



**EN** Operating instructions..... pages 1 to 4  
Translation of the original operating instructions

**FR** Vous trouverez la version actuelle du mode d'emploi dans votre langue nationale officielle sur l'Internet, [www.schmersal.net](http://www.schmersal.net).

**ES** Encontrará el manual de instrucciones actual en su idioma oficial de la UE en nuestra página de Internet [www.schmersal.net](http://www.schmersal.net).

**NL** U vindt de huidige versie van de gebruikshandleiding in uw officiële landstaal op het Internet, [www.schmersal.net](http://www.schmersal.net).

**IT** Il manuale d'istruzioni aggiornato nella vostra lingua (lingua ufficiale UE) è scaricabile in Internet all'indirizzo [www.schmersal.net](http://www.schmersal.net).

**JP** EU公用語で書かれた最新の取扱説明書は、インターネット ([www.schmersal.net](http://www.schmersal.net)) からダウンロードできます。

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## 1 About this document

### 1.1 Function

This operating instructions manual provides all the information you need for the mounting, set-up and commissioning to ensure the safe operation and disassembly of the safety switchgear. The operating instructions must be available in a legible condition and a complete version in the vicinity of the device.

### 1.2 Target group: authorised qualified personnel

All operations described in this operating instructions manual must be carried out by trained specialist personnel, authorised by the plant operator only.

Please make sure that you have read and understood these operating instructions and that you know all applicable legislations regarding occupational safety and accident prevention prior to installation and putting the component into operation.

The machine builder must carefully select the harmonised standards to be complied with as well as other technical specifications for the selection, mounting and integration of the components.

### 1.3 Explanation of the symbols used



#### Information, hint, note:

This symbol is used for identifying useful additional information.



**Caution:** Failure to comply with this warning notice could lead to failures or malfunctions.

**Warning:** Failure to comply with this warning notice could lead to physical injury and/or damage to the machine.

### 1.4 Appropriate use

The products described in these operating instructions are developed to execute safety-related functions as part of an entire plant or machine. It is the responsibility of the manufacturer of a machine or plant to ensure the correct functionality of the entire machinery or plant.

The safety switchgear must exclusively be used in accordance with the versions listed below or for the applications authorised by the manufacturer. Detailed information regarding the range of applications can be found in the chapter "Product description".

### 1.5 General safety instructions

The user must observe the safety instructions in this operating instructions manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules.



Further technical information can be found in the Schmersal catalogues or in the online catalogue on the Internet: [www.schmersal.net](http://www.schmersal.net).

The information contained in this operating instructions manual is provided without liability and is subject to technical modifications.

There are no residual risks, provided that the safety instructions as well as the instructions regarding mounting, commissioning, operation and maintenance are observed.

### 1.6 Warning about misuse



In case of inadequate or improper use or manipulations of the safety switchgear, personal hazards or damage to machinery or plant components cannot be excluded. The relevant requirements of the standard EN 13850 must be observed.

### 1.7 Exclusion of liability

We shall accept no liability for damages and malfunctions resulting from defective mounting or failure to comply with this operating instructions manual. The manufacturer shall accept no liability for damages resulting from the use of unauthorised spare parts or accessories.

For safety reasons, invasive work on the device as well as arbitrary repairs, conversions and modifications to the device are strictly forbidden; the manufacturer shall accept no liability for damages resulting from such invasive work, arbitrary repairs, conversions and/or modifications to the device.

## 2 Product description

### 2.1 Ordering code

This operating instructions manual applies to the following types:

#### NAS 311 ①-AS ②

No.	Option	Description
①	ST1	M12 connector, plastic
②		Thermoplastic enclosure
	M	Metal enclosure and metal button
	MH	plus metal collar



Only if the information described in this operating instructions manual are realised correctly, the safety function and therefore the compliance with the Machinery Directive is maintained.

### 2.2 Special versions

For special versions, which are not listed in the order code below 2.1, these specifications apply accordingly, provided that they correspond to the standard version.

### 2.3 Destination and use

The emergency stop station of the series NAS 311 AS is used on machinery and plants as a safe command device to generate a safe signal initiating the shutdown of a hazardous movement when actuated.

