SIEMENS

Intrusion Control Panel

SPC4000

Installation&Configuration Manual

Building Technologies

Fire Safety & Security Products

Contents

1 Security

1.1 Target group

Target readers	Qualification	Activity	Condition of the equipment
Installation personnel	Technical training for building or electrical installations.	Assembles and installs the hardware components on site.	Individual components that need to be assembled and installed.
Operational startup personnel	Has appropriate technical training with regard to the tasks and the products, devices or systems to be put in service.	Puts the device or system which is readily assembled and installed on site into service.	New, readily assembled and installed device or modified device.

1.2 General safety instructions

1.2.1 General information

– Read the general safety precautions before operating the unit.

– Keep this document for later reference.

– Always pass this document on together with the product.

– Please also take into account any additional country-specific, local safety standards or regulations concerning project planning, operation and disposal of the product.

Liability claim

– Do not connect the device to the 230 V supply network if it is damaged or any parts are missing.

– Do not make any changes or modifications to the device unless they are expressly mentioned in this manual and have been approved by the manufacturer.

– Use only spare parts and accessories that have been approved by the manufacturer.

1.2.2 Transport

Unit damage during transport

– Keep the packaging material for future transportation.

– Do not expose the device to mechanical vibrations or shocks.

1.2.3 Setup

Radio interference with other devices in the environment

– When handling modules that are susceptible to electrostatic discharge, please observe the ESD guidelines.

Damage due to unsuitable mounting location

– The environmental conditions recommended by the manufacturer must be observed. See Section 3 Technical Data.

– Do not operate the device close to sources of powerful electromagnetic radiation.

Danger of electrical shock due to incorrect connection

– Connect the device only to power sources with the specified voltage. Voltage supply requirements can be found on the rating label of the device.

– Make sure the device is permanently connected to the electricity supply; a readily accessible disconnect device must be provided.

– Make sure the circuit the device is connected to is protected with a 16 A (max.) fuse. Do not connect any devices from other systems to this fuse.

– This device is designed to work with TN power systems. Do not connect the device to any other power systems.

– Electrical grounding must meet the customary local safety standards and regulations.

– Primary supply cables and secondary cables should be routed such that they do not run in parallel or cross over or touch one anther inside the housing.

– Telephone cables should be fed into the unit separately from other cables.

Risk of cable damage due to stress

– Make sure that all outgoing cables and wires are sufficiently strain-relieved.

1.2.4 Operation

Dangerous situation due to false alarm

– Make sure to notify all relevant parties and authorities providing assistance before testing the system.

– To avoid panic, always inform all those present before testing any alarm devices.

Danger of explosion or burn hazard if the battery is improperly installed

- When inserting new batteries make sure the battery poles are correctly positioned.
- Use only batteries that have been approved by the manufacturer (type: sealed cell valve-regulated).
- Do not shorten the battery pins.
- Do not expose the battery to fire or high temperatures.
- Do not disassemble the battery.
- Discard used batteries according to local regulations.
- Make sure to insert the battery correctly and to fasten the battery strap or clip provided for this purpose.

1.2.5 Service and maintenance

Danger of electrical shock during maintenance

- Maintenance work must only be carried out by trained specialists.
- Always disconnect the power cable and other cables from the main power supply before performing maintenance.

Danger of electrical shock while cleaning the device

- Do not use liquid cleaners or sprays that contain alcohol, spirit or ammonia.

1.3 Meaning of the written warning notices

Signal Word	Type of Risk
DANGER	Danger of death or severe bodily harm.
WARNING	Possible danger of death or severe bodily harm.
CAUTION	Danger of minor bodily injury or property damage
IMPORTANT	Danger of malfunctions

1.4 Meanings of the hazard symbols

WARNING	**Warning of a hazard area**

WARNING	**Warning of dangerous electrical voltage**

2 Directives and Standards

2.1 EU Directives

This product complies with the requirements of the European Directives 2004/108/EC “Directive of Electromagnetic Compatibility” and 2006/95/EC “Low Voltage Directive”. The EU declaration of conformity is available to the responsible agencies at:

