

(3) EU-Type Examination Certificate Number:



(4) Equipment or Protective System: Explosion-proof electric control device

- Type: MAMX- series

(5) Manufacturer: MAM Explosion-proof Technology (Shanghai) Co., Ltd.

(6) Address: Zone A 3rd Floor, Zone A 2nd Floor, Zone A 1st Floor, Building 6,
No.1888, Huiwang Road, Jiading District, Shanghai 201806,
P.R. China

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

(8) TÜV SÜD Product Service GmbH, Notified Body no. 0123, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports with no. 70.520.19.128.01

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

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014

(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 EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:



II 2G Ex db IIB T6...T4 Gb

II 2G Ex db IIB+H₂ T6...T4 Gb

II 2G Ex db IIC T6...T4 Gb

II 2D Ex tb IIIC T80°C, T95°C, T135°C Db IP66

Certification Body,

München, 21.05.2020

Ing. Kristof De Gersem, MSc.

∴ Keşiden 1/2

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Schedule
EU-Type Examination Certificate no.
TPS 20 ATEX 106819 0002 X Rev. 00



Certificate History

Revision:	Description:	Report no.:	Issue Date:
Rev. 00	First issue of certificate.	70.520.19.128.01	21.05.2020

(15)

Description of equipment:

The explosion-proof electric control device MAMX- series products are made of ZL102 aluminium alloy. MAMX- series products have 13 kinds of function codes applying MEP series empty enclosures. It could have three kinds of structures which are Ex d IIB, Ex d IIB+H₂, Ex d IIC. All explosion-proof electric control devices are in type of protection Ex t. EPL level Gb and Db. They are intended to be installed at Gas Explosive atmospheres classified as Zone 1 and Zone 2 and at Dust Explosive atmospheres classified as Zone 21 and Zone 22.

A window which size is less than 108mm×65mm, M10×1.5 button switches, M16×1.5 operating rods and M20×1.5 operating rods are the options for the end users for specific models.

The function code of the Ex d IIB structure is MAMX-09 and MAMX-10. This function code has 3 sizes: A1, A2 and A3. The flameproof surface has a sealing groove. A VMQ sealing ring is installed in the groove to meet the requirement of IP66. M20×1.5 or NPT1/2" sizes for cable entries are available.

The function code of the Ex d IIB + H₂ structure is MAMX-02, MAMX-04, MAMX-07, MAMX-11 and MAMX-13. The function code has 8 sizes: B1, B2...B7, B8.

In accordance with the opening rules, on the 4 sides of the body of the product, three different sizes of bushings options are available for using to connect with other MAMX-Series enclosures, which sizes are M75×1.5, M63×1.5 and M50×1.5.

M20×1.5, NPT1/2", M25×1.5, NPT3/4", M32×1.5, NPT1", M40×1.5, NPT1-1/4", M50×1.5, NPT1-1/2", M63×1.5, NPT2", M75×1.5, NPT2-1/2", M90×1.5, NPT3", M110×1.5, NPT4" sizes for cable entries are available.

The function code of Ex d IIC structure is MAMX-03, MAMX-05, MAMX-06, MAMX-08, MAMX-12 and MAMX-14. These function codes have 3 sizes: C1, C2 and C3.

In accordance with the opening rules, on the 4 sides of the body of the product, three different sizes of bushings options are available for using to connect with other MAMX Series enclosures, which sizes are M75×1.5, M63×1.5 and M50×1.5.

M20×1.5, NPT1/2", M25×1.5, NPT3/4", M32×1.5, NPT1", M40×1.5, NPT1-1/4", M50×1.5, NPT1-1/2", M63×1.5, NPT2", M75×1.5, NPT2-1/2", M90×1.5, NPT3", M110×1.5, NPT4" sizes for cable entries are available.

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Product Service

Model designation:

MAM	X	**	*
1	2	3	4
Position 1:	=	Company code	
Position 2:	=	Explosion-proof electrical control device	
Position 3:	=	Function code 02-□: Electric control box, □=B1, B2...B7, B8 03-□: Electric control box, □=C2, C3 04-□: Control station, □=B1, B2...B7, B8 05-□: Control station, □=C2, C3 06-□: Terminal box, □=C1 07-□: Junction box, □=B1, B2...B7, B8 08-□: Junction box, □=C2, C3 09-□: Pushbutton box, □=A1, A2, A3 10-□: Lighting switch, □=A1, A2, A3 11-□: Temperature control box, □=B1, B2...B7, B8 12-□: Temperature control box, □=C2, C3 13-□: AP Access Point, □=B1, B2...B7, B8 14-□: AP Access Point, □=C2, C3	
Position 4:	=	S: -40°C~+60°C D: -43°C~+60°C	

Model difference:

Enclosure Type	Size (mm)	Enclosure Type	Size (mm)
A1	102×92×93	B5	350×450×205
A2	157×105×93	B6	450×560×210
A3	212×105×93	B7	450×560×280
B1	200×250×170	B8	560×720×350
B2	200×300×170	C1	108×108×75
B3	200×350×170	C2	161×161×109
B4	300×350×230	C3	360×360×195

Technical data:

Ambient temperature	-40°C≤Ta≤+60°C or -43°C≤Ta≤+60°C
Degree of protection by enclosure	IP66 (tested per EN IEC 60079-0)

