LOOP-POWERED 100dB SOUNDER

SOUNDER FOR OPEN AREAS

The Loop-Powered 100dB Sounder is designed for use in open areas and can be connected to any XP95 or Discovery system.

The most obvious advantage of the sounder is its output of 100dB(A). This can be adjusted to 92±3dB(A) if required. The sounder is, however, equipped with sophisticated electronic circuitry which gives the sounder the same addressing and synchronising functionality as the XP95 Sounder Control Unit.

The Loop-Powered 100dB sounder complements the Intelligent and Integrated Base Sounder ranges.

In addition to the above, Slow Whoop and Weatherproof versions are also available.

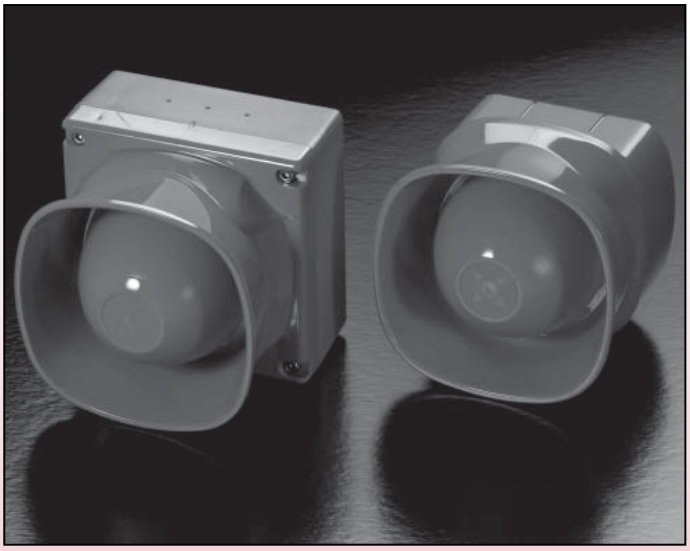
All 100dB sounders comply with the requirements of EN54 - 34 : 2001.

The Slow Whoop version, part nos. 55000-276 (red) and 55000-277 (white) is mechanically identical to the standard sounder but the tone is as specified in the Dutch standard NEN2575.

The weatherproof sounder, part nos. 55000-274 (red) and 55000-275 (white) complies with EN54 pt 3:2001

FEATURES

The 100dB sounder is connected to an XP95 or Discovery loop and is powered and controlled via the loop by the control and indicating equipment.



Part nos
Left: Weatherproof
100dB Sounder 55000-274 (red), 55000-275 (white)
Right: Loop-Powered 100dB Sounder
55000-278 (red), 55000-279 (white)

A nominal sound output of 100dB(A) is achieved at a current consumption of only 5mA. Many control panels will be able to drive up to 20 sounders per loop on average; the maximum number of sounders that may be connected to a particular loop should, however, be determined by a loop loading calculation.

Since the Loop-Powered 100dB Sounder is intended for use in open areas, it is possible for more than one sounder to be audible at any given point in a building. For this reason, the operation of all the sounders may be synchronised by sending address '0' in exactly the same way as for the XP95 Sounder

apollo FIRE DETECTORS LIMITED

36 Brookside Road, Havant, Hampshire PO9 1JR, England.
Tel: +44 (0)23 9249 2412 Fax: +44 (0)23 9249 2754 Website: www.apollo-fire.co.uk Email: sales@apollo-fire.co.uk

Control Unit. Not only that, the 100dB sounder may be assigned group addresses as well as individual addresses, so that the functional options of the sounder are identical with those of the Sounder Control Unit.

ELECTRICAL CONSIDERATIONS
The Loop-Powered 100dB Sounder is powered directly from the loop and needs no external power supply. It operates at 17–28V DC and is polarity-sensitive.

TONE FREQUENCY AND VOLUME CONTROL
The sounder produces a pulsed alert tone of 984Hz, 1 second off and 1 second on, and a continuous evacuation tone of 644Hz for 0.5 seconds followed by 984Hz for 0.5 seconds.

The volume control can be used to adjust the sound from 100dB(A) to 92±3dB(A) if required.

The sounder also offers synchronisation of continuous and pulsed tones. This ensures the integrity of the alert signals – tones from different sounders do not merge into one signal that could be mistaken for an 'evacuate' tone.

ADDRESSING
The Loop-Powered 100dB Sounder responds to its own individual address set with a DIL switch. It also responds both to a group address, set by means of a 4-segment DIL switch, and to a pulsed-mode synchronisation address which is embedded in the unit.

Addresses 1 to 111 are used exclusively for individual addresses (if '0' is selected on the DIL switch, the Loop-Powered 100dB sounder will return a pre-set analogue value of 4 to signal a fault); addresses 112 to 126 are used for group addressing, while the synchronisation address, to which all units respond, is '0'. Any 100dB sounder 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 set to 127—group addressing is then disabled. If the 4-segment DIL switch were set to any number other than 127, a pre-set analogue value of 4 would be transmitted to indicate a fault.