Siemens Building Technologies
Fire & Security Products GmbH & Co. oHG
76181 Karlsruhe

European Directive 2004/108/EC „Electromagnetic Compatibility”

Compliance with the European Directive 2004/108/EC has been proven by testing according to the following standards:

emc emission	EN 55022 Class B
emc immunity	EN 50130-4

European Directive 2006/95/EC „Low-Voltage Directive”

Compliance with the European Directive 2006/95/EC has been proven by testing according to the following standard:

Safety:	EN 60950-1

3 Technical Data

3.1 SPC4000

Mains voltage	230 VAC, +10 to -15 %, 50 Hz
Fuse	250 mA T
Power consumption	100 mA @ 230 V AC
Auxiliary power (nominal) [1)]	Max. 750 mA @ 12 VDC
Battery	Optional
Battery type	Sealed cell valve-regulated
Battery capacity	Max. 7 AH / 12 V
Battery charger	Max. 24h for 80 % of battery capacity
Operating voltage	n.a.
Current consumption [1)]	Max. 100 mA @ 12 V DC
Number of on-board zones	8
EOL resistor	Dual 4K7 (default), other resistor combinations configurable
Number of on-board open collector outputs.	1 internal bell (max. 400 mA resistive), 1 external bell (max. 400 mA resistive), 3 general outputs (each max. 400 mA resistive, supplied via auxiliary output)
Number of on-board relays	1 strobe, 30 V / 1 A (resistive switching current)
Field bus [2)]	X-BUS on RS-485 (307 kb/s)
Interfaces	1 x X-BUS (1 spur), 1 x RS232 (RJ45 ports, for X-10 or external communications), 1 x USB (PC connection for terminal program access), 1 x SPC Fast Programmer
Tamper contact	On-board front cabinet spring tamper + 2 auxiliary tamper inputs
Operating temperature	5 - 40 °C
Relative humidity	Max. 90 % (no condensation)
Housing protection	IP30
Colour	RAL 9003
Housing protection class	Class II Indoor General
Mounting	Surface, wall mounted
Housing material	Steel, > 1.2 mm
Housing	Metal enclosure
Housing can contain up to	1 additional Expander (size 150 mm x 82 mm)
Standards	Designed to meet EN50131-1:2006 (Grade 2) TS50131-3:2003 (Grade 2) EN50131-6:2008 (Grade 2)

[1)] For EN compliance the supplied current needs to be supported by the battery for required stand by time

[2)] Max. 400m between devices with cable types IYSTY 2 x 2 x Ø 0,6 mm (min.), UTP cat5 (solid core) or Belden 9829

3.2 Keypad

LC-display	2 x 16 characters
Special function keys	Multi dimensional navigation key and 2 soft keys
Status LEDs	3
Card reader	SPCK421: 125 kHz, EM 4102 or compatible (e.g. SiPASS)
Card read distance	SPCK421: 10 mm
Operating voltage	9.5 – 14 V DC
Current consumption 2)	SPCK420: Min: 60 mA at 12 V DC, Max. 70 mA at 12 V DC SPCK421: Min. 90 mA at 12 V DC, Max. 110 mA at 12 V DC
Field bus 3)	X-BUS on RS-485 (307 kb/s)
Tamper contact	Front/rear spring tamper
Operating temperature	5 - 40 °C
Relative humidity	Max. 90 % (no condensation)
Housing protection	IP30
Housing protection class	Class II Indoor General
Housing material	ABS
Colour	RAL 9003
Mounting	Surface, wall-mounted, height of 1.30 - 1-50 m
Standards	Designed to meet EN50131-1:2006 (Grade 3), TS50131-3:2003 (Grade 3)

[1)] For EN compliance the supplied current needs to be supported by the battery for required stand by time

[2)] Max. 400m between devices with cable types IYSTY 2 x 2 x Ø 0,6 mm (min.), UTP cat5 (solid core) or Belden 9829

