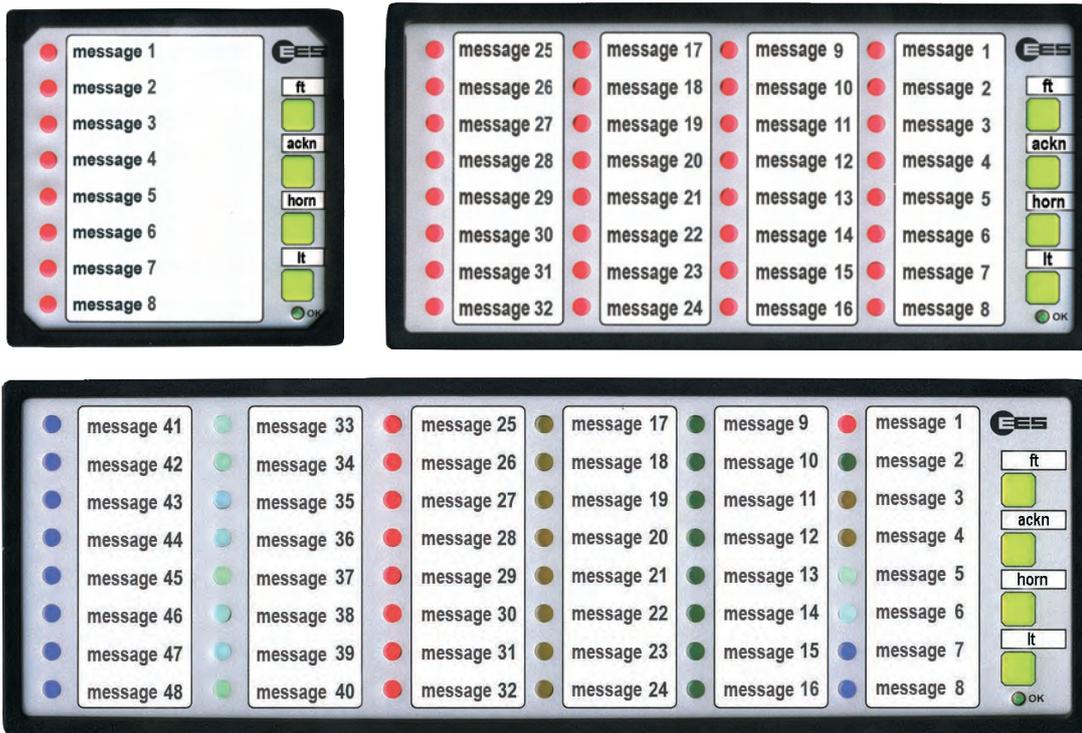




Basic panel-mounted fault annunciator



→ BSM Basic panel-mounted fault annunciator

- › Low depth housing for panel mounting
- › Versions with 8, 16, 32 or 48 inputs
- › Sealed front panel, protection class IP 54
- › Integrated buttons, function inputs and relay outputs
- › Self-monitoring
- › Optional DIN-rail relay modules for PCS-contacts
- › All common reporting procedures can be realised
- › Optional parameterisation via PC
- › Signal and operating voltage ranges 12 V... 250 V AC/DC
- › Very bright LED with large reading angle and a wide range of colours
- › Plug-in screw terminals
- › Pockets for individual LED and button labels

→ Datasheet

→ General system description

The basic fault annunciator (BSM) for panel mounting is available in 4 variants with 8, 16, 32 or 48 reporting inputs. The sealed front panel features 4 buttons and LED displays. The fault annunciator is configured in groups of 8 messages per each. In the basic variant the essential functions can be set via DIP switch. Customer-specific fault reporting procedures can be pre-set in the factory. With the software parameterisation variant many adjustments e.g. for alarm sequences, collective report assignments and horn triggering etc. can be done per PC-program.

→ Configuration of the BSM fault annunciator

Depending on size, the fault annunciator includes the following functional components:

Name	Equipment	Dimensions H x W x D [mm]
BSM 08 	8 reporting inputs 4 buttons 2 function inputs 4 relay outputs	96 x 96 x 100
BSM 16 	16 reporting inputs 4 buttons 2 function inputs 4 relay outputs	96 x 96 x 100
BSM 32 	32 reporting inputs 4 buttons 2 function inputs 4 relay outputs	96 x 192 x 100
BSM 48 	48 reporting inputs 4 buttons 2 function inputs 4 relay outputs	96 x 287 x 100

 For provision of PCS contacts, the devices can optionally be equipped with an interface for connecting relay modules.

