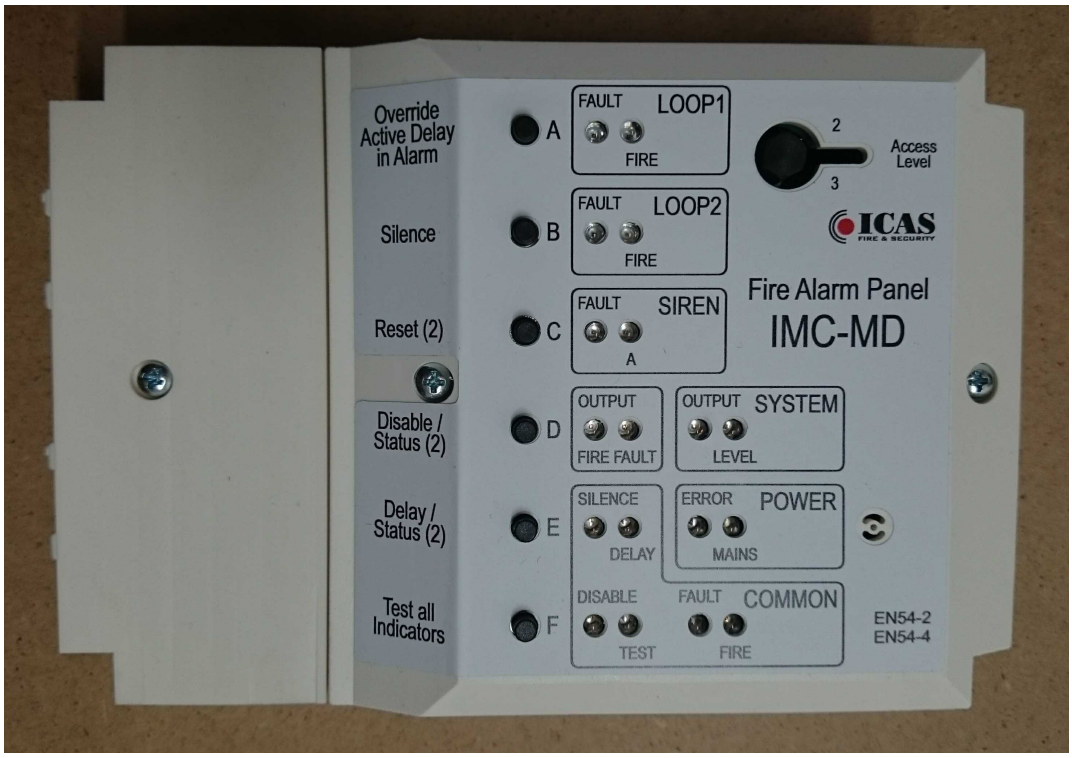
SMALL FIRE CONTROL PANEL

ICAS

IMC–MD

USER MANUAL



CONTENTS:

1 Determination and description

IMC-MD is a small control unit (control panel) for two detector loops which meet the requirements of EN 54-2 and EN 54-4 specifications.

The control panel is designed for detectors with power supply ranging from 8 VDC to 12 VDC and which reports the detected fire alarm by increasing the supply current to at least 10 mA.

1.1 Loops

- Two detector loops (for ICAS 500-IDx or CHOR-E detectors or other compatible detectors)
- Each loop can be disabled and enabled separately at access level 2.
- After each switching on the detector loop power a delay (up to 10 minutes) for the loop condition evaluation may be included in order to stabilize the detectors that need it. The initial delay can be enabled and disabled on the access level 2. The value of delay can be set on the access level 3.
- When the alarm is complete (reset command) the loop voltage is switched off completely for 10 seconds to reset the detector. If the loop is still in alarm during the reset command, the power is not turned off and the fire alarm status is re-established.
- In the default setting the supply voltage on detector loops is 8 VDC. When a fire alarm condition is announced the supply voltage is increased to 12 VDC - this feature is called the siren function. This function can be disabled and enabled on the access level 2. The voltage increase can be delayed by the siren function delay up to 10 minutes. The value of this delay can be set on the access level 3. When the delay is active this delay can be bridged at access level 1 and the output reacts immediately. Increasing the voltage allows sirens to be triggered in all connected CHOR-E or compatible detectors. When the silence command is executed the supply voltage returns to 8VDC and the sirens in the CHOR-E detectors are silent.
- Both loops are monitored for error: interruption or short circuit.

1.2 Outputs

- Supervised siren loop for connection of an external siren – SIREN output
  This output can be permanently disabled or enabled on the access level 2. There is also the ability to silence (on the access level 1 or 2 – function Silence) or re-establish this output at the access level 2 (the function Mute). A mute is effective until the silence function is cancelled or an alarm is detected in the second detector loop. You can also enable or disable the delay of this output when the panel goes into a fire alarm state (access level 3) and set this delay time up to 10 minutes (access level 3). When the delay is active, this delay can be bridged at the access level 1 and the SIREN output reacts immediately. The loop is monitored for error: interruption and short circuit.
- Relays: the panel contains two relay outputs FIRE for fire alarm FAULT for fault. Both have NO and NC outputs.
  FIRE output can be disabled or enabled (access level 2). In addition the delay

of this output after the panel goes into the fire alarm state (access level 2) can be enabled or disabled and the size of this delay can be set up to 10 minutes (access level 3). When the delay is active, this delay can be bridged at access level 1 and the FIRE output reacts immediately.
FAULT output can be disabled or enabled (access level 2). In addition the delay of this output after the panel goes into the fault state (access level 2) can be enabled or disabled and the size of this delay can be set up to 10 minutes (access level 3).

1.3 Power

- Mains 230V / 50Hz, designed for a fixed installation
- Battery – protected Li-ion battery 3,6V, 2600mAh

1.4 Functions

- Silencing (and un-silencing) of acoustic indication of alarm and/or fault (internal sounder, siren function, siren output)
- Siren function (increasing the voltage of the loops during an alarm that will trigger the siren in the CHOR-E detectors)
- Canceling of fire alarm state and/or fault state
- Test state of individual loops (LOOP1, LOOP2)
- Disabling of individual loops (LOOP1, LOOP2 and LOOP SIR)
- Disabling of other parts (outputs FIRE, FAULT, internal buzzer, siren function)
- Test of all optic and acoustic indicators
- Initial delay after detectors loop power up for LOOP1 and LOOP2
- Delay for outputs SIREN, FIRE, FAULT, siren function
- Possibility of overriding active delay
- Possibility of a service key for input to the access levels 2 and 3
- Change of firmware (by external programmer on the access level 4)
- The possibility of one expansion module, now are available:
  - Serial RS485 communication between other panels (IMC-MD, µCU-IQ, µCU-LCD) – the RS485-MD module, no EN 54-2 compatible
  - Auxiliary power supply 12V DC, 200mA from mains, from battery selectable ON/OFF by a switch – the OPM1-MD module, no EN 54-2 compatible

1.5 Requirements for operators of the IMC-MD in terms of EN 62368-1 clause 0.2

- All work related to dismantling the panel cover (installation of the panel, the access level 4 work) may only be performed by a skilled person. This requirement is specified for all points of the user manual to which it relates.

- All panel control at the access levels 2 and 3 may only be performed by an instructed person.

- The access level 1 control can be performed by anyone – an ordinary person.

2 Installation

For all activities described in this chapter a **skilled person** qualification is required for the executing person.

2.1 Location

The panel must be located in a dry place and not exposed to water. Connect the peripherals (detectors, sirens ...) using a cable type AF CEI 20-22 IEC 332 or VD-04 shielded cable or equivalent. The environmental conditions have to be in accordance with 3K5 class of EN 60721-3-3:1995. The mains supply line must be equipped with a circuit breaker with rated voltage 230V AC, rated current 2A and with a B tripping characteristic or a 1A circuit breaker with a C characteristic. No other equipment may be connected to this line.

2.2 Connection points

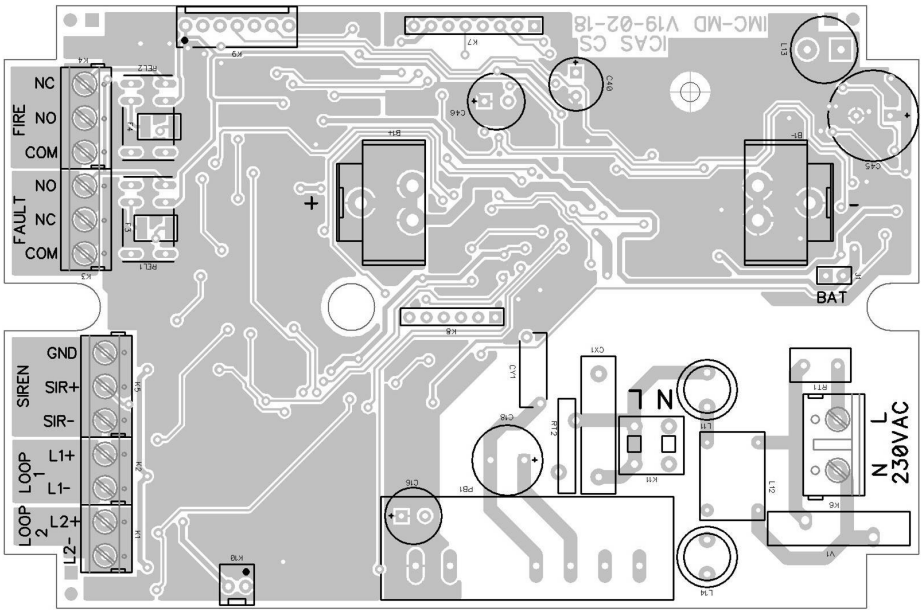
The panel contains the following connectors for connecting incoming and outgoing wires:

- **230VAC** - mains connection: L - phase line, N - neutral line. Attention: this line has to be equipped by a circuit breaker – see above (point 2.1)
- **LOOP1** - Detector loop No. 1 - wire connection:
  L1+ - Positive Power Line,
  L1- - Negative Power Line;
  Any shielding is connected to the L1- terminal (if needed)
- **LOOP2** - Detector loop No. 2 - wire connection:
  L2+ - Positive Power Line,
  L2- - Negative Power Line;
  Any shielding is connected to the L2- terminal (if needed)
- **SIREN** - guarded loop for external siren – wire connection;
  SIR+ - positive siren power line,
  SIR- - negative siren power line,
  GND - ground for siren loop; shield connection (if needed)
- **FIRE** - output of fire alarm state
- **FAULT** - output of fault state

Internal Connectors:

- **BAT** - battery connection
- **K7, K8** – connectors for module with indicators and pushbuttons
- **K9, K10** - service connectors, possibility of connecting expansion boards

The connection points are captured in the following figure:

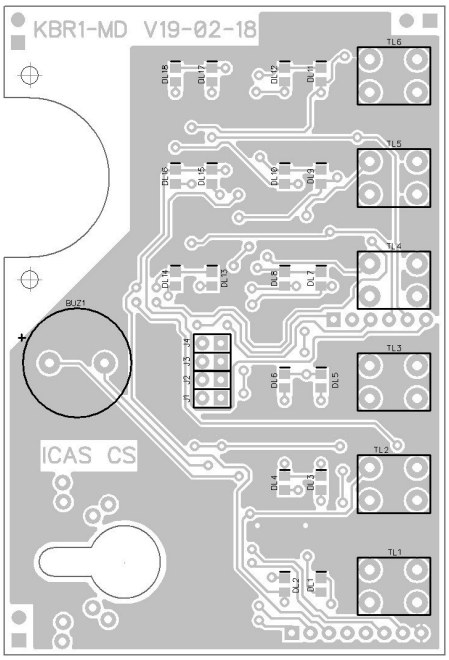


Picture 1 - Connection points

2.3 Possible configuration

Some panel options can be configured using jumpers J1 through J4 on the keyboard (upper board). The switching on is done by a soldering of wiring jumpers. This activity may only be performed by a skilled person. For the time being the following versions are available:

- Basic - corresponding to the EN54-2 and EN54-4 specifications as described in this manual (no jumper connected).
- Reduced – the siren loop is without supervising; only over-current is detected (connected J4 jumper).
- Basic with a serial communication with other panels (connected J3 jumper). Serial communication requires addition of an expansion board (RS485-MD).
- Reduced with a serial communication with other panels and without a siren supervising (connected J3 and J4 jumpers). Serial communication requires addition of an expansion board (RS485-MD).



Picture 2 - programming jumpers

2.4 System connection

The simplified connection of the system is in the figures in Annexes A, B, C, D and E.

The panel is designed for a fixed connection to the mains 230VAC. The mains supply must have a separate switch – see above (point 2.1).

