Operating Instructions

for

Liquid Level Transducer

Model : MM Series

1 Contents

Manufactured by:

Kobold Mesura S.L.U.
Avda. Conflent 68 nave 15
08915 Badalona
Tel.: +34 93 460 38 83
Fax: +34 93 460 38 76
E-Mail: info.es@kobold.com
Internet: www.kobold.com

Edition: June 2017

2 Note

Please read these operating instructions before unpacking and setting the unit into operation. Follow the instructions precisely as described herein.
The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EC-machine guidelines.

3 Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition.
Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:
The standard delivery includes:
- Liquid Level Transducer model: MM-...
- Operating Instruction

Caution: Heavy mechanical stress, such as bending, impact or shock loads to the level transducer could damage the transducer and/or the magnet.

4 Regulation Use

Kobold level transducers are used for the continuous level indication and level control of all kinds of liquids. The simple design with only one moving part (the float) is suitable for applications that demand reliability. Kobold level transducers allow the continuous level indication and level control of liquids unaffected by electrical conductivity, temperature, pressure. The level transducer may only be used in liquids that will assure free movement of the float. The following points must be noted:

- no large particles
- density of the fluid must not be less than that specified for the float type
- pressure and temperature to be held within the limits given in the technical specifications

A variety of transducers in various designs, connecting configurations and materials are available for the acquisition of the measuring values.

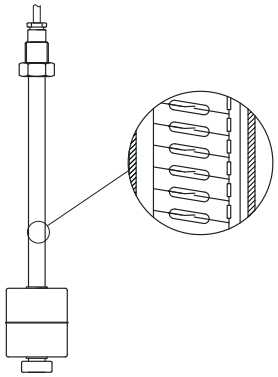
Attention! These units should not be installed in the vicinity of strong magnetic fields, since this can impair their intended functionality.

5 Float designs

Model	Form	Materials	Float Outside ∅ [mm]	Height [mm]	Bore Hole ∅ [mm]	Min. Liquid Density [kg/dm³]	Max. Temperature °C	Nominal Pressure [bar] at 20 °C
MM05	Cylinder hollow	PP	42	40	14	> 0.6	-10...+80°C	3 bar
MM07	Cylinder hollow	PVC-U	42	40	14	> 0.9	0...+60 °C	3 bar
MM08	Cylinder hollow	St. steel 1.4404	44	52	15	> 0.65	-20...+130°C	20 bar
MM10	Ball hollow	St. steel 1.4404	52	52	15	> 0.6	-20...+130°C	30 bar
MM13	Cylinder hollow	PVDF	38	60	18	> 0.6	-10...+125°C	2 bar
MM15	Cylinder hollow	PP	60	60	18	> 0.4	-10...+80ºC	6 bar
MM16	Cylinder hollow	PVC-U	60	60	18	> 0.6	0...+60°C	3 bar
MM20	Ball hollow	St. steel 1.4404	95	95	20.8	> 0.5	-10...+130°C	15 bar

6 Operating Principle

The Kobold-liquid Level Transducers consist of a tube on which a float travels with inserted magnet, similar to the Kobold level float switch, in models without float on the tube, the float is placed in and adjacent bypass tube to actuate the reed chain contacts, however, in the MM, the magnet remotely actuates the reed contacts inside the tube.
However, the well-known principle of the level float switch has been changed, in such a way that the tube of the level transducer contains an electric resistance chain and a reed contact chain.
The float remotely actuates the contacts through the tube wall and a voltage proportional to the liquid level can be taken from the chain. This voltage sensing corresponds to the function of the slide of a resistance potentiometer.



7 Mechanical Connection

The reed chain tube should not be bent or exposed to hard impacts, since otherwise the reed contacts inside the tube can be damaged.
Ensure the correct use of cable gland and gasket on float switches with plug to prevent the penetration of humidity.
While installation is carried out, please ensure that the float can move freely (due allowance should be given to distances from side-walls!).
Mounting position of the slide-tube may not deviate more than ±30° from vertical position.
If the float has to be removed, pay attention to correct orientation when replacing the float.

8 Area of application

Magnetic level sensor MM series are used exclusively for level control and monitoring of liquid media.
The liquids should not contain suspended solids or tendency to crystallize.
Ensure that the construction materials of the float switch have chemical resistance sufficient to prevent mechanical deformations that may affect it.

9 Maintenance

In liquids that can cause deposits, the float has to be cleaned at regular intervals. In this case the measuring tube and float should be cleaned from such deposits (valid for models where float is directly guided on the reed chain). Other maintenance jobs are not required.

10 Technical details

Power supply: Output resistance: max. 24Vdc, 125 mW.
Ex ia parameters: Pi: 1,2W

Output 4…20 mA and 4…20 mA HART®: 8…35 Vdc
Ex ia parameters: Ui:30 Vdc, Ii: 120 mA, Pi: 0,84 W,
Li: 10uH, Ci: 1 nF

Output transmitter PROFIBUS®/FIELDBUS® : 9…32 Vdc
Ex ia parameters: Ui:30 Vdc, Ii: 120 mA, Pi: 0,84 W,
Li: 1uH, Ci: 2 nF

Version with display model D: 14,5…35 Vdc
Ex ia parameters: Ui:30 Vdc, Ii: 100 mA, Pi: 0,75 W,
Li: 10uH, Ci: 15 nF

Version with display model R: 14,5…35 Vdc
Relays 0…60 Vp, 75 mA
Ex ia parameters display: Ui:30 Vdc, Ii: 100 mA,
Pi: 0,75 W, Li: 10uH, Ci: 15 nF.
Ex ia parameters relays: Ui:30 Vdc, Ii: 75 mA, Pi: 0,75 W,
Li: 10uH, Ci: 10 nF

