



ALARM MONITOR AM-64

Protection Program

PZ-07104E

Application

Alarm monitors AM-64 are used for continuous monitoring of number of alarm contacts in processes. The monitor recognizes alarm condition via potential free or externally supplied field contacts and controls visual and audible alarm indication. Alarm monitor is

developed to meet the most demanding reliability and availability specifications, and it is intended for application in electric power plants, industrial plants and processes.

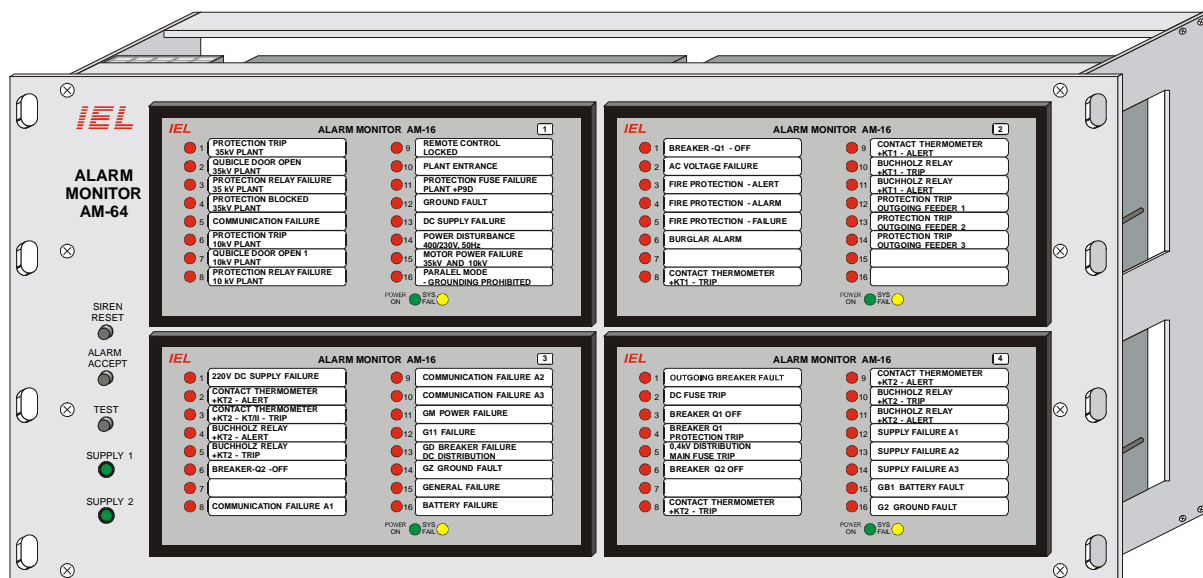


figure 1. Alarm monitor AM-64

Main features

- microprocessor based processing of 64 alarm signals
- alarm processing according to DIN 19235 or ISA alarm sequences
- self test, local and remote signalization of availability
- internal supplying of potential free input contacts galvanically insulated from auxiliary supply
- high immunity to electrical interference
- time limiting of audible alarm
- first alarm recognition by quick flashing frequency
- synchronized flashing for several AM-xx monitors
- user friendly monitor programming on site
- easy entering of text for channels in prepared text forms (up to 50 characters per channel)
- mounting in 19" rack
- simple connection using plug-in terminals
- RS485, F.O. or Ethernet communication with host system
- communication protocols MODBUS RTU, MODBUS TCP, IEC 60870-5-101(104), IEC 61850

Functional description

Alarm monitor AM-64 consists of four Alarm monitors AM-16. Sophisticated distributed processor technology used in AM-64 ensures high reliability and offers a set of additional functions in

comparison with classic solutions.

Inter connection of four alarm monitors AM-16 in a single AM-64 and all external connection are given in figure 2.

