

SIEMENS

Cerberus® CS1140 Fire detection system

Commissioning 'Extinguishing'

EP5

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1 Procedure

Step	Detailed information
<p>1. Preparation of electronic modules</p> <ul style="list-style-type: none"> ⇨ Set switches and resistors on E3G080 ⇨ Set switches on B3Q440 	<p>Table 1 Table 2</p>
<p>2. Initial switch-on</p> <ul style="list-style-type: none"> ⇨ First set switch 'S1' on the E3G080 to ON <p>Note: 'S1' ON = hardware and software blocking of all E3G080 outputs</p>	
<p>3. Measure voltage at E3G080</p> <p>Check voltage of all peripheral equipment connected to the E3G080</p> <ul style="list-style-type: none"> ⇨ Ensure rest potential throughout the area 	<p>Table 3</p>
<p>4. Initialize automatic calibration function on E3G080</p> <p>This function calibrates the valve current and registers and stores which lines are connected.</p> <p>First ensure that:</p> <ul style="list-style-type: none"> – no signalling contact is in active mode – all lines are connected including the line termination – the impedance range chosen for the valve lines is correct (either areas 16 ... 160Ω or 161 ... 320Ω) <ul style="list-style-type: none"> ⇨ Press key 'S4' (Prior to this set switch 'S1' to ON) <i>5 times simultaneous flashing of LEDs H1 ... H4 = ok</i> <p>Note: Meaning of LEDs H1 ... H4 on E3G080</p>	<p>Table 4</p>
<p>5. Performance check</p> <p>First ensure that the user functions have been set correctly</p> <ul style="list-style-type: none"> ⇨ Carry out 'Normal operating condition' control functions ⇨ Carry out individual control functions <p>Note:</p> <ul style="list-style-type: none"> – Functions 'Extinguishing REVISION' and 'Extinguishing TEST' – Extent of available functions in SECTION list 	<p>Table 5 Table 6 Table 7 Table 8 Table 9</p>

Important

In some countries, with CO₂-extinguishing systems with a risk to life (CO₂-concentration >5% by vol.) a so-called 'Coincidence of the vital functions' is required (vital functions must be guaranteed).

Examples:

- an electrical and a mechanical/pneumatic delay device in AND operation
 - ⇨ *for this purpose the E3G080 has 2 different valve activating outputs*
- Compulsory pre-warning also functions in the event of a fault (e.g. caused by lightning etc.)
 - ⇨ *use pneumatic sirens*
- automatic activation of extinguishing is guaranteed even if the main central processing unit malfunctions
 - ⇨ *use optional emergency operation link E3G110*

etc.

When commissioning, ensure that the local requirements are fully complied with. If the system operator asks for a concept which deviates from the regulations, then he must bear the responsibility.

2 Preparation of hardware

Table 1: Preparation of the E3G080 'Extinguishing' control module

No.	Component	Preparation	Default ex-works
1	DIP switch 'S3' <i>Set I-Bus address</i>	Set according to system documentation	Address 0
2	DIP switch 'S2' <i>Determine emergency operation concept</i>	Set according to system documentation <i>S2-1/2 ⇨ OFF = no special function if μP E3G080 malfunctions (for details see document e1260, E3G080)</i>	Set to ON
3	Resistors R60/R61 <i>Remove if necessary</i>	Activating device 1 is between 16 ... 160 Ω ⇨ Remove R60 (71k Ω) Activating device 2 is between 16 ... 160 Ω ⇨ Remove R61 (71k Ω)	R60/61 inserted ⇨ <i>for activating device 161 ... 320Ω</i>
4	Connection level <i>Check</i>	Check that all peripheral equipment planned is connected (according to system documentation)	
5	Switch 'S1'	Set to ON so that when switching on for the first time, all outputs are blocked	Set to OFF

