INTELLIGENT ADDRESSABLE FIRE ALARM SYSTEM

TECHNICAL SPECIFICATION

GENERAL

This technical specification document is prepared for specifying the general technical features of fire alarm system which will be applied. In mentioned systems, experimented products which are presented to the highest level of fire detection and control technologies, must be preferred. Microprocessor-based fire detection and alarm system which is the highest level of technology at our present day should be utilized. In this document preferred features are defined in general and products which are not supported this feature, must not be suggested.

Fire detection and alarm system must be designed and established compatible with TS CEN/TS 54-14 approval (designing, mounting, and maintenance of fire detection systems). Also, principles such as utilizing high technology, using high quality materials, providing easy operating and maintenance facilities, economical expendability of a system should be considered.

Devices composed of fire detection and alarm system; are tested and approved by European Norm (EN) standards' related chapters (EN54) and at least one of the standard approvals such as EN 54, LPCB, VDS or AFNOR must be acquired.

Manufacturer and import dealer must have ISO 9001:2008 quality assurance document.

SYSTEM DESIGN AND GENERAL FEATURES

The design of fire and alarm system should be based on extendibility and flexibility. Existed scenarios can be changed easily with software-based modifications in accordance with possible requirements, extending detectors, loops, and interface modules etc. will be easier for cabling and system architecture.

Repeater panels can be added to fire detection and alarm system when they are required. The fire alarm control panels and repeater panels can be assembled into network up to 64.

Communication between fire detection and alarm system must be used through industrial-based CAN communication protocol which prevents data losses. It is possible to assemble at least 64 panels into network. Thanks to the network-based structure, when an event occurred (fire alarm, fault etc.); it can be seen and controlled by other control panels (cancel alarm, cancel buzzer, reset etc.), it can be registered to other fire alarm control panels' event-log memory and also it can be printed by other fire alarm panels. These features can be programmed, authorized and restricted through panels in network structure separately.

Fire alarm panels and field units (detectors and interface module) can communicate each other with the principle of data acquisition. Intelligent addressable fire alarm panels and field units must be established with a microprocessor-based structure in order to meet expectations of this kind of system.

Intelligent addressable field units should be assembled into groups and installed according to the architecture structure of building and specifications. Fire alarm panels will replace physical addresses to logic addresses with its database in accordance with this establishment. Each of the unit's places in building should be seen as alphanumeric by fire alarm panels and repeater panels.

In the future, it is possible to insert detectors or interface modules to detection line in case of expanding the system required, thus there is no need to change existed system addresses or user data.

All cables connects to detection and alarm devices and all loop lines communicates remotely controlling and managing centers to each other are kept down continuously in case of broken lines, short circuits and ground line fault.

Intelligent analogue addressable alarm detectors, addressable buttons and interface modules can be programmed by the principle of cause/effect logic and they must be supplied for comprehensive fire scenarios. Network assembled panels can be defined different scenarios up to 1000 separately or 64.000 different scenarios with connection based on cause/effect logic.

Fire detection and alarm system must analyze for a couple times to receive signals from which input devices as detector and button, than affirm them at the end. These signals must be realized as written, audible and lighted alarm forms within the context of the alarm procedure after transmitted to the panel. Fire detection and alarm system must perform control and signalization missions through panel and program conditions.

At fire detection and alarm system, linear heat detectors must be used on difficult location conditions where humidity, smoke, dust, vibration, freezing, erosion, and electro-magnetic field (EMI) effects occurs and cable galleries, cable tray, and cable shafts. Linear heat detector integrated to main system with a control module via Modbus and appeared fire and fault log notified by software to fire detection and alarm system in detail.

After the detection of fire inception; functions, which are not limited with following clauses, must be utilized accurately and flawlessly within the context of pre-defined scenarios. Binada ilgili bölgeye ait havalandırma santrallerinin durdurulması

- Initializing of emergency announce system.
- Initializing of smoke evacuation system.
- Closing protector doors between various fire zones.
- Initializing of pressuring fans in main stair hole.
- Directing elevators to related floors.
- Initializing the central emergency enlightenment system.
- Switching off the gas system.
- Initializing the extinguishment system.
- Transmitting alarm signals to the closest fire station via SMS or e-mail.
- Providing the facility of remote control and graphic monitoring for fire stations through RS-232/485, TCP/IP, GPRS protocols.

Utilizing control equipments and cable facilities of fire detection and alarm system, (if it is existed) rate of carbon-monoxide gas in parking garages, boiler rooms, and kitchens etc. contains natural gas or LPG must be detected until the rate of gas leakage reaches a dangerous level for people and air conditioning and audible and illuminated warnings should be activated. For this reason, carbon-monoxide and explosive gas detectors will be added on addressable loop lines if it is required. Controlling of air conditioning systems and initializing the required warnings via addressable audible/flashing alarm devices and interface control modules must be executed automatically.

Fire detection and alarm system should compatible with Modbus protocol which provides data communication with other control and automation system on buildings directly. Incompatible system with Modbus protocol must not be suggested. Fire detection and alarm system must be monitored remotely and graphically through the PC.