3.3 8 Input / 2 Output Expander

Operating voltage	9.5 – 14 V DC
Current consumption [1)]	Min. 45 mA at 12 V DC Max. 80 mA at 12 V DC
Number of on-board zones	8
EOL resistor	Dual 4K7 (default), other resistor combinations config.
Number of on-board relays	2 single-pole changeover, 30 V DC / 1 A (resistive switching current)
Field bus [2)]	X-BUS on RS485 (307 kb/s)
Interfaces	X-BUS (In, Out, Branch)
Tamper contact	On-board front cabinet spring tamper
Operating temperature	5 - 40 °C
Relative humidity	Max. 90 % (no condensation)
Housing protection	IP30
Colour	RAL 9003
Housing protection class	Class II Indoor General
Mounting	Surface, wall-mounted
Housing material	ABS
Housing	Plastic enclosure
Standards	Designed to meet EN50131-1:2006 (Grade 3), TS50131-3:2003 (Grade 3)

[1)] For EN compliance the supplied current needs to be supported by the battery for required stand by time

[2)] Max. 400m between devices with cable types IYSTY 2 x 2 x Ø 0,6 mm (min.), UTP cat5 (solid core) or Belden 9829

3.4 8 Output Expander

Operating voltage	9.5 – 14 V DC
Current consumption [1)]	Min. 55 mA at 12 V DC Max. 180 mA at 12 V DC
Number of on-board relays	8 single-pole changeover, 30 V DC / 1 A (resistive switching current)
Field bus [2)]	X-BUS on RS485 (307 kb/s)
Interfaces	X-BUS (In, Out, Branch)
Tamper contact	On-board front cabinet spring tamper
Operating temperature	5 - 40 °C
Relative humidity	Max. 90 % (no condensation)
Housing protection	IP30
Colour	RAL 9003
Housing protection class	Class II Indoor General
Mounting	Surface, wall-mounted
Housing material	ABS
Housing	Plastic enclosure
Standards	Designed to meet EN50131-1:2006 (Grade 3), TS50131-3:2003 (Grade 3)

[1)] For EN compliance the supplied current needs to be supported by the battery for required stand by time

[2)] Max. 400m between devices with cable types IYSTY 2 x 2 x Ø 0,6 mm (min.), UTP cat5 (solid core) or Belden 9829

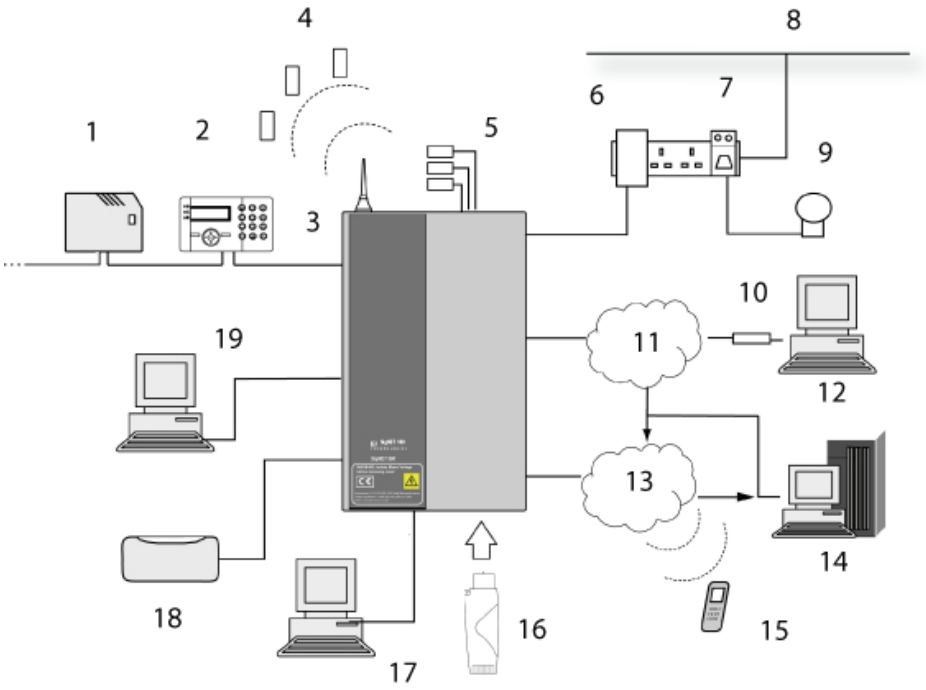
3.5 Wireless Expander

Wireless features and devices will be available with a later market package.

