

Operating Instructions

for

Magnetic Level Switches

Model: M Series



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Manufactured by:

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Internet: www.kobold.com
Edition: Jan. 2023

2. Note

Please read these operating instructions before unpacking and putting the unit in operation. Follow the instructions precisely as described herein.

The instruction manuals on our website WWW.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that correspond to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

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:

- Magnetic Level Switches for Liquids model: M...
- Operating Instruction

All parts falling under the standard scope of delivery are properly assembled within the unit.

M series

4. Regulation Use

Magnetic Level Switches are employed for monitoring and control of liquid-levels in boilers and containers. There are innumerable and diverse applications that require these Magnetic Level Switches to be made according to customers' specific requirements.



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 Ø [mm] | Height [mm] | Bore Hole Ø [mm] | Min. Liquid Density [kg/dm³] | Max. Temperature °C | Nominal Pressure [bar] at 20 °C |
|-------------------|-------------------------|------------------|----------------------|-------------|------------------|------------------------------|---------------------|---------------------------------|
| M01 | Cylinder solid material | NBR | 18 | 25 | 10 | > 0.65 | 80 °C | 10 bar |
| M02 | Cylinder Hollow | PP | 26 | 16 | 10 | > 0.65 | 80 °C | 3 bar |
| M03 | Cylinder hollow | PVC-U | 26 | 26 | 10 | > 0.9 | 55 °C | 3 bar |
| M04 | Ball hollow | St. steel 1.4404 | 30 | 28 | 9 | > 0.8 | 150 °C | 15 bar |
| M05 | Cylinder hollow | PP | 42 | 40 | 14 | > 0.5 | 80°C | 3 bar |
| M06 ¹⁾ | Cylinder solid material | PP | 40 | 20 | 14 | > 0.9 | 90 °C | 100 bar |
| M07 | Cylinder hollow | PVC-U | 42 | 40 | 14 | > 0.65 | 55 °C | 3 bar |
| M08 | Cylinder hollow | St. steel 1.4404 | 38 | 52 | 15 | > 0.7 | 150°C | 20 bar |
| M10 | Ball hollow | St. steel 1.4404 | 52 | 52 | 15 | > 0.6 | 150°C | 30 bar |
| M11 | Ball hollow | St. steel 1.4404 | 52 | 52 | 15 | > 0.6 | 150°C | 30 bar |
| M13 | Cylinder hollow | PVDF | 38 | 60 | 18 | > 0.72 | 125°C | 2 bar |
| M16 | Cylinder hollow | PVC-U | 60 | 60 | 18 | > 0.5 | 55°C | 3 bar |
| M20 | Ball hollow | St. steel 1.4404 | 95 | 95 | 20.8 | > 0.5 | 150°C | 15 bar |

- 1) For M06 model, one float is required for each switch point.
For all other floats two contacts can be operated with one float.

Supplementary devices:

1. Contact protection relays

We recommend the use of contact protection relays in conjunction with sealed contacts.

Contact protection relays have the following advantages:

- No contact overloads arising from sparking and high currents, which can, for example, be caused by self-induced e.m.f.'s when switching solenoid valves.
- Float switches are electrically isolated from the high voltage power supply system.
- Protection for persons who come into contact with liquids according to VDE 0100.
- **Standard models:**
Mod. MSR 10 1 channel, 1 changeover
Mod. MSR 20 2 channels, 2 changeover
Mod. MSR 11 2 channels, 1 changeover bistable
- **Atex models:**
Mod. KFD2-SR2-Ex1.W 1 channel, 1 relay output, supply 24 V_{DC}
Mod. KFA6-SR2-Ex1.W 1 channel, 1 relay output, supply 230 V_{AC}
Mod. KFD2-SR2-Ex2.W 2 channel, 2 relay output, supply 24 V_{DC}
Mod. KFA6-SR2-Ex2.W 2 channel, 2 relay output, supply 230 V_{AC}

2. Damping tube for agitated liquids

Float switches with damping tube for agitated or dirty liquids can be supplied upon request.

3. Temperature monitoring

Float switches with integrated temperature switch, fixed switch point between 60 °C and 150 °C upon request.

Option: Pt 100 available

4. Mounting instructions

Float switches can also be fitted in the bottom for vessels.

Attention: The contact operation is then reversed.

Kobold magnetic float switches are fitted with a hermetically sealed contact which is situated in the tube.

The float sliding on the tube contains a ring magnet whose magnetic field switches the sealed contact in a non-contacting fashion. The sealed contacts are available as N/O, N/C or changeover contacts.