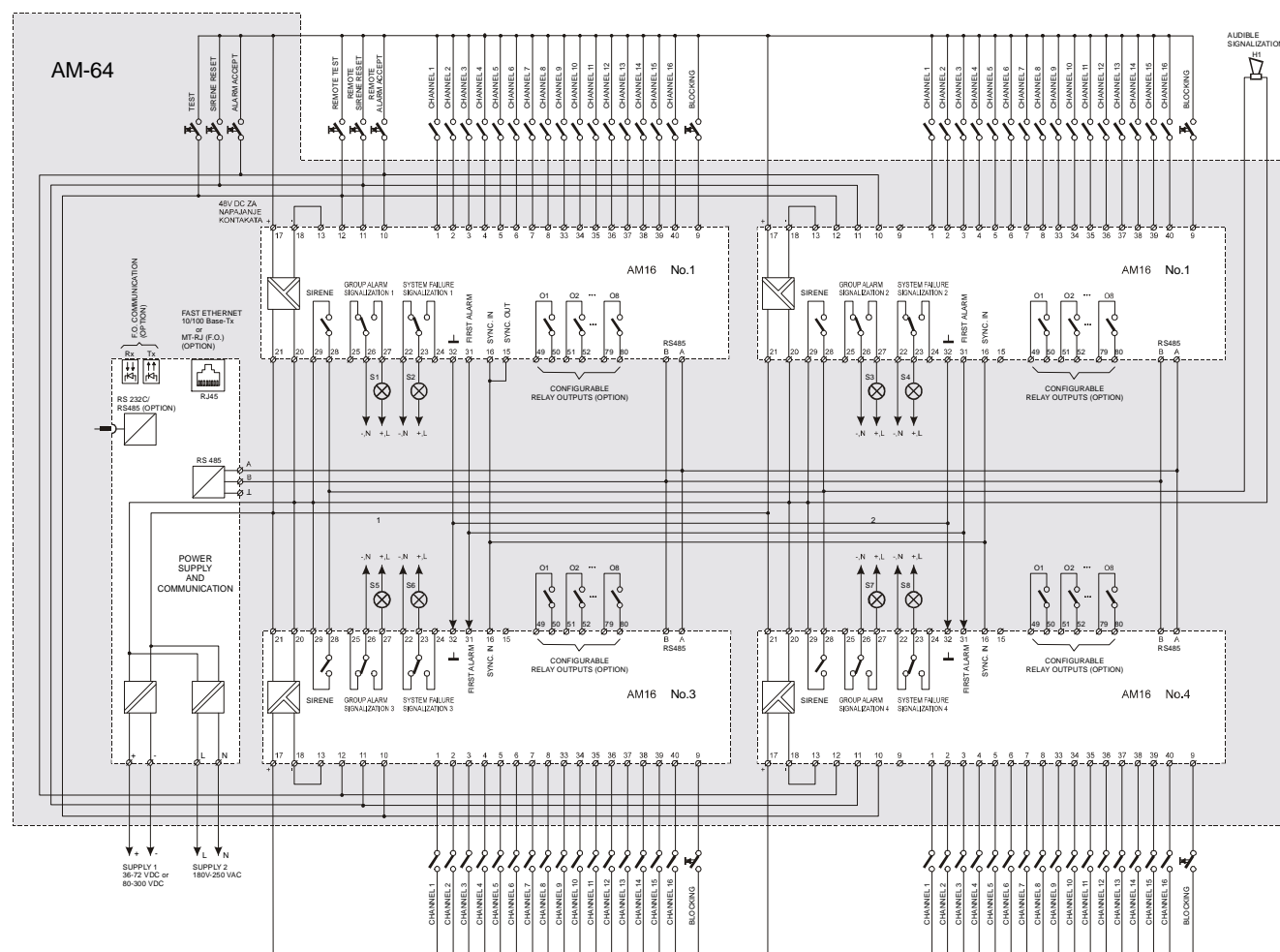


figure2. Terminal diagram of Alarm monitor AM-64

Potential free or externally supplied contacts from the field are connected to input channels. The contacts can be normally open (NO) or normally closed (NC). The monitor's processing unit continuously monitors the condition of input contacts and according to selected alarm sequence and parameter setting controls visual alarm indication and output for audible alarm. AM-xx can perform following alarm sequences: ISA-A1, ISA-M1, ISA-R1 or DIN 19235.

Often used sequence ISA-A1 operates on following principle: when input contact changes to alarm condition, input channel recognizes the alarm, and after programmed delay (ALARM DELAY) associated indication LED begins to flash and relay SIRENE activates audible alarm. By pushing the push button SIRENE RESET/LAMP TEST the audible alarm is switched off. Optionally the audible alarm can be time limited (e.g. 30s). After resetting the audible alarm it is possible to quit the visual alarm indication by pushing the button ALARM ACCEPT. If the alarm condition still exists on the input, flashing light changes to permanent, otherwise the visual indication is extinguished. Other alarm sequences are described in Users manual.

Each Alarm monitor has two additional signalling relays. First relay (GROUP ALARM) activates contact when the input from programmed group

changes to alarm condition. Each of 64 input channel can activate any of four groups. Second relay (SYSTEM FAIL) activates contact when alarm monitor is not available. This relay is normally energized.

According to programmed selection input channel can be blocked by external contact (BLOCK). After vanishing the external blockade selected channel stays blocked for programmed unblocking delay (10ms, 100ms, 2s or 15s).

