Panel Mounted
Fault Annunciator Series

➔ BSM – Panel-mounted fault annunciator (2nd Generation)

14.03.2018

➔ **Operating manual**

Table of content

1 Validity

The description covers BSM devices with the following options:

59	B	x	x	x	x	C	x	x	x	0	
		0 8									**Number of reporting inputs** 8 Reporting inputs
		1 6									16 Reporting inputs *
		2 4									24 Reporting inputs
		3 2									32 Reporting inputs
		4 0									40 Reporting inputs
		4 8									48 Reporting inputs
			1								**Operating voltage** 24 V AC/DC
			2								48 - 60 V AC/DC
			5								110 - 220 V AC/DC
				1							**Signal voltage** 24 V AC/DC
				3							48 - 60 V AC/DC
				4							110 V AC/DC
				H							125 V AC/DC
				5							220 V AC/DC
					D						**LED-Colour** 2-colour, adjustable (red, green)
						0					**Repeat relays** No internal repeat relays
						R					8 relay outputs (for 8 way fault annunciator)
						R					16 relay outputs (for 16 way fault annunciator)**
						R					24 relay outputs (for 24 way fault annunciator)
						R					40 relay outputs (for 40 way fault annunciator)
							0				**Redundant operating voltage** No additional power supply
							1				24 - 60 V AC/DC
							5				110 - 220 V AC/DC

59	B					C				0	**Article number**

* Also available in wide housing (96 x 192 mm)
** 16 way fault annunciator with integrated repeat relays only available in wide housing (96 x 192 mm)

Table 1.1: Matrix of BSM-C variants

59	B	x	x	x	x	P	x	x	x	0	
		0 1 2 3 4 4	8 6 4 2 0 8								**Number of reporting inputs** 8 Reporting inputs 16 Reporting inputs * 24 Reporting inputs 32 Reporting inputs 40 Reporting inputs 48 Reporting inputs
				1 2 5							**Operating voltage** 24 V AC/DC 48 - 60 V AC/DC 110 - 220 V AC/DC
					1 3 4 H 5						**Signal voltage** 24 V AC/DC 48 - 60 V AC/DC 110 V AC/DC 125 V AC/DC 220 V AC/DC
						D					**LED-Colour** 2-colour, adjustable (red, green)
							0 R R R R 1 2				**Repeat relays** No internal repeat relays 8 relay outputs (for 8 way fault annunciator) 16 relay outputs (for 16 way fault annunciator)** 24 relay outputs (for 24 way fault annunciator) 40 relay outputs (for 40 way fault annunciator) 8 relay outputs (independent from no. of inputs) 16 relay outputs (independent from no. of inputs)
								0 1 5			**Redundant operating voltage** No additional power supply 24 - 60 V AC/DC 110 - 220 V AC/DC

59 B [ ][ ][ ][ ] **P** [ ][ ][ ] **0** **Article number**

* Also available in wide housing (96 x 192 mm)
** 16 way fault annunciator with integrated repeat relays only available in wide housing (96 x 192 mm)

Table 1.2: Matrix of BSM-P variants

Version of the described parameterisation software: EES BSM Parameterisation V3.0.4.

2 General notes

2.1 Additional instructions

This manual provides the safe and efficient use with the devices of the fault annunciating series BSM (in the following called “BSM”, “fault annunciator” or “device”). The manual is part of the device and must be stored always accessible for the personnel in direct proximity of the device.

The personnel are supposed to thoroughly read and fully understand this manual prior to starting any works. The major condition for secure handling is to obey to all security and usage procedures described in this manual.
Furthermore the local prevention advices and general security preventions in the installation site are obligatory.

The illustrations included in this manual serve for essential comprehension and are subject to modifications matching the application.

2.2 Usage

This manual is a prerequisite for secure mounting and safe operation of the product and must be read and understood before mounting.

2.3 Target group

This manual was written for qualified personnel which – based on their specific education and knowledge and experience as well as their knowledge of the relevant norms and regulations – are subject to deal with electrical sites and able to recognize and prevent possible hazards.

The qualified personnel is trained especially for the working environment and is familiar with the norms and regulations.

2.4 Symbol definition

Security advice

Security advices are indicated with symbols in this manual. The security advices are expressed through signal words that characterize the extent of the hazard.

DANGER!
This combination of symbol and signal word warns of a hazardous situation which can lead to death or severe injuries if not avoided.

WARNING!
This combination of symbol and signal word warns of a possibly hazardous situation which can lead to death or severe injuries if not avoided.

CAUTION!
This combination of symbol and signal word warns of a possibly hazardous situation which can lead to minor injuries if not avoided.

NOTE!
This combination of symbol and signal word warns of a possibly hazardous situation which can lead to material damages if not avoided.

ENVIRONMENTAL PROTECTION!
This combination of symbol and signal word warns of possible hazards for the environment.

Tips and recoomendations

This symbol accentuates useful tips and recommendations for an efficient and failure-free operation.

Further markings

To accentuate operation instructions, results, listings, cross references and other elements, the following markings are used in this manual:

Marking	Description
	Step-by-step operation instructions
	Results of operation steps
	Cross reference to sections of this manual and to further applicable documents
	Listings without fixed sequence
[Button]	Control elements (e.g. buttons, switches), Indication elements (e.g. signal lamps)
„Display“	Display elements (e.g. push buttons, assignment of function buttons)

Important passage

This symbol accentuates especially important passages.

Cross reference

This symbol refers to figures and other passages in this document or to further reading.

2.5 Safety instructions

2.5.1 Appropriate use

The universal fault annunciator USM is intended for use according to the applications described in this manual only and may only be used according to the conditions as described in the section “Technical Data”. Every use that exceeds the appropriate use or unauthorized use is considered as incorrect use.

WARNING!
Hazard of incorrect use!
Incorrect use of the annunciator can lead to hazardous situations.

- Do never use the annunciator in EX-areas.
- Do never use the annunciator within the range of irradiation sensitive devices without considering the special precautions therefor.
- The annunciators may not be opened or improperly modified.

2.5.2 Storage of the manual

The manual must be stored nearby the annunciator and must be accessible for the personnel.

2.6 Customer service

For further technical information please contact our customer service:

Address	Elektra Elektronik GmbH & Co Störcontroller KG Hummelbühl 7-7/1 71522 Backnang Germany
Telephone	+ 49 (0) 7191/182-0
Telefax	+49 (0) 7191/182-200
E-Mail	info@ees-online.de
Internet	www.ees-online.de

Further we are looking forward to receiving feedback and experiences which result from the application and are useful for improvement of our products.

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3 Functional description

3.1 Basic set-up of the BSM

The annunciators are available in 2 versions.

- BSM-C: Basic version, configurable by DIP-switches
- BSM-P: Software-parameterisable version

The fault annunciators are available with 8, 16, 24, 32, 40 or 48 signal inputs. The alarms are aligned to groups of 8 inputs each on the device front. The closed front panel contains 4 push buttons, bi-colour LED displays (red / green) and slide-in pockets for the labelling strips. The buttons have the functions “horn acknowledement”, “alarm acknowledgement” and “lamp test” for the BSM-C and are parameterisable for the BSM-P.

Two function inputs are available and can be used according to the chosen reporting sequence (e.g. for external acknowledgement).
The annunciator features four change-over relays as integrated function relays. Alarm specific functions (e.g. collective report or external horn triggering) as well as signalization of any malfunction through a live-contact can be realized with the function relays.
All annunciators of the series BSM feature status retention upon power failure. This means that after restoration of the supply voltage, the alarm status as of the moment of power failure is retained.

To forward single alarms input- or output parallel to a relay contact, two different methods can be used:

1. Integration of additional relay cards (8 NO contacts each) as repeat relays. The assignment of inputs to repeat relays can be done individually for BSM-P annunciators. The integrated repeat relays are available as an option and have to be considered when ordering the device.
2. Connection of external relay modules through the CAN-Bus interface. For further details to the relay extension modules, please refer to the separate datasheet MSM-EM-DB-UK.

All BSM fault annunciators provide a hardware-watchdog and software-monitoring. The fault-free operation is indicated by an OK-LED and through a relay contact (live-contact).

Fault annunciators of the type BSM-P feature an internal horn (deactivated in default settings). Additionally, an external horn can be triggered through a function relay.

The parameterisation of the BSM-P is done through the USB-parameterisation interface by means of a parameterisation software. By these means the reporting sequence, input processing, assignment to collective reports and horn triggering can be defined and protocol parameters, IP-address and information object addresses can be parameterized. A detailed descripition of the parameterization can be found in the section “Parameterisation”. Customised special reporting sequences can be realized ex factory upon request.

The fault annunciator BSM provides USB and CAN-Bus interfaces, which will be described regarding functionality and usage in the following sections.

Additional explanations to the integrated alarm sequeces can be found in the separate document „Alarm sequences of EES-Fault annunciators“ (SM-MA-ZI-UK).

3.2 Internal Relay cards (optional)

The optionally integrated relay cards (8 NO contacts each) are independent from the 4 function relays of the annunciator and can be assigned to the following functions:

1. In- or output parallel multiplication and forwarding of single alarms within the annunciator and without the requirement for connection of external relay modules MSM-RM.
2. Issue of collective reports and triggering of external horn

The 8 relays of one board have one common root. Triggering and functionality can be adapted individually by means of the parameterization software for the BSM-P, e.g. inversion of the signal. For BSM-C these functions are fixed assigned.

3.3 Dual power supply (optional)

Independent from the primary power supply, a second, redundant power supply can be integrated into the fault annunciator. Two different voltage variants are available:

- 24 – 60 V AC/DC
- 110 – 220 V AC/DC

The voltage level of the redundant power supply can be chosen independently from the voltage level of the primary power supply. Both primary and secundary power supply are integrated into the self-monitoring of the annunciator and any malfunction is indicated on the live-contact. Additionally, presence of the supply voltage is indicated for both power supplies by an LED on the rear of the device.

3.4 Cascading of several fault annunciators

With the cascading functionality one BSM or USM and up to 3 BSM (BSM-C or BSM-P) can be grouped to an annunciating system which is processed as a virtual compound annunciator with common signalling (reporting sequence, forming of collective reports and horn triggering).
The USM (universal fault annunciator) is comparable to a BSM-P, but additionally provides a communication interface IEC 60870-5-101/104 or IEC 61850. Through the communication interface of the USM, signals and alarms of the whole annunciating system can be addressed.

The communication within the annunciating system is done through the integrated CAN-Bus interface. The devices are connected to each other by means of a patch-cable. The first BSM or USM works as “master” and the connected BSM-C or BSM-P act as “slave”. Thus a system with up to 192 (4*48) signals can be realized. When creating an annunciating system, please note that the number of channels of the USM has to be bigger or equal to the number of channels of the connected BSM devices.
External MSM relay modules cannot be connected to cascaded annunciators.

The parameterization is done in the master fault annunciator (USM or BSM-P) by means of the web-server and is distributed automatically to the slave devices. Further information to the above mentioned USM can be found in the separate operting manual for USM (MSM-USM2G-BA-UK).

