TSD402 & TSD401
Installation & User Guide

Compatible Equipment

9040 - Loudspeaker
TS400 REM - Remote Keypad

Overview

Introduction

The TSD402 is a 5 zone (+ Final Exit) control panel with an integral Speech Dialler. It is ideally suited for domestic and small commercial installations, which require additional security through the communication of audio alarm messages over the telephone line.

The TSD401 was the predecessor to the TSD402. The minor differences are listed below:

- The TSD401 could not use remote keypads
- The TSD401 had 32 seconds of record time for speech messages.
- The TSD401 option ⓪ in engineer's programming did not give option for part set & full set reporting (it was global).

Features

- 5 Programmable zones Night, Access, Fire, PA & Keyswitch (plus common tamper)
- Final Exit zone
- Detector Reset output for Vibration and Smoke detectors
- Internal and external volume controls
- 16 character Liquid Crystal Display (LCD)
- 2 user passcodes and engineer's passcode
- 64 event log
- Programmable Chime facility on all zones
- Remote Reset facility
- 3 button Quick-Set for Home and Away
- Program data stored in NVM (recorded messages are not)
- Remote Keypad option (up to 4 x TS400 Remote Keypads)
- Auxiliary trigger inputs for the speech dialler
- Speech dialler activations may report to different telephone numbers
- Built in microphone and speaker for record and play-back
- Messages may be up to a total of 60 seconds in length

Control Panel Operation

Operation and programming is carried out from the tactile rubber keypad on the control panel in conjunction with the 16 character LCD display.

There are two programming menus within the system. The engineer's programming menu allows full system programming (zone types, view log, walk test, exit time, entry time, bell duration time, engineer's code, reset number, system options). The user programming menu allows setting and unsetting of the system as well as allowing the user to test the system. All speech dialler programming, configuration and testing is also carried out within the "User Options" menu.

Specifications

Panel Input Voltage:	240V +/- 10% 50Hz
Current Consumption:	80 mA
Power Supply	750mA
Auxiliary power:	13.8v @ 300 mA
Remote Keypad:	TS400REM (normal 20mA, alarm 32mA)
Trigger inputs (speech dialler):	+ve or -ve applied, input voltages 5 - 28V
REN Value:	0
BT Approval number:	S/1100/3/R/503255
Control Panel Dims:	205 (W) x 205 (H) x 64 (D) mm
Remote Keypad Dims:	130 (W) x 130 (H) x 30 (D) mm
Control Panel Weight:	1.4 Kg
Battery Size	2.1Ah
Case Construction:	3mm Polycarbonate
Environment:	0 - 55°C

System Installation

Battery Connection

A 2.1Ah battery must be fitted to the control panel to allow the system to function during a mains fail condition.

The TSD402 is equipped with a "Battery Protection" circuit so that if a battery is accidentally reverse connected or its voltage is below 8V, the "Battery Fault" LED illuminates. To clear the fault simply reconnect or replace the battery as appropriate.

Control Panel PCB Layout

Factory Restart Pins

Auxiliary Trigger Input
Polarity Selector

Extension Speaker Volume Control

Bell Fuse (1 Amp)

Tamper Switch

Aux 12V Fuse
(1 Amp)

Zone
Connections
(S.E.L.V Circuit)

Flying Leads
to Transformer

Auxiliary Dialler
Trigger Inputs
(S.E.L.V Circuit)

Remote Keypad
Interface socket
(S.E.L.V Circuit)

Internal Volume Control

Connection to
Internal Speaker

Microphone

Tactile Rubber Keypad

Telephone Line
Connection Terminals
(T.N.V Circuit)