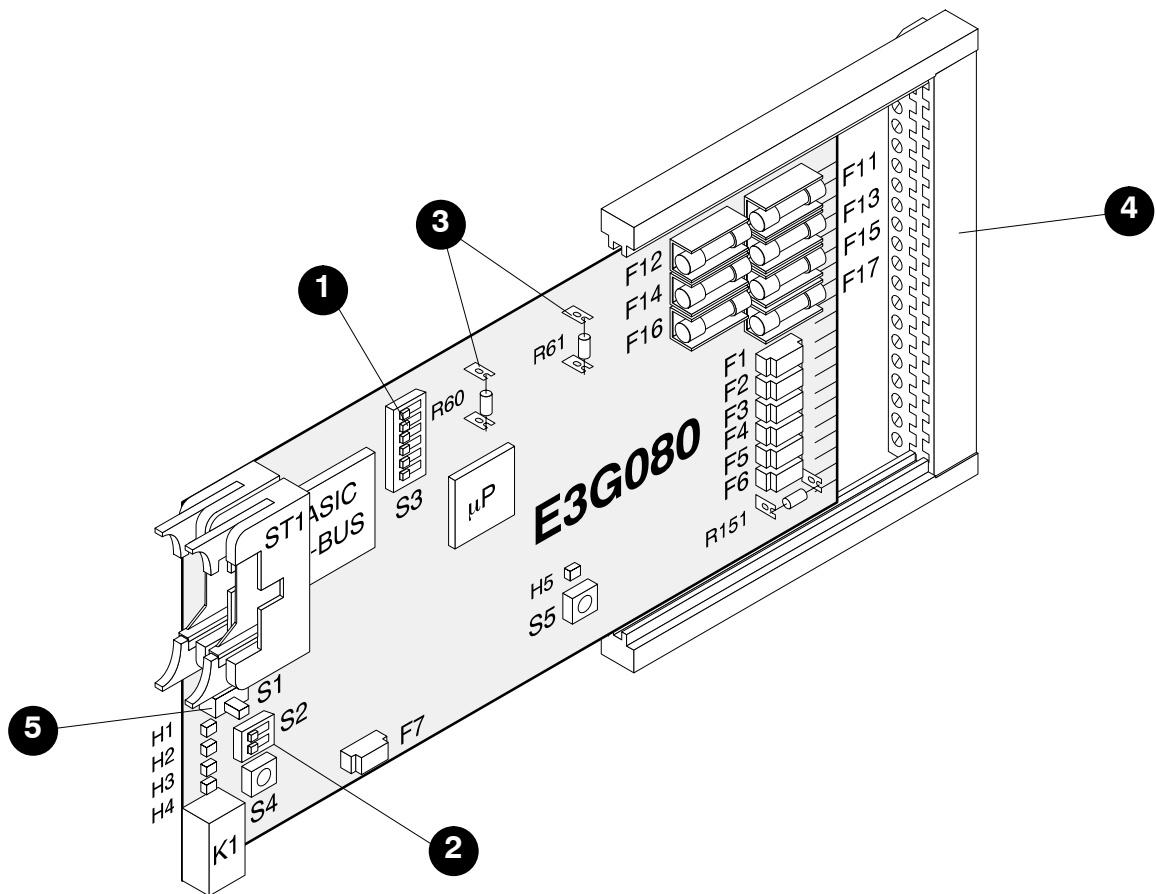
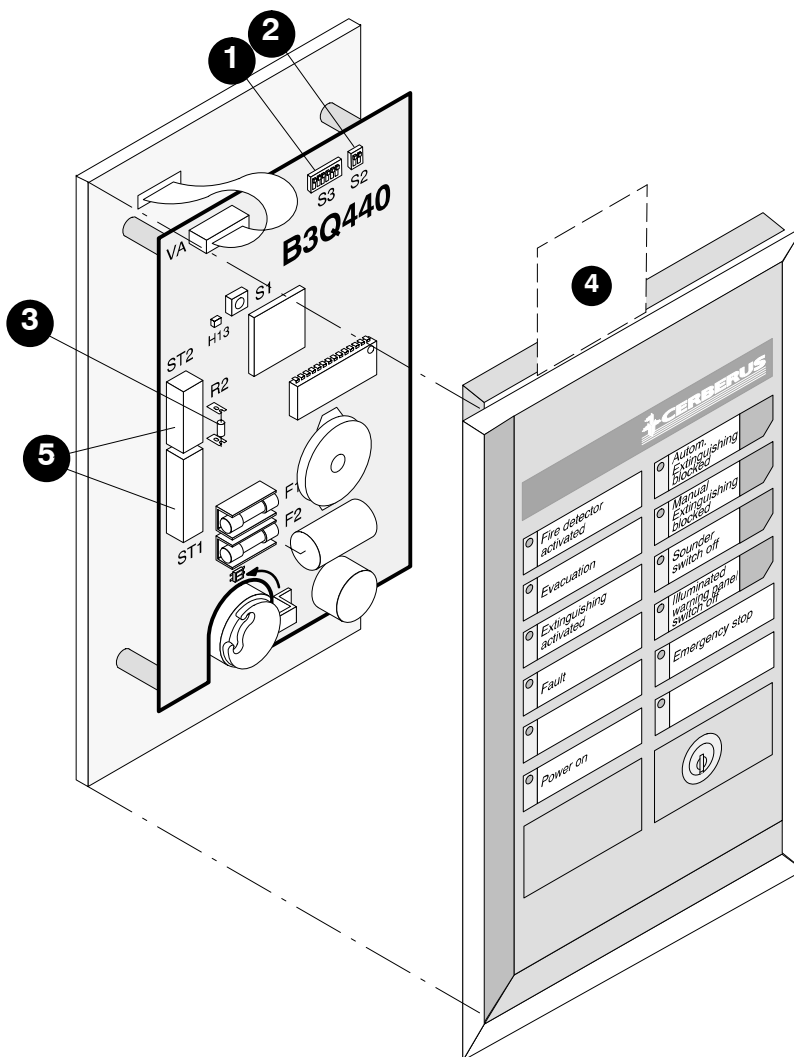