Reporting inputs	The fault annunciator features reporting inputs that can be configured for different voltages and can be pre-processed. All 8 inputs of a reporting group can be configured together via DIP switches for normally open or normally closed contacts by the standard variant.
Reporting groups	8 reporting inputs are consolidated to form a reporting group featuring 8 LED displays and a common label pocket.



LED colours	red, green, yellow, white or blue (mixed configuration available on request)
Buttons	The function of the four buttons that are integrated in the front panel depends on the implemented reporting procedure (e.g. message acknowledgement, reset, lamp test etc.)
Function inputs	The two function inputs of the fault annunciator are used according to the selected reporting procedure, e.g. external acknowledgement.
Relay outputs	4 change-over contacts 1 x live contact / malfunction 3 x message-specific function (e.g. collective report 1, collective report 2, horn etc.)
Collective report	The function of the collective report depends on the reporting procedure and is specified in the type data sheet.
DIP switches	The following settings can be selected by DIP switches in the basic variant <ul style="list-style-type: none"> • Function of collective report (standard / inverted) • Horn control (subsequent alarm signal will trigger horn again / not again) • Reporting procedure 1 or 2 • NO or NC principle in common for all 8 inputs of a reporting group
Expansion modules	A maximum of 6 external expansion modules installed on a DIN rail can be connected to the optional interface CAN bus. Modules with 16 transistor outputs as well as 16 relay outputs are available. These modules enable incoming messages to be relayed in parallel with inputs or outputs (PCS contacts). More detailed information may be found in the data sheet MSM-EM-DB-UK..
Self-monitoring	The fault annunciator features integrated self-monitoring signalling fault-free function via LED and relay contact. Possibly connected expansion modules are also monitored.
Software-parameterising	The fault annunciators can optionally be ordered in a version parameterisable with a PC program based on Windows. Transferring the parameters to PC is done via connection between RS-232 COM-port and service- and parameterisation interface of the BSM. Following parameters can be adjusted: <ul style="list-style-type: none"> • Reporting sequence with single- or double frequency flashing light • First-up value or new value sequence • Horn priority acknowledgement • Collective report static or dynamic • Buttons and function inputs can be assigned on available relay outputs (e.g. acknowledgement or lamp test) • Inputs configurable for NO- or NC contacts per each • Response delay adjustable per input between 5 ms und 60 s • Free assignment of inputs to reporting sequences and collective reports • Automatic horn acknowledgement (adjustable horn duration time 1 ... 250 s)

→ Message processing

The function specification of a fault annunciator includes message processing, which is structured in three groups:

- Alarm sequence
- Formation of collective reports
- Horn control

→ Reporting sequences

One of the two alarm sequences deposit in the BSM can be selected by DIP switch.

- new-value message with single flashing light
- first-value message with single flashing light

On request also other common reporting sequences can be deposited. Which sequence is available in this special fault annunciator is dependend on the respective variant and can be taken from the device configuration document (Docuset MSM-BSM-GK).

With the software parameterisable variant the desired reporting sequences can be build up from the following components.

- first-value or new-value sequence
- 1- or 2-frequency flashlight, steady-steady light or operation fault indication



Furthermore information about the integrated alarm sequences can be found in the separate documentation "Alarm sequences of the EES-fault annunciators" Document set SM-MA-ZI-DE



→ Collective report

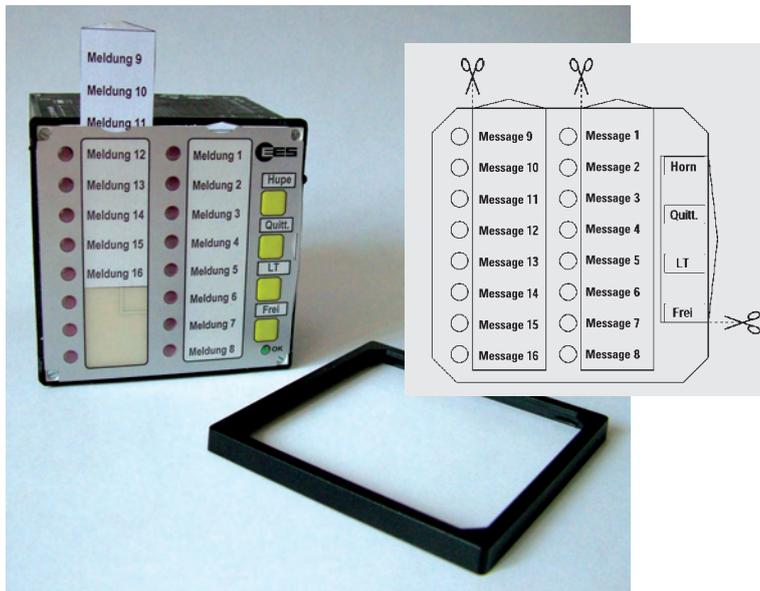
The different fault reporting procedures use different options for forming collective reports. In principle, the following variants may be used:

Description	Procedure
static / parallel to input	The collective report is set with the first incoming message and resets with the last receding message.
static / parallel to input / acknowledgeable	The collective report is set with the first incoming message and resets with the last receding message or when acknowledged .
static / parallel to output / acknowledgeable	The collective report is set with the first incoming message and reset independently from the state of the messages by the acknowledgement.
static / parallel to output	The collective report is set with the first incoming message. Once all messages have been gone and acknowledged the collective report is cancelled.
static / dynamic / parallel to input	The collective report is set with the first incoming message. For each further message, the collective report is cancelled for approx. 0.8 s and then set again. Once all messages have been receded, the collective report is cancelled permanently.
static / dynamic / parallel to output	The collective report is set with the first incoming message. For each further message, the collective report is cancelled for approx. 0.8 s and then set again. Once all messages have been receded and acknowledged, the collective report is deleted permanently.
dynamic	The collective report is activated for approx. 0.8 s with each incoming message.

→ Horn triggering

Function	Name	Meaning
Horn triggering (can be set via DIP switch)	retriggerable	The horn is retriggered by new incoming messages, even if messages are already present.
	not retriggerable	The horn is retriggered for new incoming messages only if no messages are already present.
Horn acknowledgement	manual (continuous tone)	The horn is acknowledged manually via a button or function input.
	automatic (pulse tone)	The horn is acknowledged automatically according to the set time.
	manual with acknowledgement	The horn is acknowledged together with the lamp acknowledgement via the acknowledgement button. There is no special horn acknowledgement.
Horn locking	none	The horn can always be acknowledged.
	message acknowledgement	The horn can only be acknowledged once the message has been acknowledged.

→ Labelling



The labelling of the BSM is done by designation strips, which are inserted under the protective sheet after releasing the front frame.

Designation templates are available in Word and pdf format. With the software parameterising variant the strips can be created directly from the parameterisation program.

→ Order identification

The main characteristics of the device are encoded in the order identification number as follows.

Syntax: BSM XX-BM-SFX-AA

BSM XX	Device type (e.g. BSM 08 or BSM 16)
B	Supply voltage (the meaning of the keys can be found in the technical data section)
M	Signal voltage
S	Interfaces: X – no interfaces C – CAN bus for relay modules P – CAN bus and service / parameterising interface
F	LED colour (applies to the whole module) R – red G – green Y – yellow W – white B – blue M – mixed configuration (one colour for one reporting group) S – mixed configuration (individual per channel)
X	Dummy character
AA	Configuration variant (00 ... ZZ)

On our website www.alarmindicator.com the BSM-configurator - a tool for definite identification of a fault annunciator with individual LED-colours - may be used.



For more detailed information about the expansion modules (relay and transistor outputs) please see our separate datasheet "MSM-EM-DB-UK".



→ Standard variants

The BSM is deliverable in many variants. In the standard variant the fault annunciator works stand-alone without a CAN-Bus interface. Expansion modules can not be connected to these fault annunciators. Parameterization is done by DIP-switches. Due to space limitations only some standard designs are represented in the following. All available configurations are listed in the separate document „Equipment configurations of the BSM“. Please contact us if you need a fault annunciator with divergent characteristics or use our BSM-configurator on our website www.alarindicator.com. We would be pleased to advise you.

BSM 08-.-XRX-00

Function	Factory setting
Reporting sequence 1	New value with single flashing light
Reporting sequence 2	Initial value with single flashing light and single acknowledgement
Reporting inputs	Response delay 100 ms
LED colour	Red
Collective report	Static / parallel to output
Horn acknowledgement	Retriggerable, manual acknowledgement
Horn locking	None
Function input 1	Horn acknowledgement
Function input 2	Acknowledgement
Button 1	Horn acknowledgement
Button 2	Acknowledgement
Button 3	Lamp test
Button 4	Not used
Relay 1	Collective report
Relay 2	Not used
Relay 3	Horn
Relay 4	Live contact

DIP-switch	Meaning	Dip-switch setting	
		OFF	ON
S10/4	Renewed horn triggering on follow-up alarm	yes	no
S10/3	Reporting Sequence	1	2
S10/2	Function Collective report	Normal	inverted
S10/1	NO or NC design of the input Group (X10)	NO	NC