Version with display model C: 10…35 Vdc

Version with display model E: 11,7…35 Vdc

Protection type: IP65 (IP68 possible with housing type L, C, and E)

Min. liquid density: See float design table

Min. measuring length “L”: 300 mm

Max. measuring length “L”: 6000 mm (types M08, M10, M20)
5000 mm (types M15, M17, M13)
2000 mm (types M05, M07)

Max. pressure (at 20ºC):	2 bar (type M13) 3 bar (type M05, M07, M16) 6 bar (type M15) 15 bar (type M20) 20 bar (type M08) 30 bar (type M10)
Max. temp. with PVC cable:	60ºC (type M07, M16) 70ºC (type M05, M15, M13, M08, M10, M20)
Max. temp. with. silicone cable:	See max. temperature in float design table
Resolution:	10 mm
Accuracy:	Formula in accordance to the measuring length 10 x 100 : measuring length = accuracy % e.g.: 10 x100 : 2000 = 0,5 %
Resistance value:	36 Ω for each 10 mm, when total length <1900 mm 10 Ω for each 10 mm, when total length ≥1900 mm e.g.: 2000 : 10 x 10 = 2000 ohms 1800 : 10 x 36 = 6480 ohms
Material:	PVC-U, PP, PVDF, 1.4404 (others on request)
Process connection:	G 3/8, G 1/2, G 1, G 1 ½, G 2, 3/8” NPT, ½” NPT, 1” NPT, 1 ½” NPT, 2” NPT and flanged version. (others on request)

11 Head transmitter

Model 5333D:	analogue output 4…20 mA, 2 wires, Sensor error action : Namur upscale (23 mA)
Model 5337D:	analogue output 4…20 mA HART®-protocol, 2 wires Sensor error action : Namur upscale (23 mA)
Model 5350B :	PROFIBUS®/FIELDBUS®

12 Display

- Only for 4…20 mA or HART® transmitters.
- Supply Voltage: loop powered
- Voltage dropout: max. 4 or 6,5 Vdc model D
  max. 3,7 Vdc model E
  max. 2,5 Vdc model C

Note

For programming of transmitter and/or display please refer to their separates programming manual.

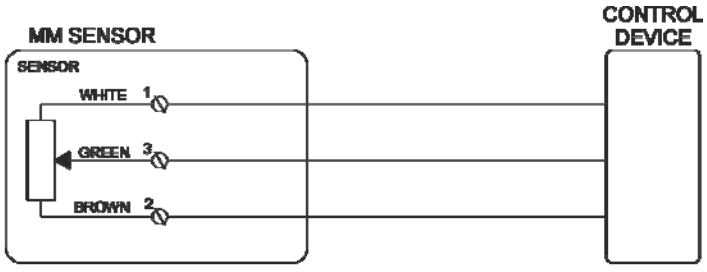
13 Electrical Connection

13.1 General

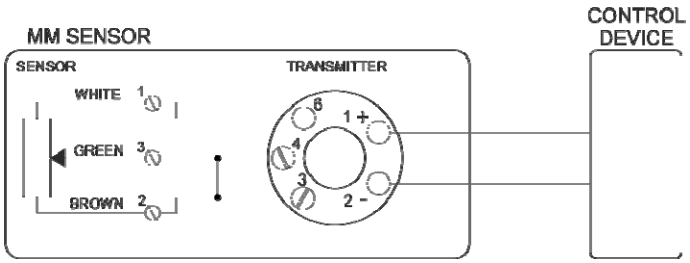
- Make sure that the supply wires are de-energized.
- To reduce the possibility of interference from other electric circuits, the cables should be wired separately.
- Please pay attention to the potentially detrimental operating conditions regarding the placement of the cable.
- Connect the level transducer to the electronic in accordance with the connection diagrams below.

13.2 Wiring diagram resistance output sensor

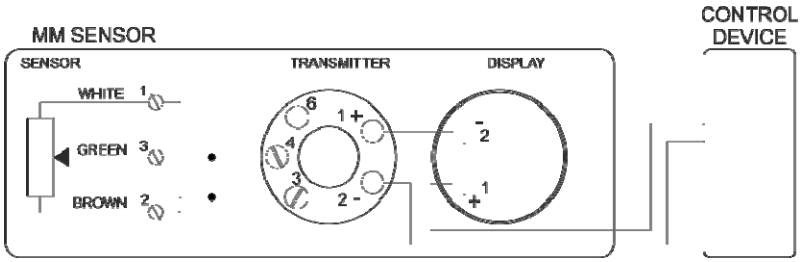
	Resistance value increases proportionally with level increase.	**Resistance value decreases proportionally with level increase.**	**Signal**
Models with cable	white	Brown	Green
Models with box	Clamp 1	Clamp 2	Clamp 3



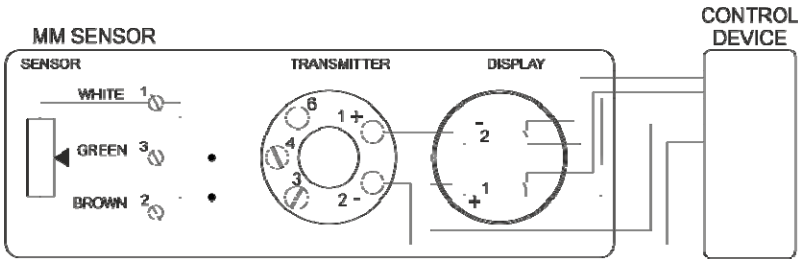
13.3 Wiring diagram with transmitter



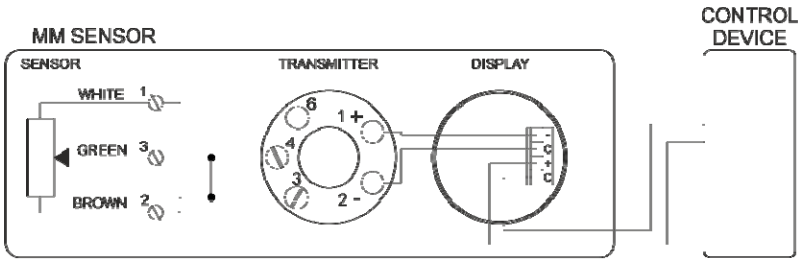
13.4 Wiring diagram with touch screen LCD display type D