4 different types of methods will be applied for remote control of addressable fire alarm panels. If communication will be applied via cables, RS-485 for long distances and RS-232 for more close distances; remote access for TCP/IP communication module, LAN, WAN and internet protocol; GPRS-based communication module through internet should be applied. Fire alarm panels which can also be assembled into network must provide that monitoring and controlling graphically via the same or different communication modules.

Single panel or network structure can be monitored graphically. 1000 different events (fire, fault etc.) of fire alarm system, should be managed and monitored graphically by software,

Facility of monitoring and controlling data in detail belongs to the system must be provided by fire detection and alarm system. Feature of monitoring and controlling in detail can be done through LCD screen modüle and buttons in the mimic panel. All possible instructions can be applied by a special pencil belongs to the LCD.

Fire detection and alarm system; must be provided to communicate to security center of authorized people with other intelligent addressable fire alarm panels and firefighter telephones mounted into strategic points of the field in case of fire or an emergency situation.

The audible evacuation records of current announcement system of the building which fire detection and alarm system assembled.

Mentioned evacuation voice recordings should be activated automatically according to scenarios in case of fire.

It can be set in and within the context of integration of close circuit TV system (CCTV); programmable relay output signal can be transmitted to the DVR device and integrated camera of fire alarm zone can be selected through alarm/announce modules.

ONVIF protocol IP camera system can be integrated with Fire alarm system through special software. In case of fire the authorized people can monitor the locations with IP cameras through remote monitoring and managing system of fire alarm system.

INTELLIGENT ANALOGUE ADDRESSABLE FIRE ALARM PANEL

Modular structure of fire alarm panel should be produced with micro-processor based and loop capacity can be expanded up to 16 loops.

In excess numbers of detectors, buttons and control modules assembled into loop line should be preferred in order to reduce the cost of cable. Therefore, maximum 127 addresses should be assigned to the fire alarm panel’s single loop line. One single address will be assigned to the detectors, buttons and interface modules.

A short circuit isolator must be assembled in every fire condition area, so that the detection system out of system completely in case of a possible short circuit situation in loop line, suitable with standards. Short circuit isolators shouldn’t have an address.

Loop-powered sounders and loop-powered sounder strobes can be connected to a fire alarm panel without an external power supply. Maximum 10loop-powered sounders and loop-powered sounder strobes can be assembled into one single loop.

Zones should be assigned up to 1000 and zone numbers should be written to all zonal indicators up to 64. All zonal fire LEDs must have a number shows the zone which belongs to it.

Intelligent addressable fire alarm panel; loop lines, programmed zones sounders and all addressable devices can be activated / deactivated by users.

Intelligent addressable fire alarm panels can be operated alone even assembling them into network up to 64. System network base must operate with the industrial-based CAN communication protocol which is preventing data losses.

Devices which are in the same loop shouldn't affect each other. If one of them fails or extracted its base, other devices operating shouldn't be affected and failed point should be displayed as a fault.

In distributed systems, such as general alarm and fault can be monitored and controlled in different places on panels simultaneously.

Fire LED, fault LED, separated LEDs for each zone, minimum 240x64 characterized back lighted alpha- numeric display and an internal buzzer should be existed in fire alarm control panel.

Fire control panel should be controlled by microprocessor entirely and should display all possible faults which cause at internal and/or external equipments, on its minimum 240x64 characterized LCD display.

For ease of use and clear informing; PC software in which panel menu in the LCD display of fire alarm panel, panel menu and system configurations must be English, Russian, and Turkish.

PC software must back up in any computer disk in case of faults in the intelligent addressable fire alarm panels. If it's necessary, required modifications can be applied without reprogramming the whole software and can be transmitted to the panel from the PC.

When panel is in normal operating condition, information which is desired to display on LCD can be described. The supplier name and contact information which is for to get in touch easily with the manufacturer firm of the device, can be changed by users.

Intelligent addressable fire alarm panel; should keep addresses, area names, cause-effect programs and last 1000 events in its EEPROM.

Simultaneously happened different events can be categorized by pushing a button on the panel. Because of the top priority information is fire detection, so than the user access and monitors all the fire events easily there should be a button on fire alarm panel.

A thermal type internal printer can be mounted on the intelligent addressable fire alarm panel. Fire and failure event can be printed simultaneously or totally when they required.

Thanks to the special two different levels password, unauthorized accesses to the system can be prevented.

A pre-alarm level can be described for required areas considering more than one alarm signal. These pre- alarm levels and setting in day/night mode or turning back system to normal modifications must be configured.

Intelligent addressable fire alarm panels can be operated in day/night mode. Thanks to this feature, enabling/disabling of previously configured delays automatically must be provided by describing the day and night time period for seven days of weeks. Furthermore, enabling/disabling section must be selected as day or night.

Fire alarm panels contain at least 4 programmable audible alarm output, alarm and relay outputs. 10 to 250 seconds delay time can be assigned thee outputs. Such as reactive alarm devices after cancelling, cancel delay features etc. can be added to the system.

