yi6320
revision B, 4th May 2007
catalogue section 25

AP12 Alarm Panel

Installation Instructions

Please read the following information before installing. A visual inspection of this product for damage during shipping is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product. If in doubt, please contact your local Murphy representative.

GENERAL INFORMATION

WARNING

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT
- ✓ Disconnect all electrical power to the machine
- ✓ Make sure the machine cannot operate during installation
- ✓ Follow all safety warnings of the machine manufacturer
- ✓ Read and follow all installation instructions

Description

The AP12 is a 12-channel alarm annunciator, designed to the requirements of the Loss Prevention Council. The panel has been primarily designed to provide status indication for a fire pump control system, but may be used in a wide range of building and general purpose control panel applications.

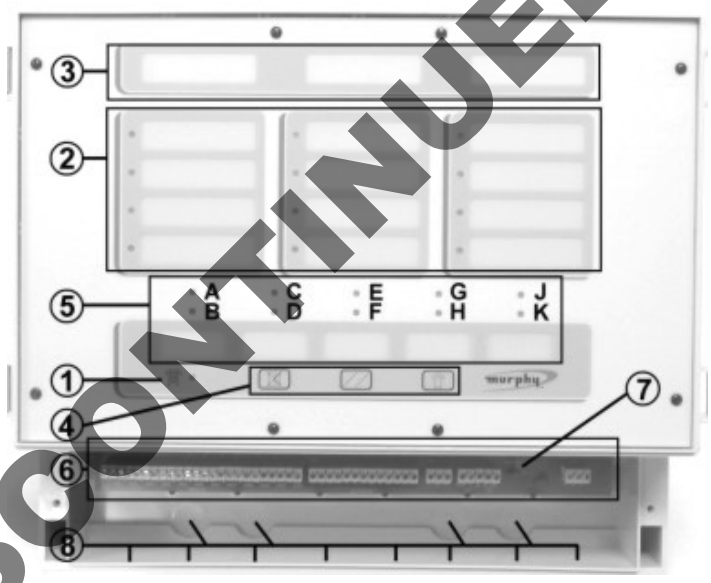
The alarm panel is housed in a 380 x 315 mm wall mounted enclosure: an integral clear door gives front facia environmental sealing to IP55. Fault and status indication is by an audible alarm and 12 LED indicators, each with a front facia window for user-defined labelling. Three front facia push keys allow for fault acknowledgement (alarm mute), fault reset and lamp test.

Screw terminals are used for the electrical connection of the AC power supply, 12 input 'channels', 12 outputs (which mirror each input), and a 'common alarm' relay output. Terminals are also provided for an optional communication link to additional, repeater alarm units. Service access for the connectors is via a front facia cover, with cable access through punchable holes in the panel base or rear.

Model AP12B features an internal battery backup, ensuring continuous operation during a mains AC power failure.

Each alarm channel has several programmable features, set using the front facia push-keys and LED indicators.

Familiarisation



1 Mains power on LED (green)

2 12 x status/fault LED indicators (red), each with a window containing a user-defined message

3 3 heading windows, each with a user-defined message

4 Operator push-buttons:
- Alarm mute
- Reset
- Lamp Test

5 Program mode/system fault LEDs A – K (amber), with 5 custom message windows.

6 Electrical connection terminals

7 Battery backup enable link (AP12B only)

8 Cable access (punchable holes)

FRANK W. MURPHY LTD.
Church Rd, Laverstock,
Salisbury, SP1 1QZ, United Kingdom
tel: +44 1722 410055
fax: +44 1722 410088
email: sales@fwmurphy.co.uk
web: www.fwmurphy.co.uk

FW MURPHY
PO Box 470248
Tulsa, Oklahoma 74147, USA
tel: +1 918 317 4100
fax: +1 918 317 4266
email: sales@fwmurphy.com
web: www.fwmurphy.com

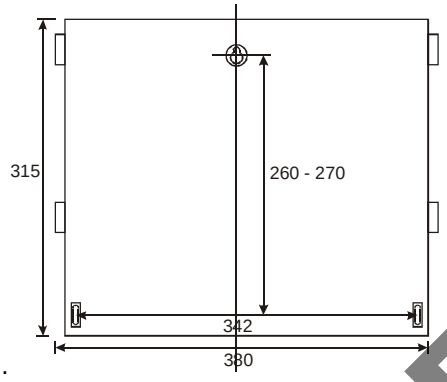
USA - ISO9001:2000 FM 28221
UK - ISO9001:2000 FM 29422

PANEL MOUNTING

The AP12 may be wall mounted using the 3 fixing holes at the casing rear. The overall and fixing dimensions are shown right.

