



CELULAS DE CARGA PARA ATMÓSFERAS EXPLOSIVAS
EXPLOSIVE ATMOSPHERES LOAD CELLS
WÄGEZELLEN FÜR EXPLOSIVE ATMOSPHEREN
CAPTEURS POUR ATMOSPHERES EXPLOSIVES

140-160-190-210-220-260-300-350-480-630-740-PIN

INSTRUCCIONES DE INSTALACIÓN
INSTALLATION INSTRUCTIONS
INSTALLATIONSANLEITUNG
INSTRUCTIONS D'INSTALLATION



TÉCNICAS DE ELECTRÓNICA Y AUTOMATISMOS, S.A.

UTILCELL Célula de carga / Load Cell / Wägezelle / Capteur
Modelo / Model / Modell / Modèle:
140-160-190-210-220-260-300-350-480-630-740-PIN

CARACTERÍSTICAS / CHARACTERISTICS / TECHNISCHE DATEN /
CARACTÉRISTIQUES

Tensión de alimentación nominal / Nominal input voltage / Nom. Speisespannung /
Tension d'alimentation nominale: 10V

Resistencia de entrada / Input impedance / Eingangswiderstand / Impédance d'entrée:

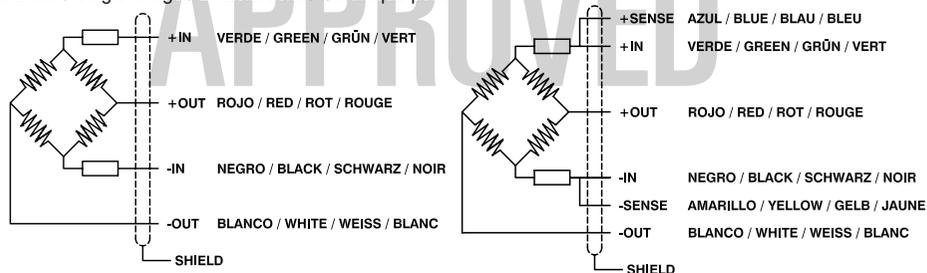
140-160-190-210-220-260-630: 400±20 Ω
300-350: 400±20...1150±60 Ω
480: 800±30 Ω
740: 800±30 Ω
PIN: Variable (*)

Resistencia de salida / Output impedance / Ausgangswiderstand / Impédance de sortie:

140-160-190-210-220-260-630: 350±3 Ω
300-350: 350±3...1000±10 Ω
480: 700±5 Ω
740: 705±5 Ω
PIN: Variable (*)

(*) Resistencias dependen de la configuración de cada PIN / Impedances depend on each PIN configuration / Die Eingangs- und Ausgangswiderstände hängen von der jeweiligen PIN Konfiguration ab / Les impédances dépendent de la configuration de chaque PIN

- Puente único / Single bridge / Einzelbrücke / Un unique pont



Nota: Código de colores indicado a título de ejemplo. Cada caso tendrá indicado el código de colores que le corresponda / Note: Color coding showed as an example. Each case shall have its corresponding coding / Hinweis: Die Farbcodierung ist nur beispielhaft angegeben und hängt von der individuellen Ausführung ab / Note: le code de couleur est indiqué à titre d'exemple. Dans chaque cas sera mentionné le code de couleur qui correspond

- Puentes dobles independientes: cada puente es como un puente único excepto que comparten malla cuando el cable de entrada es común a ambos puentes / Independent double bridges: each bridge is like a single bridge except that they share the shield when the input cable is common to both bridges / Unabhängige Doppelbrücken: Bei gemeinsamen Kabel sind die Brücken unabhängig voneinander, außer dem gemeinsamen Schirm / Deux ponts indépendants: chacun est complet. Seulement la maille de faradisation est commune quand les deux ponts partagent un même câble extérieur

- Puentes dobles alimentación común: los hilos de alimentación son comunes a ambos puentes así como la malla del cable / Double bridges common supply: supply wires are common to both bridges as well as cable shield / Doppelbrücken mit gemeinsamer Speisung: Speiseleitungen und der Schirm sind gemeinsam für beide Brücken / Deux ponts partagent l'alimentation: les deux fils d'alimentation et la maille de faradisation sont communs aux deux ponts

INSTRUCCIONES DE SEGURIDAD / SAFETY INSTRUCTIONS /
SICHERHEITSAUWEISUNGEN / INSTRUCTIONS DE SÛRETÉ

Este equipo puede ser utilizado con el modo de protección: **IS (Intrinsic Safety)** / This equipment may be used with safety mode: **IS (Intrinsic Safety)** / Dieses Gerät kann mit der Zündschutzart verwendet werden: **IS (Intrinsic Safety)** / Cet équipe peut être utilisée avec le mode de protection: **IS (Intrinsic Safety)**

Como equipo de Clase I División 1 Designaciones de grupo A, B, C y D; y Clases II y III División 1 Designaciones de grupo E, F y G / As equipment of Class I Division 1 Group designations A, B, C and D; and Classes II and III Division 1 Group designations E, F and G / Als Gerät der Klasse I Division 1 Gruppenbezeichnungen A, B, C und D; und Klassen II und III Division 1 Gruppenbezeichnungen E, F und G / Comme équipe du Catégorie I Division 1 Désignations de groupe A, B, C et D; et Catégories II et III Division 1 Désignations de groupe E, F et G

