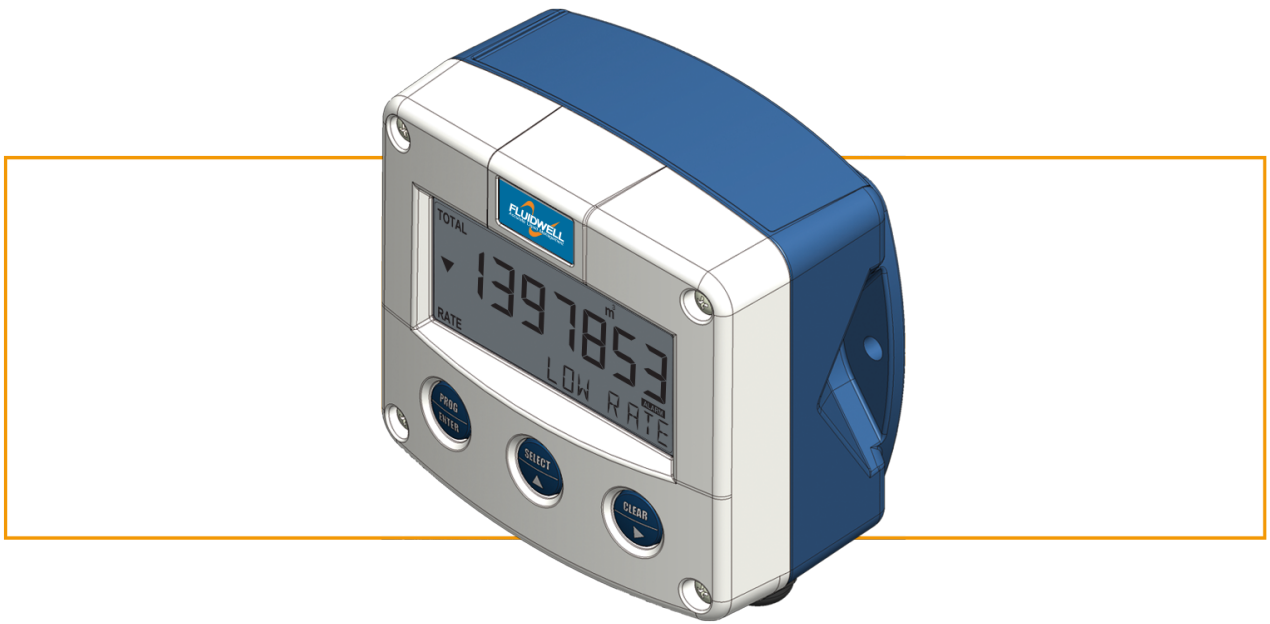


F0-SERIES

Flow rate indicator / Totalizer



CERTIFICATE BINDER

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Document control

This Certificate binder is part of the documentation set that came with the F0-Series. It is the responsibility of the copy holder to keep the Certificate binder and the related appendices up-to-date.

We reserve the right to make changes of any kind without prior written notice. Please visit our internet site for the latest information and (product) updates.

Certification



The CE marking is a mandatory conformity marking that allows the manufacturers to circulate (industrial) products freely within the internal market of the European Economic Area (EEA). The CE mark self-certifies that the products have met the minimum EEA health, safety and environmental requirements for the consumer and workplace safety.

The CE marking is also found on products sold outside the EEA that are manufactured in, or designed to be sold in, the EEA.



The ATEX Directive uses a special logo in addition to the CE logo to show that the product is suitable for use in an Explosive Atmosphere. The rating for the Explosive Atmosphere is given on the related certificate and the product label.



The IEC System for Certification to Standards relating to Equipment for use in Explosive Atmospheres uses a special logo to show that the product is suitable for use in an Explosive Atmosphere. The rating for the Explosive Atmosphere is given on the related certificate and the product label.



The Canadian Standards Association (CSA) is a nonprofit Nationally Recognized Testing Laboratory that serves the business, the industry, the government and the consumers in Canada and the global marketplace. The CSA-US Mark qualifies as an alternative to the UL Mark.

The rating for the use of the product is given on the related certificate and the product label.



The Factory Mutual Insurance Company (FM) is an international property insurance and loss prevention engineering company, specialized in loss prevention services primarily to large corporations throughout the world in the Highly Protected Risk (HPR) property insurance market sector.

The FM APPROVED mark shows that that the product conforms to the highest national and international standards. The rating for the use of the product is given on the related certificate and the product label.



The HART Communication Protocol (IEC 61158) is the global communication standard for intelligent process measurement and control. Designed to complement traditional 4-20mA analog signaling, the HART Protocol supports two way reliable digital communications.

The HART Communication Protocol mark shows that the product is compatible with the protocol. Hart registered means that the product is in compliance with the protocol and listed in the HART register of compliant products.



The WEEE/ROHS Directive uses a special logo in addition to the CE logo to show that the product is designed and manufactured to restrict the release of the hazardous substances from the electrical and the electronic equipment to prevent major environmental and health problems.

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1 CE Declaration of Conformity



Count on us.

Declaration of Conformity

Fluidwell F0-series indicators

Veghel, February 2016

We, Fluidwell BV, declare under our sole responsibility that the F0-series indicators are designed and will operate conform the following applicable European Directives and Harmonised Standards, when installed and operated according to the related manual:

EMC Directive		EN61000-6-2:2005; EN61000-6-3:2007; EN61326-1:2013
RoHS Directive		EN 50581:2012
Low Voltage Directive	For options –PM or –OR:	EN61010-1:2010
ATEX Directive	For option –XI, intrinsically safe:	EN60079-0:2012 + A11; EN60079-11:2012; EN60079-26:2007
	Protective system:	Ⓜ II 1 G Ex ia IIC T4 Ga Ⓜ II 1 D Ex ia IIIC T100 °C Da
Certification	Certificates:	KEMA 05ATEX1168 X, Issue 4
	Notified body 0344:	DEKRA Certification BV, Meander 1051, 6825 MJ, Arnhem, the Netherlands.

Last two digits of the year in which the CE marking was affixed: 03.
Remark: compliance is not affected by standard EN60079-26:2015.

The object of the declaration above is in conformity with the relevant Union harmonisation legislation:

	until April 19 th , 2016	from April 20 th , 2016
EMC Directive	2004/108/EC	2014/30/EU
RoHS Directive	2011/65/EU	2011/65/EU
Low Voltage Directive	2006/95/EC	2014/35/EU
ATEX Directive	94/9/EC	2014/34/EU

Fluidwell BV

 I. Meij, Manager Technology

Fluidwell BV are ISO9001 certified by DEKRA Certification BV, Meander 1051, 6825 MJ, Arnhem, The Netherlands.

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	Voltaweg 23 • 5466 AZ • Veghel	Email: displays@fluidwell.com	Bank: ING-Bank	USD account no: 02.20.81.771
	The Netherlands	Internet: www.fluidwell.com	SWIFT Nr / BIC: INGBNL2A	IBAN: NL22 INGB 0022 0817 71

2 F-Series: ATEX EC-Type Examination Certificate



CERTIFICATE

(1) **EC-Type Examination**

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC**

(3) EC-Type Examination Certificate Number: **KEMA 05ATEX1168 X** Issue Number: **4**

(4) Equipment: **Indicator Model F0...-..**

(5) Manufacturer: **Fluidwell B.V.**

(6) Address: **Voltaweg 23, 5466 AZ Veghel, The Netherlands**

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) DEKRA Certification B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.

The examination and test results are recorded in confidential test report number NL/KEM/ExTR08.0006/01.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0 : 2012 + A11 EN 60079-11 : 2012 EN 60079-26 : 2007

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:



II 1 G Ex ia IIC T4 Ga
II 1 D Ex ia IIC T100 °C Da

This certificate is issued on 31 October 2014 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

DEKRA Certification B.V.

