

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**

2. **Certificate No:** FM18US0307X
3. **Equipment:**
(Type Reference and Name) Load cell, models RL260FD, RL42018A, RL1218A, RL26018A, RL9018SS, RL32018, RL32018S, RL32018S-HE, RL32018S-P, RL32218S-HE, RL32019S-HE, RL32018S-T, RL72019SS, RL75058-LP, RL75058S-LP, RL72020, RL72020P, 72020SS
4. **Name of Listing Company:** Rice Lake Weighing Systems
5. **Address of Listing Company:** 230 West Coleman Street
Rice Lake, Wisconsin 54868
USA

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

PR452242 dated 20th December 2018

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3610:2015, FM Class 3810:2017, ANSI/ISA 60079-0:2013
ANSI/ISA 60079-11:2014, ANSI/ISA 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.

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

10 June 2021

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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

SCHEDULE



US Certificate Of Conformity No: FM18US0307X

10 Equipment Ratings:

Intrinsically Safe for Class I, II and III, Division 1, Groups A, B, C, D, E, F and G hazardous (classified) locations, indoors and outdoors, with an ambient temperature rating of T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$, IP66, IP67, IP68.

11 The marking of the equipment shall include:

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$, IP66 (model RL42018A); IP67 (models RL1218A, RL26018A, RL32018, RL32018S, RL75058-LP, RL72020, RL72020P and RL72020SS); IP68 (models RL260FD, RL9018SS, RL32018S-HE, RL32018S-P, RL32218S-HE, RL32019S-HE, RL32018S-T, RL72019SS and RL75058S-LP).

12 Description of Equipment:

General – All of the load cells are transducers that create an electrical signal whose magnitude is directly proportional to the force applied. Electrical components are inside the load cell, protected using different systems: silicone coating, welded or screwed housing. The degree of protection against the ingress of foreign objects depends on the model and variant, and can be IP66, IP67 or IP68.

The operating principle of the load cells is by strain gauges glued onto an elastic body. The load cells work by bending beam, shear beam, or compression, depending on the model. The strain gauges form a full Wheatstone bridge.

Model RL32018 has variant RL32018S which is protected with silicone coating and RL32018S-HE, RL32018S-P, RL32218S-HE, RL32019S-HE and RL32018S-T which are welded. Model RL75058-LP is protected with silicone coating and its variant model RL75058S-LP is welded.

Construction – The construction material can be aluminum, alloy steel or stainless steel.

Ratings – $U_i = 15\text{V}$, $I_i = 0.288\text{A}$, $P_i = 1.08\text{W}$;
 $U_i = 13\text{V}$, $I_i = 0.332\text{A}$, $P_i = 1.08\text{W}$.

Model RL42018A

RL42018A Load cell.

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP66.

Model RL1218A.

RL1218A Load cell.

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP67.

Model RL26018A

RL26018A Load cell.

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP67.

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Model RL9018SS

RL9018SS Load cell.

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP68.

Model RL32018

RL32018 Load cell.

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP67

Model RL32018S

RL32018S Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP67

Model RL32018S-HE

RL32018S-HE Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP68

Model 32018S-P

RL32018S-P Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP68

Model RL32218S-HE

RL32218S-HE Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP68

Model RL32019S-HE

RL32019S-HE Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP68

Model RL32018S-T

RL32018S-T Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143; IP68

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Model RL260FD

RL260FD Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143;
IP68

Model RL72019SS

RL72019SS Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143;
IP68

Model RL75058-LP

RL75058-LP Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143;
IP67

Model RL72020

RL72020 Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143;
IP67

Model RL72020P

RL72020P Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143;
IP67

Model RL72020SS

RL72020SS Load Cell

IS / I, II, III / 1 / ABCDEFG / T4 for $-25^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$; Control Drawing #193143;
IP67

13 Specific Conditions of Use:

The load cell models RL42018A, RL1218A and RL26018A contain aluminum and are considered to constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation to prevent impact or friction.

14 Test and Assessment Procedure and Conditions:

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

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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
20 th December 2018	Original Issue.
3 rd October 2019	<u>Supplement 1:</u> Report Reference: PR454507 dated 3 rd October 2019. Description of the change: Addition of Load Cell Models RL260FD and RL72019SS
1 st June 2020	<u>Supplement 2:</u> Report Reference: PR457128 dated 1 st June 2020. Description of the change: Addition of load cell models RL75058-LP and RL75058S-LP.
10 th June 2021	<u>Supplement 3:</u> Report Reference: PR459853 dated 10 th June 2021. Description of the change: Addition of models RL72020, RL72020P, and RL72020SS.

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GENERAL NOTES:

