

BEACON BASE

FUNCTION

The Beacon Base is a loop-powered beacon combined with a standard XP95/Discovery mounting base. It is used to signal a fire alarm in enclosed areas.

The Beacon Base can be used either with a detector fitted or with a cap for operation as a stand-alone alarm device.

The Beacon Base is supplied with a built-in isolator. A version without an isolator is also available.

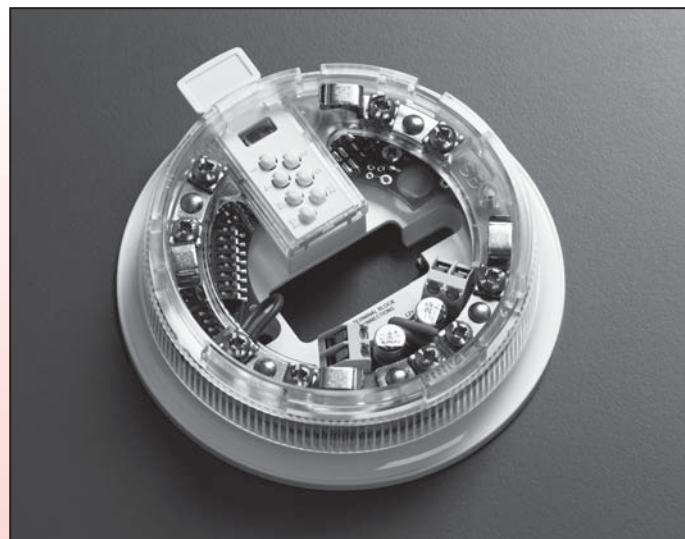
FEATURES

The product offers:

- beacon flash rate of once per second
- synchronisation of beacon flash
- individual and group addressing
- unique beacon self-test

Group addressing is a simple method of controlling multiple alarm devices without delay.

For systems requiring isolators at every point the built-in isolator saves installation time and cost.



Beacon Base

The beacon self test is achieved by means of an LED monitoring circuit. If the LEDs fail during operation a fault signal is transmitted when the device is next polled.

ELECTRICAL CONSIDERATIONS

The Beacon Base is loop powered so needs no external power supply. It operates at 17–28V DC and is polarity-sensitive.

ADDRESSING

The Beacon Base responds to its own individual address set with a DIL switch. It also responds to a group address, set by means of a 4-segment DIL switch and to a synchronisation address which is embedded in the unit.

Addresses 1 to 111 are used exclusively for individual addresses; addresses 112 to 126 are used for group addressing, while the synchronisation address, to which all units respond, is '0'. Any Beacon Base on a loop may be freely assigned to a group. The address for any group *must* be chosen from the range 112–126.

Addresses 112–126 *may* be used as individual addresses but *only* if the 4-segment DIL switch is not used ie, group addressing is disabled. If the 4-segment DIL switch were set to any number other than the default 127, a pre-set analogue value of 4 would be transmitted to indicate a fault.

The Beacon Base is normally polled by its individual address. It responds as described below (See **PROTOCOL BIT USAGE**).

It is recommended that the synchronisation address '0' be sent by the control panel at regular intervals to align the internal clock of all sounders. The result is that the beacons are synchronised with each other when activated.

NB: Units on two or more loops can be synchronised only if the panel transmits address '0' to all loops synchronously.

GROUP ADDRESSING

It may be desirable, in alarm conditions, to switch more than one Beacon Base simultaneously. To enable this, devices may be controlled as a group and given a group address which is common to all beacon bases in the group. When a device recognises its group address, it will process the output bits but it will not return any data to the control panel on that address. If it is required to confirm the status of the outputs of devices under group address control, it is necessary to interrogate all devices in the group at their individual addresses.

SELF-TEST

An important safety feature has been incorporated into the Beacon Base: when it is switched on it tests itself by checking the flash operation. If no current is drawn by the LEDs an analogue value of 2 is transmitted.

This feature can also be used during commissioning or periodical maintenance testing. Simply activate the beacon for at least 5 seconds and check the control panel for a fault signal. If none is received, the Beacon Base is working properly.

PROTOCOL COMPATIBILITY

The Beacon Base will operate only with control equipment using the Apollo XP95 or Discovery protocol. The features of the Beacon Base are available only when it is connected to a control panel with the appropriate software.