R. Schuller
 Certification Manager

Page 1/2



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DEKRA Certification B.V. Meander 1051, 6825 MJ Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands
 T +31 88 96 83000 F +31 88 96 83100 www.dekra-certification.com Registered Arnhem 09085396

(13) **SCHEDULE**(14) **to EC-Type Examination Certificate KEMA 05ATEX1168 X** Issue No. 4(15) **Description**

The range of Indicators includes the following basic models with different signal input types:

Model F0..-P-XI,	indicators with digital input (coil, switch, npn, pnp, active or Namur);
Model F0..-A-XI,	indicators with analog input ((0)4 ... 20 mA);
Model F0..-U-XI,	indicators with analog input (0 ... 10 V);
Model F0..-A-PL-XI,	indicators with loop powered analog input (4 ... 20 mA);
Model F0..-T-XI,	indicators with PT100 input;
Model F0..-H-XI,	indicators with thermocouple input.

The indicators are supplied by an internal battery and/or by an external supply or by the circuit supply (Model F0..-A-PL only). Optionally, the indicators can be equipped with a pulse output, a sensor supply output, an analog output (with HART) and an input for backlight supply.

The enclosure of the indicator made of aluminium alloy, stainless steel or non-metallic materials GRP or ABS provides a degree of protection of at least IP 65 in accordance with EN 60529.

Ambient temperature range -40 °C to +70 °C.

The maximum temperature of the enclosure T100 °C is referred to an ambient temperature of 70 °C and is applicable to a maximum dust layer thickness of 5 mm.

Electrical data

See Annex 1.

Installation instructions

The instructions provided with the equipment shall be followed in detail to assure safe operation.

(16) **Test Report**

No. NL/KEM/ExTR08.0006/01.

(17) **Special conditions for safe use**

When the enclosure of the indicator is made of aluminium alloy, when used in a potentially explosive atmosphere requiring apparatus of equipment category 1 G, the indicator shall be installed so, that even in the event of rare incidents, an ignition source due to impact or friction sparks between the enclosure and iron/steel is excluded.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. NL/KEM/ExTR08.0006/01.

Page 2/2

Form 100
Version 5 (2013-07)

3 Batteries: ATEX EC-Type Examination Certificate



CERTIFICATE

- (1) **EC-Type Examination**
- (2) **Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC**
- (3) EC-Type Examination Certificate Number: **KEMA 03ATEX1071 U** Issue Number: **3**
- (4) Component: **Intrinsically safe non-rechargeable Battery Type FW-LIBAT...**
- (5) Manufacturer: **Fluidwell B.V.**
- (6) Address: **Voltaweg 23, 5466 AZ Veghel, The Netherlands**
- (7) This component and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- (8) DEKRA Certification B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this component has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.
The examination and test results are recorded in confidential report no. NL/KEM/ExTR08.0005/**.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0 : 2009 EN 60079-11 : 2007 EN 60079-26 : 2007
- (10) The sign "U" placed after the certificate number indicates that this certificate describes components and must not be mistaken for a certificate intended for an equipment or protective system. This EC-Type Examination Certificate may be used as a basis for certification of an equipment or protective system.
- (11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified component according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this component. These are not covered by this certificate.
- (12) The marking of the component shall include the following:



II 1 G Ex ia IIC Ga

This certificate is issued on 15 June 2011 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

DEKRA Certification B.V.

C.G. van Es
Certification Manager

Page 1/2

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All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group

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(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 03ATEX1071 U** Issue No. 3

(15) **Description**

Intrinsically safe non-rechargeable Battery Type FW-LiBAT-... for the supply of intrinsically safe apparatus. The battery is intended to be used inside the hazardous area.

The cells used are inorganic lithium cells of one of the following types:

- type SL-2770 manufactured by Sonnenschein Lithium;
- type SL-2770 or type TL-5920 manufactured by Tadiran Batteries;
- type SL-360 or type SL-860 manufactured by Tadiran Batteries;

Ambient temperature range -40 °C to +70 °C.

Electrical data

Output circuit (connector):

in type of protection intrinsic safety Ex ia IIC, with the following maximum values:

$U_o = 3,9 \text{ V}$; $I_o = 35 \text{ mA}$; $P_o = 35 \text{ mW}$; $C_o = 100 \text{ }\mu\text{F}$; $L_o = 25 \text{ mH}$

(16) **Report**

No. NL/KEM/ExTR08.0005/**

(17) **Special conditions for safe use**

1. The battery must be installed so, that charging of the battery is prevented.
2. The maximum temperature of the cell when short circuited is 112 °C at 70 °C ambient temperature.
3. When used under the specified maximum ambient and electrical conditions, the temperature class of the battery is T4. For other conditions, the temperature class may be determined during the certification of the apparatus in which the battery is used.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).



(19) **Test documentation**

As listed in Test Report No. NL/KEM/ExTR08.0005/**.

Page 2/2

Form 115
Version 2 (2011-01)

4 F-Series: IECEx Certificate of Conformity

		<h2 style="margin: 0;">IECEX Certificate of Conformity</h2>	
<p>INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres <small>for rules and details of the IECEx Scheme visit www.iecex.com</small></p>			
Certificate No.:	IECEX KEM 08.0006X	Issue No: 1	Certificate history: Issue No. 1 (2014-10-31) Issue No. 0 (2008-07-10)
Status:	Current	Page 1 of 5	
Date of Issue:	2014-10-31		
Applicant:	Fluidwell B.V. Voltaweg 23 5466 AZ Veghel The Netherlands		
Electrical Apparatus:	Indicator Model F0...-		
Optional accessory:			
Type of Protection:	Ex ia		
Marking:	Ex ia IIC T4 Ga Ex ia IIIC T100 °C Da		
Approved for issue on behalf of the IECEx Certification Body:	R. Schuller Certification Manager		
Position:			
Signature: (for printed version)	_____ _____		
Date:	_____ _____		
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: <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;"> <div style="text-align: left;"> <p>DEKRA Certification B.V. Meander 1051 6825 MJ Arnhem The Netherlands</p> </div> <div style="text-align: center;">  </div> </div>			



IECEX Certificate of Conformity

Certificate No: **IECEX KEM 08.0006X** Issue No: **1**

Date of Issue: **2014-10-31** Page 2 of 5

Manufacturer: **Fluidwell B.V.**
 Voltaweg 23
 5466 AZ Veghel
 The Netherlands

Additional 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2006 Edition:2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[NL/KEM/ExTR08.0006/01](#)

Quality Assessment Report:

[NL/DEK/QAR12.0019/01](#)



IECEX Certificate of Conformity

Certificate No: IECEX KEM 08.0006X

Issue No: 1

Date of Issue: 2014-10-31

Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The range of Indicators includes the following basic models with different signal input types:

Model F0..-P-XI, indicators with digital input (coil, switch, npn, pnp, active or Namur);
Model F0..-A-XI, indicators with analog input ((0)4 ... 20 mA);
Model F0..-U-XI, indicators with analog input (0 ... 10 V);
Model F0..-A-PL-XI, indicators with loop powered analog input (4 ... 20 mA);
Model F0..-T-XI, indicators with PT100 input;
Model F0..-H-XI, indicators with thermocouple input.

The indicators are supplied by an internal battery and/or by an external supply or by the circuit supply (Model F0..-A-PL only).
Optionally, the indicators can be equipped with a pulse output, a sensor supply output, an analog output (with HART) and an input for backlight supply.

The enclosure of the indicator made of aluminium alloy, stainless steel or non-metallic materials GRP or ABS provides a degree of protection of at least IP 65 in accordance with IEC 60529.

Ambient temperature range -40 °C to +70 °C.