En un circuito con los siguientes Parámetros específicos del modo de protección / In a circuit with the following Type of protection specific parameters / In einen Stromkreis mit den spezifischen Kenngrößen der Zündschutzart / Dans un circuit avec les suivants Paramètres spécifiques de la mode de protection

| U _i [V] | I _i [A] | P _i [W] | C _i [pF] | L _i [mH] |
|--------------------|--------------------|--------------------|---------------------|---------------------|
| 15 | 0.288 | 1.08 | 0 | 0 |
| 13 | 0.332 | 1.08 | 0 | 0 |

Y con el Marcado de protección / And with the Protective mark / Und mit Kennzeichnung der Zündschutzart / Et avec le Marcade de protection

IS/I/1/ABCD/T4
IS/II,III/1/EF/G/T4
Ta: -25°C to +60°C
FM ctrl. drw. HM-0811

Amparado por los certificados FM17US0192X y FM17CA0103X emitidos por FM Approvals LLC⁽¹⁾ / Covered by certificates FM17US0192X and FM17CA0103X emitted by FM Approvals LLC⁽¹⁾ / Abgedeckt durch die Testbescheinigung FM17US0192X und FM17CA0103X ausgestellt durch die FM Approvals LLC⁽¹⁾ / Couvert par les certificats FM17US0192X et FM17CA0103X émis par FM Approvals LLC⁽¹⁾

(1) El uso de las cajas suma Utilcell modelos 89092 (8 cels.) y 89093 (4 cels.) queda amparado por estos certificados / Use of Utilcell junction boxes models 89092 (8 cells) and 89093 (4 cells) is covered by these certificates / Die Verwendung von Utilcell-Verteilerkästen der Modelle 89092 (8 Zellen) und 89093 (4 Zellen) wird durch diese Zertifikate abgedeckt / L'utilisation des boîtes de jonction Utilcell modèles 89092 (8 capteurs) et 89093 (4 capteurs) est couvert par ces certificats

Condiciones especiales para un uso seguro: ver certificados y FM control drawing HM-0811 / Special conditions for a safe use: see certificates and FM control drawing HM-0811 / Besondere Bedingungen für die sichere Anwendung: siehe Zertifikate und und FM control drawing HM-0811 / Conditions spéciales pour une utilisation sûre: voir les certificats et y FM control drawing HM-0811

NOTA: La capacitancia y la inductancia del cable debe de ser considerada. Sinó se conocen sus valores se pueden tomar con los siguientes valores: C_i = 60 pF/ft (196 pF/m) y L_i = 0.2 µH/ft (0.656 µH/m) / NOTE: Cable capacitance and inductance has to be considered. If their values are not known the following values may be used: C_i = 60 pF/ft (196 pF/m) and L_i = 0.2 µH/ft (0.656 µH/m) / HINWEIS: Die Kapazität und Induktivität des Kabels müssen berücksichtigt werden. Wenn ihre Werte nicht bekannt sind, können die folgenden Werte verwendet werden: C_i = 60 pF/ft (196 pF/m) und L_i = 0,2 µH/ft (0,656 µH/m) / REMARQUE: la capacité du câble et de l'inductance doit être considérée avec. Si leurs valeurs ne sont pas connues, les suivantes valeurs peuvent être utilisées: 60 pF/ft (196 pF/m) et L_i = 0.2 µH/ft (0.656 µH/m)

CERTIFICATE OF CONFORMITY



Member of Fire & Risk Group

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

2. Certificate No: FM17US0192X
Load cell, models 140, 160, 190, 210, 220, 260, 300, 350, 480, 630, 740 and PIN
3. Equipment: Tecticas De Electronica Y Automatismos SA
4. Name of Listing Company: C/ Espronceda 176-180, Barce lona 08018, Spain
5. Address of Listing Company:
6. The examination and test results are recorded in confidential report number: 3056929 dated 4th December 2017

7. FM Approvals LLC certifies that the equipment described has been found to comply with the following Approval standards and other documents:
FM 3600:2018, FM 3610:2015, FM 3810:2018
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 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°C ≤ Ta ≤ +60°C, IP66 (models 140, 160, 190a), IP67 (models 210, 220, 350a, 350m, 480m, 630); IP68 (models 190, 260, 300, 350, 480, 740).*

*The model PIN does not have an IP rating.

Certificate issued by:

J.E. Merquand

J.E. Merquand
VP, Manager - Electrical Systems

28 May 2024

Date

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

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

FMA Approvals LLC, One Technology Way, Norw ood, MA 02882 USA
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F 347 (Apr 21)



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SCHEDULE

US Certificate Of Conformity No: FM17US0192X



Member of Fire & Risk Group

11. The marking of the equipment shall include:
IS / I, II, III / I / ABCDEFG / T4 for -25°C ≤ Ta ≤ +60°C.

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 sprayed 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 model PIN does not have an IP rating. 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 single or double full Wheatstone bridge.
Model 190 has the variants 190a protected with silicone coating and 1901 which is welded. Model 350 has variants 350a and 350m protected with silicone coating and 350 which is welded. Model 480 has variants 480m protected with silicone coating and 480 which is welded.

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

Ratings – UI = 15V, II = 0.289A, PI = 1.08W,
UI = 13V, II = 0.332A, PI = 1.08W.

