



Operating Instructions
for
Liquid Level Transducer
Model: MM Series & NBK level
transmitter options



MM series, NBK-transmitter options

1 Contents

1	Contents.....	2
2	Note.....	3
3	Instrument Inspection.....	3
4	Regulation Use.....	4
5	Float types.....	4
6	Operating Principle.....	5
7	Mechanical Connection.....	5
8	Area of application.....	5
9	Maintenance.....	6
10	Technical details.....	6
11	Head transmitter.....	9
12	Display.....	9
13	Electrical Connection.....	9
13.1	General.....	9
13.2	Wiring diagram resistance output sensor (Model MM-Options P/S/Y/2, Model NBK-Option W/2/4)	10
13.2	Wiring diagram with sensor/transmitter options M, H, F (model MM), A, H, F (model NBK) .	10
13.3	Wiring diagram with touch screen LCD display type D (KMDFON) (model MM).....	10
13.4	Wiring diagram with touch screen LCD display type R (KMDFON) (model MM).....	11
13.5	Wiring diagram with LED display options E (LPI02) (MM), options LE/KE/AE/HE (NBK)	11
13.6	Wiring diagram with LCD display options C (ST0028) (MM), options LC/KC/AC/HC (NBK) ...	11
13.7	Electrical connection in intrinsically safe mode Ex ia (MM).....	12
13.8	Electrical connection in explosion proof mode Ex d (MM).....	13
13.9	Electrical connection in intrinsically safe mode Ex ia (NBK Sensor/transmitter options E, R, B).....	13
13.10	Electrical connection in explosion proof mode Ex d (NBK Sensor/transmitter options 4, L, K, N)	14
14	Safety Instructions (ATEX).....	15
14.1	Area of validity	15
14.2	Guidelines.....	15
14.3	Protection against ESD (electrostatic discharges).....	16
14.4	Chemical resistance.....	16
14.5	Maintenance and repairs	16
14.6	Storage	16
15	Installation in hazardous zone.....	17
16	ATEX Label Description	17
17	Commisioning.....	17
18	Disposal	18
19	Technical Information.....	18
20	Order Codes.....	18
21	Dimensions	18
22	Declaration of conformity ATEX Ex ia	19
23	Declaration of conformity ATEX Ex d	20
24	EU Declaration of conformity.....	21
25	UK Declaration of conformity.....	22
26	EC-Type certificate.....	23

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Edition: September 2024

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.

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

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.

MM series, NBK-transmitter options

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 types

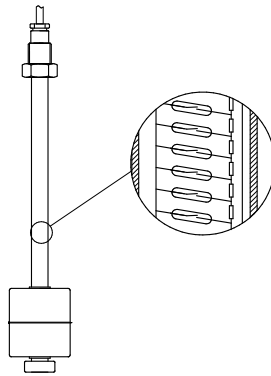
Model	Form	Materials	Float Outside Ø [mm]	Height [mm]	Bore Hole Ø [mm]	Min. Liquid Density [kg/dm³]	Max. Temperature °C	Nominal Pressure [bar] at 20 °C
M05	Cylinder hollow	PP	42	40	14	> 0.5	-10...+80°C	3 bar
M07	Cylinder hollow	PVC-U	42	40	14	> 0.65	0...+60 °C	3 bar
M08	Cylinder hollow	St. steel 1.4404	40	35	15	> 0.78	-20...+130°C	15 bar
M10	Ball hollow	St. steel 1.4404	52	52	15	> 0.6	-20...+130°C	30 bar
M13	Cylinder hollow	PVDF	38	60	18	> 0.85	-10...+125°C	2 bar
M15	Cylinder hollow	PP	60	60	18	> 0.4	-10...+80°C	6 bar
M16	Cylinder hollow	PVC-U	60	60	18	> 0.55	0...+60°C	3 bar
M20	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 model MM consist of a tube around which a float travels with inserted magnet, like the Kobold level float switch model M, models without float around the tube, the float is placed in an adjacent bypass tube to actuate the reed chain contacts inside the tube.

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.



MM working principal (NBK without external float)

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 $\pm 30^\circ$ 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.