Table 2: Preparation of 'Extinguishing' control panel B3Q440

No.	Component	Preparation	Default ex-works
1	DIP switch 'S3-1/2' <i>Set equipment address</i>	Set according to system documentation	Address 0
2	DIP switch 'S2-1/2' <i>Possibly set to ON</i>	Set according to system documentation S2-1 ⇨ ON = Key click 'active' S2-2 ⇨ ON = Buzzer 'active'	Set to OFF
3	Resistor R2 <i>Possibly remove</i>	Set according to system documentation ⇨ Only insert at the last piece of equipment	Inserted
4	Designation strips	Insert corresponding language	Not inserted ⇨ Supplied with strips 'blank' + 'English'
5	Plug-in terminals 'ST1' / 'ST2'	Connect line to control unit according to system documentation	plug-in terminals supplied



3 Measured values and service indicators on E3G080

Table 3: Line voltages E3G080

Type of line	Terminals X10-..	Line voltage 'Rest'	Line voltage 'Open line'	Line voltage 'Short circuit'	Line voltage 'active'
Control lines 'Activating element 1' 'Activating element 2'	1/2 2/3	without R60/61 ⇨ 80..300mV with R60/61 ⇨ 0.3...1.6V	>880mV >1.75V	≤100mV ≤200mV	24...30V
Control lines 'Alarm horn' 'Warning lamp'	4/5 6/7	2.3V ±10%	≥3,5V	≤350mV	24...30V **
Detection lines 'Manual activation' 'Stop/Blocking key'	8/9 9/10	14.25V ±10%	≥15.4V	≤1.6V	5...7V
Detection lines 'Loss of extinguishing agent' 'Extinguishing blocked'	12/13 14/15	2.3V ±10%	≥3,5V	≤350mV	~0.5V
Detection line 'Extinguishing activated'	16/17	14...18.2V *	≥21,5V *	≤2,7V *	~7V
Control panel for B3Q440 serial interface (LON)	18/19	Voltage cannot be measured with voltmeter			

* applies to operating voltage 29.6V

** reversed polarity in 'active' state

Table 4: Status indicator on E3G080

LED	State	Active	Short circuit	Open line
H1	Activating device 1	continuously on	rapid flashing	slow flashing
H2	Activating device 2	continuously on	rapid flashing	slow flashing
H3	Alarm horn	continuously on	rapid flashing	slow flashing
H4	Illuminated warning panel	continuously on	rapid flashing	slow flashing

