Scope: Load Cells:
PC1, PC2, PC6, PCB, SB2, SB4, SB5, SB6, SB14, SLB, BK2, ZLB,
RC1, RC2, RC3, UB1, UB5, UB6.

1. Preamble

This IOM represents only the ex-relevant aspects.

2. Function of equipment

Flintec load cells are designed to be used in various kinds of industrial scales and meet the most stringent accuracy requirements. Certifications have been obtained from Weights & Measures Authorities, worldwide. The load cells are available in different Maximum Capacities and include Accuracy Classifications according to OIML R 60 and / or NTEP.
They offer stainless steel or aluminium construction sealed by welding or improved potting, making them suitable for use in tough industrial environments, designed to withstand shock and fatigue loading.

The Load Cells Type PC1, PC2, PC6, PCB, SB2, SB4, SB5, SB6, SB14, SLB, BK2, ZLB, RC1, RC2, RC3, UB1, UB5 and UB6 can be used in category 2 and 3 for hazardous Gas and Dust (Zone 0, 1, 2 and 20, 21, 22).

All standard equipments are provided with a four-wire shielded conductor cable, types with the extension –6w are provided with a six-wire shielded conductor cable.

2.1 Details

The following table shows the relation between maximum total voltage, maximum total current and maximum total power for intrinsically safe connection.
For connection in dust environments, the temperature coding is T 130 °C,
for types PC1, SLB, SB5, BK2, ZLB and UB5 the temperature coding is T 150°C.

Temperature Class	**U_i = 17 V, I_i = 500 mA**	**U_i = 19,5 V, I_i = 330 mA**
T6	P_i = 1,5 W	P_i = 1,5 W
T5	P_i = 1,8 W	P_i = 1,6 W
T4	P_i = 2,1 W	P_i = 1,6 W

The effective internal inductance L_i and capacitance C_i are negligibly small.