MM series, NBK-transmitter options

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 for different sensor/transmitter (model NBK) and output options (model MM):

Model resistance out non Ex	Option P/S/Y/2 (MM) W (NBK) Resistance output: max. 24Vdc, 125 mW.
Model resistance out Ex i	Option P/S/Y/2 (MM): Resistance output: max. 24Vdc, 125 mW. 2 (NBK) Ex ia parameters: Pi: 1,2W Li: negligible, Ci: negligible
Model 4-20 mA out non Ex	Option H (MM/NBK): Output 4...20 mA, 4...20 mA HART®: 8...35 Vdc
Model 4-20 mA out Ex i	Options H (MM), R (NBK): Output 4...20 mA, 4...20 mA HART®: 8...35 Vdc Ex ia parameters: Ui: 30 Vdc, li: 120 mA, Pi: 0,84 W, Li: 10uH, Ci: 1 nF
Model PROFIBUS®/ FIELD BUS® non Ex	Option F (MM/NBK): Output: PROFIBUS®/FIELD BUS®: 9...32 Vdc
Model PROFIBUS®/ FIELD BUS® Ex i	Options F (MM), B (NBK): Output PROFIBUS®/FIELD BUS®: 9...32 Vdc Ex ia parameters: Ui: 30 Vdc, li: 120 mA, Pi: 0,84 W, Li 1uH, Ci: 2 nF
Model LCD touch screen (KMD FON) non Ex	Option D (MM): Version with display model D: 14,5...35 Vdc

MM series, NBK-transmitter options

Model LCD touch screen
(KMDFON) Exi

Option **D** (MM):

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:15nF

Model LCD touch screen
+ relays (KMDFON) non Ex

Option **R** (MM):

Version with display model R: 14,5...35 Vdc

Relays 0...60 Vp, 75 mA

Model LCD touch screen
+ relays (KMDFON) Exi

Option **R** (MM):

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

Model LCD display (ST0028)
non Ex

Option **C** (MM) **AC/HC** (NBK):

Version with LCD display 10...35 Vdc

Model LCD display (ST0028)
Exd

Option **C** (MM) **LC/KC** (NBK):

Version with LCD display 10...35 Vdc

Model LED display (LPI02)
non Ex

Option **E** (MM) **AE/HE** (NBK):

Version with LED display 11,7...35 Vdc

Model LED display (LPI02)
Exd

Option **E** (MM) **LE/KE** (NBK):

Version with LED display 11,7...35 Vdc

Protection type:

IP65 (IP68 possible with housing type L, C, E
(model MM) and sensor/transmitter options 2, E,
R, B, 4, L, K, N (model NBK))

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)

MM series, NBK-transmitter options

Dead band:	MM-M05* Top: 30 mm, Bottom: 40mm MM-M15* Top: 52 mm, Bottom: 50 mm MM-M07* Top: 27 mm, Bottom: 40 mm MM-M16* Top: 45 mm, Bottom: 50 mm MM-M13* Top: 25 mm, Bottom: 60 mm MM-M08* Top: 20 mm, Bottom: 50 mm MM-M10* Top: 31 mm, Bottom: 40 mm MM-M20* Top: 52 mm, Bottom: 50 mm Important: You must add the thread length of the process connection in case of selecting head box.
Max. pressure (at 20°C):	2 bar (type M13) 3 bar (type M05, M07, M16) 6 bar (type M15) 15 bar (type M20) 15 bar (type M08) 30 bar (type M10)
Max. temp. with PVC cable:	60°C (type M07, M16) 70°C (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 for options P/S/Y/2 (MM) W/2/4 (NBK):	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

Part Nr. 903.505:	Option M (NBK) analogue output 4...20 mA, 2 wires
Model 5333D:	Option M (MM), A (NBK) analogue output 4...20 mA, 2 wires, Sensor error action : Namur upscale (23 mA)
Model 5337D:	Option H/K/R analogue output 4...20 mA HART® protocol, 2 wires Sensor error action: Namur upscale (23 mA)
Model 5350B:	Option F/B/N 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 (KMDFON)
 max. 3,7 Vdc model E (LPI02)
 max. 2,5 Vdc model C (ST0028)

Note

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

13 Electrical Connection

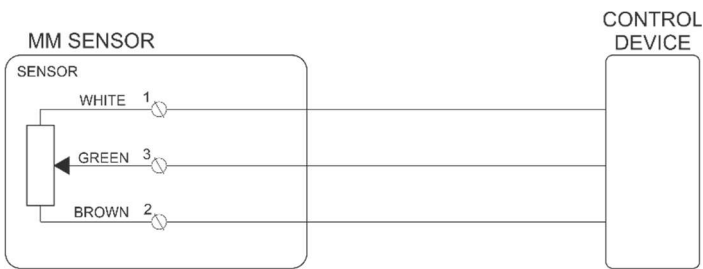
13.1 General

- 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.

