

Operation Manual



*Ex Microswitch M12 Type AS1-*7-******

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1. Product description / Intended use

The cylindrical Ex Microswitch M12 is used in hazardous area zone 1/2 give a signal or status directly without using an additional intrinsically safe amplifier.

Due to the cylindrical design, they can be precisely adjusted by means of the fine thread or can be installed in the common assembly kits for size 12 inductive proximity switches. There are two variants of switches available:

For installation in separately certified devices, the version with single cores 3x0,5mm²

For protected installation directly on the machine with cable 3x0.5mm²

The Ex Microswitch M12 type AS1- * 7 - ***** is a stationary installed device for use in Ex zone 1 or 2. The Ex Microswitch M12 type AS1- * 7 - ***** can be used in intrinsically safe circuits for use in zone 0 as a simple electrical device according to EN 0079-11, taking into account the specific requirements for intrinsic safety.

The electrical data specified in this manual as well as the device category for the place of use must be observed.


Modifications to the Ex Microswitch M12 type AS1- * 7 - ***** may only be made after prior agreement with the manufacturer.

2. Applied standards

EN 60079-0 / General requirements

EN 60079-1 / Flame proof enclosure „d“

3. Characteristics Explosion protection

Ex category	 II 2G
Type	AS1-*7-*****
EU-Type examination certificate	BVS 16 ATEX E 086 X
Ex marking	Ex db IIC T6 Gb X
Noified body (QA)	0123
Manufacturer	Exepd GmbH i_Park Tauberfranken 23 D-97922 Lauda-Königshofen

4. Technical Data

Size (cylindric design): Standard	M12x1, length 38mm
Material:	Polyamide 6.6 reinforced black
Temperature class:	T6
Ambient temperature range:	-20°C ≤ Ta ≤ +60°C at 4A -20°C ≤ Ta ≤ +40°C at 5A
Operation temperature max.:	80°C
Protection acc. to EN 60529:	min. IP54 for II 2G
Variants: Single core Wire	H05Z-K 3x0,5mm ² Ölflex classic 110H (Lapp) 3x0,5mm ²
Mechanical life time for use in hazardous area:	200.000 operations
Lag:	approx. 2-2,5mm

5. Electrical Data

Rated voltage max.:	230V
Switching capacity:	AC 250V AC-12 4A AC-13/15 1A at +40° Ta AC-12 5A DC 24V DC-12 4A DC-13 0,6A at +40° Ta DC-12
Operating force:	1,7N
Mech. life time	2 x 10 ⁶ operations
Contacts:	gold plated silver
Switching frequency max.:	5/s
Vibration resistance:	10g (500Hz) (EN 60068-2-6)
Contact:	1 changer
Contact assignment of wire colours for single cores or marking on wires (1,2,3):	1 = brown „C“ 2 = black „NC“ 4 = grey „NO“

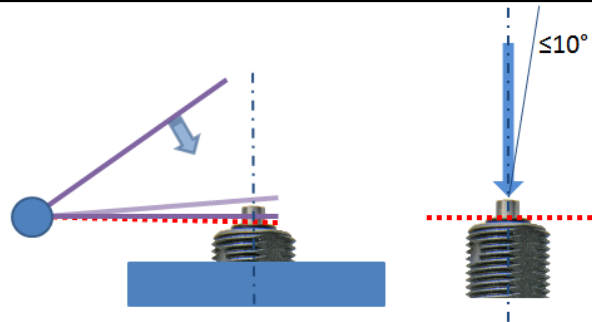


6. Use and special conditions for safe use

For installation, a standard mounting kit for M12 proximity sensors can be used. The M12 Microswitch must be securely fastened against loss and self-loosening on through-holes with 2 nuts.

The micro switch M12 must be securely fastened with threaded holes (wall thickness at least 3 mm) with lock nut or by gluing.

Actuation of the switch must be perpendicular with a max. permissible deviation of 10° on the actuator. Overloading / mechanical loading of the plastic housing (dotted line) must be reliably avoided in all installation situations. This can be done by the structural design of the operation at the installation.



The Microswitch M12 must be installed protected from the risk of mechanical danger, under consideration of the above mentioned operating conditions. This can be done constructively e.g. by installation in a protecting enclosure, or the use of a suitable actuator, when installed in a housing wall by protected installation, a protective collar or by a metal sleeve with the minimum wall thickness of 2mm is needed.



The Microswitch M12 is tested for the max. operation of 200 000 actuations under limit conditions as follows: 230V / 5A / switching frequency 5 / s in changeover mode.

The Microswitch M12 must be operated within its parameters in accordance with the specifications of the marking / accompanying documents. The respective valid (national) installation regulations must be observed.

The connection cross section of the wire leads is 0.5mm^2 , the connection ends have to be prepared according to the specifications of the connection parts (e.g. with wire end ferrule).

For intrinsically safe circuits, the separation distances to non-intrinsically safe circuits must be observed.

The Microswitch M12 have to be installed completely protected against mechanical danger, fixed and secured (see pictograms). When mounting in a housing wall, make sure that the Microswitch M12 does not protrude, or protect the switch by using constructive measures, e.g. a bracket.