The float sliding up and down on the liquid is the only moving part in the Kobold magnetic float switches.

6. Commissioning and replacement

Commissioning:

The slide-tube of the float switch may not be bent or exposed to hard impacts, since otherwise the reed contacts inside the tube can be damaged.

Adjustment-rings or anchor-clamps may not be readjusted, since otherwise the switching function (N.O. contact, N.C. contact or changeover switch) is no more guaranteed.

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 sidewalls!).

Mounting position of the slide-tube may not deviate more than $\pm 30^\circ$ from vertical position.

If the size of the float does not fit through the process connection, the float must be removed before mounting.

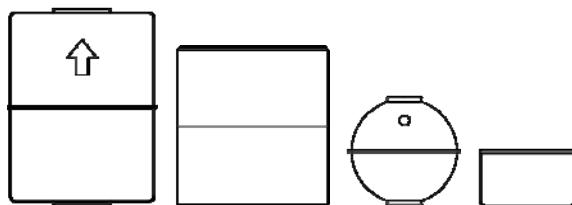
All the floats have a kind of mark (arrow, point, notch, ...), to remove a float proceed as follows:

- Before removal, mark the position of the float stops
- Check the position of the mark on the float
- Insert the probe through the process connection
- Relocate the float stops at the marked point and the float paying attention to keep the mark at the same position as the previous one.

Replacement of Float:

- Before removal, mark the position of the float stops
- Check the position of the mark on the float
- Replace the float stops at the marked point and the new float paying attention to keep the mark at the same position as the previous one.

Examples:



7. Area of application

Magnetic level switch M 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.

8. 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. Other maintenance jobs are not required.

9. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

10. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

11. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

12. Electrical Information

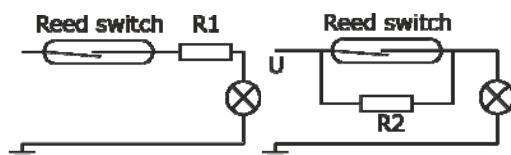
Performance data indicated on the device label are absolute maximum ratings, which may **not** be exceeded even for brief periods of time. They refer to ohmic load (resistive load). When switching inductances (e.g. coils from relays and

M series

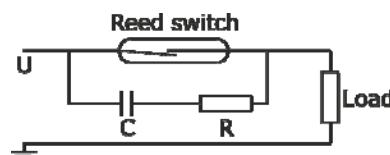
contactors), the contacts of the float switches should be protected employing suitable means from high cut-off voltage surges.

Examples of protection circuitry

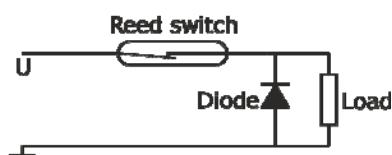
For capacitive, inductive and lamps load, we recommend our contact protection relays or the following suppressor circuits.



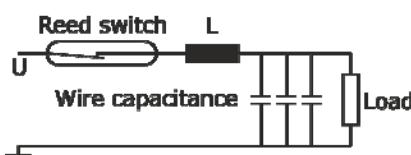
Lamp load with series or parallel resistance to the reed switch.



Protection with a RC suppressor for a.c. current and inductive load load.



Protection with a diode for d.c. current and inductive load.



Protection with an inductance or resistance for capacitive load.

The Magnetic Level Switches are connected according to the following connection diagrams.



Attention! While making electrical connections of these devices, please observe relevant safety measures, norms, regulations, and EC-guidelines, in particular, DIN VDE 0100, section 610. Float switches made of PVC can be used up to max. 55 °C!

Connection diagrams

| Terminal connection coding in connection head | Cable colour coding (DIN47100) for standards in silicone and PVC | |
|---|--|--------|
| 1 | WH | White |
| 2 | BN | Brown |
| 3 | GN | Green |
| 4 | YE | Yellow |
| 5 | GR | Grey |
| 6 | PK | Pink |
| 7 | BU | Blue |
| 8 | RD | Red |
| 9 | BK | Black |

* For special cables the codification is by numbers

Models with Plug 3-pole

| L1- S or C | L1- W | L1- S or C L2- S or C |
|------------|-------|--------------------------|
| | | |

Models with Plug 6-pole

| L1- S or C L2- S or C L3- S or C | L1- W | L1- W L2- W |
|--|-------|----------------|
| | | |