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Dissipation power:

Product Model	Type	Temperature class and Max Dissipation power (W) Tamb=+60°C			Max voltage (V a.c.)	Max current(A)
		T6/T80°C	T5/T95°C	T4/T135°C		
MAMX-09 MAMX-10	A1	15	30	65	500	25
	A2	20	35	70		
	A3	25	40	75		
MAMX-02 MAMX-04 MAMX-07 MAMX-11 MAMX-13	B1	80	100	200	630	100
	B2	95	120	220	630	160
	B3	120	140	240	630	200
	B4	150	200	400	800	320
	B5	200	350	600	800	400
	B6	250	400	700	1000	800
	B7	250	400	700	1000	1000
	B8	350	500	800	1250	1500
MAMX-06	C1	15	30	65	500	32
MAMX-03 MAMX-05 MAMX-08 MAMX-12 MAMX-14	C2	30	45	80	630	63
	C3	200	300	600	800	250

Warning label:

CAUTION – USE FASTENERS WITH YIELD STRESS ≥ 450MPa
WARNING – DO NOT OPEN IN HAZARDOUS AREA
WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS

Installation instruction:

See installation instructions provided by the manufacturer and part of this certification.
See also (17) Special conditions for safe use.



(13) **S c h e d u l e**

(14) **EU-Type Examination Certificate no.**

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(16) Test report(s): 70.520.19.128.01

Routine tests:

1/ The manufacturer shall carry out a routine test for service temperature and maximum surface temperature. The maximum surface temperature test shall be performed under the maximum dissipation power and corrected to the maximum Tamb listed in the table of Dissipation power. The measured maximum surface temperature shall less 5 K for temperature classes T6, T5, T4 and the T values listed in the Dissipation power table. The result shall satisfy the table of Dissipation power.

2/ MAMX-A1, A2, A3 and MAMX-C1 enclosures have passed static overpressure test for 4 times reference pressure, no routine test is required for these models. The manufacturer shall carry out a static overpressure test on the MAMX-B series, MAMX-C2 and C3 series enclosures at 1.5 times reference pressure without any permanent deformation or damage invalidating the type of protection occurring.

3/ For MAMX-A and MAMX-B series, the content of the enclosure equipment may be placed in any arrangement, provided that an area of at least 20 % of each cross-sectional area remains free to permit an unimpeded gas flow and, therefore, unrestricted development of an explosion. Separate relief areas may be aggregated provided that each area has a minimum dimension in any direction of 12,5 mm. Each equipment shall be verified for this by the manufacturer.

4/ For MAMX-C series, the content of the enclosure equipment may be placed in any arrangement provided that an area of at least 40 % of each cross-sectional area remains free to permit unimpeded gas flow and, therefore, unrestricted development of an explosion. Separate relief areas may be aggregated provided that each area has a minimum dimension in any direction of 12,5 mm. Each equipment shall be verified for this by the manufacturer.

The ATEX EU Notified Body responsible for the Quality Audit Notification according the ATEX 2014/34/EU directive is responsible to supervise the correct implementation of the routine tests mentioned above.

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Schedule

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Product Service

Document List:

File no.:	Description:	Pages:	Rev:	Date:
3MAM 010 002	Instruction manual	11	0	2019-03-10
0MAM 018 002	draft DOC	1	0	2020-04-20
2MAM 000 017.1-3	Explosion-proof electrical control device MAMX** IIB	1	0	2019-03-10
4MAM 009 013.1	MAMX-*Nameplate(IIB)	1	0	2019-03-10
2MAM 000 018.1-8	Explosion-proof electrical control device MAMX** IIB+H ₂	1	0	2019-03-10
4MAM 009 013.2	MAMX-*Nameplate(IIB+H ₂)	1	0	2019-03-10
2MAM 000 019.1-3	Explosion-proof electrical control device MAM** IIC	1	0	2019-03-10
4MAM 009 013.3	MAMX-*Nameplate(IIC)	1	0	2019-03-10

A copy of the full documentation is kept confidentially at TÜV SÜD.

(17) Special conditions for safe use:

1. Repairs of the flameproof joints may only be made by the manufacturer or on behalf of the manufacturer and on his own responsibility. Repair in compliance with the values in EN 60079-1 is not accepted.
2. The external earth connection facility shall be connected reliably.
3. The fasteners used for fixing covers shall be at least A2-70.
4. The cable glands and the blanking elements for unused entry holes must be ATEX 2014/34/EU certified as Ex db IIC Gb, Ex tb IIIC Db and must be with an IP66 rating in minimum.
5. The cable bushing is only used to connect two MAMX series equipment from MAM.
6. Use cables and wires rated for minimum 85°C to make external connection when the Temperature class is T6. Use cables and wires rated for minimum 92°C to make external connection when the Temperature class is T5. Use cables and wires rated for minimum 127°C to make external connection when the Temperature class is T4.
7. Ambient temperature: $-43^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ or $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ (It depends on the Ex component used.)
8. The installation must be installed according the requirements of EN 60079-14: latest version (or its National Equivalent Standard at its location place of installation).

(18) Essential health and safety requirements:

Assured by compliance with standards set out in (9).

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