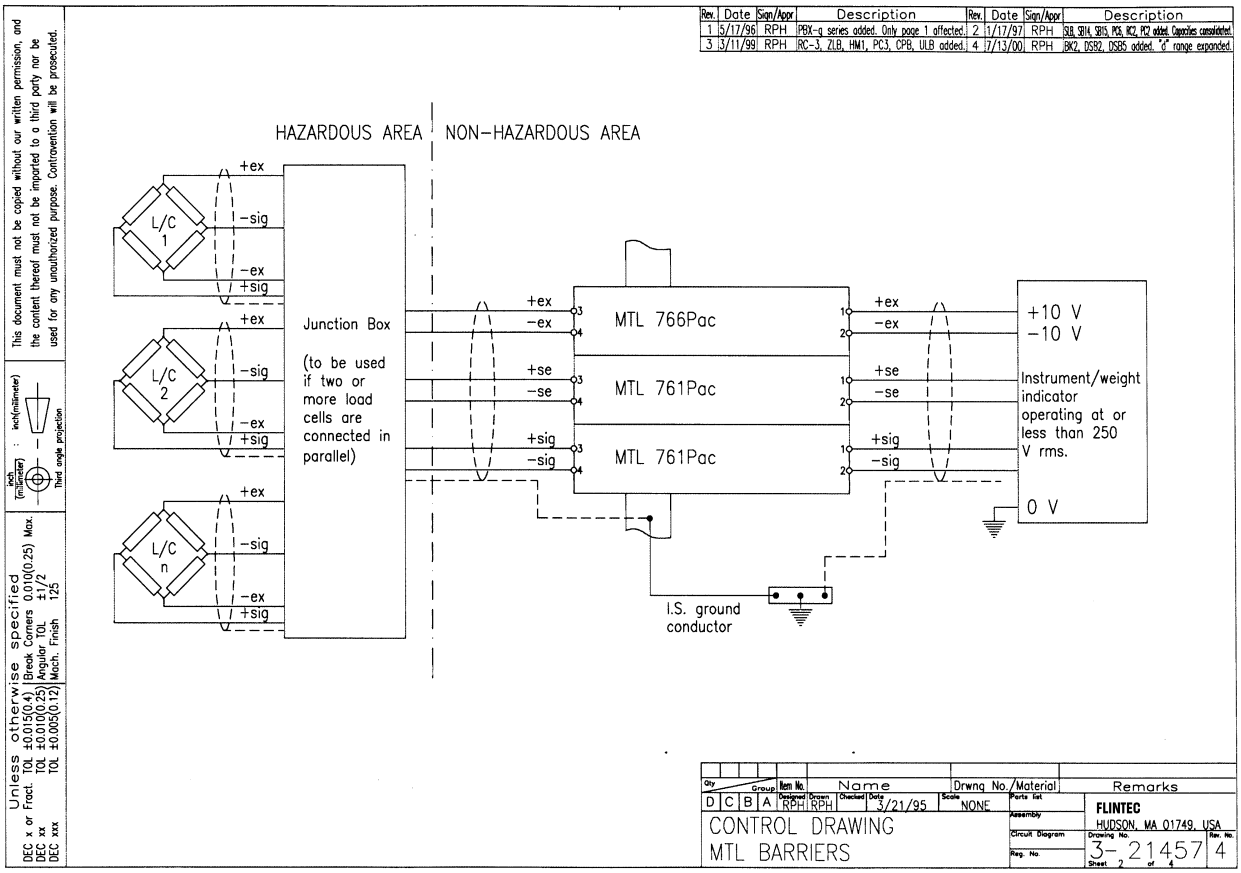
2.2 Connections

Supply circuit: green (+) and black (-) wires
Output circuit: white (+) and red (-) wires

The intrinsically safe circuit including the load cells has to be built up with approved zener barriers or Ex i - isolalators, fitting to the used weighing indicator.

An example for approved zener barriers is:
MTL 761Pac / MTL 766Pac
Stahl 9002/10-187-270-00, 9002/10-187-020-00, 9002/22-093-040-00

Wiring diagram for MTL zener barriers:



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2.3 Connections for 6- wire constructions

supply circuit : green (+) and black (-) [wire]
output circuit : white (+) and red (-) [wire]
sense circuit : blue (+) and brown (-) [wire]

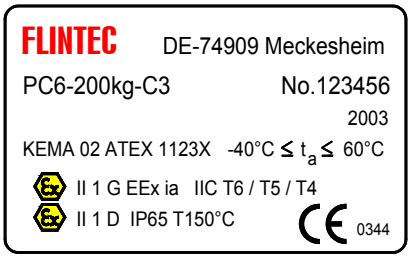
The intrinsically safe circuit including the load cells has to be built up with approved zener - barriers or switch amplifiers, fitting to the used weighing indicator.

2.4 Information for connections

a) Follow and respect formation-regulations of the application-country : i.e in Germany please follow regulation EN 60079-14 and EN 50281-1-2.
b) It's only permitted to use approved zener - barriers or switch amplifiers for explosive-areas, in Europe is an EC-Type Examination Certificate from nominated prescribed position for the Zones 0 / 1 / 20 / 21 required .
c) The power rating P_o of all excitation devices must be equal or less of the power P_i of the load cell.
d) The voltage U_o of the excitation device must be equal or less of the voltage U_i of the load cell.
e) The current I_o of the excitation device must be equal or less of the current I_i of the load cell.
f) At 6 wire-construction is between grounding connection and the used zener - barriers
g) and the housing of the load cell an potential equalization required. At this construction the shielding of the connection cable must to be grounded on both side sides.

3. Marking

Flintec load cells suitable to be used in ex-applications with intrinsically safe circuits are marked with the following label (45,00 x 28,00 mm)



For types PC1, ZLB, BK2, UB5, SLB and SB5 the temperature coding is T 150°C

The second and third line include:
Load cell type with Maximum Capacity and Accuracy Class, Serial Number, Year of Production

4. Putting into function, installation

a) This equipment can be put into function in zone 0, 1 or 2.
b) Types PC1, SLB ZLB, BK2, UB5*,* and SB5 must powered by an intrinsic safety circuit in zone 20, 21.
c) This equipment is built in protection-type > IP65 / EN60529
d) The electrical data are listed in the EC-Type Examination Certificate
e) Special Conditions as mentioned in the EC-Type Examination Certificate must be observed.
f) The equipment has to be (electrostatically) earthed.
g) Do not use the load cell if it is defect or shows visible damage.

5. Usage

The load cells are admitted only for proper due applications in accordance with the load cell data sheet and Flintec application parts.
Misuse will cause loss of guarantee and manufacturers responsibility.

6. Maintenance

Maintenance interventions on the load cells are to be carried out only by Flintec personnel.

7. Repairs

This equipment is certified for use in hazardous locations, therefore no modifications are allowed. Repairs may only be performed by personnel trained specifically for repairs to this equipment.

8. Waste disposal

The waste disposal of package and spent parts has to do in accordance with the regulations of the country in which the appliance is installed.