1. INSTALLATION SHOULD BE IN ACCORDANCE WITH:
MANUFACTURER’S INSTRUCTIONS AND THE US/CANADIAN ELECTRICAL CODE ANSI/NFPA 70 AND CSA C22.1
2. BARRIER MANUFACTURERS INSTALLATION DRAWINGS MUST BE FOLLOWED WHEN INSTALLING THESE EQUIPMENTS
3. ALL BARRIERS SHALL BE CONNECTED TO INSTALLATION GROUND
4. JUNCTION BOX MANUFACTURERS INSTALLATION DRAWINGS MUST BE FOLLOWED WHEN INSTALLING THESE EQUIPMENTS
5. ELECTRICAL EQUIPMENT CONNECTED MUST NOT USE OR GENERATE MORE THAN 250V RMS OR DC
6. ALL WIRING HAS DISTRIBUTED INDUCTANCE AND CAPACITANCE. THE MAXIMUM PERMITTED CABLE PARAMETERS FOR THE PARTICULAR BARRIER MUST NOT BE EXCEEDED. IF THE INDUCTANCE AND CAPACITANCE OF THE CABLE USED ARE NOT KNOWN, 56 mH/m (0.2 mH/ft) AND 196 pF/m (60 pF/ft) MAY BE USED AS A CONSERVATIVE CRITERIA FOR DETERMINATION OF CABLE EFFECTS
7. LOAD CELL MODELS COVERED BY THIS DRAWING:
RL42018A, RL1218A, RL26018A, RL9018SS, RL32018, RL32018S, RL32018S–HE, RL32018S–P, RL32218S–HE, RL32019S–HE, RL32018S–T, RL72019SS, RL260FD, RL75058–LP, RL75058S–LP, RL72020, RL72020SS, RL32022, RL32022–S, RL77032, RL77032SS, RL77032SS–HE, RL82021, RL82025, RL50225, RL26001A, RL20025A, RL20025SS
8. OPTIONAL JUNCTION BOXES MUST BE APPROVED FOR USE WITH INTRISICALLY SAFE CIRCUITS FOR THE APPROPRIATE HAZZARDOUS LOCATION AREA.
9. APPLICATIONS NOT REQUIRING EXCITATION SENSING, SHALL EITHER TERMINATE AND INSULATE UNUSED SENSE WIRES OR CONNECT THE SENSING LEADS TO THE EXCITATION LEAD OF THE SAME POLARITY
10. STANDARD LOAD CELL MODELS RL42018A, RL1218A AND RL26018A CONTAIN ALUMINUM AND ARE CONSIDERED TO CONSTITUTE A POTENTIAL RISK OF IGNITION BY IMPACT OR FRICTION. CARE MUST BE TAKEN INTO ACCOUNT DURING INSTALLATION AND USE TO PREVENT IMPACT OR FRICTION
11. NON STANDARD VARIANTS OF ANY MODEL MADE OF ALUMINUM SHALL FULFILL POINT 10.
12. LOAD CELLS HAVE TO BE CONNECTED TO INSTALLATION GROUND. THAT SHALL BE ACHIEVED THROUGH MOUNTING BOLTS, MOUNTING ACCESSORIES, OR OTHER MEANS THAT ASSURE GROUNDING CONNECTIONS MUST BE COMPLIANT WITH THE NATIONAL ELECTRICAL CODE FOR THE U.S., AND WITH THE CANADIAN ELECTRICAL CODE FOR CANADA

WARNING – EXPLOSION HAZARD – SUBSTITUTION OF LOAD CELL AND/OR OTHER ELEMENTS MAY IMPAIR INTRINSIC SAFETY
WARNING – EXPLOSION HAZARD – TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING

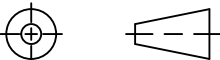
GENERAL HAZARDOUS (CLASSIFIED) LOCATION:
INTRINSICALLY SAFE CLASS I DIV 1 GROUP A–B–C–D TEMP. CLASS T4
INTRINSICALLY SAFE CLASS II,III DIV 1 GROUP E–F–G TEMP. CLASS T4

PERMISSIBLE AMBIENT TEMPERATURE AND TEMPERATURE CODE:
T4 TA: –25°C TO +60°C

Ui [V]	Ii [A]	Pi [W]	Ci [pF]	Li [mH]
15	0.288	1.08	0	0
13	0.332	1.08	0	0

REVISIONS			
REV	REFERENCE	INIT	DATE
A	ENGINEERING RELEASE	ABC	11/6/18
B	ECO16645: ADD RL72019SS & RL260FD	ABC	6/27/19
C1	ECO16995: ADD RL75058–LP, RL75058S–LP,RL72020, RL72020P & RL72020SS	ABC	3/5/21
D	ECO17706: ADDED RL32022 & RL32022–S	ABC	3/11/22
E1	ECO18473: ADDED RL77032 VERSIONS	ABC	4/23/24
F	ECO18774: ADDED RL82021 & RL82025	ABC	1/7/25
G	ECO18845: ADDED RL50225	ABC	2/21/25
H	ECO19128: ADDED RL26001A, RL20025A & RL20025SS	ABC	10/1/25

DRAWING REVISIONS MUST BE APPROVED
BY FACTORY MUTUAL PRIOR TO RELEASE.

		UNLESS OTHERWISE SPECIFIED UNITS TO BE INCHES ALL THREADS TO BE CLASS 2 ALL DIMENSIONS APPLICABLE AFTER TREATMENT				THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN IS AND REMAINS THE PROPERTY OF RICE LAKE WEIGHING SYSTEMS INC. AND IS CONFIDENTIAL. IT IS SUBMITTED AND MAY BE USED ONLY IN CONNECTION WITH RICE LAKE WEIGHING SYSTEMS' PROPOSAL AND/OR ITS CUSTOMERS' ORDERS. IT SHALL NOT BE DISCLOSED TO OTHERS OR COPIED WITHOUT RICE LAKE WEIGHING SYSTEMS' SPECIFIC WRITTEN CONSENT AND SHALL BE IMMEDIATELY RETURNED UPON REQUEST.					
MATERIAL ---		DO NOT SCALE DRAWING	DRAWING TOLERANCES UNLESS OTHERWISE SPECIFIED			TITLE INSTALLATION DRAWING, LOAD CELLS IN HAZARDOUS AREAS					
TREATMENT ---		FOR RLWS USE ONLY 	SURFACE FINISH ---✓	TOL.	DECIMAL						
				2 PLC	---						
				3 PLC	---						
				ANGLE	---				DWG NO 193143		
THIRD ANGLE PROJECTION 		MFG.ENG. APPROVED ABC 11/6/18		CKD.		RICE LAKE WEIGHING SYSTEMS			REVISION H		
		DES.ENG. APPROVED ABC 11/6/18		DR.BY ABC 11/6/18		SCALE NA	SHEET 1 OF 3				

