

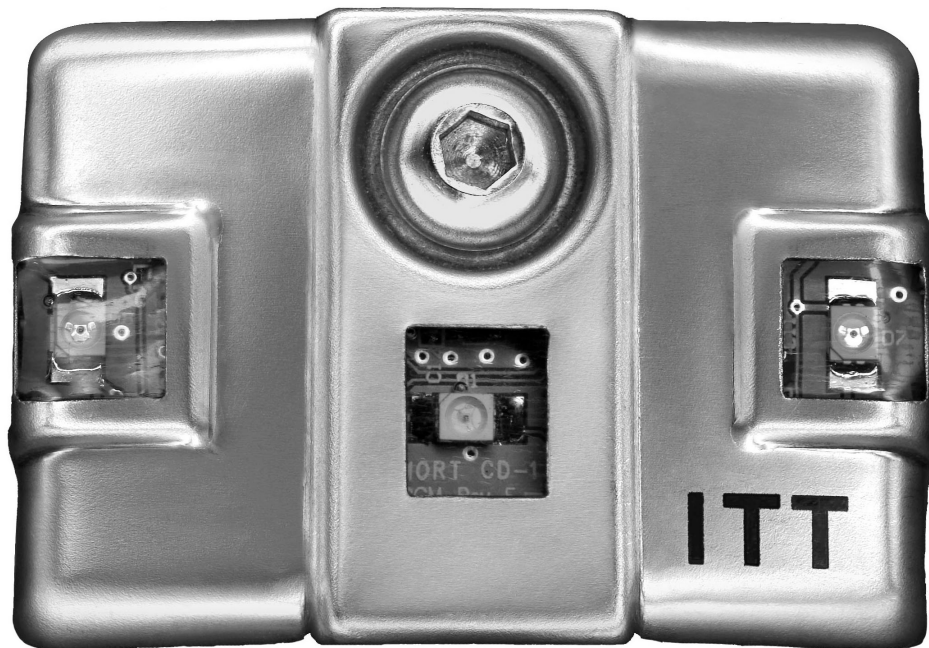


ITT

Goulds Pumps

Installation, Operation, and Maintenance Manual

i-ALERT™ Condition Monitor



Engineered for life

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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.
- Installation, Operation, and Maintenance manuals clearly identify 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.

Observe all safety messages highlighted in other sections of this manual.

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
 DANGER:	A hazardous situation which, if not avoided, will result in death or serious injury
 WARNING:	

Hazard level	Indication
 CAUTION:	A hazardous situation which, if not avoided, could result in minor or moderate injury
NOTICE:	
	• A potential situation which, if not avoided, could result in undesirable conditions • A practice not related to personal injury

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

Safety regulations for Ex-approved products in potentially explosive atmospheres

Description of ATEX

The ATEX directives are a specification enforced in Europe for electrical and non-electrical equipment. ATEX deals with the control of potentially explosive atmospheres and the standards of equipment and protective systems used within these atmospheres. The relevance of the ATEX requirements is not limited to Europe. You can apply these guidelines to equipment installed in any potentially explosive atmosphere.

General guidelines

ATEX compliance is only fulfilled when the pump is operated within its intended use, for example within its intended hydraulic range. The conditions of the service must not be changed without approval of an authorized ITT representative. When installing or maintaining ATEX-compliant pumps, follow these guidelines:

- Always install ATEX-approved equipment in compliance with the directive and applicable standards (IEC/EN 60079–14).
- Do not install FM-approved products in locations that are classified as hazardous in the national electric code, ANSI/NFPA 70–2005.



WARNING:

Installation, Operation, and Maintenance manuals clearly identify 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.

If there are any questions regarding these requirements, the intended use, or if the equipment requires modification, contact an ITT representative before you proceed.

Personnel requirements

ITT disclaims all responsibility for work done by untrained and unauthorized personnel.

These are the personnel requirements for Ex-approved products in potentially explosive atmospheres:

- All work on the product must be carried out by certified electricians and IIT-authorized mechanics. Special rules apply to installations in explosive atmospheres.
- All users must know about the risks of electric current and the chemical and physical characteristics of the gas and/or vapor present in hazardous areas.
- The maintenance operation for Ex-approved products must be made in conformity to the international or national standards (IEC/EN 60079-17).

