Installation and Operation Manual for the
D5000 Audio Verification Unit

Incorporating

D5010 MICROPHONE UNIT

D5020 CHANNEL EXPANDER

D5030 HUB EXPANDER
## INTRODUCTION

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INTRODUCTION

The D5000 is a compact audio verification unit (AVU) designed to be fitted with a variety of intruder alarm system panels to provide comprehensive audio confirmation of an unauthorised intruder presence. The AVU will record sounds 15 seconds before and after an alarm event (programmable as 30 seconds before and after), where the Alarm Receiving Centre (ARC) can call-in and playback recorded and live audio over a standard telephone line for verification purposes.

The ARC can also control outputs on the AVU and playback a location message to ensure the correct premises have been contacted.

The system consists of a small low current control unit that can be housed in the same enclosure as the alarm panel. It has a variety of connections including two independent microphone channels, with a unique auto-learn feature that enables it to be easily connected to the majority of control panels. The unit also has clean changeover relay contacts to silence the internal alarm system siren when recording and listening-in.

The microphones are housed in an unobtrusive and attractive small plastic case that can be surface or corner mounted. The microphones have a two-wire connection, designed to operate over long lengths of standard alarm cable without suffering from any undue interference.

NOTE: A four wire connection is required if tamper protection is needed.

A maximum of 4 microphones can be connected to each channel. Each microphone has a red LED to indicate recording and listening-in operation, and a green level LED to assist in testing. More microphones can be added with a plug-on expansion board where 6 more microphone channels are available giving a total 32 microphones in a fully expanded system.

A fully expanded system also has four pre-recorded messages that can be played back under alarm system control or alarm receiving centre commands and two auxiliary open collector outputs under alarm receiving centre control. Further expansion is available up to 512 microphones when the Hub expansion units are used. A diagram of an unexpanded system is shown below:
FEATURES

- The AVU is small enough to be fitted inside most panel housings
- A maximum of 32 microphone modules can be fitted (four per channel with expander)
- Further expansion with remote microphone expanders is available, maximum 512 microphones.
- Each microphone has an automatic gain compensation to counter noise swamping
- Microphone modules will operate on 1Km loop lengths of ordinary alarm cable
- Microphone tamper contacts for anti-tamper monitoring
- Individual microphone module audio level and recording indicators
- Part-set facility
- High intelligibility audio
- Either 15 or 30 second programmable pre and post alarm event recording playback
- 10 second location identification message
- Simple programming using an ordinary telephone
- Auto learn feature for alarm control panel interface
- Non volatile code message and passcode recording
- Remote command facilities using ordinary telephone
- Incoming barring control using BT’s select services
- Four 10 second pre-recorded messages can be played back for user prompting (with expander)
- Relay output for controlling internal sirens.
- Two general purpose remote controlled open collector outputs (with expander)
- Three programmable auto–answer modes
- Meets ACPO and BSI requirements

INSTALLATION OVERVIEW

The AVU will normally be mounted inside the control panel enclosure and the telephone line input connected in parallel with the digital communicator. If digital communicator line switching is available it must be connected to the house telephone (line divert) side of the telephone connections. Telephone lines carrying ADSL (Broadband) digital signals will require a D0730 Security ADSL Filter connected between the telephone line and the AVU.

The AVU can use the panel’s power supply as it consumes little current when inactive.

The microphones are connected in parallel on the audio bus and placed in strategic positions within the protected premises where audio is to be detected. The microphones must be placed away from permanent sources of noise, for example air conditioning outlets or fans.

Where internal sirens are used the audio verification unit provides clean relay contacts for switching the siren off while either recording or listening-in.

OPERATION OVERVIEW

In a typical installation, when the system is unset the Activity LED will flash at a fast rate. The AVU will start continuously recording when the intruder alarm system is set, indicated by the activity LED flashing slowly. When an alarm event occurs, the Activity LED will be ON and the AVU will record for a further 15/30 seconds. The Activity Led will then go out.

The ARC will receive an alarm message from the premises intruder alarm system and an ARC operator will phone into the AVU. If a passcode is programmed the operator will be asked for the passcode followed by the * key, if the code is correct then access to the system will be allowed, they will have 30 seconds to enter the correct code.

The operator will be able to call-in when the alarm is active. The operator can then remotely monitor the premises for any suspicious sounds; the operator will have the following facilities:

- Playback the AVU location identifier message
- Playback the recorded alarm event audio, 15/30 seconds before and after the event
- Listen to live audio via selected or all installed microphones
- Remotely control the relay output contacts (if selected for remote control)
- Extend the monitoring time by 2 minute increments
- Shutdown the call

The AVU will be reset for recording and another verification sequence when the alarm input is restored.
AVU CONNECTIONS

12V, 0V, Power Input

12V nominal, 10.5V to 15V at 35ma when inactive, 140ma maximum when active and the microphones consume 5ma per unit. The power is normally taken from the panel’s auxiliary power 12V power output.

