



● *Fire Alarm Trainer B700*  
● *& Alarm Wiring Kits B720*  
●

Machine Code B700 has been  
superseded by **B701**.

The unit experimental capabilities  
remain unchanged, however, the  
fire alarm control panel is now  
push button operated.



**P.A. Hilton Ltd.**

# Introduction

In order to safeguard both life and property it is usual when designing new industrial, office and public buildings for a fire alarm system to be specified. Indeed with increasingly stringent safety standards the retrofitting of fire alarm systems to older buildings is also becoming more common.

Though the safety standards and complexity of alarm systems will vary, all share a common basic format. Various forms of fire detectors will be linked to a central control panel and this in turn will be linked to an audible and sometimes visual alarm. In some cases the system may also either by itself or via the building management system shut down plant or transit systems and call the emergency services.

In most cases the control system will have various internal fault detection and warning systems and internal or external power supply backup.

The Hilton Fire Alarm Trainer B700 and Alarm Wiring Kits B720 have been designed to provide students with hands on experience of installation, commissioning and the operation of the various types of detector and alarm components.

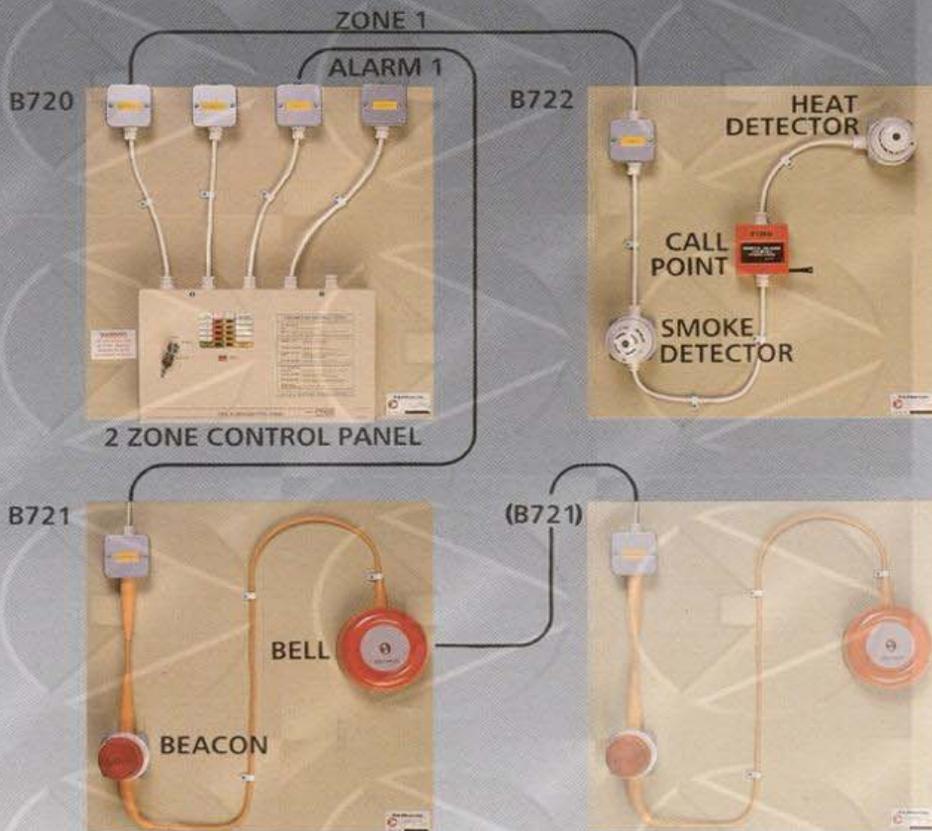
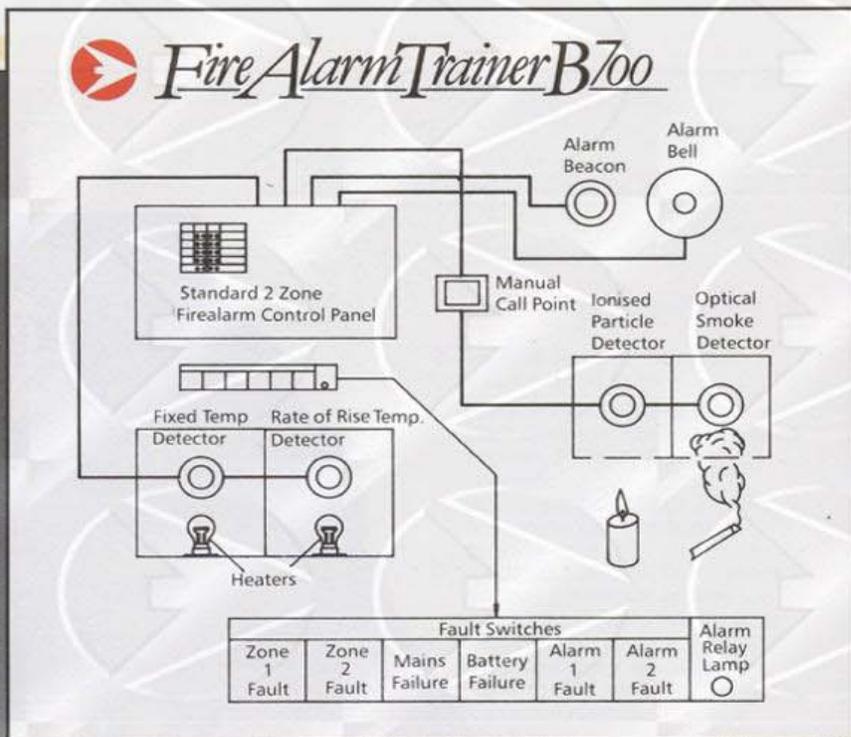
The unit is applicable for the teaching of students in:

- ▶ Building Services
- ▶ Plant Engineering
- ▶ Marine Engineering
- ▶ Civil Engineering
- ▶ Architecture

# Experimental Capabilities

The B700 Fire Alarm Trainer enables the following exercises to be carried out.

- ▶ Examination of the components and essential wiring of a typical two zone detector circuit, dual alarm system designed to BS 5839.
- ▶ Investigation of the performance of both ionisation and visible smoke detector heads.
- ▶ Investigation of the performance of both fixed temperature and rate of temperature rise fire detector heads.



- ▶ Demonstration of internal fault detection of battery and mains supply failure.
  - ▶ Demonstration of internal detection of both shorted and electrically open detector circuits and open alarm circuits.
- The Hilton B720 Alarm Wiring Kits allow vocational students to wire detector, alarm and control panel

circuits using either Low Smoke Zero Halogen fire resistant cable or the more common mineral Insulated Copper Cable (MICC).

The detector and alarm components may be connected and commissioned to a control panel board as part of a complete kit or alternatively plugged into two connectors provided on the B700 unit control panel.

# Description

## B700 Fire Alarm Trainer

(Please refer to the schematic diagram opposite)

A two zone fire alarm control panel to BS 5839 is mounted on the front of a glass reinforced plastic panel.

One detector zone consists of a temperature detector and rate of rise temperature detector mounted in a fire retardant glass reinforced plastic case. The case has an internal divider and separate heater lamps designed to raise the temperature within the enclosure above the detector limits. This activates the detector and sets off the alarm system.

The second detector circuit consists of a manual call point followed by an optical smoke detector and ionised particle detector mounted in a similar box to the heat detectors.

Apertures at the base of the box allow combustion products from a match or cigarette lighter or visible smoke from the generator supplied to be injected into the enclosures housing the two types of detector.

Activation of any of the detectors or the call point sets off the two alarm circuits. One utilises a standard bell alarm and the other a high intensity Xenon strobe beacon. The audible alarm is provided with a removable muting device to prevent excess noise.

To demonstrate the internal fault detection a set of six switches allow various faults to be introduced into the system. These include mains failure, battery failure, detector short and open circuit and alarm open circuit.

On a fault condition the alarm panel gives both an audible and visual indication.

The control panel also has two single sockets to allow a student wired B722 detector circuit and B721 alarm circuit to be connected into the B700 system for commissioning and investigation.