16 Character LCD Display

TRIGGER
A
P
F

EXT . VOLUME

INT . VOLUME

SPEAKER

JP1
VR1
TRIG
POLARITY

VR2

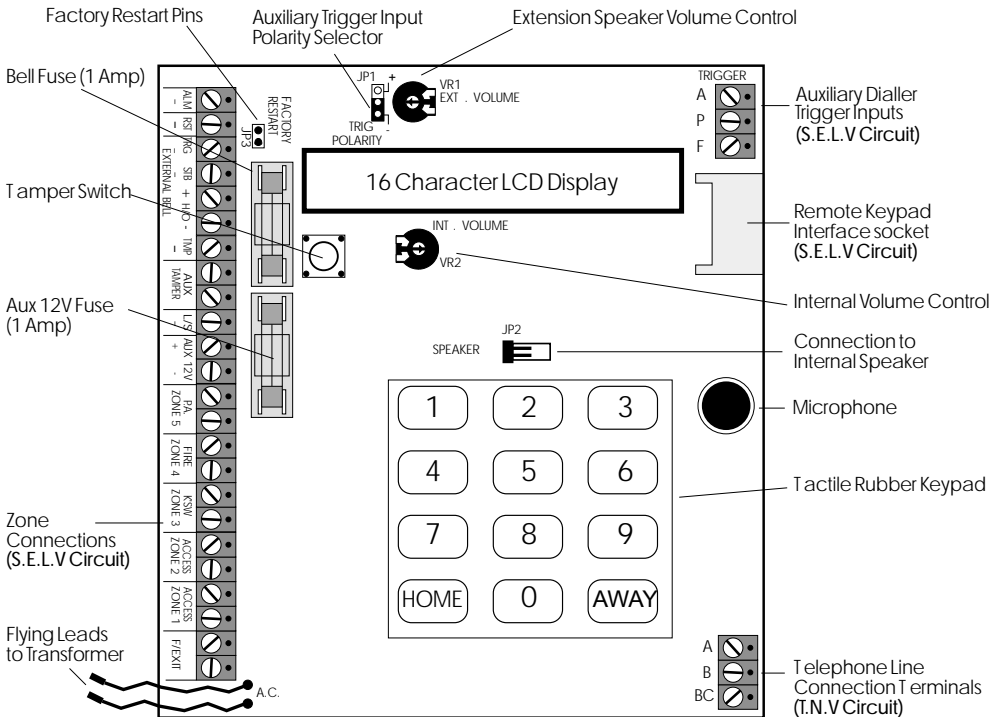JP2

1 2 3
4 5 6
7 8 9
HOME 0 AWAY

A
B
BC

A.C.

Figure 1 TSD402 PCB Layout

Connections & Controls

The main PCB has the following "Jumper Plugs" (JP), indicator LEDs and terminal connections.

TRIG POLARITY (JP1)

This jumper-link sets the signal polarity for the auxiliary speech dialler trigger inputs. The inputs may be either +ve to trigger or -ve applied to trigger.

SPEAKER (JP2)

The internal loudspeaker has a 2-way connector which plugs directly on to this set of pins.

FACTORY RESET (JP3)

All program data (not messages) is stored in a Non-Volatile Memory chip (NVM). If the Factory Reset pins are shorted during power-up all stored system parameters are over written with the factory default settings. The engineer passcode is reset to 1234 and the User 1 passcode is set to 5678.

EXT. VOLUME (VR1)

If an extension loudspeaker is connected to the control panel, the volume of keypad bleeps, chime, entry and exit tones may be adjusted using this control (clockwise to increase). Alarm tones are always full volume.

INT. VOLUME (VR2)

This controls the volume of keypad bleeps, chime, entry and exit tones from the internal loudspeaker (clockwise to increase). The volume of the speech dialler playback messages are always full volume.

Installing a TS400 Remote keypad

Up to four TS400 remote keypads may be connected to the TSD402 control panel. The remote keypad is supplied with an interface PCB which plugs onto the main PCB. Remote keypad(s) may be sited up to a maximum of 50 metres from the control panel using a six-core cable for connections.

