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Machinery Directive 2006/42/EC Annex. IX
EC type-examination certificate for logic units to ensure safety functions
(ref. Annex IV – 21)

Certificate No.:	TUV IT 0948 25 MAC 513 B
Name and address of manufacturer:	STEM S.r.l. Via della Meccanica, 2 27010, Cura Carpignano (PV) Italy
Designation:	Pressure sensor safety board
Model/type:	NCMAT02 <input checked="" type="checkbox"/> Single sample <input type="checkbox"/> Group of samples
Reference Standards:	EN ISO 13849-1:2023 - EN ISO 13849-2:2012 EN ISO 13856-1:2013 - EN ISO 13856-2:2013 EN ISO 13856-3:2013 - EN ISO 13850:2015
Test report:	TR-25-0948-MAC-722369692

We herewith certify, as per Notified Body no.0948, that the product for the respective scope of application stated in the annex to this EC type-examination certificate meets the requirements of the Directive:

2006/42/CE

Issue date:	08/01/2026
Expiry date:	07/01/2031



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TÜV Italia S.r.l.
Notified Body, Identification N° 0948

Alberto Carelli
Industrie Service Division Manager

First Issue date:	08/01/2026
Expiration date of the last certification cycle:	//



Annex to EC type-examination certificate n° TUV IT 0948 25 MAC 513 B

1. Scope:

The NCMAT02 safety control unit checks the status of pressure-sensitive safety devices (mats, edges or bumpers) with or without 8.2 kOhm resistance. The output is activated by pressing and releasing the reset button (Y0-Y1) only if the mat/edge/bumper is connected to the inputs X1-X4 and X2-X3 in the case of a 4-wire device or X1-X2 in the case of a 2-wire device and if nobody it is located in the area covered by the pressure-sensitive safety device. When the safety mat/edge/bumper is pressed, the control unit open the safety outputs 13-14 and 23-24. Manual and monitored start is only possible once the pressure sensitive device is no pressed anymore. It is possible to configure the control unit so that the reset takes place automatically when the mat/edge/bumper is released by connecting the Y0-Y2 inputs together. The system NCMAT2 plus pressure-sensitive device achieves safety category 3 -PLe according to EN ISO 13849-1 only if the mat/edge/bumper is 4-wires type or it is certified as category 3 and both NCMAT02 safety outputs are used. In case two external relays are used to interrupt the load, their NC contacts have to be connected to the feedback loop (Y0-Y1/2) of the control unit. In case of use of a non-CAT.3 certified 2-wires mat/edge/bumper, the system will be classified as category 1- PLc. The safety control unit is made by means of 2 independent channels that drive solid-state transistors. Each safety output is made by means of 2 transistors connected in series and controlled by the 2 separate channels. This ensures tolerance to the single failure.

The component falls under Annex IV point 21 of the Machinery Directive 2006/42/EC as it belongs to the category *"Logic units to ensure safety functions"*.

2. Reference Standard:

EN ISO 13849-1:2023 - EN ISO 13849-2:2012 - EN ISO 13856-1:2013

EN ISO 13856-2:2013 - EN ISO 13856-3:2013 - EN ISO 13850:2015

The standards cited on the reference certificate of this Annex (see above)

- ☒ have been fully applied
☐ have been partially applied



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3. Main technical characteristics

Technical data		
Parameter	Valore	
Housing material	PA 6.6	
Dimensions	115 x 105 x 22,5 mm	
Weight	165 g	
Operating conditions	Temperature: -5 ... +55 °C	
Storage conditions	Temperature: -25 ... +70 °C	
Degree of protection (IEC 60529)	IP20	
Degree of contamination	2	
Overvoltage category	II	
Assembly	35 mm DIN standard rail	
Connection type	Screw terminals	
Supply voltage (Vs)	12 ÷ 24Vdc ±15%	
Internal fuse on the supply	300 mA PTC	
Current consupcion	@24Vdc: 25 mA min, 70 mA max	
Termination resistance of the 2-wire device	Standard = 8.2 kOhm Upper threshold > 13,8 Kohm Lower threshold < 3,8 Kohm	
Safety Outputs switching voltage	10 ÷ 30Vdc	
Switching current	0,5 A	
Safety output switching power	15W	
External fuse at the output	500 mA gG (according to IEC EN 60269-1)	
Safety outputs terminals	13-14, 23-24	
Usage category (SAFETY outputs)	DC-13: 0,5A @ 24 Vdc	
Auxiliary output terminals	32 (NC) - 33 (NO)	
Auxiliary output parameters (resistive load)	PNP Output: V=10 ÷ 30 Vdc (Vs); I _{max} =0,5A	
OFF state response time	10ms	
Safety category and PL EN ISO 13849-1	Cat.1 Tappeto / bordo 2 fili	Tappeto / bordo 2 fili cat. 3 Tappeto / bordo 4 fili
PL (EN ISO 13849-1)	PL - c	PL - e
PFHd (N°cicli / anno)	1,14 × 10 ⁻⁶	4,29 × 10 ⁻⁸
MTTFd (years)	100	100
TM	20 years (MTTFd=100 years)	
Vibration resistance	EN ISO 13856-1, EN ISO 13856-2, EN ISO 13856-3, EN 81-50, EN61131	
Stop category (EN ISO 13850:2015)	0	
EMC compliance	EN 61326-3-1, EN 55011	
In accordance with	EN 60204-1, EN ISO 13849-1, EN ISO 13850 EN ISO 13856-1, EN ISO 13856-2, EN ISO 13856-3	
Approvals	TUV TUV IT 0948 25 MAC 513 B	



4. Conditions of validity of the certificate

The validity of the EC type examination certificate is subject to review every five years. If the validity is not extended, the manufacturer has the obligation to stop placing the machine on the market.

The manufacturer has the obligation to communicate any modification made to the approved type. TÜV Italia reserves the right to confirm the validity of the EC type examination certificate issued.

5. Note

In accordance with the provisions of the Machinery Directive 2006/42/EC, the applicant must inform the notified body regarding the modifications, even of minor importance, that he has made or intends to make to the model of the machine to which the certificate refers.

Copy of the test report n° *TR-25-0948-MAC-722369692* is delivered to the Manufacturer.

This annex is an integral part of the EC type examination certificate n° **TUV IT 0948 25 MAC 513 B**

Milan, 08/01/2026

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Information regarding the TÜV Italia Certificate

This certificate is only valid for the referenced company and its facilities stated on the certificate. Only the Certification Body is allowed to transfer (assign) it to a third party.

The right to use the marking depicted on the certificate covers solely products, which match with the type approval and the specifications within the test report or within its complementary (additional) agreements.

Each product has to contain (be accompanied) the necessary operating and assembly instructions. Each product must bear the clearly visible identification of the manufacturer or importer as well as a type plate, in order to identify the compliance of the type approval with the product placed on the market.

The holder of the TÜV Italia certificate is obliged to continuously observe if the manufacture of the marked products complies with the test requirements; he is obliged to perform the control tests defined within the test requirements or by the Certification Body in an orderly manner.

Aside from the conditions referenced above, the conditions within the General Contract are effective for the TÜV Italia certificate.

It is valid as long as the state of the art requirements on which the test (approval) was based, are effective, if it was not withdrawn prior on conditions within the General Contract.

If this certificate expires or is withdrawn it has to be returned to the Certification Body immediately.