



1. EU-TYPE EXAMINATION CERTIFICATE

2. Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU

3. EU-Type Examination Certificate No: FM18ATEX0047X

4. Equipment or protective system: (Type Reference and Name) Model 882 Weighing System comprising: 882IS and 882IS Plus Digital Weight Indicators; mb-EPS-100-240-X2 Dual Output Power Supply & IS6V2 Battery Module.

5. Name of Applicant: Rice Lake Weighing Systems

6. Address of Applicant 230 West Coleman Street, Rice Lake, Wisconsin 54868, USA

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

8. FM Approvals Europe Ltd, notified body number 2809 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number:

3062120 dated 25th February 2019

9. Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN IEC 60079-0:2018, EN 60079-11:2012, EN 60079-18:2015+A1:2017, EN 60529:1991+A1:2000+A2:2013

10. 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.

11. This EU-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

Certificate issued by:

Digitally signed by Richard Zammit
Location: Ireland
Foxit PDF Editor
Version: 13.0.1

Certification Manager, FM Approvals Europe Ltd.

Date 20 February 2024

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

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12. The marking of the equipment or protective system shall include:



See Annex.

13. Description of Equipment or Protective System:

The Model 882 Weighing System comprises the 882IS or 882IS Plus Digital Weight Indicators; the mb-EPS-100-240-X2 Power Supply & the IS6V2 Battery Module.

The 882IS and 882IS Plus Digital Weight Indicators are housed in a rectangular stainless steel enclosure with an ingress rating of IP66 and incorporating the CPU board and LCD display visible through a polymeric overlay. The 882IS Plus Digital Weight Indicator incorporates a numeric keypad, the 882IS has a display with no keypad. The indicators are powered by an external power supply and have input parameters $U_i = 7.9V$, $I_i = 3.65A$, $C_i = 37.68 \mu F$, $L_i = 0 \mu H$, $P_i = 1.25W$. There are five intrinsically safe input / output circuits: J1 Load Cell; J2 Digital Input; J3A RS485; J1 Fiber Optic and J3 Power Input.

The mb-EPS-100-240-X2 Dual Output Power Supply is housed in a rectangular steel enclosure and has fully encapsulated electronics. The power supply is intended for use with the 882IS and 882IS Plus Digital Weight Indicators and has $U_{oc} = 7.875 V$, $I_o = 1.326 A$, $C_o = 8.8 \mu F$, $L_o = 20.2 \mu H$, $P_o = 2.6 W$ A per channel. The IS6V2 Battery Module contains a 6V, 10AH sealed lead acid battery housed in a stainless steel enclosure. The supply provides one intrinsically safe output. The battery supply is intended for use with the 882IS and 882IS Plus Digital Weight Indicators and has $U_o = 7.05 V$, $I_o = 3.56 A$, $C_o = 14.6 \mu F$, $L_o = 20.2 \mu H$, $P_o = 6.0 W$.

Operation Temperature Ranges:

The ambient operating temperature range of the Weighing System is $-10^{\circ}C$ to $40^{\circ}C$.

Electrical data:

882IS & 882IS Plus Digital Weight Indicators

Input parameters:

Connection	U_i	I_i	C_i	L_i	P_i
J3A	5.88 V	3.65 A	37.68 μF	0 μH	1.25 W
J3	7.9 V	3.65 A	6.38 μF	0 μH	6.27 W

Output parameters:

Connection	U_o	I_o	C_o	L_o	P_o
J1	5.88 V	150 mA	5.32 μF	1577 μH	220.5 mW
J2	5.88 V	500 mA	5.32 μF	140 μH	735 mW
J3A	5.88 V	3.65 A	5.32 μF	2.669 μH	1.25 W

mb-EPS-100-240-X2. Power Supply.

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U_o	I_o	C_o	L_o	P_o
7.875 V	1.326 A	8.8 μ F	20.2 μ H	2.6 W

IS6V2. Battery Module

U_o	I_o	C_o	L_o	P_o
7.05 V	3.56 A	14.6 μ F	2.8 μ H	6.0 W

See Annex.

14. Specific Conditions of Use:

See Annex.

15. Essential Health and Safety Requirements:

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16. Test and Assessment Procedure and Conditions:

This EU-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Europe Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Europe Ltd's ATEX Certification Scheme.

17. Schedule Drawings

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

18. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
16 April 2019	Original Issue.