Both detector loops have a quiescent supply voltage of about 8V DC. This voltage is raised to 12 VDC after detecting the fire alarm. This makes it possible to connect for example ICAS smoke detectors type CHOR-E or CHOR-IQ which when the voltage increasing to 12V activate the internal siren and the loop can function as a siren. You can also connect 500-IDx detectors. Increasing of the supply voltage at these detectors does not hinder and their internal siren can be connected to the SIR loop. Each loop must be terminated with a 6200 Ω resistor. Resistors are included in the panel package. The maximum permissible loop current is 110 mA. However it must be ensured that the total current of both loops is less than 170 mA.

The panel has got these outputs:

SIR loop: This is a supervised output for connecting an external siren. The SIR loop is normally free of voltage, but a test pulse for integrity check is performed every 10 seconds. The impulse has a negative polarity of voltage so the siren must be separated by a Schottky diode 1N5817. The siren loop must be terminated with a 2700 Ω resistor. Resistor is included in the panel package. The 12V DC voltage is applied to the fire alarm on this loop (or 8V DC for the silenced state). In a reduced mode diodes and an EOL resistor are not needed. However to increase the EMC resistance we recommend using the EOL resistor at the end of the line.

FIRE: This is the basic output of a fire alarm condition.

FAULT: This is the basic output of a fault condition. This output is not constructed in accordance with item 8.9 of EN54-2. If this output is disabled, relay contacts always signalize an OK except totally power fail (mains and battery together).

Several examples of connections are in Annexes A to E.

2.5 Commissioning

Please contact your specialist service center for installation of the control panel !!!
All work related to the installation of the panel may only be performed by a qualified "skilled person" within the meaning of EN 62368-1 clause 0.2 !!!

Installation procedure:

- Remove the control panel covers (three screws).
- Attach the panel by four screws to a fixed mat, such as a wall.
- Connect the mains power cable (connector 230VAC); to operate in the off state. The mains supply line must have a separate switch – see above (point 2.1).
- Attach desired loops (LOOP1, LOOP2). If only one loop is used, it is necessary to turn off the unused loop at the access level 2 (after system start-up) or terminate with the resistor and not use it.
- Connect an external siren (SIR).
- Connect the fire alarm output (FIRE) and the fault output (FAULT) to the required devices.
- Insert the BAT jumper on the printed circuit board. The control panel does not turn on immediately, but after the power supply 230V is connected.
- Cover the box of the panel (three screws).
- Turn on mains voltage - the device will start.

2.6 Special settings

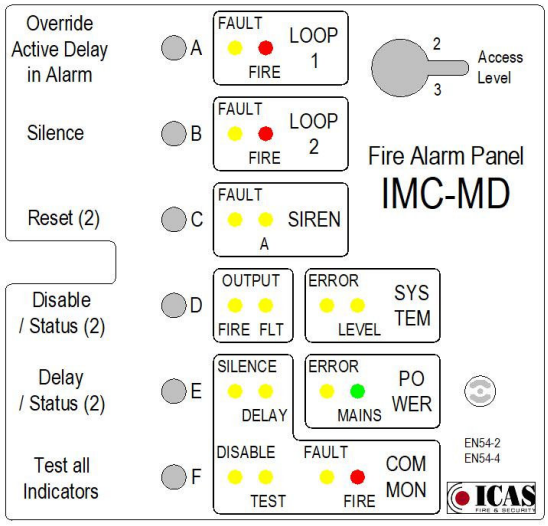
It is possible to request a special setting of the loops supply voltages when installing the device or servicing it. Besides the standard setting it is possible to have a permanent voltage on the detector loops of 8V or 12V. However these settings are not compatible with all options of the ICAS recommended detectors.

The procedures are described in the Maintenance section.

3 Controls

For all activities described in this chapter the **instructed person** qualification is required for the executing person. There is an exception to the first four points of paragraph 3.1.1 which can be performed by anyone - the **ordinary person**.

3.1 Description of control and indicating elements



Picture 3 - Front panel label

The front panel descriptions correspond to the meaning of the key or indicator on the basic level of control on the access level 1 and the access level 2 - signed by (2). In other cases the exact meaning of the buttons and indicators is described in the relevant chapter of this manual and in Tables 1 to 3.

The front panel contains control keys (**"A"** to **"F"**), key opening (**"KEY"**) for service access level 2 or 3 (Swedish version only) and led status indicators. Buttons respond with a little delay (approx. 1 second) and they must be held down longer. Their reception is announced by the control unit with a short beep.

3.1.1 Normal activity – access level 1

After switching on power and stabilization (within 10 minutes according to the setting) the control unit is in the state of rest (basic state). Indicators indicate instant status – loops in alarm, disabled parts, faulty parts, delayed parts, test parts. The actual state corresponds to the descriptions of the front panel indicators. Their significances are in Table 1-1 and Table 2-1.

At the access level 1 the following commands are available:

- *Overriding the active delay* will cause an immediate response to all currently delayed fire alarm outputs - the **"A"** button;

- *Silencing of the acoustic indication* (buzzer and eventually siren - in the state of fire alarm and fault) - button **"B"**. The siren output **SIR** can also be muted and restored provided silencing of this output is enabled at the control level 3 (a silenced mode for the siren loop). If any part of the control panel is silenced, the **"COMMON-SILENCE"**

indicator lights up on the access levels 1 and 2.

- *Release acoustic indication* of silencing event - button **"B"**;
- *Testing of all optical and acoustic indicators* (but not sirens) - button **"F"**;
- *Switching to the access level 2* - pressing and holding the **"E"** and **"F"** buttons after the indicator **"SYSTEM-LEVEL"** is fast blinking, press the **"A"** key (**"E"** and **"F"** must not be released) after the **"SYSTEM-LEVEL"** lit; for the Swedish version it is possible to move to access level 2 by turning the key counter-clockwise in the **"KEY"** hole (to the beep and lit of **"SYSTEM-LEVEL"**), the second turning returns the access level 1;
- *Switching to the access level 3* - pressing and holding the **"E"** and **"F"** buttons after the **"SYSTEM-LEVEL"** indicator is fast blinking, press the **"B"** key (**"E"** and **"F"** must not be released) after the **"SYSTEM-LEVEL"** blinks; for the Swedish version it is possible to move to access level 3 by turning the key clockwise in the **"KEY"** hole together with pressing of the **"E"** button (to the beep and blinking of **"SYSTEM-LEVEL"**), the second turning returns the access level 1.

A list of commands for the access level 1 is given in Tables 3-1 and 3-2.

3.1.2 Parts disabling and enabling - access level 2

If the access level 2 is activated, the yellow **"SYSTEM-LEVEL"** indicator lights up. If no button is pressed, the indication is exactly the same as at access level 1. The same button commands as at access level 1 are also available. In addition, individual parts of the control panel (detector loops, siren, outputs and internal buzzer) and to turn on and off the delays of individual parts of the control panel (detector loop initialization siren relay outputs) are available too.

A list of commands is given in Table 3-3.

3.1.2.1 Termination of active events (RESET)

If a fire alarm or a fault condition is terminated, the end-of-event function will be used - pressing the **"C"** button. All states are reset; the panel outputs are set to idle. If the event continues, the state is activated again. A loop which is no longer in the fire alarm condition (only in memory) is automatically turned off (disabled) for 10 seconds (indicated as disabling) and then automatically switched on again (reset of detectors). It is not possible to reset detectors in smoke, only in clear air.

3.1.2.2 Mute of the siren loop

If the output of the siren loop is not deactivated and the silenced mode of the siren loop is disabled, this command (simultaneous pressing of **"A"** and **"B"**) can be used to temporarily turn the siren output off or on. If the siren output is temporarily switched off it can be reactivated when an alarm is detected from the second detector loop; the automatic mode for the siren loop (setting on the access level 3) has to be active.

When the **"A"** and **"B"** buttons are pressed, the state of the mute command is changed and the **"SIREN-FAULT"** indicator displays the actual state of a siren mode - see tables 1-2 and 2-2.

3.1.2.3 Disabling / enabling the panel parts

Pressing the **"D"**, **"E"** or the **"D"** and **"E"** keys together; the deactivated parts are displayed (see text below).

At the Access Level 2 the following commands are available for parts switching on and off (see also Table 3-3):

When the **"D"** button is pressed, the actual disabled parts of the control panel are displayed on the indicators - see tables 1-2 and 2-2.

- *Switching on / off detector loop number 1* - when the **"A"** and **"D"** buttons are pressed, the status of the loop 1 is changed. If the **"LOOP1-FAULT"** indicator is illuminated, the loop is switched off.

- *Switching on / off detector loop number 2* - when the **"B"** and **"D"** buttons are pressed, the status of the loop 2 is changed. If the **"LOOP2-FAULT"** indicator is illuminate, the loop is switched off.

- *Switching on / off the siren loop* (activation of the supervised SIREN loop) - when the **"C"** and **"D"** buttons are pressed, the siren status is changed. When the **"SIREN-FAULT"** indicator is illuminated, the siren output is off.

- *Switching on / off the siren function* (activation of the raising the voltage at the detector loop outputs) - when the **"B"**, **"C"** and **"D"** buttons are pressed, the siren function status is changed. When the **"SIREN-A"** indicator is illuminated, the siren function is off.

- *Switching on / off the fire alarm output **"FIRE"*** - when the **"A"**, **"B"** and **"D"** keys are pressed, the state of the alarm output is changed. When the **"OUTPUT-FIRE"** indicator is lit, the output is switched off.

- *Switching on / off fault output **"FAULT"*** - simultaneously pressing the **"B"**, **"C"** and **"D"** buttons to changes the state of the fault output. When the **"OUTPUT-FLT"** indicator is illuminated, the output is switched off.

When the **"D"** and **"E"** buttons are pressed, the actual disabled buzzer events of the control panel are displayed on the indicators - see tables 1-2 and 2-2.

- *Switching the internal buzzer on / off to indicate faults* - when the **"B", "D"** and **"E"** buttons are pressed simultaneously, the state of the buzzer is changed. When the **"COMMON-FAULT"** indicator is lit, the buzzer is off for this event.

- *Switching on / off of the internal buzzer to indicate a fire alarm* - when the **"A"**, **"D"** and **"E"** buttons are pressed simultaneously, the state of the buzzer is changed. If the **"COMMON-FIRE"** indicator is lit, the buzzer is off for this event.

If any above mentioned part of the control panel is disabled, the **"COMMON-DISABLE"** indicator lights up on the access levels 1 and 2.

3.1.2.4 Return to the basic access level – access level 1

Returning to access level 1 is done by simultaneously pressing the **"E"** and **"F"** buttons or automatically after 10 seconds of inactivity. The indication **"SYSTEM-LEVEL"** is off.

3.1.3 Setting the control unit parameters - access level 3

If the access level 3 is located, the yellow **"SYSTEM-LEVEL"** indicator blinks. At the Access Level 3 it is possible to select which parts of the control panel will be in the test state, it is possible to set the size of the individual delays in the control panel and to select several other operations (see Table 3-4).

3.1.3.1 Select test state

When the **"D"** button is pressed, the loops in the **"TEST"** state are displayed - see tables 1-5 and 2-5.

At Access Level 3 the following commands are available to enable and disable the test status (see also Table 3-4):

- *On / off state **"TEST"** for the detector loop 1* - when the simultaneously **"A"** and **"D"** buttons are pressed, the test state of the loop 1 is changed. When the **"LOOP1-FAULT"** indicator is illuminated, the test status is active in the loop.

- *On / off state **"TEST"** for the detector loop 2* - when the simultaneously **"B"** and **"D"** buttons are pressed, the test state of the loop 2 is changed. When the **"LOOP2-FAULT"** indicator is illuminated, the test status is active in the loop.

If any above mentioned part of the control panel is in the test state, the **"COMMON-TEST"** indicator lights up on the access levels 1 and 2. The "TEST" status must be manually terminated, it will not end automatically.

3.1.3.2 Disabling / enabling of delays

Delay switching on and off for individual parts of the control panel

When the **"E"** button is pressed the actual delayed parts of the control panel are displayed on the indicators - see tables 1-3 and 2-3.

At Access Level 3 the following commands are available to enable and disable the delays (see also Table 3-3):

- *Activating / deactivating detector loop 1 start delay* after switching on the loop power supply (waiting for the detector parameters to stabilize) - when the **"A"** and **"E"** buttons are pressed, the loop 1 start delay state is changed. If the **"LOOP1-FAULT"** indicator is lit, the loop delay after the start is on.

- *Activating / deactivating detector loop 2 start delay* after switching on the loop power supply (waiting for the detector parameters to stabilize) - when the **"B"** and **"E"** buttons are pressed, the loop 2 start delay state is changed. If the **"LOOP2-FAULT"** indicator is lit, the loop delay after the start is on.

- *Activation / deactivation of the siren loop delay* after the state change to the fire alarm - when the **"C"** and **"E"** buttons are pressed, the state of the siren delay is changed. If the **"SIREN-FAULT"** indicator is lit, the siren delay is on.

