200A+

VEHICLE FIRE CONTROL PANEL

USER MANUAL

SGS
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200A+ VEHICLE FIRE CONTROL PANEL

The 200A+ fire control panel is a small size and useful fire detection and extinguishing panel designed to detect and extinguish possible fires in motor land vehicles and motor vessels.

KEY FEATURES

- It can work in all vehicles with 12V and 24V supply infrastructure.
- 3 detection inputs (Zone 1, Zone 2, Manual) and one extinguishing output.
- Compatible with conventional 2-wire detectors, digital LHD (Linear Heat Detection) cables or miniature thermostats.
- Fire extinguishing system can operate in Automatic and Manual, Manual Only, Test and Change-over Mode.
- It has the ability to automatically or manually activate the aerosol fire extinguishers or pressurized cylinders with solenoid valves in case of fire.
- Detection inputs and extinguishing output can be monitored against short circuit and open circuit failures that may occur.
- Panel warns the user visually and audibly in case of fault or fire.
- It has sounder output, auxiliary relay output and fault output.
- Easy to use with two multi-functional buttons on the panel.
- It can be used as surface or panel mounted with its small size and useful body structure.

TECHNICAL SPECIFICATIONS

Supply Voltage and Current Consumption	
Supply Voltage Range	10 – 33V DC
Quiescent Current	32 mA @ 12V DC
	20 mA @ 24V DC
Fire State Current (Manual)	85 mA @ 12V DC
	50 mA @ 24V DC
Detection Inputs (Zone 1, Zone 2, Manual)	
Supply Voltage	12V DC Nomimal
Alarm Condition	<700 Ohm
Short Circuit Condition	<50 Ohm
Current Capacity	25 mA Maximum
End Of Line Element (EOL)	10uf/50V %10 ceramic capacitor
Extinguishing Output	
Current Capacity	1 A continuous, 2A maximum @ 25°C
Monitoring Voltage	5V DC
Monitoring Current	2 mA Maximum
End Of Line Element (EOL)	1N4004 – 4007 general purpose diode
Short Circuit Condition	<170 Ohm
Open Circuit Condition	>1K Ohm

Low Pressure Detection Input	
Alarm Condition	470 Ohm<R<2K2 Ohm
Open Circuit Condition	>4K7 Ohm
Short Circuit Condition	<220 Ohm
Monitoring Voltage	5V DC
Monitoring Current	2 mA Maximum
End Of Line Element (EOL)	2K2 1/4W %1 resistor
Auxilary Relay Outputs	
Sounder Output Current Capacity	200 mA continuous, 400 mA maximum @ 25°C
Fault Output Current Capacity	200 mA continuous, 400 mA maximum @ 25°C
Relay Contact Current Capacity	2A maximum @ 24V DC
Dimensions	W: 80 mm, L: 82 mm, D: 20 mm (Top)
	W: 80 mm, L: 82 mm, D: 53 mm (Full)

OPERATION OF THE PANEL

The 200A+ fire control panel has a user interface with eight bicolour LEDs and two multi-function buttons on the front face. Behind the upper part of the panel, there are two rows of input / output ports of ten pin each and six miniature DIP-switch sets used to determine the basic operating characteristics of the panel.

INPUT/OUTPUT PORTS

VB (Supply Input): It is the positive voltage pin of the main supply voltage input of the panel. It must be connected to the vehicle battery via a 10A slow-blow fuse.

IG (Ignition Switch Input): It is the positive supply voltage input from the ignition switch that starts the vehicle. Thus, the panel can determine whether the vehicle is running or not by ckecking at the status of this input.

GND (Ground Input): It is the terminal that connects the panel to the negative terminal of the batteries that feed the vehicle and to the metal chassis of the vehicle.

RELAY (Auxilary Relay Output): Voltage free auxiliary relay output terminals of the panel. Voltage free relay contacts are shown as common C, normally open NO, normally closed NC. When the panel detects a fire condition and initiates the extinguishing procedure, the auxiliary relay contacts change position and remain in that position until the panel is restarted or de-energized. Auxiliary relay contacts are capable of a maximum switching current of 2A.

