Operating Instructions

(Translation of the orig. Operating Instructions)

ASI_SAW16A, ASI_SAW16E
ASI_SAW22A, ASI_SAW22E

SCHLEGEL® ELEKTROKONTAKT

AS-Interface Emergency-Stop Slave Safety at Work

62801, 62802

Preface

The AS-Interface Emergency stop slave is a safety slave for the Fieldbus system AS-Interface (standard address mode). Up to 30 slaves can be connected to one AS-Interface line; the 31st connection is a safety monitor. The four inputs serve for the safe transmission of the switching status of the E-STOP. The digital output*1 can be used for the control of external pilot lights, annunciators or for the illumination of the E-Stop. It is not a safety-related output.

STOP The AS-Interface E-STOP can only fulfill its safety function acc. to the relevant standards in interaction with the AS-Interface safety monitor!

The safety slave can be combined with different E-STOP actuators (refer to "Models and Accessories"), which are operated by pushing and reset by twisting the upper part. By the foolproof trigger function, which is realised by power storing and a snap mechanism, the switching-off function (open + latching) is proceeded in a defined manner.

The AS-Interface E-STOP may only be used by persons with the appropriate specialised knowledge. It is not intended for sales to the general public.

A third contact*1 in the slave ensures permanent monitoring and safety shutdown in case of unintentional separation of the E-STOP actuator (patent applied).

Starting Up

The AS-Interface E-STOP is being delivered with the address 0. Within the AS-Interface network each standard slave must have an address from 1 to 31. No address may occur more than once. Moreover, it is not permitted to operate a standard slave and a slave with extended address mode with the same address (e.g. slave 17 and slave 17A or 17B) in the same network.

Addressing with Adressing Device
Before installation in the AS-Interface netework the desired address is adjusted by means of the addressing device which is connected via the addressing cable "ASI_PK500M12" to the connections A+ and A- (refer to the description of the addressing device).
The optional addressing jack*2 serves to address already integrated slaves (the slave is separated from the network).

Adressing via the AS-Interface Master
Optionally, the AS-Interface E-STOP can be connected to the AS-Interface network and addressed accordingly via the AS-Interface Master (in the configuration mode). It must be observed, however, that always one slave with the address 0 is existing in the network.

Parameterising: is not intended.

STOP As the starting-up operation means a safety-related procedure it has to be carried out by the safety officer who is responsible for the application.

Installation of the Network
The AS-Interface network is a PELV network. The relevant rules for the installation are to be considered.

Configuration of the Safety Network
The AS-Interface E-STOP can only fulfill its safety function acc. to the relevant standards in interaction with the AS-Interface safety monitor. For starting up the safety monitor must be configurated accordingly (please refer to the operating instructions of the safety monitor). After installation a functional check must be carried out.

Failure Probability on demand acc. to IEC61508
For the calculation of the failure probability of the whole system the AS-Interface EMERGENCY-STOP slave supplies one component.

Failure Probability according to IEC 61508

For calculating the failure probability of the whole system, the ASi slave provides a component with the following characteristic numbers:
PFH: 1.03*10-10 ***PFD***: 1.808 *10-5 ***SFF***: 99.53 % ***SIL***: 3

Together with the failure probability of the other components used in the safety system (e. g. safety monitor), the allover failure probability can be determined. With the result computed from this, a classification into the appropriate safety level can be made according to IEC61508.

Reliability Parameters according to EN ISO 13849-1

The parameters referred to the reliability acc. to EN ISO 13849-1 are as follows:
MTTFd: 100 years **DC_{avg}**: 99 % ***Category***: 4 ***PL***: e

Maintenance and Repair

It is recommended to activate the E-STOP at least once a year in order to examine the proper function of the safety switching system.

STOP As the annual maintenance means a safety-related procedure it has to be carried out by the safety officer who is responsible for the application.

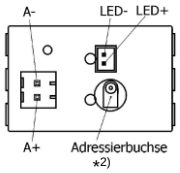
Repairs, particularly the opening of the housing, may be made only by the manufacturer or by a person authorised by the manufacturer.