Different types of events can be assigned to intelligent addressable smoke, heat, multisensory, beam detector, addressable explosive and CO gas detectors, internal and external manual call points, loop-powered sounders and sounder strobes, interface modules etc. up to 13. Thus fire scenarios will be fully compatible with zones in which the system integrated.

Pollution level checking of intelligent addressable optical smoke detectors through intelligent addressable fire alarm panel can be applied automatically or manually. If pollution level checking is configured manual, users can check the pollution level of detectors via panel. If pollution level checking is configured automatic, detectors exceed pollution level; must be appeared as a fault message on panel’s LCD automatically.

In order to announce live in the building by authorized people in case of fire, there must be an announce module on intelligent addressable fire alarm panel and it must be possible to announce by communicating with the announce control module through an existed announce system.

In case of fire and/or an emergency situation security center of authorized personals can communicate with other intelligent addressable fire alarm panels and firefighter telephones through telephone/public announce control unit.

Fire alarm control panel must include a telephone module. In distributed systems, conference conversation between intelligent fire alarm panels and firefighter telephones can be made. Telephone modules on panels and firefighter telephones must communicate with security center without pushing any button. While security center and any user are talking by telephones, another user can join the conversation as soon as he lifted the telephone receiver. Conference conversation can be made by telephone/public announce control unit automatically without interfering of operator.

Modbus communication module must be used on intelligent addressable fire alarm panel’s modular structure to provide direct information exchange with the other control and automation systems on facility where fire detection and alarm system existed. Modbus communication protocol takes address register on memory map information from fire alarm system and provides to use them on PLC automation. Modbus communication module; can monitor fire, pre-alarm, fault, test, and disable events regarding to system. Any of the events occurred in system should be detailed to device address. Modbus module configurations can be done by both hardware on card and software via Modbus master. RTU/ASCII modes provided for setting and able to communicate with Modbus module via RS 232/485. Modbus module must be contains memory protection. Unused parts on memory must be protected against both read and write.

Intelligent addressable fire alarm panel must have the 24V DC (SMPS) switched mode power supply. Owing to the microprocessor-based design, power supply must keep down and debug itself continuously. Such as ground fault, battery fault, power fault, system fuse faults can be sensed and indicated by exterior LEDs. Volt free chance over contact output informs fault situation, over flow or short circuit protection and automatic fuse must be included. Existence of battery, battery fault modes must be controlled and informed as an error by power supply. Power supply should have the ability of shutting down the system in case of the battery voltage is under 19 volts. So that the batteries in power supply last long; battery temperatures must be measured through a thermistor and battery charge current must be regulated automatically.

Modular structure based intelligent analogue addressable fire alarm panels, thermal printers on it, telephone/public announce control units should be EN 54-2, EN 54-4 CPR certificated from Europe.

GRAPHICAL MONITORING AND CONTROLLING SOFTWARE

Supervisor Graphic Software allows the addressable system to be monitored graphically for all kinds of events (fire, fault, etc.)

Discrete address of the area, faults or alarm comes from, can be monitored and controlled on the architectural site plans in which the fire detection and alarm system assembled. The system must be designed to direct the operator to the related area with a detailed project in case of fire or fault situations.

The architectural file of the area should be formatted with the *.jpg, *.jpeg, *.bmp, *.ico, *.wmf extensions or AutoCAD (*.dwg) formatted architecture project files must be turned into the *.wmf format. Thanks to this feature, it is possible to monitor more than one event types of other maps on one single map screen and transitions to other maps can be made easily.

All events occurred in panel/panels (fire, fault etc.) can be monitored from the messages window frame as text.

The PC software works under the Windows operating system can monitor graphically from PC and control fire alarm panels located in different places up to 1000.

System can transmit alarm, reset and silence alarm commands to the devices assembled into network.

Graphical monitoring and controlling software can save event-logs belong to the fire detection and alarm system. Event-logs can be monitored and printed by divided into categories according to event history, fire and fault situation.

At least 10 different users can be identified for PC software. Event effects can be modified for user requirements and can announce audible warnings to authorized people according to event types.

Software IP firefighter telephone can be integrated into the PC software specially designed for the fire detection and alarm system. Communication can be made through PC connected earphone with microphone, modem, telephone and public announce control unit. As soon as the operator in the security center replies the telephone by software IP telephone, the conversation starts and in case of warnings come from other firefighter telephones, they can be join the conference conversation simultaneously.

Graphics Monitor and Managing Software should be integrated with IP cameras which have ONVIF protocol. In case of fire, camera can be opened in the sames location with fire. This integration provides automatic activate and manual control of the cameras.

It must be possible to monitor and control occurring events not only in the same building also further differences can be reach through PC.

There are 4 different ways for remote controlling and monitoring of intelligent addressable fire alarm panel. If cable connections will be used RS-232 communication protocol for short distances and RS-485 communication protocol for further distances should be used. LAN, WAN, and remote internet access through TPC/IP and GPRS communication module for remote communication through GPRS, the mobile communication module of panel, must be used.

