Factory Set Conditions

Customer Code	0123
Exit Time	30 seconds
Entry Time	30 seconds
Bell Time	20 minutes

Faults

Faults conditions are often the result of minor installation errors or misinterpretation of the equipment being installed. The following points outline the most common installation and commissioning faults.

1) As supplied, the standard factory preset customer code is 0123. This code must be used to enter the programme and also in the event of clearing the programme back to factory set conditions.
The engineer code is fixed at 9999 and cannot be changed.

2) The engineer programme cannot be accessed directly from the Day mode. Engineer programming is only accessible from the customer programme.

3) If a tamper or PA fault is present on the system, the panel will go to lock out condition and show tamper or attack. The keypad will not operate or produce any audible response. Once the fault has been found and rectified the system will return to Day and normal operation will resume.

4) The commonest cause of a zone not responding to detectors is incorrect wiring. Normally closed detectors MUST be connected together in a series loop. Tampers are also series wired before connection to the control panel.

5) When fuses are being tested or replaced. All power must be removed. Fuses repeatedly failing are almost certainly the result of a short circuit across the 13V, bell or strobe output. Remove all cables and check for low resistance readings. Blown fuses are very seldom the result of faulty equipment.

6) If totally lost as to the cause of a fault, remove ALL wiring from the PCB and replace the / service links. NEVER fit links across any of the voltage outputs, bell, strobe etc. If uncertain it may also be necessary to power down and recover the original factory set conditions. On power up, check each circuit as connecting. Also check carefully for short circuits in cable runs or a short circuit between a zone and tamper.

7) Finally whenever working near to the mains supply or connector always exercise extreme caution. Whenever possible isolate the mains supply before removing the control panel cover.

Installation Log

This section may be filled in, detached from the manual and retained as a record of the installation.

Site Address ....

....

....

Contact Name ....

Tel .... Date of Installation.....................

Zone	Resistance	Protection and Equipment used
1		
2		
3		
4		
PA		
TAMPER		

AD E
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TECHNICAL 051-549 1550

OPTIMA-
OPTIMA XM

This manual is a guide to the operation, installation and maintenance of the Optima and the Optima XM intruder alarm control panels. Being similar in operation, both panels are microprocessor based, keypad operated and conform to the installation requirements of BS 4737 1986/87.

FEATURES INCLUDE:

	KEYPAD OPERATED & PROGRAMMED
4	4 ZONES PLUS PA AND TAMPER
	BUILT-IN INTERNAL SOUNDER
	USER MAY OMIT ANY ZONE
	MEMORY RECALL FOR LAST ALARM
	QUICKSET FEATURE
	PROGRAMMABLE TIMERS INCLUDING BELL CUT-OFF
	INTELLIGENT AUTO RESET AND REARM

In addition the Optima XM offers:

NVM	NVM FOR PROTECTION OF ENGINEER PROGRAMME
	LOW TONE VOLUME CONTROL

General

The control panel is totally programmed and operated via a 15 button keypad. A four digit customer code of any combination 0000 to 9999 may be selected and used to arm and disarm the panel. This code may be changed as often as required.

4 zones are provided, each with a dedicated function and capable of operation with normally open and normally closed detectors. Connections are also available for personal attack buttons and tamper protection. Individual LED indicators show zone, PA and tamper faults.

Outputs are available for bell/sounder, SCB, strobe, 13V supply and Set + Ve. An integral battery charge circuit will allow a rechargeable battery (not supplied) to maintain the system during mains failure.

Engineering
Information

SYSTEM OPERATION

Day Mode

Day mode is generally considered as the period when the system is disarmed or 'off'. Only tamper and PA inputs are active and if violated will cause an alarm condition. Day mode is indicated on the control panel front by the green Day indicator.

Setting the System

To Set the system check that the Day indicator is showing, enter the four digit customer code, and check that the zone indicators are off. The sounder will now produce a bleep tone and the building can be exited by the correct route. If the system is not clear on entering the code, the sounder will produce a broken bleep tone, one bleep for zone one, two bleeps for zone two etc. The relevant zone indicator will also be displayed. At this point, either re-enter the customer code or omit the faulty zone from the system.

