

## F1-SERIES

Flow rate indicator / Totalizer



## CERTIFICATE BINDER



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This Certificate binder is part of the documentation set that came with the F1-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 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.*

## EU Declaration of Conformity

### Fluidwell F1-series indicators

Veghel, January 2019

We, Fluidwell BV, declare under our sole responsibility that the F1-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:

<b>EMC Directive</b>	<b>2014/30/EU</b>	EN61000-6-2:2016; EN61000-6-3: 2007 /A1:2011; EN61326-1:2013
<b>RoHS Directive</b>	<b>2011/65/EU</b>	EN 50581:2012
<b>Low Voltage Directive</b>	<b>2014/35/EU</b>	
	For options –PM or –OR:	EN61010-1:2010
<b>ATEX Directive</b>	<b>2014/34/EU</b>	EN60079-0:2018
	For option -XI, intrinsically safe:	EN60079-11:2012

Protective system: II 1 G Ex ia IIB/IIC T4 Ga  
 II 1 D Ex ia IIIC T<sub>200</sub> 100 °C Da

<b>Certification</b>	For Groups II & III, surface installation Notified body 0344:	KEMA 03ATEX1074 X, Issue 6  DEKRA Certification BV, Meander 1051, 6825 MJ, Arnhem, the Netherlands.
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Last two digits of the year in which the CE marking was affixed: 03.

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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	The Netherlands	Internet: www.fluidwell.com	SWIFT Nr / BIC:	INGBNL2A	IBAN:	NL22 INGB 0022 0817 71

All agreements, sales and deliveries are in accordance with our General Terms and Conditions which are available on our website or upon request. Any other conditions are herewith explicitly rejected by us.



## 2 F-Series: ATEX EC-Type Examination Certificate



# CERTIFICATE

## (1) EU-Type Examination

(2) Equipment or protective systems intended for use in potentially explosive atmospheres - Directive 2014/34/EU

(3) EU-Type Examination Certificate Number: **KEMA 03ATEX1074 X** Issue Number: **6**

(4) Product: **Indicator Model F1 Series**

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

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

(7) This product 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 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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/DEK/ExTR11.0033/02.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN IEC 60079-0 : 2018**

**EN 60079-11 : 2012**

except in respect of those requirements listed at item 18 of the Schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

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



**II 1 G Ex ia IIB/IIC T4 Ga**  
**II 1 D Ex ia IIIC T<sub>200</sub> 100 °C Da**

Date of certification: 22 February 2019

DEKRA Certification B.V.

R. Schuller  
Certification Manager

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(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 03ATEX1074 X**

Issue No. 6

(15) **Description**

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

Model F1...P-XI, indicators with digital input (coil, switch, npn, pnp, active or Namur);

Model F1...A-XI, indicators with analog input ((0)4 ... 20 mA);

Model F1...R-XI, indicators with analog input (0 ... 100 KOhm);

Model F1...U-XI, indicators with analog input (0 ... 10 V);

Model F1...T-XI, indicators with PT100 input.

The range of Indicators Series F1 includes the basic models with their variations as indicated in Annex 1.

The enclosure of the indicator provides a degree of protection of at least IP65 in accordance with EN 60529.

Ambient temperature range: -40 °C to +70 °C, only for equipment category 1 D (EPL Da) the maximum ambient temperature is limited to 50 °C, see specific conditions of use.

The maximum temperature of the enclosure  $T_{200}$  100 °C is referred to an ambient temperature of 50 °C and a maximum dust layer thickness of 200 mm.

When used in a potentially explosive atmosphere requiring apparatus of equipment category 2 D (EPL Db), the equipment may be used with a maximum dust layer thickness of 5 mm.

**Electrical data**

See Annex 1 for electrical data.

**Installation instructions**

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

(16) **Report Number**

No. NL/DEK/ExTR11.0033/02.

(17) **Specific conditions of 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 between the enclosure and iron/steel is excluded.

For EPL Da the ambient temperature  $T_a$  shall not exceed 50 °C.

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

Covered by the standards listed at item (9).





(13) **SCHEDULE**

(14) **to EU-Type Examination Certificate KEMA 03ATEX1074 X**

Issue No. **6**

(19) **Test documentation**

As listed in Report No. NL/DEK/ExTR11.0033/02.