The Loop-Powered 100dB sounder is normally polled by its individual address. It responds as described below (**See PROTOCOL BIT USAGE**).If more than one 100dB sounder is activated in pulsed mode, it is possible for the sounders to be out of synchronisation, such that the sounder tone is not distinguishable as 'pulsed'.

To prevent this, it is recommended that the pulsed-mode synchronisation address '0' be sent once, immediately before energising sounders. The result is that the sounders are synchronised with each other in pulsed and continuous mode. All 100dB sounders will recognise the '0' address and synchronise their clocks, but they will not return any data to the control panel on such a polling.

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

It may be desirable, in alarm conditions, to switch more than one Loop-Powered 100dB Sounder simultaneously. To enable this, sounders may be controlled as a group and given a group address which is common to all sounders in the group. When a device recognises its group address, it will process the forward command 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.

PROTOCOL COMPATIBILITY
The sounder will operate only with control equipment using the Apollo XP95 or Discovery digital protocol. The features of the Loop-Powered 100dB Sounder are available only when the sounder 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 sounder is pulsed, 1 second off, 1 second on.

When **output bit 0** is set to logic 1 on two or more consecutive pollings, the sounder operates continuously. The sounder will also operate continuously 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. These bits may also be set to zero to enable the unit to respond to the embedded address'0'.

After the Loop-Powered 100dB Sounder 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', logic low.

The **analogue value bits** are set to report a pre-set analogue value of 16 in quiescent condition and 4 if the address is incorrectly set. A fault cannot be detected when a sounder is operated.

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

Bit 2 is set to logic high for group addressing and to logic low if individual addressing has been applied.

Bit 1 is set to logic low when the sounder is not operated and to logic high to indicate that the sounder has been switched to operate in pulsed mode, 1 second off, 1 second on.

Bit 0 is set to logic low when the sounder is not operated and to logic high when it is operated continuously. If both bits 1 and 0 are set high, this also indicates that the sounder is in continuous mode.

The **type bits** are used to identify the type of unit responding. The type code of the Loop-Powered 100dB sounder 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 Loop-Powered 100dB Sounder transmits **seven bits** to confirm its address and then places **one bit** to indicate that the device is using the XP95 protocol **(XP95 flag).**

The **alarm flag** is not placed by the sounder.

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

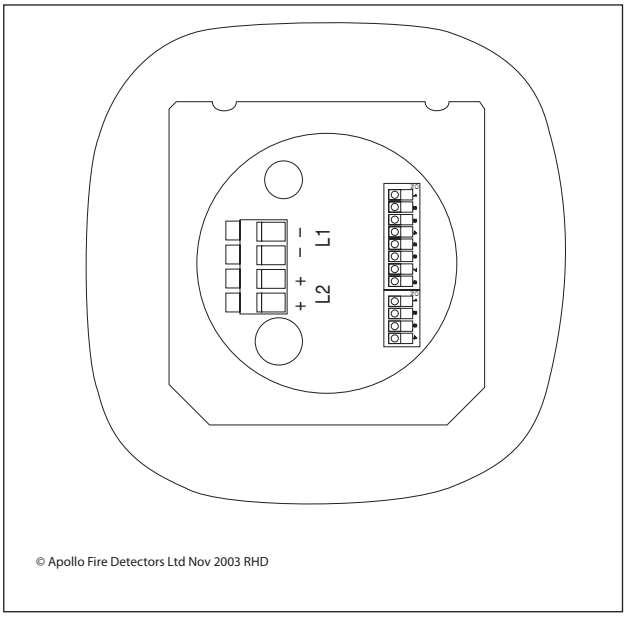


Fig 1 *Rear view of sounder*

The following **five bits,** extension of the analogue value, are not used by the 100dB sounder.

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 the sounder has no alarm reporting function.

MECHANICAL CONSTRUCTION

The Loop-Powered 100dB Sounder has a removable backbox with 6 knockouts for surface mounting. It is moulded in red ABS. Part Nos 55000 -276 -277 -278 and -279 are Type A, ie, suitable for indoor use only. Part Nos 55000 - 274 and -275 are Type B, ie, they are suitable for use outdoors.

The weatherproof version has a square backbox with 3 centre points marked on the upper and lower faces.

Dimensions and weight of 100dB Sounders :

Standard: 106 x 95 (diameter x depth) 215g
Weatherproof: 110 x 110 x 113 (L x W x H)340g

TECHNICAL DATA

Operating voltage	17–28V DC (polarity sensitive)
Current consumption at 24V	
switch-on surge, <1s	1.2mA
quiescent	<1.2mA
sounder operated 100dB(A)	5mA
Sound output	SPL polar plot data is available in document GV04–009, available on request
Operating temperature	–20°C to +60°C
Humidity (no condensation)	0–95%
IP rating (standard version)	21C
IP rating (weatherproof version)	66