Product and product handling requirements

These are the product and product handling requirements for Ex-approved products in potentially explosive atmospheres:

- Only use the product in accordance with the approved motor data stated on the nameplates.
- The Ex-approved product must never run dry during normal operation. Dry running during service and inspection is only permitted outside the classified area.
- Never start a pump without the proper priming.
- Before you start working with the product, make sure that the product and the control panel are isolated from the power supply and the control circuit, so they cannot be energized.
- Do not open the product while it is energized or in an explosive gas atmosphere.
- Make sure that thermal contacts are connected to a protection circuit according to the approval classification of the product.
- Intrinsically safe circuits are normally required for the automatic level-control system by the level regulator if mounted in zone 0.
- The yield stress of fasteners must be in accordance with the approval drawing and the product specification.
- Make sure that the equipment is properly maintained:
 - Monitor the pump components and the end temperature of the liquid.
 - Maintain proper bearing lubrication.
- Do not modify the equipment without approval from an authorized IIT representative.
- Only use parts that have been provided by an authorized IIT representative.

Equipment for monitoring

For additional safety, use condition-monitoring devices. Condition-monitoring devices include but are not limited to these devices:

- Pressure gauges
- Flow meters
- Level indicators
- Motor load readings
- Temperature detectors
- Bearing monitors
- Leak detectors
- PumpSmart control system

Product approval standards

Regular standards

All standard products are approved according to CSA standards in Canada and UL standards in USA. The drive unit degree of protection follows IP68. See the nameplate for maximum submersion, according to standard IEC 60529.

All electrical ratings and performance of the motors comply with IEC 600341.

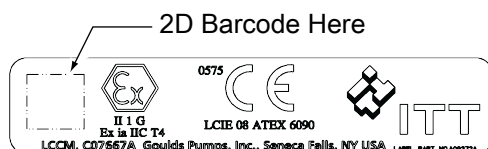
Explosion-proofing standards

All explosion-proof products for use in explosive atmospheres are designed in compliance with one or more of the following approvals:

- EN, ATEX Directive 94/9/EC
- FM According to NEC
 - Class 1 Div 1 Groups “C”, and “D”
 - Class 2 Div 1 Groups “E”, “F”, and “G”
 - Class 3 Div 1 Hazardous Locations

ATEX/IECEX:

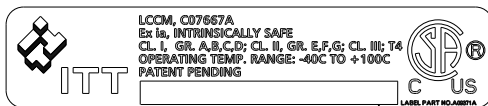
- Group: IIC
- Category: Ex ia
- Temperature Class: T4 (for ambients up to 100°C)
- ATEX Marking: Ex II 1 G



CSA certification

Intrinsically safe for:

- Class I, Div. 1, Groups A, B, C, D
- Class II, Div. 1, Groups E, F, G
- Class III
- Certified to Canadian and US requirements



SERIAL NO& YEAR OF
MANUFACTURE HERE.

Certificates of conformance

CSA Certificate

 CSA INTERNATIONAL	
Certificate of Compliance	
Certificate: 1992883 Project: 2254252 Issued to: ITT Corporation 240 Fall St Seneca Falls, NY 13148 USA Attention: Anthony Stavale	Master Contract: 236924 Date Issued: 2009/12/16
<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>	
	
D. Simpson, Certifier Issued by: D. Simpson, Certifier	
PRODUCTS CLASS 2258 03 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non - Incendive Systems - For Hazardous Locations CLASS 2258 83 - 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).	
APPLICABLE REQUIREMENTS 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	
DQD 507 Rev. 2009-09-01	



Certificate: 1992883

Master Contract: 236924

Project: 2254252

Date Issued: 2009/12/16

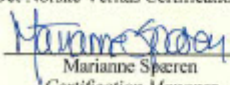
UL Std No. 969, 4th Edition - UL standard for safety marking and labeling systems