During the exit period any zone either in a fault or clear condition may be omitted from the system. Pressing the OMIT button will change the exit tone to an omit tone, pressing 0 resets any false selections, pressing 2 selects zone two etc. The relevant zone indicators will now flash to show the zones which are about to be turned off. When selection is complete, press the SET button and the exit tone will continue. A maximum of three of the four zones may be omitted in this way.

The panel may also be 'quick set' if required when the customer is not leaving the premises. After entering the customer code press SET, the system will Set within five seconds. Note that from the omit section the SET button will have to be pressed twice.

Unsetting the System

The system is Unset by entering the customer code either in the Set mode or during the entry period. The entry timer is started by activating any sensor on zone 1. An entry tone is then produced by the sounder, warning the customer to disarm the system. The entry period is in fact divided into three separate tones. With thirty seconds to go before an alarm condition the tone is a single repeated sound, with twenty seconds to go, the tone will double to a higher note. With ten seconds to go, the tone will double to an even higher repeated note. In this way the customer is continually reminded of the urgency to disarm the system.

Alarm Conditions

Entering the customer code during or after an alarm condition will stop any sounders and the alarm cause will now be displayed. Pressing RESET will remove the indication and stop the strobe, the system will then return to the Day mode.

The cause of the alarm condition will now be retained in the memory for future recall.

PROGRAMMING

The control panel uses two distinct programmes. The customer programme is entered from the Day mode. The engineer programme is then progressively entered from the customer programme. The chart below shows the tests and changes allowed in each programme. Before you begin, ensure that the control panel cover is fitted and the system is in Day mode. Once programming has been accessed each section may be changed in any order. When each section is complete the system will return to programming.

CUSTOMER PROGRAMMING

TO BEGIN

From Day	DAY led showing
Press PROG	All leds show
Enter the customer code	DAY and TAMPER leds show

The system is now in customer programming mode.

CODE CHANGE

Press 8	Four zone leds show
Enter new code (4 digits)	System beeps twice and DAY and TAMPER leds show

ALARM MEMORY RECALL

Press MEM	The last alarm will now be displayed for 5 seconds. DAY and TAMPER leds then show

ALARM TESTS

Press 0	DAY, TAMPER and ATTACK led's show.

The system is now in the test routine

STROBE TEST

Press 2   0 to stop

BELL TEST

Press 3   0 to stop

LOW VOLUME SOUNDER TEST

Press 4   0 to stop

HIGH VOLUME SOUNDER TEST

Press 2 4   0 to stop

WALK TEST

Press 5   0 to stop

The system will now beep as each circuit is opened.

**Press RESET to return to programming.
Press RESET again to return to Day.**

ENGINEER PROGRAMMING

TO BEGIN

From Day	Day led showing
Press PROG	All leds show
Enter the customer code	DAY and TAMPER leds show
Press PROG and enter 9999	DAY and ATTACK leds show

The system is now in engineer programming mode

EXIT TIME

Press 1	Zone 1 and zone 2 leds show

Enter the time required in 10 second increments, divided by 10.

Eg. 10 seconds ÷ 10 = 1 so enter 01

20 seconds = 02

30 seconds = 03 etc

After entering the two digits the DAY and ATTACK leds show again

ENTRY TIME

Press 2	Zone 1 and zone 2 leds show

Enter the required time as with EXIT.

After entering the two digits the DAY and ATTACK leds show again

BELL TIME

Press 3	Zone 1 and zone 2 leds show

Enter the required time in minutes

01 = 1 minute

20 = 20 minutes

99 = maximum 99 minutes

00 = no bell stop

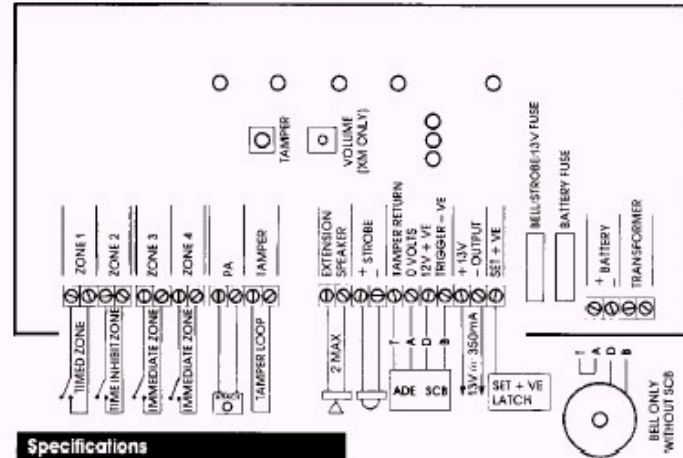After entering the two digits the DAY and ATTACK leds show