Fire alarm panels, can be assembled into network, must provide that monitoring and controlling graphically via the same or different communication modules. Required communication module can be assigned as main or back up. When the main connection breaks as a cause of any reason, backup lines activate automatically in an identified order. Communication module should have the 24V DC power supply.

Single control panel should be monitored and managed via single communication modüle.

Graphics Monitoring and Managing Software can monitor diffirent brand of fire alarm panels via TCP/IP or UART communication modules.

Thanks to the PC software, when an event occurred, event logs composed of reports which include event type, event date, event time information etc. must be sent to certain e-mail address. All events occurred in fire detection system can be sent as SMS and/or e-mail also only desired event types can be sent by selecting. E-mails can be sent as report instantaneously, daily or weekly periods.

WARNING SOFTWARE FOR GRAPHICAL MONITORING AND MANAGING SOFTWARE

In case of fire alarm on the system, for Graphically Monitoring and Control software, the warning messages can be sent to the IP entered computers through network. The warning messages should be sent to minimum 10 computers. The warning messages should be sent automatically or manually in case of any event. The warning messages can be sent as a full screen or message box.

GRAPHICAL MONITOR AND MANAGEMENT ANDROID SOFTWARE

The purpose of use for graphical monitoring and management through android based devices in case of any fire event. Network or control panel can be chosen in order to send warning messages and android devices can be linked with fire event of fire alarm control panel. In case of fire, It’s possible to changeover between the maps. Also possible to send commands to the panel (Alarm, Silence Alarm, Reset, Silence Buzzer). At least 11 alarm sound can be defined.

INTELLIGENT ADDRESSABLE FIRE ALARM REPEATER PANEL

A repeater panel can be assembled in desired room or other area security personal hosted in, in order to control the fire alarm panel from another point excluding the working hours of weekdays.

Intelligent addressable fire alarm repeater panel must contain the all features of intelligent addressable fire alarm panel except loops.

The printer module, telephone module and announce modules can be used if they are required. Intelligent addressable fire alarm panels must be EN 54-2, EN 54-4 and CPR certificated.

INTELLIGENT ADDRESSABLE FIRE ALARM MIMIC PANEL;

Intelligent addressable fire alarm mimic panel provides monitoring detaily for information of fire alarm systems. Mimic panel must have at least 7" TFT screen. Fire information can be monitored from the network by Mimic Panel.

Mimic panels must be EN 54-2, EN 54-4 and CPR certificated.

INTELLIGENT ADDRESSABLE DETECTORS

GENERAL FEATURES

Addressable detectors must be controlled by a microprocessor and produced by the units mounted with SMD (surface mount devices) technique. Electronic detector circuits must be protected by metal phosphorus bronze from the electro-magnetic interferences.

Different event types and bypass feature can be defined to the intelligent addressable detectors. Thanks to this feature, interrupts comes from bypass feature assigned detectors of desired output devices, can be cancelled and operated quickly.

Up to 40 characters can be assigned to the intelligent addressable detectors suitable with project name. In alarm condition detector must generate an interrupt fast and sent to the fire alarm panel. Signals must be transmitted to fire control panel by generating an interrupt. Interrupts mustn't be more than 1,5 seconds.

Addressable detectors have twin fire alarm LEDs on their surfaces for 360° viewing and also suitable for remote indictor connection. LEDs must blink in normal operation condition but illuminate continuously in alarm situation.

Detectors can be attached and removed by using a special socket and removing a detector form its socket mustn't affect to the whole system. Preventing from out of contact conditions, base must be clip type.

Addressable detectors must be given address during the installation of system and they mustn't have factory default addresses. Addressable detectors must be addressed through software, preventing from environmental effects. Addressable detector addressing can be done by hand type address programmer device. Detectors mustn't have any kind of switches such as DIP switch etc. for any usage reason.

INTELLIGENT ADRESSABLE PHOTO-ELECTRIC SMOKE DETECTOR

Addressable photo-electric smoke detector should be controlled by a microprocessor and has an electric smoke detection chamber which is operating with light emitting principle.

Detector must alarm in case varieties of public smoke detectors can reach a certain threshold value. Intelligent addressable photo-electric smoke detector must be EN 54-7, LPCB and CPR certificated from Europe.

INTELLIGENT ADDRESSABLE HEAT DETECTOR

Intelligent addressable heat detector must be controlled by a microprocessor and must be designed to detect environment's heat. Thanks to this microprocessor, the detector must have the ability of self-adjudication.

Intelligent addressable heat detector's cage must be designed to detect environment's heat and response fast. Smoke detectors cage mustn't be used precisely.

Intelligent addressable photo-electric smoke detector must be EN 54-7, LPCB and CPR certificated from Europe.

INTELLIGENT ADDRESSBALE MULTISENSOR (PHOTO-ELECTRIC SMOKE DETECTOR + HEAT DETECTOR)

Intelligent addressable heat detector must be controlled by a microprocessor and must be designed to detect environments' heat and smoke. Thanks to this microprocessor the detector will have the ability of self- adjudication.