☞ *The TS400 remote keypad is only suitable for setting, part-setting, unsetting and limited programming functions. All other system operations must be carried out at the control panel.*

1. Remove the TSD402 PCB from the case

2. Connect each core of the six-core cable to the interface terminals "LEDCBA" (make a note of the colours used for each connection).

3. Pass the yellow flying-lead behind the PCB and connect it to the L/S-terminal.

4. Plug the interface PCB onto the TSD402 PCB.

(See figure on page 3).

5. Replace the TSD402 PCB.

6. Separate the remote keypad cover and base by using a screwdriver to push two of the clips (top or bottom) inwards from the cover retaining slots. Then lift the cover assembly away, noting that the PCB is connected to the under side of the cover.

7. Hold the remote keypad base in position (keyhole to the top) and mark the three securing holes, drill and plug the wall as required. Pass the six-core cable into the base via the cable entry points as appropriate and secure the base to the wall.

8. Connect each core of the six-core cable to the remote keypad terminals "EDCBAL", ensuring that the connections through to the control panel are A-A, B-B, C-C etc. If more remote keypads are to be fitted, they may be connected in a "Star" or "Daisy-chain" configuration (providing the cable length to the last or furthest remote keypad does not exceed 50 metres).

9. Carefully reattach the front cover assembly to the remote keypad base ensuring that all cables are clear of the tamper switch spring and the cover is securely clipped to the base.

Connection Diagram

TSD402

EXTERNAL SOUNDER
- TRIGGER -
- STROBE -
- HOLD OFF +
- HOLD OFF -
- TAMPER RETURN -

- ALM -
- RST -
- TRG -
- STB -
- + H/O -
- TMP -
- AUX TAMPER
- L/S -
- + AUX 12V -
- ZONE 5 (P A)
- ZONE 4 (FIRE)
- ZONE 3 (K/Sw)
- ZONE 2 (ACCESS)
- ZONE 1 (ACCESS)
- FINAL EXIT

PIR
- ALARM → To ZONE 1
- TAMPER
- 0V → To AUX -12V
- +12V → To AUX +12V

PIR
- ALARM → To ZONE 2
- TAMPER
- 0V → To AUX -12V
- +12V → To AUX +12V

TERMINAL STRIP (NOT SUPPLIED)

SURFACE CONTACT
- To ZONE 3

FLUSH CONTACT
- To FINAL EXIT

P.A. BUTTON
- To ZONE 5 (P.A.)

SMOKE DETECTOR
- Supply + → To AUX +12V
- Supply - → To RST -
- ALARM → To ZONE 4 (FIRE)

NOTE:

Any unused zones must be linked out.

PIRs and Surface Contacts may be connected to any zone. This diagram is only used to represent a typical installation example.

If a keyswitch is fitted, it must be connected to Zone 3 and then programmed as KEYSWITCH.

If a Smoke/Heat Detector is fitted, it must be connected to Zone 4 and then programmed as FIRE.

If a P.A. Button is fitted, it must be connected to Zone 5 and then programmed as P.A.