See Annex.

13. Specific Conditions of Use:

The load cell models 140, 210 and 220, and junction boxes 89092 and 89093 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.

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.

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

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

FMA Approvals LLC, One Technology Way, Norw ood, MA 02882 USA
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SCHEDULE

US Certificate Of Conformity No: FM17US0192X



Member of Fire & Risk Group

- 4 December 2017
Original Issue.
- 8 June 2018
Supplement 1:
Report Reference: – RR214343 dated 6th June 2018.
Description of the Change: Addition of models 210 and 220.
- 10 August 2020
Supplement 2:
Report Reference: – RR224193 dated 10th August 2020.
Description of the Change: Addition of model PIN and the option for the double Wheatstone bridge. FM 3600 is updated to the 2018 edition.
- 28 May 2024
Supplement 3:
Report Reference: RR241509 dated 28 May 2024.
Description of the Change(s): Removal of the IP ratings from the markings.

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

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SCHEDULE

US Certificate Of Conformity No: FM17US0192X



Member of Fire & Risk Group

| Date | Description |
|-----------------|--|
| 4 December 2017 | Original Issue. |
| 8 June 2018 | Supplement 1: Report Reference: – RR214343 dated 6 th June 2018. Description of the Change: Addition of models 210 and 220. |
| 10 August 2020 | Supplement 2: Report Reference: – RR224193 dated 10 th August 2020. Description of the Change: Addition of model PIN and the option for the double Wheatstone bridge. FM 3600 is updated to the 2018 edition. |
| 28 May 2024 | Supplement 3: Report Reference: RR241509 dated 28 May 2024. Description of the Change(s): Removal of the IP ratings from the markings. |

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

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F 347 (Apr 21)



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SCHEDULE

US Certificate Of Conformity No: FM17US0192X



Member of Fire & Risk Group

ANNEX

140 Series

Description of Equipment:

14XXXabcde. Load cell.

- XXX= Capacity (kg): 003, 005, 008, 010, 015, 020, 030, 050, 075, 100 (other capacities in t, kg, lb or kN may exist);
a = Variation: Not applicable;
b = Cable Type: Blank (PVC) P or PUR (Polyurethane);
c = Cable conductors: Blank (4 wires), 6, 6H or 6W (6 wires);
d = Impedance: Blank (350 Ω), 1K (1000 Ω);
e = Other options.

160 Series

Description of Equipment:

16XXXabcde. Load cell.

- XXX= Capacity (kg): 015, 020, 030, 050, 075, 100, 150 (other capacities in t, kg, lb or kN may exist);
a = Variation: Not applicable;
b = Cable Type: Blank (PVC) P or PUR (Polyurethane);
c = Cable conductors: Blank (4 wires), 6, 6H or 6W (6 wires);
d = Impedance: Blank (350 Ω), 1K (1000 Ω);
e = Other options.

190 Series

Description of Equipment:

19XXXabcde. Load cell.

- XXX= Capacity (kg): 015, 020, 030, 050, 075, 120, 200, 250, 350, 400 (other capacities in t, kg, lb or kN may exist);
a = Variation: I (190), Blank (190a);
b = Cable Type: Blank (PVC) P or PUR (Polyurethane);
c = Cable conductors: Blank (4 wires for 150a, 6 wires for 190), 4, 4H or 4W (4 wires for 190), 6, 6H or 6W (6 wires for 190a);

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

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CERTIFICATE OF CONFORMITY

- HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS
- Certificate No: FM17CA0103X
- Equipment: Load cell, models 140, 160, 190, 210, 220, 260, 300, 350, 480, 630, 740 and PIN (Type Reference and Name)
- Name of Listing Company: Tecticas De Electronica Y Automatismos SA
- Address of Listing Company: C/ Espronceda 176-180, Barce lona 08018, Spain
- The examination and test results are recorded in confidential report number: 3056829 dated 4th December 2017
- FMA Approvals LLC certifies that the equipment described has been found to comply with the following Approval standards and other documents:
CSA C22.2 No. 60079-0-2011, CSA C22.2 No. 60079-11-2014, CSA C22.2 No. 60529-2005 (R2010), CSA C22.2 No. 61010-1-2012

- 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.
- This certificate relates to the design, examination and testing of the products specified herein. The FMA 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.
- 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°C ≤ Ta ≤ +60°C, IP66 (models 140, 160, 190a), IP67 (models 210, 220, 350a, 350m, 480n, 630), IP68 (models 190i, 260, 300, 350i, 480i, 740i)
*The model PIN does not have an IP rating.

Certificate issued by:

J.E. Marquardt

J.E. Marquardt
VP, Manager - Electrical Systems

28 May 2024

Date

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

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SCHEDULE
Canadian Certificate Of Conformity No: FM17CA0103X

- The marking of the equipment shall include:
IS / I, II, III / I, ABCDEFG / T4 for -25°C ≤ Ta ≤ +60°C.

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 model PIN does not have an IP rating. 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 single or double full Wheatstone bridge.

Model 190 has the variants 190a protected with silicone coating and 190i which is welded. Model 350 has variants 350a and 350m protected with silicone coating and 350i which is welded. Model 480 has variants 480n protected with silicone coating and 480i which is welded.