The panel must be positioned to permit cable access through the punchable holes in the lower and/or lower rear facias. Select and punch out the appropriate holes before mounting.

The case itself provides environmental protection to IP55 once the terminal cover is replaced and the clear plastic door is closed. The panel must be installed in such a way to prevent ingress of dust or moisture through the cable access holes e.g. using appropriate cable glands, or by sealing around the unit if cable access is from the rear.



(mm)

ELECTRICAL CONNECTION

WARNING!
DANGER OF ELECTRIC SHOCK.

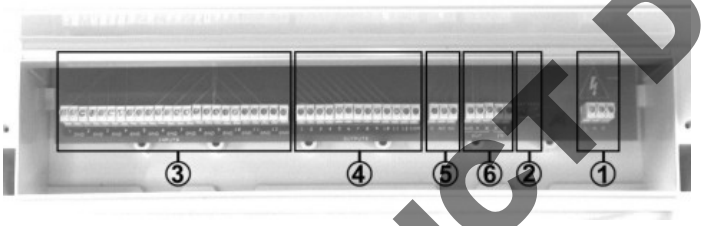
The following procedure involves exposure of high voltage AC power supply terminals.

- **Connection should only be made by a qualified electrician.**
- **Isolate AC supply before connection.**

DANGER ! HIGH VOLTS

In normal use, the electrical terminals are covered with a screw fastened plate at the bottom of the front facia. To access the terminals, remove the two screws and the plate.

With cabling passed through the access holes, electrical connection is via a series of screw terminal connector blocks. These are mounted on the lower edge of the alarm panel's main circuit board, with markings that detail each terminal's function:-



1 Power supply (3 way terminal block)

Live, Neutral and Earth connections

DANGER ! HIGH VOLTS

WARNING! HIGH VOLTAGE. ENSURE AC SUPPLY IS ISOLATED BEFORE CONNECTION.

The alarm panel is designed to work with 220 – 240VAC, 50/60 Hz nominal power supplies.

Model AP12B can be set to provide battery backed-up operation in the event of a mains AC supply failure: for full details see 'Battery header link' following and 'Operation: mains power failure'.

2 Battery Header link (AP12B only)

Model AP12B is packed with its internal battery charged and the battery link in the OFF position (to prevent discharge). If battery backup is required, move this link to the ON position immediately before use.

IMPORTANT:

To ensure a fully charged backup battery, connect model AP12B to the AC supply for a minimum of 24 hours before use.

3 Inputs 1 – 12 (24 way terminal block)

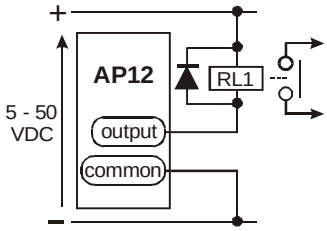
These 12 inputs are used to trigger the operation of each channel LED. Each input comprises 2 terminals, input and common, designed for use with remote volt-free contacts. The remote contacts may be located up to 100 metres from the alarm panel.

Each input channel may be programmed to activate on opening or closing contacts, and can be optionally set to operate the 'common alarm' relay and/or the audible alarm - see 'programming' below for full details.

4 Outputs 1 – 12 (13 way terminal block)

These terminals provide access to 12 semiconductor (open collector) outputs and 1 common negative DC supply reference terminal.

The outputs reflect the status of the alarm panel's LEDs. Each output may be used to drive a suppressed relay coil (example shown right) or an LED indicator.



Each output has a max. rating of 250mA / 50VDC.

5 Common Alarm Output (3 way terminal block)

This is a volt-free relay output, with access to changeover contacts (C=common, NO=normally open, NC=normally closed). The circuit rating is 1 Amp @ 240VAC.

The relay is energised in normal operation. Each channel may be individually programmed to de-energise the common alarm relay on input activation - see 'programming' below. The relay also de-energises on loss of mains AC supply.

6 Communication link

These terminals allow the inter-connection of two or more alarm panels. With one panel in 'master' mode and the other(s) in 'slave' mode, the slave unit will mimic the status of the master controller. Slave units may be positioned up to 1 km (1000 metres) from the master.