Intelligent addressable heat detector's cage must be designed to detect environment's heat and smoke and response fast. Smoke detectors cage mustn't be used precisely.

Intelligent addressable photo-electric smoke detector must be EN 54-7, LPCB and CPR certificated from Europe.

INTELLIGENT ADDRESSABLE LINEAR HEAT DETECTOR AND CONTROL MODULE

Linear heat detector consists of sensors which settled in a specially designed halogen free cable with a distance of 5 meters. The cable can measure temperatures in a 40°C to +85°C (for short periods 120°C) range, with a resolution of 0,1°C. The sample linear heat detectors which is not contains sensor does not used. Every linear heat detector has a length of maximum 250 meters and contains 99 sensors.

Linear heat detector integrated to main system via Modbus with control module and fire and fault log announced to fire detection and alarm system in details. Through of this, it is possible to control, the control module with intelligent addressable panels and the heat value for each zone monitored with a sensibility of 0,1° C. Beside the fire log, it is possible to monitor fault logs like; communication fault, sensor and cable fault, control unit Modbus communication fault, measurement point offline, ROM and EEPROM malfunction, cable and system power supply malfunction in detail.

It is possible to grouped linear heat detector's sensors to create 16 different areas and create different relay outputs for each area which activates in fire situation with using control module.

It is possible to program the control module with special software, and with the help of this software; generating areas which are numerated to pair up one or more sensors, adjusting differential alarm threshold level for each area, defining two kinds of pre-alarm, scanning sensors which inside cables and programming inquiry time of control module can be done. At the end of the estimated scanning time, the reference information defined with location condition for differential alarm threshold level and programmed to compute the number of measurements which provides the reference value.

Control module, contains 2 different inputs which developed with maximum 250 meters of linear heat detector connection. To linear heat detector's input maximum 200 heat detectors can be added.

It is possible to enhance cables which attached beside allocation box when more sensor cable connected to control unit. It is split up to 5 pieces with main connection box. Each of the split cable has a length of maximum 30 m or contains maximum 20 sensors. There must be a terminator box or protector helmet at the end of the cable.

The places where existed linear heat detector do not used, semi-conductor external heat sensor with stainless steel clad must be used to detect heat variance. For external heat detector; differential alarm threshold limit, alarm threshold, and minimum threshold information can be regulated with control unit.

External heat sensors connected to control unit by external sensor module. It is possible to connect maximum 4 external to one module, and maximum 12 external sensor modules connection box to system and used at distributed systems.

INTELLIGENT ADDRESSABLE GAS DETECTORS

GENERAL FEATURES

Addressable detectors must be controlled by a microprocessor and can be connected to the loop line of the intelligent addressable fire detection and alarm system without using any addressing module.

There must be 3 LED light to obtain visual monitoring and they represent the condition of system is power on, alarm and fault. Thanks to the test button on detector, function test of LED and interior audible warning can be made.

Data acquisition of intelligent addressable fire alarm panel and detector must be made through loop line cable and this detector must be powered by 24V DC or 220V AC. Switched mode power supply (SMPS) must be used for 24V DC powered with EN 54-4 certificated. Non-certificated power supplies mustn't be used.

INTELLIGENT ADDRESSABLE EXPLOSIVE GAS DETECTOR

Detectors must detect hydro-carbon based all explosive gasses such as natural gas and LPG etc. and they must output with 85 dB sound when the gas level reaches the %10 LEL (low explosive level).

Intelligent addressable explosive gas detector must be TS EN 50194 and CPR (Europe) certificated.

INTELLIGENT ADDRESSABLE CARBON-MONOXIDE GAS DETECTOR

The device must detect the carbon-monoxide gas in environment and must be alarmed when the particles in air reached the 50 ppm (particle per million) level with an 85 dB voice.

Intelligent addressable carbon-monoxide detector must be TS EN 50291 and CPR (Europe) certificated.

ADDRESSABLE MANUAL CALL POINT WITH SHORT CIRCUIT ISOLATOR MODULE (RESETTABLE)

Intelligent addressable resettable fire alarm button with short circuit isolator module must operate in the system as a manual indicator. It must be suitable for surface mounting and controlled by microprocessor.

Different event types and bypass feature can be defined to the intelligent addressable fire alarm button.

In an alarm condition, detector should generate an interrupt which comes from the detector has the feature to cancel the desired output device. Up to 40 characters can be assigned to the intelligent addressable detectors suitable with the project name.

The manual call point is activated by breaking film-coated glass. When the glass is broken, the switch which normally resting on glass edge, chances its position and retains until new glass is mounted.

Addressable fire alarm button must include two LED. The red LED on the button must be illuminated when manually activated or while checking the button via loop line by panel.

In case of short circuit situation, the short circuit isolator in the button must be activated automatically and the yellow LED must illuminate. After the short circuit situation ended the isolator must be deactivated automatically and the yellow LED must be turned on.