Fig. 3.1: General design of a cascaded fault annunciator system

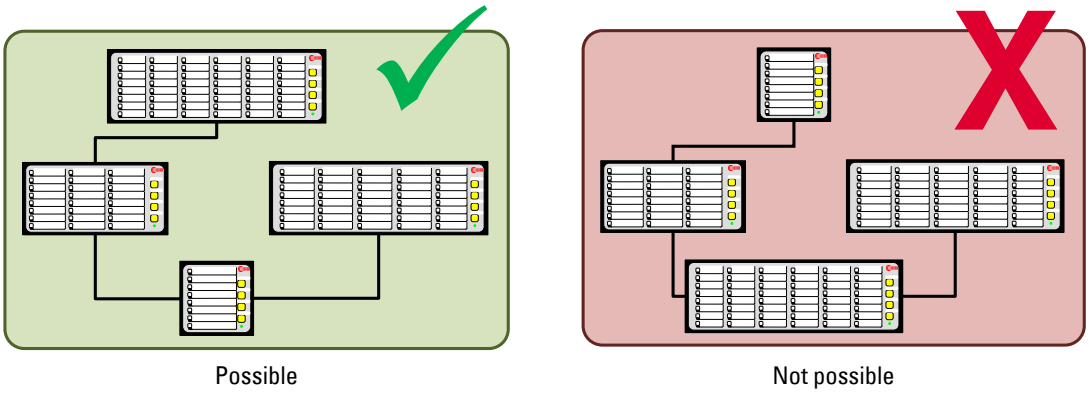


Fig. 3.2: Examples of cascaded annunciator systems

3.5 Labelling

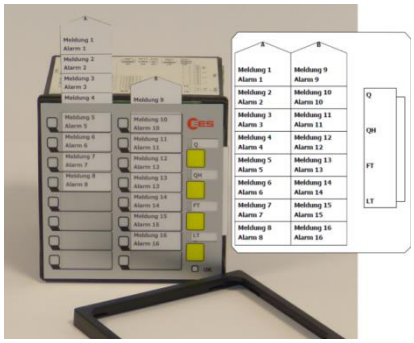


Fig. 3.3: Insertion of labelling strips after removing the front frame

Labelling of the annunciators is done by means of designation strips that can be inserted beneath the cover foil after removing the front frame.

The designation strips with signal names can be created and printed directly from the parameterisation software for the BSM-P. For manual generation of labelling strips for BSM-C or BSM-P patterns in Word-format are available.

3.6 Monitoring LEDs, buttons and connections

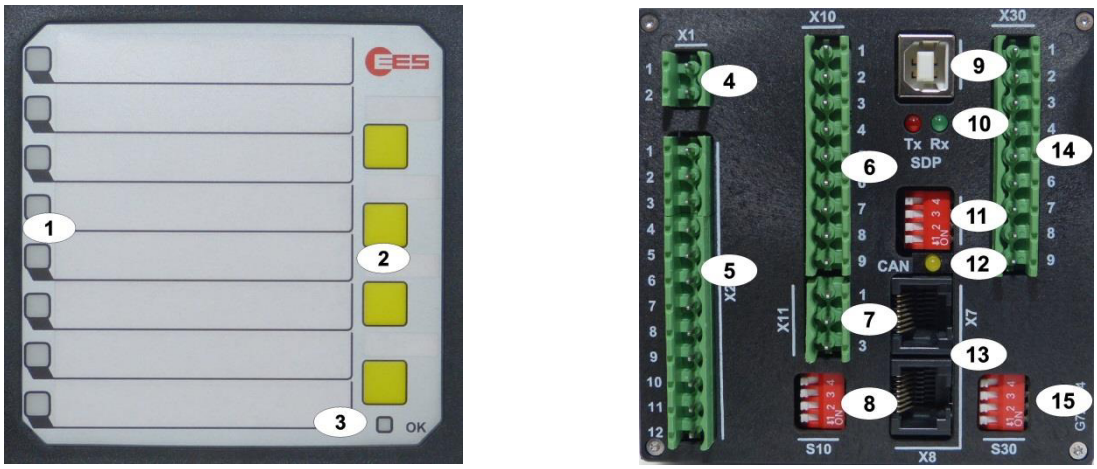


Fig. 3.4: Front- and rear view of the BSM08

[1] Alarm LEDs (function depending on reporting sequence)
[2] Buttons 1 … 4, (function depending on reporting sequence and parameterisation)
[3] Watchdog-LED „Self-monitoring“
- Steady light green - no error
- Off - no power supply or device defective
- Flashing red - error (→ section „Diagnosis“)
- Flashing green - initialisation of the annunciator or activated operation mode

[4] Terminals power supply
[5] Terminals function relays
[6] Terminals signal inputs
[7] Terminals function inputs
[8] DIP-switch S10 (DIP-switch for alarm group functions)
[9] Service- and diagnosis interface USB-B*
[10] Watchdog-LEDs for service- and diagnosis interface*
red - Tx service- and diagnosis interface
green - Rx service- and diagnosis interface
[11] DIP-Switch S1 (cascading)
[12] Monitoring-LED CAN-Bus (yellow)
[13] 2 x CAN-Bus interface (RJ45)
[14] Terminals repeat relays**
[15] DIP-switches for the repeat relays – have no function in these annunciator variants**

* Only for BSM-P
** Only when optional integrated repeat relays are provided

In this section, the BSM-P with 8 alarm channels and integrated repeat relays is used to illustrate the general setup of a BSM. The number of signal inputs and the colours of the alarm LEDs can deviate depending on the configuration and size of the respective BSM.

3.7 Diagnosis

For monitoring and evaluation of the system functions diagnosis information is available by signalling of errors on the watchdog LEDs and relay contacts.

3.7.1 Watchdog-LED „Self-monitoring“ and Live-relay

The watchdog-LED „self-monitoring“ gives information about the current status of the annunciator device or system:

- Steady light green = no error
- Flashing green = initialisation of the annunciator or activated operation mode (→ please refer to section 3.7.3)
- Flashing red = error
- Off = no power supply

From the flashing sequence, an error code can be read which defines the error. A flashing sequence consists of:

- Number of long flashing pulses → 1st digit of the error code
- Number of short flashing pulses → 2nd digit of the error code
- Pause

Example: long, short, short, pause = error code 12

If multiple errors are at issue, the LED displays the error with the highest priority.

In addition to the watchdog LED “Self-monitoring” the live-relay signalises the operational state of the annunciator by means of a change-over contact.

Terminal block X2
Contact 11 / 10 closed - power failure or error (→ error codes)
Contact 11 / 12 closed - no error

3.7.2 Error codes

The hexadecimal error codes which are listed in the following table resemble the flashing sequence of the OK-LED of the BSM.

Example:

Error 15 - *Communication within cascaded annunciator system disturbed*
Flashing sequence of OK-LED - *long, short, short, short, short, short, pause*

In the following table the error codes of the USM are enlisted.

Error code	Error	Remark
11	Internal error	If the error still is at issue after restart of the device, the device needs to be returned to EES for inspection.
12	Internal error	
13	Overflow alarm buffer	After a surge of alarms, interstages of alarms can be lost. The final stages of the alarms are valid.
14	Relay cards	If the error still is at issue after restart of the device, the device needs to be returned to EES for inspection.
15	Communication within cascaded annunciator system disturbed	This error can occur in cascaded systems. It will be issued when the connection between the master BSM and at least one of the slave BSM is disrupted. Please verify the configuration of the slave addresses and the connection cables.
17	Operating voltage 1	This error can occur in annunciators with dual power supply.
18	Operating voltage 2	
19	Configuration inconsistent	The downloaded configuration does not match the hardware of the device (e.g. BSM08 and BSM16).
33	Parameter file missing	Restore default settings by parameterisation software and download the new parameterisation again. If the error persists, please contact customer service.
34	Imported configuration is faulty	Download correct file to the device or restore default setting by means of the parameterisation software.

Table 3.1: Error codes of theBSM

3.7.3 Operation modes

By means of a push button or function input, the annunciator can be set to different operation modes. A currently activated operation mode is indicated by green flashing of the OK-LED with dedicated flashing sequences as follows:

Flashing sequence	Operation mode	Comment
long – short	Horn muted	The horn will be triggered according to parameterisation in „Horn mute“, as long as this operation mode is activated.
long – short – short	Unmanned mode	As long as this operation mode is activated, no optical or acoustical output of alarms at issue is triggered. The internal alarm processing as well as triggering of relays and IEC communication stays active though.

Table 3.2: Operation modes of the BSM

3.8 Terminal assignments

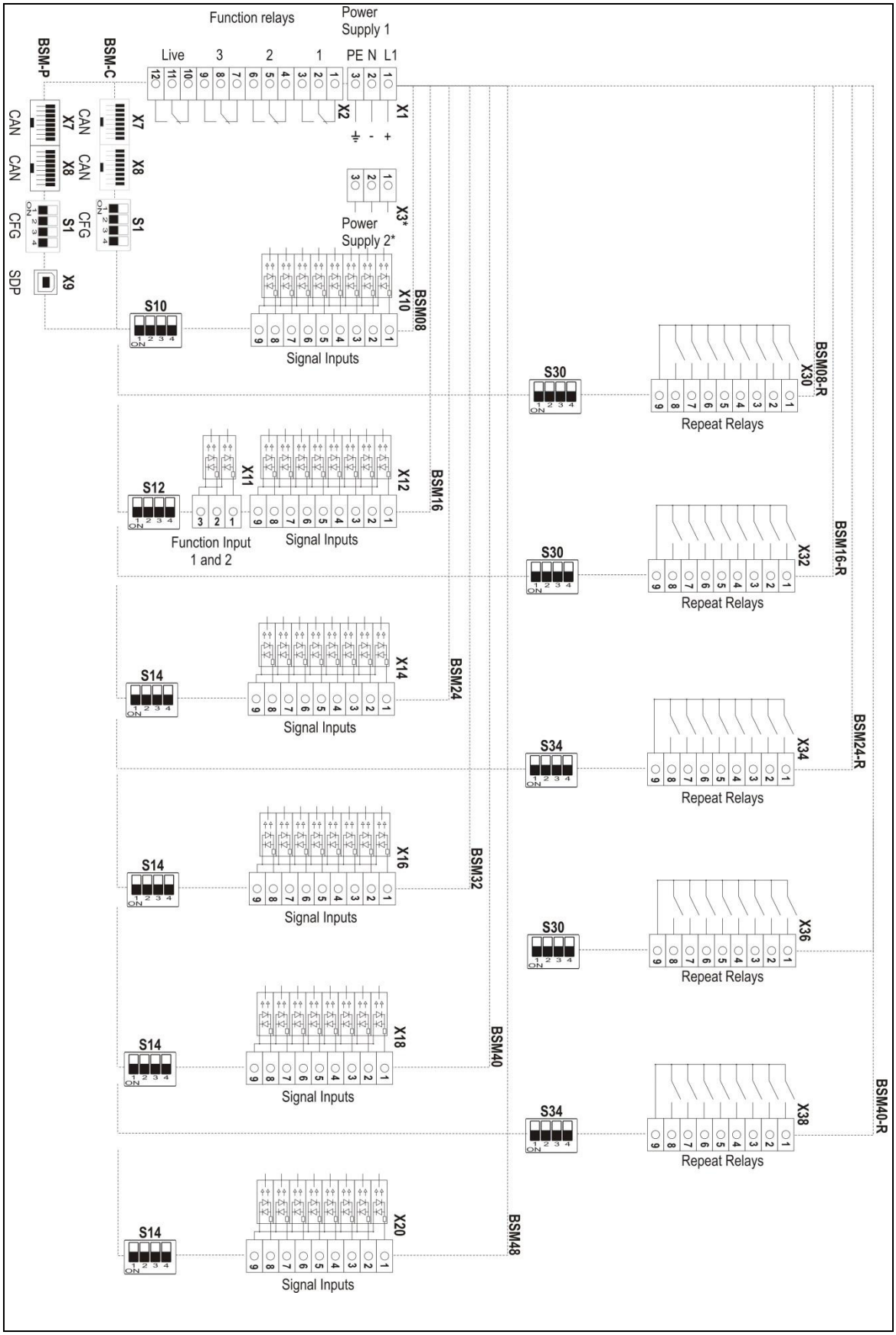


Fig. 3.5: Terminal assignment BSM

3.9 Technical data

Supply voltage U_{Sup}

Key	Rated voltage	Voltage range
1	24 V AC/DC	19…37 V DC or 14…26 V AC
2	48 V AC/DC or 60 V DC	37…73 V DC or 26…51 V AC
5	110 V AC/DC or 220 V AC/DC	100…370 V DC or 85…264 V AC