(20) **Certificate history**

Issue 1 -	202852800	Initial certificate
Issue 2 -	207715000	Ambient temperature change
Issue 3 -	209282300	Changes in the construction
Issue 4 -	211777000	Changes in the construction
Issue 5 -	219149100	Assessed to the latest edition of standards
Issue 6 -	223345200	Addition of variant "NAMUR and stainless steel enclosure option
		Assessed to the latest edition of standards, minor changes to the construction

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Form 227A  
Version 1 (2016-04)

Annex 1 to: NL/DEK/ExTR11.0033/02, IECEx DEK 11.0042X,  
KEMA 03ATEX1074 X Issue 6



For the combined connection of the different supply, input and output circuits, the installation instructions of the manufacturer shall be observed. From the safety point of view the circuits shall be considered to be connected to earth. The following conditions of use shall be observed:

The indicator is classified as group IIB/IIIC. However, classification of the indicator as group IIC is possible, only under the following conditions:

- The indicator is either supplied by
  - the internal supply (option -PC); or
  - the external supply connected to terminals 0 and 1 (option -PD); or
  - the circuit supply connected to terminals 7 and 8 (option -AP);
- The maximum values for any of those circuits are those as defined for group IIB/IIIC;
- no other active external intrinsically safe circuits may be connected to the indicator, with exception of circuits connected to terminals 3 and 4 and/or terminals 5 and 6; the maximum values for any of those circuits are those as defined for group IIB/IIIC

	Electrical data	Model F1 .. -A Model F1 .. -U	Model F1 .. -P Model F1 .. -T	Model F1 .. -R
<b>Internal supply (Connector)</b> Option -PC	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 IIB/IIIC/IIIC, with the following maximum values: $U_i = 4 \text{ V}$ $I_i = 50 \text{ mA}$ $P_i = 200 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$			
	In type of protection intrinsic safety Ex ia IIB/IIIC or Ex ia IIC (as indicated below), only for connection to a certified intrinsically safe circuit, with following maximum values:			
<b>External supply input</b> Option -PD Terminals 0 and 1	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$	Ex ia IIB/IIIC If external circuits are connected to the external supply outputs, terminals 0 and 2 and where applicable terminals 9 and 11 and/or 12 and 14, the total amount of external capacitance and inductance of the circuits, connected to that terminals, is added to the effective internal capacitance $C_i$ and inductance $L_i$ of this external supply input circuit.		
<b>Active inputs</b> (Active pulse, 0/4-20mA, 0-10V)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$	Ex ia IIB/IIIC terminals 9 and 10, terminals 12 and 13, terminals 17 and 18, terminals 17 and 19		
<b>Pulse outputs</b> Option -OT Terminals 3 and 4, terminals 5 and 6	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$	Ex ia IIB/IIIC		
<b>Analog output "open drain"</b> Option -AF and -AP	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 17 \text{ nF}$	Ex ia IIB/IIIC  <u>Option -AF:</u> terminals 7 and 8 with respect to terminals 0, 3, 5, 9, 12 and 15. <u>Option -AP:</u> terminals 7 and 8.		
<b>Pulse/status inputs</b> Terminals 15 and 16	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ nF}$	Or in type of protection intrinsic safety Ex ia IIB/IIIC or Ex ia IIC, with the following maximum values: $U_o = 5,4 \text{ V}$ , $I_o = 1 \text{ mA}$ , $P_o = 2 \text{ mW}$ , $L_o = 1 \text{ H}$ , $C_o = 65 \text{ }\mu\text{F}$		
<b>Data communication circuit</b> Terminals 26, 27, 28, 29, 30 and 31	$U_i = 30 \text{ V}$ $I_i = 250 \text{ mA}$ $P_i = 850 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ nF}$	Ex ia IIB/IIIC		

Annex 1 to: NL/DEK/ExTR11.0033/02, IECEx DEK 11.0042X,  
KEMA 03ATEX1074 X Issue 6