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

Ratings – UI = 15V, II = 0.289A, PI = 1.08W,

UI = 13V, II = 0.332A, PI = 1.08W.

See Annex.

13. Specific Conditions of Use:

The load cell models 140, 210 and 220, and junction boxes 89092 and 89093 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 FMA Approvals Canadian Certification Scheme.

15. Schedule Drawings

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

16. Certificate History

Details of the supplements to this certificate are described below.

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

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SCHEDULE

Canadian Certificate Of Conformity No: FM17CA0103X

| Date | Description |
|-----------------|--|
| 4 December 2017 | Original Issue. |
| 8 June 2018 | Supplement 1: Report Reference: – RR214343 dated 6 th June 2018. Description of the Change: Addition of models 210 and 220. |
| 10 August 2020 | Supplement 2: Report Reference: – RR224193 dated 10 th August 2020. Description of the Change: Addition of model PIN and the option for the double Wheatstone bridge. |
| 28 May 2024 | Supplement 3: Report Reference: RR241509 dated 28 May 2024. Description of the Change(s): Removal of the IP ratings from the markings. |

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

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SCHEDULE
Canadian Certificate Of Conformity No: FM17CA0103X

ANNEX

140 Series

Description of Equipment:

14XXXXabcde. Load cell.

XXX= Capacity (kg): 003, 005, 008, 010, 015, 020, 030, 050, 075, 100 (other capacities in t, kg, lb or KN may exist);

a = Variation: Not applicable;

b = Cable Type: Blank (PVC) P or PUR (Polyurethane);

c = Impedance: Blank (350 Ω), 1K (1000 Ω);

d = Impedance: Blank (350 Ω), 1K (1000 Ω);

e = Other options.

160 Series

Description of Equipment:

16XXXXabcde. Load cell.

XXX= Capacity (kg): 015, 020, 030, 050, 075, 100, 150 (other capacities in t, kg, lb or KN may exist);

a = Variation: Not applicable;

b = Cable Type: Blank (PVC) P or PUR (Polyurethane);

c = Cable conductors: Blank (4 wires), 6, 6H or 6W (6 wires);

d = Impedance: Blank (350 Ω), 1K (1000 Ω);

e = Other options.

190 Series

Description of Equipment:

19XXXXabcde. Load cell.

XXX= Capacity (kg): 015, 020, 030, 050, 075, 120, 200, 250, 350, 400 (other capacities in t, kg, lb or KN may exist);

a = Variation: I (190i), Blank (190a);

b = Cable Type: Blank (PVC) P or PUR (Polyurethane);

c = Cable conductors: Blank (4 wires for 190a, 6 wires for 190i), 4, 4H or 4W (4 wires for 190i), 6, 6H or 6W (6 wires for 190a);

d = Impedance: Blank (350 Ω), 1K (1000 Ω);

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

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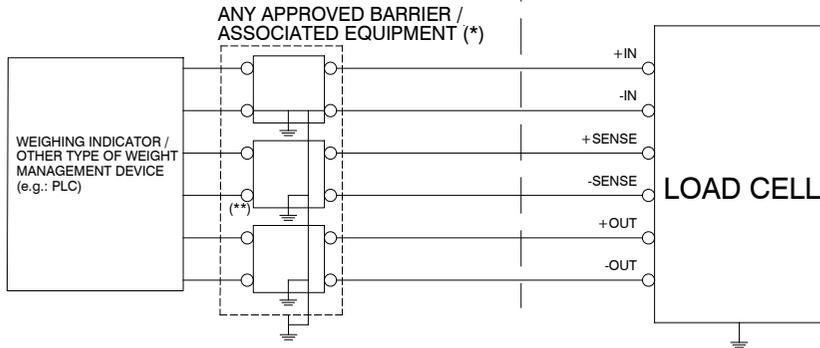
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NON HAZARDOUS LOCATION

HAZARDOUS LOCATION



(*) Shall be compatible with load cell input safety parameters. Follow manufacturer installation instructions. If stated by manufacturer, shall be placed in hazardous location following installation instructions.

Barriers/Associated equipment shall be of positive polarity.
Compatible barriers: 1x Pepperl+Fuchs [Z710 or Z765.F] + 2x [Z764]
1x MTL [MTL7767+] + 2x [MTL7764+] (1)

(**) Only for 6 wires load cells

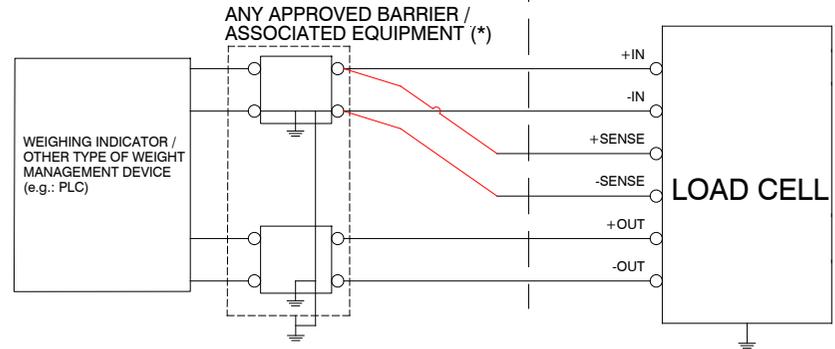
(1) Not compatible for Ui:13V

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| | | | | |
|-----------|-------------------------------|------|-------|-----------------------------------|
| Projected | Date | Sign | Code | |
| Drawn | - | - | - | |
| Verified | - | - | Model | |
| Approved | - | - | Nº | |
| Material | - | - | | |
| Approved | - | - | | Sheet 2 of 10 |
| Material | - | - | | Dimensions without tolerance ±0.1 |
| Treatment | - | - | | Chamfers not dimensioned 1x45° |
| Finishing | - | - | | Dimensions in mm. |
| Scale | - | - | | |
| Drawn | FM APPROVALS, CONTROL DRAWING | | | |