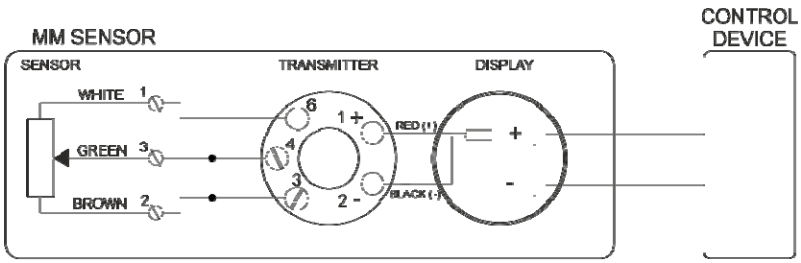
13.5 Wiring diagram with touch screen LCD display type R



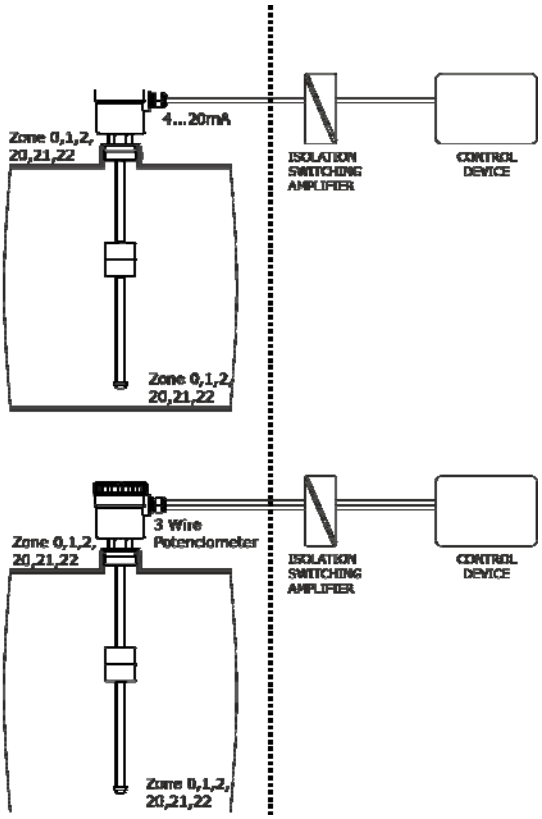
13.6 Wiring diagram with LCD display type C



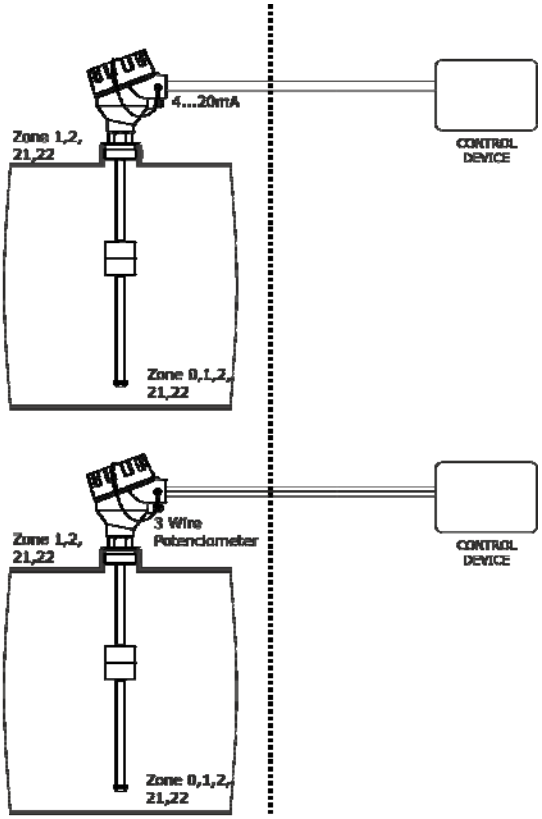
13.7 Wiring diagram with LED display type E



13.8 Electrical connection in intrinsically safe mode Ex ia



13.9 Electrical connection in explosion proof mode Ex d



14 Safety Instructions (ATEX)

14.1 Area of validity

These security instructions apply to **MM…E** series magnetic level sensor for use in explosion-proof atmospheres conforming to certificate **LOM 06ATEX2054 X** and **MM…F** series conforming to **CE** certificate **LOM 14ATEX2075 X**

14.2 Guidelines.

These security instructions must be applied to the **MM…E** and **MM…F** series used in gas explosion hazard environments.

It is necessary to follow carefully the instructions from the hazardous areas where the **MM...E** or **MM…F** will be installed, as well as the safety instructions included in this manual.

In models with transmitter and/or display the intrinsically safe specific parameters are:
Ci total: Ci (sensor) + Ci (transmitter) + Ci (display)
Li total: Li (sensor) + Li (transmitter) + Li (display)
It must be considered the minimum value of Pi, Ii and Ui in all components used in the assembly.

Temperature class and/or surface temperature relates solely to a device operated at ambient temperature. On installation, the actual temperature class for process operation has to be determined.

The maximum temperature in the enclosure head depends on the process temperature and may not exceed the maximum service temperature indicated for the junction box for the instruments MM…F series.

The guide tube must be mechanically protected or in locations with low risk of impact for the instruments MM…F series.

When the tank inside is a zone 0, a degree of protection at least IP67 must be ensured in the process connection for the instruments MM…F series.