LEDs H1..H4 are always active

4 User function

Table 5: Notes on parameterization 'Extinguishing' via SWE11

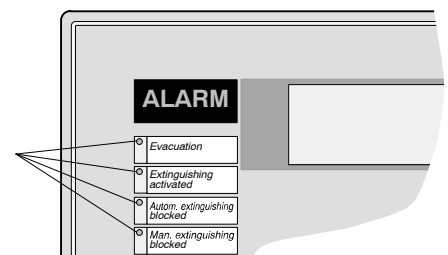
Function	Choice of variants	SWE11	
		Value	Def. ¹⁾
Outline description			
Valve on: confirmation: Line 'Extinguishing activated' 'Active' status generates ⇨	a) No message (Line unused / Message 'simulated') b) Message 'Extinguishing activated' or signal contact existent	0 1	1
Key stop/block: Function line 'Stop /Blocking key' 'Active' status generates ⇨	a) autom.+ man. activation of extinguishing blocked (= 'Stop key') b) Autom. activation of extinguishing blocked (= 'Blocking key') ²⁾	0 1	0
Activation time: Duty cycle of activating agent valve (Activating device 2)	a) Active for 0..240sec (Value 0..240 permissible) b) Active until reset (value 255 entered)	0..240 255	120
Flooding time: Flooding time (Duty cycle of activating device 1)	a) Active for 0..240sec (Value 0..240 permissible) b) Active until reset (Value 255 entered)	0..240 255	30
Evacuation time: Evacuation time (Delay to activating device 1)	a) 0..240sec (Value 0..240 permissible)	0..240	16
Stop -> evacuation time: Function 'Stop key active' generates during 'Evacuation' ⇨	a) Evacuation time is reset (New start) b) Evacuation time is not reset	0 1	0
Horn activation: Activation and running mode of alarm horn	a) activated upon 'pre-alarm' and 'evacuation' and 'actuated' b) activated upon 'evacuation' and 'actuated' c) running mode continuous d) running mode pulsating upon 'pre-alarm' ³⁾ e) running mode pulsating upon 'evacuation' and 'actuated' ³⁾ f) running mode pulsating upon 'pre-alarm' / 'evac.' / 'actuat.' ³⁾	a + c a + d a + e a + f b + c b + e	0 8 16 24 1 17
Silence: Function 'Switch off alarm horn' (Blocked during 'Flooding'+ 'Evacuat.')	a) Can be carried out via CT or extinguishing control panel b) Can only be carried out via extinguishing control panel	0 2	2
Warning panel mode: Deactivating and running mode of warning panel	a) active until RESET (no switching off via B3Q440) b) active until switched off via B3Q440 c) running mode continuous d) running mode pulsating ³⁾	a + c a + d b + c b + d	1 9 4 12
Extinguishing agent LOSS: Line 'Extinguishing agent loss' Status 'Active' generates ⇨	b) Fault AND 'Autom. + man. activation of extinguishing blocked' a) Fault	0 1	0
Stop key FAULT: Line 'Stop-/blocking key' Open line / short circuit generates ⇨	a) Fault b) Fault AND 'Autom. + man. activation of extinguishing blocked'	0 1	0
LED 'Operation': 'Power on' indicator Local extinguish. control panel (B3Q440)	a) Inactive upon 'Fault' / 'Extinguishing blocked' / 'Alarm' b) always active	0 1	1
key switch: Function 'Key switch' Local extinguish. control panel (B3Q440)	a) No influence on the 'Switch off sounder' key b) Influence on 'Switch off sounder' key	0 1	1
supply FAULT: 'Fault power supply' indicator Local extinguish. control panel (B3Q440)	a) active upon 'Power supply fault' control unit b) Spare indicator	0 1	1

- 1) Default values are laid down according to each country
- 2) Function variant 'Blocking key' may be used only with software V4.xx
- 3) Running mode 'pulsating' only with software V5.xx (EP5) onwards

Note

In order that the combined indicators for 'Extinguishing' are displayed on the AlgoPilot, the corresponding 'panel variant' must be selected at CT or CI level (for details see HELP AlgoWorks).