Table 3.3: Supply voltage keys – BSM

Signal voltage U_{Sig}

Key	Rated voltage [V AC/DC]	Threshold for alarm		Maximum permitted voltage [V AC/DC]	Input current per input @ rated voltage [mA]
		Inactive [V AC/DC]	Active [V AC/DC]		
1	24	11	15	50	2,3
3	48	17	25	75	2,1
	60	17	25	75	2,7
4	110	35	50	150	1,6
H	125	35	50	150	1,8
5	220	100	140	260	1,2

Table 3.4: Signal voltage keys – BSM

The voltage U_{Sig} is valid for signal inputs and function inputs.

If not otherwise specified the given information for alternating voltage are effective values and refer to a sinusoidal alternating voltage with a frequency of 50/60 Hz.

Power consumption

Number of channels	Power consumption [W]	
	Without integrated repeat relays	With integrated repeat relays
8	< 4	< 6
16	< 5	< 9
24	< 5	< 13
32	< 6	< 11*
40	< 7	< 19
48	< 8	< 13*

Table 3.5: Power consumption – BSM

* The power consumtion of 32- and 48-way annunciators with integrated repeat relays refers to a maximum number of 2 relay cards (16 relays).

General data

Buffer time in the event of failure / short circuit	100 ms*
Response delay	
BSM-C	100 ms
BSM-P	adjustable (5 ms … 9 h)
Flashing fequency	
Single frequency flashing	2 Hz
Slow flashing	0,5 Hz
Load capacity of relay contacts	24 ... 250 V AC 2 A; 110 V DC 0,5 A; 220 V DC 0,3 A
Ethernet interface	100 Base-T / RJ45

* Storage of the last state of inputs and sequence in the event of power failure.

Mechanical data

Type BSM	Front frame H x W x D [mm]	Panel cut-out [mm]	Depth with front frame and terminals [mm]	Weight [kg]
08 08-…-R*	96 x 96 x 8	92 x 92	100	approx. 0,40
16	96 x 96 x 8	92 x 92	100	approx. 0,45
16-…-R** 24 24-…-R* 32	96 x 192 x 8	92 x 186	100	approx. 0,70
40 40-…-R* 48	96 x 287 x 8	92 x 282	100	approx. 1,00

Table 3.6: Dimensions – BSM

* BSM-…-R are variants with integrated repeat relays.

** A 16-way annunciator with integrated repeat relays can only be realised in the variant 16 wide (housing 96 x 192 mm).

Mounting	panel mounting
Required installation depth	120 mm
Minimum horizontal gap	
Between 2 devices	15 mm
Connection terminal	pluggable
Wire cross section rigid or flexible	
Without wire sleeves	0,2 ... 2,5 mm^2
With wire sleeves	0,25 ... 2,5 mm^2

Ambient environment

Operating ambient temperature	-20°C .... +60°C
Storage temperature	-20°C .... +70°C
Duty cycle	100 %
Protection class at the front	IP 54
Protection class at the rear	IP 20
Humidity	75% r.h. max. on average over the year; up to 93% r.h. during 56 days; condensation during operation not permitted [Test:40°C, 93% r.h. > 4 days]

Dielectric strength
Electromagnetic compatibility

Noise immunity acc. to	DIN EN 61000-3-2 / CLASS A
	DIN EN 61000-3-3
	DIN EN 61000-4-2 / 4/8 kV / Criterion A
	DIN EN 61000-4-3 / Imm. Test Level 3 / Criterion A
	DIN EN 61000-4-4 / Imm. Test Level 3 / Criterion A
	DIN EN 61000-4-5 / Imm. Test Level 3 / Criterion A
	DIN EN 61000-4-6 / Imm. Test Level 3 / Criterion B
	DIN EN 61000-4-11 / Imm. Test Level 3 / Criterion B
Noise irradiation acc. to	DIN EN 55011
	DIN EN 55022

The devices are designed and manufactured for industrial applications according to EMC standard.

Subject to technical changes without prior notice

4 Mounting and installation

1. Unpack all modules of the delivery and check for possible transport damages. Report any transport damages to the responsible forwarding agent immediately. Please verify the integrity of the delivery according to the shipping documents.

2. Insert the annunciator into the prepared panel cut-out and fix it with the fasteners at the side of the device.

3. Connect the in- and outputs of the annunciator.

> The length of the wires of the in- and outputs should not exceed 3 m.

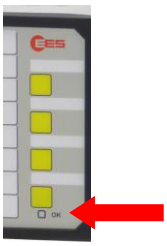
4. For a cascaded annunciator system, connect slaves according to steps 2 and 3 and connect the cascaded annunciators to each other by means of a patch cable through the CAN-Bus-interfaces (terminals X7 / X8 at the BSM and terminal X7 at the USM).

5. Connect the power supply and activate power supply.

> The length of the power supply wires should not exceed 10 m.

6. Parameterise the fault annunciator (refer to sections “Configuration” and “Parameterisation”).

7. Watchdog-LED “Self-monitoring” is in steady light – the fault annunciator is operational.
   Watchdog-LED is flashing → section “Diagnosis”.



5 Configuration

For both BSM-C and BSM-P some main settings of the annunciator can be defined by configuration through DIP-switches. If further settings are required additional parameterisation by software is possible for the BSM-P (→ section “Parameterisation”).

To apply the DIP-switch settings to the annunciator, DIP-switch S1/4 has to be set to ON. If the additional options of the software parameterisation are to be used for the BSM-P, the DIP-switch S1/4 has to be set to OFF (default setting).

5.1 Cascading functionality (DIP-switch combination S1)

Switch	Function	Setting	Default setting
S1/4	Definition of the functionality as per DIP-switch (configuration) or parameterisation (this definition is valid for all settings of the annunciator)	OFF – Parameterisation (software) ON – Configuration (DIP-switch)	OFF - Parameterisation
S1/3 and S1/2	S1/1 = OFF (device is Master) - Number of connected slaves or S1/1 = ON (device is Slave) - Slave-address	S1/3 / S1/2 / Slave: OFF / OFF / none OFF / ON / 1 ON / OFF / 2 ON / ON / 3	OFF, OFF No connected slaves or no slave address
S1/1	Master or Slave	OFF - Master ON - Slave	OFF - Master

Table 5.1: Assignment of DIP-switch combination S1

If the BSM is not part of a cascaded annunciator system, DIP-switches S1/1 – S1/3 are to be set to OFF (default setting).

5.2 Alarm group related DIP-switch combinations (S10 – S20)

The DIP-switches 1 and 2 of these DIP-switch combinations always affect the respective alarm group (8 channels) which is assigned to the respective terminals.

DIP-switch	Terminal
S10	X10
S12	X12
S14	X14
S16	X16
S18	X18
S20	X20

The functions of the switches 3 and 4 are set on one DIP-switch combination for the whole device.
For the BSM08 this is the combination S10 and for all other BSM it is the combination S12.

Table 5.2: Assignment of the DIP-switch combinations to the alarm channels (input terminals)

Switch	Function	Setting	Default setting
S./4	Alarm sequence when S./2 is set to OFF (fault signalling)	OFF - No-first-up* ON - First-up*	OFF – No-first-up
S./3	Horn triggering for subsequent alarms	OFF – Horn is retriggered ON - Horn is not retriggerable	OFF – Horn is retriggered
S./2	Processing of the alarm group (8 channels)	OFF – Fault signalling (Flashing, red) ON - Operation indication (Steady light, green)	OFF – Fault signalling
S./1	Normally open / normally closed principle of the group (8 channels)	OFF – Normally open ON - Normally closed	OFF – Normally open

Table 5.3: Assignment of the DIP-switch combinations S10 – S20

* The detailed descriptions of the alarm sequences are as follows:
- No-first-up (new-value) reporting with 1-frequency flashing and single acknowledgement
and
- First-up reporting with 1-frequency flashing and single acknowledgement.
Detailed information on the alarm sequences can be found in the separate document for description of the alarm sequences SM-MA-FB-UK-001.

5.3 Configuration of the relay groups

The DIP-switches of the relay groups (S30 – S38) have no function in these annunciator variants.

The relay groups are set as follows:

- Relays are assigned 1:1 to the respective inputs.
- If only 1 or 2 relay groups (8 relays each) are integrated (e.g. BSM48), these are assigned to the first or the first two alarm groups (8 inputs each).
- The relays are triggered input parallel.
- The relays are not inverted.

For the BSM-P these settings can be changed in the parameterisation software.

5.4 Default settings

- LED-colour - red for fault signalling and green for operation indication
- Function input 1 - horn acknowledgement
- Function input 2 - acknowledgement
- Button 1 - horn acknowledgement
- Button 2 - acknowledgement
- Button 3 - lamp test
- Button 4 - not assigned
- Function relay 1 - collective report 1
- Function relay 2 - not assigned
- Function relay 3 - external horn
- Function relay 4 - live-contact
- Collective report - static / outputparallel
- Horn - retriggerable by subsequent alarm, manual acknowledgement
- Horn lock - none

6 Parameterisation

Alternatively to configuration by DIP-switches the BSM-P can be parameterised by software. To parameterise the device the service and diagnosis interface USB-B (terminal X9) of the BSM-P has to be connected to the PC.