	Electrical data	Model F1 .. -A Model F1 .. -U	Model F1 .. -P Model F1 .. -T	Model F1 .. -R
In type of protection intrinsic safety Ex ia IIB/IIIC or Ex ia IIC, with following maximum values:				
<b>Coil, Switch, PNP, NAMUR inputs</b> In combination <u>with</u> external supply (with option -PD)	$U_0 = 8,7 \text{ V}$ $I_0 = 25 \text{ mA}$ $P_0 = 150 \text{ mW}$  Ex ia IIB/IIIC $L_0 = 210 \text{ mH}$ $C_0 = 50 \text{ }\mu\text{F}$	Terminals 13 and 14	Terminals 10 and 11, terminals 13 and 14	Terminals 13 and 14
<b>Coil, Switch, NPN inputs</b> In combination <u>with</u> external supply (with option -PD)	Ex ia IIC $L_0 = 52,6 \text{ mH}$ $C_0 = 5,9 \text{ }\mu\text{F}$	Terminals 12 and 13	Terminals 9 and 10, terminals 12 and 13	Terminals 12 and 13
<b>Coil, Switch, PNP inputs</b> In combination <u>without</u> external supply (without option -PD)	$U_0 = 5,4 \text{ V}$ $I_0 = 5,2 \text{ mA}$ $P_0 = 7 \text{ mW}$  Ex ia IIB/IIIC $L_0 = 210 \text{ mH}$ $C_0 = 50 \text{ }\mu\text{F}$	Terminals 13 and 14	Terminals 10 and 11, terminals 13 and 14	Terminals 13 and 14
<b>Coil, Switch, NPN inputs</b> In combination <u>without</u> external supply (without option -PD)	Ex ia IIC $L_0 = 1 \text{ H}$ $C_0 = 65 \text{ }\mu\text{F}$	Terminals 12 and 13	Terminals 9 and 10, terminals 12 and 13	Terminals 12 and 13
<b>Potentiometer inputs</b> In combination <u>with</u> external or circuit supply (with option -PD, -AP) Terminals 9, 10 and 11, terminals 12, 13 and 14	$U_0 = 5,4 \text{ V}$ $I_0 = 162 \text{ mA}$ $P_0 = 750 \text{ mW}$  Ex ia IIB/IIIC $L_0 = 5,3 \text{ mH}$ $C_0 = 1000 \text{ }\mu\text{F}$	N.A.	N.A.	Applicable
<b>Pt100 inputs</b> In combination <u>with</u> external or circuit supply (with option -PD, -AP) Terminals 20, 21 and 22, terminals 23, 24 and 25	Ex ia IIC $L_0 = 1 \text{ mH}$ $C_0 = 65 \text{ }\mu\text{F}$	Applicable		
<b>Potentiometer inputs</b> In combination <u>without</u> external or circuit supply (without options -PD, -AP) Terminals 9, 10 and 11, terminals 12, 13 and 14	$U_0 = 5,4 \text{ V}$ $I_0 = 40 \text{ mA}$ $P_0 = 200 \text{ mW}$  Ex ia IIB/IIIC $L_0 = 5,3 \text{ mH}$ $C_0 = 1000 \text{ }\mu\text{F}$	N.A.	N.A.	Applicable
<b>Pt100 inputs</b> In combination <u>without</u> external or circuit supply (without options -PD, -AP) Terminals 20, 21 and 22, terminals 23, 24 and 25	Ex ia IIC $L_0 = 20 \text{ mH}$ $C_0 = 65 \text{ }\mu\text{F}$	Applicable		
<b>External supply outputs</b> When <u>both</u> terminal 10 and terminal 13 are configured either as analog inputs (0/4-20mA, 0-10V) or as not available	The maximum output values, including the maximum allowed external capacitance and inductance values are equal to the parameters of the intrinsically safe circuit, connected to the external supply input at terminals 0 and 1.	Ex ia IIB/IIIC  Terminals 0 and 2, terminals 9 and 11, terminals 12 and 14.	Ex ia IIB/IIIC  Terminals 0 and 2.	Ex ia IIB/IIIC  Terminals 0 and 2.
<b>External supply outputs</b> When <u>either</u> terminal 10 or terminal 13 is <u>not</u> configured as analog input (0/4-20mA, 0-10V) but is / are available		Ex ia IIB/IIIC Only  Terminals 0 and 2		

### 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

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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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T +31 26 3 56 20 00 F +31 26 3 52 58 00 www.dekra-certification.com Registered Arnhem 09085396





(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/\*\*.