- *Activation / deactivation of the siren function delay* after the state change to the fire alarm - when the **"B"**, **"C"** and **"E"** buttons are pressed, the state of the siren delay is changed. If the **"SIREN-FAULT"** indicator is lit, the siren delay is on.

- *Activation / deactivation of the fire alarm (**"FIRE"**) output delay* after the alarm state is active - when the **"A"**, **"B"** and **"E"** buttons are pressed, the output delay state is changed. When the **"OUTPUT-FIRE"** indicator is lit, the output delay is on.

- *Activation / deactivation of the fault output (**"FAULT"**) delay* after the fault state is active - when the **"B"**, **"C"** and **"E"** buttons are pressed, the output delay state is changed. When the **"OUTPUT-FAULT"** indicator is illuminated, the output delay is on.

If any above mentioned delay in the control panel is switched on, the **"COMMON-DELAY"** indicator lights up on the access level 1.

3.1.3.3 Setting the length of delays

Pressing the **"E"** button and the delay button for the desired part of the control panel

and then the value of delay shows (by the number of lit indicators on the panel) on the following LEDs: **"LOOP1-FAULT"**, **"LOOP2-FAULT"**, **"SIREN-FAULT"**, **"OUTPUT-FIRE"**, **"COMMON-SILENCE"**, **"COMMON-DISABLE"**, **"COMMON-TEST"**, **"COMMON-DELAY"**, **"OUTPUT-FLT"**, **"SIREN-A"**. The value of delay changes by long pressing the delay button; the **"E"** button must be permanently pressed. Delay rate is 1 minute and the value varies from 1 minute to 10 minutes; then goes back to 1 minute. Its size is shown on the above mentioned indicators. The indication is catches in the tables 1-4 and 2-4.

At Access Level 3 the following commands are available to select the delay value (see also Table 3-3):

- *Setting the delay time after switching on the power supply in the detector loop 1* (During this time the loop is powered but the fire alarm is not evaluated) - while pressing the **"A"** and **"E"** buttons, the delay value changes;

- *Setting the delay time after switching on the power supply in the detector loop 2* (During this time the loop is powered but the fire alarm is not evaluated) - while pressing the **"B"** and **"E"** buttons, the delay value changes;

- *Setting the delay time to activate the siren loop after declaring the fire alarm status* - when the **"C"** and **"E"** keys are pressed the delay value changes;

- *Setting the delay time to activate the siren function after declaring the fire alarm status* - when the **"B"**, **"C"** and **"E"** keys are pressed the delay value changes;

- *Setting the delay time to activate the fire alarm output **"FIRE"** after declaring the fire alarm status* - when the **"A", "B"** and **"E"** buttons are pressed, the delay value changes;

- *Setting the delay time to activate the fault output **"FAULT"** after declaring the fault status* - when the **"B"**, **"C"** and **"E"** buttons are pressed, the delay value changes.

3.1.3.4 Switching the possibility of the silenced mode for the siren loop

This function selects the method of silencing the siren loop. When this function is active, the siren loop can be muted with the Silence function (**"A"** button) at the same time with the internal buzzer and with the siren function (a power reduction) on the access level 1 or 2 as well as by mute function only of this loop on the access level 2. If this function is not active, the siren loop can be muted only at the access level 2.

When the **"A"**, **"B"**, **"C"** and **"E"** buttons are pressed, the silenced mode of the siren loop is enabled or disabled - see tables 1-6 and 2-6. The silenced mode is indicated by a lit of the **"SIREN-A"** indicator during a setting. At the same time other indicators that are not related to this mode setting may be active.

The command is available at access level 3 - see also Table 3-4.

3.1.3.5 Switching of the automatic mode of the siren loop starting

This function enables / disables automatic start of a silenced siren loop when detecting a fire alarm in another detector loop. When the **"A"**, **"B"**, **"C"**, **"D"** and **"E"** buttons are pressed, the automatic mode of the siren loop is enabled or disabled - see tables 1-6 and 2-6. The auto on mode is indicated by a lit of the **"SIREN-FAULT"** indicator during a setting. At the same time other indicators that are not related to this mode setting may be active.

The command is available at access level 3 - see also Table 3-4.

3.1.3.6 Display of supply voltage settings on detector loops

When the **"D"** and **"F"** buttons are pressed, the data of the set supply voltages are displayed on the indicators - see tables 1-6 and 2-6.

The command is available at access level 3 - see also Table 3-4.

A basic supply voltage of an 8V is indicated by the lit of the **"LOOP1_FAULT"** indicator and of a 12V is indicated by the lit of the **"LOOP1-FIRE"** indicator.

A voltage of 8V in a fire alarm condition is indicated by the lit of the **"LOOP2_FAULT"** indicator; a voltage 12V by the lit of the **"LOOP2-FIRE"** indicator.

Changing of these parameters can be done during a service action.

3.1.3.7 Display the program version

The program version is also shown on the device labels. It consists of the program number (for IMC-MD it is always 32) and the version number. This command then displays only the version number.

When pressing the **"A"** and **"F"** keys, the panel program version is displayed on the following indicators: **"LOOP1-FAULT"** (LSB), **"LOOP2-FAULT"**, **"SIREN-FAULT"**, **"OUTPUT-FIRE"**, **"COMMON-SILENCE"**, **"COMMON-DISABLE"**, **"COMMON-TEST"**, **"COMMON-DELAY"** (MSB) - see tables 1-7, 2-6 and 2-9.

The command is available at access level 3 - see also Table 3-4.

3.1.3.8 Display the program revision

The program may include minor edits (bug fixes etc.). Here the serial number of this edit is displayed but the basic properties of the program are still the same within a single program version.

Press the **"A"**, **"B"** and **"F"** buttons to display the revision number of the control panel program version on the following indicators: **"LOOP1-FAULT"** (LSB), **"LOOP2-FAULT"**, **"SIREN-FAULT"**, **"OUTPUT-FIRE"**, **"COMMON-SILENCE"**, **"COMMON-DISABLE"**, **"COMMON-TEST"**, **"COMMON-DELAY"** (MSB) - see tables 1-7, 2-6 and 2-9.

The command is available at access level 3 - see also Table 3-4.

3.1.3.9 Display the serial number (S/N)

It is possible to display the serial number of the panel on the indicators. The serial number consists of six hexadecimal characters thus it is displayed in three steps of two characters (low byte middle byte and high byte). The two characters you select are always displayed in the following indicators: **"LOOP1-FAULT"** (LSB), **"LOOP2-FAULT"**, **"SIREN-FAULT"**, **"OUTPUT-FIRE"**, **"COMMON-SILENCE"**, **"COMMON-DISABLE"**, **"COMMON-TEST"**, **"COMMON-DELAY"** (MSB) - see tables 1-6, 2-6 and 2-9. Each byte of the serial number is created using Table 2-9 by composing a higher (HC) and lower (LC) character behind each other: Byte = HC LC.

The commands are available at access level 3 - see also the Table 3-4.

Press the **"C"** and **"F"** buttons to display the low byte (LB) of the serial number.

Press the **"A"**, **"C"** and **"F"** buttons to display the middle byte (MB) of the serial number.

Press the **"B"**, **"C"** and **"F"** buttons to display the high byte (HB) of the serial number.

The entire serial number is obtained by composing three consecutively displayed bytes: S/N = HB MB LB.

3.1.3.10 Display of panel configuration

Press the **"B"** and **"F"** buttons to display the panel configuration on the following indicators (in the binary code): **"LOOP1-FAULT"** (LSB), **"LOOP2-FAULT"**, **"SIREN-FAULT"**, **"OUTPUT-FIRE"**, **"COMMON-SILENCE"**, **"COMMON-DISABLE"**, **"COMMON-TEST"**, **"COMMON-DELAY"** (MSB) - see tables 1-7, 2-6 and 2-9.

The command is available at access level 3 - see also Table 3-4.

For now there are next versions:

- *0* - Basic version with relay (R) or open collector (OC) outputs fire alarm **"FIRE"** and fault **"FAULT"** outputs and with guard loop (S) for siren;
- *4* – Basic version with serial RS485 communication link;

3.1.3.11 Battery disconnection

The command is used to disconnect the battery when shutting down the panel. The mains must be switched off. Then when all the buttons are pressed (**"A"**, **"B"**, **"C"**, **"D"**, **"E"** and **"F"** keys), the battery and therefore the panel are switched off. If the mains is active on this command, the panel does not respond.

The command is available at access level 3 - see also Table 3-4.

3.1.3.12 Return to the basic access level – access level 1

Returning to access level 1 is done by simultaneously pressing the **"E"** and **"F"** buttons or automatically after 10 seconds of inactivity. The indication **"SYSTEM-LEVEL"** is off.

3.2 Operating conditions

3.2.1 Initialization

Initialization starts by turning on of the detector loop power. This occurs when the power is turned on, when all events have been reset on Access Level 2 or when the detector loop is turned off and then on at Access Level 2. If the start delay is not active, this initialization is very short (about 1 second). Otherwise one or both of the **"LOOP1-FAULT"** and/or **"LOOP2-FAULT"** indicators blinks for the selected time period during which the loop state is not evaluated. After this time the indicator goes off and the loop is ready for action.

3.2.2 Quiet

Quiet is the basic operating state of the control panel where the panel will switch on, the loops is turned on and the parameters are stabilized. All outputs are in basic condition. The panel automatically switches to **"FIRE ALARM"** or **"FAULT"** condition, if they are detected. You can manually invoke the **"TEST"** status. It is also possible to manually

switch to higher access levels of control, where individual parts (detector loops, siren loop **"SIR"**, fire alarm output **"FIRE"**, fault output **"FAULT"**, internal buzzer, delay of individual outputs) can be manually switched off or on and switched off or on of loop initialization time (initialization delay), delay of fire alarm **"FIRE"** and fault **"FAULT"** outputs delay of siren and parts of the panel in the test (detector loops, siren loop). The **"POWER-MAINS"** indicator is lit.

3.2.3 Alarm

If any fire alarm in loops occurs, the **"COMMON-FIRE"** indicator lights up, the internal buzzer sounds and the **"FIRE"** and **"SIREN"** outputs (both eventually delayed) are activated. The alarm is also indicated by the flashing of its own indicator in the appropriate loop **(**"**LOOP1-FIRE**" and/or "**LOOP2-FIRE**"). When the alarm in the loop terminates, the optical alarm indication in this loop changes to slowly blink, but the total alarm is canceled only by manual intervention at access level 2 - resetting the events. If an output delay is active, the delayed outputs can be immediately switched on of the instant response function.

In addition to the red indicator **"COMMON-FIRE"**, the detected fire alarm status is also signaled by the following outputs (if these outputs are enabled):

The **"SIREN"** output is switched on (instantaneous or delayed), ie 12VDC is the output (or 8VDC on the silence state).

The **siren function** is switched on (instantaneous or delayed), ie 12VDC (or 8VDC on the silence state) is on the detector loops.

The **"FIRE"** output is switched on (instantaneous or delayed). The following table applies:

State	*Relay output*
Normal	**NC – COM**
Fire alarm	**NO – COM**

3.2.4 Fault

If any malfunction occurs in the control panel, the **"COMMON-FAULT"** indicator lights up, the internal buzzer sounds intermittently. Furthermore the fault is indicated by its own indicator. And the **"FAULT"** output is switched on (possibly with a delay). The system recognizes the following:

- *Detector loop failure*: open loop, short circuit loop, overloaded loop **(**"**LOOP1-FAULT**" and/or "**LOOP2-FAULT**" indication);

- *Siren loop failure*: open loop, short circuit loop **(**"**SIREN-FAULT**" indication);

- *Power failure*: mains failure, missing battery, short-circuit, low battery, deep-discharged battery, charger fault, low loop output voltage **(**"**POWER-ERROR**" indication);

- *System failure*: program memory error, program run error **(**"**SYSTEM-ERROR**" indication).

After the fault has been eliminated, the indication itself disappears; only the system fault indication must be performed manually (at access level 2 - resetting the events).

In addition to the yellow indicator **"COMMON-FAULT"**, the detected fault status is

also signaled by the following output (if this output is enabled):

The **"FAULT"** output is switched on (instantaneous or delayed). The following table applies:

State	*Relay output*
Normal	**NC – COM**
Fault	**NO – COM**

3.2.5 Delay

If a delay of any output (fire alarm, siren or fault) is enabled, the **"COMMON-DELAY"** indicator lights up.

The **"OUTPUT-FIRE"** and/or **"SIREN-FAULT"** indicators blink after the fire alarm is detected and the output delay is active. The indicator blinks for the set delay time. After it expires, the delayed outputs (**"FIRE"**, **"SIREN"**) are switched on, the outputs without the active delay respond immediately. The delay can be terminated by the overriding of the active delay – the button **"A"**.

It is possible to delay the output **"FAULT"**. When the fault is detected, the **"OUTPUT-FAULT"** indicator flashes for the set delay time. After it expires, the output **"FAULT"** is activated.