Variation with hose line

The hose line of the Microswitch M12 must be installed protected against mechanical stress (tensile stress and twisting).

Max. permissible bending radius of the cable is 4x cable diameter.

At e.g. installation in a control cabinet door (occasionally moved) may be the bending radius do not exceed 10x cable diameter with a max. twist of 150 ° / m at 1 rpm.

The connection of the cable must be happened in a safe area or in a suitably protected connection room.

Variation with wire line

The Microswitch M12 with wire line have to be installed completely in or integrated into a housing that correspond to the requirements of the protection type according to EN 60079-0.

The Microswitch M12 have to be install completely protected against mechanical danger, fixed and secured (see pictograms). When mounting in a housing wall, make sure that the Microswitch M12 does not protrude, or protect the switch by using constructive measures, e.g. a bracket.

The wires must be installed on suitable separately certified connecting parts.

The IP rating for the enclosure of at least IP54 for category II 2G must be ensured when mounting in the enclosure wall.

7. Safety references

Devices in hazardous area must be installed, supervised, maintained and kept in good conditions by the owner of the plant. Part of this is an inspection after the transport to identify possible damages caused during the transport.

Only qualified and trained personnel are allowed to install and dismount as well as doing maintenance work on the control and terminal boxes. All universally valid rules and laws and other binding directives for the safety of people and environment must be kept.



It is not allowed to use a damaged device
The risk of mechanical endangerment has to be eliminated!

8. Mounting and installation

Mounting

The control and terminal boxes must be protected against aggressive and unusual environmental conditions which could cause damages on the equipment.

This could be e.g. acids or high and low temperatures.

For installation, please refer to IEC / EN 60079-14 and other valid standards and directivities on the place of erection.

Information on the type label must be kept!



If cable glands marked with and "X" are in use, please refer to the operation manual of the gland supplier.

Wall fixing is to be done by the wall mounting brackets of the enclosures.

Installation

The wire connection must be made accurately, that the insulation material and the wires itself will not be damaged. Regarding the maximum possible data written on the type label and enclosed documents have to be maintained.

9. Starting

Prior to the first start-up, the devices must be checked for suitability in the relevant zone by its marking. The values stated on the rating plate and the information in the applicable documents must not be exceeded.

The functional safety and the functional arrangement of the equipment within the system must be checked before commissioning.

The use may only take place in undamaged and clean condition.

10. Operation, Maintenance and Elimination of disturbances

Devices in hazardous area must be installed, supervised, maintained and kept in good conditions by the owner of the plant. For information, refer to IEC / EN 60079-17. Only qualified and trained personnel are allowed to do maintenance and the elimination of disturbance work. Before doing this work, the safety requirements must be kept!

For elimination of disturbances, only original spare parts after consulting with Exepd are allowed to use. Before using the boxes again, the safety requirements must be kept!

11. Equipment, spare parts

For accessories and spare parts refer to www.exepd.de

12. Service address

Exepd GmbH
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EU-Konformitätserklärung
EU Declaration of Conformity



Dokument AS1-X7-C0001-1

Hersteller/Manufacturer:

Exepd GmbH, i_PARK TAUBERFRANKEN 23, D-97922 Lauda-Königshofen

Gegenstand der Erklärung/Object of the declaration:*

Mikroschalter M12 Typ AS1-*7-*****

Microswitch M12 type AS1-*7-*****

Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsvorschriften der Union/The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

2014/34/EU (-ABI. L 96 / 29.03.2014-)

Die Anwendung der folgenden einschlägigen harmonisierten Normen oder technischen Spezifikationen wurde als hilfreich erachtet, ganz oder teilweise die Konformität mit den wesentlichen Anforderungen zu erfüllen/The use of the following relevant harmonised standards or references to other technical specifications were helpfully, to fulfil totally or partly the conformity with the requirements:

EN 60079-0:2012/A11:2013
(IEC 60079-0:2011, modifiziert + IS1:2013);
EN 60079-1:2014 (IEC 60079-1:2014)

Kennzeichnung und Hauptzündschutzart/Marking and main type of protection:*

Ex II 2G

Ex db IIC T6 Gb

CE 0123

BVS 16 ATEX E 086 X

DEKRA EXAM GmbH (0158),
Dinnendahlstraße 9, 44809 Bochum, Germany

Qualitätssicherung Produktion gemäß/Production quality system according:
2014/34/EU

Zertifiziert durch/ certified by

TÜV Süd Product Service GmbH (0123)
Ridlerstrasse 65, 80339 München Germany

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller/This declaration of conformity is issued under the sole responsibility of the manufacturer.

Lauda-Königshofen, den 25.07.2018


Stefan Höger, CEO, Exepd GmbH
Park Tauberfranken 23
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*Die vollständige Produktbeschreibung ist in der zugehörigen Artikelbeschreibung zur Artikelnummer beschrieben (-> Auftragsdokumentation)
The product is described in the relevant article description according the article number (-> order documents)