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

ATEX notification

 	
DET NORSKE VERITAS PRODUCTION QUALITY ASSURANCE NOTIFICATION	
[2]	EQUIPMENT OR PROTECTED SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC
[3]	Notification Number: DNV-2008-OSL-ATEX-30303Q Rev. 1
[4]	Equipment or Protective Systems or components as listed: Intrinsically safe equipment (The EC-Type Examination Certificates based on this notification are listed by the notified body)
[5]	Applicant –Manufacturer or Authorized Representative in the Community: ITT Industries, Goulds Pumps 204 Fall St., Seneca Falls, New York 13148 USA
[6]	Manufacturer: ITT Industries, Goulds Pumps
[7]	DNV, notified body number 0575 for Annex IV in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, notifies to the applicant that the actual manufacturer has a production quality system which complies to Annex IV of the Directive.
[8]	This notification is based on audit report: 2008-3354 This notification can be withdrawn if the manufacturer no longer satisfies the requirements of Annex IV Results of periodical re-assessment of the manufacturing process is a part of this notification.
[9]	This notification is valid until 2011-06-25 and can be withdrawn if the manufacturer does not satisfy the production quality re-assessment.
[10]	According to article 10[1] of the Directive 94/9/EC the CE marking shall be followed by the identification Number 0575 identifying the notified body involved in the production control stage.
Høvik, 2008-09-05 for Det Norske Veritas Certification AS	
 Marianne Spæren <i>Certification Manager</i>  DNV NOTIFIED BODY PROQ 002  Bjørn Spongsveen <i>Technical Reviewer</i>	
Notice: This notification may only be reproduced in its entirety and without any change If any person suffers loss or damage which is proved to have been caused by any negligence and is attributable to Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for the proved loss or damage. However, the compensation shall not exceed an amount equal to six times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 345,000. In this provision "Det Norske Veritas" shall mean Det Norske Veritas AS well as its subsidiaries, branches, offices, employees, agents and any other acting on behalf of Det Norske Veritas.	

IECEx Certificate of Conformity

 IECEx Certificate of Conformity	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres for rules and details of the IECEx Scheme visit www.iecex.com	
Certificate No.:	IECEx LCI 08.0038
Issue No.:	0
Certificate history:	
Status:	Current
Date of Issue:	2008-09-16
Page 1 of 3	
Applicant:	ITT Corp. Goulds pumps 240 Fall Street Seneca Falls, NY 13148 United States of America
Electrical Apparatus:	Condition Monitor
Optional accessory:	
Type of Protection:	ia
Marking:	ITT Corp. Goulds pumps 240 Fall Street Seneca Falls, NY 13148 U.S.A. Condition Monitor Type : LCCM, p/n C07667A Ex ia IIC T4 Tamb : -40°C à 100°C
Approved for issue on behalf of the IECEx Certification Body:	Marc Giffaux
Position:	Ex Certification Manager
Signature: (for printed version)	<i>Marc Giffaux</i>
Date:	16 September 2008
1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.	
Certificate issued by:	Laboratoire Central des Industries Electriques (LCIE) 33 Avenue du General Lecterc FR-92260 Fontenay-aux-Roses France
	

 IECEx Certificate of Conformity	
Certificate No.:	IECEx LCI 08.0038
Date of Issue:	2008-09-16
Issue No.:	0
Manufacturer:	ITT Corp. Goulds pumps 240 Fall Street Seneca Falls, NY 13148 United States of America
Manufacturing location(s):	
This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.	
STANDARDS: The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:	
IEC 60079-0 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"
<i>This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.</i>	
TEST & ASSESSMENT REPORTS: A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in	
<u>Test Report:</u> FR/LC/ExTR08.0043/00	
<u>Quality Assessment Report:</u> NO/DNV/QAR08.0006/00	

Chinese Certificate of Conformity

CONFORMITY CERTIFICATE OF EXPLOSION-PROOF

 Certificate No.: **CE082171**

Name of Product: Condition Monitor
Type of Product: LCCM, p/n C07667A
Marking: **Exla II CT4**
Technical Documents: /
Drawing No.: C07667A
Note (s): 1.The power is supplied by PANASONIC battery.
The battery type is BR2477A 3V.
2.The manufacturer address: Goulds pumps, 240
Fall Street, Seneca Falls, NY 13148, U.S.A.

