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*User's  
Manual*

**CC3-30klb/50klb**

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## 1. Product Description

The CC3 polished rod load cell is specifically designed for the oil and gas industry to address pump off control monitoring in well automation. The CC3 provides a rugged, steel casting, that is impervious to shock loading, moisture ingress and fatigue failures.

The CC3 features a Nickel plated 4340 steel sensing element which increases performance and reliability. The assembly includes a powder coated housing, UV resistant sealants with an environmental seal rated to IP67. The CC3 also carries HazLoc approvals for intrinsically safe operation in Class 1, Division 1 environments.

### Key Features

- IP-67 water ingress protection
- Cast steel housing construction
- Various capacities available
- Traceable calibration in accordance with NIST
- UL (Underwriters Laboratory) certification for use in the oil and gas industry
- CE marked for European use

### Accessories (Sold separately):

- P/N 53-003004 - OD-73mm [2-7/8"], ID-39.7mm [1-9/16"], H-14mm [0.56"] Stainless Steel Spherical Washers
- P/N 53-003301 - OD-73mm [2-7/8"], ID-39.7mm [1-9/16"], H-14mm [0.56"] Black oxide Spherical Washers
- P/N 52-0091955 - OD-88.6mm [3.49"] and ID-42.4mm [1.67"], H-19mm [3/4"] Nickel Plated Load Spacer

## 2. Mounting Instructions

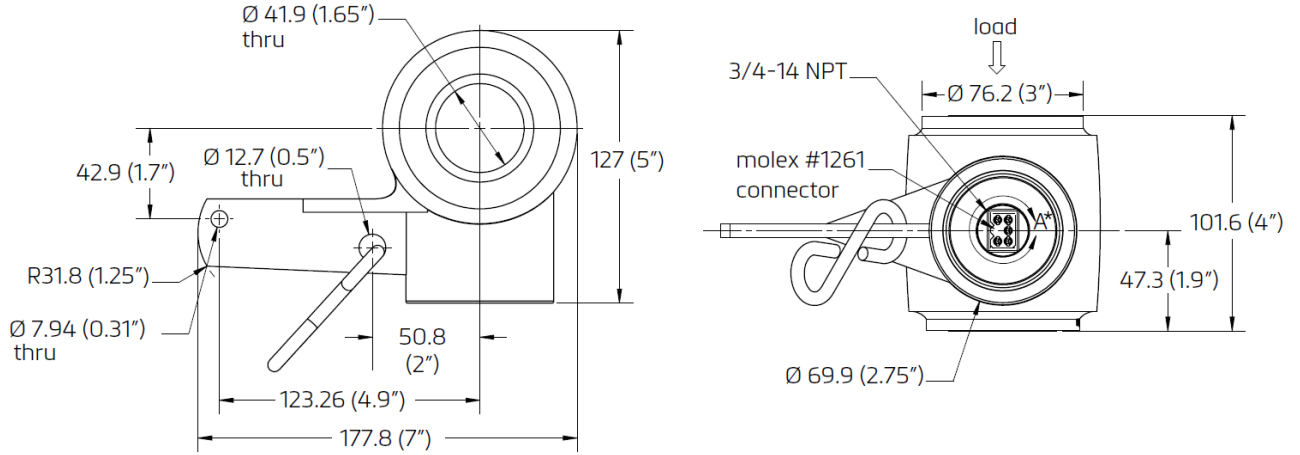
### IMPORTANT

The employees responsible for the equipment installation and verification must take into consideration all the actions concerning this subject specified in IEC 60079-14:2013 ed. 5.0 (Electrical installations design, selection and erection) standard. In addition to general specifications associated with any system installed in hazardous locations, special attention should be paid for specific requirements regarding intrinsic safety.

The model CC3 is installed on a metal rod (polished rod) through the center hole and make metal to metal contact. The metal rod is connected to the frame of the apparatus which should be connected to earth ground.



## 2.1 Installation Dimensions



Dimensions are in millimetres.

LOAD CELL			CABLE
<p>Molex # 1261</p>	CONNECTOR PIN (MOLEX Style)	FUNCTION	CABLE COLOR CODE
	A	EXCITATION +	RED
	F	NOT CONNECTED	
	B	SIGNAL +	GREEN
	D	EXCITATION -	BLACK
	E	SHIELD	YELLOW
	C	SIGNAL -	WHITE

## 2.2 General Guideline

- All electrical and mechanical connections should be compatible with the model specifications and control drawing 0061571.
- Installation should only be performed when the electrical supply power is off and when there is no mechanical force applied.

### **3. Equipment Maintenance**

No maintenance is required or permitted for this product.