3.2.6 Test

If there is a loop in the **"TEST"** state (detector loops), the detected events in tested loop are not displayed on common indicators and are not transmitted to the panel outputs (**"FIRE"**, **"FAULT"**). Only the current loop status is displayed and the internal buzzer will sound.

The **"TEST"** status is indicated by the lit of the **"COMMON-TEST"** indicator and by one or more of the **"LOOP1-FAULT"** and/or **"LOOP2-FAULT"** indicators.

The indication of the test fire alarm and its alarm memory in detector loops is the same as in normal operation mode **(**"**LOOP1-FIRE**", "**LOOP2-FIRE**"). The test alarm is terminated at Access Level 2 – all events reset. The fault indication changes the permanent light of the **"LOOP1-FAULT"** and/or **"LOOP2-FAULT"** to flashing light. The fault indication ends with removal of this fault.

The **"TEST"** status is selected and canceled at access level 3. If the **"TEST"** status is canceled, any displayed test alarms and errors are also reset.

4 Maintenance

The control panel does not need any special care or maintenance. We only recommend checking the detector and detector loops occasionally.

4.1 Checking the indicators

The test of the indicators verifies the functionality of all optical indicators and of an internal buzzer. While the key is held the lights are on and the buzzer sounds. Anyone can perform this test (i.e. the ordinary person).

4.2 Loop Tests

The **"TEST"** status is used to check the functionality of the detectors and to verify the ability of the loop to declare an alarm. After the detector loop is put into this state no alarm information is given in this loop to the outputs of the control unit or to the common indications. When the **"TEST"** status is canceled the loop (all captured events) is reset. In the **"TEST"** state loop error states can also be checked (this also applies to a supervised siren loop). This test may only be performed by the instructed person.

4.3 Errors and their removal

Different error messages are listed in the following and actions for possible error correction are described. This test may only be performed by the skilled person.

Error indication	*Possible cause*	*Proposal to fix an error*
Fault in any detector loop	Disconnect or shorted loop, to many detectors in loop, bad detector	Check the loop and connected detectors
Fault in a siren loop	Disconnect or shorted loop, bad siren	Check the loop and connected sirens
Mains error	Missing main power 230V/50Hz	Check input power line, breaker …
Battery error	Missing battery, disconnected battery, discharged battery	Check the presence and connection of the battery and its condition
Charger error	Bad battery charger, bad battery	Check battery condition
Output voltage error	Possible overload of one output, short circuit on the PCB	Check all outputs
False fire alarm announcement	To many detectors in loop, bad detector	Check the loop and connected detectors

If the proposed troubleshooting procedure does not work, call a specialist service.

4.4 Battery changing

Please contact your specialist service center for replacing of the battery !!!
This work may only be performed by the skilled person.

The battery in the control panel can only be replaced by the same type of battery. It is a 3.6 V Li-Ion battery with a capacity of 2600 mAh. The battery must have a protection circuit against excessive discharge and overcharging and limited output current.

Before replacing the battery disconnect the power supply and disconnect the battery at the access level 3. After removing the cover (three screws) disconnect the BAT jumper. Remove the top printed circuit board with LEDs and buttons. Remove the battery. When inserting a new battery, the battery polarity must be kept. Incorrect battery insertion could damage both the battery and the panel. After inserting the battery correctly (the BAT jumper must be connected) cover the panel (three screws) and turn on the mains voltage.

The replacement battery should be charged, no fault indication on the battery or the charger should light up. However we recommend that you check the battery voltage before it is inserted into the bracket, it must be higher than 3.6 V. If it is not, a battery or charger error message may appear. If the message does not disappear within about three hours, this new battery may be defective or the charger faulty - check both!

4.5 Special settings

Please contact your specialist service center to carry out these activities !!!
These works may only be performed by the skilled person.

During service you can request the following operations:

- Reset all event history in the panel
- Perform a factory settings of the panel (all settings and events are canceled)
- Change the loop supply voltage settings
- Change of the start mode of the siren loop

4.5.1 Reset of event history

All items saved in device history will be deleted.

Procedure:

- Turn off the power supply
- Disconnect the battery (see section 3.1.3.7)
- Press and hold the **"B"**, **"C"** and **"D"** buttons and turn on the power supply
- Release all buttons 5 seconds after power up.

4.5.2 Factory setting

All panel parameters can be set to their default values. This will remove existing history from device memory too.

Procedure:

- Turn off the power supply
- Disconnect the battery (see section 3.1.3.7)

- Press and hold the **"A"**, **"B"**, **"C"** and **"D"** buttons and turn on the power supply
- Release all buttons 5 seconds after power up.

4.5.3 Setting of the standard loop voltages

The default setting is the basic supply voltage 8V of the loop and in the fire alarm state 12V.

Procedure:

- Turn off the power supply
- Disconnect the battery (see section 3.1.3.7)
- Press and hold the **"B"**, **"D"** and **"E"** buttons and turn on the power supply
- Release all buttons 5 seconds after power up.

4.5.4 Setting of the loop low voltages

The low voltage setting is the supply voltage 8V all the time. This setting is not tested according to EN54-2.

Procedure:

- Turn off the power supply
- Disconnect the battery (see section 3.1.3.7)
- Press and hold the **"D"** and **"E"** buttons and turn on the power supply
- Release all buttons 5 seconds after power up.

4.5.5 Setting of the loop high voltages

The high voltage setting is the supply voltage 12V all the time. This setting is not tested according to EN54-2.

Procedure:

- Turn off the power supply
- Disconnect the battery (see section 3.1.3.7)
- Press and hold the **"A"**, **"B"**, **"D"** and **"E"** buttons and turn on the power supply
- Release all buttons 5 seconds after power up.

5 Typical times for some individual events

Event	Time in the panel	Time according to the standard
Announcement of fire alarm status	5 sec	Max. 10 seconds
Termination of fire alarm in the loop	3 sec	
Announce loop error	50 sec	Max. 100 seconds
Terminate loop error	20 sec	
Announce missing battery	2 min	Max. 15 minutes
Terminate the missing battery	5 sec	
Announce bad battery	30 min	Max. 4 hours (240 min)
Terminate the bad battery	30 min	
Detect primary power failure	7 sec	Max. 30 minutes
Termination of primary source outage	7 sec	

6 Technical parameters

- **Voltages on power outputs** (detector loops, siren loop)

Low voltage	8V	range 6.5 … 8.5 V
High voltage	12V	range 10.5 … 13.0V

- **Detector loops**

Detection method:	Measuring of loop current
Loop voltage	8V in quiet /12V in alarm
Loop idle current	<= 2.6 mA (a test current 1.3 mA + the maximum average idle current of all detectors in the loop 1.3 mA)
ALARM loop current	> 10 mA
Max. loop current	<= 110 mA (one loop) - indicative value <= 160 mA (both loops together) - indicative value
Loop failure	< 0.6 mA (interrupted loop) - indicative value > 120 mA (short circuit loop) - indicative value
End of line resistor	6.2 kΩ - for 1.3 mA of continual test current
Max. number of ICAS detectors	
in one loop	10 detectors CHOR-E or 500-IDx, max. 4 (500-IDx) or 4 (CHOR-E) detectors can be in a fire alarm condition
in both loops together	17 detectors CHOR-E (or 20 detectors without using of siren output SIR), max. 4 detectors can be in a fire alarm condition or 20 detectors 500-IDx, max. 6 detectors can be in a fire alarm condition

- **Outputs** (relays FIRE and FAULT and supervised loop SIREN)

FIRE	relay output NO / NC: 1A / 24V DC
FAULT	relay output NO / NC: 1A / 24V DC
SIREN	supervised loop SIR+ / SIR- ; a supervising can be disabled max. 80 mA / 8V or 12V (depends on detector loop voltage) 500-IDx – max 10 sirens

Loop test method – a pulsed negative voltage, measuring of a pulse current

End of line resistor	2.7 kΩ - for 3 mA of the pulse test current

- **Power**

Mains	230V AC / 35mA / 50 Hz / Class II / fixed connection
Protection	IP30
Standard backup battery	protected Li-ion, 3.6V / 2600 mAh
- time for back up	24 hours
- time for charge	100% capacity: 24 hours

The battery is placed in a holder.

- **Terminals**
  - Power 2x 7,5 mm (N, L)
  - Inputs/outputs 13 x 5 mm
    - LOOP1 L1+, L1-
    - LOOP2 L2+, L2-
    - FIRE relay – NC, NO, COM
    - FAULT relay – NC, NO, COM
    - SIREN supervised loop – SIR+, SIR-, GND
    - Diagnostic & Program - Header 7x 2,5mm and 2x 2,5mm

- **Delays**
  - *Initial delay after power up*
    - The time required to stabilize the detector loop when the loop power is turned on
    - The size of the delay can be set up to 10 minutes in 1 minute increment on the access level 3
    - This delay can be disabled, but not canceled by any button.
  - *Output activation delay (SIREN output)*
    - Required time from event detection (fire alarm) to activation of the respective output (siren – supervised loop)
    - The delay can be disabled on the access level 3
    - The size of the delay can be set up to 10 minutes in 1 minute increment on the access level 3
    - The running delay can be terminated and the required outputs are immediately activated by button on the access level 1
  - *Output activation delay (SIREN function)*
    - Required time from event detection (fire alarm) to activation of the detector loops high voltage
    - The delay can be disabled on the access level 3
    - The size of the delay can be set up to 10 minutes in 1 minute increment on the access level 3
    - The running delay can be terminated and the required outputs are immediately activated by button on the access level 1
  - *Output activation delay (FIRE output)*
    - Required time from event detection (fire alarm) to activation of the respective output (FIRE – relay or OC)
    - The delay can be disabled on the access level 3
    - The size of the delay can be set up to 10 minutes in 1 minute increment on the access level 3
    - The running delay can be terminated and the required outputs are immediately activated by button on the access level 1
  - *Output activation delay (Fault output)*
    - Required time from event detection (fault) to activation of the respective output (FAULT – relay or OC)
    - The delay can be disabled on the access level 3
    - The size of the delay can be set up to 10 minutes in 1 minute increment on the access level 3

- The running delay can be terminated and the required outputs are immediately activated by button on the access level 1

Temperature: -10 °C to +45 °C
Humidity: 95%RH (without condensation)
Dimensions: 150 x 98 x 45 mm

Recommended loop cable: AF CEI 20-22 IEC 332 or VD-04 shielded cable or equivalent.

Specifications:
EN 54-2: 1997 + A1: 2006,
EN 54-4: 1997 + A l: 2002 + A2: 2006,
EN 62368-1: 2014 + A11: 2017,
EN 55032: 2015,
EN 61000-3-2: 2014,
EN 61000-3-3: 2013,
EN 50130-4: 2011 + A1: 2014

7 Product label

CE 1293
ICAS AS, Grini Naeringspark 15 1332 Oesteraas, Norway 19 1293 – CPR - 0650
EN 54-2:1997/AC:1999/A1:2006 Control Unit for electrical fire alarm systems for buildings **EN 54-4:1997/AC:1999/A1:2002/A2:2006** Power Supply for electrical fire alarm systems for buildings **Small fire panel IMC-MD (RZ04)** Software version: 32.003 Mains: 230V (+10% -15%) / 50 Hz / 35 mA (max) Fixed connection, Class II, IP30 Battery: 3,6V / 2,6 Ah IDOOO ICR18650 Two detector loops Relay outputs Optional requirements: Supervised siren loop State TEST Delay on outputs Documentation: IMC-MD – User manual
Batch number: YYYYXX

Batch number: YYYY – the year of the production
XX – the week in year of the production

Tables

Table 1-1: Indicator description for the basic access level (access level 1)

Indicator		Off	Continuous lit	Fast blinking (0,5 sec)	Blinking (1 seconds)	Slowly blinking (2 seconds)
LOOP 1	**FAULT**		Loop off or loop in test	Shorted loop or fault in TEST state	Loop initialization	Fault in loop
	FIRE		Fire alarm memory		Fire alarm in loop	
LOOP 2	**FAULT**		Loop off or loop in test	Shorted loop or fault in TEST state	Loop initialization	Fault in loop
	FIRE		Fire alarm memory		Fire alarm in loop	
SIREN	**FAULT**		Loop off		Active siren output delay	Fault in loop / Loop suppressed
	A		Siren function off		Active siren function delay	
OUTPUT	**FIRE**		Fire alarm output off		Active fire output delay	
	FAULT		Fault output off		Active fault output delay	
COMMON	**SILENCE**		Silencing of siren			
	DELAY		Output delay enabled			
	DISABLE		Panel part disabled or shorted loop			
	TEST		Loop in test state			
	FAULT		Fault in panel			
	FIRE		Fire alarm in panel			
SYSTEM	**ERROR**		System error detected			
	LEVEL	Access level 1		Transition to access level 2 or 3		
POWER	**ERROR**		Battery error	Output voltage error	Mains error	Charger error
	MAINS		Mains operated		Battery operated	