System requirements

- Windows 7 or Windows 10
- Internet browser with **activated Javascript**
  We recommend to use Mozilla Firefox from version 40 or Internet Explorer from version 11. When using other internet browsers the functionality of the parameterisation software might be limited.
- Recommended monitor resolution from 1280 x 800

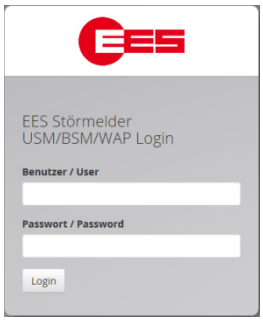
Installation

The installation starts with the execution of the file „EES-SMT-Parasoft V3.X.X.exe“. X.X in this case are replacement markers for the respectively current software version. During installation, 2 Visual C++ packets are installed additionally, in case they are not yet available on the PC. This may require a restart of the PC.

Start of the software

Please launch the program „EES SMT-Parasoft V3.X.X“ in the start menu or from the icon on the Desktop.

The login screen will automatically be opened in the default browser of the PC.



For the first login please use the following login data:

User:	admin
Password:	admin

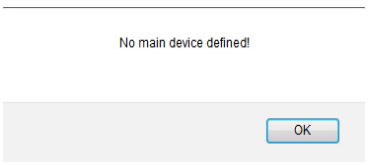
Fig. 6.1 Login

The user „admin“ (administrator) has entire reading and writing access to the parameterisation. Additionally, the user „user“ is available (user; user / password: user), who has only reading access and no writing authorisation.

The passwords can be changed in the menu „Parameter / System / Security“.

The identification of the user is done by a random 32 byte session ID. No cookies are used. Up to 8 sessions (subscribed users) can be handled at a time. The number of “admin” sessions is limited to one at a time. Sessions are monitored by a time-out and closed automatically upon exceeding the time.

Upon the first start of the software after installation, the user is prompted to choose the device type that is to be parameterised.



After accepting the adjacent dialog the page „Device administration is opened“. Here the respective device according to the present hardware of the device to be parameterised can be selected. For the BSM-P, please also select the device variant „BSM/WAP-P“.
This selection can be changed at a later time, if required.

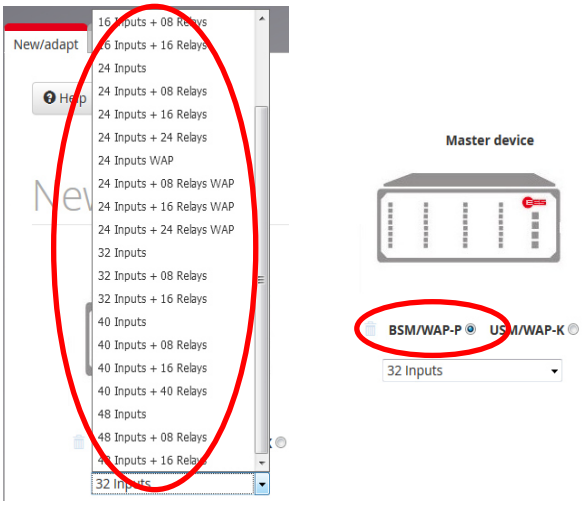


Fig. 6.2 Selection of the device type

Please confirm the selection with (Accept configuration) or (accept all 4 configurations – for cascaded annunciator systems).
This procedure is only required upon the first start of the parameterisation software after installation. Upon the next start, the last stored device configuration will be retrieved.

Next, the first page for the device parameterisation will be opened.

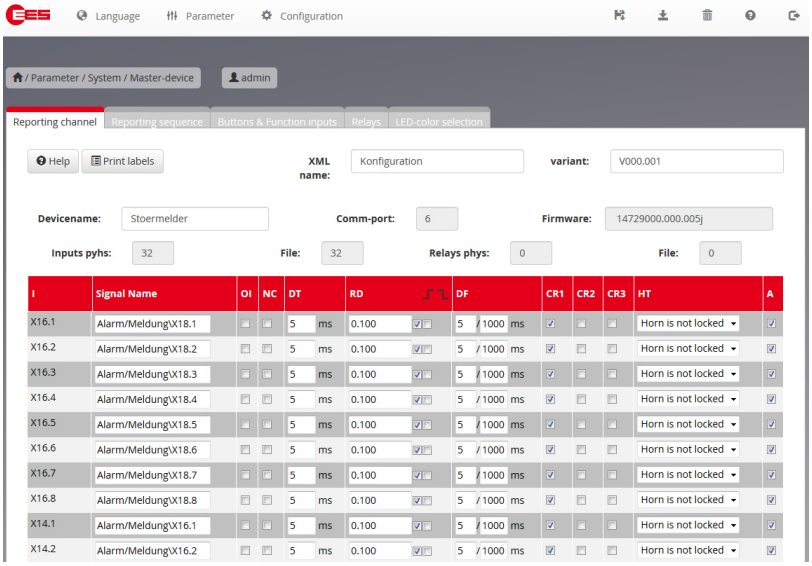


Fig. 6.3: Parameterisation interface

In the menu bar next to the EES logo, the three main menus are located:

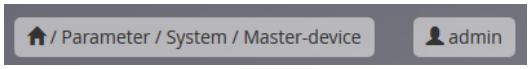
- **Language**
- **Parameter**
- **Configuration**

as well as the symbol bar consisting of five push buttons: 
The push buttons have the following functions:

- **Accept configuration**
  Storage of the changed parameters of the currently selected device. **After termination of the parameterisation, the changed parameters necessarily have to be stored and thus adopted in the browser interface!**
  To download the parameterisation tot he connected device, the file has to be sent to the annunciator with „Write parameter to device“ (→ section 6.3 „Main menu Configuration“).
- **Accept all 4 configurations**
  With this button, the parameters of all four devices (Master device and additionally defined Slave devices) will be stored and adopted in the browser interface.
- **Dismiss configuration**
  Dismiss all changes done to the parameterisation in the current session (since last „Accept configuration“).
- **Version**
  Version of the parameterisation software
- **Logoff**
  Logoff from the parameterisation interface

Upon logoff without accepting the configuration all new entered parameters will be discarded.

Below the main menu bar the menu path and the user are displayed.



In the main window the menu “Parameter / Master-device” is already opened. The parameterisation could be started straight away. In this manual though, the single menus will be explained first in the order of their appearance in the menu bar.

Some parameterisation pages are structured by different tabs and contain additional buttons. The function of these elements is described in the explanation of the respective pages.

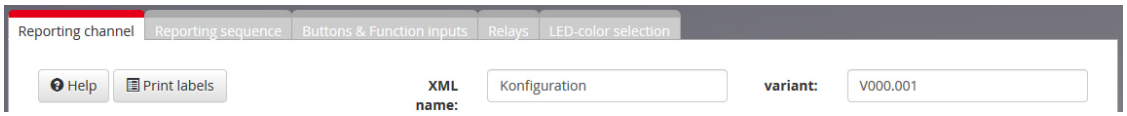


Fig. 6.4: Tabs and buttons on the page „Master-device“

When switching between different menus or tabs, the changes will be buffered but not stored to the current configuration of the annunciator.

6.1 Main Menu Language

The parameterisation interface can be changed between German and English here.

6.2 Main Menu Parameter

The main menu is structured into 5 submenus.

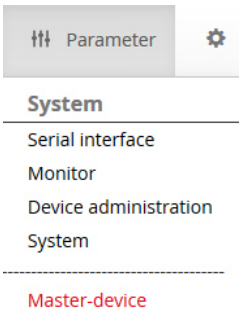


Fig. 6.5: Opened main menu „Parameter“

- Serial interface
  - Selection of the interface for the device parameterisation
- Monitor
  - Online-Monitor for viewing the current device status (only available when an annunciator is connected to the PC)
- Device administration
  - Selection and deletion of devices in a cascaded annunciator system
  - Ex- and Import of parameterisation files
- System
  - Security
  - Activation / Deactivation of error messages
- Master-device / Slave-device 1..3 (Annunciator functionalities)
  - Reporting channel
  - Reporting sequence (not available for slave devices)
  - Push buttons & function inputs
  - Function relays
  - Repeat relays
  - LED-colour settings

6.2.1 Menu Serial Interface

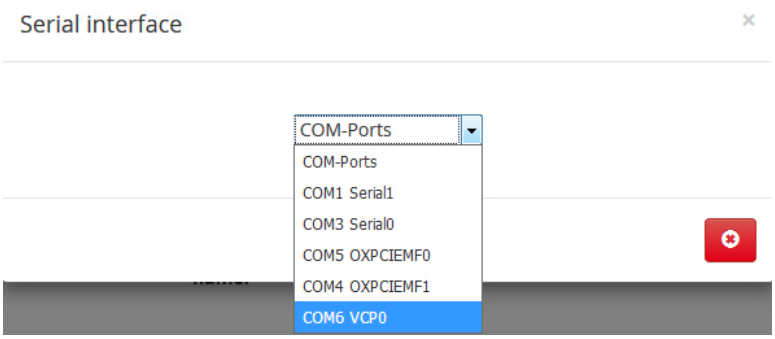


Fig. 6.6: Dialog for selection of the parameterisation interface

In this menu the interface of the PC is defined, through which the connected annunciator will be parameterised.
Please choose the respective interface (can be identified by the addition „VCP“ or through the device manager of the PC).

6.2.2 Menu Monitor

The page monitor offers diagnostics for the BSM. On this page the LEDs of the annunciator are displayed with their current status (flashing, steady light, off).

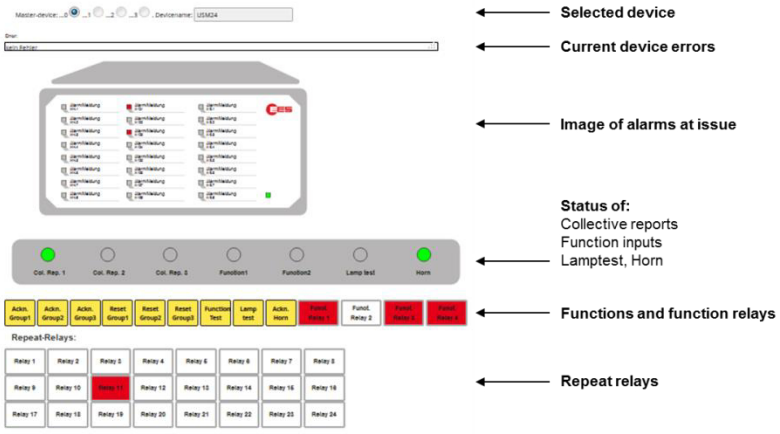


Fig. 6.7: Monitor – a diagnosis tool

If the annunciator is used within a cascaded annunciator system, each of the devices can be displayed in the monitor by click on the respective radio button „Annunciator 0…3“.
A slave device can only be chosen here, if it has been defined in the menu „System/Device administration“ before.

The symbolically depicted yellow push buttons can be “activated” by mouse click and the corresponding function is issued (acknowledgement, function test …).

The 4 function relays and – if available – the integrated repeat relays are depicted as well (red = activated, white = non-operated state).

6.2.3 Menu Device Administration

In the menu „Device administration“ the device type of the annunciator to be parameterised can be defined. Additionally, slave devices can be added or edited and the parameterisation of the annunciator(s) can be exported or imported.

6.2.3.1 Submenu New/Adapt

First the device type of the annunciator to be parameterised (Master-device) is defined. Choose the respective device from the drop-down menu and select the checkbox „BSM/WAP-P“ for annunciators of the type BSM-P.