LOWP (Low Pressure Input): If a pressurized cylinder with solenoid valve is connected to the extinguishing output of the panel (if there is a pressure switch on the cylinder valve) it is connected to the normally open contacts of the pressure switch. Since it is an input whose status is monitored by the panel, it must be terminated with a 2K2 Ohm 1/4W resistor end of line element even if it is not used. Otherwise, the panel will give a LOW PRES. open circuit fault warning.

EXT (Extinguishing Output): These are the ports to which the fire extinguisher units to be activated by the panel automatically or manually in case of a possible fire in the engine compartment. The extinguishing output is designed to activate aerosol fire extinguisher units (via the sequencer) or pressurized cylinders with solenoid valves. When the panel detects a fire condition and initiates the extinguishing procedure, after the extinguishing delay time has expired, the extinguishing output remains energized for 30 seconds. It is protected against over current by a 1A PTC polymer fuse. Since it is an output whose status is monitored by the panel, it must be terminated with a reverse polarity 1N4004-4007 diode even if not used. Since the sequencer has an internal termination diode, there is no need to use an additional line termination diode when the sequencer is used at the extinguishing output.

Z1 (Zone 1 Detection Input): It is the first input of the three fire detection inputs of the panel. Compatible with conventional two-wire detectors (optical smoke, heat, flame, etc.), LHD (Linear Heat Detection) cables and miniature thermostats. Detection input current is electronically limited to 25mA against short circuit. Since it is an input that is monitored by the panel, it must be terminated with a 10uf/50V ceramic capacitor end of line element even if it is not used. Otherwise, the panel will give a ZONE 1 open circuit warning.

Z2 (Zone 2 Detection Input): It is the second input of the three fire detection inputs of the panel. Compatible with conventional two-wire detectors (optical smoke, heat, flame, etc.), LHD (Linear Heat Detection) cables and miniature thermostats. Detection input current is electronically limited to 25mA against short circuit. Since it is an input that is monitored by the panel, it must be terminated with a 10uf/50V ceramic capacitor end of line element even if it is not used. Otherwise, the panel will give a ZONE 2 open circuit warning.

MAN (Manual Release Input): It is the last input of the three fire detection inputs of the panel. It is used to connect conventional manual extinguisher buttons to the panel externally. Manual extinguishing input can also be activated by pressing the two multi-

functional buttons on the user interface of the panel at the same time. Detection input current is electronically limited to 25mA against short circuit. Since it is an input that is monitored by the panel, it must be terminated with a 10uf/50V ceramic capacitor end of line element even if it is not used. Otherwise, the panel will give a MANUEL open circuit failure warning.

SND (Sounder Output): These are the ports where the sounder connection is made. In case of a possible fire detection, the sounder output is energized by the panel and the sounders connected to this output are activated. If cross-zone detection is enabled and a fire situation is detected from only one detection input, the sounder output can be disabled by holding down the CANCEL/HOLD button. However, the sounder output cannot be disabled for at least 2 minutes after the extinguishing procedure begins. It is protected against over current by a 200mA PTC polymer fuse.

FLT (Fault Output): These are the outputs that are used to indicate this situation or to report the failure status to another device when the panel gives a failure warning for any reason. Fault output is energized at high impedance level in case of any fault, energized if there is no fault, and at the level of supply voltage of the panel. It is protected against over current by a 200mA PTC polymer fuse.

LED INDICATORS

There are eight bicolour LEDs on the user interface on the front of the 200A+ fire control panel. The user is given visual information about the status of the panel, depending on the color or condition of these LEDs.