BASIC PANEL-MOUNT FAULT ANNUNCIATOR

BSM 16...-XRX-00

Function	Factory setting
Reporting sequence 1 Reporting sequence 2	New value with single flashing light and single acknowledgement First value with single flashing light and single acknowledgement
Reporting inputs LED colour	Response delay 100 ms Red
Collective report Horn acknowledgement Horn locking	Static / parallel to output Manual None
Function input 1 Function input 2	Horn acknowledgement Acknowledgement
Button 1 Button 2 Button 3 Button 4	Horn acknowledgement Acknowledgement Lamp test Not used
Relay 1 Relay 2 Relay 3 Relay 4	Collective report 1 (input 1 ... 8) Collective report 2 (input 9 ... 16) Horn Live contact

DIPswitch	Meaning	Dip-switch setting	
		OFF	ON
S10/4	Not assigned		
S10/3	Not assigned		
S10/2	Function Collective report 1	normal	inverted
S10/1	Normally open / normally closed function Of input group 1 (X 10)	NO	NC
S12/4	Horn retriggerable by subsequent alarm	yes	no
S12/3	Alarm sequence	1	2
S12/2	Function Collective report 2	normal	inverted
S12/1	Normally open / normally closed function Of input group 2 (X 12)	NO	NC



BSM 32--XRX-00

Function	Factory setting
Reporting sequence 1	New value with single flashing light and single acknowledgement
Reporting sequence 2	First value with single flashing light and single acknowledgement
Reporting inputs	Response delay 100 ms
LED colour	Red
Collective report	Static / parallel to output
Horn acknowledgement	Retriggerable / manual acknowledgement
Horn locking	None
Function input 1	Horn acknowledgement
Function input 2	Acknowledgement
Button 1	Horn acknowledgement
Button 2	Acknowledgement
Button 3	Lamp test
Button 4	Not used
Relay 1	Collective report 1 (input 1 ... 16)
Relay 2	Collective report 2 (input 17 ... 32)
Relay 3	Horn
Relay 4	Live contact

DIPswitch	Meaning	Dip-switch setting	
		OFF	ON
S10/4	Not assigned		
S10/3	Not assigned		
S10/2	Function Collective report 1	normal	inverted
S10/1	Normally open / normally closed function of input group 1 (X 10)	NO	NC
S12/4	Horn retriggerable by subsequent alarm	yes	no
S12/3	Alarm sequence	1	2
S12/2	Function Collective report 2	normal	inverted
S12/1	Normally open / normally closed function of input group 2 (X 12)	NO	NC
S14/4	Not assigned		
S14/3	Not assigned		
S14/2	Not assigned		
S14/1	Normally open / normally closed function of input group 3 (X 14)	NO	NC
S16/4	Not assigned		
S16/3	Not assigned		
S16/2	Not assigned		
S16/1	Normally open / normally closed function of input group 4 (X 16)	NO	NC

BASIC PANEL-MOUNT FAULT ANNUNCIATOR

BSM 48...-XRX-00

Function	Factory setting
Reporting sequence 1 Reporting sequence 2	New value with single flashing light and single acknowledgement First value with single flashing light and single acknowledgement
Reporting inputs LED colour	Response delay 100 ms Red
Collective report Horn acknowledgement Horn locking	Static / parallel to output Retriggerable / manual acknowledgement None
Function input 1 Function input 2	Horn acknowledgement Acknowledgement
Button 1 Button 2 Button 3 Button 4	Horn acknowledgement Acknowledgement Lamp test Not used
Relay 1 Relay 2 Relay 3 Relay 4	Collective report 1 (input 1 ... 24) Collective report 2 (input 25 ... 48) Horn Live contact

DIPswitch	Meaning	Dip-switch setting	
		OFF	ON
S10/4	Not assigned		
S10/3	Not assigned		
S10/2	Function Collective report 1	normal	inverted
S10/1	Normally open / normally closed function of input group 1 (X 10)	NO	NC
S12/4	Horn retriggerable by subsequent alarm	yes	no
S12/3	Alarm sequence	1	2
S12/2	Function Collective report 2	normal	inverted
S12/1	Normally open / normally closed function of input group 2 (X 12)	NO	NC
S14/4	Not assigned		
S14/3	Not assigned		
S14/2	Not assigned		
S14/1	Normally open / normally closed function of input group 3 (X 14)	NO	NC
S16/4	Not assigned		
S16/3	Not assigned		
S16/2	Not assigned		
S16/1	Normally open / normally closed function of input group 4 (X 16)	NO	NC
S18/4	Not assigned		
S18/3	Not assigned		
S18/2	Not assigned		
S18/1	Normally open / normally closed function of input group 5 (X 14)	NO	NC
S20/4	Not assigned		
S20/3	Not assigned		
S20/2	Not assigned		
S20/1	Normally open / normally closed function of input group 6 (X 16)	NO	NC

 Please fill in the dummy characters according to required supply and alarm voltage.