Inlet bushing and cable glands must conform to the certification for their type in accordance with the directive.

Models with cable must be protected with an external enclosure having at least a degree of protection IP20 for **MM…E** series.

The use in zone 0 of heads made of aluminium should be restricted to locations where the risk of ignition due to mechanical impact is not possible.

Verify that all data written in the label of the device matches the data required for the installation.

Verify that there is no mechanical stress or deformation due to installation in the tank.

Remove power supply and verify that no explosion risk is present before opening cover of the housing and check that the cover of housing is correctly mounted before applying power to the instruments **MM…F** series.

The installation of instruments in hazardous areas must be exclusively done by trained people.

14.3 Protection against ESD (electro static discharges)

Instruments with plastic parts that can produce electro statics discharges have a label for it.
It is important to follow some rules to avoid ESD:
- Avoid rubbing the device.
- Never clean the device dry.
- Do not install the device near material airflows or near steam outlets.

14.4 Chemical resistance

Ensure that the device construction materials have chemical resistance sufficient to prevent mechanical deformations that may affect the device.

14.5 Maintenance and repairs

The instrument does not require maintenance or servicing.
Repairs must be only carried out by Kobold Mesura (manufacturer).

14.6 Storage

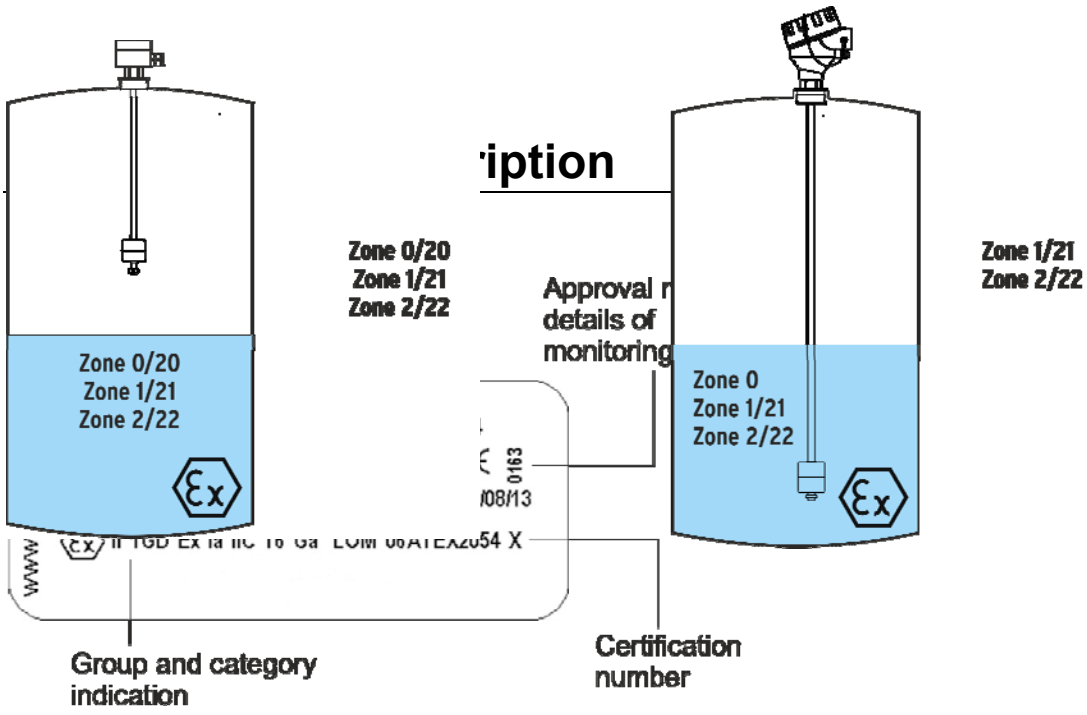
Measuring instruments should be protected against humidity and dust.
Storage temperature: -5…+55ºC

15 Installation in hazardous zone

In classified zones, magnetic level switches series **MM**…**E** (intrinsically safe version), can be installed in zone 0, 1, 2, 20, 21, 22 and series **MM…F** (explosion proof version) can be installed in zone 0,1, 2, 21, 22.
Installation must be done by people trained regarding ATEX environments.

Intrinsically safe version

Explosion proof version



17 Declaration of conformity ATEX Ex ia

DECLARACIÓN DE CONFORMIDAD EU

EU DECLARATION OF CONFORMITY
EU-KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ
DICHIARAZIONE DI CONFORMITÀ EU

KOBOLD MESURA SLU
Avda. Conflent 68 nave 15 08915 Badalona (España)

Declara, bajo la propia responsabilidad, que el producto
Declares under our sole responsibility, that the product
Erklärt in alleiniger Verantwortung, dass das Produkt
Déclare sous sa seule responsabilité, que le produit
Dichiara sotto la propia responsabilità, che il prodotto

Liquid level transducer
MM-...E

A los cuales se refiere esta declaración, son conformes a las siguiente Directivas Europeas:
To which this declaration relates is in conformity with the following European Directives:
Mit folgenden Richtlinien konform ist:
À auxquels se réfère cette déclaration, ils sont conformes aux Directives Européennes suivant :
A ai quali si riferisce questa dichiarazione, sono conformi alle direttive europee seguente:

EMC2014/30/EU LVD2014/35/EU Atex2014/34/EU RoHS2011/65/EU

Normas armonizadas y documentos de la normativa aplicados:
Applied harmonised standards and normative documents:
Angewandte harmonisierte Normen und normativer Dokumente:
Normes harmonisées et documents normatifs appliqués
Norme armonizzate e documenti normativi applicati:

EN61010-1 :2011 EN60079-0:2012 (acc. EN60079-0:2013)
EN61000-6-2 :2006 EN60079-11:2012 (acc. EN60079-2013)
EN61326-1:2013