1-8, Channel Recording Start Input

The input will activate recording on all the microphone channels. This input would be normally connected to the full set output of the panel. This input is optional although Input 1 OR Input 1-8 MUST be used. This input will activate all of the microphone red LED recording indicators from channels 1 to 8. Connection is as shown in Wiring Examples on page 7.

1, Channel 1 Recording Start Input

The input will only activate recording on channel 1 of the microphone channels and is used where part set is needed. Normally connected to the part set output of the panel. This input is optional and can be turned off by programming. This input will activate all of the microphone red LED recording indicators of the microphones connected to channel 1. Connection is as shown in Wiring Examples on page 7.

AL, Alarm Input

The input will stop recording after the post alarm audio has been recorded (15 or 30 seconds) and will enable the AVU to be dialled into. This input would normally be connected to the panel’s alarm or external bell output. This input must be connected for the audio verification unit to be used. Connection is as shown in Wiring Examples on page 7.

CS, Communication Successful Input

This input signals that the alarm communication has been successful and will make the AVU wait until the digital communicator has finished communicating. After the communication signal has been registered, the AVU will
wait for an incoming call. This input is optional and can be turned off, however it must be connected if BT’s Select Service is used to remove incoming call bars. Connection is as shown in Wiring Examples on page 7.

**NO, COM, NC, Siren Control Relay Output**

Voltage-free changeover relay contacts rated at 2A @ 24V for switching off the internal siren. When the AVU is either recording or listening-in the relay contacts will be energised. Normally the panel’s internal siren output is connected in series with the NC and COM relay terminals (optional). This output must be used if an internal siren is fitted without bell delay and audio recording after an alarm event is required. This output can be programmed for remote control from the ARC.

**+AB1-, +AB2-, Microphone Inputs**

Microphone audio bus inputs one and two, up to four microphones can be connected to each audio bus, observe correct polarity.

**A, B, A1, B1, E, Telephone Line**

Telephone line terminals A1 and B1 are permanently connected to A and B respectively. The A and B terminals must be connected to either the incoming telephone line in parallel, or the switched telephone line output (premises side) of the communicator, it is recommended that the switched premises side is used if available. The E terminal is optional (normally the lightning protection afforded by the communicator will suffice) and if used must be connected to a good electrical earth and to provide lightning protection.

When an analogue PSTN telephone line also carries ADSL (Broadband) signals and it is used by a security system e.g. AVU, Dualcom, Control Panel, then a Security ADSL filter MUST be used.

A filter is used to separate the analogue telephone signals from the ADSL (Broadband) digital data signals because the **phone or security system** may be **disrupted or completely inhibited** if ADSL (Broadband) digital data is allowed into them from the telephone line.

The D0730 Security ADSL Filter is designed specifically for use with security systems. This item meets all of the requirements of the British and European telephone and security standards.

**RESET Pins**

These pins are used to reset the unit, when shorted momentarily the unit will flash the activity LED three times indicating that it is ready. See also Learn Pins below.

**LEARN Pins + The Self-Learning Feature**

The pins are used to automatically learn the input polarity of the ‘1’, ‘1-8’, ‘AL’ and ‘CS’ inputs. The input polarity of the inputs including the expander MS1 to MS4 inputs is learnt-in automatically by the following steps:

1) Connect the AVU to the alarm system.
2) Ensure that the alarm system is in an **unset normal condition** and **not** in an **alarm condition**.
3) Short the **learn pins** together with a screwdriver blade and **keep them shorted**.
4) **Momentarily** short the **reset pins** together with a screwdriver blade.
5) Wait for the unit’s activity LED to flash **3 times then start fast flashing** (2 flashes per second).
6) Remove the short from the learn pins. The input polarity has been automatically learnt-in.

**NOTE:** Care **must** be taken to ensure that all the inputs are in a genuine deactivated quiescent state before auto-learn. The inputs have weak pull up resistors on them and will be pulled high if left unconnected. See the Wiring Examples below.

**ACTIVITY LED**

Refer to **Appendix 1** for LED indications and their meanings.
PROGRAMMING

Apply 12V power to the AVU and the activity LED will flash 3 times during self test mode, then the LED will flash at a fast rate indicating it is ready for activation or programming (2 flashes per second).

Plug the programming telephone into the Programming Socket using the adapter provided. An ordinary tone dialling telephone is required; a pulse dialling telephone will not work.

The activity LED will be Off when the programming telephone handset is off-hook. The unit can now be programmed with the commands detailed in Appendix 2.

During programming all of the Remote Commands (except the passcode) may be used on the programming telephone for testing purposes.

Terminate programming by unplugging the programming telephone from the Programming Socket.