By verifying the drawings and technical documents and checking samples, the product
complies with the following standards currently valid in P.R.China:
GB3836.1-2000 GB3836.4-2000

Issued to: ITT Corp.
Date of Expire: 2013-12-22
Date of Issue: 2008-12-22

Center seal  **Director** 
Xu Gang

Supervision & Test Center of Ex- products of China
Petroleum & Chemical Industry

PCEC has been approved by
  

注: 本证书对与送检样品一致的产品有效。
Note: This certificate is only valid for the products that are in accord with sample(s) tested and verified.
中心地址: 中国天津市丁字沽二号路85号
Center Add: No.85 No.2 Road DingZiGu Tianjin China Post code: 300131
E-mail: cec@pcec.com.cn
邮政编码: 300131 电话/传真: 022-26651066/26689116
Tel/ Fax: 022-26651066/26689116
http://www.pcec.com.cn

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 five-year 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™ Condition Monitor to the pump

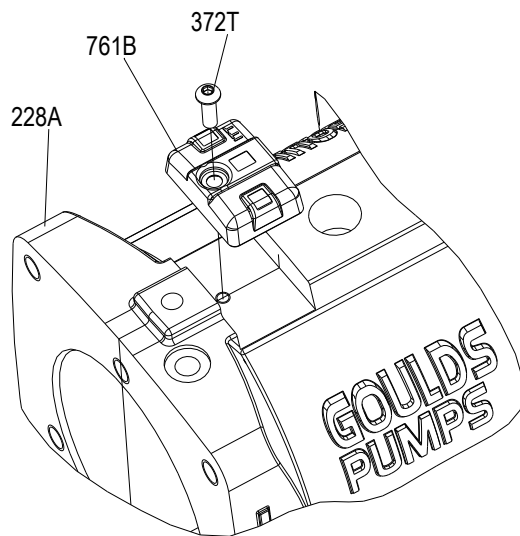


CAUTION:

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

Tools required:

- 5/32 inch hex wrench
1. Attach the condition monitor (761B) to the bearing frame (228A) using the hex-head screw (372T) 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:**

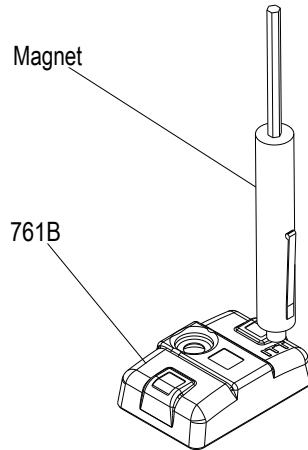
Always wear protective gloves. The pump and condition monitor can be hot.

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 ITT 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 ITT 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.

Local ITT Contacts

Regional offices

Region	Address	Telephone	Fax
North America (Headquarters)	ITT - Goulds Pumps USA		
Asia Pacific	ITT Industrial Process 10 Jalan Kilang #06-01 Singapore 159410	+65-627-63693	+65- 627-63685
Europe	ITT - Goulds Pumps Millwey Rise Industrial Estate Axminster, Devon, England EX13 5HU	+44-1297-630250	+44-1297-630256
Latin America	ITT - Goulds Pumps Camino La Colina # 1448 Condominio Industrial El Rosal Huechuraba – Santiago 8580000 Chile	+562-544-7000	+562-544-7001
Middle East and Africa	ITT - Goulds Pumps Achileos Kyrou 4 Neo Psychiko 115 25 Athens Greece	+30-210-677-0770	+30-210-677-5642



ITT

How did we measure up?

It is our sincere intention to exceed our customer's expectations on every order. Tell us if we achieved our goal on your order. Please take our customer satisfaction survey online at:

www.ittindustrialproducts.com/feedbacksurvey.html

We appreciate you taking the time to provide your feedback. Thank you for buying ITT pumps, parts, and controls.

Contact Us

Goulds Pumps has offices, warehouses and manufacturing facilities worldwide, while doing business in over 100 countries in the Americas, Europe, the Middle East and Asia Pacific. To find your nearest distributor, use our convenient Sales and Service Locator found on our Web site.

Find Sales & Service



*Worldwide Sales and
Service Contracts*

Visit our Web site for the latest version of this document and more information

Goulds Pumps