Led	Led Status	Panel Status
ON	Solid green	Supply voltage available
	Flashing green 1 time/sec.	Panel in Test Mode
	Flashing green 1 time/6 sec.	No voltage at the IG port
	Flashing red 1 time/sec.	Internal system error
	Flashing red 2 times/sec.	Internal temperature > 90°C
FAULT	Solid green	There is a fault
FIRE	Solid red	Fire condition detected
RELEASE	Flashing red 1 time/sec.	Extinguishing procedure has started and extinguishing delay time is counting
	Solid red	Extinguishing release started
	Flashing green 1 time/sec.	Extinguishing output open circuit
	Flashing green 2 time/sec.	Exinguishing output short circuit
	Solid green	Extinguishing released
ZONE 1 ZONE 2 MANUAL	Flashing red 1 time/sec.	Fire condition detected
	Flashing green 1 time/sec.	Detection input open circuit
	Flashing green 2 time/sec.	Detection input short circuit
LOW PRESS.	Flashing red 1 time/sec.	Low pressure condition detected
	Flashing green 1 time/sec.	Detection input open circuit
	Flashing green 2 time/sec.	Detection input short circuit

MULTI-FUNCTIONAL BUTTONS

There are two multi-functional buttons on the user interface on the front of the panel. By pressing these buttons for a short (less than 1 second) or long (more than 2 seconds) or pressing both buttons together, the panel is enabled to perform various functions.

Button	Press Duration	Function
İPTAL/BEKLET	Short (<1 s)	Internal buzzer silencing
	Long (> 2 s)	Extinguishing hold and sounder silencing
RESET/TEST	Short (<1 s)	Restarting all panel functions
	Long (> 2 s)	Starting Test Mode
BOTH	Long (> 3 s)	Manual extinguishing release

OPERATING MODES

200A+ fire control panel has 4 different operating modes: Automatic and Manual, Manual Only, Test and Change-Over Mode.

Automatic and Manual: If the panel detects a fire from the MANUAL (MAN) detecting input, the extinguishing procedure is started immediately and the extinguishing output is activated immediately without an extinguishing delay. Voltage free auxiliary relay contacts change position. The sounder output becomes active and cannot be disabled for at least 2 minutes.

If single zone detection is selected; If a fire condition is detected from any of the ZONE 1 or ZONE 2 detection inputs, the extinguishing procedure is started, the extinguishing output becomes active after the selected extinguishing delay time (if selected) is completed. Auxiliary relay contacts change position. The sounder output becomes active and cannot be disabled for at least 2 minutes.

If cross zone detection is selected; If a fire condition is detected from only one of the ZONE 1 or ZONE 2 detection inputs, the extinguishing procedure is not started. The sounder output is activated and it is possible to disable it. If a fire condition is detected from both ZONE 1 and ZONE 2 detection inputs, the extinguishing procedure is started, the extinguishing output becomes active after the selected extinguishing delay time (if selected) is completed. Auxiliary relay contacts change position. The sounder output becomes active and cannot be disabled for at least 2 minutes.

Manual Only: If the panel detects a fire from the MANUAL (MAN) detecting input, the extinguishing procedure is started immediately and the extinguishing output is activated immediately without an extinguishing delay. The panel starts audible and visual fire warning. The audible warning can be canceled by pressing the CANCEL/HOLD button. Auxiliary relay contacts change position. The sounder output becomes active and cannot be disabled for at least 2 minutes.

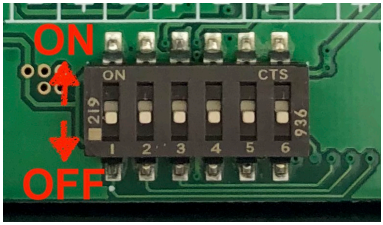
The extinguishing procedure is not initiated even if a fire condition is detected from either or both of the ZONE 1 or ZONE 2 detection inputs. The sounder output is activated and it is possible to disable it.