The B720 Alarm Wiring Kits consist of the following components:

B720 Control panel module.

A board mountable two zone control panel similar to that used on the B700 together with connection boxes for student wiring and commissioning.

B721 Alarm circuit module.

A board mountable set of audible and visual alarm components together with the necessary mounting boxes for student wiring.

B722 Detector circuit module.

A board mountable pair of one heat and one smoke detector and a call point together with the necessary mounting boxes for student wiring.

B723 Aluminium sheathed zero halon covered fire resistant wire kit (100m).

B724 Aluminium sheathed zero halon wire accessory kit.

B728 Aluminium sheathed wiring tool kit. Combination of the B720, B721, B722, B723, B724 and B728 enables students to wire and commission a complete operating board mounted alarm system.

B725 Mineral insulated copper cable (MICC 100m).

B726 Mineral insulated copper cable wire accessory kit.

B727 Mineral insulated copper cable tool kit. Combination of the B720, B721, B722, B725, B726 and B727 enables students to wire and commission a complete operating board mounted alarm system.

Note that up to 15 B722 detector module boards may be linked to each of the two detector circuits of the B720 and up to 8 B721 alarm module boards to each of the alarm circuits.

(B722)



**UP TO 15 DETECTORS  
MAY BE LINKED ON  
EACH ZONE.**

**UP TO 8 ALARM BOARDS  
MAY BE LINKED ON  
EACH ALARM CIRCUIT**



**B700 & B720**



# Specification

## B700 FIRE ALARM TRAINER

A bench mounted two zone fire alarm system incorporating the following detectors and alarms:

Ionisation smoke detector, Visible smoke detector, Fixed point heat detector, Rate of temperature rise detector, Manual call point, Alarm Bell and Flashing alarm light beacon.

All detectors and alarms are connected to a two zone control panel and facility is given for introducing faults into the system that are detected by the control panel.

Each of the detector points is provided with a means of activation, either smoke or heat as required.

## B720 (OPTIONAL)

Board mounting two zone fire alarm control panel suitable for student practice wiring and commissioning.

## B721 (OPTIONAL)

Board mounting fire alarm components (bell and strobe lamp) suitable for student practice wiring and commissioning.

May be plugged into either B700 unit or B720.

## B722 (OPTIONAL)

Board mounting detector components (heat, smoke and manual call point) with boxes and fixings suitable for student practice wiring and commissioning.

## B723 (OPTIONAL)

Zero halon fire resistant cable (100m).

## B724 (OPTIONAL)

Zero halon wire accessory kit.

## B728 (OPTIONAL)

Zero halon wire tool kit.

## B725 (OPTIONAL)

Mineral insulated copper cable (MICC 100m).

## B726 (OPTIONAL)

Mineral insulated copper cable accessories kit.

## B727 (OPTIONAL)

Mineral insulated copper cable tool kit.

## DIMENSIONS

B700	
Height	920mm
Width	1060mm
Depth	430mm
Weight	48kg

B720  
On application, dependant upon items and quantity selected.

## ACCESSORIES AND SPARES

B700 FIRE ALARM TRAINER.  
Unit is supplied with:

- Experimental Operating and Maintenance manual in either English, French, German or Spanish.
- Spares sufficient for 2 years operation under normal conditions.
- A spares package for 5 years normal operation is also available. Details available on request.

Note this does not apply to consumable parts for the B720 (optional items).

B720 all (optional) items:

- Single Common Experimental Operating and Assembly instructions in either English, French, German or Spanish.

## SERVICES REQUIRED

Either: A 300W 220/240v 50 Hz.  
(with earth/ground)  
or: B 300W 110/120v 60 Hz  
(with earth/ground)

Units for other voltages or supply frequencies are available on request.

## SHIPPING SPECIFICATIONS

(Approx.)

B700 Fire Alarm Trainer	
Nett Weight	48kg
Gross Weight	136kg
Packing Case Size:	1.250 x0.622 x1.194m
Packing Case Volume:	0.928m <sup>3</sup>



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