From a BSM or USM (Master) and up to 3 slaves (BSM-C or BSM-P) a cascaded annunciator system can be formed providing one common alarm processing (Reporting sequence, forming of collective reports and horn triggering). Through the protocol interface of the USM all alarms of the complete system can be accessed.

The communication between the master and slave devices is realized through the integrated CAN-Bus interface. The BSM or USM acts as “master” and the connected BSM-C or BSM-P act as “slave”. Thus systems with up to 192 signal inputs (4*48) can be realized.
MSM-relay-modules cannot be connected to cascaded annunciators.

The parameterisation of cascaded annunciator systems is carried out in the Master device (BSM-P or USM) and will be distributed automatically to the slave devices.

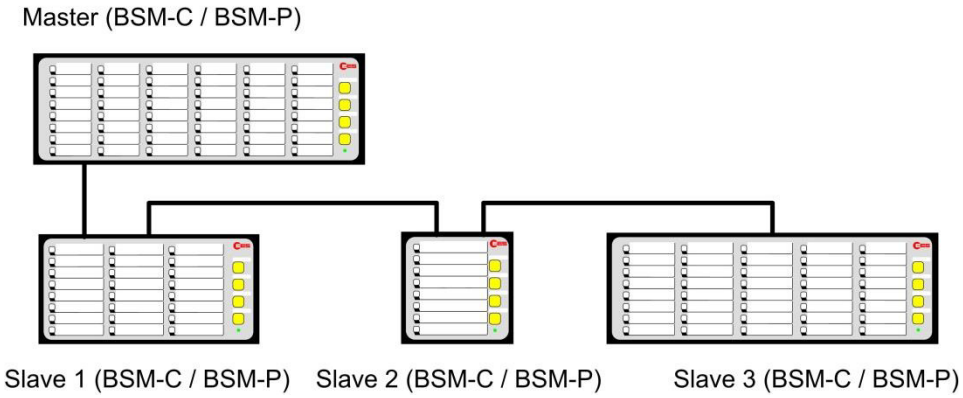


Fig. 6.8: Example of a cascaded annunciator system

Please note that the slave devices have to be set to slave-mode by DIP-Switch and the respective slave addresses (1…3) have to be defined.

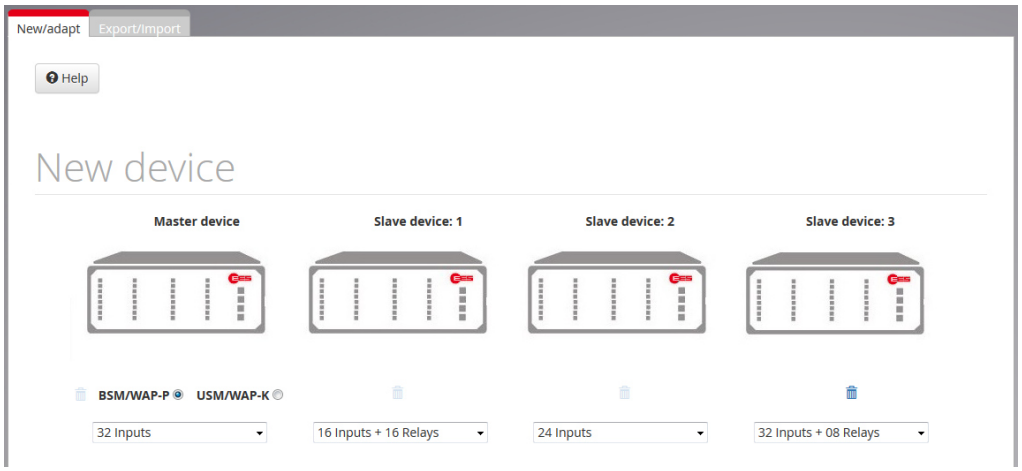
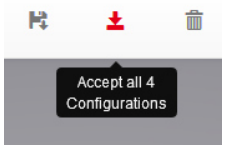


Fig.6.9: Submenu New/adapt

After selection of the required annunciator type from the respective drop down menu, the device will automatically be added to the parameterisation. After all required devices have been edited, please confirm the system configuration with the button „Accept all 4 configurations“.



The added slave devices now can be found in the menu „Parameter“ as items „Slave-device 1…3“. The menu of each of the slave devices resembles the menu „Master-device“. The tab „reporting sequence“ is not available for the slave devices since the sequence is identical with the master device.

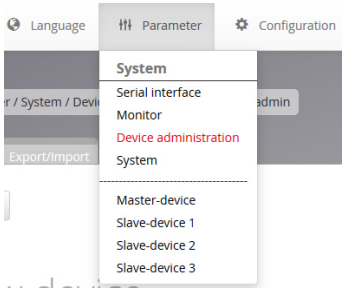


Fig. 6.10: Menu „Parameter“, complemented with the entries „Slave-device 1…3“

By this means, up to three slave devices can be added. Each slave will be displayed under the name Slave-device 1…3 in the menu „Parameter“ – independent from the defined devicename.
By click on the paper bin symbol the respective last slave device in the cascaded system can be deleted.

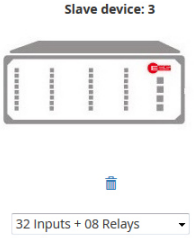


Fig. 6.11 Paper bin - symbol of the last annunciator in the cascaded system

6.2.3.2 Submenu Export/Import

On this page the configuration of the fault annunciator(s) can be stored or a parameter file can be loaded. The following options are available:

Store complete parameterisation
The parameters of the whole annunciator system (incl. optionally connected slave devices in a cascaded system) are packed to one file and saved. Depending on the settings of the internet browser used, this file will be saved under the default name „EESsystem.pcf“ in the download folder, or the filename and folder can be chosen individually.
Any changes done to the parameterisation on the web-interface have to be saved first by **„Accept configuration“** or **„Accept all 4 configurations“**, respectively, before they can be exported.

Load complete parameterisation
Import of a parameter file (e.g. EESsystem.pcf) from an arbitrary folder.

Store device parameterisation
Button „Store“
The parameter file of the chosen device (Master (0) or Slave 1…3) is stored as a packed file. Depending on the settings of the internet browser used, this file will be saved under the default name „USMDeviceX.pcf“ (X indicates the device number 0…3) in the download folder, or the filename and folder can be chosen individually.
Any changes done to the parameterisation on the web-interface have to be saved first by **„Accept configuration“** before they can be exported.
Button „HTML export“
The parameters of the chosen device (Master (0) or Slave 1…3) are displayed in HTML format in a separate window of the browser and can be printed, e.g. for documentation purposes.
Only parameters of devices, which have been edified in the sub-menu „New/adapt“ before, can be exported.

Load device parameterisation
Import of a parameter file from an arbitrary folder into the chosen device.
Only parameters of devices, which have been defined in the sub-menu „New/adapt“ before, can be imported.

Import Excel Parameterisation
In certain applications, parameters need to be imported from an Excel-file into the devices. → Please refer to section 7 „Parameterisation by Excel-file“.

6.2.3 Menu System

In this menu different system functions can be defined for the annunciator.

6.2.3.1 Submenu Security

The passwords for the two users “admin” (with authentication) and “user” can be changed here.

admin - administrator (rights for reading and writing)

user - user with limited rights (rights for reading only)

The password may consist of ASCII characters and is limited to a maximum length of 40 characters.

6.2.3.2 Submenu Error Mask

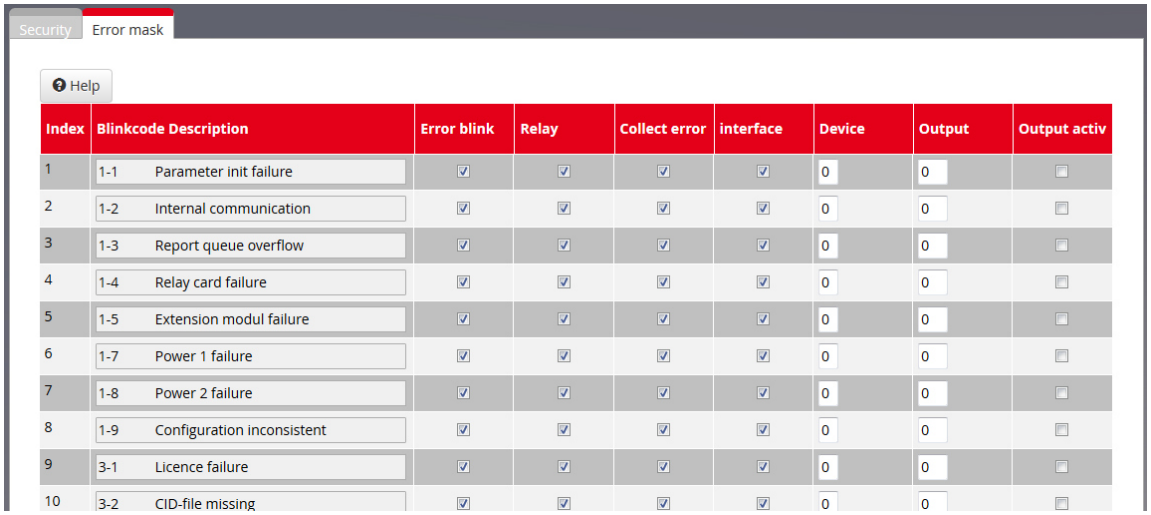


Fig. 6.12: Submenu Error mask

In this menu the handling of device errors of the BSM can be defined.

Blinkcode and Description
The entries in this field cannot be edited and show the blinkcode and the corresponding error in clear text.
The first 20 entries are device errors and can be displayed with blinkcode by the Watchdog-LED „Self-monitoring“. For example error „1-4 Relay card failure“ will be displayed with one long and four short flashing pulses (→ section 3.7 „Diagnosis“).
For the USM, the additional 32 error entries (160…191) signalise a faulty connection to an IEC104 client each and can only be forwarded to the IEC interface or be displayed on a signal channel.

Error blink
If this checkbox is activated the corresponding error will be displayed by flashing on the Watchdog-LED.

Relay
The Alive-Relay is triggered by this error. (→section 3.7 „Diagnosis“).

Collect error
This error is assigned to the collective device error which can be transmitted through the IEC interface (only available for USM).

Interface
If this checkbox is activated the corresponding error can be forwarded through the IEC interface (only available for USM).

Device and Output
With the columns „Device“ and „Output“ a signal channel on one of the annunciators (Master device (0) or Slave device 1…3) can be defined, which will be triggered by this error.

Output active
With this checkbox the specified display (Device/Output) can be activated / deactivated.