PROTOCOL BIT USAGE

The **output (or forward command) bits** from the control panel have the following function:

Output bit 2 is used to apply the required address mode — group addressing or individual addressing.

Group addressing is selected by setting output bit 2 of the individual address to logic '0' on two or more consecutive cycles and output bit 2 of the group address to logic '1' on two or more consecutive pollings. All other output bit 2 combinations result in the application of the individual address mode.

Whichever address mode — individual or group — is applied in any polling, the use of the other output bits is identical:

When **output bit 1** is set to logic '1' on two or more consecutive pollings, the beacon is operated.

When **output bit 0** is set to logic '1' on two or more consecutive pollings, the beacon is activated. The Beacon Base will also operate if both output bit 1 and output bit 0 are set to logic '1' on two or more consecutive pollings.

The **seven bits** which are then transmitted by the control panel correspond to the individual or the group **address (as set on the relevant DIL switch)** of the device or devices to be polled.

After the Beacon Base has been addressed by the control equipment, it returns data if (and only if) its individual address has been applied. No data is returned when the group address is polled. The response after individual addressing will, however, reflect whatever commands have been set, whether by individual or by group address mode. The response is as follows:

The **interrupt bit** is always set to '0'.

The **analogue value bits** are set to report a pre-set analogue value of 16 in quiescent condition and 4 if the group address is incorrectly set. A value of '2' is reported if the beacon LEDs fail.

The **input bits** confirm the execution of the commands given by the output bits as follows:

Bit 2 is set to logic '1' to confirm group addressing and to logic '0' if individual addressing has been applied.

Bit 1 see table below.

Bit 0 see table below.

The **type bits** are used to identify the type of unit responding. The type code of the Beacon Base is 001 00 (bits 2, 1, 0, 4, 3). Bits 2, 1 and 0 of the type code are sent immediately after the input bits. The remaining two bits are sent in the XP95 protocol extension.

The Beacon Base transmits **seven bits** to confirm its address and then places **one bit** to indicate that the device is using the XP95 protocol.

The **alarm flag** is not placed by the Beacon Base.

The next **two bits** sent are the **extended type code** bits (bits 4, 3) which, in this case, are '00'.

The following **five bits**, extension of the analogue value, are not used by the Beacon Base.

The **parity bit** is set to '0' or '1' in the same way as it is by XP95 detectors.

The **final seven bits**, alarm/interrupt address, are not used, since this product has no alarm reporting function.

SYNCHRONISATION

It is possible to synchronise the flash outputs of all Beacon Bases connected to a loop. This is achieved by transmitting address '0' with the output bits set to logic '0' for one polling cycle. Other alarm devices, including the 100dB Sounder, the Integrated Base Sounder, the Intelligent Base Sounder, the Sounder Circuit Controller, the sounder beacon base, the multi-tone open area sounder beacon and the Loop-powered Beacon, may be synchronised in exactly the same way.

TYPE CODE

The Beacon Base type code is 001 00. (bits 210 43).

MECHANICAL CONSTRUCTION

The Beacon Base is moulded in polycarbonate and has stainless steel contacts that accept solid or stranded cables of up to 2.5mm².

Output Bit	Function	Bit usage	Input Bit	Function	Bit usage
2	group mode	1 = off 0 = on	2	group mode confirmed	1 = group 0 = individual
1	beacon on	1 = on 0 = off	1	beacon on confirmed	1 = on 0 = off
0	beacon on	1 = on 0 = off	0	beacon on confirmed	1 = on 0 = off

Table 1 Function of input and output bits

DIMENSIONS AND WEIGHT

Part no	Description	Dimensions	Weight
45681-333 APO	Beacon Base with Isolator	115 x 31mm	109g
45681-335 APO	Beacon Base		
45681-292	White Cap	100 x 9mm	20g
45681-293	Red Cap		

Table 2 Dimensions and weights

TECHNICAL DATA

Operating voltage (polarity sensitive)	17–28V DC
Protocol pulses	5–9V
Current consumption at 24V	
switch-on surge, <1s	1.2mA
quiescent	300µA
device operated	3.1mA
Operating temperature	–20°C to +60°C
Humidity (no condensation)	0–95%
IP rating	21D
	

Notes

1. The Beacon Base is a Type A device, ie, for indoor use only.
2. The isolating circuit of the Beacon Base conforms to EN54–17
3. For information on isolating circuits see publication PP2090 available on request from Apollo.