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Date	Description
15 July 2019	<u>Supplement 1:</u> Report Reference: RR219510 dated 09 th July 2019. Description of the change: Minor document update.
9 August 2019	<u>Supplement 2:</u> Report Reference: RR219977 dated 07 th August 2019. Description of the change: Re-route F1 and replace obsolete resistors on 882IS Indicator CPU board,
25 October 2019	<u>Supplement 3:</u> Report Reference: RR220857 dated 24 th October 2019. Description of the change: Minor documentation change related to Dual Power Supply fuse F3 & F4 updates.
4 December 2019	<u>Supplement 4:</u> Report Reference: RR221534 dated 03 rd December 2019. Description of the change: Manufacturing changes to improve function of switch membrane.
12 August 2020	<u>Supplement 5:</u> Report Reference: RR224409 dated 11 th August 2020. Description of the change: Added minimum temperature information for indicator gasket.
15 June 2021	<u>Supplement 6:</u> Report Reference: RR227796 dated 11 th June 2021. Description of the change: Minor changes to construction and documentation, not impacting certification. Update EN 60079-18:2015 to include A1:2017.
4 April 2022	<u>Supplement 7:</u> Report Reference: RR231732 dated 30 th March 2022. Description of the change: Gap analysis EN60079-0:2011 to EN60079-0:2018. Dust rating is revised from "II 1 D Ex ia IIIC Da" to "II 2 D Ex ib IIIC Db".
7 December 2022	<u>Supplement 8:</u> Report Reference: PR462394 dated 02 nd December 2022. Description of the change: Documents updated because UKEX certification added to label and installation documents.
20 February 2024	<u>Supplement 9:</u> Report Reference: RR239085 dated 26 January 2024. Description of the Change(s): Minor design and drawing changes not affecting compliance. Added a Specific Conditions of Use for the mb-EPS-100-240-X2 which had been inadvertently omitted before. Annex added.

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EU-Type Examination Certificate No. FM18ATEX0047X



ANNEX

882IS, 882IS Plus

Markings:



II 1 G Ex ia IIC T4 Ga $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$
II 2 D Ex ib IIIC T135°C Db $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$

Description of Equipment:

882IS, 882IS Plus. Digital Weight Indicator

Entity Input parameters:

J3A: $V_{\text{Max}} = 5.88 \text{ V}$, $I_{\text{Max}} = 3.65 \text{ A}$, $C_i = 37.68 \mu\text{F}$, $L_i = 0 \mu\text{H}$, $P_{\text{Max}} = 1.25 \text{ W}$.

J3: $V_{\text{Max}} = 7.9 \text{ V}$, $I_{\text{Max}} = 3.65 \text{ A}$, $C_i = 6.38 \mu\text{F}$, $L_i = 0 \mu\text{H}$, $P_{\text{Max}} = 6.27 \text{ W}$.

Entity Output parameters:

J1: $V_{\text{oc}} = 5.88 \text{ V}$, $I_{\text{sc}} = 150 \text{ mA}$, $C_a = 5.32 \mu\text{F}$, $L_a = 1577 \mu\text{H}$, $P_o = 220.5 \text{ mW}$.

J2: $V_{\text{oc}} = 5.88 \text{ V}$, $I_{\text{sc}} = 500 \text{ mA}$, $C_a = 5.32 \mu\text{F}$, $L_a = 140 \mu\text{H}$, $P_o = 735 \text{ mW}$.

J3A: $V_{\text{oc}} = 5.88 \text{ V}$, $I_{\text{sc}} = 3.65 \text{ A}$, $C_a = 5.32 \mu\text{F}$, $L_a = 2.669 \mu\text{H}$, $P_o = 1.25 \text{ W}$.

Specific Conditions of Use:

1. The surface of the LCD display of the 882IS /882IS Plus Weight Indicator is considered to constitute an electrostatic discharge hazard. Clean only with a damp cloth.

IS6V2

Markings:



II 1 G Ex ia IIC T4 Ga $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$
II 2 D Ex ib IIIC T135°C Db $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$

Description of Equipment:

IS6V2. Battery Module.

Entity Parameters:

$V_{\text{oc}} = 7.05 \text{ V}$, $I_{\text{sc}} = 3.56 \text{ A}$, $P_o = 6.0 \text{ W}$, $C_a = 14.6 \mu\text{F}$, $L_a = 2.8 \mu\text{H}$.