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EC-TYPE EXAMINATION CERTIFICATE

(1)

(2) Equipment or protective system intended for use in potentially explosive atmospheres - Directive 94/9/EC

(3) EC-Type Examination Certificate Number: **KEMA 02ATEX1123 X**

(4) Equipment or protective system: **Load Cells Type PCB, PC1, PC2, PC6, SB2, SB4, SB5, SB6, SB14, SLB, RC1, RC2, RC3, UB1, UB6**

(5) Manufacturer: **Flintec GmbH**

(6) Address: **Bemannsbruch 9, 74909 Meckesheim, Germany**

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

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system 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. 2018860.

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

EN 50014 : 1997 EN 50020 : 1994 EN 50281-1-1 : 1998 EN 50284 : 1999

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

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment or protective system according to the Directive 94/9/EC. 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.

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

Ex **II 2 G** and **II 2 D EEx ia IIC T6...T4 T130 °C / T150 °C**

or

Ex **II 1 G** and **II 1 D EEx ia IIC T6...T4 T130 °C / T150 °C**

Arnhem, 19 June 2002
KEMA Quality B.V.

L.M.J. Vries
Certification Manager

KEMA Quality B.V.
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Telephone +31 26 3 56 20 00, Telefax +31 26 3 52 58 00

ACCREDITED BY THE DUTCH COUNCIL FOR ACCREDITATION

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KEMA

(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 02ATEX1123 X**

(15) **Description**

Load Cells Type PCB, PC1, PC2, PC6, SB2, SB4, SB5, SB6, SB14, SLB, RC1, RC2, RC3, UB1 and UB6 convert a load into an electrical signal.

The enclosures of the Load Cells provide an ingress protection of at least IP 65 in accordance with EN 60529.

Ambient temperature range -40 °C…+60 °C.

The maximum surface temperature of the enclosures of the Load Cells Type PC1, SLB and SB5, T 150 °C is referred to a maximum ambient temperature of 60 °C.
The maximum surface temperature of the enclosures of all other Load Cell Types as mentioned above, T 130 °C is referred to a maximum ambient temperature of 60 °C.

Electrical data

For use in an intrinsically safe circuit:

Supply circuit …….. in type of explosion protection intrinsic safety EEx ia IIC. (green and black wires)

Output circuit …… in type of explosion protection intrinsic safety EEx ia IIC. (red and white wires)

The supply circuit and the output circuit are galvanically connected and may only be connected to certified intrinsically safe circuits. Voltage, current and power addition of both circuits must be taken into account.
The following table shows the relation between temperature class and maximum total voltage, maximum total current and maximum total power.

Temperature class	U_i = 17 V, I_i = 500 mA	U_i = 19,5 V, I_i = 330 mA
T6	P_i = 1,5 W	P_i = 1,5 W
T5	P_i = 1,8 W	P_i = 1,6 W
T4	P_i = 2,1 W	P_i = 1,6 W

The effective internal inductance L_i and capacitance C_i are negligibly small.

For use in a non-intrinsically safe circuit:

For use in a potentially explosive atmosphere caused by combustible dust, Load Cells Type PCB, PC2, PC6, SB2, SB4, SB6, SB14, RC1, RC2, RC3, UB1 and UB6 may also be used without connection to certified intrinsically safe circuits.
The electrical data are:

Maximum excitation voltage: 19,5 Vdc
Bridge impedance: 350 … 1000 Ω (depending on model)

Routine tests

The completed assembly of the load cell shall be tested per clause 6.4.12 of EN 50020 with a voltage of 500 Vac during one minute between supply/output connections and metal housing.

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(13) # SCHEDULE

(14) **to EC-Type Examination Certificate KEMA 02ATEX1123 X**

(16) Report

KEMA No. 2018860.

(17) Special conditions for safe use

If a Load Cell is not connected to certified Intrinsically safe circuits, the free end of the permanently connected cable must be connected outside the hazardous area or, when inside the hazardous area, in an enclosure with a suitable type of explosion protection and In accordance with the requirements of the type of protection applied.

For applications In explosive atmospheres caused by air/dust mixtures, the dust layer may not exceed a thickness of 5 mm.

For electrical date see (15).

(18) Essential Health and Safety Requirements

Essential Health and Safety Requirements not covered by the standards listed at (9)	
Clause	Subject
2.1.2.2. and 2.1.2.4	Explosive atmospheres caused by air/dust mixtures
2.2.2.2. and 2.2.2.4	Explosive atmospheres caused by air/dust mixtures

These Essential Health and Safety Requirements have been examined and positively judged. The results are laid down In the report listed at (16).