Alarm accept, siren reset and test of indication LEDs can be performed via push buttons on front panel (fig. 1.), or via external remote push buttons (fig. 2.).

The monitor can be configured for first alarm recognition. In this case the first alarm will flash with double frequency. The function of first alarm recognition can be extended to several alarm monitors by connecting the monitors according to fig. 3a. If the synchronisation of flashing frequencies for several units is requested the monitors should be connected according to fig. 3b.

The monitor includes power supply for galvanically insulated supplying of internal electronics, field contacts and external push buttons. Alarm monitor has two separate supplies (AC and DC).

Alarm monitor can communicate with host computer via several types of standard communication interfaces (RS485, optical, Ethernet).

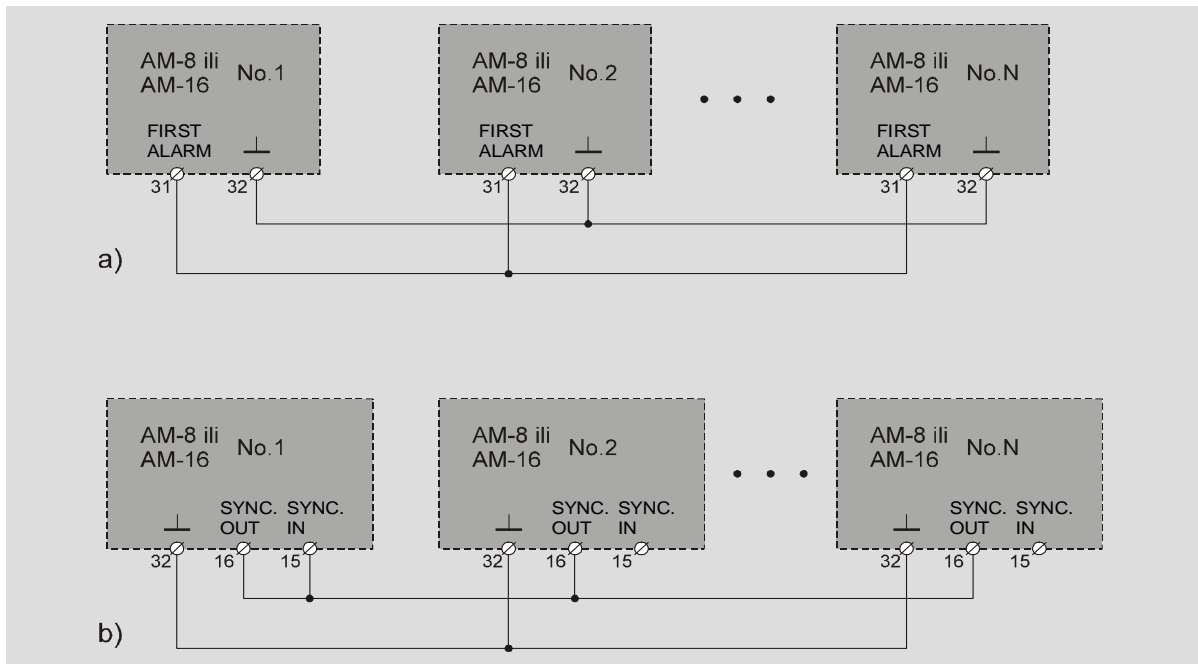


figure 3. First alarm recognition and flashing synchronisation for monitors AM-xx

Programming - configuring of the monitor

Application of microprocessor technology in alarm monitor AM-64 ensures great flexibility in solving various process demands. Programming (configuring) of the monitor is realized user

friendly via DIP switches. Twelve groups of DIP switches used for programming - configuring the monitor are located under the front panel of each Alarm monitor AM-16 (fig. 4.).

Besides DIP switch programming the monitors can be programmed by means of personal computer via communication.