BT Select Service

This is used to remove incoming call barring by dialling " #261# " when the CS input is activated. When the audio verification unit has been shutdown and the trigger inputs restored, the incoming call barring will be reasserted by dialling " *261# " 30 seconds later.

REMOTE COMMANDS

Refer to Appendix 3 for the Remote Commands that may be sent to the AVU and the Channel Expander. During the Programming Mode all the Remote Commands (except the passcode) may be used on the programming telephone that is plugged into the Programming Socket for testing purposes.
WIRING EXAMPLES

The AVU inputs (1, 1-8, AL, and CS), and the D5020 Expander Board inputs (MS1, MS2, MS3 and MS4), and the D5030 Hub inputs (1, 2, 3, 4 and All) all operate in the same way. Examples of 1-8 and AL are shown below.

All inputs must have a voltage that switches between 0 volts (this is 0 to +0.5 volt) and a positive voltage (this is from +5 to +15 volts). Inputs are all pulled high by a weak pull up resistor (1M ohm) if left unconnected.

All inputs will operate with control panels with voltage outputs that switch to 0 volts (Fig 1), or between 0 volts and a positive voltage (+5V to +15v) (Fig 2 and 3). Inputs will also operate with relay contacts or 'open collector transistor' outputs that switch to 0 volts (Fig 1 and 4). Use the wiring examples below when installing the AVU.

Where the Control Panel output is switched +12 volts only, then a 'pull-down' resistor to 0 volts must be fitted (Fig 5). Any value between 1000 and 10,000 ohms is suitable.
D5010 MICROPHONE UNIT

MICROPHONE CONNECTIONS

+ - Audio Bus Connections

Connected to the AVU’s audio bus channel inputs, ‘positive, +’ is connected AB+ and ‘negative –’ to AB-. The connection can use standard alarm cable (unscreened, unless in an extreme environment).

TI and T2 Tamper Connections

Normally closed tamper switch, opens when lid is removed.

MOUNTING

The microphone unit has three corner mounting knockouts that allow corner and ceiling installation. In addition there are 3 surface mounting knockouts under the PCB.

Cable entry is provided by two rectangular knockouts to the sides of the terminal block.

RECORDING AND AUDIO LEVEL LED INDICATORS

Refer to Appendix 1 for LED indications and their meanings.

NOTE

When testing the system for audio bus and microphone activity, the audio level and Recording on LEDs only operate correctly when they are activated by:

- The recording input (‘1’ or ‘1-8’)
- A listening command (this can be done by the programming phone, command *0).
D5020 CHANNEL EXPANDER

CHANNEL EXPANDER CONNECTIONS

The expander board is shown plugged onto the main AVU unit. When plugging on take care that the plugs and sockets are correctly aligned.

+AB3- to +AB8-, Microphone Inputs

Microphone audio bus channels 3 to 8. Up to four microphones can be connected in parallel to each audio channel, please observe polarity.

O/P1, O/P2, Open Collector Outputs

Remote controlled open collector outputs rated at 250ma. The outputs are short circuit protected and are suitable to drive relays and inductive loads directly.

0V, AUD

This output is used for playing back recorded messages MS1 to MS4, playback only. The loudspeaker drive output can drive two 16ohm loudspeakers in parallel. The internal speakers do not require additional amplification as this is provided on the expander PCB. If more than one speaker is used the AUD output should be connected to the positive (if marked) terminal of the speakers to ensure correct phasing. The output is activated by the MS1 to MS4 inputs and remotely by commands 15 to 18.

MS1 to MS4 Message Trigger Inputs

The AVU can replay any one of four 10-second pre-recorded messages when either triggered by an input or command, the message will be simultaneously played over the telephone line and the loudspeaker output. The AVU will only replay the messages when quiescent i.e. it will not play any messages when recording or waiting for a call after being triggered. The unit will play a complete message with either a momentary trigger input or a command, the messages will play continuously when a steady input is applied.

Messages require 0volt trigger inputs. Connection is as shown in Wiring Examples on page 7.
NOTE

- The AVU will continue to play the message in a continuous loop if the 0v trigger is permanently applied.
- Please note: the AVU will not play any messages whilst recording to avoid recording itself.
- When the AVU has been dialled in and is under remote control the MS1 to MS4 inputs will override remote control.
- Suggested uses for the pre-recorded messages are:
  - Entry-Route deviation (requires Control Panel to provide output)
  - Lock-in Scenarios (to be connected to Panel's 'setting' output)
  - General Set / Unset Warnings
  - Psuedo or mimic sounds on perimeter violation (dogs barking, preliminary warning)
  - Fire or evacuation warnings.

PROGRAMMING

The AVU has extra programming commands available when the Channel Expander is plugged on.

Apply 12V power to the unit and the activity LED will flash 3 times during self test mode, then the LED will flash at a fast rate indicating it is ready for activation or programming (2 flashes per second).