This manual must be read and carefully kept, and always at the operator's disposal if needed.

Loadcell must be protected from mechanical damage. Rough usage or external damage should be verified periodically according to a routine maintenance.

If failure occurs the unit should be returned to the factory for diagnosis and repair.






For repair or calibration, send load cell to:



Repair Department  
Flintec Inc.  
18 Kane Industrial Drive  
Hudson, MA 01749  
USA

## 4. Technical Specification

Maximum capacity ( $E_{max}$ )	klb	30	50
Metric equivalents (1 klb=0.45359 t)	t	13.6	22.7
Temperature effect on zero output ( $TC_0$ )	%*RO/°C	$\leq \pm 0.027$ ( $\leq \pm 0.0015$ %*RO/°F)	
Temperature effect on sensitivity ( $TC_{s0}$ )	%*RO/°C	$\leq \pm 0.036$ ( $\leq \pm 0.002$ %*RO/°F)	
Non-linearity	%*RO	$\pm 0.250$	
Hysteresis	%*RO	$\pm 0.250$	
Rated output (RO)	mV/V	$2 \pm 0.5\%$	
Insulation resistance (100 V DC)	M $\Omega$	$\geq 5000$	
Zero balance	%*RO	$\pm 1$	
Input resistance ( $R_{i0}$ )	$\Omega$	$770 \pm 50$	
Output resistance ( $R_{o0}$ )	$\Omega$	$700 \pm 3.5$	
Safe load limit ( $E_{lim}$ )	%* $E_{max}$	200	
Compensated temperature range	°C	-25...+65 (-14...+150 °F)	
Operating temperature range	°C	-55...+80 (-70...+175 °F)	
Load cell material		4340/4140	
Protection according EN 60 529		IP67	
Surface Finish		Sensor body = Electroless Nickel Plating Cast housing = Powder coated	

## 5. Marking

 <p><b>MODEL: CC3-xxklb</b>  <b>S/N: xxxxxxxx</b>  <b>FSO: x.xxxxx mV/V</b>  <b>Rated supply: 5-15 VDC</b>  <b>Intrinsically safe when installed</b>  <b>with control drawing No. 0061571</b>  <b>DOM: YYYY-MM</b>  <b>Made in Sri Lanka</b></p>	<p>PO Box 24, Spur Rd 2, Phase 1, KEPZ, Katunayake, Sri Lanka.          IECEx UL 20.0073X          DEMKO 20 ATEX 2322X          II 1 G Ex ia IIC T4 Ga          -55° ≤ Ta ≤ +80°C          CLASS I, ZONE 0, AEx ia IIC T4 Ga          CLASS I, DIV 1, GROUPS A,B,C,D; T4          CLASS II, DIV 1, GROUPS E,F,G          CLASS III</p> <p>WARNING: POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS          Avertissement : Risque potentiel de charge électrostatique - voir les instructions          Intrinsically Safe and sécurité intrinsèque and Exia</p> <div style="display: flex; justify-content: space-around; align-items: center;">     </div> <p style="font-size: small; text-align: right;">2804          Proc. Cont. Eq. for Use in Haz. Loc.</p>
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Typical ATEX & IECEx Marking										
		<b>II</b>	<b>2</b>	<b>G</b>	<b>Ex</b>	<b>db</b>	<b>IIC</b>	<b>T4</b>	<b>Gb</b>	
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Complies with European Directive*	Notified Body Number*	Specific Marking for Explosion Protection*	Equipment Group*	Equipment Category*	Environment*	Explosion Protection	Protection Type	Atmosphere Group	Temperature Class	Equipment Protection Level (EPL)
*ATEX only (ATEX 2014/34/EU)										

<i>Equipment Group</i>	<b>II</b>	- All areas except Mines
<i>Equipment Category and Environment</i>	<b>1 G</b>	- Gas, Vapor, Mist
<i>Explosion Protection</i>	<b>Ex</b>	- Conformity with some of the IECs protection modes
<i>Protection Type</i>	<b>ia</b>	- Intrinsic security "ia" protection mode than mines. Gases Groups
<i>Temperature Class</i>	<b>T4</b>	- Max surface temp 135°C (275°F)
<i>Equipment Protection Level (EPL)</i>	<b>Ga</b>	- Gas Atmospheres. Very high level of protection

### Ordinary Location Markings

- Maximum Operating Temperature: 80°C accordingly.
- Maximum Humidity: 95 % without moisture condensation.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Maximum Altitude: 2000 Meters



## 6. Safety Information



### Intended Usage

A maximum temperature on the device enclosure must not reach temperatures higher than 80°C or lower than -55°C. This condition must be guaranteed permanently in order to be compliant with the intrinsic safety certification.