Intelligent addressable resettable fire alarm button with short circuit module must be EN 54-11, LPCB and CPR (Europe) certificated.

INTELLIGENT ADDRESSABLE I/O MODULES

INTELLIGENT ADDRESSABLE SWITCH MONITORING MODULE

Intelligent addressable switch monitoring module must be used in addressable system, for monitoring sprinkler system, alarm inputs, general purposed fire devices, control switches and other security devices positions.

Module can monitor normally open and close contacts and be programmed to monitor the variations of monitored contacts.

Intelligent addressable switch monitoring module must be controlled by a microprocessor. Up to 40 characters can be assigned to the intelligent addressable detectors suitable with the project name.

Different event types and bypass feature can be defined to the intelligent addressable switch monitoring module.

The module must be loop-powered and mustn’t require an external 24V DC supply.

According to requirements, 2 input/1 output or 4 input/2output modules can be used.

Intelligent addressable switch monitör module must be EN54-17, LPCB and CPR (Europe) certificated.

INTELLIGENT ADDRESSABLE RELAY CONTROLLER

Intelligent addressable relay controller module must be used to detect required devices activation in case of fire within the context of fire scenario. Module must operate normally open and normally closed by using the controller’s no energized, single polar contacts.

Module must have illuminated indicators on which are indicating the conditions of module’s communication with panel and relay output is on. Intelligent addressable relay controller module must

be controlled by a microprocessor and different event types can be defined to the intelligent addressable relay controller module.

2 level delay times, up to 250 seconds, can be assigned to the relay output as first level and second level. The position of the relay output (active/passive) can be programmed to interfered or not by cancel alarm button.

Relay output can be configured as latching mode (not returns to the old position without resetting the panel) or no lock-up mode (returns the old position automatically). Relay output reacts to the variations of the environmental conditions automatically by configuring the none latching mode.

The module must be loop-powered and do not require an external 24V DC supply.

Intelligent addressable relay modules have 250V AC 8A key switches should be used for high current required applications.

Intelligent addressable switch monitör module must be EN54-17, LPCB and CPR (Europe) certificated.

INTELLIGENT ADDRESSABLE SOUNDER CONTROLLER MODULE

Intelligent addressable sounder control module must be used to operate audible warning devices. The module must keep-down visual and audible warning devices continuously. Module should have illuminated indicators on which are indicating the modules communications with panel, sounder output is activated and fault conditions.

Intelligent addressable sounder control module must be controlled by a microprocessor and different event types can be defined to the intelligent addressable sounder control module. At least 13 diffirent event type (fire, fault, pre-alarm, technical alarm, technical fault, security, announce system is active, telephone is active, analog event, internal event, information) and bypass feature can be described. 24V DC 500mA sounder output can be activated within automation.

2 level delay times, up to 250 seconds, can be assigned to the relay output as first level and second level. The position of the relay output (active/passive) can be programmed to interfere or not interfere by silence alarm button.

Sounder control module’s output can be configured as latching mode (not returns to the old position without resetting the panel) or no lock-up mode (returns the old position automatically). Sounder control module’s output reacts to the variations of the environmental conditions automatically by configuring the none latching mode.

Intelligent addressable sounder control module must communicate with intelligent addressable fire alarm panels through loop line cable and must operate with 24V DC supplied voltage. EN 54-4, LPCB and CE/CPR (EN 54-17 and EN 54-18 from Europe) certificated switch mode power supply (SMPS) must be used for 24V DC supplied voltage. No-certificated power supplies mustn’t be used.

According to requirements, 2 input/1 output modules can be used.

INTELLIGENT ADDRESSABLE ZONE MONITORING MODULE

Intelligent addressable zone monitoring module should be used to connect a conventional fire zone to the addressable system. Intelligent addressable zone monitoring module must detect short-circuit and open- circuit faults in a conventional zone. Module should have a light emitting indicator which is indicating the module's normal, alarm and fault conditions.

Intelligent addressable zone monitor module must be controlled by a microprocessor and different event types can be defined to the intelligent addressable sounder control module. At least 13 diffirent event type (fire, fault, pre-alarm, technical alarm, technical fault, security, announce system is active, telephone is active, analog event, internal event, information) and bypass feature can be described. Intelligent addressable switch monitoring module must be controlled by a microprocessor. Up to 40 characters can be assigned to the intelligent addressable detectors suitable with the project name.

Intelligent addressable zone monitoring module can communicate with intelligent addressable fire alarm panels through loop line cable and must operate with 24V DC supplied voltage. EN 54-4, LPCB and CE/CPR (EN 54-17 and EN 54-18 from Europe) certificated switch mode power supply (SMPS) must be used for 24V DC supplied voltage. No-certificated power supplies mustn't be used.

According to requirements, 2 input/1 output modules can be used.

INTELLIGENT ADDRESSABLE SMOKE DAMPER CONTROL PANEL

Intellıgent Addressable Smoke Damper Control Panel should have 8 programmable damper monitoring inputs and 8 damper control outputs. ON/OFF/UNSTABLE status of dampers can be monitored and controlled. Also dampers can be controlled manually with toggle switches. The damper can be programmed and can be used in fire scenarios.