The maximum temperature of the enclosure T100 °C is referred to an ambient temperature of 70 °C and is applicable to a maximum dust layer thickness of 5 mm.

CONDITIONS OF CERTIFICATION: YES as shown below:

When the enclosure of the indicator is made of aluminium alloy, when used in a potentially explosive atmosphere requiring apparatus of equipment protection level Ga, the indicator shall be installed so, that even in the event of rare incidents, an ignition source due to impact or friction sparks between the enclosure and iron/steel is excluded.



IECEx Certificate of Conformity

Certificate No: IECEx KEM 08.0006X

Issue No: 1

Date of Issue: 2014-10-31

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EQUIPMENT (continued):

Electrical data

See Annex 1.

Installation instructions

The instructions provided with the equipment shall be followed in detail to assure safe operation.



IECEx Certificate of Conformity

Certificate No: IECEx KEM 08.0006X

Issue No: 1

Date of Issue: 2014-10-31

Page 5 of 5

DETAILS OF CERTIFICATE CHANGES (for Issues 1 and above):

- Addition of an optional analog output (with HART)
- Addition of a stainless steel enclosure
- Update to the latest edition of the standards

Annex:

[Annex 1 to NL_KEM_ExTR08.0006.01.pdf](#)



Annex 1 to: NL/KEM/ExTR08.0006.01, IECEx KEM 08.0006X Issue 1,
 KEMA 05ATEX1168 X Issue 4
 Applicant: Fluidwell B.V.
 Equipment: Indicator Model F0...-...

	Model F0...-P-XI	Model F0...-A-XI Model F0...-U-XI	Model F0...-A-PL-XI	Model F0...-T-XI Model F0...-H-XI
Internal supply Type -PC (connector)	for use with the certified replaceable battery type FW-LiBAT-... or to another certified non rechargeable battery in type of protection intrinsic safety Ex ia IIC/IIIC, with the following maximum values: $U_i = 4 \text{ V}$ $I_i = 50 \text{ mA}$ $P_i = 200 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$			
Signal input circuit	Pulse input circuit (terminals 1 and 2)	Analog input circuit (terminals 1 and 2)	Loop Powered analog input circuit (terminals 1 and 2)	Temperature input circuit (terminals 1, 2, 3 and 4)
	in type of protection intrinsic safety Ex ia IIC/IIIC, only for connection to a certified intrinsically safe circuit, with following maximum values:			
	$U_i = 30 \text{ V}$ $I_i = 150 \text{ mA}$ $P_i = 0.92 \text{ W}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ nF}$	$U_i = 30 \text{ V}$ $I_i = 150 \text{ mA}$ $P_i = 0.92 \text{ W}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ nF}$	$U_i = 30 \text{ V}$ $I_i = 93 \text{ mA}$ $P_i = 0.92 \text{ W}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ nF}$	Not applicable
	in type of protection intrinsic safety Ex ia IIC/IIIC, with the following maximum values:			
	$U_o = 5.4 \text{ V}$ $I_o = 2.4 \text{ mA}$ $P_o = 3.2 \text{ mW}$ $L_o = 1 \text{ H}$ $C_o = 65 \text{ }\mu\text{F}$	Not applicable	Not applicable	$U_o = 5.4 \text{ V}$ $I_o = 62 \text{ mA}$ $P_o = 252 \text{ mW}$ $L_o = 9.2 \text{ mH}$ $C_o = 62 \text{ }\mu\text{F}$
Reference output circuit (terminal 3 and 1 or 2)	in type of protection intrinsic safety Ex ia IIC/IIIC, with the following maximum values:			
	$U_o = 5.4 \text{ V}$ $I_o = 2.1 \text{ mA}$ $P_o = 2.9 \text{ mW}$ $L_o = 1 \text{ H}$ $C_o = 65 \text{ }\mu\text{F}$	Not applicable	Not applicable	Not applicable
From the safety point of view the circuits shall be considered to be connected to earth.				

Annex 1 to: NL/KEM/ExTR08.0006.01, IECEx KEM 08.0006X Issue 1,
 KEMA 05ATEX1168 X Issue 4
 Applicant: Fluidwell B.V.
 Equipment: Indicator Model F0.....

	Model F0..-P-XI	Model F0..-A-XI Model F0..-U-XI	Model F0..-A-PL-XI	Model F0..-T-XI Model F0..-H-XI
External supply input circuit Type -PD, -PX	(terminals 4 and 5)			(terminals 5 and 6)
	in type of protection intrinsic safety Ex ia IIC/IIIC, only for connection to a certified intrinsically safe circuit, with following maximum values: $\begin{matrix} U_i & = & 30 & \text{V} \\ I_i & = & 200 & \text{mA} \\ P_i & = & 1.2 & \text{W} \\ L_i & = & 0 & \text{mH} \\ C_i & = & 0 & \text{nF} \end{matrix}$			
External supply output circuit Type -PD (terminals 6 and 1, 2, 7 or 8)	in type of protection intrinsic safety Ex ia IIC/IIIC, with the following maximum values:			
	$\begin{matrix} U_o & = & 8.7 & \text{V} \\ I_o & = & 12 & \text{mA} \\ P_o & = & 72 & \text{mW} \\ L_o & = & 240 & \text{mH} \\ C_o & = & 5.9 & \mu\text{F} \end{matrix}$	The maximum output parameters are equal to the parameters of the external supply input circuit (terminals 4 and 5)		Not applicable
Pulse output circuit Type -OT (terminals 7 and 8)	in type of protection intrinsic safety Ex ia IIC/IIIC, only for connection to a certified intrinsically safe circuit, with following maximum values:			
	$\begin{matrix} U_i & = & 30 & \text{V} \\ I_i & = & 200 & \text{mA} \\ P_i & = & 1.2 & \text{W} \\ L_i & = & 0 & \text{mH} \\ C_i & = & 0 & \text{nF} \end{matrix}$			
Backlight supply input circuit Type -ZB (terminals 9 and 10)	in type of protection intrinsic safety Ex ia IIC/IIIC, only for connection to a certified intrinsically safe circuit, with following maximum values:			
	$\begin{matrix} U_i & = & 30 & \text{V} \\ I_i & = & 200 & \text{mA} \\ P_i & = & 0.75 & \text{W} \\ L_i & = & 0 & \text{mH} \\ C_i & = & 0 & \text{nF} \end{matrix}$			
Analog output (with HART) Type -AH (terminals 11 and 12)	in type of protection intrinsic safety Ex ia IIC/IIIC, only for connection to a certified intrinsically safe circuit, with following maximum values:			Not applicable
	$\begin{matrix} U_i & = & 30 & \text{V} \\ I_i & = & 100 & \text{mA} \\ P_i & = & 0.75 & \text{W} \\ L_i & = & 0 & \text{mH} \\ C_i & = & 6.1 & \text{nF} \end{matrix}$			
From the safety point of view the circuits shall be considered to be connected to earth.				

5 Batteries: IECEx Certificate of Conformity

		<h2 style="margin: 0;">IECEx Certificate of Conformity</h2>	
<p>INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres <small>for rules and details of the IECEx Scheme visit www.iecex.com</small></p>			
Certificate No.:	IECEx KEM 08.0005U	issue No.:1	Certificate history: Issue No. 1 (2011-6-16) Issue No. 0 (2008-7-10)
Status:	Current		
Date of Issue:	2011-06-16	Page 1 of 5	
Applicant:	Fluidwell B.V. Voltaweg 23 5466 AZ Veghel The Netherlands		
Electrical Apparatus: <i>Optional accessory:</i>	Intrinsically safe non-rechargeable battery Type FW-LIBAT-...		
Type of Protection:	Ex ia		
Marking:	Ex ia IIC Ga		
Approved for issue on behalf of the IECEx Certification Body:	C.G. van Es		
Position:	Certification Manager		
Signature: <i>(for printed version)</i>			
Date:	<u>2011-06-16</u>		
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:	DEKRA Certification B.V. Utrechtseweg 310 6812 AR Arnhem The Netherlands		
All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group.			