Test: When the RESET/TEST button on the user interface of the panel is pressed for more than 2 seconds, the panel will start the Test Mode. ON led will start flashing green once per second. In test mode, the fire extinguishing output of the panel is completely disabled. The extinguishing procedure is not initiated under any circumstances. When a fire condition is detected from any or all of the ZONE 1 (Z1), ZONE 2 (Z2) and MANUAL (MAN) inputs, the panel gives an audible and visual fire warning for 5 seconds, and then all detection inputs are de-energized and restarted. Thus, the need to reset the panel after each test and the possibility of accidental activation of the fire extinguisher units connected at the extinguishing output during the test are eliminated. In test mode, if a fire condition is detected from the detection inputs, the sounder output will be activated and will be silenced automatically after 5 seconds. It is sufficient to press the RESET/TEST button briefly to exit the test mode and return to the normal operating state.

Change-Over: When the vehicle is running and there is a driver managing the vehicle (when the ignition switch is on - the supply voltage is present from the IG input), the panel can only manually start the extinguishing procedure, when the vehicle is not running and there is no driver on it (ignition switch is turned off – No supply voltage at IG input) the panel detects this situation and changes its operating mode automatically to "automatic and manual", and it is defined as "Change-Over Mode". Thus, the automatic fire detection and extinguishing function can be activated only when the vehicle is not running or is parked and there is no driver on it. When the voltage is not applied to the IG (ignition switch status detection) input (when the vehicle ignition is turned off) while the Manual operation mode is selected only, the panel switches to Automatic and Manual operation mode. When a fire condition is detected depending on the selection of cross zone or single zone detection, the extinguishing procedure is started immediately and the extinguishing output is activated immediately without an extinguishing delay.

FUNCTION PROGRAMMING

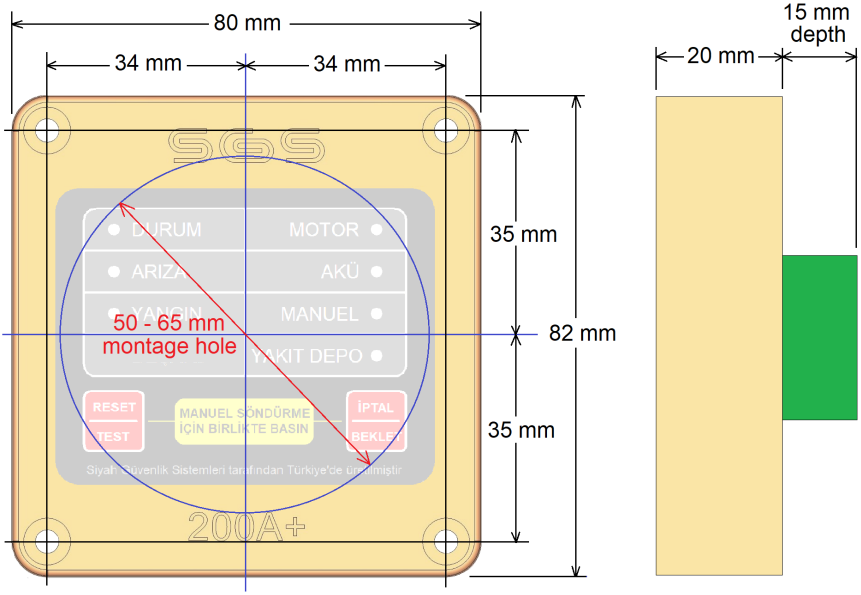
The parameters determining the basic functions of the 200A+ fire control panel are determined by using six miniature DIP-switch set located behind the upper part of the panel. By adjusting the position of the DIP-switches, the basic functions of the panel can be determined according to the user's request or the purpose of use.