Plug the programming telephone into the Programming Socket using the adapter provided. An ordinary tone dialling telephone is required; a pulse dialling telephone will not work.

The activity LED will be Off when the programming telephone handset is off-hook. The unit can now be programmed with the commands detailed in Appendix 2.

During programming all of the Remote Commands (except the passcode) may be used on the programming telephone for testing purposes.

Terminate programming by unplugging the programming telephone from the Programming Socket.

REMOTE COMMANDS

The AVU has extra remote commands available when the expander unit is plugged on.

Refer to Appendix 3 for the Remote Commands that may be sent to the AVU and the Channel Expander.

During the Programming Mode all the Remote Commands (except the passcode) may be used on the programming telephone that is plugged into the Programming Socket for testing purposes.

The remote commands 15 to 18 will replay the messages via the telephone and speaker output in the protected premises.
D5030 MICROPHONE HUB

The D5030 is a high performance low noise microphone expander and controller used with the D5000 AVU series of equipment. The hubs are housed in a polycarbonate box with back and lid tamper protection.

The hub has four audio buses that can be connected to four microphones per bus. Each bus can be individually switched using inputs with selectable polarity. There is a facility for controlling all the buses with one input for installer convenience. The hub requires a separate 12V system supply.

The hubs can be connected together in a microphone network where one hub controls others. In this way wiring can be reduced by “concentrating” microphones locally at the monitored area and running bus wiring back to the control equipment. This connectivity makes the hub ideal for group-organised systems where multiple areas need separate switching.

FEATURES

- A maximum of 16 microphones or 4 hubs can be connected to a hub’s inputs
- Individual audio buses can be switched
- All audio buses can be controlled with one convenient input
- Audio bus control inputs are selectable for polarity
- Integral pull-up control input resistor is suitable for open collector operation
- On board audio level and audio bus status indication
- Hubs can be connected to provide powerful and sophisticated microphone networks
- Hubs will operate on 1Km loop lengths of ordinary alarm cable
- Lid and back tamper monitoring
- Low noise, low loss design

INSTALLATION

Board Removal

The plastic case lid is removed by unscrewing the two lid securing screws. Remove the board by unscrewing the central board securing screw and gently pushing the plastic clips towards the centre of the unit while pulling on the receiver board as shown:

Choose a suitable mounting location near to the microphones to be connected so that wiring can be reduced. Remove the plastic knockouts located at the corners of the plastic case base for wiring before replacing the circuit board.

When the board has been replaced and secured with the fixing screw, adjust the back tamper screw until a click is heard signifying that the tamper switch has been closed.
HUB CONNECTIONS

12V, 0V, Power Input

12V nominal, 10.5V to 15V at 25mA maximum, with the microphones consuming a maximum of 5mA per unit. The power is normally taken from the panel's auxiliary power 12V power output.

AB OUT, AB IN

Microphone bus outputs to the D5000 AVU or another hub or hubs. Two parallel inputs/outputs are provided for "daisy chain" connection. When the microphone bus input is switched off by the host (either another hub or AVU) the microphone inputs will also be switched off when the “TEST/NORM” jumper is in the “NORM” position.

1 to 4 Inputs

These inputs will operate with 5V or 12V logic signals and open collector outputs, and will individually activate the microphones or hubs connected to audio buses 1 to 4 respectively. Connection is as shown in Wiring Examples on page 7.

All Input

This input will operate with 5V or 12V logic signals and open collector outputs, and will activate all of the microphones or hubs connected to audio buses 1 to 4 together. When this input is used the 1 to 4 inputs must be left unconnected and must all be put into either the “+” or “−” polarity positions. Connection is as shown in Wiring Examples on page 7.
A/T Output
Normally closed voltage free contacts, open when either the lid is taken off or the unit is removed from its mounting surface.

+AB1- to +AB4- Microphone Inputs
Microphone audio bus inputs 1 to 4, up to four microphones or hubs can be connected to each audio bus, please observe polarity.

1 to 4 Jumpers
The jumpers have two positions marked “+” and “-”. When in the “+” position the associated audio bus will be switched on with a positive 5V or 12V logic input, when in the “-” position the associated audio bus will be switched on with a 0V (less than +2V) logic input. If the jumper input is left in the “+” position and the input left unconnected, the audio bus will be switched on automatically when the audio bus is activated.

TEST/NORM Jumper
This jumper is used to test the hub and microphones without activating the audio bus inputs. When in the “TEST” position the Hub ignores the state of the AB input/output and will enable the audio bus microphone/hub inputs regardless.

MICROPHONE NETWORK EXAMPLES
Simple Microphone Expansion
This configuration is the most simple and is used to expand one AVU audio bus into 4 that will support a maximum of 16 microphones. The control inputs are all left unconnected and the polarity jumpers left in the “+” position so the inputs are controlled by the AVU audio bus output. When the AVU starts recording the hub automatically activates the microphones. Adding more hubs can increase the number of microphones.