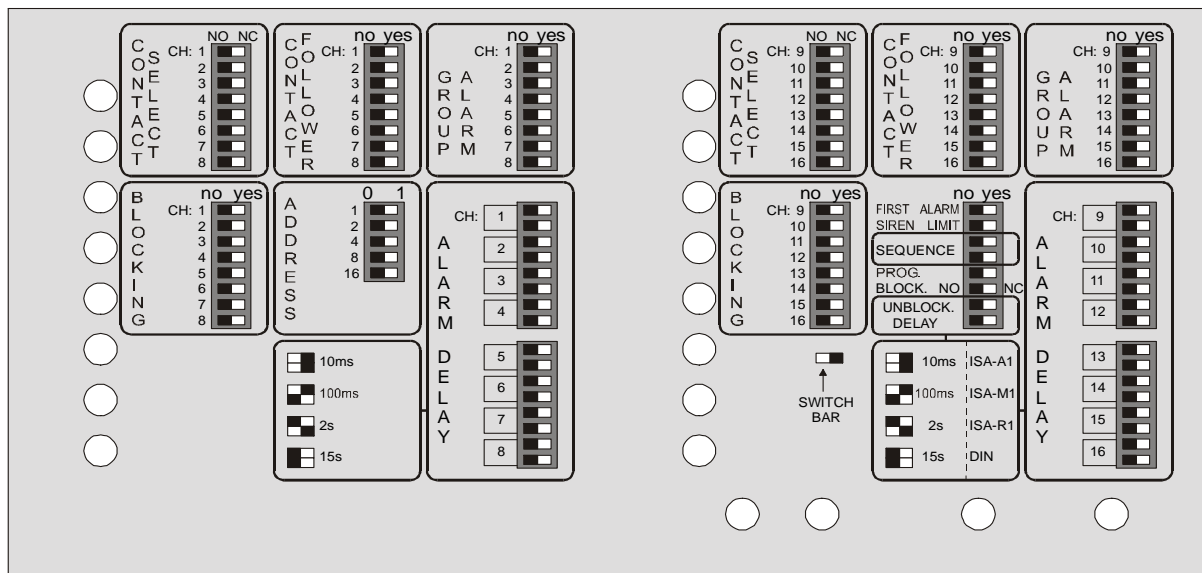


figure 4. DIP switches for programming alarm monitor AM-16

CONTACT SELECT.. 8 switches for selecting the type of input contact - normally open (NO) or normally closed (NC)

GROUP ALARM..... 8 switches that enable forming the group alarm for selected channels. Group activates output relay GROUP ALARM.

BLOCKING 8 switches that enable blocking of selected channel with external blockade input

ALARM DELAY 16 switches for selecting one of preset values for time delay (10ms, 100ms, 2s or 15s), separately for each channel.

FOLLOWER..... 8 switches used for selecting the channel that realize "contact follower" function. Selected channel does not perform the alarm sequence, it indicates only the condition of input contact.

ADDRESS..... 5 switches for defining communication address of the unit (on AM-8 the switches are located on rear side of the unit)

SYSTEM..... this set defines the system parameters:

first alarm..... selection of first alarm function (first alarm flashes with double frequency)

sequence..... selection of alarm sequence: ISA-A1, ISA-M1, ISA-R1 or DIN 19235

sirene limitselection of limited or infinite time duration for audible alarm

blocking.....selection of contact type for blockade input - normally open (NO) or normally closed (NC)

unblocking delayselects the time delay after vanishing the blockade input (10ms, 100ms, 2s ili 15s)

PROG RS 232.....monitor (AM-16) programing by personal computer (RS 232) or DIP switches

Specifications

number of input channels 64

alarm inputs potential free contacts normally open (NO) or normally closed (NC)

blockade input potential free contact normally open (NO) or normally closed (NC)

external push button inputs
EXT ALARM ACCEPT,
EXT SIRENE RESET,
EXT TEST potential free normally open contact (NO)

supply for inputs contacts..... internal 48V DC, galvanically insulated from auxiliary supply (external on request)

loop current of closed input contact..... 4mA with 48V DC supply

time delays
alarms..... programmable: 10ms, 100ms, 2s or 15s; other four times on request (max. 325s)

unblocking delay..... programmable: 10ms, 100ms, 2s or 15s; other four times on request (max. 325s)

sirene limit time 30s; other time on request (max. 255s)

flashing frequency alarm 1Hz
first alarm 2Hz

local LED indication

alarm LED red
POWER ON LED green
SYS FAIL LED yellow

signalling relais

audible signalization
(SIRENE)..... normally open (NO) contact, 250V, 5A

group alarm signalization
(GROUP ALARM)..... changeover contact, 250V, 5A

system failure signalization
(SYS FAIL) changeover contact, 250V, 5A

Remote alarm signaling 16 relays, option 32 relays 250V, 5A

communication RS485, F.O., ETHERNET

protocols..... MODBUS RTU (TCP), SPA BUS, PROFIBUS DP, IEC 61850, IEC 60870-5-101(104)

programming by communication

software..... AM DIALOG

auxiliary power supply

double supply
1. power supply 36 – 72 VDC or 80 – 300VDC
2. power supply 180 – 250 VAC
galvanically insulated
power consumption max. 40 VA

general data

temperature range -10°C +55°C
extended temperature range -20°C +60°C
insulation test voltage 2,0kV, 50Hz, 1min

dimensions 482,6x221,5x124 mm, 19" rack

connections..... eight 16 pole plug-in terminal blocks and four 8 pole terminal blocks (2,5 mm²)