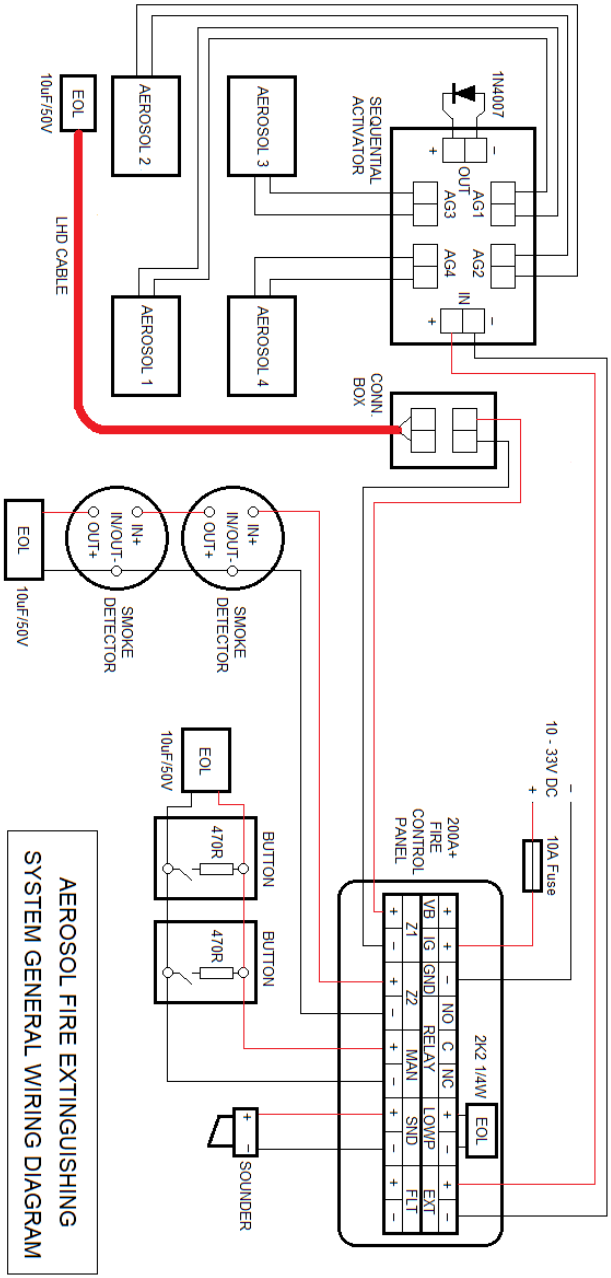


DIP-Switch No	State	Function
1	ON	Zone 1 detector type is conventional 2-wire detector
	OFF	Zone 1 detector type is LHD cable
2	ON	Zone 2 detector type is conventional 2-wire detector
	OFF	Zone 2 detector type is LHD cable
3	ON	Single-zone detection selected (Zone 1 AND Zone 2)
	OFF	Cross-zone detection selected (Zone 1 OR Zone 2)

DIP-Switch No			Function
4	5	6	
OFF	OFF	OFF	Extinguishing delay time is 0 second. No delay.
ON	OFF	OFF	Extinguishing delay time is 5 seconds.
OFF	ON	OFF	Extinguishing delay time is 10 seconds.
ON	ON	OFF	Extinguishing delay time is 15 seconds.
OFF	OFF	ON	Extinguishing delay time is 20 seconds.
ON	OFF	ON	Extinguishing delay time is 25 seconds.
OFF	ON	ON	Extinguishing delay time is 30 seconds.
ON	ON	ON	Manual release only. No automatic extinguishing.

DIMENSIONS AND MOUNTING




AEROSOL FIRE EXTINGUISHING
SYSTEM GENERAL WIRING DIAGRAM
1N4007
SEQUENTIAL ACTIVATOR
OUT
AG1
AG2
AG3
AG4
IN
AEROSOL 1
AEROSOL 2
AEROSOL 3
AEROSOL 4
EOL
10uF/50V
LHD CABLE
CONN. BOX
SMOKE DETECTOR
IN+
IN/OUT-
OUT+
BUTTON
470R
SOUNDER
10 - 33V DC
10A Fuse
200A+ FIRE CONTROL PANEL
VB
IG
GND
NO
C
NC
RELAY
LOWP
EXT
Z1
Z2
MAN
SND
FLT
2K2 1/4W