Indicators description for the basic access level (access level 1)
Table 1-1

Table 1-2: Indicator description for the access level 2 – disabling and enabling of the panel parts

Indicator		Off	Continuous lit	Fast blinking (0,5 sec)	Blinking (1 seconds)	Slowly blinking (2 seconds)
LOOP 1	**FAULT**	Loop 1 on	Loop 1 off			
	FIRE					
LOOP 2	**FAULT**	Loop 2 on	Loop 2 off			
	FIRE					
SIREN	**FAULT**	Siren output enabled	Siren output disabled			Siren output suppressed
	A	Siren function enabled	Siren function disabled			
OUTPUT	**FAULT**	Fault output enabled	Fault output disabled			
	FIRE	Fire alarm output enabled	Fire alarm output disabled			
COMMON	**SILENCE**					
	DELAY					
	DISABLE					
	TEST					
	FAULT	Internal buzzer for errors enabled	Internal buzzer for errors disabled			
	FIRE	Internal buzzer for fire alarm enabled	Internal buzzer for fire alarm disabled			
SYSTEM	**ERROR**		System error detected			
	LEVEL		Access level 2			
POWER	**ERROR**		Battery error	Output voltage error	Mains error	Charger error
	MAINS		Mains operated		Battery operated	

Indicator description for the access level 2 – disabling and enabling of the panel parts
Table 1-2

Table 1-3: ***Indicator description for the access level 3 – disabling and enabling of the panel delays***

Indicator		Off	Continuous lit	Fast blinking (0,5 sec)	Blinking (1 seconds)	Slowly blinking (2 seconds)
LOOP 1	**FAULT**	Initialization delay for loop 1 disabled	Initialization delay for loop 1 enabled			
	FIRE					
LOOP 2	**FAULT**	Initialization delay for loop 2 disabled	Initialization delay for loop 2 enabled			
	FIRE					
SIREN	**FAULT**	Siren output delay disabled	Siren output delay enabled			
	A	Siren function delay disabled	Siren function delay enabled			
OUTPUT	**FAULT**	Delay for fire alarm output disabled	Delay for fire alarm output enabled			
	FIRE	Delay for fault output disabled	Delay for fault output enabled			
COMMON	**SILENCE**					
	DELAY					
	DISABLE					
	TEST					
	FAULT					
	FIRE					
SYSTEM	**ERROR**		System error detected			
	LEVEL		Access level 2			
POWER	**ERROR**		Battery error	Output voltage error	Mains error	Charger error
	MAINS		Mains operated		Battery operated	

Indicator description for the access level 2 – disabling and enabling of the panel delays
Table 1-3

Table 1-4: Indicator description for the access level 3 – delay lengths

Indicator		Off	Continuous lit	Fast blinking (0,5 sec)	Blinking (1 seconds)	Slowly blinking (2 seconds)
LOOP 1	**FAULT**		Delay 1 minute			
	FIRE		Delay setting for loop 1 or siren			
LOOP 2	**FAULT**		Delay 2 minutes			
	FIRE		Delay setting for loop 2 or siren			
SIREN	**FAULT**		Delay 3 minutes			
	A		Delay 10 minutes			
OUTPUT	**FAULT**		Delay 9 minutes			
	FIRE		Delay 4 minutes			
COMMON	**SILENCE**		Delay 5 minutes			
	DELAY		Delay 8 minutes			
	DISABLE		Delay 6 minutes			
	TEST		Delay 7 minutes			
	FAULT		Delay setting for fault output			
	FIRE		Delay setting for fire alarm output			
SYSTEM	**ERROR**		System error detected			
	LEVEL				Access level 3	
POWER	**ERROR**		Battery error	Output voltage error	Mains error	Charger error
	MAINS		Mains operated		Battery operated	

Indicator description for the access level 3 – delay lengths
Table 1-4

Table 1-5: Indicator description for the access level 3 – TEST state setting

Indicator		Off	Continuous lit	Fast blinking (0,5 sec)	Blinking (1 seconds)	Slowly blinking (2 seconds)
LOOP 1	**FAULT**	Loop 1 test state disabled	Loop 1 test state enabled			
	FIRE					
LOOP 2	**FAULT**	Loop 2 test state disabled	Loop 2 test state enabled			
	FIRE					
SIREN	**FAULT**					
	A					
OUTPUT	**FAULT**					
	FIRE					
COMMON	**SILENCE**					
	DELAY					
	DISABLE					
	TEST					
	FAULT					
	FIRE					
SYSTEM	**ERROR**		System error detected			
	LEVEL				Access level 3	
POWER	**ERROR**		Battery error	Output voltage error	Mains error	Charger error
	MAINS		Mains operated		Battery operated	

Indicator description for the access level 3 – TEST state setting
Table 1-5

Table 1-6: Indicator description for the access level 3 – configuration settings

Indicator		Off	Continuous lit	Fast blinking (0,5 sec)	Blinking (1 seconds)	Slowly blinking (2 seconds)
LOOP 1	**FAULT**		Basic loop voltage 8 VDC			
	FIRE		Basic loop voltage 12 VDC			
LOOP 2	**FAULT**		Alarm loop voltage 8 VDC			
	FIRE		Alarm loop voltage 12 VDC			
SIREN	**FAULT**	Auto start of SIR loop off	Auto start of SIR loop on			
	A	Standard mode for SIR loop	Silenced mode for SIR loop			
OUTPUT	**FAULT**					
	FIRE					
COMMON	**SILENCE**					
	DELAY					
	DISABLE					
	TEST					
	FAULT					
	FIRE					
SYSTEM	**ERROR**		System error detected			
	LEVEL				Access level 3	
POWER	**ERROR**		Battery error	Output voltage error	Mains error	Charger error
	MAINS		Mains operated		Battery operated	

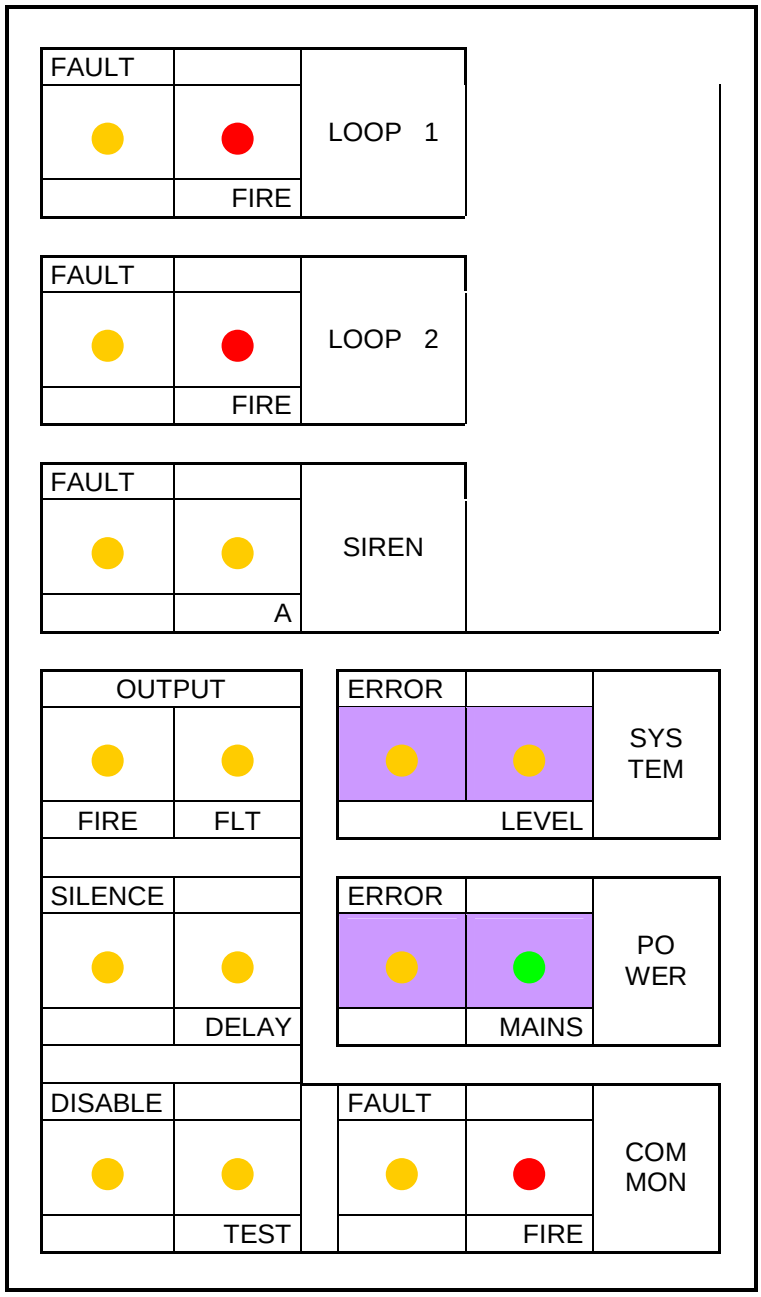
Indicator description for the access level 3 – others
Table 1-6

Table 1-7: Indicator description for the access level 3 – others

Indicator		Off	Continuous lit	Fast blinking (0,5 sec)	Blinking (1 seconds)	Slowly blinking (2 seconds)
LOOP 1	**FAULT**		Bit 0 (LSB)			
	FIRE					
LOOP 2	**FAULT**		Bit 1			
	FIRE					
SIREN	**FAULT**		Bit 2			
	A					
OUTPUT	**FAULT**		Bit 3			
	FIRE					
COMMON	**SILENCE**		Bit 4			
	DELAY		Bit 7 (MSB)			
	DISABLE		Bit 5			
	TEST		Bit6			
	FAULT					
	FIRE					
SYSTEM	**ERROR**		System error detected			
	LEVEL				Access level 3	
POWER	**ERROR**		Battery error	Output voltage error	Mains error	Charger error
	MAINS		Mains operated		Battery operated	

Indicator description for the access level 3 – others
Table 1-7

Table 2-1: ***Indications on the access level 1 and indications on the access level 2 without pushing any pushbuttons***