Group Controlled Microphones
This configuration is used where the system is partitioned into separate groups, which are armed and disarmed separately. The alarm system controls the hub with group arm/disarm signals connected to the control inputs, 1 to 4 where the AVU is set to record continuously.
GROUP CONTROLLED EXPANDED MICROPHONE NETWORK

This network can control up to 16 microphone groups, the switched groups are then concentrated down to one audio bus to the AVU. It is possible to connect hubs instead of microphones if more microphones are required. It is not recommended to have more than 2 hubs connected in series.

A more complex network is shown as an example below; only one microphone per bus is shown for clarity:
APPENDIX 1 - LED INDICATIONS for AVU and MICROPHONES

AVU Activity LED
The AVU activity LED will show the state of the AVU.
Note: Fast flashing = 2 flashes per second. Slow flashing = 1 flash per second.

<table>
<thead>
<tr>
<th>MODE</th>
<th>AVU LED</th>
<th>ACTION</th>
<th>MICROPHONE LEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn mode</td>
<td>Three</td>
<td>Flashing Inputs are being learned and AVU running internal tests. Do not remove short across LEARN pins until the three flashes are complete</td>
<td>RED = OFF</td>
</tr>
<tr>
<td></td>
<td>flashes</td>
<td></td>
<td>GREEN = OFF</td>
</tr>
<tr>
<td>Learn mode complete</td>
<td>Fast</td>
<td>Flashing Remove short from across LEARN pins</td>
<td>RED = OFF</td>
</tr>
<tr>
<td></td>
<td>flashing</td>
<td></td>
<td>GREEN = OFF</td>
</tr>
<tr>
<td>Ready for Programming</td>
<td>Fast</td>
<td>Flashing Telephone connected, but handset 'on-hook'</td>
<td>RED = OFF</td>
</tr>
<tr>
<td></td>
<td>flashing</td>
<td></td>
<td>GREEN = OFF</td>
</tr>
<tr>
<td>Programming Mode</td>
<td>OFF</td>
<td>Flashing Lift Handset. AVU can now be programmed</td>
<td>RED = OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GREEN = OFF</td>
</tr>
<tr>
<td>System unset</td>
<td>Fast</td>
<td>Flashing AVU is now continually recording audio</td>
<td>RED = OFF</td>
</tr>
<tr>
<td></td>
<td>flashing</td>
<td></td>
<td>GREEN = OFF</td>
</tr>
<tr>
<td>System set</td>
<td>Slow</td>
<td>Flashing AVU is now continually recording audio</td>
<td>RED = ON</td>
</tr>
<tr>
<td></td>
<td>flashing</td>
<td></td>
<td>GREEN = ON (depending on audio level)</td>
</tr>
<tr>
<td>System in alarm, AVU recording</td>
<td>ON</td>
<td>Flashing AVU continues to record audio for a further 15 seconds</td>
<td>RED = ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GREEN = ON (depending on audio level)</td>
</tr>
<tr>
<td>System in alarm, recording finished</td>
<td>OFF</td>
<td>Flashing AVU will now answer incoming calls</td>
<td>RED = OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GREEN = OFF</td>
</tr>
<tr>
<td>System in alarm, recording finished</td>
<td>OFF</td>
<td>Flashing ARC dialled in and listening to live audio</td>
<td>RED = ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GREEN = ON (depending on audio level)</td>
</tr>
</tbody>
</table>

Microphone Red and Green LEDs
The Microphone Red LED will show when the microphone is active.
The Microphone Green LED will only operate when the Red LED is on.
The Microphone Green LED will show when the microphone is detecting a sound. As the sound gets louder, then the LED will glow brighter.

<table>
<thead>
<tr>
<th>Microphone Red LED</th>
<th>Microphone Green LED</th>
<th>Microphone active</th>
<th>Recording or listening in progress</th>
<th>Detection of an average or loud sound</th>
</tr>
</thead>
<tbody>
<tr>
<td>On solidly</td>
<td>On</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>On solidly</td>
<td>Flashing</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>On solidly</td>
<td>Off</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Off</td>
<td>Off</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>
APPENDIX 2 - PROGRAMMING for AVU

Apply 12V power to the AVU.

The AVU activity LED will flash 3 times during self-test mode, then the LED will flash at a fast rate indicating it is ready for activation or programming.

Plug a telephone into the Programming Socket (use the adapter provided if required). An ordinary tone dialling telephone is required; a pulse dialling telephone will not work.

The AVU activity LED will be extinguished when the telephone is connected. The unit can now be programmed with the following commands:

When entering the programming sequences you will hear a short ‘confirmation’ beep (indicated below as <beep>). When entering the programming sequence #7 and 02 you will hear some words (indicated below as <words>). These indicate that the command is accepted and that the menu parameter or spoken message is now required.