Models M01....M04

1 switch point (L1)

| L1- S or C | L1- W |
|------------|-------|
| | |

2 switch points (L1, L2)

| L1- S or C L2- S or C | L1- W L2- W | L1- W L2- S or C | L1- S or C L2- W |
|--------------------------|----------------|---------------------|---------------------|
| | | | |

M series

3 switch points (L1, L2, L3)

| |
|------------|
| L1- S or C |
| L2- S or C |
| L3- S or C |
| |
| WH 1 |
| BN 2 |
| GN 3 |
| YE 4 |
| GR 5 |
| PK 6 |

Models M05....M20

1 switch point (L1)

| | |
|--------------|----------------------|
| L1- S or C | L1- W |
| WH 1 BN 2 | WH 1 BN 2 GN 3 |

2 switch points (L1, L2)

| L1- S or C L2- S or C | L1- W L2- W | L1- S or C L2- W | L1- W L2- S or C |
|------------------------------|--|--------------------------------------|--------------------------------------|
| WH 1 BN 2 GN 3 YE 4 | WH 1 BN 2 GN 3 YE 4 GR 5 PK 6 | WH 1 BN 2 GN 3 YE 4 GR 5 | WH 1 BN 2 GN 3 YE 4 GR 5 |

3 switch points (L1, L2, L3)

| L1- S or C L2- S or C L3- S or C | L1- W L2- W L3- W | L1- S or C L2- S or C L3- W | L1- S or C L2- W L3- S or C | L1- W L2- S or C L3- S or C |
|--|------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | | | | |
| L1- W L1- W L3- S or C | L1- W L2- S or C L3- W | | | |
| WH 1 | WH 1 | WH 1 | WH 1 | WH 1 |
| BN 2 | BN 2 | BN 2 | BN 2 | BN 2 |
| GN 3 | GN 3 | GN 3 | GN 3 | GN 3 |
| YE 4 | YE 4 | YE 4 | YE 4 | YE 4 |
| GR 5 | GR 5 | GR 5 | GR 5 | GR 5 |
| PK 6 | PK 6 | PK 6 | PK 6 | PK 6 |
| BU 7 | BU 7 | BU 7 | BU 7 | BU 7 |
| RD 8 | RD 8 | RD 8 | RD 8 | RD 8 |
| BK 9 | | | | |

4 Switch points (L1, L2, L3, L4)

| L1- W L2- S or C L3- S or C L4- S or C | L1- S or C L2- W L3- S or C L4- S or C | L1- S or C L2- S or C L3- W L4- S or C | L1- S or C L2- S or C L3- S or C L4- W |
|--|---|---|---|
| | | | |
| L1- S or C L2- S or C L3- S or C L4- S or C | | | |
| WH 1 | WH 1 | WH 1 | WH 1 |
| BN 2 | BN 2 | BN 2 | BN 2 |
| GN 3 | GN 3 | GN 3 | GN 3 |
| YE 4 | YE 4 | YE 4 | YE 4 |
| GR 5 | GR 5 | GR 5 | GR 5 |
| PK 6 | PK 6 | PK 6 | PK 6 |
| BU 7 | BU 7 | BU 7 | BU 7 |
| RD 8 | RD 8 | RD 8 | RD 8 |
| BK 9 | BK 9 | BK 9 | BK 9 |

| L1- S or C L2- S or C L3- S or C L4- S or C |
|--|
| |

13. Safety Instructions (ATEX)

11.1 Area of validity

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

11.2 Guidelines.

These security instructions must be applied to the **M...E** and **M...F** series used in gas or dust explosion hazard environments, category 1G/D.

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

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 **M...F** series.

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

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

Models without head box must be protected with an enclosure having at least a degree of protection IP20 for **M...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 **M...F** series.

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

11.3 Protection against ESD (electrostatic 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.

11.4 Chemical resistance

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

11.5 Maintenance and repairs

The instrument does not require maintenance or servicing.