6.2.4 Menu Master-device / Slave-device1..3

In the menu “Master-device” or “Slave-device1..3”, respectively, the fault annunciation functionalities of the device can be parameterised. This menu contains the following sub-menus:

- Reporting channel
- Reporting sequence
- Buttons & function inputs
- Relays
- Repeat relays
- LED-colour selection

6.2.4.1 Submenu Reporting Channel

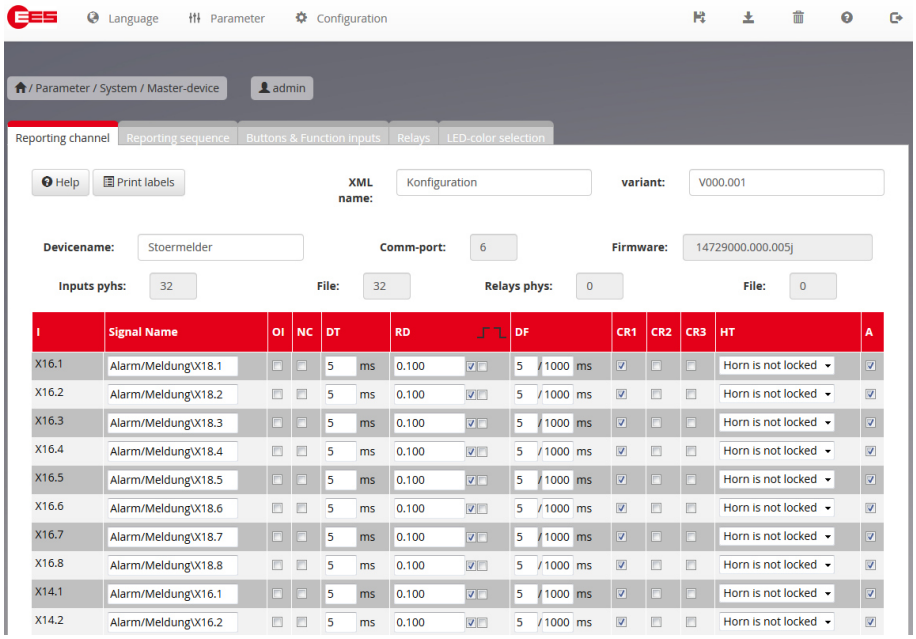


Fig. 6.13: Page Reporting channel

Devicename
A device designation with a maximum length of 40 ASCII characters can be entered here. This designation serves for identification of the device, is transmitted to the BSM when parameterised and stored there.

XML name / variant
In these fields declarations for name and version of the respective device parameterisation can be entered. This information is stored in the parameterisation file and on the device and will be read and displayed when loading a parameterisation file or when a device is connected.

Comm-Port
The selected COM-Port for parameterisation of the connected annunciator (→ refer to section 6.2.1 „Serial Interface“). This field is for display purposes only, no entries can be made here.

Firmware
Display of the Firmware version of the connected annunciator. In this field no entries can be made. The Firmware version can be displayed after the device has been identified (→ refer to section 6.3 „Main Menu Configuration“).

Inputs / Relays
Display of the number of alarm channels and repeat relays. „Inputs/Relays phys.“ Displays the number of alarm channels and repeat relays of the connected device. This information is available after identification of the device (→ refer to section 6.3 „Main Menu Configuration“).
„Inputs/Relays File“ displays the number of alarm channels and repeat relays of the currently active parameterisation file. This information is useful to avoid parameterisation mistakes, in case parameterisation file and physically available in- and outputs are not congruent.

Labelling strips
With click on the button “Print labels” a new window with the labelling strips will be opened. The signal texts resemble the labelling of the channels, the button texts follow the declaration on the page “buttons & function inputs”. If a text is too long, it will be displayed in red characters and should be changed – otherwise only the visible part of the text will be printed. By click on a text within the labelling foil a new dialog for editing of the text will be opened. Please choose DIN A4 landscape format and 100%, no resizing as paper settings for your printer.

In the table the following parameters can be defined for each signal channel:

Field	Explanation
I	**Channelnumber** (fixed assigned)
Signal name	**Designation of the respective channel** This designation will be used when printing the labelling strips. A 2-line labelling can be realised by separating the second line by “\” (backslash) from the first line (e.g. “Buchholtz\Alarm”).
OI	**Operation indication** If this checkbox is ticked, the signal will be treated as operation indication. If this box is unchecked (default setting), the signal will be processed according to the chosen reporting sequence (→ page reporting sequence). By defining the signal to be operation indication or fault annunciation, the LED-colour will automatically be set according to the settings on the page “LED-colour”. Default settings: operation indication = green, fault annunciation = red.
NC	**Normally closed principle of the inputs** (when checkbox is ticked) Normally open principle: application of a voltage at the input triggers an alarm. Normally closed principle: voltage drop at the input triggers an alarm. Default setting: Checkbox not ticked – normally open principle.
DT	**Debouncing time** The debouncing time defines the timespan for which a signal must continuously be applied before an alarm is issued. This prevents multiple alarms in the case of a bouncing switch. Time 0 ms … 1000 ms, settable in steps of 1 ms.

Table 6.1a: Parameters of reporting channel

Field	Explanation
RD _|¯ ¯|_	**Response delay** The response delay delays a debounced and defluttered alarm before it is displayed, forwarded or deleted. This time span is considerably longer than the debouncing time and can be set from 0 ms … 9h in steps of 1 ms. The checkboxes _|¯ and ¯|_ for rising and falling edge define for which signal edge the alarm delay is active. _|¯ checked: delay is active for coming alarm ¯|_ checked: delay is active for receding alarm
DF	The **defluttering** prevents alarms from being triggered and reset permanently e.g. by a loose contact. The defluttering acts after the response delay (debouncing). If an input changes more often than the defined number of edges within the fluttering time, the defluttering comes into effect and the alarm channel is marked as faulty. **→ This information is only relevant for IEC communication and does not affect the local display of the annunciator!** Number of edges: 0 … 255 Fluttering time: 0 ms … 65535 ms, ~1 min., in steps of 1 ms Default settings: 5/100
CR1, CR2, CR3	**Assignment to collective reports** The alarm triggers the collective report which is checked here. Multiple allocations are possible. All alarms that are assigned to one collective report from a group. This assignment takes effect for acknowledgement and reset.
HT	**Horn triggering** None: Alarm does not trigger horn With horn lock: Horn acknowledgement only possible after lamp acknowledge No horn lock: Horn acknowledgement always possible
A	**Activation of the alarm channel** If this checkbox is unticked, the channel will not be processed. The alarm will be ignored within the complete system. Default setting: channel activated

Table 6.1b: Parameters of reporting channel

The following drawing illustrates the mode of operation of the two delay times and the defluttering. The options for triggering of the optionally integrated repeat relays is displayed as well (→ section “repeat relays”).

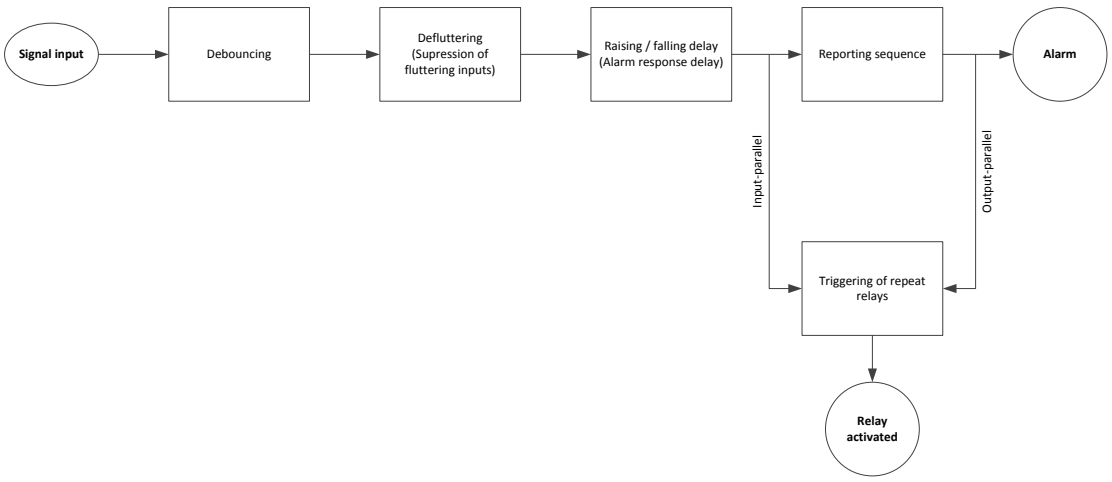


Fig. 6.14: Schematic illustration of the alarm processing in the BSM

To use the settings in one line for one or all other lines, line contents can be copied to the desired line(s). By right-click on the marked line a context menu with the following options opens:

Copy
Paste
Paste to all

The latter option fills all lines with the respective contents.

To adopt the value from the first line for a complete column, left-click on the column header and then click on „OK“.

For device and channel designation, all characters from A…Z and 0…9 are allowed. The special characters „ { } | $ & # ; “ are not allowed. For channel designations, „\“ (backslash) is used as separation mark to start a new line.

6.2.4.2 Submenu Reporting Sequence

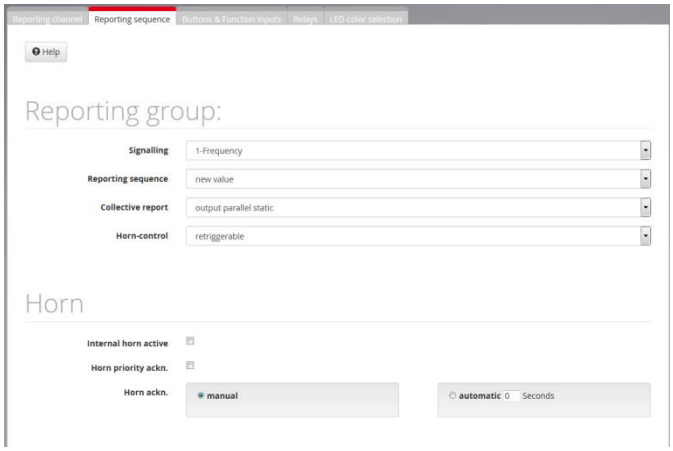


Fig. 6.15: Page Reporting sequence

In this sub-menu the reporting sequence and the horn triggering can be parameterised. To ensure a flexible adaption of the sequence to the requirements, the reporting sequence is composed from different components, which are explained in the following.

Reporting sequence

Title	Options	Note
Signalling	1-Frequency	1-frequency flashing
	2-Frequency	2-frequency flashing
	Status indication	Self-acknowledging alarm: alarm is displayed as acknowledged alarm and recedes, when the corresponding input drops.
Reporting sequence	New value	New value reporting (no-first-up)
	First up	First-up reporting
	Steady-steady-light	Can only be chosen for 2-frequency flashing
Collective report	Input parallel static	The collective report is set with the first incoming alarm and resets with the last receding alarm.
	Input parallel static-dynamic	The collective report is set with the first incoming alarm. For each subsequent alarm, the collective report is reset for approx. 0.8 s and then set again. Once all alarms have receded the collective report is reset permanently.
	Output parallel static	The collective report is set with the first incoming alarm. Once all alarms have receded and been acknowledged the collective report is reset.
	Output parallel static-dynamic	The collective report is set with the first incoming alarm. For each subsequent alarm, the collective report is reset for approx. 0.8 s and then set again. Once all alarms have receded and been acknowledged the collective report is reset permanently.
	Dynamic	The collective report is activated for approx. 0.8 s with each incoming alarm.
	Input parallel static acknowledgeable	The collective report is set with the first incoming alarm and resets with the last receding alarm or when acknowledged.
	Output parallel static acknowledgeable	The collective report is set with the first incoming alarm and reset independently from the state of the alarms by acknowledgement.