→ Device variants with CAN-Bus connection

For connecting expansion modules, BSM-variants can also be delivered with CAN-Bus connection for expansion modules (Transistor or relay outputs). In this case the order identification number reads as follows:

BSM 08-...-CRX-00
BSM 16-...-CRX-00
BSM 32-...-CRX-00
BSM 48-...-CRX-00



Please fill in the dummy characters according to required supply and alarm voltage.

The factory settings are also valid for these devices listed above. Additional information about the available expansion modules can be taken from the datasheet "MSM-EM-DB-UK".

→ Software parameterisable device variants

The devices listed above are also available in a software parameterisable variant. In this case the order identification number reads as follows:

BSM 08-...-PRX-00
BSM 16-...-PRX-00
BSM 32-...-PRX-00
BSM 48-...-PRX-00



Please fill in the dummy characters according to required supply and alarm voltage.

The factory settings are also valid for these devices listed above. The fault annunciators can be additionally to the DIP switches be parameterised by a PC-program running on Windows. The parameterisation program is included in the scope of supply of the fault annunciator. For transmitting parameters from the COM-interface to the service and parameterisation interface of the BSM a parameterisation cable listed in the next section "Accessories" is used.

The following parameters can be modified:

- Reporting sequence with single- or double frequency flashing light
- First-up value or new value sequence
- Horn priority acknowledgement
- Collective report static or dynamic
- Buttons and function inputs can be assigned on available relay outputs (e.g. acknowledgement or lamp test)
- Inputs configurable for NO- or NC contacts per each
- Response delay adjustable per input between 5 ms und 60 s
- Free assignment of the inputs to the reporting sequences and collective reports
- Automatic horn acknowledgement (adjustable horn duration time 1 ... 250 s)

The software parameterisable BSM can also be delivered in different custom-built variants. All available configurations are listed in the separate document "Device configurations of the BSM" Docuset "MSM-BSM-GK". We would be pleased to advise you with a fault annunciator with divergent features or you may use our BSM-configurator on our website www.alarmindicator.com.

→ Accessories

Article-No:	Type:	Description:
58MSMRM16000	MSM-RM-16-0-00	Relay module 12 V AC/DC
58MSMRM16100	MSM-RM-16-1-00	Relay module 24 V AC/DC
58MSMRM16200	MSM-RM-16-2-00	Relay module 48 V AC/DC, 60 V DC
58MSMRM16500	MSM-RM-16-5-00	Relay module 110 - 220 V AC/DC
58MSMTM16100	MSM-TM-16-1-00	Transistor module 24 V DC
58ZPK2P/PC	Parameterisation cable	Length 1,5 m

→ Technical data

Supply voltage

Key	Rated voltage	Voltage range	Power consumption*			
			BSM 08	BSM 16	BSM 32	BSM 48
0	12 V AC/DC	10 ... 19 V DC 8 ... 13 V AC	< 2.5 W	< 3 W	< 4.5 W	< 5.5 W
1	24 V AC/DC	19 ... 37 V DC 14 ... 26 V AC	< 2.5 W	< 3 W	< 4.5 W	< 5.5 W
2	48 V AC/DC 60 V DC	37 ... 73 V DC 26 ... 51 V AC	< 3 W	< 3.5 W	< 5 W	< 6.5 W
5	110 V AC/DC 220 V AC/DC	100 ... 370 V DC 85 ... 264 V AC	< 3.5 W	< 4 W	< 5.5 W	< 6.5 W

* versions with CAN bus connection + 0.5 W

Signal voltage

Key	Rated voltage	Voltage range	Input resistance
0	12 V AC/DC	7 ... 35 V AC/DC	~ 5 kΩ
1	24 V AC/DC	16 ... 50 V AC/DC	~ 10 kΩ
3	48 V AC/DC 60 V AC/DC	28 ... 75 V AC/DC	~ 22 kΩ
4	110 V AC/DC	55 ... 130 V AC/DC	~ 70 kΩ
H	125 V AC/DC	80 ... 170 V AC/DC	~ 100 kΩ
5	220 V AC/DC	150 ... 260 V AC/DC	~ 200 kΩ

If not otherwise noted, the given information for alternating voltage are referring to a sinusoidal alternating voltage with a frequency of 50/60 Hz.