IECEX Certificate of Conformity

Certificate No.: IECEx KEM 08.0005U

Date of Issue: 2011-06-16

Issue No.: 1

Page 2 of 5

Manufacturer: **Fluidwell B.V.**
Viltaweg 23
5466 AZ Veghel
The Netherlands

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 : 2007-10** Explosive atmospheres - Part 0: Equipment - General requirements
Edition: 5
- IEC 60079-11 : 2006** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition: 5
- IEC 60079-26 : 2006** Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
Edition: 2

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[NL/KEM/ExTR08.0005/00](#)
[NL/KEM/ExTR08.0005/01](#)

Quality Assessment Report:

[NL/KEM/QAR06.0016/03](#)



IECEx Certificate of Conformity

Certificate No.: IECEx KEM 08.0005U

Date of Issue: 2011-06-16

Issue No.: 1

Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Intrinsically safe non-rechargeable Battery Type FW-LIBAT... for the supply of intrinsically safe apparatus. The battery is intended to be used inside the hazardous area.

The cells used are inorganic lithium cells of one of the following types:

- type SL-2770 manufactured by Sonnenschein Lithium;
- type SL-2770 or type TL-5920 manufactured by Tadiran Batteries.
- type SL-360 or type SL-860 manufactured by Tadiran Batteries.

Ambient temperature range -40 ° to +70 °C.

CONDITIONS OF CERTIFICATION: NO



IECEX Certificate of Conformity

Certificate No.: IECEx KEM 08.0005U

Date of Issue: 2011-06-16

Issue No.: 1

Page 4 of 5

EQUIPMENT(continued):

Electrical data

Output circuit (connector):
 in type of protection intrinsic safety Ex ia IIC, with the following maximum values:
 $U_0 = 3.9\text{ V}$; $I_0 = 35\text{ mA}$; $P_0 = 35\text{ mW}$; $C_0 = 100\text{ }\mu\text{F}$; $L_0 = 25\text{ mH}$

Conditions of use

1. The battery must be installed so, that charging of the battery is prevented.
2. The maximum temperature of the cell when short circuited is 112 °C at 70 °C ambient temperature.
3. When used under the specified maximum ambient and electrical conditions, the temperature class of the battery is T4. For other conditions, the temperature class may be determined during the certification of the apparatus in which the battery is used.



IECEx Certificate of Conformity

Certificate No.: IECEx KEM 08.0005U

Date of Issue: 2011-06-16

Issue No.: 1

Page 5 of 5

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1: Addition of battery cell types SL360 and SL860 both manufactured by Tadiran and assessment according to IEC 60079-0:2007.

6 CSA Certificate of Compliance



Certificate of Compliance

Certificate: 2059461

Master Contract: 208772

Project: 70010574

Date Issued: February 17, 2016

Issued to: Fluidwell B.V.
 Voltaweg 23
 5466 AZ Veghel
 NETHERLANDS

Attention: Mr. Roger Amiot

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



Issued by: E.GIUSTI
 E.Giusti

PRODUCTS

CLASS – 2258-04 PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations
CLASS – 2258-84 PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations
 against U.S. Standards

IS Class I/II/III, Division 1 Groups A to G T4
Class 1 Zone 0 AEx ia IIC T4 Ga
Ex ia IIC T4 Ga

Indicator Model F0..-XI:

The range of Indicators includes the following basic models with different signal input types:

- Model F0..-P-XI, indicators with digital input (coil, switch, npn, pnp, active or Namur);
- Model F0..-A-XI, indicators with analog input ((0)4 ... 20 mA);
- Model F0..-U-XI, indicators with analog input (0 ... 10 V);
- Model F0..-A-PL-XI, indicators with loop powered analog input (4 ... 20 mA);
- Model F0..-T-XI, indicators with PT100 input;
- Model F0..-H-XI, indicators with thermocouple input.



Certificate: 2059461
Project: 70010574

Master Contract: 208772
Date Issued: February 17, 2016

The indicators are supplied by an internal battery and/or by an external supply or by the circuit supply (Model F0..-A-PL only). Optionally, the indicators can be equipped with a pulse output, a sensor supply output, an analog output (with HART) and an input for backlight supply.

The enclosure of the indicator provides a degree of protection of at least IP 65 in accordance with CAN/CSA-C22.2 NO. 60529-05 and ANSI/IEC 60529-2004.

Ambient temperature range -40 °C to +70 °C.

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 NO. 0-10 (R2015)	General Requirements Canadian Electrical Code, Part II
CAN/CSA-C22.2 NO. 157-92 (R2012)	Intrinsically Safe and Non-incendive Equipment for use in Hazardous Locations.
CAN/CSA-C22.2 NO. 60529-05 (R2015)	Degrees of protection provided by enclosures (IP Code)
CAN/CSA-C22.2 NO. 142-M1987 (R2014)	Process Control Equipment.
CAN/CSA-E60079-11-14	Electrical apparatus for explosive gas atmospheres;
ANSI/UL Standard 913: Ed.8	Intrinsically Safe Apparatus and Associated Apparatus For Use in Class I, II and III, Div. 1 Hazardous (Classified) Locations
CAN/CSA-C22.2 NO. 60079-0-11	Electrical apparatus for explosive gas atmospheres;
ANSI/ISA-60079-0: 2013	Part 0: General requirements.
ANSI/ISA-60079-11(2007)	Part 11: Intrinsic Safety "i"
UL Standard 508: Ed.17	Industrial Control Equipment
ANSI/IEC 60529-2004	Degrees of protection provided by enclosures (IP Code)

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

- (1) Submitter's name, trademark
- (2) Catalogue / Model designation.
- (3) Date code / Serial number traceable to month and year of manufacture.
- (4) The cCSAus Monogram
- (5) Maximum ambient temperature $T_a = + 70\text{ °C}$



Certificate: 2059461
Project: 70010574

Master Contract: 208772
Date Issued: February 17, 2016

- (6) Reference to control drawings FWCD-000x (where x is 1 to 6 depending on the model)
- (7) Certificate number CSA.08.2059461
- (8) The words "IS Class I/II/III, Division 1, Groups A to G T4 and/or Class I, Zone 0 AEx ia IIC T4 Ga"

Nameplate is as per drawing "Label design F0xx 2.2".

METHOD OF MARKING:

The permanent markings appear on a self-adhesive label manufactured by 3M (CUL MH18072) or Flexcon CO Inc. (CUL MH16635) and is mounted on the surface of the apparatus.

Full details of operation and special conditions for safe use are provided in the manual.