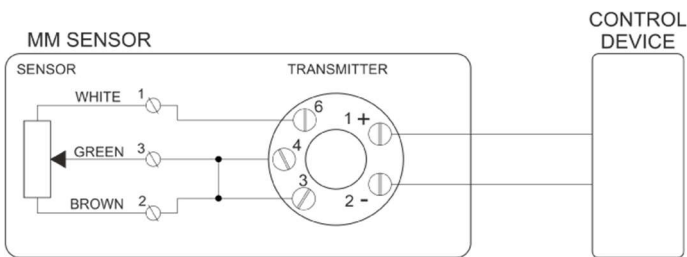
MM series, NBK-transmitter options

13.2 Wiring diagram resistance output sensor (Model MM-Options P/S/Y/2, Model NBK-Option W/2/4)

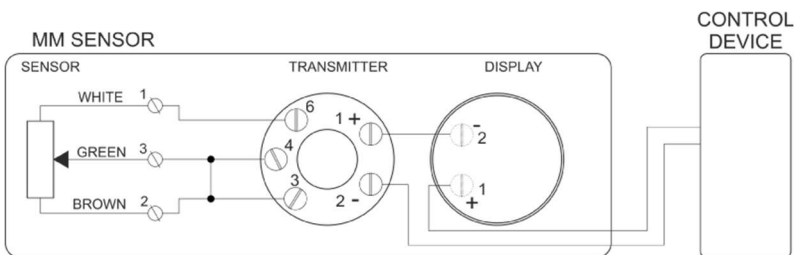
	Resistance value increases proportionally with level increase.	Resistance value decreases proportionally with level increase.	Signal
Models with cable	white	Brown	Green
Models with box	Clamp 1	Clamp 2	Clamp 3



13.2 Wiring diagram with sensor/transmitter options M, H, F (model MM), A, H, F (model NBK)

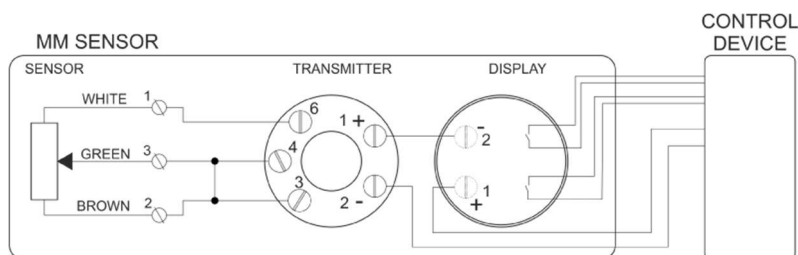


13.3 Wiring diagram with touch screen LCD display type D (KMDFON) (model MM)

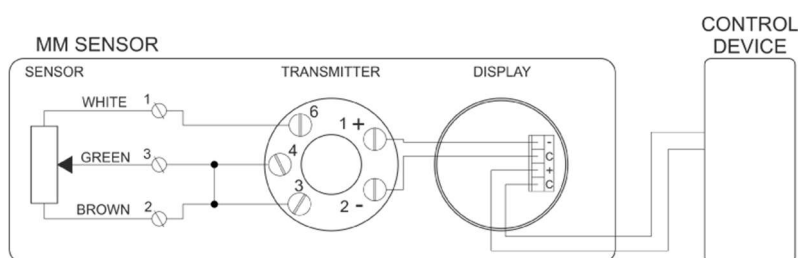


MM series, NBK-transmitter options

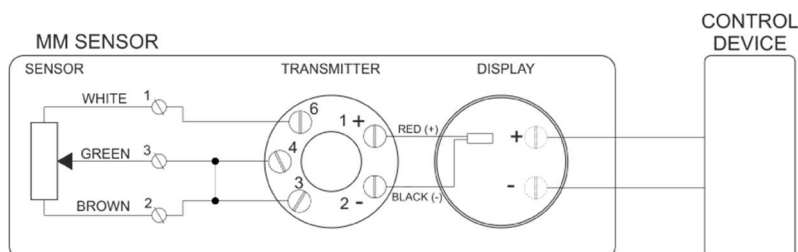
13.4 Wiring diagram with touch screen LCD display type R (KMDFON) (model MM)