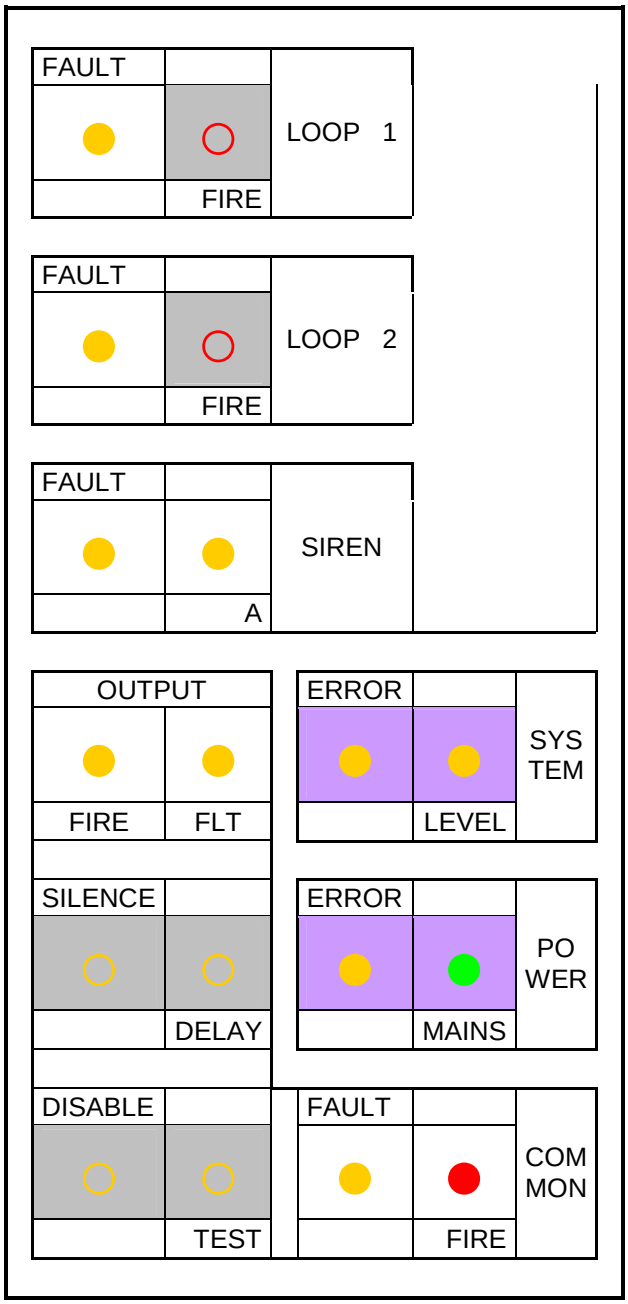


Indications on the access level 1

Indications on the access level 2 without pushing any pushbuttons

Table 2-1

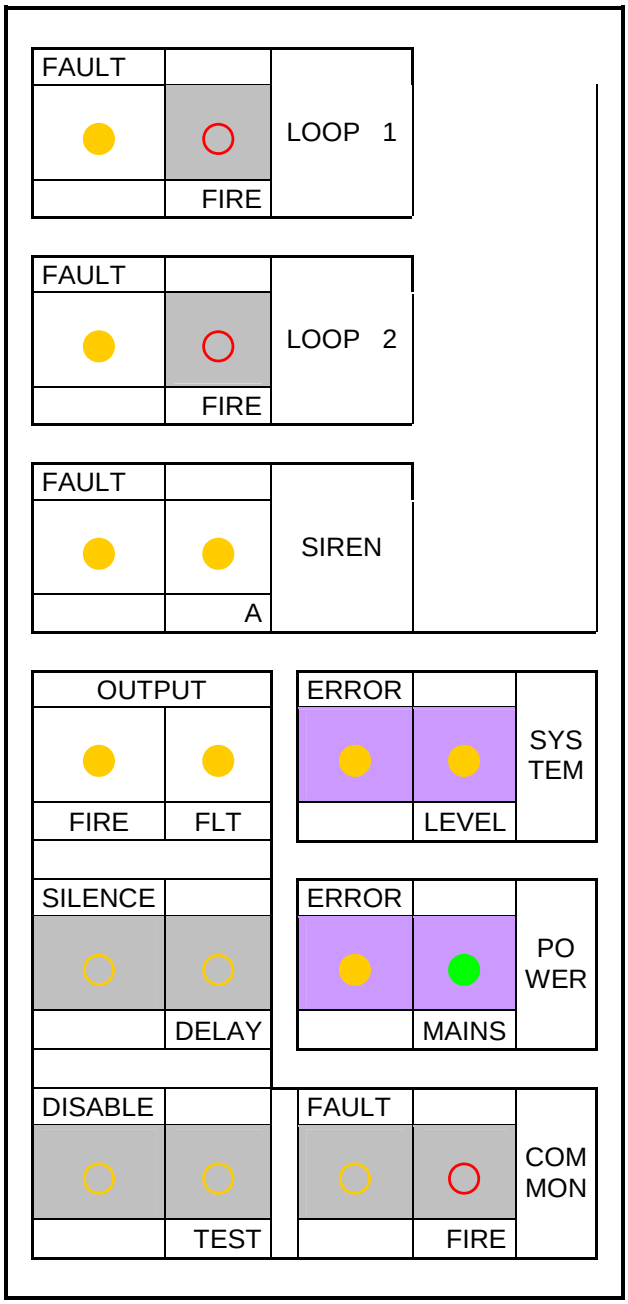
Table 2-2: ***Indications on the access level 2***



Indications on the access level 2
Indication for disabling or enabling of any parts of the control panel

Table 2-2

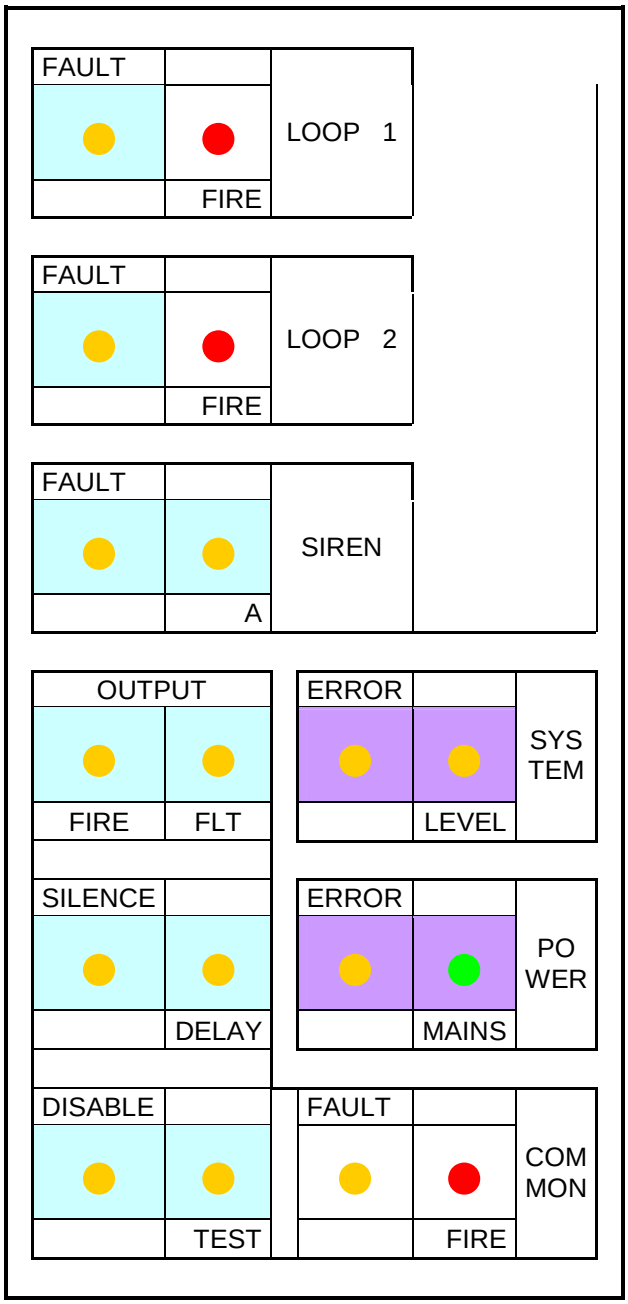
Table 2-3: Indications on the access level 3



Indications on the access level 3
Indication for disabling or enabling of any delay in the control panel

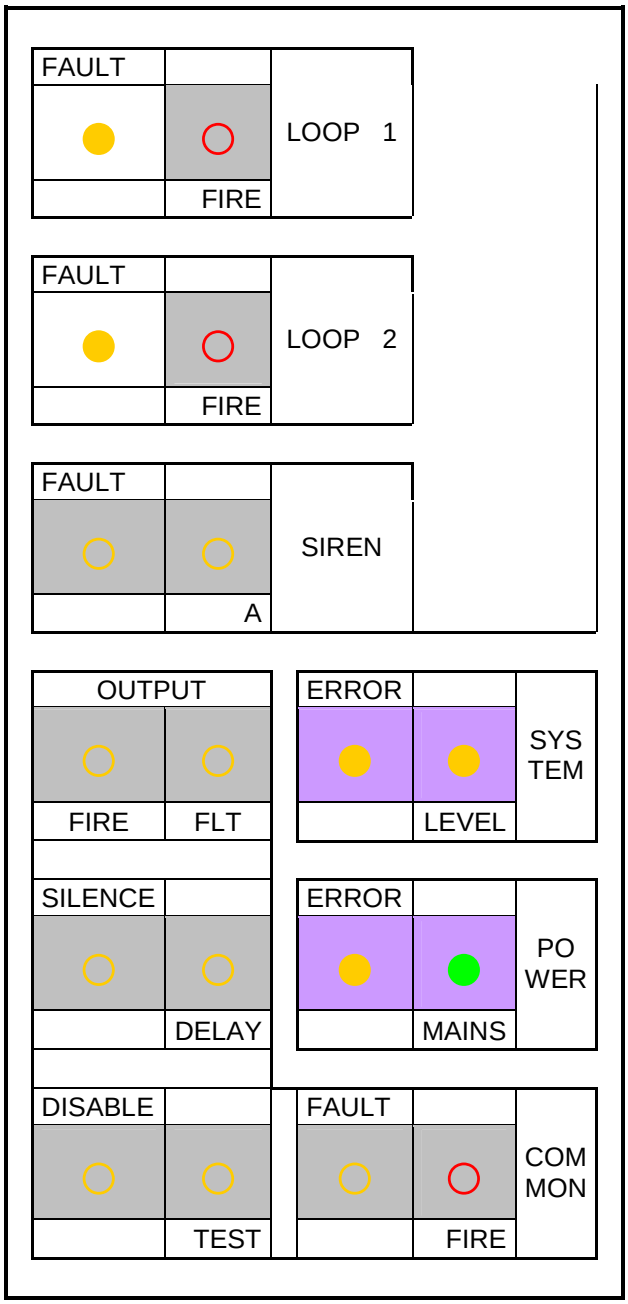
Table 2-3

Tables 2-4 and 2-5: Indications on the access level 3



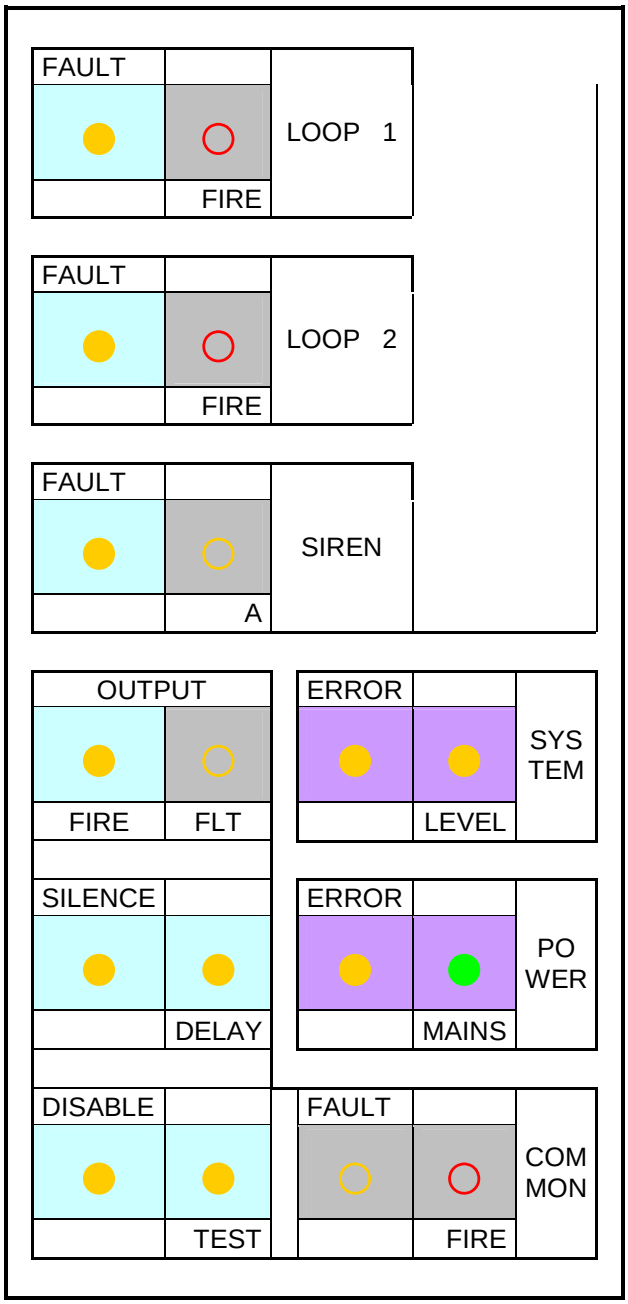
Indications on the access level 3

Indication in setting of delay values
Table 2-4

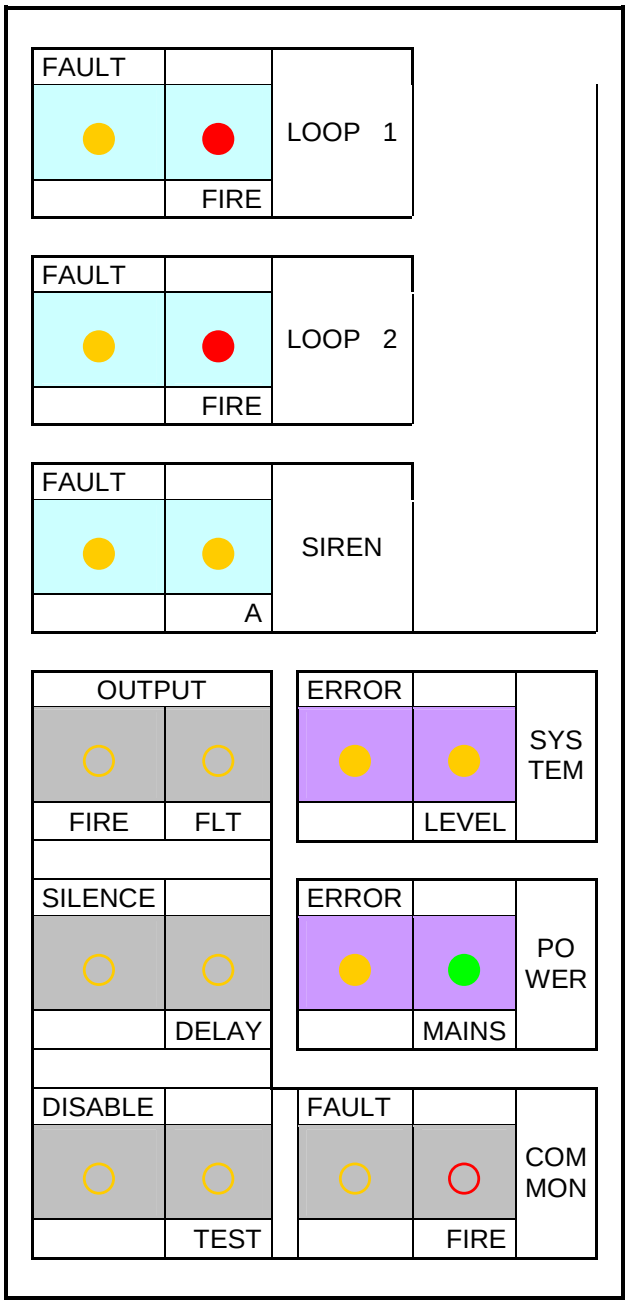


Indications on the access level 3
Indication for disabling or enabling a test state of any parts of the control panel
Table 2-5