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Form 115  
Version 2 (2011-01)

## 4 F-Series: 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](http://www.iecex.com)

Certificate No.: IECEx DEK 11.0042X

Issue No: 2

Certificate history:

Status: **Current**

Issue No. 2 (2019-02-22)

Issue No. 1 (2016-07-27)

Issue No. 0 (2011-04-22)

Date of Issue: **2019-02-22**

Page 1 of 4

Applicant: **Fluidwell B.V.**  
Vultaweg 23  
5466 AZ Veghel  
**The Netherlands**

Equipment: **Indicator Model F1 Series**

*Optional accessory:*

Type of Protection: **Ex i**

Marking:  
Ex ia IIC/IIB T4 Ga  
Ex ia IIC T<sub>200</sub> 100 °C Da

*Approved for issue on behalf of the IECEx  
Certification Body:*

R. Schuller

*Position:*

Certification manager

*Signature:  
(for printed version)*

*Date:*

2019-02-22

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](http://www.iecex.com).

Certificate issued by:

**DEKRA Certification B.V.**  
Meander 1051,  
6825 MJ Arnhem  
The Netherlands





## IECEx Certificate of Conformity

Certificate No: IECEx DEK 11.0042X

Issue No: 2

Date of Issue: **2019-02-22**

Page 2 of 4

Manufacturer: **Fluidwell B.V.**  
Vollaweg 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 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 : 2017** Explosive atmospheres - Part 0: Equipment - General requirements

Edition: 7.0

**IEC 60079-11 : 2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"

Edition: 6.0

*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/DEK/ExTR11.0033/02](#)

Quality Assessment Report:

[NL/DEK/QAR12.0019/04](#)



# IECEx Certificate of Conformity

Certificate No: IECEx DEK 11.0042X

Issue No: 2

Date of Issue: 2019-02-22

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## 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 F1...P-XI,	indicators with digital input (coil, switch, npn, pnp, active or Namur);
Model F1...A-XI,	indicators with analog input ((0)4 ... 20 mA);
Model F1...R-XI,	indicators with analog input ((0 ... 100 KOhm);
Model F1...U-XI,	indicators with analog input (0 ... 10 V);
Model F1...T-XI,	indicators with PT100 input.

The range of Indicators Series F1 includes the basic models with their variations as indicated in Annex 1.

The enclosure of the indicator provides a degree of protection of at least IP65 in accordance with IEC 60529.

Ambient temperature range: -40 °C to +70 °C, only for EPL Da the maximum ambient temperature is limited to 50 °C, see specific conditions of use.

The maximum temperature of the enclosure  $T_{200}$  100 °C is referred to an ambient temperature of 50 °C and a maximum dust layer thickness of 200 mm.

When used in a potentially explosive atmosphere requiring apparatus of EPL Db, the equipment may be used with a maximum dust layer thickness of 5 mm.

### Electrical data

See Annex 1.

### SPECIFIC CONDITIONS OF USE: 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.

For EPL Da the ambient temperature  $T_a$  shall not exceed 50 °C.





## IECEx Certificate of Conformity

Certificate No: IECEx DEK 11.0042X

Issue No: 2

Date of Issue: **2019-02-22**

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

- Evaluation to the latest edition of standards
- Minor changes to the construction

**Annex:**

[223345200-Annex1.pdf](#)

Annex 1 to: NL/DEK/ExTR11.0033/02, IECEx DEK 11.0042X,  
KEMA 03ATEX1074 X Issue 6



For the combined connection of the different supply, input and output circuits, the installation instructions of the manufacturer shall be observed. From the safety point of view the circuits shall be considered to be connected to earth. The following conditions of use shall be observed:

The indicator is classified as group IIB/IIIC. However, classification of the indicator as group IIC is possible, only under the following conditions:

- The indicator is either supplied by
  - the internal supply (option -PC); or
  - the external supply connected to terminals 0 and 1 (option -PD); or
  - the circuit supply connected to terminals 7 and 8 (option -AP);
 The maximum values for any of those circuits are those as defined for group IIB/IIIC;
- no other active external intrinsically safe circuits may be connected to the indicator, with exception of circuits connected to terminals 3 and 4 and/or terminals 5 and 6; the maximum values for any of those circuits are those as defined for group IIB/IIIC