LED indicators should be on the panel which indicate the active power supply, indicate an error in the external supply, and indicate an error on the panel. There must be 8 inputs, 8 outputs on the panel. There must be LEDs that indicate the activation of inputs and outputs on the panel. Also there should be LEDs that indicate the errors on the inputs and output of the panel.

Intelligent Addressable Smoke Damper Control Panel (IASDCP) should be compatible with TS EN54-4,TS EN54-18. Also IASDCP must be CPR certificated from Europe.

INTELLIGENT ADDRESSABLE SHORT CIRCUIT ISOLATOR MODULE

Intelligent addressable short circuit modules in closed circuit loop; must prevent loop line from becoming out of system completely by connecting to buttons and interface modules periodically in case of any short circuit. Isolator module must be used between at least one fire zone and other zone.

After starting from both connection points of loop, isolators will be activated in turn and one by one and until the fault reaches the part and these process continuous and broken parts will be isolated.

Intelligent addressable short circuit isolator module must be LPCB and CE/CPR (EN 54-17 from Europe) certificated.

INTELLIGENT ADDRESSBLE FIRE ALARM SOUNDER (LOOP-POWERED)

Intelligent addressable fire alarm sounder output should be minimum 75dB/1m. Data acquisition of intelligent addressable fire alarm panel and loop-powered fire alarm sounders must be made through loop

line cable and must operate with 24V DC supplied voltage. It can be programmable and added to the fire alarm scenarios.

32 different sounder types should be available and should have builtin isolator.

Intelligent addressable fire alarm sounder must be CE/CPR (EN 54-17 and EN54-3 from Europe) certificated.

INTELLIGENT ADDRESSABLE FIRE ALARM STROBE (LOOP-POWERED)

Intelligent addressable fire alarm strobe output must be minimum must have 0,5 Hz flash speed. Data acquisition of intelligent addressable fire alarm panel and loop-powered fire alarm strobes must be made through loop line cable and must operate with 24V DC supplied voltage. It can be programmable and added to the fire alarm scenarios.

Intelligent addressable fire alarm strobe must be CE/CPR (EN 54-17, EN54-3 and EN54-23 from Europe) certificated.

INTELLIGENT ADDRESSABLE FIRE ALARM SOUNDER STROBE (LOOP-POWERED)

Intelligent addressable fire alarm sounder strobe output must be minimum 75dB/1m and must have 0,5 Hz flash speed. Data acquisition of intelligent addressable fire alarm panel and loop-powered fire alarm sounder strobes must be made through loop line cable and must operate with 24V DC supplied voltage. It can be programmable and added to the fire alarm scenarios.

32 different sounder types should be available and should have builtin isolator.

Intelligent addressable fire alarm sounder must be CE/CPR (EN 54-17, EN54-3 and EN54-23 from Europe) certificated.

INTELLIGENT ADDRESSABLE WEATHERPROOF FIRE ALARM SOUNDER (LOOP-POWERED)

The intelligent addressable weatherproof fire alarm sounder should be suitable for using in external environments. IP class minimum will be 65. Intelligent addressable weatherproof fire alarm sounder output should be minimum 75dB/1m. Data acquisition of intelligent addressable fire alarm panel and loop-powered fire alarm sounders must be made through loop line cable and must operate with 24V DC supplied voltage. It can be programmable and added to the fire alarm scenarios.

32 different sounder types should be available and should have builtin isolator.

Intelligent addressable fire alarm sounder must be CE/CPR (EN 54-17 and EN54-3 from Europe) certificated.

INTELLIGENT ADDRESSABLE WEATHERPROOF FIRE ALARM STROBE (LOOP-POWERED)

The intelligent addressable weatherproof fire alarm strobe should be suitable for using in external environments. IP class minimum will be 65. Intelligent addressable weatherproof fire alarm strobe must have 0,5 Hz flash speed. Data acquisition of intelligent addressable fire alarm panel and loop-powered fire alarm sounder strobes must be made through loop line cable and must operate with 24V DC supplied voltage. It can be programmable and added to the fire alarm scenarios.

Intelligent addressable fire alarm strobe must be CE/CPR (EN 54-17, EN54-3 and EN54-23 from Europe) certificated.

INTELLIGENT ADDRESSABLE WEATHERPROOF FIRE ALARM SOUNDER STROBE (LOOP-POWERED)

The intelligent addressable weatherproof fire alarm sounder & strobe should be suitable for using in external environments. lP class minimum will be 65.Intelligent addressable weatherproof fire alarm sounder strobe output must be minimum 75dB/1m and must have 0,5 Hz flash speed. Data acquisition of intelligent addressable fire alarm panel and loop-powered fire alarm sounder strobes must be made through loop line cable and must operate with 24V DC supplied voltage. It can be programmable and added to the fire alarm scenarios.

32 different sounder types should be available and should have builtin isolator.