13.5 Wiring diagram with LED display options E (LPI02) (MM), options LE/KE/AE/HE (NBK)

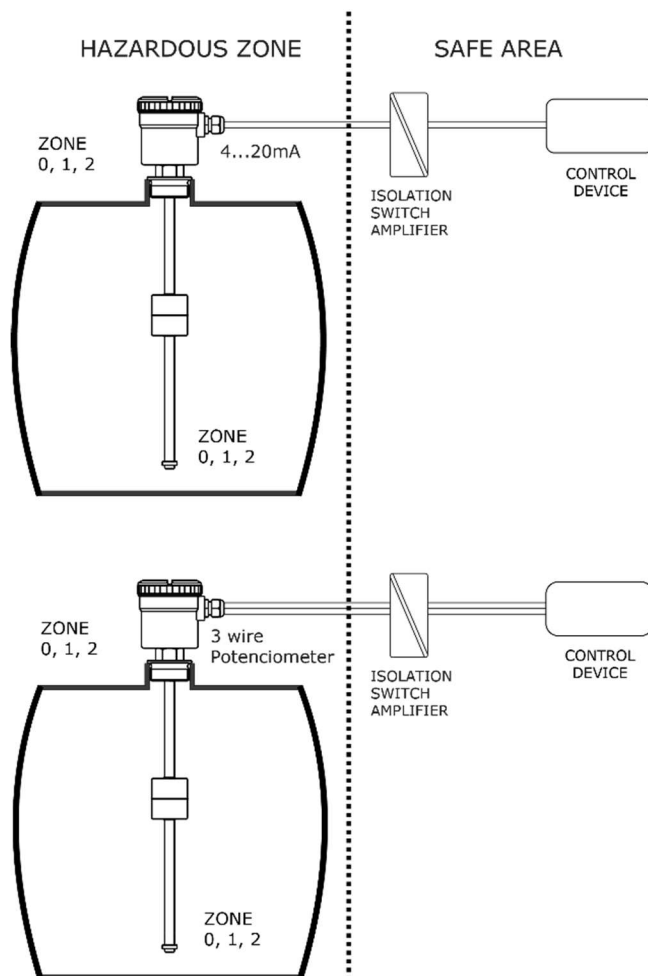


13.6 Wiring diagram with LCD display options C (ST0028) (MM), options LC/KC/AC/HC (NBK)



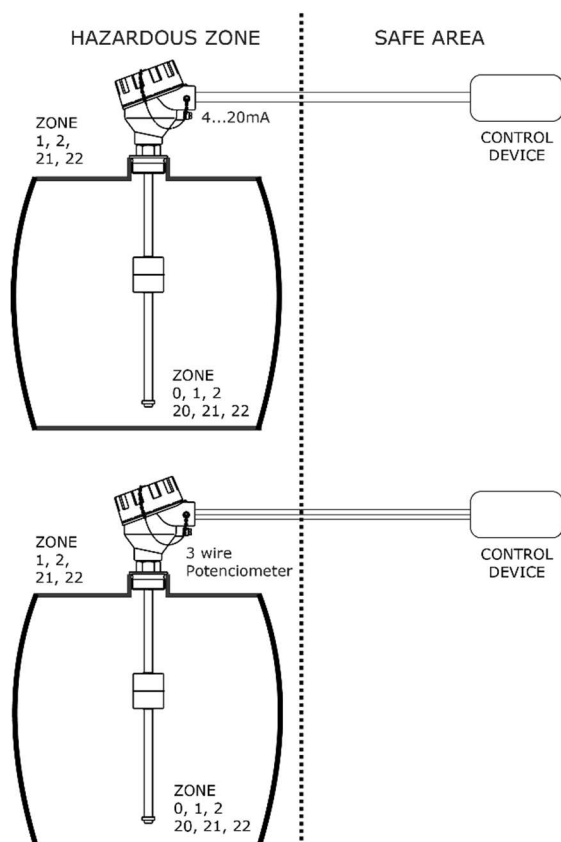
MM series, NBK-transmitter options

13.7 Electrical connection in intrinsically safe mode Ex ia (MM)

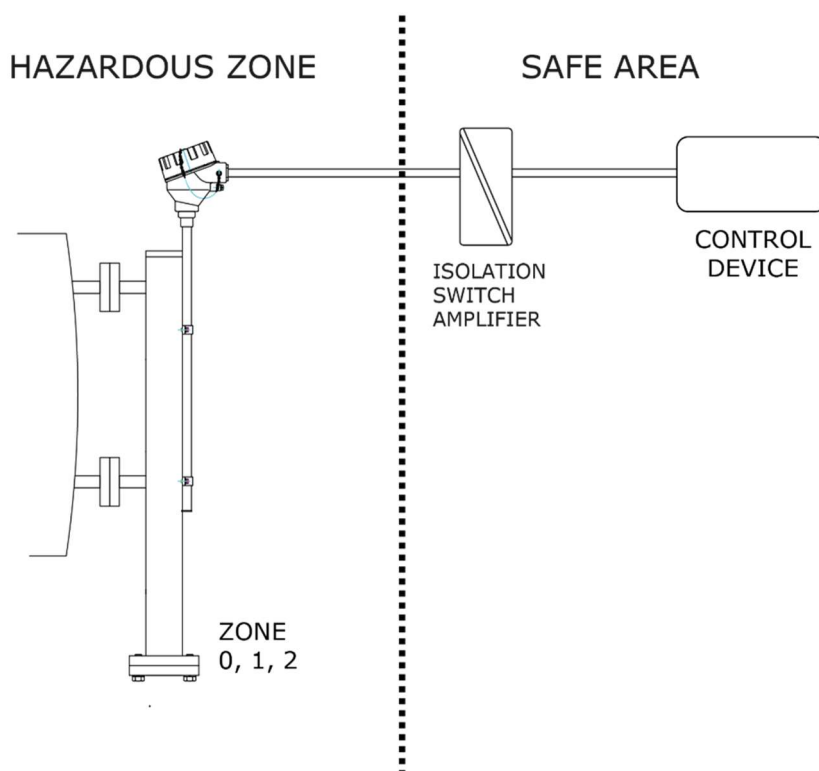


MM series, NBK-transmitter options

13.8 Electrical connection in explosion proof mode Ex d (MM)

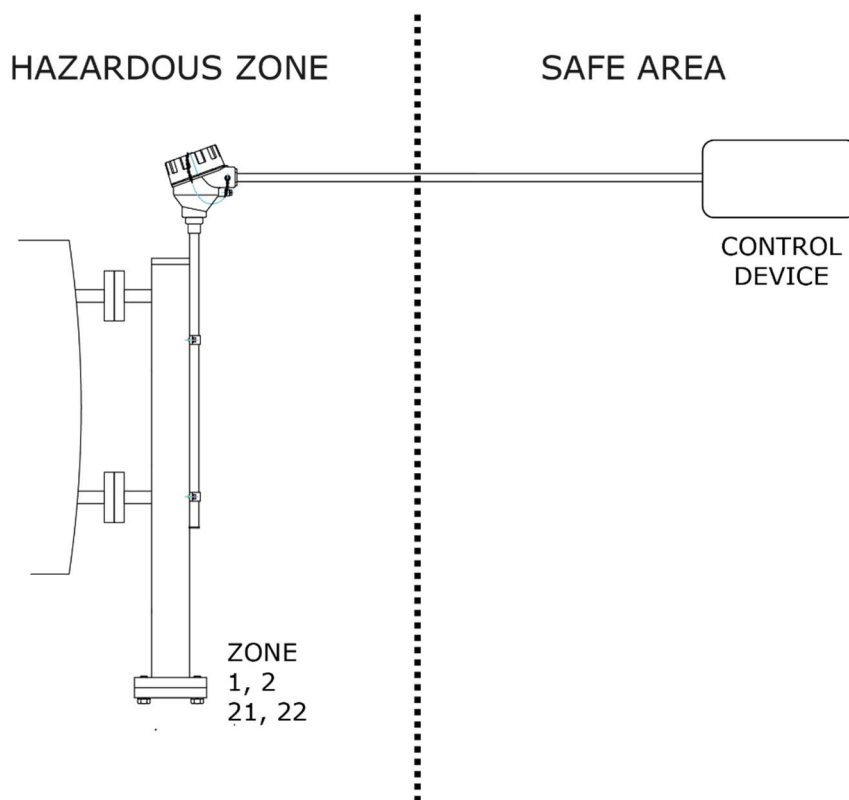


13.9 Electrical connection in intrinsically safe mode Ex ia (NBK Sensor/transmitter options E, R, B)



MM series, NBK-transmitter options

13.10 Electrical connection in explosion proof mode Ex d (NBK Sensor/transmitter options 4, L, K, N)



14 Safety Instructions (ATEX)

14.1 Area of validity

These security instructions apply to **MM...E (reed chain for NBK Sensor/transmitter options 2/E/R/B)** and **MM...F (reed chain for model NBK Sensor/transmitter options 4/L/K/N)** series magnetic level sensor for use in explosion-proof atmospheres conforming to certificate **LOM 06ATEX2054 X** and **MM...F (NBK...4/L/K/N) series** conforming to certificate **LOM 14ATEX2075 X**