(19) Test documentation

		dated
1. Description		18.04.2002
2. Drawing No.	2-20220 rev. 1	22.12.1988
	4-20335 rev. 4	02.10.1989
	4-20336 rev. 3	02.10.1989
	2-20782	22.02.1991
	3-21307 rev. 4	03.03.1994
	3-21401	21.09.1994
	3-21451	01.05.1995
	2-21456	09.02.1995
	4-21534 rev. 3	02.06.1995
	4-21535 rev. 1	09.06.1995
	3-21557	05.08.1996
	3-21658	06.08.1995
	2-21793 rev. 2	15.04.1991
	3-22055	10.06.1998
	3-22056	11.06.1998
	3-22057	11.06.1998
	3-22058X	12.06.1998
	3-22058-RC3	12.06.1998
	3-22060	10.06.1998
	3-22477	30.03.2000
	02160341_1	18.04.2002

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KEMA

AMENDMENT 1

to EC-Type Examination Certificate KEMA 02ATEX1123 X

Manufacturer: **Flintec GmbH**

Address: **Bemannsbruch 9, 74909 Meckesheim, Germany**

Description

In future, the range of Load Cells is extended with Types BK2, UB5 and ZLB, constructed in accordance with the documentation listed below.
An alternative routine test for all Load Cells is specified below.

The maximum surface temperature of the enclosure, T 150 °C is referred to a maximum ambient temperature of 60 °C.

Electrical data

Load Cells Types BK2, UB5 and ZLB may only be used in an intrinsically safe circuit in accordance with the electrical data in the original EC-Type Examination Certificate.

Routine tests

Alternatively, the required routine test may be performed in accordance with the procedure specified in the Description listed below.

All other data remain unchanged.

Test documentation

			dated
1.	Description		11.04.2003
2.	Drawing No.	2-22891 rev. 1)	
		2-22534 rev. 6)	
		2-22945 rev. 1)	04.03.2003
		3-22509 rev. 3)	
		22125 rev. 1)	
		021603410_2 rev. 1.1	18.04.2003

Arnhem, 27 May 2003
KEMA Quality B.V.

C.G. van Es
Certification Manager

[2021677]

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Datum	13.06.2003	22.06.2003	
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EC-DECLARATION OF CONFORMITY

according to the EC Directive explosion protection 94/9/EC, appendix VI and appendix X for load cells

Type: PC1, PC2, PC6, PCB, SB2, SB4, SB5, SB14, SLB, BK2, ZLB, RC1, RC2, RC3, UB1, UB5, UB6

We hereby confirm, that the above described load cells of the Flintec GmbH meet the essential requirements, which are defined in the guidelines of the council directive (94/9/EC) on the approximation of the laws of the member states concerning equipment and protective systems intend for use in potentially explosive atmospheres in the current setting.
The declaration applies to all copies, this were produced after the production documents - which are part of this declaration- deposited by the manufacturer.
The load cells serve the capture of weight-forces. They only may be installed by specialist staff; the appropriate safety rules have to be observed mandatory.
The suitability of the equipment was proved under the EC-Declaration of conformity KEMA 02 ATEX 1123 X.
The production of the components is carried out under supervision of the KEMA B.V. Utrechtseweg 310,
NL-6802 ED Arnhem, (notified body no. 0344) with the certificate KEMA 02 ATEX Q 3185.

To the assessment of the products regarding to electrical safety and electromagnetic compatibility, the following standards are consulted:

Used national and harmonized standards:

EN 50014:1997	(DIN VDE 0170/0171 Part 1: 2000-02) Electrical Apparatus for potentially explosive atmospheres, General requirements
EN 50020:1994	(DIN VDE 0170/0171 Part 7: 1996-04) Electrical Apparatus for potentially explosive atmospheres, Intrinsic safety ,,i"
EN 50284:1999	(DIN VDE 0170/0171 Part 12-1: 2000-02) Special requirements for construction, test and marking of electrical apparatus of equipment group II, Category 1G
EN 50281-1-1:1998	(DIN VDE 0165 Part 2: 1999-11) Electrical apparatus for use in the presence of combustible dust, Part 1-2: Electrical apparatus protected by enclosures – Selection, installation and maintenance
EN 61010-1:1993	(DIN VDE 0411 Part 1: 1994-03) Safety regulations for electrical measuring instruments, control- and regulation equipment and laboratory instruments, Part1: General regulations

Flintec GmbH
Bemannsbruch 9
D-74909 Meckesheim

Meckesheim, 01-June-03

Gerhard K. Adam, Managing Director 410.02

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