NON HAZARDOUS LOCATION

HAZARDOUS LOCATION



(*) Shall be compatible with load cell input safety parameters. Follow manufacturer installation instructions. If stated by manufacturer, shall be placed in hazardous location following installation instructions.

Barriers/Associated equipment shall be of positive polarity.
Compatible barriers: 1x Pepperl+Fuchs [Z710 or Z765.F] + 1x [Z764]
1x MTL [MTL7767+] + 1x [MTL7764+] (1)
1x STAHL [9002/11-130-360-001] + 1x [9002/11-120-024-001] (2)

(1) Not compatible for Ui:13V
(2) Not compatible for Ui:15V

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| | | | | |
|-----------|-------------------------------|------|-------|-----------------------------------|
| Projected | Date | Sign | Code | |
| Drawn | - | - | - | |
| Verified | - | - | Model | |
| Approved | - | - | Nº | |
| Material | - | - | | |
| Approved | - | - | | Sheet 4 of 10 |
| Material | - | - | | Dimensions without tolerance ±0.1 |
| Treatment | - | - | | Chamfers not dimensioned 1x45° |
| Finishing | - | - | | Dimensions in mm. |
| Scale | - | - | | |
| Drawn | FM APPROVALS, CONTROL DRAWING | | | |

GENERAL NOTES

- INSTALLATION SHOULD BE IN ACCORDANCE WITH:
 - ANSI/ISA RP12.06.01 "RECOMMENDED PRACTICE FOR WIRING METHODS FOR HAZARDOUS (CLASSIFIED) LOCATIONS INSTRUMENT PART 1: INTRINSIC SAFETY" FOR GUIDANCE ON THE INSTALLATION OF INSTRINSICALLY SAFE APPARATUS AND SYSTEMS
 - IN U.S. THE NATIONAL ELECTRICAL CODE ANSI/NFPA 70 AND IN CANADA THE CANADIAN ELECTRICAL CODE CSA C22.1, PART 1, APPENDIX F
 - ONLY DEVICES THAT HAVE FM ENTITY APPROVAL WITH PROPER ENTITY PARAMETERS MAY BE USED
3. BARRIER MANUFACTURERS INSTALLATION DRAWINGS MUST BE FOLLOWED WHEN INSTALLING THESE EQUIPMENTS
4. ALL BARRIERS SHALL BE CONNECTED TO INSTALLATION GROUND
5. JUNCTION BOX MANUFACTURERS INSTALLATION DRAWINGS MUST BE FOLLOWED WHEN INSTALLING THESE EQUIPMENTS
6. ELECTRICAL EQUIPMENT CONNECTED MUST NOT USE OR GENERATE MORE THAN 250V RMS OR DC
7. 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, 0.656 µH/m (0.2 µH/ft) AND 196 pF/m (60 pF/ft) MAY BE USED AS A CONSERVATIVE CRITERIA FOR DETERMINATION OF CABLE EFFECTS
8. LOAD CELL MODELS COVERED BY THIS DRAWING:
 - 140 160 180 210 220 260 300 350 480 630 740 PIN
9. JUNCTION BOXES COVERED BY THIS DRAWING:
 - UTILCELL MODELS 89092 AND 89093
10. 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
11. STANDARD LOAD CELL MODELS 140, 210, 220 AND JUNCTION BOXES 89092, 89093 CONTAIN ALUMINUM AND IS 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
12. NON STANDARD VARIANTS OF ANY MODEL MADE OF ALUMINUM SHALL FULFILL POINT 11.
13. LOAD CELLS HAVE TO BE CONNECTED TO INSTALLATION GROUND, THAT SHALL BE ACHIEVED THROUGH MOUNTING BOLTS, MOUNTING ACCESSORIES, OR OTHER MEANS THAT ASSURE CONNECTION, 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

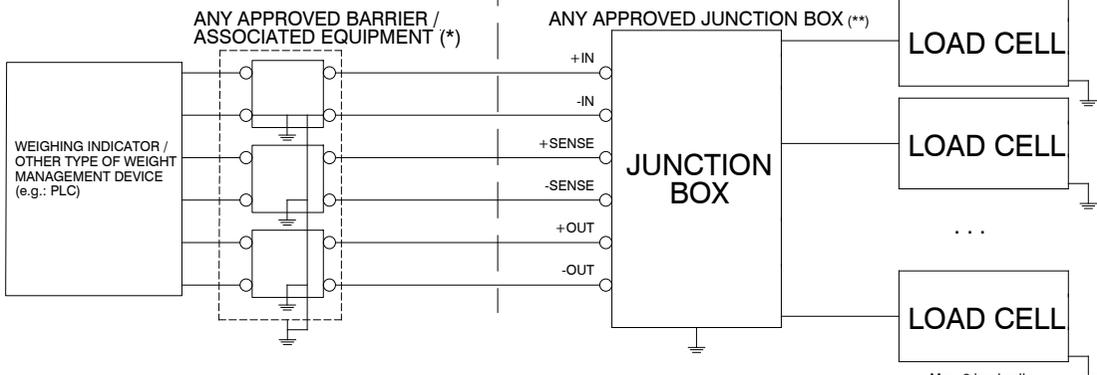
| Ui [V] | Ii [A] | Pi [W] | Ci [pF] | Li [mH] |
|--------|--------|--------|---------|---------|
| 15 | 0.288 | 1.08 | 0 | 0 |
| 13 | 0.332 | 1.08 | 0 | 0 |