Certificado de examen CE de tipo
EC-type examination certificate
EG-Baumusterprüfbescheinigung
Attestation d´examen CE de type
Certificazione per esame di tipo CE
LOM06ATEX2054X

Marcado
Marking
Kennzeichnung
Inscription
Marcatura

Ex II 1 GD Ex ia IIC T6 Ga
-20 ºC ≤ Ta ≥ +60 ºC

Fabricado en: **KOBOLD MESURA SLU Avda. Conflent 68 nave 15 08915 BADALONA (Spain)**
Made in:
Hergestellt in:
Fabriqué dans:
Fabbricato in:

Organismo notificado : **LOM 0163**
Notified organism
Zertifizierungsstelle
Organization annoncée
Organismo informato

Número notificación : **LOM 05ATEX9070**
Notification number
Zertifikatsnummer
Nombre notification
Notifica di numero

Badalona june 2017
DT0599

Gerente

18 Declaration of conformity ATEX Ex d

DECLARACIÓN DE CONFORMIDAD EU

EU DECLARATION OF CONFORMITY
EU-KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ
DICHIARAZIONE DI CONFORMITÀ EU

KOBOLD MESURA SLU
Avda. Conflent 68 nave 15 08915 Badalona (España)

Declara, bajo la propia responsabilidad, que el producto
Declares under our sole responsibility, that the product
Erklärt in alleiniger Verantwortung, dass das Produkt
Déclare sous sa seule responsabilité, que le produit
Dichiara sotto la propia responsabilità, che il prodotto

Liquid level transducer
MM..F

A los cuales se refiere esta declaración, son conformes a las siguiente Directivas Europeas:
To which this declaration relates is in conformity with the following European Directives:
Mit folgenden Richtlinien Konform ist:
À auxquels se réfère cette déclaration, ils sont conformes aux Directives Européennes suivant :
A ai quali si riferisce questa dichiarazione, sono conformi alle direttive europee seguente:

EMC2014/30/EU LVD2014/35EU Atex2014/34/EU RoHS2011/65/EU

Normas armonizadas y documentos de la normativa aplicados:
Applied harmonised standards and normative documents:
Angewandte harmonisierte Normen und normativer Dokumente:
Normes harmonisées et documents normatifs appliqués
Norme armonizzate e documenti normativi applicati:

EN61010-1 :2011	EN60079-0:2012 (acc. EN60079-0:2013)
EN61000-6-2 :2006	EN60079-31:2009 (acc. EN60079-31:2016)
EN61326-1:2013	EN60079-1:2007 (acc. EN60079-1:2015)
	EN60079-26:2007 (acc. EN60079-26:2015)

Certificado de examen CE de tipo
EC-type examination certificate
EG-Baumusterprüfbescheinigung
Attestation d´examen CE de type
Certificazione per esame di tipo CE
LOM 14ATEX2075 X

Marcado
Marking
Kennzeichnung
Inscription
Marcatura

II 1/2 G Ex d IIC T1..T6 Ga/Gb
II 2 D Ex t IIIC T410..T85ºC Db

Fabricado en: **KOBOLD MESURA SLU Avda. Conflent 68 nave 15 08915 BADALONA (Spain)**
Made in:
Hergestellt in:
Fabriqué dans:
Fabbricato in:

Organismo notificado : **LOM 0163**
Notified organism
Zertifizierungsstelle
Organization annoncée
Organismo informato

Número notificación : **LOM 05ATEX9070**
Notification number
Zertifikatsnummer
Nombre notification
Notifica di numero

Badalona june 2017
DT0607

Gerente

19 Declaration of conformity

DECLARACIÓN DE CONFORMIDAD EU

EU DECLARATION OF CONFORMITY
EU-KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ
DICHIARAZIONE DI CONFORMITÀ EU

KOBOLD MESURA SLU
Avda. Conflent 68 nave 15 08915 Badalona (España)

Declara, bajo la propia responsabilidad, que el producto
Declares under our sole responsibility, that the product
Erklärt in alleiniger Verantwortung, dass das Produkt
Déclare sous sa seule responsabilité, que le produit
Dichiara sotto la propia responsabilità, che il prodotto

Liquid Level Transducer
MM

A los cuales se refiere esta declaración, son conformes a las siguiente Directivas Europeas:
To which this declaration relates is in conformity with the following European Directives:
Mit folgenden Richtlinien Konform ist:
À auxquels se réfère cette déclaration, ils sont conformes aux Directives Européennes suivant :
A ai quali si riferisce questa dichiarazione, sono conformi alle direttive europee seguente:

EMC2014/30/EU LVD2014/35/EU RoHS2011/65/EU

Normas armonizadas y documentos de la normativa aplicados:
Applied harmonised standards and normative documents:
Angewandte harmonisierte Normen und normativer Dokumente:
Normes harmonisées et documents normatifs appliqués
Norme armonizzate e documenti normativi applicati:

EN61010-1 :2011 EN61326-1:2013
EN61000-6-2 :2006

Fabricado en: **KOBOLD MESURA SLU Avda. Conflent 68 nave 15 08915 BADALONA (Spain)**
Made in:
Hergestellt in:
Fabriqué dans:
Fabbricato in:

Badalona june 2017 Gerente
DT0600

20 EC-TYPE CERTIFICATES

LABORATORIO OFICIAL J. M. MADARIAGA

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: **LOM 06ATEX2054 X**

(4) Equipment or Protection System: Level detectors
Types MIL... EX y RFS...EX

(5) Applicant: CONTROL INSTRUMENTS MESURA S.L.