7 FM Certificate of Compliance

CERTIFICATE OF CONFORMITY		 Member of the FM Global Group
1.	HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS	
2.	Certificate No:	FM16US0177X
3.	Equipment: (Type Reference and Name)	F0 Series General Purpose Indicators
4.	Name of Listing Company:	Fluidwell BV
5.	Address of Listing Company:	Voltaweg 23 5466 AZ Veghel Netherlands
6.	The examination and test results are recorded in confidential report number: 3033306 dated 25 June 2009	
7.	FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents: FM Class 3600:2011, FM Class 3610:2015, FM Class 3810:2005, ANSI/UL 60079-0:2013, ANSI/UL 60079-11:2014, ANSI/IEC 60529:2004	
8.	If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.	
9.	This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.	
10.	Equipment Ratings: Intrinsically Safe for use in Class I / II / III, Division 1, Groups A, B, C, D, E, F and G Class I, Zone 0, Group IIC, Hazardous (Classified) Locations	
Certificate issued by:		
 _____ J. E. Marquedant Manager, Electrical Systems		_____ 20 September 2016 Date
To verify the availability of the Approved product, please refer to www.approvalguide.com		
<u>THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE</u>		
FM Approvals LLC, 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com		
F 347 (Mar 16)	Page 1 of 3	

SCHEDULE



US Certificate Of Conformity No: FM16US0177X

11. The marking of the equipment shall include:

IS, Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T4 Ta = -40°C to +70°C, IP65/IP67
 Class I, Zone 0, AEx ia IIC T4 Ta = -40°C to +70°C, IP65/IP67

12. **Description of Equipment:**

The Fluidwell BV FO Series General Purpose Indicators are a range of indicators utilizing a single PCB with one signal input and one signal output besides other options like supply and backlighting. The signal input can be configured for six different signal types, which are reflected in the model suffix. To support all models, there are currently two types of PCB's used: Fb03030 1 and Fb03130 1 accommodating 4 and 2 of the main models of the FO-Series indicator ranges respectively.

The system is a fixed installation device that is intended to be mounted in a vent-free enclosure, meeting the equipment enclosure requirements in accordance to ANSI/ISA-82.02.01 (IEC 61010-1 Mod), where the Approved equipment will be installed.

F0...-XI Series. General Purpose Indicator.

Model No.	Description	Control Drawing
F0xx-A-XI	Indicator with 0(4)...20mA input	FWCD-001
F0xx-A-PL-XI	Indicator with 4...20mA input, input loop powered	FWCD-002
F0xx-P-XI	Indicator with pulse input	FWCD-003
F0xx-U-XI	Indicator with 0...10V input	FWCD-004
F0xx-T-XI	Indicator with PT100 input	FWCD-005
F0xx-H-XI	Indicator with thermocouple input	FWCD-006

xx = software revision

Options:

- PC (Battery supply (internal));
- OT (Passive transistor output);
- ZB (LED backlight);
- PD (External supply input and supply output) [not models -T or -H];
- PX (External supply input)

13. **Specific Conditions of Use:**

1. When the enclosure of the indicator is made of aluminium alloy, when used in a potentially explosive atmosphere requiring apparatus of equipment protection level Ga, the indicator shall be installed so, that even in the event of rare incidents, an ignition source due to impact or friction sparks between the enclosure and iron/steel is excluded.

14. **Test and Assessment Procedure and Conditions:**

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
 T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

F 347 (Mar 16)

Page 2 of 3

SCHEDULE



US Certificate Of Conformity No: FM16US0177X

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
25 th June 2009	Original Issue.
20 th September 2016	<u>Supplement 1:</u> Report Reference: – 3058895 dated 20 th September 2016. Description of the Change: Addition of battery types SL360 and SL860 for new battery pack types FW-LiBAT-021 and FM-LiBAT-031. 60079-0 is updated to 2013, Edition 6.0. 60079-11 is updated to 2014, Edition 6.0. FM Class 3610 is updated to 2015. IP65, IP67 ratings have been added.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
 T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

8 Control drawings

Control Drawings F0-series, Rev. 1.1

The Fluidwell F0-series are currently certified according to FM and CSA standards.

FM project ID: 3033306

CSA Certificate number: CSA.08.2059461

With the addition of two terminals to 4 out of 6 versions of the F0-series, the control drawings change.

The following pages show the updated control drawings for models

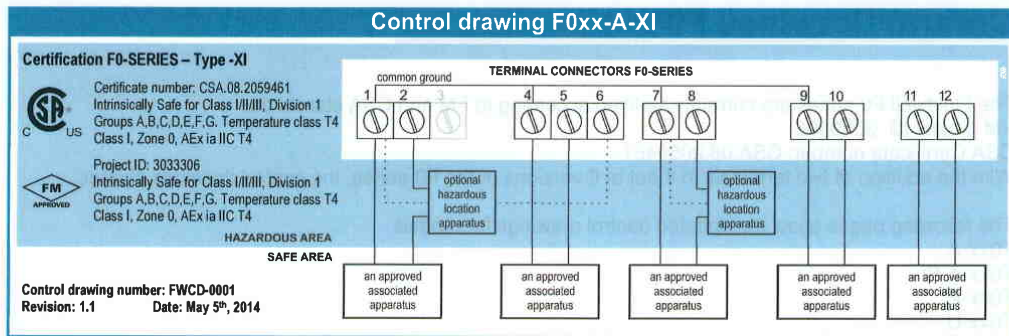
F0xx-A

F0xx-A-PL

F0xx-P

F0xx-U

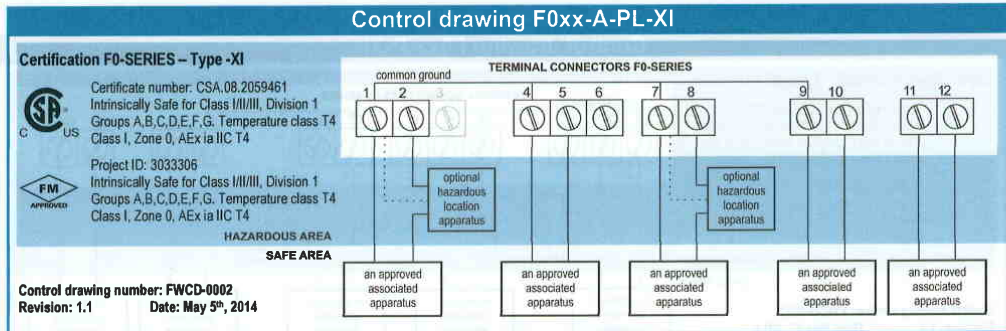
For types F0xx –T and F0xx –H there are no updated control drawings; they have not changed with respect to their previous certification and maintain their 1.0 Revision Number. Their original control drawings are shown here for the sake of completeness.



- ◆ The installation must comply with national requirements (e.g. in Canada, the Canadian Electrical Code, Part 1 Appendix F and in USA, the National Electrical Code, NFPA 70, Article 504 and ANSI/ISA-RP 12.6).
- ◆ Warning: Substitution of components may impair intrinsic safety.
- ◆ For the circuits connected to terminals 1 and 2, 4 and 5, 7 and 8, 9 and 10, the output parameters of the connected barriers (up to 4) or hazardous location apparatus must meet the following requirements:
 - Voc ≤ The lowest Vmax of the CSA / FM Approved apparatus in the circuit
 - Isc ≤ The lowest Imax of the CSA / FM Approved apparatus in the circuit
 - Pmax ≤ The lowest Pmax of the CSA / FM Approved apparatus in the circuit
 - Ca ≥ The sum of the cable capacitance and the internal capacitance Ci of each CSA / FM Approved apparatus installed in the circuit
 - La ≥ The sum of the cable inductance and the internal inductance Li of each CSA / FM Approved apparatus installed in the circuit
- ◆ For the circuits connected to terminals 1 and 2, 4 and 6, 7 and 8, 11 and 12, the input parameters of the connected hazardous location apparatus must meet the following requirements:
 - Vmax ≥ The Voc of the of the circuit
 - Isc ≥ The Isc of the circuit
 - Pmax ≥ The Pmax of the circuit
 - Ci ≤ The difference between the Ca of the circuit and the sum of the cable capacitance and the internal capacitance Ci of all other CSA / FM Approved apparatus installed in the circuit
 - Li ≤ The difference between the La of the circuit and the sum of the cable inductance and the internal inductance Li of all other CSA / FM Approved apparatus installed in the circuit
- ◆ Hazardous Location Apparatus – switches, thermocouples or non-inductive resistance devices, or CSA / FM – Certified Apparatus – should be connected in accordance with the manufacturer’s installation instructions.
- ◆ The cable parameters are determined by the parameters of the system into which the F0-Series General Purpose Indicators is connected.
- ◆ Only certified Intrinsically Safe Fluidwell battery type FW-LiBat-0xx may be used and replaced in hazardous area.