→ General data

Buffer time in the event of failure / short circuit	100 ms
Response delay	
Standard variant	preset in factory 5 ms ... 60 s; standard 100 ms
Software parameterisable variant	adjustable (5 ms ... 60 s)
Flashing frequency	
Single frequency	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

Mechanical data

Type	Front frame H x W x D [mm]	Front panel cut-out [mm]	Depth with front frame and terminals [mm]	Weight
BSM 08	96 x 96 x 100	91 x 91 ^{+0,5}	100	approx. 0,40 kg
BSM 16	96 x 96 x 100	91 x 91 ^{+0,5}	100	approx. 0,45 kg
BSM 32	96 x 192 x 100	91 x 185 ^{+0,5}	100	approx. 0,70 kg
BSM 48	96 x 287 x 100	91 x 282 ^{+0,5}	100	approx. 1,00 kg

Mounting panel mounting

Required installation depth 120 mm

Minimal horizontal gap

between 2 devices 15 mm

Connection terminals pluggable

Wire cross section rigid or flexible

Without wire sleeves 0,2 ... 2,5 mm²

With wire sleeves 0,25 ... 2,5 mm²

Ambient environment

Operating temperature -20°C ... +60°C without condensation

Storage temperature -20°C ... +70°C without condensation

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. >4days]

Dielectric strength

Voltage dielectric strength

Digital inputs against

CAN bus interface and RS232 4 kV AC / 50 Hz 1 min

relay contacts against

CAN bus interface and RS232 4 kV AC / 50 Hz 1 min

Supply (110 / 230V AC/DC) against

CAN bus interface and RS232 3.0 kV AC / 50 Hz 1 min

Supply (12 / 24 / 48 AC/DC) against

CAN bus interface and RS232 1.0 kV AC / 50 Hz 1 min

relay contacts against each other

500 V / 50 Hz 1 min

Impulse withstand strength

Digital inputs against

CAN bus interface and RS232 2.5 kV; 1.2 / 50 µs; 0.5 J; according to IEC60255-5:2000

relay contacts against

CAN bus interface and RS232 2.5 kV; 1.2 / 50 µs; 0.5 J; according to IEC60255-5:2000

→ General data

Dielectric strength

Supply against

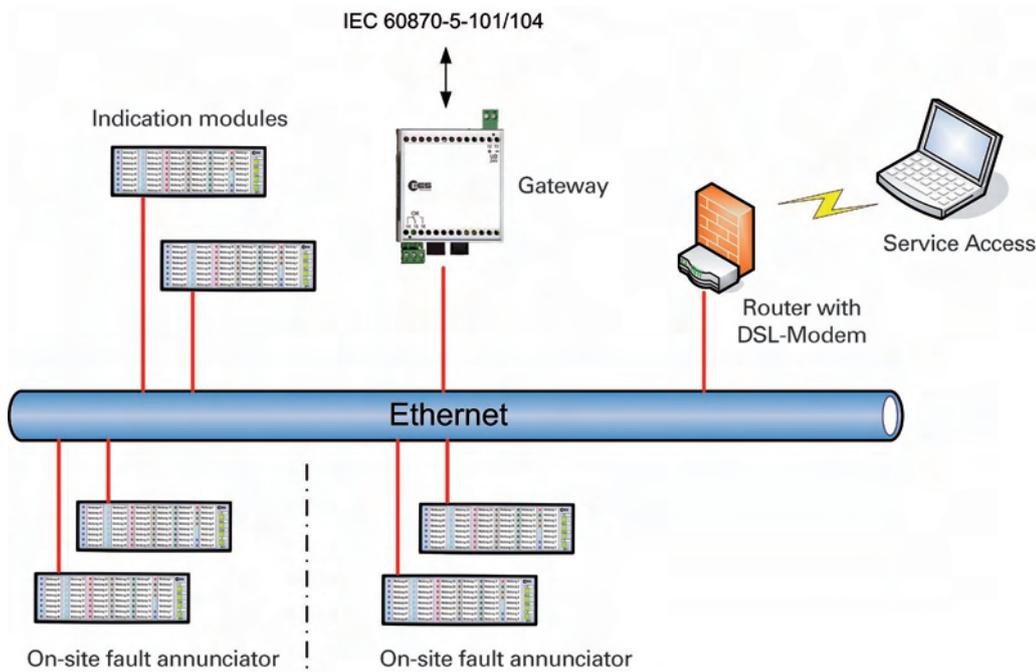
CAN-BUS interface and RS232	2.5 kV; 1.2 / 50 µs; 0.5 J; according to IEC60255-5:2000
relay contacts against each other	500 V; 1.2 / 50 µs; 0.5 J; according to IEC60255-5:2000

Electromagnetic compatibility

Noise immunity acc. to	DIN EN 61000-4-2:2001-12
	DIN EN 61000-4-3:2008-06
	DIN EN 61000-4-4:2005-07
	DIN EN 61000-4-5:2007-06
	DIN EN 61000-4-6:2008-04
	DIN EN 61000-4-12:2007-08
Noise irradiation acc. to	DIN EN 61000-3-3:2006-06
	DIN EN 55011:2007-11

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

→ Are you looking for more complex fault monitoring structures?