The NAS 311 AS must only be used in combination with the AS-i ASM safety monitor.

The integrated AS-i module is used to detect safety-relevant switching conditions of mechanical contacts.

An AS-Interface Safety at Work component functions on the basis of an individual code generator (8 x 4 bit). This safety code is cyclically transmitted over the AS-i network and monitored by the ASM safety monitor.



The user must evaluate and design the safety chain in accordance with the relevant standards and the required safety level.



**Maintenance:** Please observe that the safety function must be triggered at least once a year to test the system!

### 2.4 Technical data

Standards:	EN 60947-5-1, EN ISO 13850, EN ISO 13849-1, IEC 61508, EN 50295
Enclosure:	glass-fibre reinforced polyamide, self-extinguishing (to UL-94-V-0) M / MH: light metal
Mechanical life:	≥ 100,000 operations
Connection:	M12 connector, 4 pole
Switching frequency f:	≤ 1 Hz
Response time:	< 100 ms
<b>Electrical data - AS-Interface:</b>	
AS-i supply voltage	26.5...31.6 VDC, through AS-Interface, reverse polarity-proof (stabilised PELV units)
AS-I power consumption:	≤ 50 mA
AS-I specification:	
Version:	V 2.1
Profile:	S-7.B.0.E
ID-Code:	0x7
ID-Code:	0xB
ID-Code 1:	0x0
ID-Code 2:	0xE
<b>AS-interface inputs:</b>	
Channel 1	DI 0 / DI 1 = dynamic code transmission
Channel 2	DI 2 / DI 3 = dynamic code transmission
AS-interface outputs:	DO 0 ... DO 3 not used
AS-Interface parameter port:	P 0 ... P 3 not used
Input module address:	0
preset to address 0, can be changed through AS-interface bus master or hand-held programming device	
<b>Ambient conditions:</b>	
Protection class:	IP 65
Ambient temperature:	-25 °C ... +60 °C
Storage and transport temperature:	-25 °C ... +85 °C
Relative humidity:	30...95%, no condensation, no icing

### 2.5 Safety classification

Standards:	EN ISO 13849-1, IEC 61508
PL:	up to e
Control category:	up to 4
PFH-value:	≤ 1.4 x 10 <sup>-8</sup> / h, up to maximal 5.000 switching cycles/year
SIL:	up to 3
Service life:	20 years

## 3 Mounting

### 3.1 General mounting instructions

The devices are supplied in a completely fitted and wired condition. To fix the enclosure, the cover must be removed after the 4 screws have been unscrewed. On the inside, 4 mounting holes are provided for M4 screws (plastic enclosure) or M5 screws (metal enclosure).

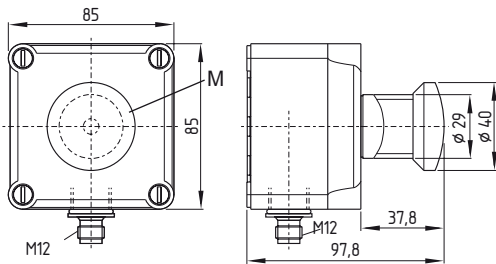


The emergency stop station must be smoothly accessible in case of emergency. The emergency stop station can be used and fitted in any position.

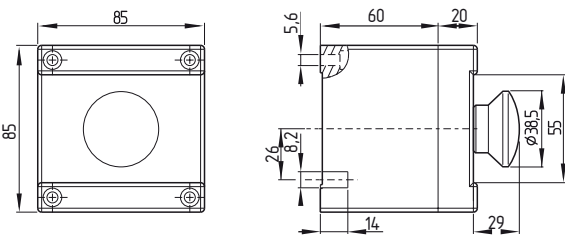
### 3.2 Dimensions

All measurements in mm.