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| | | | | |
|-----------|-------------------------------|------|-------|-----------------------------------|
| Projected | Date | Sign | Code | |
| Drawn | - | - | - | |
| Verified | - | - | Model | |
| Approved | - | - | Nº | |
| Material | - | - | | |
| Approved | - | - | | Sheet 3 of 10 |
| Material | - | - | | Dimensions without tolerance ±0.1 |
| Treatment | - | - | | Chamfers not dimensioned 1x45° |
| Finishing | - | - | | Dimensions in mm. |
| Scale | - | - | | |
| Drawn | FM APPROVALS, CONTROL DRAWING | | | |

NON HAZARDOUS LOCATION

HAZARDOUS LOCATION



(*) Shall be compatible with junction box and load cell input safety parameters. Follow manufacturer installation instructions. If stated by manufacturer, shall be placed in hazardous location following installation instructions.

Barriers/Associated equipment shall be of positive polarity.
Compatible barriers: 1x Pepperl+Fuchs [Z710 or Z765.F] + 2x [Z764]
1x MTL [MTL7767+] + 2x [MTL7764+] (1)

(1) Not compatible for Ui:13V

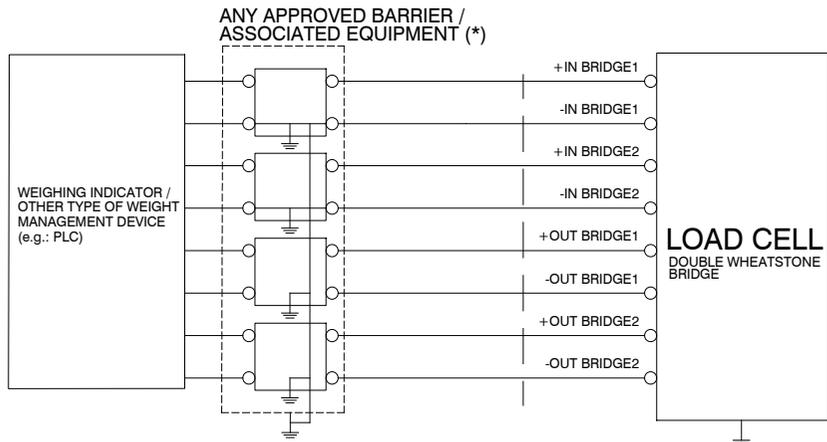
(**) Non approved (non active) junction box shall be used if placed in non hazardous location

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| | | | | |
|-----------|-------------------------------|------|-------|-----------------------------------|
| Projected | Date | Sign | Code | |
| Drawn | - | - | - | |
| Verified | - | - | Model | |
| Approved | - | - | Nº | |
| Material | - | - | | |
| Approved | - | - | | Sheet 3 of 10 |
| Material | - | - | | Dimensions without tolerance ±0.1 |
| Treatment | - | - | | Chamfers not dimensioned 1x45° |
| Finishing | - | - | | Dimensions in mm. |
| Scale | - | - | | |
| Drawn | FM APPROVALS, CONTROL DRAWING | | | |

NON HAZARDOUS LOCATION

HAZARDOUS LOCATION



(*) Shall be compatible with load cell input safety parameters. Follow manufacturer installation instructions.
 If stated by manufacturer, shall be placed in hazardous location following installation instructions.
 Barriers/Associated equipment shall be of positive polarity.
 Compatible barriers: 1x Pepperl+Fuchs [Z765.F] + 2x [Z764]
 1x MTL [MTL7767+] + 2x [MTL7764+] (1)

