

# GENT Model 2401 Fire Alarm Control Panel Installation Instructions

## 1. Introduction

The fire alarm control panel has been designed to comply with the requirements of BS 5839:Part 4:1988 for use in systems complying with the requirements of BS 5839:Part 1:1988 which are the British Standards for fire detection and alarm systems in buildings. These instructions should provide sufficient information to install the product. It is however important that those responsible for the design, installation and commissioning of the system should have a good working knowledge of the requirements of installed systems, particularly BS 5839:Part 1:1988 Code Of Practice for the system design, installation and servicing.

## 2. Fire Detection and Alarm System Design

The following information provides guidance on aspects of system design, specifically in relation to the use of the Control Panel.

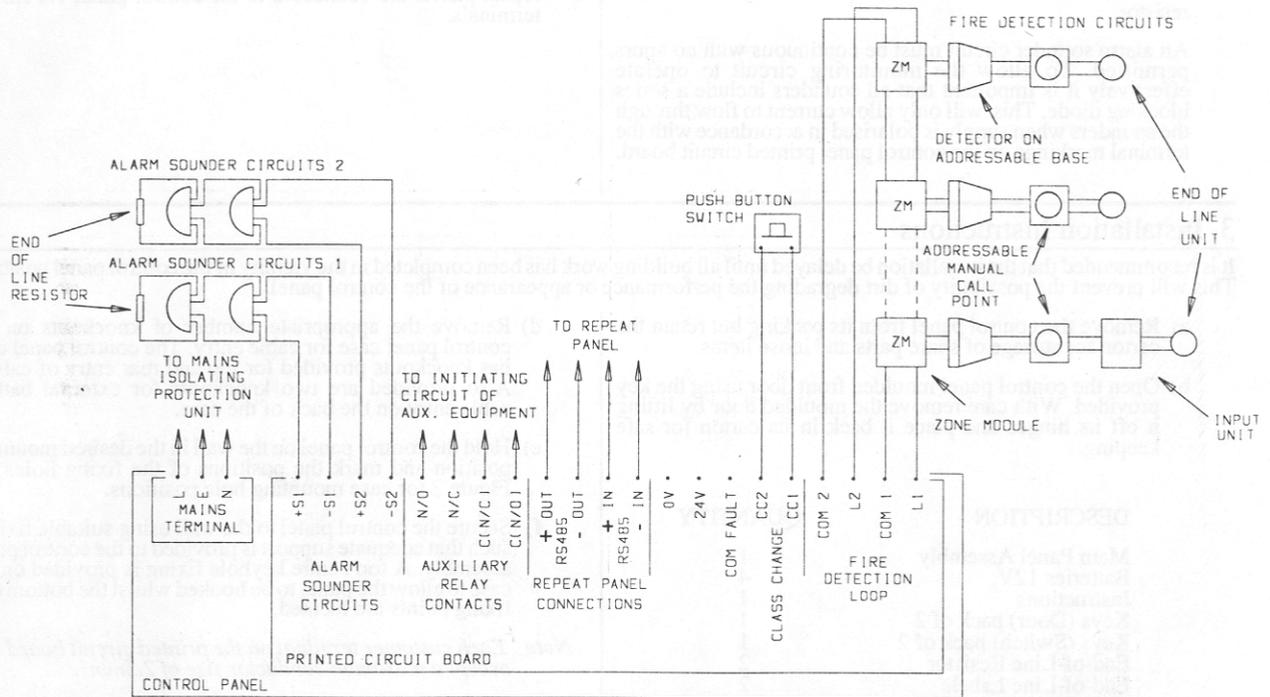


Figure 1 Typical Fire Detection & Alarm System Schematic

### 2.1 Mains Supply Connection

The mains supply to the control panel should be 240V a.c. 50Hz single phase. Its connection must be made via a 3A fused non-switchable spur unit reserved solely to feed the control panel.

### 2.2 Standby Supply

For a fully loaded system under mains fail condition the control panel, having external batteries, will provide a standby supply for a period 72 hours followed by 30 minutes at full load of 3A.

Alone, the internal batteries are capable of providing 72 hours backup followed by 30 minutes alarm load of 2A for a system comprising of 96 detectors/manual call points on up to 8 zone modules.

### 2.3 Fire Detection Circuits

A maximum of 16 zone modules can be connected on the fire detection loop provided by the control panel. The loop consists of two wires, L1 and Com1 from the control panel to the zone modules. The loop is returned from the last zone module to the control panel L2 and Com 2 terminals.

The detectors, manual call points and input units are connected to a zone module. See leaflet (4188-299), (4188-298) and (4188-311) respectively for connection details. There are no restrictions to the mixture of detectors, manual call points or input units connected to a zone module, however a maximum of 20 devices is permissible per zone module. At the end of each detection circuit an end of line

unit must be connected. This is to ensure effective monitoring of the fire detection circuit and must be fitted after the last device on the fire detection circuit. The end of line units are supplied with the zone modules

It is important that the correct detector base be used with the recommended detectors. The correct detector base is a 12420-01 and a list of recommended devices are shown.

The recommended devices for fire detection circuits are:

- GENT 7630 Ionisation Smoke Detector
- GENT 7640 Optical Smoke Detector
- GENT 7650 Fixed Temperature Heat Detector
- GENT 7660 Rate Of Rise Heat Detector
- GENT 7670 High Temperature Heat Detector
- GENT 7011 Beam Detector
- GENT 12490-01 Input Unit
- GENT 12480-02 Manual Call Point
- GENT 12415-10 Duct Detector

The maximum loop cable length is 1Km with a maximum effective resistance of 15 ohms per core. The maximum distance between each zone module on the loop should be 0.3 Km with a maximum effective resistance of 5 ohms per core.