Shutdown / Waste Disposal

When decommissioning the E-STOP must be dismantled / removed. The AS-Interface E-STOP does not contain batteries, which would have to be removed before disposal. Electronic trash is hazardous waste, so, please consider the local regulations for disposal.

Connection Assignment

A+, A-: Connection to the AS-Interface network
Using IDC technology, the connections are set up via the 2-pole connector (ref. no.: "ASI_SB2AWG18, ASI_SB2AWG22", "ASI_K2"). The single conductors are pressed into the IDC connector by means of the tool "ASI_MRT" (refer to the accessories)



LED+, LED-: Connection for digital output*1
2-pole connector to connect an external pilot light, or for the illumination of the E-Stop, via the connection cable (ref. no.: "VK_JST025BKL", "BK_JST034", refer to the accessories).

For the output of the external connection a cable of 10 cm max. length may be used. This cable may not be connected with the GND of the plant.. *1)

Technical Data

Communication AS-Interface specification	V 3.0	
Slave profile	ASI_SAWxxA ASI_SAWxxE:	S-7.B.E S-0.B.E
Standby delay time	< 1s	
Input delay	< 5ms	
Connection	Via 2-pole IDC connector	
Ambient Conditions Operating temperature:	-25 ... +70 °C	
Degree of protection:	IP20	
Humidity:	max. 95%, non-condensing	
max. vibration (temporary):	1.5mm amplitude (10..55Hz)	
max. shock resistance:	10g	
Electrical Data Operating voltage:	26.5...31.6 V, through the AS-Interface line	
Total power consumption:	ASI_SAWxxA: ASI_SAWxxE:	≤ 60 mA ≤ 50 mA
Reverse polarity protection:	available	
Contacts:	Two positive opening contacts acc. to IEC60947-5-5	
Safety category/integr.level	Kat 4 / SIL 3 / PL e	
Output (not safe):*1 - rated voltage: - max. current drain: - short circuit/overload: - connection cable:	For the control of a LED 24 V DC (+10%) approx. 15mA LED output Ref.no.: VK_JST025BKL,VK_JST034	
Norms and Standards	IEC62026-2:2008 modif., EN 60204-1:2018, IEC61508-1:2010, EN ISO 13850:2015, DIN EN 60947-5-5:2017-08,EN ISO 13849-1:2015	
AS-i certificates:	62801, 62802	
TÜV Type Approval Certificate:	available	

Data Bits

Output *1			Inputs		
Data Bit	Info (Interface 3)	state	Data Bit	Info (Interface 3)	state
D0	0 1	off on	D0...D3	acc. to profile S-7.B.E*1, S-0.B.E	

*1) refers only to the types ASI_SAW16A, ASI_SAW22A
*2) refers only to the types ASI_SAW16A, ASI_SAW22A (with additional addressing jack)

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(Translation of the orig. Operating Instructions)

ASI_SAW16A, ASI_SAW16E
ASI_SAW22A, ASI_SAW22E

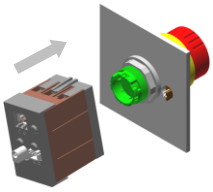
SCHLEGEL® ELEKTROKONTAKT

AS-Interface Emergency-Stop Slave
Safety at Work

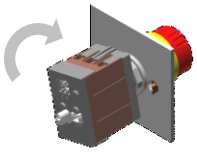
Installation: ASI_SAW16(A), ASI_SAW22(A)

Make sure to use the correct polarity !
blue: ASi -
brown: ASi+

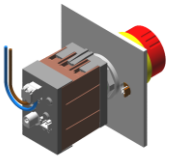
Put slave and E-STOP together



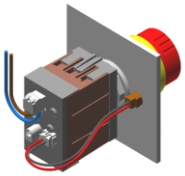
... and snap them into place by a clockwise rotation



Connection to AS-Interface via a 2-pole connector



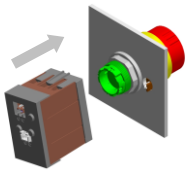
optional:
Connection of the E-Stop lighting via the connection cable