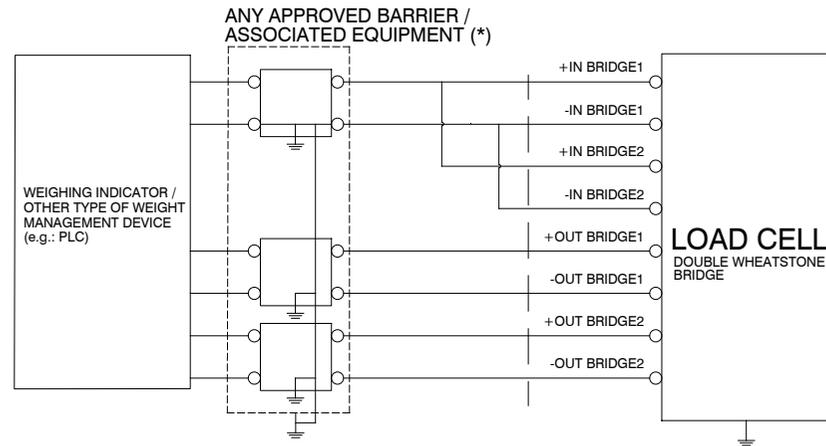
(1) Not compatible for Ui:13V

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| Project | Date | Sign | Code | UTILCELL | |
|-----------|------|------|------|-----------------------------------|---------------|
| Projected | - | - | - | CELULAS DE CARGA - LOAD CELLS | |
| Drawn | - | - | - | Model | Nº |
| Verified | - | - | - | HM-0811 | Sheet 8 of 10 |
| Approved | - | - | - | - | - |
| Material | - | - | - | Dimensions without tolerance ±0.1 | |
| Treatment | - | - | - | Chamfers not dimensioned 1x45° | |
| Finishing | - | - | - | Dimensions in mm | |
| Scale | - | - | - | FM APPROVALS, CONTROL DRAWING | |

NON HAZARDOUS LOCATION

HAZARDOUS LOCATION



(*) Shall be compatible with load cell input safety parameters. Follow manufacturer installation instructions.
 If stated by manufacturer, shall be placed in hazardous location following installation instructions.
 Barriers/Associated equipment shall be of positive polarity.
 Compatible barriers: 1x MTL [MTL7767+] + 2x [MTL7764+] (1)

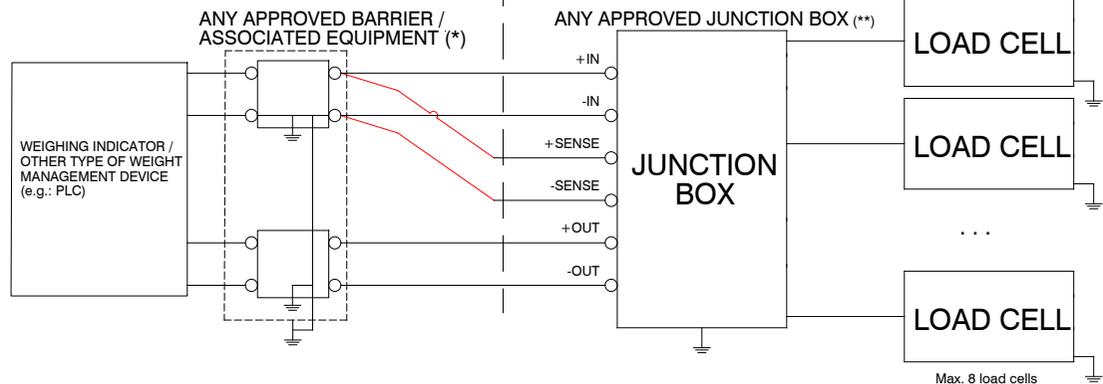
(1) Not compatible for Ui:13V

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| Project | Date | Sign | Code | UTILCELL | |
|-----------|------|------|------|-----------------------------------|---------------|
| Projected | - | - | - | CELULAS DE CARGA - LOAD CELLS | |
| Drawn | - | - | - | Model | Nº |
| Verified | - | - | - | HM-0811 | Sheet 8 of 10 |
| Approved | - | - | - | - | - |
| Material | - | - | - | Dimensions without tolerance ±0.1 | |
| Treatment | - | - | - | Chamfers not dimensioned 1x45° | |
| Finishing | - | - | - | Dimensions in mm | |
| Scale | - | - | - | FM APPROVALS, CONTROL DRAWING | |

NON HAZARDOUS LOCATION

HAZARDOUS LOCATION



(*) Shall be compatible with junction box and load cell input safety parameters. Follow manufacturer installation instructions.
 If stated by manufacturer, shall be placed in hazardous location following installation instructions.
 Barriers/Associated equipment shall be of positive polarity.
 Compatible barriers: 1x Pepperl+Fuchs [Z710 or Z765.F] + 1x [Z764]
 1x MTL [MTL7767+] + 1x [MTL7764+] (1)
 1x STAHL [9002/11-130-360-001] + 1x [9002/11-120-024-001] (2)

(1) Not compatible for Ui:13V

(2) Not compatible for Ui:15V

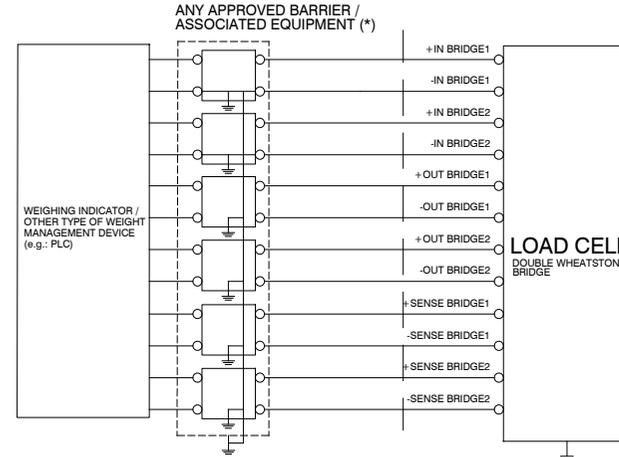
(**) Non approved (non active) junction box shall be used if placed in non hazardous location