Combined indicators 'Extinguishing' common to all extinguishing SECTIONS



5 Performance checks

Table 6: Performance check in 'normal operating condition'

	Test functions	The following devices are activated
1	Activate 1 fire detector in extinguishing SECTION	<ul style="list-style-type: none"> ⇨ Alarm organization control unit (in 'Day' mode V1/V2) LED 'Fire detector activated' at extinguishing control panel Extinguishing horn (continuous tone) Fire control installation ²⁾ <p>After 'Reset':</p> <ul style="list-style-type: none"> ⇨ Alarm and reference messages must be erased
2	Activate 2 fire detectors in the same ZONE (possibly 3 detectors) Note: <i>Both detectors must be simultaneously on 'G3', in order that 'Evacuation' is generated (or all 3 detectors).</i>	<ul style="list-style-type: none"> ⇨ Alarm organization control unit (⇨ Remote transmission) Fire control installation ²⁾ LED 'Evacuation' LED 'Fire detector activated' at extinguishing control panel Extinguishing horn (alternating tone) ¹⁾ Illuminated warning panel Activating device 2 <p>Upon expiry of the delay period:</p> <ul style="list-style-type: none"> ⇨ Activating device 1 Message 'Extinguishing activated' (after acknowledgement) <p>After 'Reset':</p> <ul style="list-style-type: none"> ⇨ All alarm and reference messages must be erased possibly fault 'Extinguishing NOT ready'
3	Activate manually	<ul style="list-style-type: none"> ⇨ Alarm organization control unit (⇨ remote transmission) LED 'Evacuation' Fire control installation ²⁾ Extinguishing horn (alternating tone) ¹⁾ Illuminated warning panel Activating device 2 <p>Upon expiry of the evacuation period:</p> <ul style="list-style-type: none"> ⇨ Activating device 1 Message 'Extinguishing activated' (after acknowledgement) <p>After 'Reset':</p> <ul style="list-style-type: none"> ⇨ all Alarm and reference messages must be erased possibly fault 'Extinguishing NOT ready' + 'Glass broken'
4	Activate signal 'Extinguishing activated' (if existent)	<ul style="list-style-type: none"> ⇨ Alarm organization control unit (⇨ Remote transmission) LED 'Extinguishing activated' Fire control installation ²⁾ Extinguishing horn (alternating tone) ¹⁾ Illuminated warning panel <p>After 'Reset':</p> <ul style="list-style-type: none"> ⇨ All alarm and reference messages must be erased possibly Fault 'Extinguishing NOT ready'

¹⁾ if equipped with change of tone

²⁾ if existent

In addition:

If emergency operation link E3G110 has been used

➔ Set control unit to 'Emergency operation' (Keep 'Restart' key on the CPU depressed)

	Test function	The following devices or functions are activated
5	Activate 2 fire detectors in extinguishing SECTION Note: <i>The detectors in the extinguishing SECTION must be divided between 2 different lines or modules.</i>	<ul style="list-style-type: none"> ⇨ Emergency alarm at AlgoPilot (⇨ remote transmission) LED 'Evacuation' at extinguishing control panel LED 'Fire detector activated' at extinguishing control panel Extinguishing horn (can be switched off locally or via AlgoPilot) Illuminated warning panel Activating device 2 (means of control) <p>Upon expiry of the evacuation period:</p> <ul style="list-style-type: none"> ⇨ Activating device 1 (extinguishing agent) Message 'Extinguishing activated' at extinguishing control panel

Table 7: Individual control functions

	Control functions	Comment
1	Check evacuation time	Dependent on parameterization ⇒ must correspond to the parameterized time
2	Check alarm horn switch-off function	Dependent on parameterization ⇒ May only be possible either from the extinguishing control panel, or from the extinguishing control panel and AlgoPilot ⇒ Switch-off must always be possible except during the 'Evacuation' phase ⇒ Check whether alarm horn cannot be switched off during 'Evacuation'
3	Check illuminated warning panel switch-off function	Dependent on parameterization ⇒ either active until 'Reset' or active until switched off separately via the extinguishing control panel
4	Check the duty cycle of activating devices 1 and 2	Dependent on parameterization ⇒ either active until 'Reset' or active during the time specified
5	Check line monitoring	⇒ Induce a short circuit or open line for all peripheral equipment in quiescent state connected and check whether in each case a fault results ⇒ With 'valve lines' it is essential to induce open line and short circuit
6	Check ZONE affiliation	⇒ In each detector ZONE belonging to the extinguishing SECTION activate 1 detector and check whether the extinguishing horn is activated Dependent on parameterization ⇒ In each detector ZONE belonging to the extinguishing SECTION, activate 2 (or 3) detectors and check whether the 'Evacuation' phase is initiated
7	Check 'Block' function via AlgoPilot / list of functions 'SECTION'	⇒ Select 'SECTION' from list of functions and check the following functions: – BLOCK / ENABLE automatic & manual activation of extinguishing – Extinguishing ⇒ REVISION / conclude – REVISION ⇒ TEST / conclude Here the corresponding LEDs on the extinguishing control panel and AlgoPilot must always light up
8	Check 'Blocking' function via extinguishing control panel / keys	⇒ Check at the extinguishing control panel whether by means of both keys, activation of extinguishing can be blocked accordingly Here the corresponding LEDs at the extinguishing control panel and AlgoPilot must always light up

