IBVA04
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BVA04

Operating Instructions

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BALDWIN BOXALL
COMMUNICATIONS

BVA04

The BVA04 contains the necessary components to interface a public address system to a fire panel and fire microphone, enabling the monitoring of all select control lines of the external cable link.

The printed circuit board is mounted in a module that can be clipped to a standard terminal rail. This module may be powered from two 24V dc supplies and, in the event of one failing, a fault will be announced but operation is still possible via the remaining supply. Two sets of regulators provide the necessary 12V for correct operation, ensuring system integrity. The two supplies are independently fused via a 1.1 Amp self-resetable fuse and the input voltage may be in the range of 22-35Vdc.

The Fire Alarm Interface

The fire alarm interface provides eight opto-coupled sounder circuit interfaces P1-3 and one overall reset input P2 Terminal 3&4. In the 'non-alarm' condition the fire panel provides a dc current enabling it to monitor conventional end-of-line resistors – as employed on a sounder circuit. This current passes through the recommended end-of-line resistor and illuminates an LED on the BVA04, indicating that the circuit is complete. There is an additional 2K2 resistor in series with the end-of-line resistor so, therefore, 2K2 must be taken away from the recommended value to ensure the correct non-fault condition is presented to the fire panel. The end-of-line resistors R1-R9 are mounted on two pins, enabling quick substitution. (issue 2 onwards)

In the 'fire condition' the fire panel will reverse the sounder circuit output polarity, causing the LED in the opto-coupler to conduct. Once conducting, the output from the opto-coupler will change from 0V to +12V. This output is presented to the set input of a set/reset bi stable latch, which latches its output to +12V and is inverted by a Darlington driver, whose open collector output A1-A8 appears either on P9 or P10 Terminal 2-5 (depending on the sounder circuit selected). This output (A1-A8) is generally used to select the zone required on a PA system using amplifier input access or routeing mixer. These eight sounder circuit inputs are grouped in two banks of four – each bank providing an open collector output P9 & 10 Terminal 1, active low when any of the four inputs receives an alarm condition. This output is generally used to trigger the emergency message – for example 'evacuate'. Each bank has an override input P9 & 10 Terminal 6 and in the low state will release all the open collector outputs, enabling an emergency microphone to override. This override input will not reset the latches and they may only be reset by applying a dc current to the reset input P2 Terminals3 & 4 of the correct polarity to operate its associated opto-coupler.

The two banks of four can be very useful for example if your system requires four evacuate and four alert inputs on a zonal basis, using the two inputs provided on Vigil amplifiers it is possible to evacuate a zone whilst alerting the remaining. The zone select outputs are also connected to a diode matrix allowing various system configurations (please refer to the circuit) and SW1 – the dual-in-line switch – can be very useful for selecting amplifier inputs for surveillance when the system is in the idle mode. Other diodes provide access to the zones whilst others provide a common output for accessing specific input modules common to all zones.

Fire Microphone Interface

Six fire microphone monitored select inputs P5 Terminals 1-6 are provided to interface between microphone select switches and the public address input access. These consist of three comparators that form a window-type detector. Access is only accomplished if the input voltage is between 2V and 6.5V. A fault will be announced if this voltage is below 2V or in excess of 16V and, therefore, normal non-accessed condition is between 6.5V and 16V. This input is designed to operate with our standard fire microphones, however, other manufacturers' microphones could be modified to suit. When the input access condition is met, the open collector output from the Darlington driver will conduct and is available on P12 Terminals 2-7, which would normally provide zone select of the PA system. Diodes from each of the six outputs provide an access output, again available on P12 Terminal 1, should any of the six outputs become selected. This access output is normally connected to the input select of the microphone input being used. The common fault output from all six detectors will be in the fault condition if any of the six inputs are not correctly terminated. Therefore, it is necessary that all unused inputs must be connected to P5 Terminal 8 (unused access) to remove the fault condition. When all faults are removed, LED11 (the 'okay' LED) will illuminate, the relay RL1 will energise and its associated contacts presented on P13 Terminals1-3 will be in the non-fault condition.

Additional Components

This module also incorporates additional components e.g. 2 pole C/O relay RL2, 2 way dual in line switch SW2 that may be used in your system depending on the requirements.

Note

Please observe electrostatic handling precautions as this module contains ESD sensitive components.

CE

Low Voltage Directive
73/23/EEC as amended
by 93/68/EEC

EMC Directive
89/336/EEC as amended
by 92/31/EEC and 93/68/EEC

Applies only when the items are correctly fitted and operated in or with products of our manufacture and are installed in a recommended enclosure.

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