See 'programming' for how to set master/slave status.

Programmable features

Before the AP12 is commissioned, each of the 12 input 'channels' may be set to operate in a variety of ways, as appropriate for the fault/status contact being monitored. Each channel has the following attributes:-

Program function	*Options*
Input contacts configuration	Normally closed contact or Normally open contact
Audible alarm activation	On or Off
Common alarm output activation	On or Off
LED mode	Fault or Healthy

The unit as a whole may also be set to 'master' or 'slave' mode.

Default settings

The AP12 is supplied with the following default settings:-

Inputs: **normally open** (input activates on closing contacts)
Audible Alarm: **on** (all channels)
Common Alarm output: **on** (all channels)
LED mode: **fault** (LED lights on active input)
Operating mode: **master**

Program mode

Before programming, make a list of fault/status contacts to be monitored, and decide how these are to be distributed among the 12 available channels. Distribution may be affected by the front labelling, which is arranged as 3 columns of 4 rows: the left column contains channels 1 (top) to 4 (bottom), the centre column 5 – 8, etc; each column also has a window for an optional header message.

Once the channels have been allocated, select program mode by pressing the following key sequence:-

- [⊠] and [//] (press together). The 12 (red) channel LEDs flash, and (amber) LEDs G and H light continuously.
- followed by [☝] (LEDs E and F light continuously)
- followed by [//] (LEDs C and D light continuously)
- followed by [⊠]

If the incorrect sequence is entered, the AP12 will return to normal operation.

If the correct sequence is entered, the channel 1 LED will light (continuously) to indicate 'program mode: channel 1' and amber LEDs A – K will light to indicate the program status of channel 1 (details below). Once the AP12 is in program mode, the front facia pushbuttons operate as follows:-

Front facia key	*Program mode operation*
[⊠]	**'Channel'** (select 1 – 12)
[//]	**'Select'** (the program feature)
[☝]	**'Toggle'** (the program feature option)

Channel configuration

To select each channel (1 – 12), press **Channel** ([⊠]) until the required channel LED lights.

When the correct channel LED is lit, press **Select** ([//]) until the required program feature is selected, as indicated by one of the LED pairs (details below).

To change the option for each program feature, press **Toggle** ([☝]), until the correct LED is lit as follows:-

LED pair	*Program feature*	*Program setting (when LED is flashing)*
A, B	Input contact configuration	A = normally open contacts (input activates on closed contacts) B = normally closed contacts (input activates on open contacts)
C, D	Audible alarm	C = alarm on when input activates D = alarm off when input activates
E, F	Common fault output	E = output on when input activates F = output off when input activates
G, H	LED mode	G = fault, i.e.:- • LED is off when input is inactive • LED flashes on input activation • LED lights continuously after MUTE • LED goes off after RESET H = healthy, i.e.:- • LED is on when input is inactive • LED flashes on input activation • LED goes out on MUTE • LED comes on after RESET
J, K	Operating mode	Master or Slave. See following section

Operating mode (master or slave)

LEDs J and K indicate the operating and communications mode for the unit as a whole. This is a single program option that can be set with any channel selected. Use the **select** ([//]) key until LED J or K is flashing, then use the **Toggle** ([☝]) key to select from the following options:-

LED pair	*Program feature*	*Program setting (when LED is flashing)*
J,K	Master/slave	J = master K = slave

In 'master' mode, the alarm panel continually monitors its 12 inputs and operates its LEDs accordingly. The communication port of master units will also transmit data about the input status. This data can be read by another alarm panel in 'slave' mode.

Units in 'slave' mode will ignore the state of its 12 inputs, and will light LEDs on the basis of data received through the comms port. Slave units can therefore serve as a remote mimic to master units, with only a simple 2-wire communication link.

Save Program Changes and Exit

After channel 12 has been programmed and the **Channel** ([⊠]) key has been pushed, all the LEDs will flash to signify 'save and exit?'. The following key pushes can be made:-

[⊠]	Review the program settings. (The channel 1 LED will light again.)
[//]	Discard the just completed program changes, exit program mode and return to normal operation.
[☝]	Save the just-completed program changes and exit program mode.