4 Product description

The SPC Series Controller is a true hybrid Controller with eight on-board wired zones that communicate with intruder devices.

The flexible design of the Controller allows the functional components (PSTN/GSM/RF) to be mixed and matched, improving the capability of the system. Using this approach, an installer can ensure that an efficient installation with minimal wiring is achieved.



1	Expander	**11**	PSTN
2	Keypad	**12**	Remote PC
3	X-Bus	**13**	GMS
4	Wireless sensors	**14**	Central station receiver
5	Wired sensors	**15**	Text messages to mobile phone
6	X10 controller	**16**	Fast programmer
7	X10 output controller module	**17**	SPC Pro
8	Power line	**18**	Bell/strobe
9	Appliance	**19**	SPC Pro via USB
10	Modem		

**Wireless features and devices will be available with a later market package.*

Fig. 1 SPC Overview

4.1 SPC Features

The following features are incorporated into the SPC4000 Controller design:

- 8 Inputs with configurable wiring - No End Of Line (NEOL), Single End Of Line (SEOL), Dual End Of Line (DEOL) and Anti-masking PIR supervision (MPIR)
- 6 Outputs – 3 x open collector, 1 x single pole Relay, 1x External Bell and 1 x Internal Bell
- Wireless transceiver module (868 Mhz) supporting multiple wireless zones (Optional)*
- PSTN Modem module (Optional)
- GSM module – Future Release (Optional)
- 1 x X10 Port
- 1 x RS232 Serial port terminal connector Interfaces
- 1 x USB Interface port
- X-BUS Communications Interface – 1 comms channel (1A, 1B)
- Front Tamper spring with tamper by-pass jumper
- PSU interface – AC power in via transformer
- Fast Programmer support – for fast local download of firmware
- SPC Pro programming application

**These features and devices will be available with a later market package.*

5 Mounting System Equipment

5.1 Mounting Controller Enclosures

The Controller is supplied in two enclosure variations (standard and hinged). Each enclosure offers easy access and installation within a robust design.

5.1.1 Standard Enclosure

The SPC standard enclosure is supplied with metallic cover. The cover is attached to the base of the enclosure by two securing screws located on the top and bottom of the front cover.

To open the enclosure, remove both screws with the appropriate screwdriver and lift the cover directly from the base.

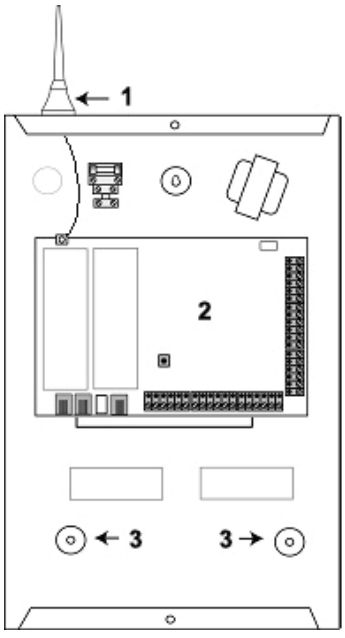
The standard enclosure contains the SPC Controller Printed Circuit Board (PCB) mounted on four support pillars. An optional Input/Output module can be mounted directly beneath the Controller PCB. A battery with capacity of 7AH (max) can be accommodated below the SPC Controller.

An optional external antenna must be fitted to enclosures with metallic lid if the wireless functionality* is required. If an antenna is fitted to the unit, it must be enabled in the firmware.

The SPC standard enclosure provides three screw holes for wall mounting the unit.

To wall mount the enclosure, remove the cover and locate the initial fixing screw hole at the top of the cabinet. Mark the position of this screw hole on the desired location on the wall and drill the initial screw hole. Screw the unit to the wall and mark the position of the bottom two screw hole positions with the unit vertically aligned.