The entity parameters for F0-Series General Purpose Indicators, model F0xx-A-XI, are as follows:

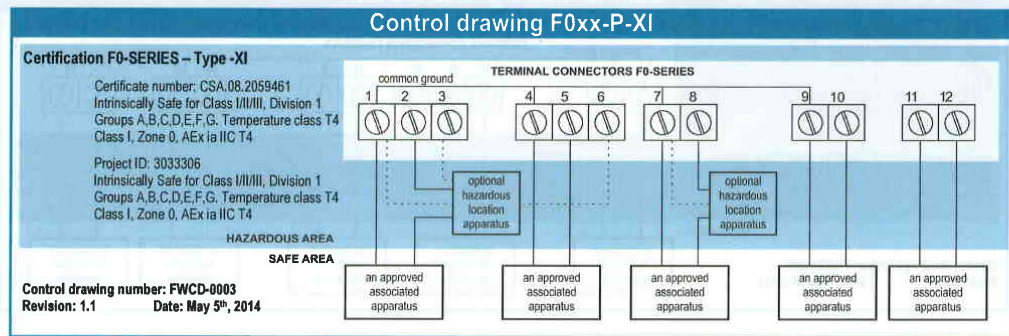
Terminals 1 and 2 – Input parameters:	Vmax = 30V	Ci = 0nF
	Isc = 150mA	Li = 0mH
	Pmax = 0.92W	
Terminal 3 – Internally not connected		
Terminal 4 and 5 – Input parameters – Type -PD/-PX	Vmax = 30V	Ci = 0nF
	Isc = 200mA	Li = 0mH
	Pmax = 1.2W	
Terminal 4 and 6 – Output parameters – Type -PD	Voc, Isc, Pmax, Ca and La are equal to those of the circuitry connected between terminals 4 and 5.	
Terminal 7 and 8 – Input parameters – Type -OT	Vmax = 30V	Ci = 0nF
	Isc = 200mA	Li = 0mH
	Pmax = 1.2W	
Terminal 9 and 10 – Input parameters – Type -ZB	Vmax = 30V	Ci = 0nF
	Isc = 200mA	Li = 0mH
	Pmax = 0.75W	
Terminal 11 and 12 – Input parameters – Type -AH	Vmax = 30V	Ci = 6.1nF
	Isc = 100mA	Li = 0mH
	Pmax = 0.75W	



- ◆ The installation must comply with national requirements (e.g. in Canada, the Canadian Electrical Code, Part 1 Appendix F and in USA, the National Electrical Code, NFPA 70, Article 504 and ANSI/ISA-RP 12.6).
- ◆ Warning: Substitution of components may impair intrinsic safety.
- ◆ For the circuits connected to terminals 1 and 2, 4 and 5, 7 and 8, 9 and 10, the output parameters of the connected barriers (up to 4) or hazardous location apparatus must meet the following requirements:
 - $V_{oc} \leq$ The lowest V_{max} of the CSA / FM Approved apparatus in the circuit
 - $I_{sc} \leq$ The lowest I_{max} of the CSA / FM Approved apparatus in the circuit
 - $P_{max} \leq$ The lowest P_{max} of the CSA / FM Approved apparatus in the circuit
 - $C_a \geq$ The sum of the cable capacitance and the internal capacitance C_i of each CSA / FM Approved apparatus installed in the circuit
 - $L_a \geq$ The sum of the cable inductance and the internal inductance L_i of each CSA / FM Approved apparatus installed in the circuit
- ◆ For the circuits connected to terminals 1 and 2, 4 and 6, 7 and 8, 11 and 12 the input parameters of the connected hazardous location apparatus must meet the following requirements:
 - $V_{max} \geq$ The V_{oc} of the of the circuit
 - $I_{max} \geq$ The I_{sc} of the circuit
 - $P_{max} \geq$ The P_{max} of the circuit
 - $C_i \leq$ The difference between the C_a of the circuit and the sum of the cable capacitance and the internal capacitance C_i of all other CSA / FM Approved apparatus installed in the circuit
 - $L_i \leq$ The difference between the L_a of the circuit and the sum of the cable inductance and the internal inductance L_i of all other CSA / FM Approved apparatus installed in the circuit
- ◆ Hazardous Location Apparatus – switches, thermocouples or non-inductive resistance devices, or CSA / FM – Certified Apparatus – should be connected in accordance with the manufacturer’s installation instructions.
- ◆ The cable parameters are determined by the parameters of the system into which the F0-Series General Purpose Indicators is connected.
- ◆ Only certified Intrinsically Safe Fluidwell battery type FW-LiBat-0xx may be used and replaced in hazardous area.

The entity parameters for F0-Series General Purpose Indicators, model F0xx-A-PL-XI, are as follows:

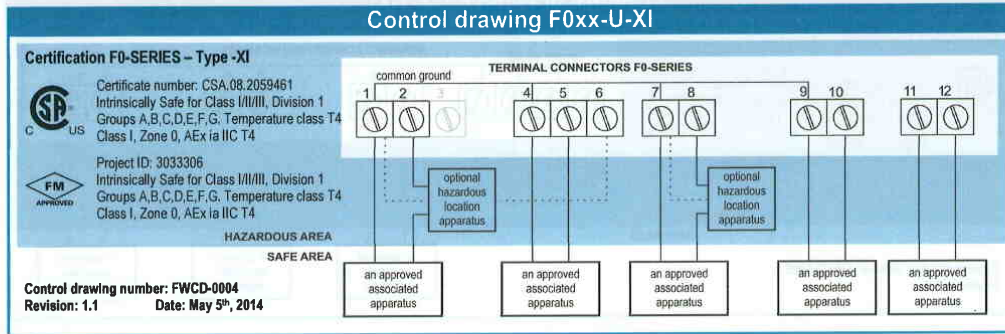
Terminals 1 and 2 – Input parameters:	$V_{max} = 30V$	$C_i = 0nF$
	$I_{max} = 93mA$	$L_i = 0mH$
	$P_{max} = 0.75W$	
Terminal 3 – Internally not connected		
Terminal 4 and 5 – Input parameters – Type -PD/-PX	$V_{max} = 30V$	$C_i = 0nF$
	$I_{max} = 200mA$	$L_i = 0mH$
	$P_{max} = 1.2W$	
Terminal 4 and 6 – Output parameters – Type -PD	$V_{oc}, I_{sc}, P_{max}, C_a$ and L_a are equal to those of the circuitry connected between terminals 4 and 5.	
Terminal 7 and 8 – Input parameters – Type -OT	$V_{max} = 30V$	$C_i = 0nF$
	$I_{max} = 200mA$	$L_i = 0mH$
	$P_{max} = 1.2W$	
Terminal 9 and 10 – Input parameters – Type -ZB	$V_{max} = 30V$	$C_i = 0nF$
	$I_{max} = 200mA$	$L_i = 0mH$
	$P_{max} = 0.75W$	
Terminal 11 and 12 – Input parameters – Type -AH	$V_{max} = 30V$	$C_i = 6.1nF$
	$I_{max} = 100mA$	$L_i = 0mH$
	$P_{max} = 0.75W$	