Specific Conditions of Use:

1. The IS6V2 Battery Module cable lockout device must be installed over the connection between the battery and the cable. Lockout device must be in place at all times in the hazardous area and can only be removed in a non-hazardous area. The lockout device must be re-installed prior to re-entering the hazardous area.
2. The IS6V2 Battery Module is for use only with the Model NP10-6 battery manufactured by ENERSYS.

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SCHEDULE

EU-Type Examination Certificate No. FM18ATEX0047X



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mb-EPS-100-240-X2

Markings:



II 2(1) G Ex mb [ia Ga] IIC T4 Gb $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$
II 2(1) D Ex mb [ia Da] IIIC T135°C Db $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$

Description of Equipment:

mb-EPS-100-240-X2. Power Supply.

Entity Parameters:

$V_{oc} = 7.875 \text{ V}$, $I_{sc} = 1.326 \text{ A}$, $C_a = 8.8 \mu\text{F}$, $L_a = 20.2 \mu\text{H}$, $P_o = 2.6 \text{ W}$

Specific Conditions of Use:

1. The mb-EPS-100-240-X2 is not for use in acidic atmospheres.

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Blueprint Report

Rice Lake Weighing Systems (1000003334)

Class No 3610

Original Project I.D. 3062120

Certificate I.D. FM18ATEX0047X

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>
163768	C	GASKET 880 INDICATOR	RR224409
174868	D	OVERLAY 882IS INDICATOR MEMBRANE SWITCH WITH NUMERIC KEYS	RR227796
175220	D	OVERLAY 882IS INDICATOR MEMBRANE SWITCH WITH NUMERIC KEYS	RR227796
180801	C	ENCLOSURE 882IS IS INDICATOR	3062120
180831	C	BATTERY OPTION IS6VS	RR227796
180837	B	POWER SUPPLY MB-EPS-100-240-X2	3062120
180862	D	LABEL FM DATAPLATE 882IS	RR239085
182301	A	mb-EPS-100-240-X2 CONTROL DRAWING	3062120
185634	A	IS POTTED BARRIER FOR IS6V2 BATTERY	3062120
186430	A	IS6V2 BATTERY CONTROL DRAWING	3062120
187140	A	POWER CORD ASSY 882IS POWER SUPPLY	3062120
190545	D	LABEL FM DATAPLATE IS6V2 BATTERY BOX	RR239085
190546	C	LABEL FM DATAPLATE MB-100-240-X2	RR239085
191698	D	882IS/882IS Plus Conditions of Use in Hazardous Locations	RR239085
221416	A	882IS Control drawing, Dual Fiber	RR239085
882IS-IND	C	INDICATOR, 882IS PLUS LCD DISPLAY	RR239085
A180631	B	PCB ASSY 882IS DUAL PWRSUP	RR220857
A185628	A	PCB ASSEMBLY IS6V2 BARRIER	3062120
A221062	A	PCB ASSY 882IS Dual Fiber CPU	RR239085
B180631RB_BOM	B	ASSY PCB 882IS PWRSUP BOM	RR227796
B185628RA_BOM	A1	ASSY PCB 185628 IS6V_BARRIER BOM	RR239085
B221062RA_BOM	A	ASSY PCB 882IS DISPLAY/CPU Dual Fiber BOM	RR239085
DS180631	B	PCB DESIGN SPEC 882IS DUAL POWER SUPPLY	RR220857
DS185628	A1	PCB DESIGN SPEC IS6V2 BARRIER	RR239085
DS221062	A	ASSEMBLY, PRINTED CIRCUIT BOARD 882IS CPU Dual Fiber 221062	RR239085
F180631	B	PCB FABRICATION 882IS DUAL POWER SUPPLY	RR220857
F187278	A	PCB FABRICATION IS6V2 BARRIER BOARD	3062120
F221062	A	PCB Fabrication 882IS, Dual Fiber CPU	RR239085
RLW494	B	ENGINEERING SPEC SWITCH MEMBRANE	RR221534
S180631RB_SCH	B	SCHEMATIC 882IS DUAL PWRSUP PCB BLOCK DIAGRAM	RR227796
S185628RA_SCH	A	SCHEMATIC IS6V2 BARRIER IS BARRIER CKT	3062120
S221062	A	882IS, Dual Fiber CPU RA1 PCB Block Diagram	RR239085