Press RESET twice to return to Day

RESET TO FACTORY CONDITIONS

From engineer programming, pressing the SET button returns the system to Day and re-installs all factory set conditions.

REFERENCE

Connection Diagram

Specifications

Front panel indicators	Discreet LED's zone 1,2,3,4, attack, tamper, day, power.
4 Zones	Positive loop, dedicated functions.
Tamper	Negative loop, local alarm in Day, full alarm in Set.
PA	Positive loop, active at all times.
Bell Output	12V, adjustable timer (1-99 mins) or continuous.
Strobe Output	12V latching, continuous after bell cut off.
Extension Speaker	16Ω (2 max) current consumption 130 mA each.
Entry/Exit Timers	Separately adjustable 10-990 seconds.
Maximum Zone Loop Resistance	50,000Ω
Zone Input Delay	250 mS.
Set + Ve Output	OV in Day (sinking 30 mA)
	12V in Set (sourcing 1mA)
Current Consumption	Standby 80mA
	Alarm 250mA
Low Voltage Output	13V dc stabilised (max 350mA)
Rechargeable Battery Capability	1.2 to 6Ah.
Recharge Voltage	13.8V dc.
Bell, 13V/Battery Fuses	1.6A 20mm.
Total Current Output	1 Amp.
Mains Supply Voltage	220-245V ac.
Dimensions	290mm x 230mm x 80mm
Cabinet Construction	3mm Polycarbonate

Installation Design

Before beginning any installation work, read through this manual carefully. Optima control panels are designed to simplify installation, and subsequent operation and maintenance.

Plan out the various areas and degrees of protection required with regard to each zone and its function. Work out the cable positions and routes and the siting positions for the control panel and its mains supply.

The printed circuit board (PCB) is clearly marked with each input and output and the relevant polarities. Service links are fitted in position across each zone to simulate closed circuits. These are removed during installation as each zone is connected. For future reference each link is marked by a LI symbol.

The vast majority of detection devices in the Security Industry are normally closed. These are connected together in a series loop across the required zone input. There are also a small minority of open circuit devices (pressure mats) which should be connected in parallel together and finally wired between the required closed zone and tamper.

Finally note that the total current output of the control panel is 1 Amp in full alarm condition. The current ratings of each bell/sounder and strobe should be carefully considered when planning an installation.

Fixing

Remove the cover from the control panel and unscrew the low voltage wires from the AC terminals and the speaker wires from terminals 13 & 14. Now carefully withdraw the PCB by pushing the holding clips downwards and lifting the board clear of the base. Keep the front cover and PCB clear of brick dust and debris during the installation. Hold the base to the wall (hinges to the left) and mark the position of the screw holes on the wall.

Note, uneven walls may distort the base. If this occurs use packing or a different mounting position. Remove any cable entry sections required from the base with a hacksaw. Drill and plug the wall and fit the base using at least four screws of suitable length. Finally replace the PCB assembly, transformer wires and speaker wires. (These wires are not polarised and may be connected anyway around).

Wiring

Wire the system as far as possible and bring the appropriate cables to the control panel. Neatly form the cables in the base, ready to connect, leaving adequate space for the battery etc.

Now identify and follow the power up procedure appropriate to the panel. (Optima or Optima XM).

Initial Power Up (Optima)

1) Check that the 7 factory fitted links are in position across the zone inputs, PA and tampers.

2) Carefully connect the battery wires to the BATT terminals at the far right of the PCB. Red to + and Black to –. Now connect the battery, again Red to +, Black to –.

3) As the tamper is open (front cover removed) the TAMPER indicator will show and the system is in an installation "self test" routine.