14.2 Guidelines.

These security instructions must be applied to the **MM...E and (reed chain for Sensor/transmitter options 2/E/R/B)** and **MM...F(reed chain for model NBK Sensor transmitter options 4/L/K/N)** used in gas explosion hazard environments.

It is necessary to follow carefully the instructions from the hazardous areas where the **MM...E (reed chain for NBK Sensor/transmitter options 2/E/R/B)** or **MM...F (reed chain for model NBK Sensor/transmitter options 4/L/K/N)** 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, li 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 must 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 (reed chain for model NBK Sensor/transmitter options 4/L/K/N)** series.

The guide tube must be mechanically protected or in locations with low risk of impact for the instruments **MM...F (reed chain for model NBK Sensor/transmitter options 4/L/K/N)** 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 (reed chain for model NBK Sensor/transmitter options 4/L/K/N)**.

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

MM series, NBK-transmitter options

Models with cable must be protected with an external enclosure having at least a degree of protection IP20 for **MM...E (reed chain for NBK Sensor/transmitter options 2/E/R/B)**.

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 (reed for model NBK Sensor/transmitter options 4/L/K/N)**.

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

14.3 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.

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

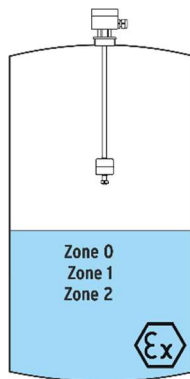
Measuring instruments should be protected against humidity and dust.

Storage temperature: -5...+55°C

15 Installation in hazardous zone

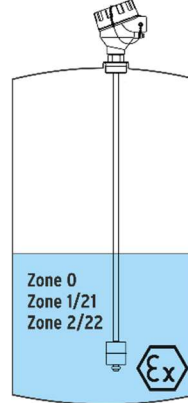
In classified zones, magnetic level switches series **MM...E (reed chain for NBK Sensor/transmitter options 2/E/R/B)** (intrinsically safe version), can be installed in zone 0, 1, 2 and series **MM...F (reed chain for model NBK Sensor/transmitter options 4/L/K/N)** (explosion proof version) can be installed in zone 0,1, 2, 21, 22. Installation must be done by people trained regarding ATEX environments.

Intrinsically safe version



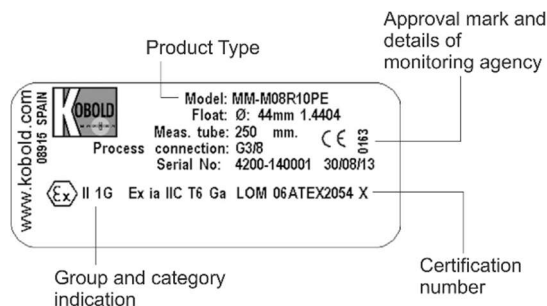
Zone 0
Zone 1
Zone 2

Explosion proof version



Zone 1/21
Zone 2/22

16 ATEX Label Description



17 Commisioning

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

- For this, before removal, mark the position of the float stops
- Mark the **mounting position** of the floats (e.g. "DOWN")
- After the switch has been mounted, the float should be relocated inside the tank (it is very important to pay attention to the **mounting position!**).
- Float stops must be relocated at the marked points."