Tables 2-6 and 2-7: Indications on the access level 3

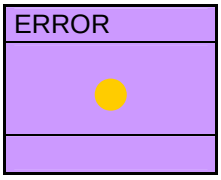
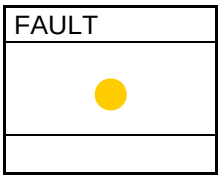
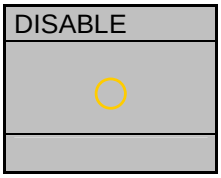
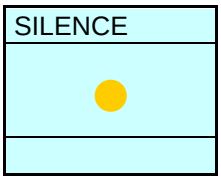


Indications on the access level 3
Display of information about the control panel
Table 2-6



Indications on the access level 3
Display of configuration information
Table 2-7

Table 2-8: Explanation of indications

	Indication of the basic status of the panel which is the same for all access levels. The description is valid for access level 1 (here ERROR).
	The function indication used at the given access level. The description is valid for access level 1 (here FAULT); the exact meaning for the function is described in the relevant chapter for the function.
	Unused function indication. The description is valid for access level 1 (here DISABLE).
	Information relevant to the selected function

Explanation of indications

Table 2-8

Table 2-9: Encoding of characters

Encoding of a lower character

"LOOP1-FAULT"	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●
"LOOP2-FAULT"	○	○	●	●	○	○	●	●	○	○	●	●	○	○	●	●
"SIREN-FAULT"	○	○	○	○	●	●	●	●	○	○	○	○	●	●	●	●
"OUTPUT-FIRE"	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	●
Hexadecimal value	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

Encoding of a higher character

"COMMON-SILENCE"	○	●	○	●	○	●	○	●	○	●	○	●	○	●	○	●
"COMMON-DISABLE"	○	○	●	●	○	○	●	●	○	○	●	●	○	○	●	●
"COMMON-TEST"	○	○	○	○	●	●	●	●	○	○	○	○	●	●	●	●
"COMMON-DELAY"	○	○	○	○	○	○	○	○	●	●	●	●	●	●	●	●
Hexadecimal value	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

○	The indicator is off
●	The indicator is on

Table 2-9 - Encoding of characters

Table 3-1: Commands available at access level 1

LED LEVEL	Pushbuttons						Description	Comments
	A	B	C	D	E	F		
OFF	○	○	○	○	○	○	Nothing	
	●	○	○	○	○	○	Prompt reaction	
	○	●	○	○	○	○	Silence / Un-silence	
	○	○	○	○	○	●	Test of all indicators	
	○	○	○	○	●	●	Entry to pre-level	Press and hold of buttons **"F"** and **"E"** together. The LED LEVEL begins fast blink for access pre-level, do not release the buttons.

●	Pressed button	
○	Released button	

Table 3-2: Commands available at access pre-level – entry to the access level 2 or 3

LED LEVEL	Pushbuttons						Description	Comments
	A	B	C	D	E	F		
FAST BLINKS	●	○	○	○	●	●	Entry to access level 2	Press of button **"A"** together with pressed **"F"** and **"E"** up to LED LEVEL is ON for access level 2
	○	●	○	○	●	●	Entry to access level 3	Press of button **"B"** together with pressed **"F" and "E"** up to LED LEVEL is ON for access level 3

Table 3-3: Commands available at access level 2

LED	Pushbuttons						Description	Comments
LEVEL	A	B	C	D	E	F		
ON	○	○	○	○	○	○	Nothing	
	●	○	○	○	○	○	Prompt reaction	
	○	●	○	○	○	○	Silence / Un-silence	
	●	●	○	○	○	○	Mute / Un-mute SIREN output	
	○	○	●	○	○	○	Reset of events (fires, faults)	
	○	○	○	●	○	○	Disabling - actual status	Disabling
	●	○	○	●	○	○	Disabling / enabling of loop 1	
	○	●	○	●	○	○	Disabling / enabling of loop 2	
	●	●	○	●	○	○	Disabling / enabling of ALARM output	
	○	○	●	●	○	○	Disabling / enabling of SIREN output	
	●	○	●	●	○	○	Disabling / enabling of FAULT output	
	○	●	●	●	○	○	Disabling / enabling of siren function	
	○	○	○	●	●	○	Disabling - actual status	
	●	○	○	●	●	○	Disabling / enabling of alarm buzzer	
	○	●	○	●	●	○	Disabling / enabling of fault buzzer	
	○	○	○	○	○	●	Test of all indicators	
	○	○	○	○	●	●	Return to access level 1	Long press of buttons **"F"** and **"E"** together up to LED LEVEL is OFF for access level 1

Table 3-4: Commands available at access level 3

LED	Pushbuttons						Description	Comments
LEVEL	A	B	C	D	E	F		
BLINKS	○	○	○	○	○	○	Nothing	
	○	●	○	○	○	○	Silence / Un-silence	
	○	○	○	●	○	○	Loops in test - actual status	Test
	●	○	○	●	○	○	Activation / deactivation of test in loop 1	
	○	●	○	●	○	○	Activation / deactivation of test in loop 2	
	○	○	○	○	●	○	Delays disabling - actual value	Delays disabling
	●	○	○	○	●	○	Disabling / enabling of start delay for loop 1	
	○	●	○	○	●	○	Disabling / enabling of start delay for loop 2	
	●	●	○	○	●	○	Disabling / enabling of delay for ALARM output	
	○	○	●	○	●	○	Disabling / enabling of delay for SIREN output	
	●	○	●	○	●	○	Disabling / enabling of delay for FAULT output	
	○	●	●	○	●	○	Disabling / enabling of delay for siren function	
	●	●	●	○	●	○	Disabling / enabling silencing of SIREN output	Silenced SIR loop
	○	○	○	○	●	○	Delays - actual value	Value of delay
	●	○	○	●	●	○	Setting of start delay for loop 1	
	○	●	○	●	●	○	Setting of start delay for loop 2	
	●	●	○	●	●	○	Setting of delay for ALARM output	
	○	○	●	●	●	○	Setting of delay for SIREN output	
	●	○	●	●	●	○	Setting of delay for FAULT output	
	○	●	●	●	●	○	Setting of delay for siren function	
	●	●	●	●	●	○	Setting auto SIREN output	Auto SIR loop
	●	○	○	○	○	●	Display of software version	Info
	○	●	○	○	○	●	Display of device mode	
	●	●	○	○	○	●	Display of release number	

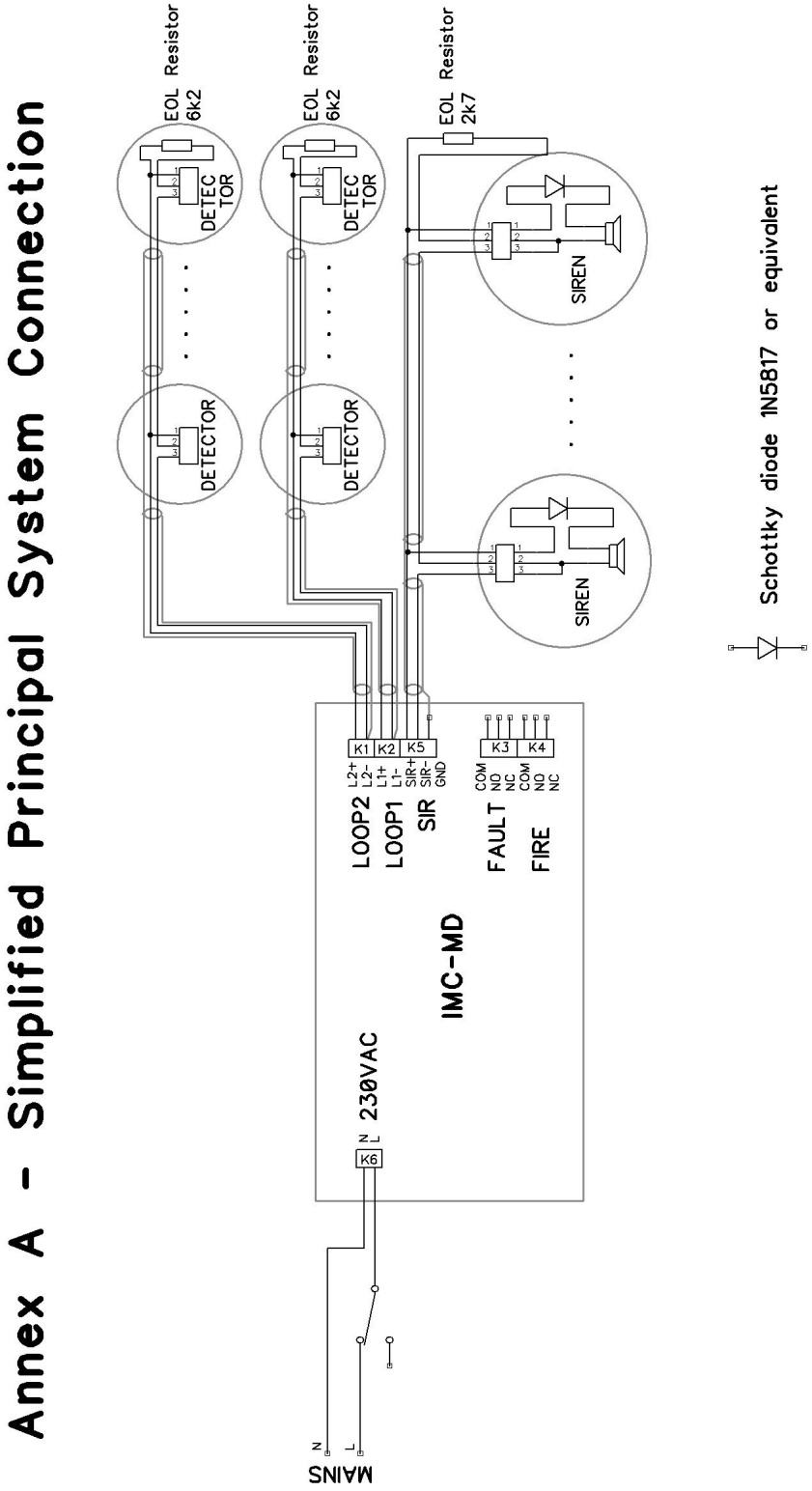
	○	○	●	○	○	●	Display of S/N - low	
	●	○	●	○	○	●	Display of S/N - medium	
	○	●	●	○	○	●	Display of S/N - high	
	○	○	○	●	○	●	Display loop voltage	
	●	●	●	●	●	●	Disconnection of battery	
	○	○	○	○	●	●	Return to access level 1	Long press of buttons **"F"** and **"E"** together up to LED LEVEL is OFF for access level 1

Table 3-5: Commands available at power start up

Pushbuttons						Description	Comments
A	B	C	D	E	F		
○	○	○	○	○	○	Nothing	
○	●	●	●	○	○	Clear of history	
●	●	●	●	○	○	Restore of factory setting	
○	○	○	●	●	○	8V always (Not tested according to EN54-2)	Loop voltages
○	●	○	●	●	○	8V normal, 12V fire alarm	
●	●	○	●	●	○	12V always (Not tested according to EN54-2)	
●	●	●	●	●	●	Entry to manual diagnostic mode	

Annexes

Annex A: Simplified principal system connections

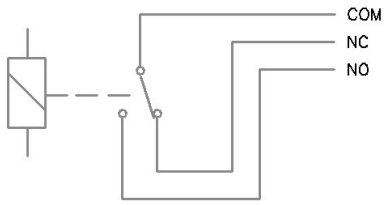


Annex B: Simplified principal output schema

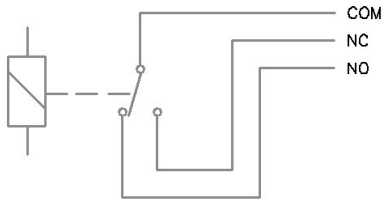
Annex B
Simplified Principal Output Schema