### Maintenance Safety

There must be a competent person with enough skills and knowledge supervising all works performed. Experienced and trained personnel must follow the industrial standard safety protocol when authorized maintenance activities are carried out on the equipment.




### X Mark Conditions

The model CC3 does not provide dielectric isolation according to EN 60079-11 clause 6.3.13 between intrinsically safe circuits and earth/enclosure.

In order to reduce the RISK OF STATIC DISCHARGE from CC3 enclosure and associated parts, recommended to use electrostatic cloths, gloves and in general insulating object when the equipment is required to be manipulated. For cleaning tasks use always a dump cloth. Electrostatic charges can accumulate on the non-metallic parts especially at low humidity and in dry conditions, so special care must be taken to avoid places or areas where airflows occur.

## 7. CC3 Control Drawing 0061571

<p><b>1</b></p> <p>APPROVED FOR CLASS I, DIVISION 1, GROUPS A, B, C AND D, CLASS II, GROUPS E, F AND G, AND CLASS III HAZARDOUS LOCATIONS</p>	<p><b>2</b></p> <p style="text-align: center;">HAZARDOUS AREA</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p style="text-align: center;">CC1 / CC3 LEAD CELL</p> </div> <p style="text-align: center;">NON-HAZARDOUS AREA</p>	<p><b>3</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISION</th> <th>CHANGE DESCRIPTION</th> <th>CR No.</th> <th>DRAWN</th> <th>APPROVED</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>02</td> <td>Removed "r" from notes</td> <td>0096688</td> <td>AIK</td> <td>AGR</td> <td>04-Mar-20</td> </tr> <tr> <td>01</td> <td>First Production Issue</td> <td>0075508</td> <td>JCS</td> <td>FG</td> <td>16-Oct-14</td> </tr> <tr> <td>B</td> <td>Add Class II &amp; III</td> <td></td> <td>JCS</td> <td>FG</td> <td>16-Oct-14</td> </tr> <tr> <td>A</td> <td>Added Notes to Comply with UL Requirements</td> <td></td> <td>JCS</td> <td>MJS</td> <td>22-Sep-14</td> </tr> </tbody> </table>	REVISION	CHANGE DESCRIPTION	CR No.	DRAWN	APPROVED	DATE	02	Removed "r" from notes	0096688	AIK	AGR	04-Mar-20	01	First Production Issue	0075508	JCS	FG	16-Oct-14	B	Add Class II & III		JCS	FG	16-Oct-14	A	Added Notes to Comply with UL Requirements		JCS	MJS	22-Sep-14	<p><b>4</b></p>	<p><b>5</b></p>	<p><b>6</b></p>
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<p><b>NOTES:</b></p> <ol style="list-style-type: none"> <li>APPARATUS CONNECTED TO THE SYSTEM SHALL NOT USE OR GENERATE VOLTAGE GREATER THAN 250 V.</li> <li>Repair is not permitted / La réparation n'est pas autorisée.</li> <li>THE ASSOCIATED APPARATUS MUST BE COMPLIANCE AGENCY APPROVED</li> <li>NO REVISION TO DRAWING WITHOUT PRIOR AGENCY APPROVAL</li> <li>For Cable and Cable: if the capacitance per foot or the inductance per foot is not known, then the following values shall be used:              Cable = 60 pF/ft              Lead = 0.2 µH/ft</li> <li>INSTALLATION SHOULD BE IN ACCORDANCE WITH ANS/ISA RP2.06.01 "INSTALLATION OF INTRINSICALLY SAFE SYSTEM FOR HAZARDOUS (CLASSIFIED) LOCATIONS" AND THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) AND THE CANADIAN ELECTRICAL CODE</li> <li>The model CC1/CC3 does not provide dielectric isolation according to EN 60079-11 clause 6.3.13 between intrinsically safe circuits and earth/enclosure</li> <li>See User Manual for Markings</li> </ol>																																			
<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETRES TOLERANCES TO ISO 2768-m</p>		<p>DEBUR AND BREAK SHARP EDGES</p>		<p>DIMENSIONS AND NOTES MARKED WITH  DENOTE A SIGNIFICANT CHARACTERISTIC</p>																															
 <p>FLINTEC.COM © THIS DRAWING IS THE PROPERTY OF FLINTEC GROUP AB AND MAY NOT BE REPRODUCED OR DISCLOSED TO A THIRD PARTY IN ANY FORM WITHOUT THE COMPANY'S WRITTEN PERMISSION</p>		<p>MATERIAL</p> <p>X FINISH</p> <p>X</p>		<p>DD NOT SCALE DRAWING</p>																															
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