- ◆ The installation must comply with national requirements (e.g. in Canada, the Canadian Electrical Code, Part 1 Appendix F and in USA, the National Electrical Code, NFPA 70, Article 504 and ANSI/ISA-RP 12.6).
- ◆ Warning: Substitution of components may impair intrinsic safety.
- ◆ For the circuits connected to terminals 1, 2 and 3, 4 and 5, 7 and 8, 9 and 10, the output parameters of the connected barriers (up to 4) or hazardous location apparatus must meet the following requirements:
 - Voc ≤ The lowest Vmax of the CSA / FM Approved apparatus in the circuit
 - Isc ≤ The lowest Imax of the CSA / FM Approved apparatus in the circuit
 - Pmax ≤ The lowest Pmax of the CSA / FM Approved apparatus in the circuit
 - Ca ≥ The sum of the cable capacitance and the internal capacitance Ci of each CSA / FM Approved apparatus installed in the circuit
 - La ≥ The sum of the cable inductance and the internal inductance Li of each CSA / FM Approved apparatus installed in the circuit
- ◆ For the circuits connected to terminals 1, 2 and 3, 4 and 6, 7 and 8, 11 and 12, the input parameters of the connected hazardous location apparatus must meet the following requirements:
 - Vmax ≥ The Voc of the of the circuit
 - Imax ≥ The Isc of the circuit
 - Pmax ≥ The Pmax of the circuit
 - Ci ≤ The difference between the Ca of the circuit and the sum of the cable capacitance and the internal capacitance Ci of all other CSA / FM Approved apparatus installed in the circuit
 - Li ≤ The difference between the La of the circuit and the sum of the cable inductance and the internal inductance Li of all other CSA / FM Approved apparatus installed in the circuit
- ◆ Hazardous Location Apparatus – switches, thermocouples or non-inductive resistance devices, or CSA / FM – Certified Apparatus – should be connected in accordance with the manufacturer's installation instructions.
- ◆ The cable parameters are determined by the parameters of the system into which the F0-Series General Purpose Indicators is connected.
- ◆ Only certified Intrinsically Safe Fluidwell battery type FW-LiBat-0xx may be used and replaced in hazardous area.

The entity parameters for F0-Series General Purpose Indicators, model F0xx-P-XI, are as follows:

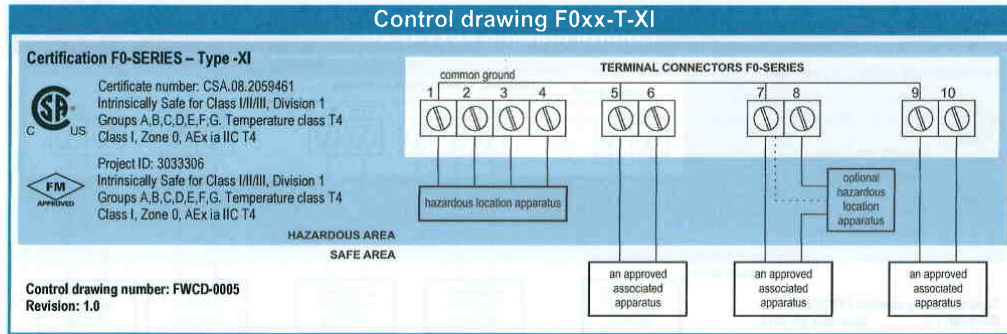
Terminals 1 and 2 – Input parameters:	Vmax = 30V	Ci = 0nF
	Imax = 150mA	Li = 0mH
	Pmax = 0.92W	
Terminals 1 and 2 – Output parameters:	Voc = 5.4V	Ca = 65 µF
	Isc = 2.4mA	La = 1 H
	Pmax = 3.2mW	
Terminal 1 and 3 – Output parameters:	Voc = 5.4V	Ca = 65 µF
	Isc = 2.1mA	La = 1 H
	Pmax = 2.9mW	
Terminal 4 and 5 – Input parameters – Type -PD/-PX	Vmax = 30V	Ci = 0nF
	Imax = 200mA	Li = 0mH
	Pmax = 1.2W	
Terminal 4 and 6 – Output parameters – Type -PD	Voc = 8.7V	Ca = 5.9 µF
	Isc = 12mA	La = 240 mH
	Pmax = 72mW	
Terminal 7 and 8 – Input parameters – Type -OT	Vmax = 30V	Ci = 0nF
	Imax = 200mA	Li = 0mH
	Pmax = 1.2W	
Terminal 9 and 10 – Input parameters – Type -ZB	Vmax = 30V	Ci = 0nF
	Imax = 200mA	Li = 0mH
	Pmax = 0.75W	
Terminal 11 and 12 – Input parameters – Type -AH	Vmax = 30V	Ci = 6.1nF
	Imax = 100mA	Li = 0mH
	Pmax = 0.75W	



- ◆ The installation must comply with national requirements (e.g. in Canada, the Canadian Electrical Code, Part 1 Appendix F and in USA, the National Electrical Code, NFPA 70, Article 504 and ANSI/ISA-RP 12.6).
- ◆ Warning: Substitution of components may impair intrinsic safety.
- ◆ For the circuits connected to terminals 1 and 2, 4 and 5, 7 and 8, 9 and 10, the output parameters of the connected barriers (up to 4) or hazardous location apparatus must meet the following requirements:
 - Voc ≤ The lowest Vmax of the CSA / FM Approved apparatus in the circuit
 - Isc ≤ The lowest Imax of the CSA / FM Approved apparatus in the circuit
 - Pmax ≤ The lowest Pmax of the CSA / FM Approved apparatus in the circuit
 - Ca ≥ The sum of the cable capacitance and the internal capacitance Ci of each CSA / FM Approved apparatus installed in the circuit
 - La ≥ The sum of the cable inductance and the internal inductance Li of each CSA / FM Approved apparatus installed in the circuit
- ◆ For the circuits connected to terminals 1 and 2, 4 and 6, 7 and 8, 11 and 12, the input parameters of the connected hazardous location apparatus must meet the following requirements:
 - Vmax ≥ The Voc of the of the circuit
 - Imax ≥ The Isc of the circuit
 - Pmax ≥ The Pmax of the circuit
 - Ci ≤ The difference between the Ca of the circuit and the sum of the cable capacitance and the internal capacitance Ci of all other CSA / FM Approved apparatus installed in the circuit
 - Li ≤ The difference between the La of the circuit and the sum of the cable inductance and the internal inductance Li of all other CSA / FM Approved apparatus installed in the circuit
- ◆ Hazardous Location Apparatus – switches, thermocouples or non-inductive resistance devices, or CSA / FM – Certified Apparatus – should be connected in accordance with the manufacturer’s installation instructions.
- ◆ The cable parameters are determined by the parameters of the system into which the F0-Series General Purpose Indicators is connected.
- ◆ Only certified Intrinsically Safe Fluidwell battery type FW-LiBat-0xx may be used and replaced in hazardous area.

The entity parameters for F0-Series General Purpose Indicators, model F0xx-U-XI, are as follows:

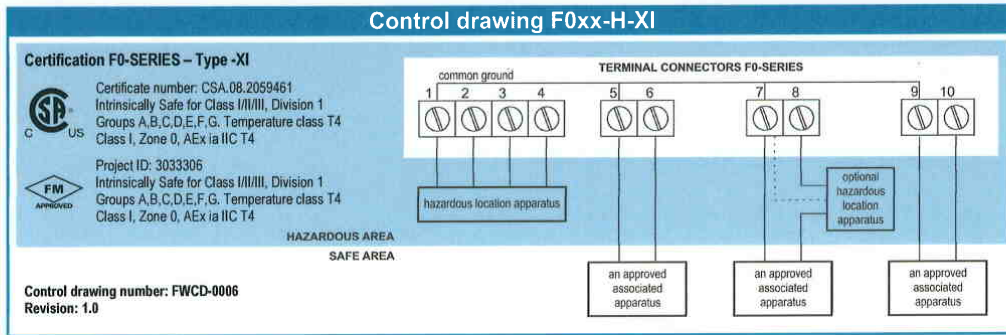
Terminals 1 and 2 – Input parameters:	Vmax = 30V	Ci = 0nF
	Imax = 150mA	Li = 0mH
	Pmax = 0.92W	
Terminal 3 – Internally not connected		
Terminal 4 and 5 – Input parameters – Type -PD/-PX	Vmax = 30V	Ci = 0nF
	Imax = 200mA	Li = 0mH
	Pmax = 1.2W	
Terminal 4 and 6 – Output parameters – Type -PD	Voc, Isc, Pmax, Ca and La are equal to those of the circuitry connected between terminals 4 and 5.	
Terminal 7 and 8 – Input parameters – Type -OT	Vmax = 30V	Ci = 0nF
	Imax = 200mA	Li = 0mH
	Pmax = 1.2W	
Terminal 9 and 10 – Input parameters – Type -ZB	Vmax = 30V	Ci = 0nF
	Imax = 200mA	Li = 0mH
	Pmax = 0.75W	
Terminal 11 and 12 – Input parameters – Type -AH	Vmax = 30V	Ci = 6.1nF
	Imax = 100mA	Li = 0mH
	Pmax = 0.75W	