	Electrical data	Model F1 .. -A Model F1 .. -U	Model F1 .. -P Model F1 .. -T	Model F1 .. -R
<b>Internal supply</b> (Connector) Option -PC	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 IIB/IIIC/IIIC, with the following maximum values: $U_i = 4 \text{ V}$ $I_i = 50 \text{ mA}$ $P_i = 200 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$			
	In type of protection intrinsic safety Ex ia IIB/IIIC or Ex ia IIC (as indicated below), only for connection to a certified intrinsically safe circuit, with following maximum values:			
<b>External supply input</b> Option -PD Terminals 0 and 1	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$	Ex ia IIB/IIIC If external circuits are connected to the external supply outputs, terminals 0 and 2 and where applicable terminals 9 and 11 and/or 12 and 14, the total amount of external capacitance and inductance of the circuits, connected to that terminals, is added to the effective internal capacitance $C_i$ and inductance $L_i$ of this external supply input circuit.		
<b>Active inputs</b> (Active pulse, 0/4-20mA, 0-10V)	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$	Ex ia IIB/IIIC terminals 9 and 10, terminals 12 and 13, terminals 17 and 18, terminals 17 and 19		
<b>Pulse outputs</b> Option -OT Terminals 3 and 4, terminals 5 and 6	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ }\mu\text{F}$	Ex ia IIB/IIIC		
<b>Analog output "open drain"</b> Option -AF and -AP	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 17 \text{ nF}$	Ex ia IIB/IIIC <u>Option -AF</u> : terminals 7 and 8 with respect to terminals 0, 3, 5, 9, 12 and 15. <u>Option -AP</u> : terminals 7 and 8.		
<b>Pulse/status inputs</b> Terminals 15 and 16	$U_i = 30 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 750 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ nF}$	Or in type of protection intrinsic safety Ex ia IIB/IIIC or Ex ia IIC, with the following maximum values: $U_o = 5,4 \text{ V}$ , $I_o = 1 \text{ mA}$ , $P_o = 2 \text{ mW}$ , $L_o = 1 \text{ H}$ , $C_o = 65 \text{ }\mu\text{F}$		
<b>Data communication circuit</b> Terminals 26, 27, 28, 29, 30 and 31	$U_i = 30 \text{ V}$ $I_i = 250 \text{ mA}$ $P_i = 850 \text{ mW}$ $L_i = 0 \text{ mH}$ $C_i = 0 \text{ nF}$	Ex ia IIB/IIIC		

Annex 1 to: NL/DEK/ExTR11.0033/02, IECEx DEK 11.0042X,  
KEMA 03ATEX1074 X Issue 6