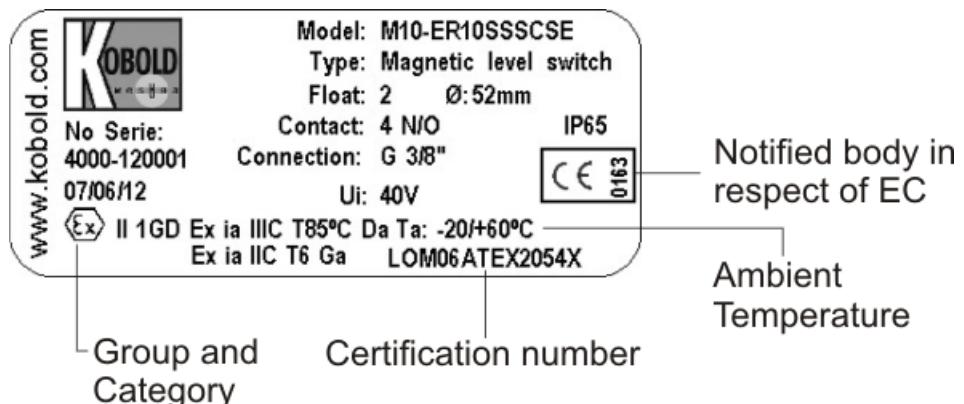
Repairs must be only carried out by Kobold Mesura (manufacturer).

11.6 Storage

Measuring instruments should be protected against humidity and dust.

Storage temperature: -5...+55°C

14. ATEX Label Description



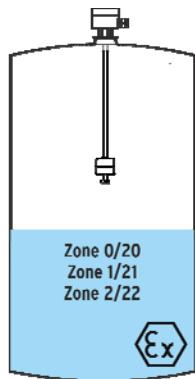
M series

15. Installation in hazardous zone

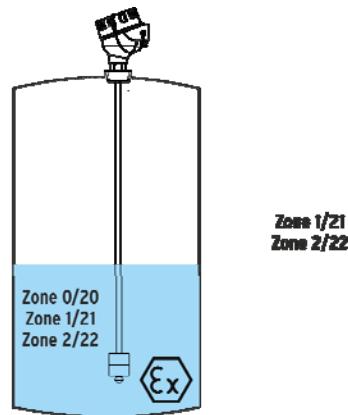
In classified zones, magnetic level switches series **M...E** (intrinsically safe version), can be installed in zone 0, 1 and 2 and series **M...F** (explosion proof version) can be installed in zone 0,1 and 2.

Installation must be done by people trained regarding ATEX environments.

Intrinsically safe version

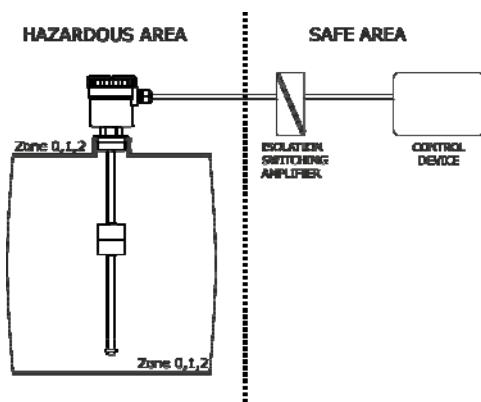


Explosion proof version

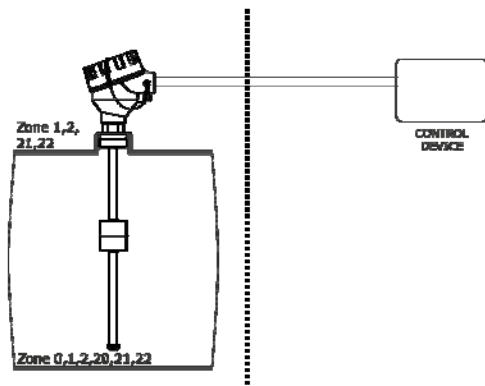


16. Electrical connection in ATEX zone

14.1 Electrical connection in intrinsically safe mode Ex ia



14.2 Electrical connection in explosion proof mode Ex d



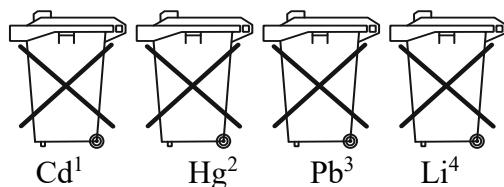
17. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

Batteries

Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



1. „Cd“ stands for cadmium
2. „Hg“ stands for mercury
3. „Pb“ stands for lead
4. „Li“ stands for lithium

Electrical and electronic equipment



18. Declaration of conformity ATEX Ex ia

DECLARACIÓN DE CONFORMIDAD EU

EU DECLARATION OF CONFORMITY

EU-KONFORMITÄTSERKLÄRUNG

DÉCLARATION DE CONFORMITÉ EU

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 propria responsabilità, che il prodotto

Magnetic level switch

M..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 Euroäischen 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 ATEX2014/34/EU RoHS2011/65/EU

Normas armonizadas y documentos de la normativa aplicados:

Applied harmonised standards and normative documents:

Angewandte harmonisierte Normen und normative Dokumente:

Normes harmonisées et documents normatifs appliqués

Norme armonizzate e documenti normativi applicati:

EN61010-1 :2020 EN60079-0:2012 (acc. EN60079-0:2018)

EN61000-6-2 :2019 EN60079-11:2012

*No changes are required to enable compliance with the replacement standards.