- ◆ The installation must comply with national requirements (e.g. in Canada, the Canadian Electrical Code, Part 1 Appendix F and in USA, the National Electrical Code, NFPA 70, Article 504 and ANSI/ISA-RP 12.6).
- ◆ Warning: Substitution of components may impair intrinsic safety.
- ◆ For the circuits connected to terminals 5 and 6, 7 and 8, 9 and 10, the output parameters of the connected barriers (up to 3) or hazardous location apparatus must meet the following requirements:
 - Voc ≤ The lowest Vmax of the CSA / FM Approved apparatus in the circuit
 - Isc ≤ The lowest Imax of the CSA / FM Approved apparatus in the circuit
 - Pmax ≤ The lowest Pmax of the CSA / FM Approved apparatus in the circuit
 - Ca ≥ The sum of the cable capacitance and the internal capacitance Ci of each CSA / FM Approved apparatus installed in the circuit
 - La ≥ The sum of the cable inductance and the internal inductance Li of each CSA / FM Approved apparatus installed in the circuit
- ◆ For the circuits connected to terminals 1, 2, 3 and 4, 7 and 8, the input parameters of the connected hazardous location apparatus must meet the following requirements:
 - Vmax ≥ The Voc of the of the circuit
 - Imax ≥ The Isc of the circuit
 - Pmax ≥ The Pmax of the circuit
 - Ci ≤ The difference between the Ca of the circuit and the sum of the cable capacitance and the internal capacitance Ci of all other CSA / FM Approved apparatus installed in the circuit
 - Li ≤ The difference between the La of the circuit and the sum of the cable inductance and the internal inductance Li of all other CSA / FM Approved apparatus installed in the circuit
- ◆ Hazardous Location Apparatus – switches, thermocouples or non-inductive resistance devices, or CSA / FM – Certified Apparatus – should be connected in accordance with the manufacturer's installation instructions.
- ◆ The cable parameters are determined by the parameters of the system into which the F0-Series General Purpose Indicators is connected.
- ◆ Only certified Intrinsically Safe Fluidwell battery type FW-LiBat-0xx may be used and replaced in hazardous area.

The entity parameters for F0-Series General Purpose Indicators, model F0xx-T-XI, are as follows:

Terminal 1, 2, 3 and 4 – Output parameters:	Voc = 5.4V
	Isc = 62mA
	Pmax = 252mW
	Ca = 65µF
	La = 20mH
Terminal 5 and 6 – Input parameters – Type -PX	Vmax = 30V
	Imax = 200mA
	Pmax = 1.2W
	Ci = 0nF
	Li = 0mH
Terminal 7 and 8 – Input parameters – Type -OT	Vmax = 30V
	Imax = 200mA
	Pmax = 1.2W
	Ci = 0nF
	Li = 0mH
Terminal 9 and 10 – Input parameters – Type -ZB	Vmax = 30V
	Imax = 200mA
	Pmax = 0.75W
	Ci = 0nF
	Li = 0mH



- ◆ The installation must comply with national requirements (e.g. in Canada, the Canadian Electrical Code, Part 1 Appendix F and in USA, the National Electrical Code, NFPA 70, Article 504 and ANSI/ISA-RP 12.6).
- ◆ Warning: Substitution of components may impair intrinsic safety.
- ◆ For the circuits connected to terminals 5 and 6, 7 and 8, 9 and 10, the output parameters of the connected barriers (up to 3) or hazardous location apparatus must meet the following requirements:
 - Voc ≤ The lowest Vmax of the CSA / FM Approved apparatus in the circuit
 - Isc ≤ The lowest Imax of the CSA / FM Approved apparatus in the circuit
 - Pmax ≤ The lowest Pmax of the CSA / FM Approved apparatus in the circuit
 - Ca ≥ The sum of the cable capacitance and the internal capacitance Ci of each CSA / FM Approved apparatus installed in the circuit
 - La ≥ The sum of the cable inductance and the internal inductance Li of each CSA / FM Approved apparatus installed in the circuit
- ◆ For the circuits connected to terminals 1, 2, 3 and 4, 7 and 8, the input parameters of the connected hazardous location apparatus must meet the following requirements:
 - Vmax ≥ The Voc of the of the circuit
 - Imax ≥ The Isc of the circuit
 - Pmax ≥ The Pmax of the circuit
 - Ci ≤ The difference between the Ca of the circuit and the sum of the cable capacitance and the internal capacitance Ci of all other CSA / FM Approved apparatus installed in the circuit
 - Li ≤ The difference between the La of the circuit and the sum of the cable inductance and the internal inductance Li of all other CSA / FM Approved apparatus installed in the circuit
- ◆ Hazardous Location Apparatus – switches, thermocouples or non-inductive resistance devices, or CSA / FM – Certified Apparatus – should be connected in accordance with the manufacturer’s installation instructions.
- ◆ The cable parameters are determined by the parameters of the system into which the F0-Series General Purpose Indicators is connected.
- ◆ Only certified Intrinsically Safe Fluidwell battery type FW-LiBat-0xx may be used and replaced in hazardous area.

The entity parameters for F0-Series General Purpose Indicators, model F0xx-H-XI, are as follows:

Terminal 1, 2, 3 and 4 – Output parameters:	Voc = 5.4V
	Isc = 62mA
	Pmax = 252mW
	Ca = 65µF
	La = 20mH
Terminal 5 and 6 – Input parameters – Type -PX	Vmax = 30V
	Imax = 200mA
	Pmax = 1.2W
	Ci = 0nF
	Li = 0mH
Terminal 7 and 8 – Input parameters – Type -OT	Vmax = 30V
	Imax = 200mA
	Pmax = 1.2W
	Ci = 0nF
	Li = 0mH
Terminal 9 and 10 – Input parameters – Type -ZB	Vmax = 30V
	Imax = 200mA
	Pmax = 0.75W
	Ci = 0nF
	Li = 0mH

9 HART Certificate of Registration



Certificate of Registration
HCF Verified

<u>Fluidwell bv</u> Manufacturer	<u>F018p</u> Product Name
<u>6039</u> Manufacturer ID (Hex)	<u>E0EA</u> Expanded Device Type (Hex)
<u>7</u> HART Protocol Revision	<u>01</u> Device Revision (Hex)
<u>01</u> Hardware Revision (Hex)	<u>01</u> Software Revision (Hex)
<u>04/02/2014</u> Test Date	<u>HCF</u> Verification Method

The above product has successfully completed the validation process and meets the requirements to be "HART REGISTERED".

"HART REGISTERED" products conform to GB/T 29910.1-6-2013 and IEC 61158 standards.

Registration Number: L2-06-1000-326 Registration Issue Date: April 2, 2014 HCF QA Approval: *J. F. Masters*



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