Horn control	retriggerable	Horn is triggered by subsequent alarm, even if there are already alarms at issue.
	not retriggerable	Horn is triggered by subsequent alarms only if no alarms are at issue.

Table 6.2: Options reporting group

For additional information on the integrated reporting sequences, please refer to the separate document „Alarm sequences of the EES fault annunciators“.

Horn

Title	Options	Note
Internal horn active	Active	Internal and external horn will be triggered in parallel.
	Inactive	Internal horn is deactivated, relay contact for triggering of external horn stays active.
Horn priority acknowledgement	Inactive	Horn can always be acknowledged.
	Active	Alarm can only be acknowledged once the horn has been acknowledged.
Horn acknowledge	Manual (continuous tone)	Horn is acknowledged manually by button or function input.
	Automatic (pulse tone)	Horn is acknowledged automatically according to the set time.
Horn mute	Horn off	Horn is not triggered as long as function horn mute is activated.
	Automatic (pulse tone)	Horn is acknowledged automatically according to the set time as long as function horn mute is activated. This time can be defined independently from the time for automatic horn acknowledgement in normal operation mode.

Table 6.3: Options horn

Please note that the parameters „horn priority acknowledgement“ and „Horn triggering“ (HT, page „Reporting channel“) depend on each other. If horn priority acknowledgement is activated, the alarm can generally only be acknowledged after the horn has been acknowledged.

6.2.4.3 Submenu Buttons & Function inputs

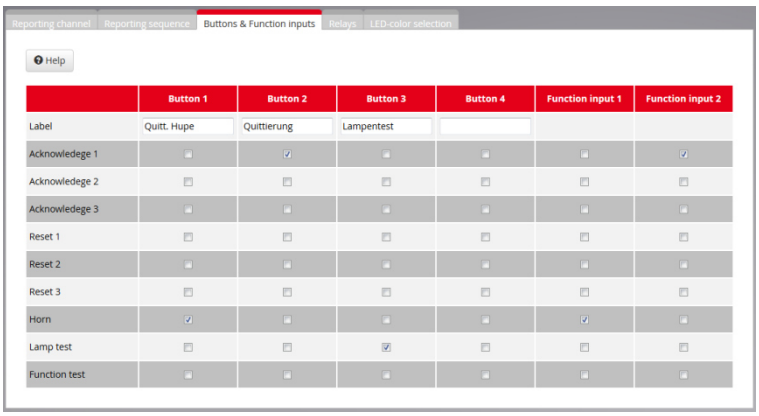


Fig. 6.16: Submenu assignment of buttons and function inputs

On this page, the specified functions can be assigned to the push buttons 1…4 and the function inputs 1&2. Multiple allocations are possible.

The designations of the buttons in the line „Label“ will automatically be adopted in the labelling strips and can be printed from the page „reporting channels“.

Function	Note
Lamp acknowledgement 1, 2, 3	Optical acknowledgement: Acknowledgement of the alarms in the collective report groups 1, 2 or 3
Reset 1, 2, 3	Reset of the alarms in the collective report groups 1, 2 or 3
Horn	Acknowledgement audible alarm
Lamp test	Lamp test
Function test	Simulation of alarms at all inputs
Function mute	Horn triggering acc. to the settings in „Horn mute“

Table 6.4: Assignment of buttons and function inputs

The assignment is done in a matrix – the lines are representing the functions and the columns are representing the buttons and function inputs. Implemented assignments are displayed by a tick in the respective checkbox.

6.2.4.4 Submenu Relay (function relays)

On this page the assignment of the 4 function relays to different annunciation functions, buttons or function inputs can be defined.

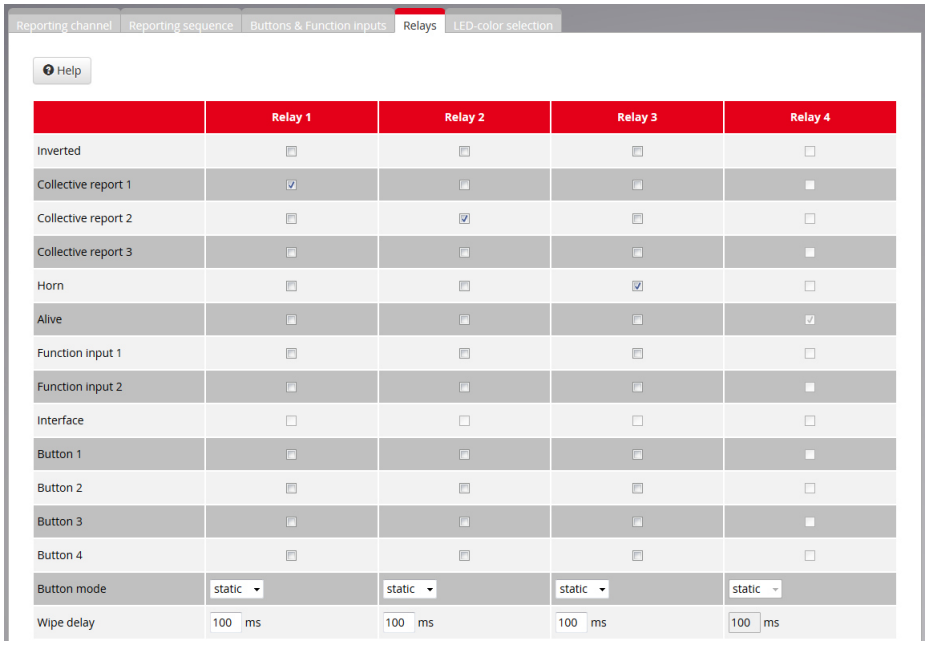


Fig. 6.17: Page Relay

The assignment is done in a matrix – the lines are representing the triggering events (e.g. pushing a button) and the columns are representing the relays. Implemented assignments are displayed by a tick in the respective checkbox.

Function	Note
Inverted	When activated the switching function is negated
Collective report 1, 2, 3	Activated by collective report 1,2 or 3
Horn	Relay contact for connection and triggering of an external horn
Alive	Alive-contact of the internal self-monitoring (fixed assigned to relay 4)
Function input 1, 2	Relay follows function input
Interface	Triggering from IEC interface (pulse commands with below defined wipe duration possible)
Button 1 … 4	Relay follows button
Button mode	Function of the relay when triggered from button or IEC interface Static – relay is activated as long as the button is pushed Toggle – flip-flop function, relay converts with each excitation Wipe – relay is activated with each excitation and drops after the defined wipe duration (10…10000 ms)

Table 6.5: Function assignment of the relays

Multiple allocations, e.g. aggregation of collective reports, are possible. For each relay the switching function can be negated – in this case the relay drops e.g. when a collective report is activated.

6.2.4.5 Submenu Repeat Relays

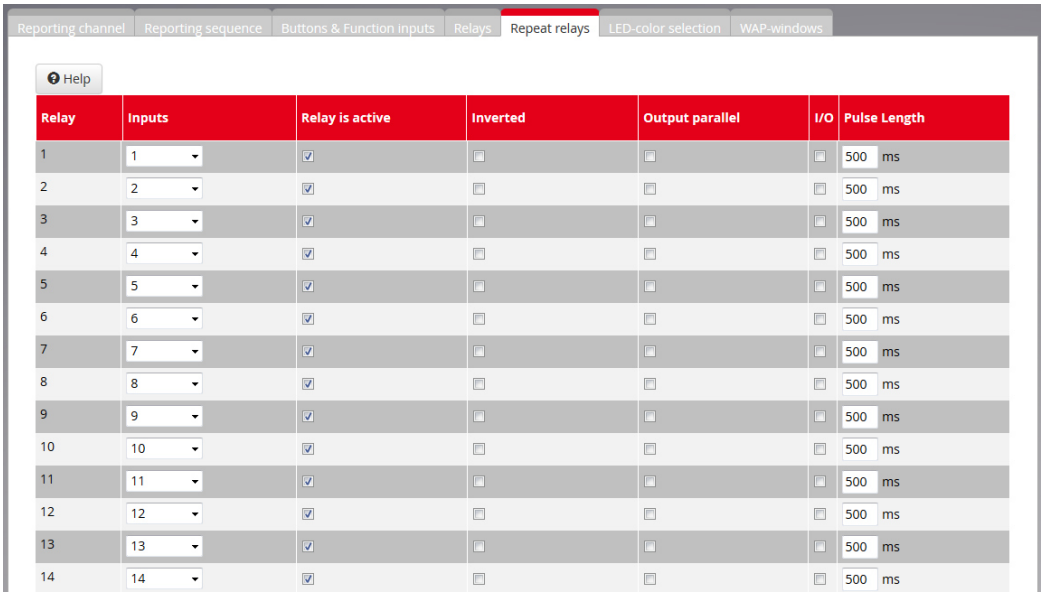


Fig. 6.18: Page repeat relays

The optionally integrated repeat relay cards (8 NO contacts each) are independent from the 4 function relays described in the previous section.
Only the relays as available in the hardware to be parameterised will be displayed.
For each relay the following definitions can be made:

Inputs
Here the trigger for the relay can be defined. The following options are available:

- Function collective report 1,2 or 3
- Function horn triggering
- Available galvanic signal inputs

Relay is active
By unchecking the checkbox the relay is deactivated.

Inverted
When this checkbox is ticked, the respective function is negated. In this case e.g. the relay drops when a collective report is at issue and is energized when no collective report is at issue.

Output parallel
If the relay is triggered from a signal input, it can be defined if the relay directly follows the input (input parallel) or if it is activated until the corresponding alarm is acknowledged (stored alarm = output parallel).
Checkbox checked (default setting) – Relay follows the stored alarm (= output parallel)

Pulse length
If a relay is triggered from the IEC interface, the pulse width can be defined here in the range from 10…10000 ms.

6.2.4.6 Submenu LED-colour selection

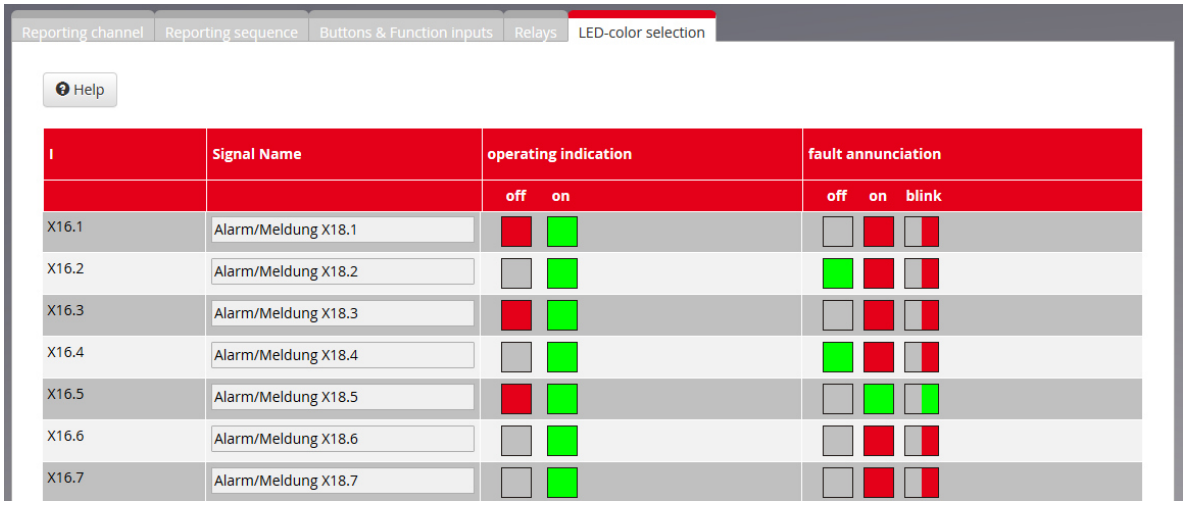


Fig. 6.19: Page LED-colour

On this page the LED colours for the operation modes “operation indication” and “fault annunciation” of each channel can be defined.