(6) Address: Guifré, 665 1º
08912 BADALONA(BARCELONA)
SPAIN

(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) Laboratorio Oficial J.M. Madariaga (LOM), notified body number 0163 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament 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 nr. **LOM 04.221 JP**

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
– Standards **EN 60079-0:2004** **EN 50020:2002**
prEN 61241-0:2005 **EN 61241-1:2004**

(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 and construction of this specified equipment or protective system in accordance with the Directive 94/9/EC. Further requirements of the Directive applies to the manufacture 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 2/1 D Ex tD A21 IP65 T85 ºC Ta:-20 /+ 60 ºC

Ex II 1 GD Ex ia IIC T6 / Ex iaD 20 T85 Ta:-20 /+ 60 ºC

OFICIAL

Madrid, 16th June, 2006

Carlos Fernández Ramón
DIRECTOR OF THE LABORATORY

Angel Vega Remesal
Head of ATEX area

Page 1/3

UNIVERSIDAD POLITÉCNICA DE MADRID
ENSAYOS E INVESTIGACIONES DE MATERIALES Y EQUIPOS PARA ATMÓSFERAS EXPLOSIVAS Y MINERÍA
(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29 -)
Alenza, 1 - 28003-MADRID • ☎ (34) 91 4421366/ 91 3367009 • Fax.(34) 91 4419933 • ✉ lom@lom.upm.es

LABORATORIO OFICIAL J. M. MADARIAGA

(A1) **SCHEDULE**

(A2) EC-Type Examination Certificate: : **LOM 06ATEX2054 X**

(A3) Description of equipment or protective system

Series of float switch magnetic level controllers which are mainly foreseen to be used in liquid tanks. The series is composed of the following types:

MIL.100.EX y MIL.200.EX	Float device in tube as guide and "reed" switch activated by magnet
MIL.300.EX	float device of bascule type and micro-switch
RFS.12.EX	float device of bascule type and "reed" switch

When they are used in explosive gas ambient and/or combustible dust thus must be connected to a intrinsically safe circuit, and having the marking:

Ex II 1 GD Ex ia IIC T6 / Ex iaD 20 T85 (simultaneous or alternative)

Alternatively, then can be used as category 2 apparatus when connected to conventional circuits. In this case the head of the apparatus is foreseen to be installed on the outside of tanks or silos; this head is a category 2 apparatus. The sensor that is foreseen to be installed inside tanks or silos have got a category ; this sensor is a simple mechanical device. The marking is:

Ex II 2/1 D Ex tD A21 IP65 T85 °C

As category 1 devices, the intrinsically safe specific parameter is Ui: 40 V.

As equipment having a protection by enclosure type of protection of category 2D the characteristics are:
Maximum voltage: 250 V Maximum current: 500 mA Maximum power: 4 VA

In all the cases the external ambient temperature is Ta: -20 °C /+60 °C

The floats are foreseen for a maximum process temperature up to 130 °C.

(A4) Test report nr: **04.221 JP**

(A5) Special conditions for safe use

The specific marking will determine the ambient type and zone of use.

(A6) Individual tests

None

OFICIAL LABORATORIO J. M. MADARIAGA LOM

LABORATORIO OFICIAL J. M. MADARIAGA

(A1) **SCHEDULE**

(A2) EC-Type Examination Certificate: : **LOM 06ATEX2054 X**

(A7) Essential Health and Safety Requirements

Explosion safe requirements are covered by application of the standards indicated in page 1/3 of this certificate.

(A8) Descriptive documents:

		Rev.	Date
- Description nr.	DT0126	0	2006-05-17
- Component lists nr.:	DT0078	0	2006-03-10
	DT0079	0	2006-03-10
	DT0125	0	2006-03-10
	DT0133	0	2006-03-21
- Drawings nº:	PM0347R0	0	1999-12-10
	PM0383R0	0	2004-11-15
	PM0385R0	0	2004-11-15
	PM0391R0	0	2004-11-15
	PM0425R0	0	2005-10-07
	PM0444R0	0	2006-03-10
	PM0447R0	0	2006-03-21

OFICIAL LABORATORIO J.M. MADARIAGA LOM

Page 3/3

LABORATORIO OFICIAL J. M. MADARIAGA

EC-TYPE EXAMINATION CERTIFICATE SUPPLEMENT

(1)

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

(3) Supplement nr. 1 to EC-Type Examination Certificate number **LOM 06ATEX2054 X**

(4) Equipment or Protection System: Level detectors
Type MIL... EX and RFS...EX

(5) Applicant: KOBOLD MESURA, S.L.U.

(6) Address: Guifré, 665
08918 BADALONA(BARCELONA)
SPAIN

(7) Report nr.: **LOM 07.059 NP**

(8) Variations included in this certificate

- Change of the manufacturer name, before CONTROL INSTRUMENTS MESURA S.L.
- Update of applied standards to: EN 60079-0:2006, EN 60079-11:2007, EN 61241-0:2006, EN 61241-1:2004 and EN 61241-11:2006

(9) Marking variations

None

(10) Descriptive documents

	Rev.	Date
- Drawings nr.: DT0132R2	2	2007-07-17

OFICIAL LABORATORIO LOM J.M. MADARIAGA

Madrid, 24th July, 2007

Carlos Fernández Ramón
DIRECTOR OF THE LABORATORY

Angel Vega Remesal
Head of ATEX area

This supplement must be an inseparable part together with the base certificate **LOM 06ATEX2054 X**

(This document may only be reproduced in its entirety and without any change)

This Certificate is a translation from the original in Spanish. The LOM liability applies only on the Spanish text

Page 1/1

UNIVERSIDAD POLITÉCNICA DE MADRID
ENSAYOS E INVESTIGACIONES DE MATERIALES Y EQUIPOS PARA ATMÓSFERAS EXPLOSIVAS Y MINERÍA
(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29 -)
Alenza, 1 - 28003-MADRID • ☎ (34) 91 4421366/ 91 3367009 • Fax.(34) 91 4419933 • ✉ lom@lom.upm.es

LABORATORIO OFICIAL J. M. MADARIAGA

EC-TYPE EXAMINATION CERTIFICATE SUPPLEMENT

(1)

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

(3) Supplement nr. **2** to EC-Type Examination Certificate **LOM 06ATEX2054 X**

(4) Equipment or protective system: Level detectors Types MIL... EX, RFS...EX y M...E

(5) Manufacturer: KOBOLD MESURA, S.L.U.