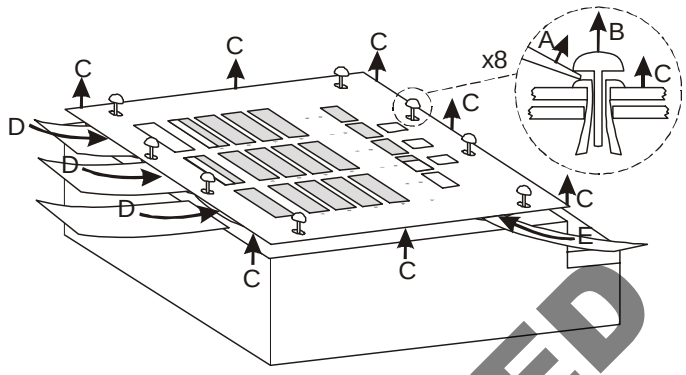
LABELLING

The AP12 front facia label has a 'sandwich' construction, with windowed pockets for the insertion of custom message labels.

The front label is secured by 8 plastic rivets. Use a fingernail or small flat screwdriver (A) to lift the cap of all 8 rivets (B). The front label can then be removed (C).

Up to four custom message labels may be inserted into the pockets: 3 separate labels (D), accessed from the front label top edge, are used for the 12 fault messages (3 columns, each with 4 messages and 1 header); 1 label (E), accessed from the left, is used for the five windows at the foot of the front facia.

Templates for producing custom message labels are supplied with the unit. Custom labels may also be produced using a Microsoft® Word* template, available for download from www.fwmurphy.co.uk/ap12



OPERATION AND MAINTENANCE

After commissioning, operator intervention is limited to the monitoring of the LED indicators (typically in response to an audible alarm), investigation of indicated faults and operation of the 3 front facia control keys.

Power on LED

This green LED lights when the AC power supply is on. See also 'AC power failure' below.

12 channel LEDs

Each front facia LED will flash (at approximately 1 Hz.) if the corresponding input is made active. The input can also be programmed to sound the audible alarm and/or operate the common alarm output.

The custom messages next to each LED indicate the fault that needs to be investigated. Use the control keys detailed below to acknowledge fault conditions and reset LEDs.

Control keys

The front facia has 3 push keys:-

Alarm Mute.

Once a fault is indicated (by 1 or more flashing LEDs), press this key to acknowledge the fault and silence the audible alarm. Channel LEDs set for 'fault' operation will then light continuously; channel LEDs set for 'healthy' operation will go out. The indicated fault should then be investigated further.

The audible alarm will automatically re-sound if other faults subsequently occur.

Reset

After the fault has been investigated and corrected (so that the input is no longer active), press this key to reset the fault condition and LED indication: LEDs set for 'fault' operation will go out; LEDs set for 'healthy' operation will light again.

Lamp Test

Press this key at any time to illuminate all LEDs. The audible alarm will also operate.

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Battery backup on AC power failure (AP12B only)

In the event of a mains AC power failure, model AP12B has an internal battery backup to ensure continued operation (assuming the battery header link has been set to ON before commissioning).

The battery backup allows continuous operation of 6 alarm channels for at least 24 hours. The following will also occur:-

- The front facia 'Power On' LED will go out
- The Common Alarm relay will de-energise

System errors

The AP12 has a number of self-diagnostic features. Front facia LEDs A, C, E, G and J are used during operation to indicate a range of system faults:-

LED	*Fault*
A	Power (mains failure) error - AP12B only
C	Memory error
E	Internal error
G	Received communications quality error (indicated on slave unit only)
J	No communication (indicated on slave unit only)

LEDs G and J above indicate a problem with the communications link: check the integrity and length of the link. LEDs C and E indicate internal operating errors: please contact your Murphy representative for further assistance.

Maintenance and warranty

Routine maintenance is limited to keeping the AP12 free from build-up of dust and dirt, and from moisture ingress.

The battery backup on model AP12B may be tested periodically by isolating the mains AC power supply and checking the unit's operation. Battery life is anticipated by the manufacturer to be between 3 and 5 years. Please contact your Murphy representative for details of battery replacement.

The alarm panel is supplied with a limited two-year warranty on materials and workmanship. Aside from the battery in model AP12B, the alarm panel contains no user-serviceable parts: once installed, no attempt should be made to dismantle the unit; attempts to dismantle the AP12 may cause irreparable damage to its components and will invalidate any remaining warranty.