4) Starting with zone 1, remove the service link, check that the zone 1 indicator shows and connect the zone 1 circuit wiring. When zone 1 is clear (sensors correctly wired and closed) the indicator will go out. Continue to wire zones 2, 3, 4 and PA in the same way.

5) Series wire the tamper circuits into terminals 11 & 12 and the bell box tamper to terminals T & A (SCB). Finally connect any internal sounders, external bell/sounder, strobe, 13V and if required Set + Ve.

6) Connect the mains supply following the recommendations listed and then refer to the Final Commissioning section.

Power Up Reset

In the event of loosing the customer code on an operational system, or in other extreme circumstances. It will be necessary to recover the programme and return to factory set conditions. Proceed as follows:

1) Remove the mains supply and cause an alarm condition by removing the control panel cover.

2) Disconnect the battery. The SCB will then cause the external bell/sounder to operate.

3) Reconnect the battery, refit the cover and reinstate the mains supply.

4) The system should now be in Day mode and factory set conditions will apply.

Initial Power Up (Optima XM)

1) Check that the 7 factory fitted links are in position across the zone inputs, PA and tampers.

2) Carefully connect the battery wires to the BATT terminals at the far right of the PCB. Red to + and Black to –. Now connect the battery, again Red to + and Black to –. The system will now go into alarm condition.

3) Enter the customer code (factory set at 0123). The alarm condition will cease and the TAMPER indicator will show.

4) Manually depress the tamper spring and the system will do to Day. Press PROG and enter the customer code. DAY and TAMPER indicators will now show and the tamper spring may be released.

5) The system is now in customer programming mode with all inputs disabled and prevented from causing alarms. The system may now be wired, starting from zone 1 remove the service link and connect in the zone 1 wiring. Continue to wire zones 2, 3, 4 and PA in the same way.

6) Series wire the tamper circuits into terminals 11 & 12 and the bell box tamper into T & A (SCB). Finally connect any internal sounders, external bell/sounder, strobe, 13V and if required Set + Ve.

7) Connect the mains supply following the recommendations listed and then refer to the Final Commissioning section.

NOTE

The power up procedure for Optima XM listed above is for new panels on new installations. If the panel has been preprogrammed, the last customer code will have been retained. Also the 'self test' feature is not available above. If 'self test' is required, the power up procedure below should be used.

Power Up Reset — Clear NVM

In the event of loosing the customer code, or in other extreme circumstances, it will be necessary to clear the NVM and return to factory set conditions. Proceed as follows:

1) Remove the mains supply and cause an alarm condition by removing the control panel cover.

2) Disconnect the battery. The SCB will then cause the external bell/sounder to operate.

3) Remove all wires from terminals 9 and 19.

4) Fit a wire link between terminal 9 and 19 and apply power.

5) The panel will now power up with no alarm condition, with a cleared NVM and in 'self test' mode. The indicators will show according to which circuits are in fault and will clear as the circuits clear etc. The TAMPER and ATTACK indicators will however remain steady.

6) Remove the wire link from between terminals 9 and 19 and replace the original wiring. If required carry out any further zone or PA wiring testing as each is connected by checking the respective indicator goes off.

7) When complete refit the cover. If the tamper and PA circuits are clear the system will return to Day. All factory set conditions will now apply and the system may be tested and reprogrammed.

Mains Connection

The mains supply should be carefully wired using a 3 core cable of not less than 0.75mm² between the mains connector block in the rear of the base and a secure fused spur outlet mounted external to the control panel. Use a 2 Amp fuse in the spur.

WARNING

The mains installation should be carried out in accordance with current IEE regulations by a technically competent person.

Final Commissioning

When all wiring is complete and the mains power has been connected, a red POWER indicator should be showing at the top right of the display. Replace the covers on all detectors, bell box etc and after briefly checking the control panel wiring and battery terminations, fit the control panel cover.

Press the RESET button and the system should go to Day, showing the green DAY indicator.

If any tamper or PA circuits are in fault, the system will go to lock out and show the fault condition. Upon clearing a fault, refit the cover and press RESET.

Once in Day, the system should be fully programmed and tested.