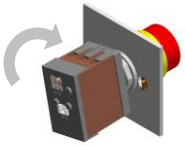
Insatallation: ASI_SAW16E, ASI_SAW22E

Make sure to use the correct polarity before pressing in!
blue: ASi -
brown: ASi+

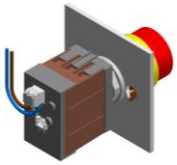
Put slave and E-STOP together



... and snap them into place by a clockwise rotation

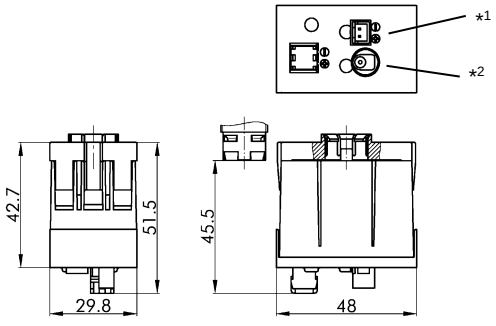


Connection to AS-Interface via a 2-pole connector

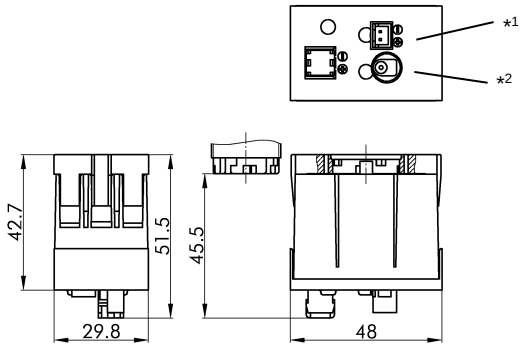


Dimensional Drawings: (all dimensions in mm)

16mm models: ASI SAW16A. ASI SAW16E



22mm models: ASI SAW22A. ASI SAW22E



*1) refers only to the types ASI_SAW16A, ASI_SAW22A
*2) refers only to the types ASI_SAW16A, ASI_SAW22A (with additional addressing jack)

Models and Accessories

Ref. No.	Description
ASI_SAW16E	AS-i safety slave for E-STOP (16 mm mounting dia.)
ASI_SAW22E	AS-i safety slave for E-STOP actuators (22 mm mounting dia.)
ASI_SAW16A	AS-i safety slave for E-STOP actuators (16 mm mounting dia.), with safety shutdown, addressing jack and digital output
ASI_SAW22A	AS-i safety slave for E-STOP actuators (22 mm mounting dia.), with safety shutdown, addressing jack and digital output
VK_JST025BKL	Connecting cable between dig. output of ASI_SAW16(A), ASI_SAW22(A) and E-STOP actuators with illuminated anti-lock collar, length approx. 10 cm
VK_JST034	Connecting cable between dig. Output of ASI_SAW16(A), ASI_SAW22(A) and e.g. an external pilot light; open end, length approx.. 10cm
ASI_MRT	Hand tool to press the single conductors "ASI_SL2AWG18" into the IDC connector "ASI_SB2AWG18"
ASI_PK500M12	Addressing cable to address the slaves with commercial AS-I hand addressing device!
ASI_SL2AWG18	Flexible equipment wire, 2-core cable, brown/blue, to connect the slaves to the AS-Interface by insulation piercing.
LA9Z-SNTB	Flat cable branch, transition from the flexible equipment wire "ASI_SL2AWG18" to the yellow AS-i profile line

EC Declaration of Conformity

Name/address of issuer : Georg Schlegel GmbH & Co. KG, Kapellenweg 4, 88525 Dürmentingen
Responsible for documentation: Georg Schlegel GmbH & Co. KG, Kapellenweg 4, 88525 Dürmentingen
Product description: AS-Interface-Safety-Slaves
Type references: refer to above table

The specified products comply with the provisions of the following directives:

Directives:	of:	applied norms:	for:
2014/30/EG	26.02.2014	IEC62026-2	ASI-Safety