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



II 1 GD Ex ia IIC T6 Ga / Ex ia IIIC T85°C Da
-20≤Ta≤+60°C

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

Badalona june 2017

DT0497

Número notificación : LOM 05ATEX9070

Notification number

Zertifikatsnummer

Nombre notification

Notifica di numero

Gerente

19. Declaration of conformity ATEX Ex d

DECLARACIÓN DE CONFORMIDAD EU

EU DECLARATION OF CONFORMITY

EU-KONFORMITÄTSERKLÄRUNG

DÉCLARATION DE CONFORMITÉ EU

DICHIARAZIONE DI CONFORMITÀ EU

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Déclare sous sa seule responsabilité, que le produit

Dichiara sotto la propria responsabilità, che il prodotto

Magnetic level switch

M..F

A los cuales se refiere esta declaración, son conformes a las siguientes Directivas Europeas:

To which this declaration relates is in conformity with the following European Directives:

Mit folgenden Euroäischen Richtlinien Konform ist:

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EMC2014/30/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 normative Dokumente:

Normes harmonisées et documents normatifs appliqués

Norme armonizzate e documenti normativi applicati:

EN61010-1 :2020 EN60079-0:2012 (acc. EN60079-0:2018)

EN61000-6-2 :2019 EN60079-31:2009 (acc. EN60079-31:2014)

EN61326-1:2013 EN60079-1:2007 (acc. EN60079-1:2014)

EN60079-26:2007 (acc. EN60079-26:2015)

*No changes are required to enable compliance with the replacement standards.

Certificado de examen CE de tipo

EC-type examination certificate

EG-baumusterprüfungsberechtigung

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..T85°C 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

Nombré notification

Notifica di numero

Badalona Junio 2017

DT0627

Gerente

20. EU Declaration of conformity

DECLARACIÓN DE CONFORMIDAD EU

EU DECLARATION OF CONFORMITY

EU-KONFORMITÄTSERKLÄRUNG

DÉCLARATION DE CONFORMITÉ EU

DICHIARAZIONE DI CONFORMITÀ EU

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Magnetic level switch

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

Normas armonizadas y documentos de la normativa aplicados:

Applied harmonised standards and normative documents:

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Normes harmonisées et documents normatifs appliqués

Norme armonizzate e documenti normativi applicati:

EN61010-1 :2020

EN61000-6-2 :2019

Fabricado en: KOBOLD MESURA SLU Avda. Conflent 68 nave 15 08915 BADALONA (Spain)

Made in:

Hergestellt in:

Fabriqué dans:

Fabbricato in:



Badalona April 2016
DT0498

Gerente

21. UK Declaration of Conformity

DT0664

DECLARACIÓN DE CONFORMIDAD UK

UK DECLARATION OF CONFORMITY

UK-KONFOMITÄTSERKLÄRUNG

DÉCLARATION DE CONFORMITÉ UK

DICHIARAZIONE DI CONFORMITÀ UK

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

We Kobold Mesura S.L.U. declare under our sole responsibility that the product:

Magnetic level switch
M...

To which this declaration relates is in conformity with the standards noted below:

BS EN 61010-1:2010

Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements

BS EN 61000-6-2:2019

Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments

Also, the following UK guidelines are fulfilled:

S.I. 2016/1091 Electromagnetic Compatibility Regulations 2016.

S.I. 2016/1101 Electrical Equipment (Safety) Regulations 2016.

S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012.

Badalona October 2021

Gerente



22. ATEX Certified



LABORATORIO OFICIAL J. M. MADARIAGA



(1) EC-TYPE EXAMINATION CERTIFICATE

- (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:

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

(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.