Operation indication
For both states OFF and ON the LED can be triggered as follows:
LED OFF or colour: RED, GREEN.

Fault annunciation
For fault annunciation signals the colour for the signal conditions OFF and ON can be defined as follows:
LED OFF (only available for signal condition OFF) or colour: RED, GREEN.
The LED colour for “flashing-on” is automatically set to the colour of the signal condition ON.

Please note that for the states OFF and ON of one channel different colours need to be defined.

6.3 Main Menu Configuration

The main menu is structured into 7 submenus.

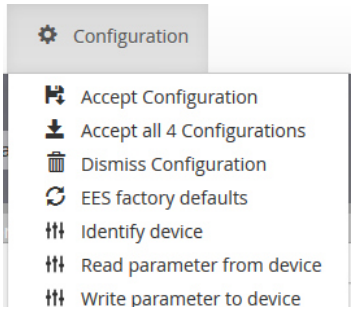


Fig. 6.22: Opened main menu „Configuration“

- **Accept Configuration**
  - Storage and adoption of the changed parameters for the currently selected device locally in the Browser
- **Accept all 4 Configurations**
  - With this button the changed parameters of all devices (Master device and optionally edified slave devices 1…3) stored and adopted locally in the Browser
- **Dismiss Configuration**
  - Dismissal of al changes done in the current session (since last storage with „Accept Configuration“)
- **EES factory defaults**
  - Restoring of the default settings for all parameters
- **Identify device**
  - Reading / Identification of the device type from the connected annunciator
- **Read parameter from device**
  - Reading of the currently implemented parameter settings from the connected annunciator
- **Write parameter to device**
  - Sending of the parameterisation from the Browser to the connected annunciator

7 Parameterisation by Excel-file

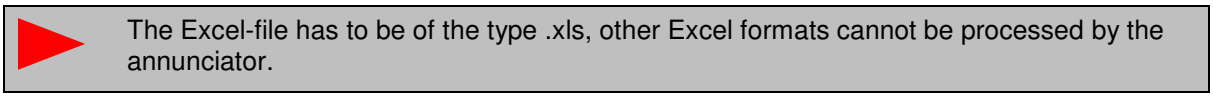
In many applications, a part of the required information for parameterisation is already available in Excel-files (e.g. data point lists). In this case it is useful to transfer this information to a template and import it into the annunciator. EES provides a template that can be filled in and processed with common procedures. With the Excel file the parameters for the alarm channels, repeat relays and IEC objects can be imported into the BSM.
All other parameters can then separately be adjusted on the Web-interface.

The given structure of the Excel file must not be changed. This applies especially for the designations in the first two rows. For a better overview, columns which are not required can be deleted from the table. Empty columns will not be processed during the import.

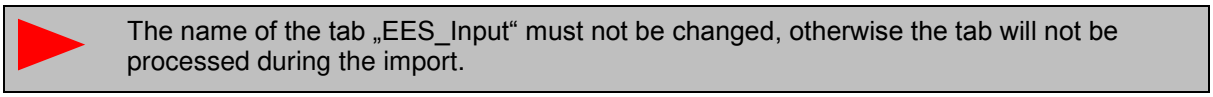
The file consists of three different tabs which allow for parameterisation of the following features:

EES_Input - Alarm channels and IEC objects *(IEC-objects for BSM only available in Slave-Mode)*
EES_Relay - Repeat relays
EES_Collective - Logic disjunctions for 16 „collective alarms“ *(Function not available for BSM-P)*

If the Excel-file contains parameters for additional slave-devices (within a cascaded annunciator system), these can only be imported if the respective annunciators have been edified in the parameterisation of the master annunciator before.



7.1 Alarm channels and IEC objects



Further information on the parameters can be found in the section → 6.2.4.1 Submenu Reporting channel.

7.1.1 Alarms

Index (idx)
The index is a consecutive number which ensures that the original sequence is reproducible when sorting the table according to certain contents.

Device number and input
The column **device number** (0…3) indicates the device that is addressed (master annunciator (0) or one of the up to three slaves (1…3)).
The column **input** addresses the alarm channel on the respective device.
The values entered in these columns have to be consistent.

Signal name 1 and 2
The content of these two fields is used for the parameter „Signal name“ of the reporting channels in the parameterisation interface. To gain a 3-lined labelling , a third line can be generated in the field „signal name 2“ by inserting a „\“ as separation between lines 2 and 3.

Operation / Normally closed
The respective function (operation indication or processing of the input in normally closed principle) can be activated with „x“ or „X“. If the field is empty, the respective function is not activated.

Delay times / Defluttering

„debounce time“	0 – 1000 ms
„response delay“	delay time from 0 ms .. 32400 s (9 h), up to 30 s in pattern of 1 ms, any longer times in pattern of 1 s. Format: mmm:ss.xxx (xxx indicates the value of the milliseconds). If no delimiters are used, the entered value will be interpreted in seconds.
„deflutter number“	0 – 255
„deflutter time“	0 – 65535 ms

These fields must not be empty.

Selective functions
For additional parameters, which can be activated or deactivated, the respective function can be activated by entering “x” or “X” in the corresponding column:

Alarm edges	- „rising“, „falling“ (multiple assignment possible)
Collective reports	- „collective report1 – collective report3“ (multiple assignment possible)
Horn triggering:	- „not active“, „not locked“, „locked“ (only one assignment possible)
Signal source :	- „input physical“, „interface“, “display“, „logic“ (only one assignment possible)

For empty fields the respective function is not activated.

7.1.2 IEC-objects of the reporting channels

> Settings that affect the IEC functionality will be ignored upon direct Excel-import to an annunciator of the type BSM-P.

For each alarm channel and IEC type an IEC object is generated. All objects are formed identically and have the same parameters.

Discrete object parameters
„ASDU“ - integer value 0 – 65535 or structured xx-xx (e.g. 11-22).
„IOA“ - integer value 0 – 16777215 or structured xx-xx-xx (e.g. 11-22-33).
„IEC-Typ“ - integer value indicating the respective IEC object type according to standard:

1	single report without timestamp
2	single report with short timestamp
3	double report without timestamp
4	double report with short timestamp
5	step position without timestamp
6	step position with short timestamp
7	32 bit report without timestamp
8	32 bit report with short timestamp
30	single report with long timestamp
31	double report with long timestamp
32	step position with long timestamp
33	32 bit report with long timestamp
45	single command without timestamp
46	double command without timestamp
47	step command without timestamp
58	single command with long timestamp
59	double command with long timestamp
60	step command with long timestamp

For empty fields the value will be set to 0 (no type).

Object parameters selective functions
The respective function can be activated by entering “x” or “X” in the corresponding column.

„Link1 –Link4“ - defines on which link the respective object will be forwarded
„blocked“ - the respective object is blocked, no forwarding on the IEC interface
„double“ - the respective object will be addressed as double command

For empty fields the respective function is not activated.

Object types
Two object groups are available for communication as IEC server (station) and IEC client (Master).

Object types server communication:

Input (undelayed)	- physical activation of the signal input
Delayed Input	- signal input after expiration of the response delay
Unacknowledged Alarm	- alarm at issue/receded (stored, but not acknowledged)
Stored Alarm	- alarm stored and at issue (output-parallel)
Status	- status of the alarm (Status 1 .. 4)
Status set	- status of the alarm is set (Status 1 .. 4)
Input set	- input is set

For empty fields the value will be set to 0.
Object types client communication:
The available information objects of the IEC client are identical to the information objects of the IEC server.

7.2 Repeat relays and IEC objects

The name of the tab „EES_Relay“ must not be changed, otherwise the tab will not be processed during the import.

7.2.1 Relays

Index (idx)
The index is a consecutive number which ensures that the original sequence is reproducible when sorting the table according to certain contents.

Device number and relay
The column **device number** (0…3) indicates the device that is addressed (master annunciator (0) or one of the up to three slaves (1…3)).
The column **relay** addresses the respective repeat relay on the respective device.
The values entered in these columns have to be consistent.

Input
Input indicates the signal input which triggers the relay. The inputs 1…24 can be assigned to a repeat relay. Additionally, the triggering of an external horn (“h”, “H”) or the output of the collective reports 1 – 3 (“s1…s3”, “S1…S3”) can be assigned to a repeat relay. Triggering input and repeat relay have to be on the same device.
These fields must not be empty.

Pulse length
The pulse length is an integer value between 10 and 10000 in ms.
These fields must not be empty.

Selective functions
In the columns “active”, “inverted”, “output parallel” and “IEC-interface”, the respective function can be activated by entering “x” or “X”.
For empty fields the respective function is not activated.

7.2.2 IEC-objects of the repeat relays

> Settings that affect the IEC functionality will be ignored upon direct Excel-import to an annunciator of the type BSM-P.

For each repeat relay and IEC type an IEC object is generated. All objects are formed identically and have the same parameters.

Discrete object parameters
„ASDU“ - integer value 0 – 65535 or structured xx-xx (e.g. 11-22).
„IOA“ - integer value 0 – 16777215 or structured xx-xx-xx (e.g. 11-22-33).
„IEC-Typ“ - integer value indicating the respective IEC object type according to standard:

1	single report without timestamp
2	single report with short timestamp
3	double report without timestamp
4	double report with short timestamp
5	step position without timestamp
6	step position with short timestamp
7	32 bit report without timestamp
8	32 bit report with short timestamp
30	single report with long timestamp
31	double report with long timestamp
32	step position with long timestamp
33	32 bit report with long timestamp
45	single command without timestamp
46	double command without timestamp
47	step command without timestamp
58	single command with long timestamp
59	double command with long timestamp
60	step command with long timestamp

For empty fields the value will be set to 0 (no type).

Object parameters selective functions
The respective function can be activated by entering “x” or “X” in the corresponding column.

„Link1 –Link4“ - defines on which link the respective object will be forwarded
„blocked“ - the respective object is blocked, no forwarding on the IEC interface
„double“ - the respective object will be addressed as double command

For empty fields the respective function is not activated.

Object types
Two object groups are available for communication as IEC server (station) and IEC client (Master).

Object types server communication:
relay - read relay status
relay set - set relay status

Object types client communication:
The available information objects of the IEC client are identical to the information objects of the IEC server.