Example: When programming the system for 30 seconds pre and post-alarm sound instead of 15 seconds then the following will happen:

Enter: 2 0 <single beep> to confirm 20 menu.

Then you may enter 0 or 1 to choose the parameter required.

When 0 followed by * is pressed the unit will give a <two-beep> confirmation tone. The AVU will then be programmed for 30 seconds Pre & Post-alarm sound recording.

<table>
<thead>
<tr>
<th>TELEPHONE KEYS</th>
<th>DEFAULT</th>
<th>COMMAND OPERATION</th>
<th>MESSAGE PROMPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>#7 &lt;words&gt; (code) *</td>
<td>Store passcode. Enter #7, the 4 digit passcode number digits followed by *</td>
<td>Enter passcode</td>
<td></td>
</tr>
<tr>
<td># 7 &lt;words&gt; *</td>
<td>DEFAULT Erase passcode (NO CODE)</td>
<td>Enter passcode</td>
<td></td>
</tr>
<tr>
<td>0 2 &lt;words&gt; (message) *</td>
<td>Store Message. 02 will start recording, when finished press *. Only ten seconds is allowed for the message, there will be a beep indicating that recording has finished</td>
<td>Recording announcement</td>
<td></td>
</tr>
<tr>
<td>0 2 &lt;words&gt; #</td>
<td>DEFAULT Erase message</td>
<td>Recording announcement</td>
<td></td>
</tr>
<tr>
<td>2 0 &lt;beep&gt; 0 *</td>
<td>30 seconds before and after alarm recording.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 0 &lt;beep&gt; 1 *</td>
<td>DEFAULT 15 seconds before and after alarm recording</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 1 &lt;beep&gt; 0 *</td>
<td>Remotely controlled relay.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 1 &lt;beep&gt; 1 *</td>
<td>DEFAULT Automatically controlled relay.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 3 &lt;beep&gt; 0 *</td>
<td>Continuous recording. Inputs 1 and 1-8 will be ignored and can be left unconnected</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 3 &lt;beep&gt; 1 *</td>
<td>DEFAULT Inputs 1 and 1-8 inputs start recording.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 4 &lt;beep&gt; 0 *</td>
<td>CS input enables call answering.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 4 &lt;beep&gt; 1 *</td>
<td>DEFAULT Alarm input enables call answering. The CS input will be ignored and can be left unconnected. The BT Select Service call barring feature will be disabled in this mode.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 5 &lt;beep&gt; 0 *</td>
<td>BT’s Select Services call barring feature on.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 5 &lt;beep&gt; 1 *</td>
<td>DEFAULT BT’s Select Services call barring feature off.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 6 &lt;beep&gt; 0 *</td>
<td>Answering with live audio.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 6 &lt;beep&gt; 1 *</td>
<td>Answering with recorded audio, followed by live audio</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 6 &lt;beep&gt; 2 *</td>
<td>DEFAULT Answering with message followed by recorded audio, followed by live audio.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 7 &lt;beep&gt; 0 *</td>
<td>Always answer calls when the alarm input is present</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 7 &lt;beep&gt; 1 *</td>
<td>DEFAULT One-shot answering of calls when the alarm input is present.</td>
<td>Tones</td>
<td></td>
</tr>
<tr>
<td>2 7 &lt;beep&gt; 2 *</td>
<td>Timed one-shot answering of calls after an alarm input has pulsed.</td>
<td>Tones</td>
<td></td>
</tr>
</tbody>
</table>
PROGRAMMING NOTES

- The programming commands without speech prompts will be acknowledged with a beep after the two first command digits are entered and will be confirmed with two beeps when the option is entered with the * key. If an error is detected a long error tone will be heard.

- When the programming telephone is removed from the Programming Socket then the programming mode will stop. This is indicated by the AVU activity LED flashing rapidly.

- The programming mode cannot be entered when the AVU is recording (inputs 1 or 1-8 active). Programming mode can be accessed from all other modes.

- During the Programming Mode all of the Remote Commands (see Appendix 3) may be used on the programming telephone that is plugged into the Programming Socket for testing purposes.

- Option 26,2*, Answering with message followed by recorded audio, followed by live audio must have a message recorded, otherwise a “silent” message will be played until a Remote Command is sent.

- When option 23,0*, Continuous recording is selected, it is possible to get back into programming mode by momentarily shorting the reset pins with an off-hook programming handset attached and waiting for 3 flashes, after which programming can be resumed.

- Option 27,0*, Always answer, this mode will let the AVU answer incoming calls when the alarm input is active

- Option 27,1*, One-shot, this mode will stop the AVU from answering incoming calls after the shutdown command has been issued.

- Option 27,2*, Timed one-shot, this mode will let the AVU answer incoming calls once only when the alarm input has been triggered i.e. the alarm input does not have to be applied continuously for the AVU to answer a call and will operate with a pulsed alarm input. If there are no calls within 30 minutes of the alarm signal activating the AVU, then the AVU will resume recording. The AVU will reset if the 1 and 1-8 inputs are deactivated.