Note

Use of valve actuators

Ensure that the minimum trigger current (comply with manufacturers' instructions) can also be achieved without difficulty even with emergency power operation (operating voltage 23.5V). Balance the difference between the 'internal resistance valve actuators' (e.g. 1.5 Ω) and the 'minimum line impedance' (16Ω) with series resistor.

Operation with emergency operation link E3G110

Never plug-in or un-plug the supply cable or I-bus flat cable on the module when power is switched on.

Ensure that the detection line only contains detectors which belong to the extinguishing SECTION.

Important:

When using the E3G110 with collective line module E3M080 **only use E3M080 from index BC onwards.**

6 Overview of operating functions

Table 8: Functions 'Extinguishing TEST' and 'Extinguishing REVISION'

Function	Purpose	Achieved	Blocked
Extinguishing REVISION	Permits activation of sequence of functions without horn, illuminated warning panel and valves ('active' status visible at maintenance LEDs E3G080) Permits the disconnection of the path 'Extinguishing activated' via AlgoPilot, e.g. for the testing of non-Cerberus extinguishing systems etc.	<ul style="list-style-type: none"> ⇨ via AlgoPilot ⇨ via switch 'S1' on E3G080 	<ul style="list-style-type: none"> ⇨ Valves ⇨ Illuminated warning panel ⇨ Alarm horn ⇨ Path 'Extinguishing activated'
Extinguishing TEST	Permits normal sequence, but without activating the valves	⇨ via AlgoPilot	⇨ Valves

Table 9: AlgoPilot list of functions 'SECTION'

List of functions SECTION 'extinguishing' (based on standard text 'Switzerland')	Notes
BLOCKING autom. extinguishing ¹⁾ (2.1)	} ⇨ <i>also possible at extinguishing control panel</i> ²⁾
ENABLING autom. extinguishing ¹⁾ (2.1)	
BLOCKING autom. & man. exting. release (2.1)	} ⇨ <i>also possible at extinguishing control panel</i> ²⁾
ENABLING autom. & man. exting. release (2.1)	
set all DETECTOR zones ➔ OFF (2.1)	} ⇨ <i>concerns all detectors in the extinguishing SECTION</i>
set all DETECTOR zones ➔ ON (2.1)	
set all DETECTOR zones ➔ TEST (2.1)	
terminate TEST of all DETECTOR zones (2.1)	
set all DETECTOR zones ➔ INSTALL. TEST (2.1)	
terminate INSTALL. TEST of all DET. zones (2.1)	
set extinguishing control ➔ REVISION (2.2)	} ⇨ <i>blocks valves, horn, illuminated warning panel, acknowledgement</i> <i>Is also possible at the E3G080 by means of switch 'S1'</i>
terminate REVISION (2.2)	
set extinguishing control ➔ TEST (3)	} ⇨ <i>blocks valves</i>
terminate TEST of exting. control (3)	
initiate TEST 'horn' (3)	⇨ <i>briefly activates alarm horn (approx. 5sec)</i>
initiate TEST 'warning panel' (3)	⇨ <i>briefly activates illuminated warning panel (approx. 5 sec)</i>

¹⁾ only available from software V4.xx (EP4) onwards
²⁾ BLOCKING and ENABLING also possible 'alternating'
 ➔ BLOCKING via AlgoPilot and ENABLING via B3Q440 or vice versa

7 Error diagnosis

All faults at the inputs/outputs of the E3G080 are **individually** displayed at the AlgoPilot. For each of the 4 outputs an LED is provided on the E3G080 for error diagnosis (see Table 4).