RELAY OUTPUT FIRE ALARM

NORMAL

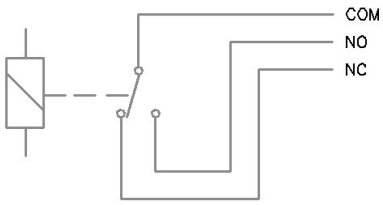


FIRE ALARM

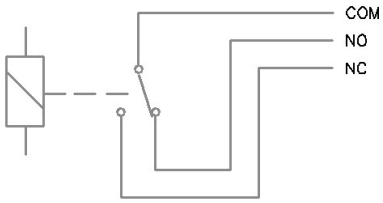


RELAY OUTPUT FAULT

NORMAL

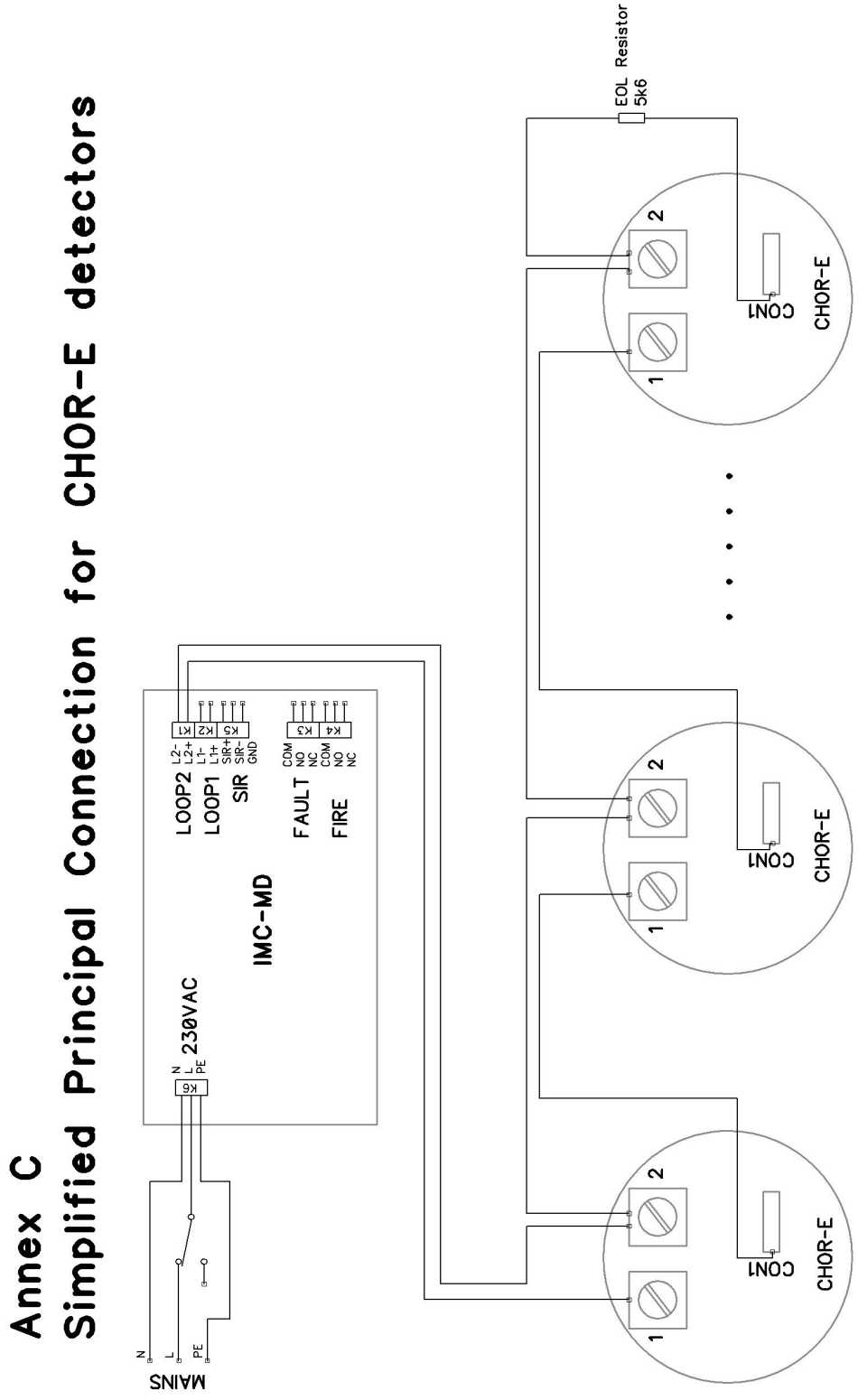


FAULT



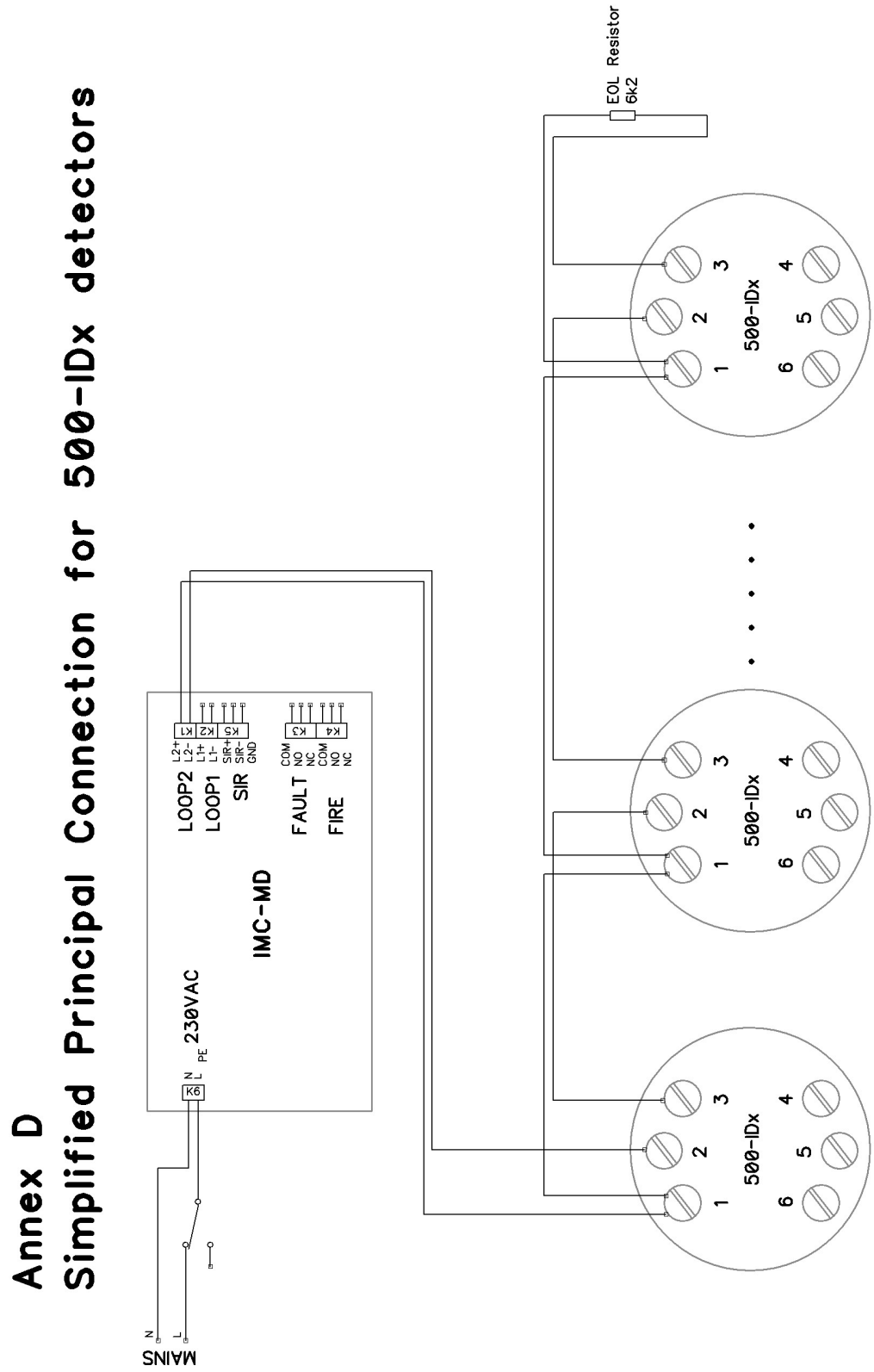
Annex C: Simplified principal connection for CHOR-E detectors

The cable shields must be connected as shown in Annex A.



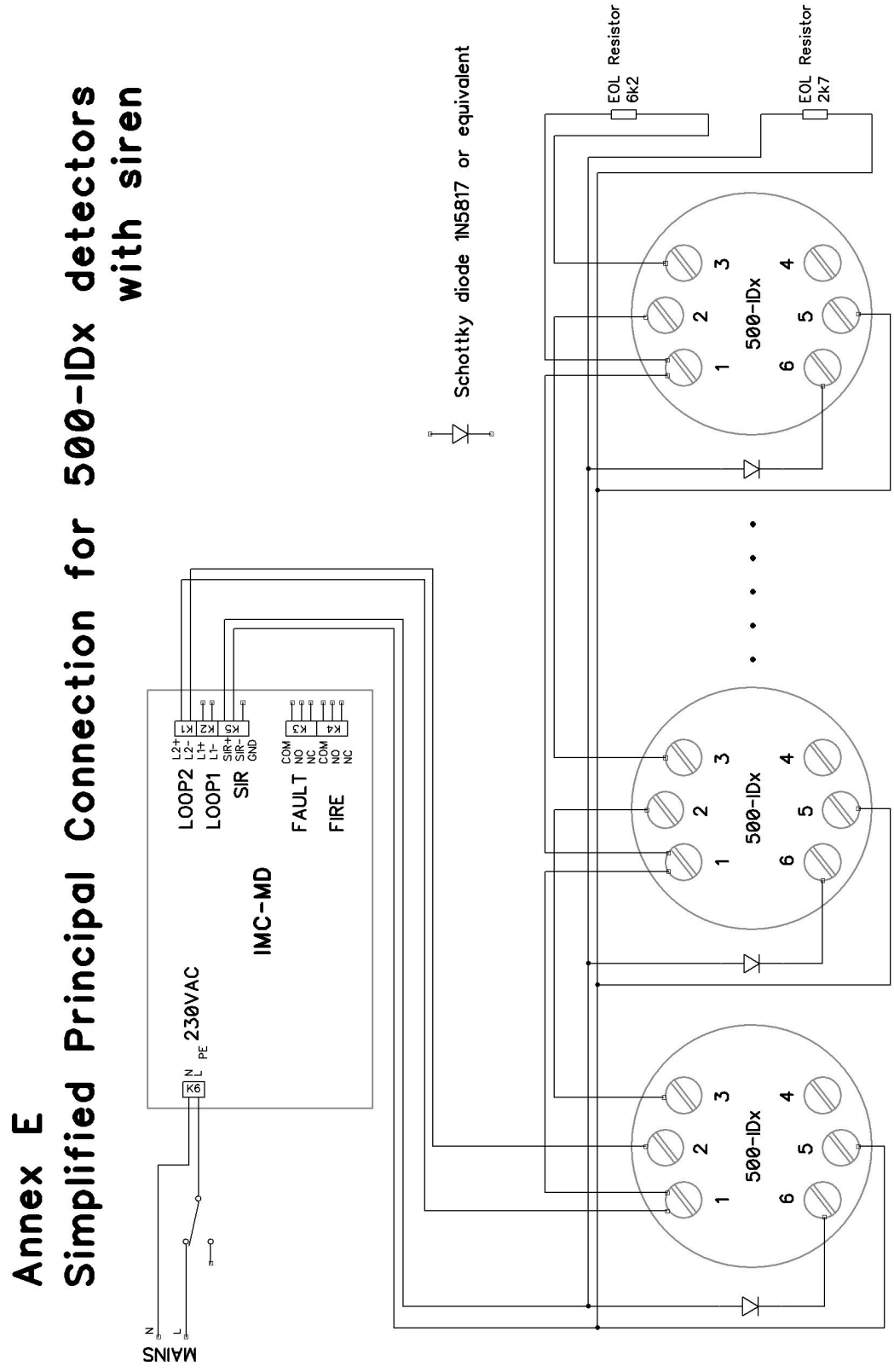
Annex D: Simplified principal connection for 500-IDx detectors

The cable shields must be connected as shown in Annex A.



Annex E: Simplified principal connection for 500-IDx detectors with siren connected to the supervised loop

The cable shields must be connected as shown in Annex A.



Annex F: Simplified principal connection for 500-IDx detectors with siren connected to the not supervised loop

The cable shields must be connected as shown in Annex A.