



# Consultant Specification

**Scope of work:**

To design, supply, install and commission a Fire Alarm Control System in accordance with the details specified herein and in accordance with supplied drawings

## The EN54 Part 2 and 4 Fire System

The system shall include all materials, equipment and wiring required to install the complete Fire Detection and Alarm System. The system shall include but not be limited to one or more control panels, repeater panels, sensors, call points, audible and visual alarm indicating devices and relays.

The FACP shall be compatible with Advanced's conventional detector range.

The installation shall include the laying of all cables required for connection of the detection, alarm indicating and other devices along with connections to the power supply as appropriate to the design. All cabling shall conform to the requirements and recommendations of the Fire Alarm Control Panel manufacturer. Any openings /chasings in walls, ceilings or floors shall be made good.

The system shall be designed such that no more than 80% of the available signalling / detection circuit capacity is employed to allow for future requirements.

Normative references:

|                               |                                   |
|-------------------------------|-----------------------------------|
| EN54-1:2011                   | Introduction                      |
| EN54-2:1997 +A1:2006          | Control and Indicating Equipment  |
| EN54-3:2001 +A1:2002 +A2:2006 | Audible Alarm Devices             |
| EN54-4:1997 +A1:2002 +A2:2006 | Power Supply Equipment            |
| EN54-5:2000 +A1:2002          | Heat Detectors – Point Detectors  |
| EN54-7:2000 +A1:2002 +A2:2006 | Smoke Detectors – Point Detectors |
| EN54-11:2001 +A1:2005         | Manual Call Points                |
|                               |                                   |
| EN54-17:2005                  | Short Circuit Isolators           |
| EN54-18:2005                  | Input / Output Devices            |
| EN54-23:2010                  | Visual Alarm Devices              |
| EN54-25:2008                  | Components using Radio Links      |
|                               |                                   |
| BS5839-1:2013                 | Code of practice                  |
|                               |                                   |

## Standards

The fire detection system shall be designed, installed and commissioned in accordance with, and all elements shall meet the requirements of BS5839-1: Code of Practice. The responsible company should be able to demonstrate their competence to design, install and commission the system, e.g. by certification to BAFA SP203, LPS1014 or other relevant standard.

The equipment manufacturer shall operate a quality management system in accordance with ISO 9001:2000. In addition, the equipment shall be manufactured under a recognised factory control procedure such as the BRE/LPCB, BSI and Vertrauen durch Sicherheit (VDS) schemes.

All detection devices shall be independently certified as complying with the relevant EN54 standard.

The Fire Alarm Control Panel shall be independently certified as complying with requirements of EN54 Part 2 and EN54 Part 4. The Independent approvals body shall be BRE/LBCP or British Standards Institute (BSI) or Vertrauen durch Sicherheit (VDS).

In addition to the basic requirements of EN54, the Fire Alarm Control Panel shall offer the following EN54 optional features with requirements:

|   |                      |
|---|----------------------|
| Optional Functions:                       | EN54-2 Clause        |
| Outputs -Outputs to fire alarm devices    | 7.8                  |
| Controls -Investigation delays to outputs | 7.11                 |
| Co-incident detection                     | 7.12, Types A, B & C |
| Test condition                            | 10                   |
| <br>                                      |                      |
| Power Supply Equipment Functions:         | EN54-4 Clause        |
| Operation from a main power supply        | 5.1                  |
| Operation from a standby battery          | 5.2                  |
| Monitor and charge the standby battery    | 5.3                  |
| Recognise and notify supply faults        | 5.4                  |

The Fire Alarm Control Panel shall also support a number of additional functions that are not covered by EN54. These additional functions shall include:

Auxiliary Power Supply Output

Auxiliary Relay Outputs

Class change and Alert Inputs

# Fire Alarm Control Panel (FACP)

## Functional Description

The FACP shall be the central controller of the complete system. It shall receive and process information from the detection devices, provide audible and visual indication of alarm and other conditions to the user, automatically initiate alarm response sequences and provide the user interface for interrogation and user programming of the system.

The FACP shall provide a user interface from which; controls can be operated, manual operations can be carried out, indications are audible and/or visible and system information can be obtained. It shall also be capable of unambiguously indicating the following functional conditions: Quiescent condition, fire alarm condition, fault warning condition and disablement condition. Furthermore, the fire alarm condition shall always be capable of clearly being indicated without any prior manual intervention at the FACP.

The FACP shall be easy to configure all basic operating characteristics and variables through the user interface on the FACP to satisfy the detection zone and output mapping of the premises.

The FACP shall support up to 2, 4, 8 or 12 two-wire conventional or Twin Wire (SAV-Wire) detection circuits.

The FACP shall be compatible with Advanced's conventional detector range.

The FACP shall provide 2, 4 or 6 monitored outputs to fire alarm devices, each rated at 500mA. An auxiliary supply output shall also be available to provide power for internal option modules.

It shall be possible to configure the panel for investigation delays applied to AUX and Sounder outputs. It shall also be possible to configure false alarm management based on dependency types A, B & C.

All fault conditions (except CPU System Fault) shall be non-latching.

At least one zone shall be configurable for latching / non-latching operation.

It shall be possible to connect optional equipment in accordance with the requirements of EN54-2 Standardised I/O such as remote control terminals.

## Panel Construction

The Fire Alarm Control Panel shall be of metal construction. It shall be capable of surface mounting. Wiring terminations are to be situated towards the top of the unit.

The housing shall meet IP30 minimum ingress protection classification finished in RAL 7035. It shall not be possible to open the enclosure without a key or special tool.

## Panel Indications

The Fire Alarm Control Panel shall be equipped with primary indications that shall be simultaneously capable of indicating the presence of Fire Alarms, Faults, Disablements and Tests in accordance with the requirements of EN54-2.

In addition, the following minimum LED indicators shall be provided in accordance with the requirements of EN54-2 for the features provided:

|                         |        |
|-------------------------|--------|
| Power On                | Green  |
| Fire Alarm              | Red    |
| Fault                   | Yellow |
| Disabled                | Yellow |
| Test                    | Yellow |
| Auxiliary Output Status | Yellow |
| Sounders Status         | Yellow |
| System Fault            | Yellow |
| Power supply Fault      | Yellow |
| Access Level            | Yellow |
| Delayed                 | Yellow |
| Repeater Fault          | Yellow |

## Panel Controls

The Fire Alarm Control Panel shall be provided with the following minimum manual controls with the use of a key-switch to enable Level 2 controls:

Mute

Silence

Resound Alarms / Evacuate

Reset

LED Test

Disable Mode

Test Mode

In addition, an Enter button shall be provided for programming.

## **Configuration**

It shall be possible to configure ALL basic configuration parameters and settings from the FACP front panel.

## **Remote Terminals**

It shall be possible to provide remote access to monitor / control (Remote Control Terminal) operation of the installation.

The Remote Control Terminal shall provide the same display, indication and buttons as the 12-Zone FACP.

Remote Control shall provide the capability to silence alarms, re-sound alarms, evacuate and reset the system. In addition, it shall be possible to remotely enable or disable zones and remotely configure a zone walk test.

## **Power Supplies**

All power supplies (integral to the fire alarm control panel or remote) shall be certified to EN54-4 and shall be capable of supporting 72 hour standby requirements. The FACP shall have a built-in or remote battery temperature sensor.

All power supplies shall be capable of operating from a main supply of 230VAC 50/60Hz.





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