Fill in and retain the installation log at the back of this manual and carefully note any measurements or checks taken.

Finally explain the operation of the system to the customer, filling in their instruction card as and where required.

On future service or maintenance visits, the system may be entered and inputs disabled by accessing the customer program. (Press PROG followed by customer code).

WARNING

During installation or maintenance it may be necessary to remove battery power. Remove the terminal from the battery. NEVER remove the wire from the PCB.

CUSTOMER PROGRAMMING

Customer code change, alarm memory recall and alarm tests are all available from the customer programme. With the Day indicator showing, press the following buttons in the correct sequence.

CODE CHANGE

| Press | PROG | button | All indicators will show |

Enter your code

| ? | ? | ? | ? |

DAY and TAMPER indicators show

| Press | 8 | | Four Zone indicators show |

Now enter your new code (4 digits)

| | | | |

The system will bleep twice and DAY and TAMPER indicators show again.

| Press | RESET | to return to Day | The new code is now in the memory |

ALARM MEMORY RECALL

| Press | PROG | button | All indicators will show |

Enter your code

| ? | ? | ? | ? |

DAY and TAMPER indicators show

| Press | MEM | button | The last alarm will now be displayed for 5 seconds. The system will bleep and DAY and TAMPER indicators will show again. |

| Press | RESET | to return to Day |

ALARM TESTS

| Press | PROG | button | All indicators will show |

Enter your code

| ? | ? | ? | ? |

DAY and TAMPER indicators show

| Press | 0 | | DAY, TAMPER and ATTACK indicators show |

The system is now in the test routine

Press	2		To test the strobe
Press	0	to stop
Press	3		To test outside bell/sounder
Press	0	to stop
Press	4		To test low volume inside sounder
Press	0	to stop
Press	2	4	To test high volume inside sounder
Press	0	to stop
Press	5		To enter walk test. The sounder will now bleep each time a zone is opened.
Press	0	to stop
Press	RESET	RESET	to return to Day

OPTIMA · OPTIMA XM

CUSTOMER INSTRUCTIONS

TO SET THE SYSTEM (turn on)
The Day indicator should be showing. Enter your code number. Check that the system is clear (none of the zone indicators are showing). If clear, the sounder will produce a bleep tone and you may now leave by the approved route. The system will Set at the end of the exit time and the tone will stop.
If the system is not clear, the sounder will produce a broken tone and the zone fault will be displayed. Either re-enter your code to turn off and investigate, or omit the faulty zone from the system.

TO UNSET THE SYSTEM (turn off)
Enter your code, if the system is clear (no alarm has been activated) the system will return to Day. If the system has been activated, then entering the code will turn off the alarm and cause the condition to be displayed. Press RESET to clear the indication and return to Day.

TO OMIT A ZONE
Starting from the Day mode, enter your code and the exit tone will start. Press the OMIT button and the exit tone changes to an omit tone. Now enter the zones you wish to omit e.g. pressing 2 then 4 will remove zones 2 and 4 from the system. The zone 2 and 4 indicators will now be displayed.

If you make a mistake, press 0 to cancel and then enter the zones required to be omitted. When the selection is correct press SET. The system will now return to exit mode and the exit tone will continue.

QUICK SET
During exit time (after entering your code) the system may be Set quickly by pressing SET. This removes the time normally allowed for exit and would be used if you are not leaving the premises. If you omit zones and require quick Set, press SET twice.

POWER INDICATOR
A red Power indicator should be showing on the control panel at all times. If this indicator goes out, the mains supply has failed or been disconnected. If in doubt call the engineer for assistance.

FAULTS/PROBLEMS
It is important to have your alarm system checked and tested regularly to ensure correct operation. It is also advisable to have a maintenance contract or agreement with the alarm installation company.
If any faults occur, or any fault indicators remain on the display and cannot be cleared, call the engineer.

Fill in the details below, to help keep a record of your alarm system.

ALARM COMPANY NAME ....

ADDRESS ....

TEL. NO. DAY................................ TEL. NO. NIGHT ....

DATE OF INSTALLATION................................ ACCOUNT NO. ....

ZONE	AREA PROTECTED
1	
2	
3	
4	