Intelligent addressable weatherproof fire alarm sounder strobe must be CE/CPR (EN 54-17, EN54-3 and EN54-23 from Europe) certificated.

INTELLIGENT ADDRESSABLE FIRE ALARM LOOP POWERED BASE SOUNDER

Intelligent addressable fire alarm base sounder must be minimum 75dB/1m. It should be installed under addressable detector base. According to EN54-14 and A.6.5.2 section, fire alarm must wake slept people and bedhead sound level should be at least 75dB(A). 8 diffirent sound features must be available.

Intelligent addressable fire alarm base sounder must be CE/CPR (EN54-3 from Europe) certificated.

INTELLIGENT ADDRESSABLE FIRE ALARM LOOP POWERED BASE SOUNDER STROBE

Intelligent addressable fire alarm base sounder strobe output must be minimum 75dB/1m and must have 0,5 Hz flash speed. According to EN54-14 and A.6.5.2 section, fire alarm must wake slept people and bedhead sound level should be at least 75dB(A). 8 diffirent sound features must be available.

Intelligent addressable fire alarm base sounder must be CE/CPR (EN54-3 and EN54-23 from Europe) certificated.

INTELLIGENT ADDRESSABLE FIRE ALARM ANNOUNCEMENT INTEGRATION PANEL

The live announcement can be provided in case of emergency situation via intelligent addressable fire alarm panel through intelligent addressable fire alarm integration panel or pre-recorded messages should be given automatically to the determined areas. It should have 16 module input socket on the panel. ‘Announcement input module’ and/or ‘programmable alarm/alert output module’ can be put in these sockets.

Up to 4 announcement module (announcement microphone) can be connected to each announcement input module. There must be 8 outputs in the each programmable alarm/alert output module. Minimum The announcement output should be given from minimum 32 zone . The panel can be programmed and can be used in fire scenarios.

Intellıgent Addressable fire alarm integration panel should be compatible with TS EN54-4,TS EN54-18. Also it should be CPR certificated from Europe.

FIREFIGHTER'S TELEPHONE CONTROL UNIT

Firefighter telephone control unit allows communication of authorized people via graphical viewer and IP telephone on the control software and firefighter's telephone on the intelligent adressabble panel in case of fire or any emergency situations.

In case of emergency situation, communication should be with firefighter's telephones or telephones on the intelligent addressable fire alarm panel. One of these telephones must be identified conference manager.In the fire alarm situation each telephone can be access to main telephone without dialing number

The conference manager should be an IP phone in the graphical monitoring and control software.

The fire zone can be detected with IP camera screens and can be evaluated via software on the ONVIF integration.Thus the authorized person who is in front of the PC, can manage easily and emergency action plan is carried out successfully .

When any user calls the security center, other users can be involved automatically by picking-up the handset and conference call can be done. Thus the predetermined emergency action plan will be effectively implemented by authorized people. The telephone control unit must have minimum capacity 32 phones.

ACCESSORIES OF FIRE DETECTION AND ALARM SYSTEM

SWITCHED MODE POWER SUPPLY

Switched mode power supplies (SMPS) must have 24V DC and 5A or 10A according to required power.

Microprocessor-based structure power supply must be keeping down and detecting faults by itself continuously. Such as ground line, battery fault, 230V AC network interruption, 28V DC fuse failures can be sensed and indicated by exterior LEDs. Dry relay output informs fault simulations overflow or short-circuit protection and automatic fuse must e included.

Battery faults must be controlled and informed as an error by power supply. Power supply must have the ability of shutting down the system in case of the battery voltage is lower than 19V. So that the batteries in power supply last long; battery temperatures must be measured through a thermistor and battery charge current must be regulated automatically.

Switched mode power supply must be CE/CPR(EN 54-4 from Europe) certificated.

AIRDUCT SAMPLING UNIT

Air duct sampling unit must be used to detect smoke in ventilation ducts with intelligent addressable optical smoke detector.

This unit must have the ability of providing 0.2 m/s air flow speed from venture pipe to intelligent addressable optical smoke detector by sampling in order to reliable detect. It must have the IP 54 protection class and ABS chamber. Sampling venture pipe must be made of aluminum material to prevent corrosion.

RECESSED MOUNTING BASE

Intelligent addressable recessed mounting bases should be used to prevent hangings and corruptions of detectors in all suspended ceilings such as rock wool, plasterboards and metal etc. and also it aims to keep architecture visual.

Recessed mounting bases must be used in ABS type and produced by the same color and material with detectors.

Detector sockets must be mounted to recessed mounting base with minimum two units of metal clips by using pressing principles. Metal clips must be produced from stainless material, should operate with screwing principle and spring mechanism mustn't be used.

REMOTE INDICATOR

It must be used when the detector's LED is hard or impossible to see in suspended ceiling or raised floor.

Remote indication must be operated by detector's remote output signal which is formed after detector's fire detection.

SURFACE MOUNTING BACK BOX

Surface mounting bask box must be used at media with harsh weather conditions or surface mounting applications. Surface mounting back box must be designed by enduring corrosion materials.