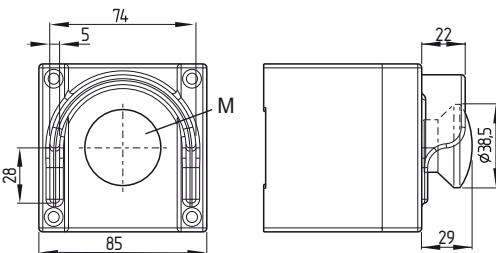
#### Dimensions of the NAS 311 AS emergency stop station



#### Dimensions of the NAS 311 AS M emergency stop station



#### Dimensions of the NAS 311 AS MH emergency stop station



## 4 Electrical connection

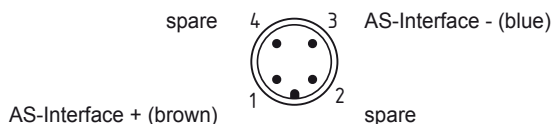
### 4.1 General information for electrical connection



The electrical connection may only be carried out by authorised personnel in a de-energised condition.

The NAS 311 AS emergency stop station is supplied from the AS-Interface cable.

The connection to the AS-Interface system is realised through an M12 connector. The wiring configuration of the M12 connector is defined as follows (to EN 50295):



## 5 Functions and configuration

### 5.1 Programming the slave address

The slave address is programmed through the M12 connector.

### 5.2 Configuration of the safety monitor

The NAS 311 AS emergency stop station must be configured in the ASIMON configuration software with the following safety monitor (also refer to the ASIMON manual).

#### Dual-channel positive-guided

- Optionally with startup test
- Optional with local acknowledge



The configuration of the safety monitor must be tested and confirmed by a qualified and authorised safety expert/safety engineer.

### 5.3 Status signal "safety release"

The "safety release" status signal from a Safety at Work slave can be cyclically queried by the control system through the AS-i master. To that effect, the 4 input bits with the varying SaW code of a Safety at Work slave are evaluated through an OR operation with 4 inputs in the control system.

## 6 Diagnostic functions

### 6.1 LED indications (internal)

The LED on the internal AS-i module have the following meaning:

- LED green (PWR):** AS-Interface supply voltage
- LED red (FAULT):** AS-Interface communication error or slave address = 0 or periphery error
- LED yellow (S-I1):** Contact 1
- LED yellow (S-I2):** Contact 2

## 7 Set-up and maintenance

### 7.1 Functional testing

The safety function of the safety components must be tested.

The following conditions must be checked and met:

- Correct fixing of the fitted component.
- Check the integrity of the cable entry and connections.
- Check the emergency stop station for damage.

### 7.2 Maintenance

The function of the emergency stop station must be tested in regular intervals.



**Maintenance:** Please observe that the safety function must be triggered at least once a year to test the system!

**Damaged or defective components must be replaced.**

## 8 Disassembly and disposal



### 8.1 Disassembly

The safety switchgear must be disassembled in a de-energised condition only.

### 8.2 Disposal

The safety switchgear must be disposed of in an appropriate manner in accordance with the national prescriptions and legislations.

9.1 EC Declaration of conformity

	
<h2>EC Declaration of conformity</h2>	
Translation of the original declaration of conformity	Elan Schaltelemente GmbH & Co. KG Im Ostpark 2 · 35435 Wettenberg Germany Internet: www.elan.de
We hereby certify that the hereafter described safety components both in its basic design and construction conform to the applicable European Directives.	
<b>Name of the safety component / type:</b>	NAS 311 AS
<b>Description of the safety component:</b>	Emergency stop station with integrated AS-i Safety at Work
<b>Harmonised EC-Directives:</b>	2006/42/EC EC-Machinery Directive 2004/108/EC EMC-Directive
<b>Person authorized for the compilation of the technical documentation:</b>	Ulrich Loss Möddinghofe 30 42279 Wuppertal
<b>Place and date of issue:</b>	Wettenberg, August 18, 2010
NAS 311 AS-B-EN	
	Authorised signature Heinz Schmersal Managing Director



**Note**

The currently valid declaration of conformity can be downloaded from the internet at [www.schmersal.net](http://www.schmersal.net).



**K. A. Schmersal GmbH**  
**Industrielle Sicherheitssysteme**  
Möddinghofe 30, D - 42279 Wuppertal  
Postfach 24 02 63, D - 42232 Wuppertal

Telefon +49 - (0)2 02 - 64 74 - 0  
Telefax +49 - (0)2 02 - 64 74 - 1 00  
E-Mail: [info@schmersal.com](mailto:info@schmersal.com)  
Internet: <http://www.schmersal.com>