

- 5/32 inch hex wrench
1. Attach the condition monitor to the bearing frame using the hex-head screw provided.



2. Tighten the hex-head screw with a 5/32 inch hex wrench to 6 ft-lbs (8 Nm).

# Commissioning, Startup, Operation, and Shutdown

## Activate the i-Alert™ Condition Monitor

**WARNING:**

Never heat the condition monitor to temperatures in excess of 300°F (149°C). Heating to these temperatures could result in death or serious injury.

**CAUTION:**

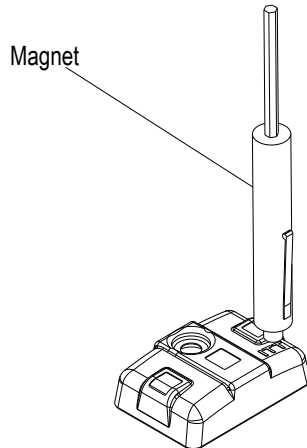
Always wear protective gloves. The pump and condition monitor can be hot.

**NOTICE:**

Do not use the condition monitor in atmospheres containing acetic acid.

The condition monitor is ready for activation when the pump is running and has reached a steady flow, pressure, and temperature. This process only takes a few minutes.

Place a small magnet on the condition monitor over the ITT logo and then remove it, as this example shows.



When the condition monitor is activated it:

1. Displays a series of red LEDs followed by a solid green LED.
2. Collects eight samples that are spaced one second apart.
3. Averages these readings to establish the baseline vibration level.
4. Flashes a green LED after approximately twelve seconds.

For the first ten minutes, the green LED flashes every second for five consecutive flashes and then pauses to take a vibration reading. More frequent measurements (every six seconds) are taken in this startup period so that an alarm can be immediately detected.

## i-ALERT™ Condition Monitor routine operation

### Measurement interval

This table shows the measurement intervals for the condition monitor during normal operation and when the monitor is in alarm mode.

Mode	Measurement interval
Normal operating mode	Five minutes
Alarm mode	Two minutes

When the condition monitor measures a reading beyond the specified temperature and vibration limits, the appropriate red LED flashes. After the process or pump condition that causes the alarm is corrected, the condition monitor returns to normal mode after one normal-level measurement.

### Alarm mode

When the condition monitor is in alarm mode, you should investigate the cause of the condition and make necessary corrections in a timely manner.

### Magnetic device considerations

Be careful when you use magnetic devices in close proximity of the condition monitor, such as magnetic vibration-monitoring probes or dial indicators. These magnetic devices can accidentally activate or deactivate the condition monitor resulting in improper alarm levels or loss of monitoring.

## Deactivate the i-ALERT™ Condition Monitor

**NOTICE:** Always deactivate the condition monitor when the pump is going to be shut down for an extended period of time. Failure to do so will result in reduced battery life.

1. Touch and hold a small magnet to the condition monitor over the IIT logo until the red LEDs blink three times.  
This should take 10-15 seconds if the condition monitor is in normal operating mode and approximately five seconds if the condition monitor is in alarm mode.
2. Remove the magnet.

If the deactivation is successful, solid red LEDs will be displayed.

## Reset the i-ALERT™ Condition Monitor

**NOTICE:** Always reset the condition monitor when the pump is started after maintenance, system change, or down-time. Failure to do so may result in false baseline levels that could cause the condition monitor to alert in error.

Touch a magnet to the condition monitor over the IIT logo to turn the power on.  
The condition monitor begins to establish a new baseline vibration level.

---

# Maintenance

## Guidelines for i-ALERT™ Condition Monitor disposal

### Precautions



---

**WARNING:**

- Never heat the condition monitor to temperatures in excess of 300°F (149°C). Heating to these temperatures could result in death or serious injury.
  - Never dispose of the condition monitor in a fire. This could result in death or serious injury.
- 

### Guidelines

The battery contained in the condition monitor does not contain enough lithium to qualify as reactive hazardous waste. Use these guidelines when disposing of the condition monitor.

- The condition monitor is safe for disposal in the normal municipal waste stream.
- Adhere to local laws when you dispose of the condition monitor.

# Troubleshooting

## i-ALERT™ Condition Monitor troubleshooting

Symptom	Cause	Remedy
There are no green or red flashing LEDs.	The battery is dead.	Replace the condition monitor.
	The unit is deactivated.	Activate the condition monitor.
	The unit is malfunctioning.	Consult your ITT representative for a warranty replacement.
The red LEDs are flashing, but the temperature and vibration are at acceptable levels.	The baseline is bad.	Check the temperature and vibration levels and reset the condition monitor.
	The unit is malfunctioning.	Consult your ITT representative for a warranty replacement.





**ITT**

Visit our Web site for the latest version of this document and more information  
**[www.bellgossett.com](http://www.bellgossett.com)**

---

Bell & Gossett  
8200 North Austin Avenue  
Morton Grove, IL 60053  
USA  
Tel. 1- 847-966-3700  
Fax 1-847-966-9052