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:



$\langle \Sigma_x \rangle$

Ex tD A2I

IP65

T85 °C Ta:-20/+60 °C

OFICIAL



Madrid, 16th June, 2006

Carlos Fernández Ramón
DIRECTOR OF THE LABORATORY

Angel Vega Remesal
Head of ATEX area

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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



M series



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:



II 1 GD Ex ia IIC T6 / Ex iaD T20 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:



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

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Page 2/3

M series

| | | | |
|--|--|------------|--|
|  | 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: | | | |
| - Description nr. | Rev. | Date | |
| 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 n°: | | | |
| 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 | |
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LABORATORIO OFICIAL J. M. MADARIAGA



(1) EC-TYPE EXAMINATION CERTIFICATE SUPPLEMENT

(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. **2** Date **2007-07-17**
- Drawings nr.: **DT0132R2**



Carlos Fernández Ramón
DIRECTOR OF THE LABORATORY

Madrid, 24th July, 2007

Angel Vega Remesal
Head of ATEX area

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

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UNIVERSIDAD POLITÉCNICA DE MADRID

ENSAYOS E INVESTIGACIONES DE MATERIALES Y EQUIPOS PARA ATMOSFERAS EXPLOSIVAS Y MINERÍA

(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29 -)

Avenida de Alcalá, 30 · 28003-MADRID · Tel. (34) 91 4421366/91 3367009 · Fax.(34) 91 4419933 · E-mail: lom@lom.upm.es





LABORATORIO OFICIAL J. M. MADARIAGA



(1) EC-TYPE EXAMINATION CERTIFICATE SUPPLEMENT

(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

Variant MIL.300.EX used as protection by enclosure
type of protection



II 1GD Ex ia IIC T6 Ga

Ex ia IIIC T85 °C Da

-20 °C ≤ Ta ≤ +60 °C



II 2D Ex t IIC 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

- Descriptions nr.: DT0494
- DT0495
- Drawings nr.: DT0496

Rev. Date

- 2012-07

- 2012-07

- 2012-07

Getafe, 2012-10-22

Carlos Fernández Ramón
DIRECTOR OF THE LABORATORY



Angel Vega Remesal
Head of the ATEX

This supplement must be an inseparable part together with the base certificate LOM 06ATEX2054 X
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RCPCEP 07/4/2

Rev. 0

UNIVERSIDAD POLITÉCNICA DE MADRID

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(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

(1) EC-TYPE EXAMINATION CERTIFICATE SUPPLEMENT

Los documentos LOM son emitidos con firma digital para garantizar la autenticidad del firmante. Es posible comprobar su validez haciendo clic sobre la firma. Es posible comprobar la validez de la firma. It is possible to check its validity clicking on the signature.

- (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 | PR electronics A/S |
| | 5350B | KEMA 02ATEX1318 | PR electronics A/S |

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 P_t : 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**

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RCPCE-074/2
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(Real Decreto 334/1992 de 3 de Abril - BOE 1992-04-29)



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M series



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

Getafe, 2014-06-23

Carlos Fernández Ramón
Responsible of the Certification Committee

RCPCE R 07.4/2
Rev. 0

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LABORATORIO OFICIAL J. M. MADARIAGA

(1) EC-TYPE EXAMINATION CERTIFICATE

Los certificados del LOM son emitidos con firma digital para asegurar la autenticidad del firmante. Es posible comprobar la validez pulsando sobre la firma. Los certificados son emitidos con firma digital para asegurar la autenticidad del signo. Es posible checar su validez pulsando sobre la firma.

| | |
|------|---|
| (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

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Rev.2

UNIVERSIDAD POLITÉCNICA DE MADRID
ENSAYOS E INVESTIGACIONES DE MATERIALES Y EQUIPOS PARA ATMOSFERAS 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 • ✉ gom@lom.upm.es

M series



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

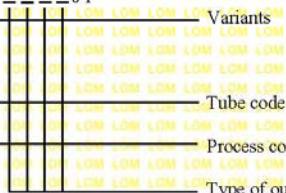
Maximum service temperature 85 °C

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.

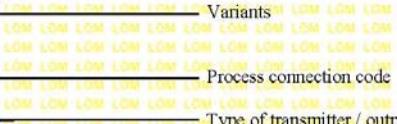
Variants MS-***F have an elbow pipe with connection head expected to connect on the side of the containers.

Type codification: M - - - 0 F Variants



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



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 °C |
|---------------------|---------|---------|----------|----------|----------|----------|
| Temperature class | T6 | T5 | T4 | T3 | T2 | T1 |
| Surface temperature | 785 °C | T100 °C | T135 °C | T200 °C | T300 °C | T410 °C |

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RCPCER 07/32

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.

(A6) Individual tests

- Overpressure tests required on the head enclosures.
- When the container inside is a zone 0 a degree of protection of at least IP67 must be ensured in the process connection.

(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 n°: 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 n°: DT0613R2 2 2015-07
- PM1186R0 0 2014-09-23

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Rev 2

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M series

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Technical data
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