(6) Address: Guifré, 665 08918 BADALONA(BARCELONA SPAIN

(7) Test report nr.: **LOM 12.256 KP**

(8) Variations included in this certificate

- Update to the standards EN 60079-0:2009, EN 60079-11:2007 and EN 60079-31:2009
- To Include two new series named "M..E" and "MS..E" with intrinsically safe type of protection, with straight or angled tube respectively. May include junction box or direct cable connection
- To include new connection boxes and connectors for the variants MIL.100.EX, MIL.200.EX and RFS.12.EX
- Process temperature is not limited

(9) Changes in marking

All variants used in intrinsically safe circuits: II 1GD Ex ia IIC T6 Ga; Ex ia IIIC T85 °C Da; -20 °C ≤ Ta ≤ +60 °C

Variant MIL.300.EX used as protection by enclosure type of protection: II 2D Ex t IIIC T85 °C Db; -20 °C ≤ Ta ≤ +60 °C

(10) Changes in the special conditions for a safe use

It is added:

- The temperature class or surface temperature refers only to equipment operating at room temperature. In class facility shall be determined on the basis of actual temperature of the process.

(11) Descriptive documents

		Rev.	Date
- Descriptions nr.:	DT0494	-	2012-07
	DT0495	-	2012-07
- Drawings nr.:	DT0496	-	2012-07

Getafe, 2012-10-22

Carlos Fernández Ramón
DIRECTOR OF THE LABORATORY

Angel Vega Remesal
Head of the ATEX

LABORATORIO OFICIAL J.M. MADARIAGA

This supplement must be an inseparable part together with the base certificate **LOM 06ATEX2054 X**
This Certificate is a translation from the original in Spanish. The LOM liability applies only on the Spanish text

 Page 1/1

RCPCER 07.4/2 Rev. 0

UNIVERSIDAD POLITÉCNICA DE MADRID
ENSAYOS E INVESTIGACIONES DE MATERIALES Y EQUIPOS PARA ATMÓSFERAS EXPLOSIVAS Y MINERÍA
(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29)
Eric Kandel, 1 - 28906 GETAFE (MADRID) • ☎ (34) 91 4421366 • 🖷 (34) 91 4419933 • 🖳 lom@lom.upm.es

LABORATORIO OFICIAL J. M. MADARIAGA

EC-TYPE EXAMINATION CERTIFICATE SUPPLEMENT

(1)

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

(3) Supplement nr. **3** to EC-Type Examination Certificate number **LOM 06ATEX2054 X**

(4) Equipment or protection system — Level detectors Types MIL... EX, RFS...EX, M…E0 y MM…E

(5) Manufacturer — Kobold Mesura S.L.U.

(6) Address — Avda. Conflent 68, nave 15 08915 Badalona (Barcelona) SPAIN

(7) Test report nr.: **LOM 14.120 CP**

(8) Variations included in this certificate

1. To include a new series called MM…E

MM _ _ _ E
- Float material
- Process connection / head
- Output / transmitter

This new series is manufactured with intrinsically safe type of protection. It is based on a chain resistances and contact type "reed" driven by the magnetic field of the float, with potentiometric measurement.

The output signal can be direct, or using the loop signal converters for 4-20 mA, HART or PROFIBUS / FIELDBUS, intrinsically safe using certified transmitter modules.

Used transmitters

Type	Certificate	Manufacturer
5333D	KEMA 03ATEX1535	PR electronics A/S
5335D, 5337D	KEMA 03ATEX1537	
5350B	KEMA 02ATEX1318	

Also it cans include a display type CombiView DFON 5XX from Baumer A/S with certificate TUV 13ATEX113124 X.

The input parameters of the intrinsically safe type of protection will be the same as those indicated in the transmitter modules. For the version with direct connection the input parameter is *Pi*: 1.2 W

2. It is restricted to the use of group II for gases and marking is updated for all the variants MIL... EX, RFS...EX, M…E0 and MM…E.

3. Assessment update to the standards EN 60079-0:2012 and EN 60079-11:2012

(9) Changes in marking

II 1GD Ex ia IIC T6 Ga
-20 °C ≤ Ta ≤ +60 °C

This supplement must be an inseparable part together with the base certificate **LOM 06ATEX2054 X**
This Certificate is a translation from the original in Spanish. The LOM liability applies only on the Spanish text

 Page 1/2

RCPCER 07.4/2 Rev. 0

UNIVERSIDAD POLITÉCNICA DE MADRID
ENSAYOS E INVESTIGACIONES DE MATERIALES Y EQUIPOS PARA ATMÓSFERAS EXPLOSIVAS Y MINERÍA
(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29)

Eric Kandel, 1 – 28906 GETAFE (MADRID) • ☎ (34) 91 4421366 • 🖷 (34) 91 4419933 • 💻 lom@lom.upm.es

LABORATORIO OFICIAL J. M. MADARIAGA

(3) Supplement nr. **3** to EC-Type Examination Certificate number **LOM 06ATEX2054 X**

(10) Changes in the special conditions for a safe use

- Attention should be paid to electrostatic risk of head and parts of the sensor / float made of plastic materials.
- The use in zone 0 of heads made of aluminium should be restricted to locations where the risk of ignition due to mechanical impact is not likely.