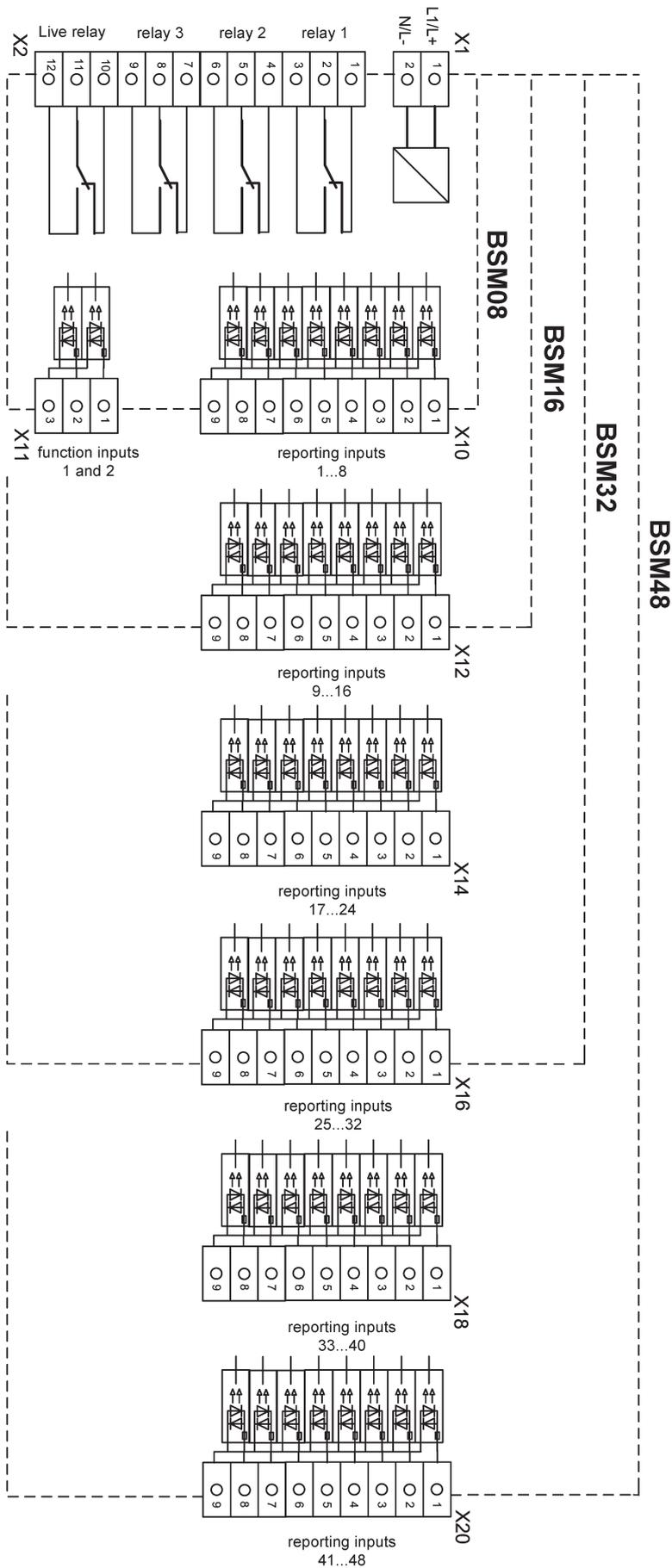
Networking of approx. 50 fault annunciators and provision of a IEC 60870-5-101/-104 interface

- Akquisition, processing and display in at site fault annunciators
- Forming of collective reports and relaying of parameterisable selective messages or collective reports per IEC 60870-5-101/-104
- Plain text message archive for approx. 3000 events
- Central parameterising by web-browser over network or DSL
- Service access over gateway by network or DSL
- Connection of additional indication modules with message input by network

Further information can be found in our separate datasheet USM.