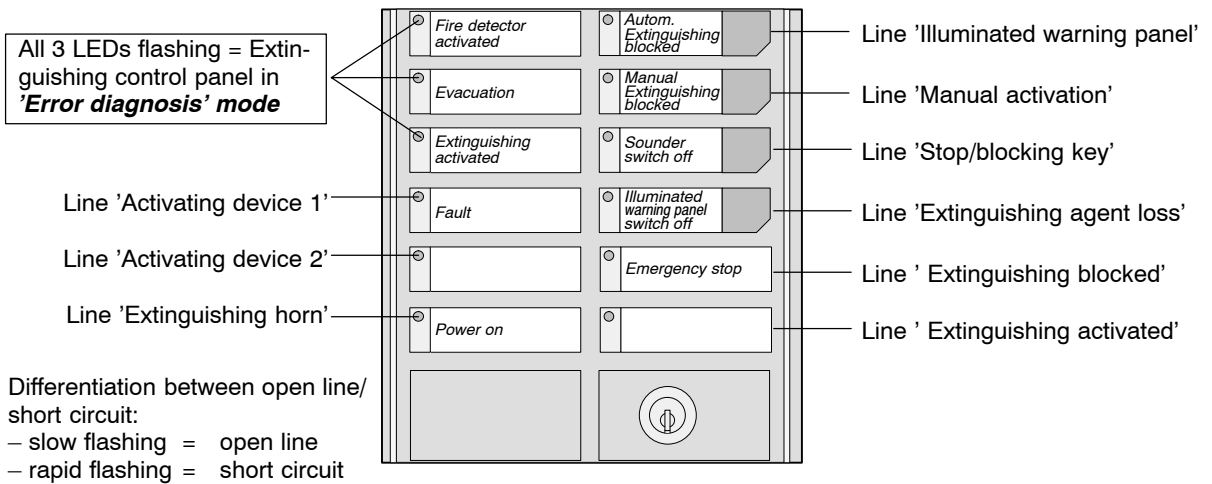
Separate LEDs are not provided for the inputs, but a special mode enables the identification of each faulty or deactivated input and output.

Fault identification at the extinguishing control panel B3Q440

Important: Functions only when a fault is pending

Procedure:

1. If fault arises, set switch 'S1' (E3G080) to ON
2. Press 'S4' key (E3G080) **once**
3. LEDs 'Fire detector active' and 'Evacuation' and 'Extinguishing activated' **flash** simultaneously
4. Identify the input/output concerned according to the diagram below



5. Cancelling function: Set switch 'S1' to OFF

Identification of fault at the E3G080

Procedure:

1. If fault arises, set switch 'S1' (E3G080) to ON
2. Press key 'S4' (E3G080) **once**
3. LEDs 1, 3 and 2, 4 flash in push-pull circuit for approx. 3 sec.
4. Identify the inputs/outputs concerned according to Table 10
5. Set switch 'S1' to OFF

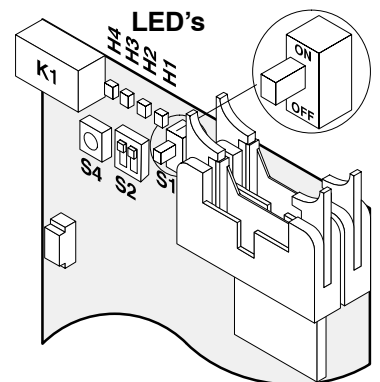


Table 10:

Note: Each pending fault signal is visible approx. 4 sec. (sequential display)

Function	LED 'H4'	LED 'H3'	LED 'H2'	LED 'H1'	Short circuit	Open line	De-activated
Valve 1 delayed				●	rapid flashing	slow flashing	continuously on
Valve 2 non-delayed			●	●			
Horn			●	●			
Illuminated warning panel		●					
Extinguishing key		●		●			
Emergency / Blocking key		●	●				
Loss of extinguishing agent		●	●	●			
Extinguishing blocked	●						
Extinguishing activated	●			●			

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