(11) Descriptive documents

		Rev.	Date
- Technical description nº:	DT0602	-	2014-05
- Drawings nr.:	DT0596	-	2013-12
	DT0598	-	2014-03
	PE0234	0	2014-02-11
	DT0615	-	2014-04-11

Getafe, 2014-06-23

Carlos Fernández Ramón
Responsible of the Certification Committee

LABORATORIO OFICIAL J. M. MADARIAGA

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 nr. **LOM 14ATEX2075 X**

(4) Equipment or protection system: Magnetic level sensors Types M**-***F

(5) Manufacturer: KOBOLD MESURA, S.L.U.

(6) Address: Avda. Conflent, 68. Nave 15
08915 Badalona (Barcelona)
SPAIN

(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) Laboratorio Oficial J.M. Madariaga (LOM), notified body number 0163 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament 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 nr. **LOM 14.477 VP**

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

- Standards **EN 60079-0:2012** **EN 60079-1:2007**
EN 60079-26:2007 **EN 60079-31:2009**

(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 and construction of this specified equipment or protective system in accordance with the Directive 94/9/EC. Further requirements of the Directive apply to the manufacture 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:

II 1/2 G Ex d IIC T1..T6 Ga/Gb
II 2D Ex t IIIC T410..T85 °C Db

Getafe, 2015-07-28

Carlos Fernández Ramón
Head of Certification Committee

This Certificate is a translation from the original in Spanish. The LOM liability applies only on the Spanish text

RCPCER 07.3/2 Rev.2

UNIVERSIDAD POLITÉCNICA DE MADRID
ENSAYOS E INVESTIGACIONES DE MATERIALES Y EQUIPOS PARA ATMÓSFERAS EXPLOSIVAS Y MINERÍA
(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29)

Eric Kandel, 1 – 28906 GETAFE (MADRID) • (34) 91 4421366 • (34) 91 4419933 • lom@lom.upm.es

LABORATORIO OFICIAL J. M. MADARIAGA

(A1) SCHEDULE

(A2) EC-Type Examination Certificate nr.: **LOM 14ATEX2075 X**

(A3) Description of equipment or protective system

Magnetic level sensors series M**-***F, MM-***F and MS*-****F consist of a float containing a magnet and sliding on the outside of a stainless steel tube, said tube containing in its interior switches type "reed" actuated by the magnet . They are designed for level measurement of liquids in containers. The electrical connections are made in a head which have flameproof and protection by enclosure type of protection.

Three variants of heads are used

- Type TTE* with component certificate CESI 08 ATEX 029U
  Maximum service temperature 95 °C and 100 °C
- Type XD-A* with component certificate FTZU 03 ATEX 0074U
  Maximum service temperature 100 °C, 150 °C y 200 °C
- Type XD-A*win with component certificate FTZU 03 ATEX 0074U
  Enclosure with window glass when the equipment incorporates a display
  Maximum service temperature 85 °C

Variants M**-***F y MS*-****F consist in direct contact outputs working at 230 V / 1 A / 60 VA.
Variants M **- ***F have to head straight tube provided to connect on top of the containers.
Variants MS*-***F have an elbow pipe with connection head expected to connect on the side of the containers.

Type codification: M _ _ - _ _ _ _ _ _ 0 F

- Variants
- Tube code
- Process connection code
- Type of output contacts

The MM-***F variants have resistive output, or transmitter in the head with analog output 4-20 mA or digital communication.

Type codification: MM- _ _ _ F

- Variants
- Process connection code
- Type of transmitter / output

The sensors are designed for process temperature up to 400 ° C, but the temperature of the head shall not exceed the indicated for this head.

The process connection is made using standardized threaded or flanged.

Ambient temperature: -20 °C ≤ Ta ≤ +60 °C

The temperature class and surface temperature of the equipment depends on the process temperature:

Process temperature	≤ 80 °C	≤ 95 °C	≤ 130 °C	≤ 195 °C	≤ 290 °C	≤ 400
Temperature class	T6	T5	T4	T3	T2	T1
Surface temperature	T85 °C	T100 °C	T135 °C	T200 °C	T300 °C	T410 °C

RCPCER 07.3/2 Rev.2

LABORATORIO OFICIAL J. M. MADARIAGA

(A1) SCHEDULE

(A2) EC-Type Examination Certificate nr.: **LOM 14ATEX2075 X**

(A3) Description of equipment or protective system (continued)

Marking

II 1/2 G Ex d IIC T* Ga/Gb
II 2D Ex t IIIC T* °C Db

T* according process temperature

(A4) Test report nr.: **LOM 14.477 VP**

(A5) Special conditions for safe use

- The maximum temperature in the enclosure head depends on the process temperature and may not exceed the maximum service temperature indicated for the junction box
- The tube must be mechanically protected or in locations with low risk of impact.
- When the container inside is a zone 0 a degree of protection of at least IP67 must be ensured in the process connection.

(A6) Individual tests

Overpressure tests required on the head enclosures.

(A7) Essential Health and Safety Requirements

Explosion safe requirements are covered by application of the standards indicated in the first page of this certificate.

(A8) Descriptive documents

		Rev.	Date
- Technical description nº:	DT0603	3	2015-07
	DT0611	-	2014-03
	DT0612	-	2014-03
	DT0618	-	2014-07
	DT0619	-	2014-09-10
	DT0620	-	2014-10
	IN0028	-	2014-09-15
- Drawings nº:	DT0613R2	2	2015-07
	PM1186R0	0	2014-09-23

RCPCER 07 3/2 Rev.2

Page 3/3

21 Notes

KOBOLD MESURA S.L.U
Avda. Conflent 68 nave 15
08915 Badalona
Tel.: +34 93 460 38 83
Fax: +34 93 460 38 76
E-Mail: info.es@kobold.com
www.kobold.com

Technical data
Subject to change without prior notice