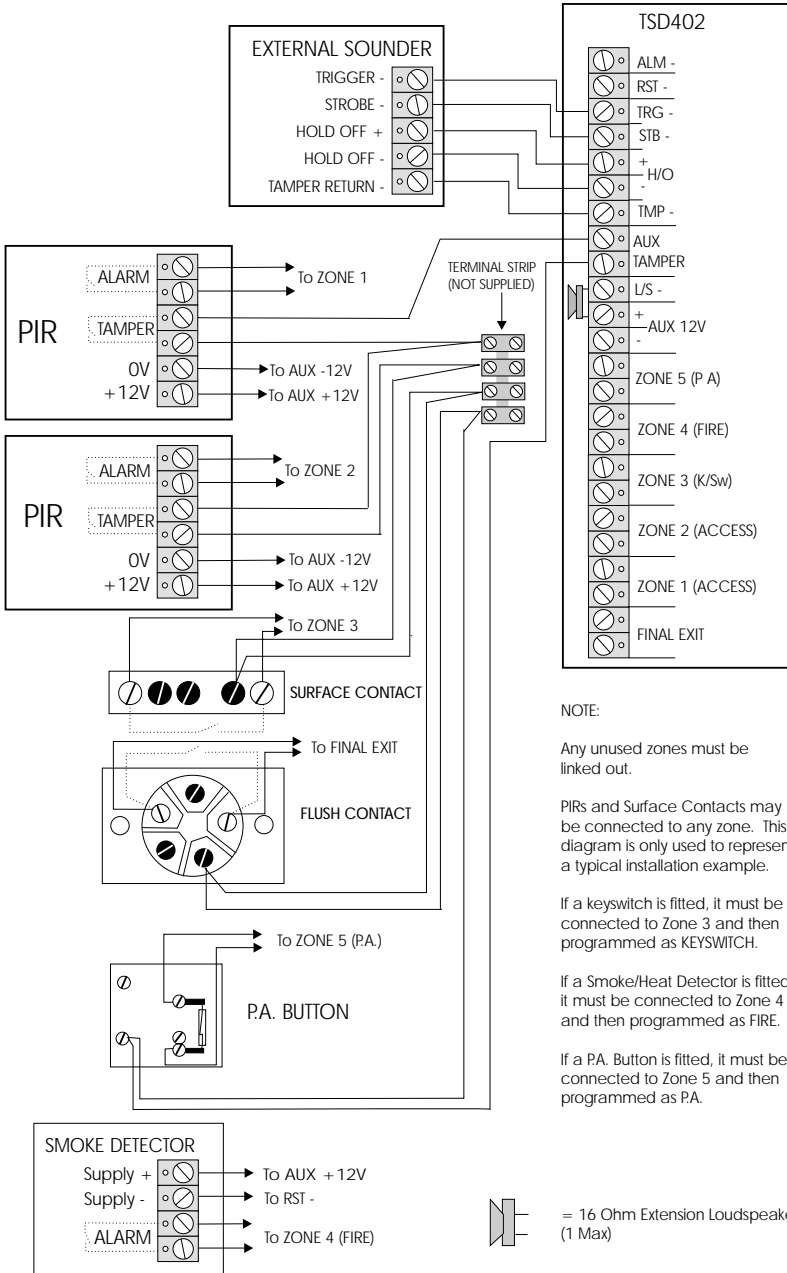= 16 Ohm Extension Loudspeaker (1 Max)

Fig2 Sample Connection Diagram

Initial Power-Up

1. Place a small screwdriver blade between the pins on the Control Panel PCB, marked FACTORY RESTART (located top left corner). This will ensure that the factory default values are loaded into memory as show below:

Engineer's Passcode	-	1 2 3 4
User 1 Passcode	-	5 6 7 8
User 2 Passcode	-	Not programmed
Zone 1	-	Night
Zone 2	-	Access
Zone 3	-	Night
Zone 4	-	Night
Zone 5	-	Night
Final Exit	-	Exit
Exit Time	-	030 Seconds
Entry Time	-	030 Seconds
Bell Duration	-	020 Minutes
Remote Reset Number	-	004
Bell Output	-	SAB (-ve Applied)
Setting Mode	-	Timed Exit
Reset Authority	-	User Reset
Number of Re-arms	-	3
Operation of Key Switch	-	AWAY Set (Full)
Operation of RST Output	-	Switched 12V
Operation of Final Exit in P/Set	-	Final Exit
HOME Setting	-	Zone 1 Omitted
Dialler Alarm Options	-	No Alarms Report
Acknowledgement Option	-	Cleared by any 1

2. Switch on the 240V mains supply and remove the screwdriver blade. The internal alarm will bleep every 30 seconds the display will show: CF-   t.

3. Connect the standby battery. If the display shows: bAtt.FLt and the internal alarm sounds, then the battery may have been incorrectly connected or its voltage is below 8V. Disconnect the battery immediately and reconnect or replace as appropriate.