- It is recommended that the passcode is used as unauthorised calls can access the system repeatedly if not shutdown correctly.

APPENDIX 2 - PROGRAMMING for CHANNEL EXPANDER

The AVU has extra programming commands available when the expander unit is plugged on:

When entering the programming sequences below you will hear some words (indicated below as <words>). These indicate that the command is accepted and that the spoken message is now required.

<table>
<thead>
<tr>
<th>TELEPHONE KEYS</th>
<th>DEFAULT</th>
<th>COMMAND OPERATION</th>
<th>MESSAGE PROMPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0 &lt;words&gt; (message) *</td>
<td>Enable and record the 10-second message 1. The message can be erased and disabled by pressing # within 10 seconds</td>
<td>Recording 1</td>
<td></td>
</tr>
<tr>
<td>1 0 &lt;words&gt; #</td>
<td>DEFAULT</td>
<td>Erase and disable message 1</td>
<td></td>
</tr>
<tr>
<td>1 2 &lt;words&gt; (message) *</td>
<td>Enable and record the 10-second message 2. The message can be erased and disabled by pressing # within 10 seconds</td>
<td>Recording 2</td>
<td></td>
</tr>
<tr>
<td>1 2 &lt;words&gt; #</td>
<td>DEFAULT</td>
<td>Erase and disable message 2</td>
<td></td>
</tr>
<tr>
<td>1 3 &lt;words&gt; (message) *</td>
<td>Enable and record the 10-second message 3. The message can be erased and disabled by pressing # within 10 seconds</td>
<td>Recording 3</td>
<td></td>
</tr>
<tr>
<td>1 3 &lt;words&gt; #</td>
<td>DEFAULT</td>
<td>Erase and disable message 3</td>
<td></td>
</tr>
<tr>
<td>1 4 &lt;words&gt; (message) *</td>
<td>Enable and record the 10-second message 4. The message can be erased and disabled by pressing # within 10 seconds</td>
<td>Recording 4</td>
<td></td>
</tr>
<tr>
<td>1 4 &lt;words&gt; #</td>
<td>DEFAULT</td>
<td>Erase and disable message 4</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 3 - REMOTE COMMANDS for AVU

The Remote Commands may be used when calling to the AVU via the telephone line.

During the Programming Mode all the Remote Commands (except the passcode) may be used on the programming telephone that is plugged into the Programming Socket for testing purposes.

<table>
<thead>
<tr>
<th>TELEPHONE KEY</th>
<th>COMMAND OPERATION</th>
<th>MESSAGE PROMPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>nnnn *</td>
<td>Passcode. The unit will wait for 30 seconds for a passcode after answering and will shut down if a valid passcode has not been entered. The unit will then wait for another call-in sequence</td>
<td>Enter passcode</td>
</tr>
<tr>
<td>* 0</td>
<td>All audio channels on</td>
<td>All Channels</td>
</tr>
<tr>
<td>* 1</td>
<td>Channel 1 audio only</td>
<td>Channel 1</td>
</tr>
<tr>
<td>* 2</td>
<td>Channel 2 audio only</td>
<td>Channel 2</td>
</tr>
<tr>
<td># 1</td>
<td>Replay recorded audio. This is the alarm event audio (pre-alarm audio &amp; post-alarm audio).</td>
<td>Replay Recording</td>
</tr>
<tr>
<td># 2</td>
<td>Extend listening time for 2 minutes, unit will produce a 2 second warning beep 2 minutes after a command has been registered and will shutdown 15 seconds later if not extended by further valid commands.</td>
<td>Extend</td>
</tr>
<tr>
<td># 3</td>
<td>Shut down</td>
<td>Shutdown</td>
</tr>
<tr>
<td># 4</td>
<td>Pulse control relay for 2 seconds (if remote control enabled)</td>
<td>Relay Pulse</td>
</tr>
<tr>
<td># 5</td>
<td>Control relay on (if remote control enabled)</td>
<td>Relay on</td>
</tr>
<tr>
<td># 6</td>
<td>Control relay off (if remote control enabled)</td>
<td>Relay off</td>
</tr>
<tr>
<td>0 3</td>
<td>Playback location message</td>
<td>Announcement</td>
</tr>
</tbody>
</table>

APPENDIX 3 - REMOTE COMMANDS for CHANNEL EXPANDER

The AVU has extra remote commands available when the Channel Expander is plugged on:

During the Programming Mode all the Remote Commands (except the Passcode) may be used on the programming telephone that is plugged into the Programming Socket for testing purposes.