The maximum recommended zone cable length is 0.5 Km, which is also the maximum distance between devices. A maximum effective zone conductor resistance is 6 ohms per core.

## 2.4 Alarm Sounder Circuits

To comply with the requirements of BS 5839:Part 1:1988, it is important that both alarm sounder circuits are used on all installations. Each sounder circuit is rated at 24V dc 2A with a maximum alarm sounder current of 3A distributed between the two alarm sounder circuits.

The recommended devices for use in the system are

- GENT 12511-52 Electronic Sounder 24V dc
- GENT 12141-04 Electronic Bell

## 2.5 Monitoring of Alarm Sounder Circuits

Each alarm sounder circuit is monitored for both short and open circuit wiring faults. This requires that the remote end of each sounder circuit is fitted with a 22k ohm end-of-line resistor.

An alarm sounder circuit must be continuous with no spurs permitted. To allow the monitoring circuit to operate effectively it is important that all sounders include a series blocking diode. This will only allow current to flow through the sounders when supply is polarised in accordance with the terminal markings on the control panel printed circuit board.

## 2.6 Class Change

A pair of terminals are provided to permit the system alarm sounders to be actuated from a remote position.

It is considered that the major use of these will be for class change function in Schools and Colleges. The wiring to these terminals connect to normally open initiation contacts and is therefore not monitored for an open circuit fault condition. The use of this facility is NOT recommended for fire safety applications.

## 2.7 Repeat Panel Connections

The control panel includes terminals for the connection of up to 31 repeat panels. The repeat panel permits duplicate fire and fault indications of those given by the control panel. The repeat panels are connected to the control panel via RS485 terminals.

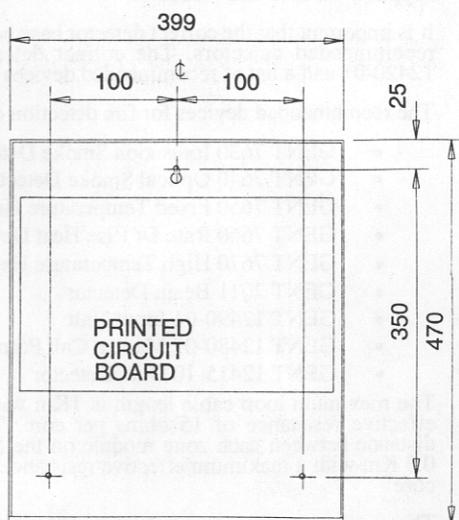
## 3. Installation Instructions

It is recommended that the installation be delayed until all building work has been completed in the vicinity of the control panel position. This will prevent the possibility of dirt degrading the performance or appearance of the control panel.

- Remove the control panel from its packing but retain the carton for storage of spare parts and loose items.
- Open the control panel moulded front door using the key provided. With care remove the moulded door by lifting it off its hinges and place it back in its carton for safe keeping.

DESCRIPTION	QUANTITY
Main Panel Assembly	1
Batteries 12V	4
Instructions	1
Keys (Door) pack of 2	1
Keys (Switch) pack of 2	1
End-of-Line Resistor	2
End-of-Line Labels	2
Fuse 0A5 (Quick blow type)	1
Fuse 2A (Anti-Surge type)	1
Battery Link Leads	2
Commissioning Pack	1

Table 1 Parts List



- Check the parts supplied with those listed in Table 1. If replacement parts are required at any time, only spares that are of the same specification should be used.

- Remove the appropriate number of knockouts on the control panel case for cable entry. The control panel case has knockouts provided for top and rear entry of cables. Also provided are two knockouts for external battery cable entry on the back of the case.
  - Hold the control panel on the wall in the desired mounting position and mark the positions of the fixing holes see Figure 2 for case mounting hole positions.
  - Secure the control panel to the wall using suitable fixings such that adequate support is provided to the control panel assembly. A top centre keyhole fixing is provided on the case to allow the panel to be hooked whilst the bottom two fixing points are located.
- Note Each customer terminal on the printed circuit board will accept a maximum conductor size of 2.5mm<sup>2</sup>.*
- The system is designed to utilise 1.5mm<sup>2</sup> cable for loop and zone wiring.*
- Terminate the cables into the appropriate terminal blocks on the printed circuit board.
  - If it is not intended that the system be commissioned at this stage, the moulded door can be re-fitted and the system left without power. Store spare parts, batteries and loose components inside the control panel carton and keep in a safe place until required.

## IMPORTANT

- Under no circumstances should the repeat panel be powered up without first referring to the COMMISSIONING INSTRUCTIONS. The Instructions are contained in the Commissioning Pack.
- As each detection device is addressable the label required for each zone, detector, manual call point and input unit must be finalised before commissioning can commence. The device label information should be entered on leaflet 4188-328 (supplied with the panel). The label information should be conveyed to the commissioning party.

**Note:** The batteries supplied with this panel have a self-discharging characteristic during storage. If a panel is put into service after the Battery Storage Expiry Date, when powered up a 'Battery Fault' condition is initiated, please contact the Stockiest Representative or Internal Sales Engineer at your local GENT office. Under normal operating conditions the batteries can have a useful life of up to 5 years from the date of their manufacture. The REPLACE BY DATE shown on the battery label is calculated at 4 years from manufacture and it is strongly recommended that the batteries are changed by this date.