4. Push the battery into place at the bottom of the housing and re-fit the front cover.

5. The display will show: PLEASE rE-rECOrd, this message will only be cleared when one or more of the speech dialler messages has been recorded.

6. Enter the engineer's passcode (default [1] [2] [3] [4]), the display will show: ENGR. OPTION - (engineer programming menu selected)

7. The telephone lead can now be plugged into the telephone socket.

8. Fit the battery link in the external siren and replace cover.

9. The system is now ready for engineer programming

Log Event Codes and Descriptions

Display	Description
AC OFF	Mains power removed.
AC ON	Mains power restored.
AU PL tA	Auxiliary or panel lid tamper alarm.
bAtt FLt	Battery fault (battery reversed or below 10.5V).
CCt AL -	Full alarm from zone 1 - 5 (F = Final Exit when part-set).
COdE tA	Code Tamper (4 incorrect passcode entries).
ENtrytO	Entry timed-out (system not unset after activating F/Exit zone).
F IrE AL	Fire Alarm activated.
SEt A	AWAY Set.
SEt FA IL	System failed to set (zone still active at end of exit time).
SEt H	HOME Set.
USEr -	User 1 or 2 passcode entered (User 3 = keyswitch).
- - - - - - - -	No Event

Key Functions

Engineer's Reset

1. Enter Engineer's code default 1234. The display will show *EN9 OPE IONᴺ*. you are now in Engineer's Mode.

2. Press AWAY to return to unset.

Loading Defaults

1. Power down panel mains and battery.

2. Place a small screwdriver blade between the pins on the control panel PCB, marked Factory Restart.

3. Power up panel battery and mains.

4. Remove the screwdriver blade.

5. Enter 1234. The display will show *EN9 OPE IONᴺ*. The panel is now back to Factory Default Programming.

Bell Test/Walk Test

Please refer to user options numbers 1 & 2 respectively.

Engineers Quick Reference Programming Chart

Key	Function	Action	Options	
1	Program Zones	Press 1-6 to toggle zone types Press AWAY to end	1 Zone 1 2 Zone 2 3 Zone 3 4 Zone 4 5 Zone 5 6 Final Exit	= Night or Access = Night or Access = Night or KeySwitch = Night or Fire = Night or PA = Exit or Access
2	View Log	Press HOME to advance Press AWAY to end		
3	Walk Test	Activate detectors Press AWAY to end		
4	Exit Time	Enter 3 digit time Press HOME to accept	Enter time between 001 - 255 (seconds)	
5	Entry Time	Enter 3 digit time Press HOME to accept	Enter time between 001 - 255 (seconds)	
6	Bell Duration	Enter 3 digit time Press HOME to accept	Enter time between 000 - 255 (minutes) Note: 000 = Continuous	
7	Change Engineer Code	Enter new 4 digit code Press HOME to accept		
8	Change Reset No	Enter 3 digit code Press HOME to accept	Enter number between 000 - 255 Note: 000 = Disable Remote Reset	
9	System Options	Press 1-7 to toggle system options Press AWAY to end	1 Bell Output 2 Setting Mode 3 Reset By 4 Re-arms 5 Keyswitch Option 6 RST Output 7 Final Exit in P/Set	= SCB or SAB = Final Exit or Timed Exit = User or Engineer = 1 or 3 = Away or Home = Detector Reset or SW12V = Final Exit or Night
0	Dialler Alarm Options	Press 1-3 & 5-7 to toggle options Press HOME to accept	1 Away Fire 2 Away PA 3 Away Intruder 5 Home Fire 6 Home PA 7 Home Intruder	= Reported or not reported = Reported or not reported = Reported or not reported = Reported or not reported = Reported or not reported = Reported or not reported
Away	Return to unset			

User Options

Introduction

The 'User 1' passcode has the option to access the 'User Options' menu, this menu allows the user to test the system, change passcodes, change Home Area configuration, view the Event Log and program the Speech Dialler.