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| Project | Date | Sign | Code | UTILCELL | |
|-----------|------|------|------|-----------------------------------|---------------|
| Projected | - | - | - | CELULAS DE CARGA - LOAD CELLS | |
| Drawn | - | - | - | Model | Nº |
| Verified | - | - | - | HM-0811 | Sheet 7 of 10 |
| Approved | - | - | - | - | - |
| Material | - | - | - | Dimensions without tolerance ±0.1 | |
| Treatment | - | - | - | Chamfers not dimensioned 1x45° | |
| Finishing | - | - | - | Dimensions in mm | |
| Scale | - | - | - | FM APPROVALS, CONTROL DRAWING | |

NON HAZARDOUS LOCATION

HAZARDOUS LOCATION



(*) Shall be compatible with load cell input safety parameters. Follow manufacturer installation instructions.
 If stated by manufacturer, shall be placed in hazardous location following installation instructions.
 Barriers/Associated equipment shall be of positive polarity.
 Compatible barriers: 1x MTL [MTL7767+] + 4x [MTL7764+] (1)

(1) Not compatible for Ui:13V

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| Project | Date | Sign | Code | UTILCELL | |
|-----------|------|------|------|-----------------------------------|---------------|
| Projected | - | - | - | CELULAS DE CARGA - LOAD CELLS | |
| Drawn | - | - | - | Model | Nº |
| Verified | - | - | - | HM-0811 | Sheet 7 of 10 |
| Approved | - | - | - | - | - |
| Material | - | - | - | Dimensions without tolerance ±0.1 | |
| Treatment | - | - | - | Chamfers not dimensioned 1x45° | |
| Finishing | - | - | - | Dimensions in mm | |
| Scale | - | - | - | FM APPROVALS, CONTROL DRAWING | |

BARRIER PARAMETERS:

| Manufacturer | Model | Uo [V] | Io [mA] | Po [mW] | Ri, min [ohm] |
|---------------|---------------------|--------|---------|---------|---------------|
| Pepperl+Fuchs | Z710 | 9.56 | 195 | 470 | 49 |
| Pepperl+Fuchs | Z765.F | 14.7 | 150 | 550 | 98 |
| Pepperl+Fuchs | Z764 | 5.88 | 30 | 44 | 196.7 |
| MTL | MTL7767+ | 15 | 150 | 560 | 100 |
| MTL | MTL7764+ | 12 | 12 | 36 | 1000 |
| STAHL | 9002/11-130-390-001 | 13 | 321 | 1040 | 45 |
| STAHL | 9002/11-120-024-001 | 12 | 12 | 40 | 1043 |

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| Project | Date | Sign | Code | Sheet |
|-----------|------|------|------|----------|
| Projected | - | - | - | 1 of 10 |
| Drawn | - | - | - | 10 of 10 |
| Verified | - | - | - | - |
| Approved | - | - | - | - |
| Material | - | - | - | - |
| Treatment | - | - | - | - |
| Finishing | - | - | - | - |
| Scale | - | - | - | - |

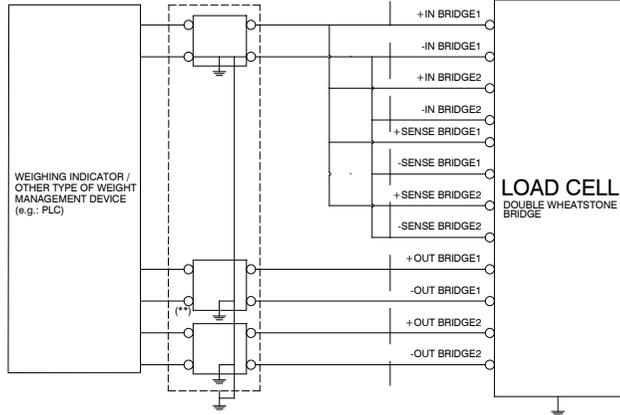
UTILCELL
CÉLULAS DE CARGA - LOAD CELLS

Nº **HM-0811**

Dimensions without tolerance ±0.1
Chamfers not dimensioned 1x45°
Dimensions in mm.

FM APPROVALS, CONTROL DRAWING

NON HAZARDOUS LOCATION
HAZARDOUS LOCATION
ANY APPROVED BARRIER / ASSOCIATED EQUIPMENT (*)



(*) Shall be compatible with load cell input safety parameters. Follow manufacturer installation instructions.
If stated by manufacturer, shall be placed in hazardous location following installation instructions.
Barriers/Associated equipment shall be of positive polarity.
Compatible barriers: 1x MTL [MTL7767+] + 1x [MTL7764+] (1)

(1) Not compatible for Ui:13V

DRAWING REVISIONS MUST BE APPROVED BY FACTORY MUTUAL PRIOR TO RELEASE

| Project | Date | Sign | Code | Sheet |
|-----------|------|------|------|----------|
| Projected | - | - | - | 1 of 10 |
| Drawn | - | - | - | 10 of 10 |
| Verified | - | - | - | - |
| Approved | - | - | - | - |
| Material | - | - | - | - |
| Treatment | - | - | - | - |
| Finishing | - | - | - | - |
| Scale | - | - | - | - |

UTILCELL
CÉLULAS DE CARGA - LOAD CELLS

Nº **HM-0811**

Dimensions without tolerance ±0.1
Chamfers not dimensioned 1x45°
Dimensions in mm.

FM APPROVALS, CONTROL DRAWING