	Electrical data	Model F1 .. -A Model F1 .. -U	Model F1 .. -P Model F1 .. -T	Model F1 .. -R
In type of protection intrinsic safety Ex ia IIB/IIIC or Ex ia IIC, with following maximum values:				
<b>Coil, Switch, PNP, NAMUR inputs</b> In combination <u>with</u> external supply (with option -PD)	U <sub>0</sub> = 8,7 V I <sub>0</sub> = 25 mA P <sub>0</sub> = 150 mW  Ex ia IIB/IIIC L <sub>0</sub> = 210 mH C <sub>0</sub> = 50 µF	Terminals 13 and 14	Terminals 10 and 11, terminals 13 and 14	Terminals 13 and 14
<b>Coil, Switch, NPN inputs</b> In combination <u>with</u> external supply (with option -PD)	Ex ia IIC L <sub>0</sub> = 52,6 mH C <sub>0</sub> = 5,9 µF	Terminals 12 and 13	Terminals 9 and 10, terminals 12 and 13	Terminals 12 and 13
<b>Coil, Switch, PNP inputs</b> In combination <u>without</u> external supply (without option -PD)	U <sub>0</sub> = 5,4 V I <sub>0</sub> = 5,2 mA P <sub>0</sub> = 7 mW  Ex ia IIB/IIIC L <sub>0</sub> = 210 mH C <sub>0</sub> = 50 µF	Terminals 13 and 14	Terminals 10 and 11, terminals 13 and 14	Terminals 13 and 14
<b>Coil, Switch, NPN inputs</b> In combination <u>without</u> external supply (without option -PD)	Ex ia IIC L <sub>0</sub> = 1 H C <sub>0</sub> = 65 µF	Terminals 12 and 13	Terminals 9 and 10, terminals 12 and 13	Terminals 12 and 13
<b>Potentiometer inputs</b> In combination <u>with</u> external or circuit supply (with option -PD, -AP) Terminals 9, 10 and 11, terminals 12, 13 and 14	U <sub>0</sub> = 5,4 V I <sub>0</sub> = 162 mA P <sub>0</sub> = 750 mW  Ex ia IIB/IIIC L <sub>0</sub> = 5,3 mH C <sub>0</sub> = 1000 µF	N.A.	N.A.	Applicable
<b>Pt100 inputs</b> In combination <u>with</u> external or circuit supply (with option -PD, -AP) Terminals 20, 21 and 22, terminals 23, 24 and 25	Ex ia IIC L <sub>0</sub> = 1 mH C <sub>0</sub> = 65 µF	Applicable		
<b>Potentiometer inputs</b> In combination <u>without</u> external or circuit supply (without options -PD, -AP) Terminals 9, 10 and 11, terminals 12, 13 and 14	U <sub>0</sub> = 5,4 V I <sub>0</sub> = 40 mA P <sub>0</sub> = 200 mW  Ex ia IIB/IIIC L <sub>0</sub> = 5,3 mH C <sub>0</sub> = 1000 µF	N.A.	N.A.	Applicable
<b>Pt100 inputs</b> In combination <u>without</u> external or circuit supply (without options -PD, -AP) Terminals 20, 21 and 22, terminals 23, 24 and 25	Ex ia IIC L <sub>0</sub> = 20 mH C <sub>0</sub> = 65 µF	Applicable		
<b>External supply outputs</b> When <u>both</u> terminal 10 and terminal 13 are configured either as analog inputs (0/4-20mA, 0-10V) or as not available	The maximum output values, including the maximum allowed external capacitance and inductance values are equal to the parameters of the intrinsically safe circuit, connected to the external supply input at terminals 0 and 1.	Ex ia IIB/IIIC  Terminals 0 and 2, terminals 9 and 11, terminals 12 and 14.	Ex ia IIB/IIIC  Terminals 0 and 2.	Ex ia IIB/IIIC  Terminals 0 and 2.
<b>External supply outputs</b> When <u>either</u> terminal 10 or terminal 13 is <u>not</u> configured as analog input (0/4-20mA, 0-10V) but is / are available		Ex ia IIB/IIIC Only  Terminals 0 and 2		

## 5 Batteries: IECEx Certificate of Conformity

 <h1>IECEx Certificate of Conformity</h1>	
<b>INTERNATIONAL ELECTROTECHNICAL COMMISSION</b> <b>IEC Certification Scheme for Explosive Atmospheres</b> <small>for rules and details of the IECEx Scheme visit <a href="http://www.iecex.com">www.iecex.com</a></small>	
Certificate No.:	IECEx KEM 08.0005U
Issue No.:	1
Status:	Current
Date of Issue:	2011-06-16
Applicant:	Fluidwell B.V. Vollweg 23 5466 AZ Veghel The Netherlands
Electrical Apparatus:	Intrinsically safe non-rechargeable battery Type FW-LIBAT-...
Optional accessory:	
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: (for printed version)	
Date:	2011-06-16
<p>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 <a href="http://www.iecex.com">Official IECEx Website</a>.</p>	
<p>Certificate issued by:</p> <p><b>DEKRA Certification B.V.</b>                  Utrechtseweg 310                  6812 AR Arnhem                  The Netherlands</p> <p>All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group.</p> 	





## IECEx Certificate of Conformity

Certificate No.: IECEx KEM 08.0005U

Date of Issue: 2011-06-16

Issue No.: 1

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Manufacturer: **Fluidwell B.V.**  
Vollaweg 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

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### 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

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### 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

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**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.



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## Notes

[illegible]

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