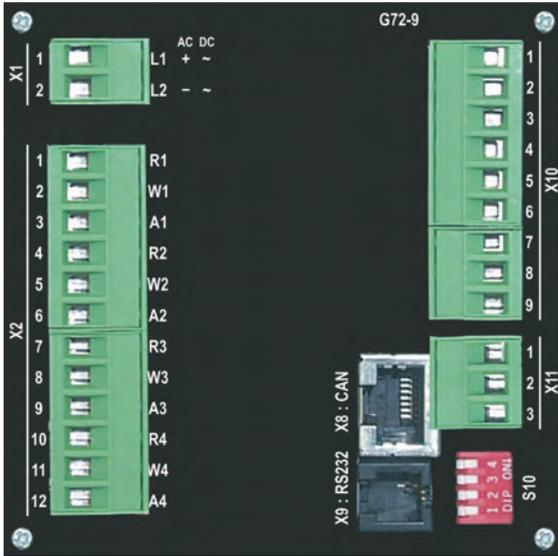
→ Terminal assignment



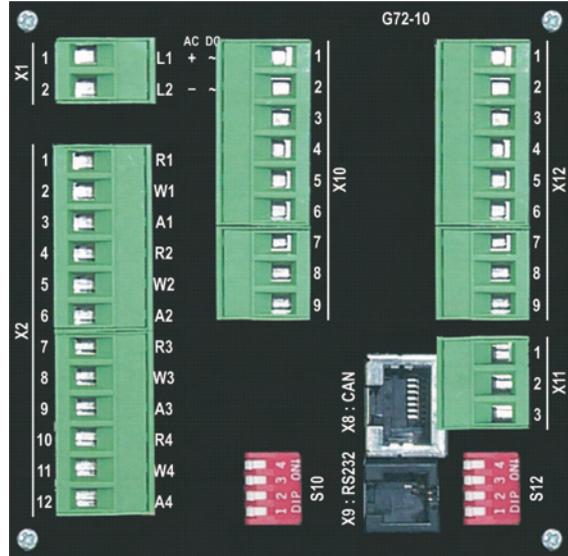
Subject to changes without prior notice.

BASIC PANEL-MOUNT FAULT ANNUNCIATOR

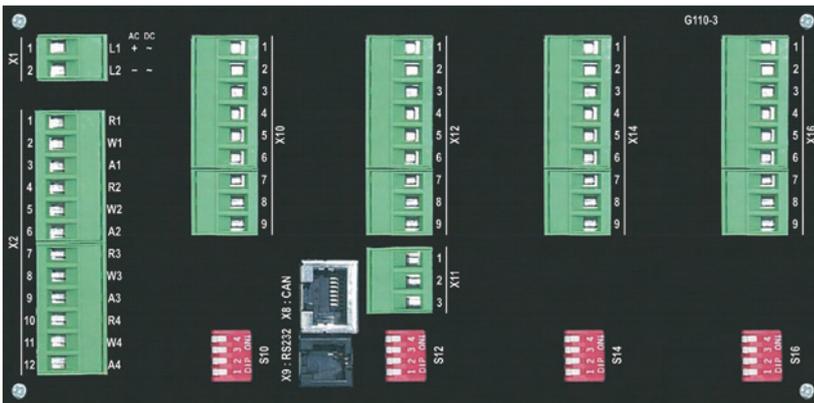
→ Terminal assignments



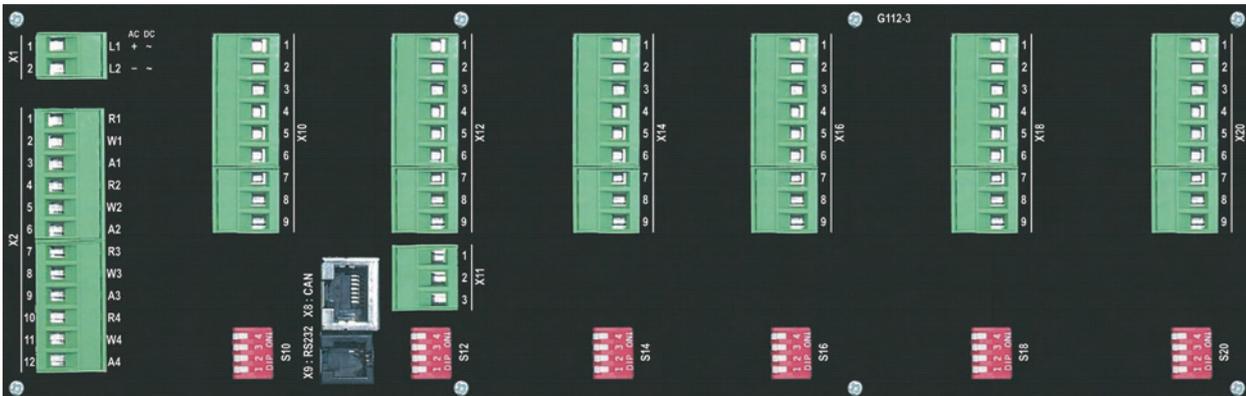
BSM 08



BSM 16



BSM 32



BSM 48

→ Contact