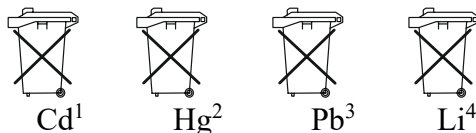
18 Disposal

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



19 Technical Information

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

20 Order Codes

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

21 Dimensions

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

MM series, NBK-transmitter options

22 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 propria 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 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:

EN61000-6-2:2019 EN60079-0:2012 (acc. EN60079-0:2018)

EN61326-1:2021 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 G Ex ia IIC T6 Ga

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 March 2024

DT0599

Gerente

MM series, NBK-transmitter options

23 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 propria 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 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:

	EN60079-0:2012 (acc. EN60079-0:2018)
EN61000-6-2:2019	EN60079-31:2009 (acc. EN60079-31:2014)
EN61326-1:2021	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-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..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
Nombre notification
Notifica di numero

Badalona March 2024

Gerente

DT0607

MM series, NBK-transmitter options

24 EU 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 propria responsabilità, che il prodotto

Liquid Level Transducers

MM... / NBK...

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 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:

EN61000-6-2:2019 EN61326-1:2021

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

Made in:

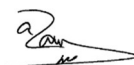
Hergestellt in:

Fabriqué dans:

Fabbricato in:

Badalona March 2024
DT0600

Gerente



MM series, NBK-transmitter options

25 UK Declaration of conformity

DT0666

DECLARACIÓN DE CONFORMIDAD UK

*UK DECLARATION OF CONFORMITY
UK-KONFORMITÄTSEKLRUNG
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:

Liquid Level Transducers
MM... / NBK ...

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

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.

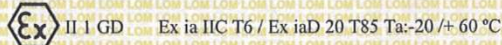
S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012.

Badalona October 2021

Gerente



26 EC-Type certificate

 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 1° 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:  
 Carlos Fernández Ramón DIRECTOR OF THE LABORATORY	
 Angel Vega Remesal Head of ATEX area	
 LABORATORIO OFICIAL J. M. MADARIAGA Madrid, 16th June, 2006	
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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 this must be connected to a intrinsically safe circuit, and having the marking:



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 1; this sensor is a simple mechanical device. The marking is:



II 2 / D

Ex tD A21

IP65

T85 °C

As category 1 devices, the intrinsically safe specific parameter is U_i : 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 T_a : -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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 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


OFICIAL
J. M. MADARIAGA
LABORATORIO

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Page 3/3

 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 Drawings nr.: DT0132R2 Rev. 2 Date 2007-07-17	
 LABORATORIO OFICIAL J. M. MADARIAGA 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 (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 	
(1) EC-TYPE EXAMINATION CERTIFICATE SUPPLEMENT	
(2)	Equipment or protective system intended for use in potentially explosive atmospheres
(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  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 - Descriptions nr.: DT0494 DT0495 - Drawings nr.: DT0496 Rev. Date - 2012-07 - 2012-07 - 2012-07 Getafe, 2012-10-22 OFICIAL  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 This Certificate is a translation from the original in Spanish. The LOM liability applies only on the Spanish text <i>(This document may only be reproduced in its entirety and without any change)</i>	
RCP CER 07-42 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 442136 • 📠 (34) 91 4419933 • ✉ 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. **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

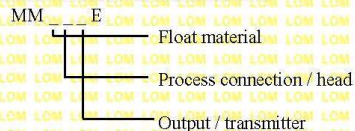
(5) Manufacturer Kobold Mesura S.L.U.

(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



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 P_i : 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
 $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

This supplement must be an inseparable part together with the base certificate **LOM 06ATEX2054 X**
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Page 1/2

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Rev. 0

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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

(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

- Technical description nr: DT0602

Rev. Date
2014-05

- Drawings nr.: DT0596

2013-12

DT0598

2014-03

PE0234

2014-02-11

DT0615

2014-04-11

Getafe, 2014-06-23

Carlos Fernández Ramón
Responsible of the Certification Committee



LABORATORIO OFICIAL J. M. MADARIAGA



Los certificados del LOM son emitidos con firma digital para asegurar la autenticidad del firmante. Es posible comprobar su validez pulsando sobre la firma LOM certificates are issued with digital signature to ensure the authenticity of the signer. It is possible to check its validity clicking on the signature

(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 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 Ext IIIC T410..T85 °C Db

Getafe, 2015-07-28

Carlos Fernández Ramón
Head of Certification Committee

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Page 1/3

ROPOER 07/3/2
Rev.2

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

(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

ROPCE 073/2
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 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

	Rev.	Date
- Drawings n°:	DT0613R2	2 2015-07
	PM1186R0	0 2014-09-23

ROPOER 07/3/2
Rev.2

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Page 3/3

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08915 Badalona

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Fax: +34 93 460 38 76

E-Mail: info.es@kobold.com

www.kobold.com

Technical data
Subject to change without prior notice