<table>
<thead>
<tr>
<th>TELEPHONE KEY</th>
<th>COMMAND OPERATION</th>
<th>MESSAGE PROMPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>* 3</td>
<td>Channel 3 audio only</td>
<td>Channel 3</td>
</tr>
<tr>
<td>* 4</td>
<td>Channel 4 audio only</td>
<td>Channel 4</td>
</tr>
<tr>
<td>* 5</td>
<td>Channel 5 audio only</td>
<td>Channel 5</td>
</tr>
<tr>
<td>* 6</td>
<td>Channel 6 audio only</td>
<td>Channel 6</td>
</tr>
<tr>
<td>* 7</td>
<td>Channel 7 audio only</td>
<td>Channel 7</td>
</tr>
<tr>
<td>* 8</td>
<td>Channel 8 audio only</td>
<td>Channel 8</td>
</tr>
<tr>
<td>0 4</td>
<td>Pulse expansion output 1 for 2 seconds</td>
<td>Output 1 Pulse</td>
</tr>
<tr>
<td>0 5</td>
<td>Expansion output 1 on</td>
<td>Output 1 On</td>
</tr>
<tr>
<td>0 6</td>
<td>Expansion output 1 off</td>
<td>Output 1 Off</td>
</tr>
<tr>
<td>0 7</td>
<td>Pulse expansion output 2 for 2 seconds</td>
<td>Output 2 Pulse</td>
</tr>
<tr>
<td>0 8</td>
<td>Expansion output 2 on</td>
<td>Output 2 On</td>
</tr>
<tr>
<td>0 9</td>
<td>Expansion output 2 off</td>
<td>Output 2 Off</td>
</tr>
<tr>
<td>1 5</td>
<td>Play pre-recorded message 1 once</td>
<td>Replay 1</td>
</tr>
<tr>
<td>1 6</td>
<td>Play pre-recorded message 2 once</td>
<td>Replay 2</td>
</tr>
<tr>
<td>1 7</td>
<td>Play pre-recorded message 3 once</td>
<td>Replay 3</td>
</tr>
</tbody>
</table>
| 1 8           | Play pre-recorded message 4 once                                                    | Replay 4
Dycon D5000 Audio Verification Unit

Frequently Asked Questions

What is the LED in the D5000 for?
This LED is used to indicate the status of the D5000, as follows:

**Three pulses:** The D5000 is powering up, learning the inputs and performing internal checks.

**Fast flash rate:** The alarm system is unset and the D5000 is not recording. The red LED on the microphones will not be lit at this time.

**Slow flash rate:** The alarm system is set and the D5000 is recording. The red LED on the microphones will be lit at this time.

**Constantly on:** The alarm system is set and in alarm, the D5000 is recording the post alarm audio. The red LED on the microphones will be lit at this time.

**Constantly off:** The alarm system is set and in alarm and the D5000 has finished recording the post alarm audio. The red LED on the microphones will not be lit at this time.

D5000 will not trigger
Learn the inputs. Ensure that control panel is unset and not in alarm. Short the Learn pins together then briefly short the reset pins. When the led on the D5000 has pulsed 3 times, it will start to flash at a rapid rate. When this happens remove the short from the Learn pins.

I have learned the inputs but still cannot trigger the unit
Check that the control panel outputs are compatible with the D5000. The inputs have a resistor on the PCB connecting the input to 5 volts, so the panel outputs MUST be “negative applied” or “negative removed” for the D5000 to operate correctly.
If only “positive applied” or “positive removed” are available, add a resistor (value between 1K and 10K) between the input and 0V.

Cannot programme the unit
Alarm system must be unset before D5000 can be programmed. To confirm if the D5000 thinks that the panel is unset, check whether the LEDs on the microphones are on. If they are, but the panel is unset, learn the inputs.

D5000 will not answer incoming call
The D5000 is designed not to answer an incoming call unless the alarm system is set AND in alarm. Is the D5000 connected to the internal side of an internal telephone exchange? If so, does the extension actually ring when the number is dialled?

The D5000 always answers incoming calls
If the D5000 is not shutdown, it will answer the next incoming call until it either receives a shutdown, OR the system is unset and the alarm signal restored. If the alarm input remains active when the system is unset, the D5000 will continue to answer incoming calls. To overcome this: Program the control panel to restore the alarm signal when unset, OR Program the AVU for ‘Timed One Shot’ operation (command 27 2 *).

The D5000 will not respond to my mobile phone
The D5000 responds to commands via DTMF tones, but some mobile phones are not capable of sending these tones. If you are unsure, telephone a landline from your mobile phone and listen to the landline handset for tones when you press digits on the mobile handset. If you hear nothing or tones other than dialling type tones, then your handset is not compatible.

The D5000 will not shutdown
If the device is programmed to answer with live audio only, and the operator then switches to listening to live audio for an individual channel, the shutdown command does not operate correctly. It is necessary to select All Channels (command “0”) then wait for approximately 15 seconds, then issue the shutdown command.

Last edited 22/08/2006