To aid user programming, a brief description of each menu function has been printed underneath each number key. The figure below show the structure of the 'User Options' menu. When a function is selected and completed the system will return to the unset condition.

User Options Menu

$$\boxed{\textsf{UПSEL}}$$

Enter first 3 digits of Passcode then HOME

(e.g. 5 6 7 HOME)

$$\boxed{\textsf{USEr OPL IOП -}}$$

1 = Bell Test

2 = Walk Test

3 = Remote Reset*

4 = Change Password 1*

5 = Change Chime Zones

6 = Change Password 2*

7 = Home Area Configuration

8 = Dialler Programming*

9 = View Event Log

0 = Dialler Reporting Options*

AWAY = Return to Unset mode
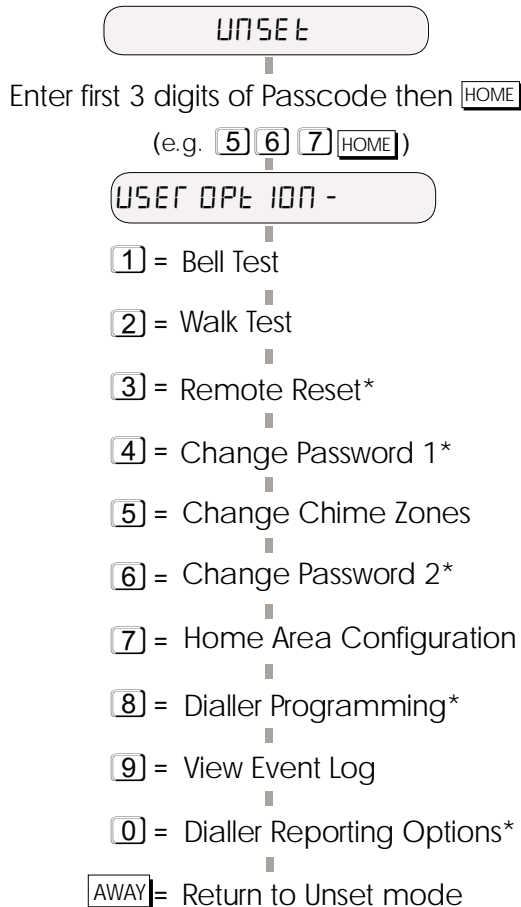
* These options cannot be programmed using the remote keypad

Speech Dialler Programming (key 8)

This option allows 'User 1' to program the Speech Dialler options. When this option is selected the system will stay in the 'Speech Dialler' programming menu until the 'User 1' passcode is entered. The figure below shows the basic menu structure:

Speech Dialler Menu

```
              UNSEt
```
Enter first 3 digits of Passcode then HOME
            (e.g., 5 6 7 HOME)

```
         USEr OPt iOn -
```

Press 8 for Dialler Programming

```
              rEAdY
```
Press HOME for Dialler Programming

```
         ENtEr  1-3 or 0-9
```

Press 1 for Tel No.1

Press 2 for Tel No.2

Press 3 for Tel No.3

Press 0 for Common Phrase

Press 7 for Fire Phrase

Press 8 for PA Phrase

Press 9 for Alarm Phrase

Press HOME for Last Call Log

Enter Passcode to return to Unset

```
              UNSEt
```

Replaying Messages

Press 7 to play Fire message

Press 8 to play PA message

Press 9 to play Alarm message

```
         PLAY ing PHrASE 0
```

```
         PLAY ing PHrASE A
```

```
              rEAdY
```

Sending a Test Call

Select the message Fire 7 PA 8 or Alarm 9 then the telephone number 1, 2 or 3

(E.g., Press 9 then 3 to send the Alarm message to telephone number 3.)

```
         SENd ing A to No.3
```

```
              rEAdY
```

NOTE:
If the unit is left un-operated in the READY mode, it will automatically return to the UNSET condition after 1 minute.