** Wireless features and devices will be available with a later market package.*



1	Wireless Antenna *NOTE: Wireless features and devices will be available with a later market package.*
2	SPC Controller
3	Wall Mounting Screw Holes

Fig. 2 Standard Enclosure

5.2 Mounting a keypad

For mounting please refer to the corresponding Installation Instruction.

5.3 Mounting an expander

For mounting please refer to the corresponding Installation Instruction.

6 Controller Hardware

The SPC Controller provides eight on-board wired zones and 24 on-board wireless zones that communicate with intruder devices using the new European standard wireless frequency 868 MHz*, providing greater security from interference and jamming. For larger applications the SPC system components can be mixed and matched to expand both the wired and wireless zones, providing flexibility in cost effective design and efficient installation with minimal wiring.

**NOTE: Wireless features and devices will be available with a later market package.*

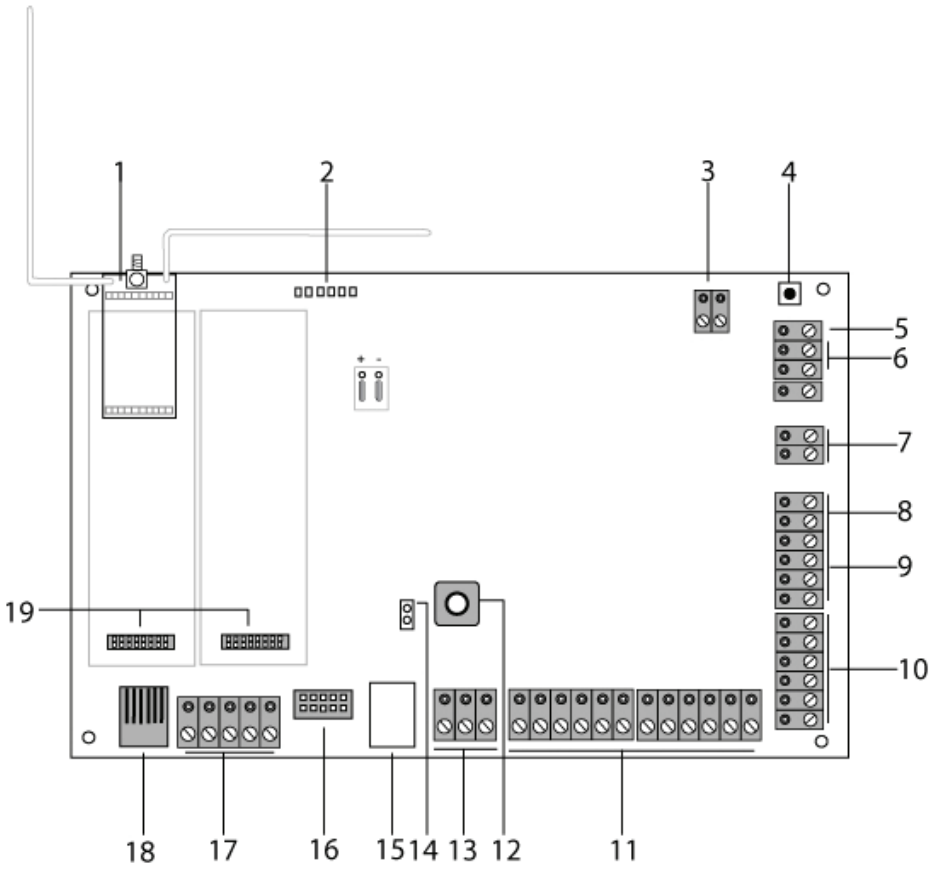


Fig. 3 SPC4000 Controller

1	**Optional Wireless Module**	*NOTE: Wireless features and devices will be available with a later market package.*
2	**SPC Status LEDs**	These 6 LEDs display the status of various system parameters as described in Section 16.4 Appendix E: SPC Controller Status LEDs.
3	**AC Power Input**	The mains AC input voltage is applied to this 2-pin connection via a transformer contained in the SPC Enclosure. The earth lead from the mains supply is wired to a connection point on the metal cabinet.
4	**Reset Switch**	Press this switch once to reset the SPC Controller. To reset the programming settings to default and reboot the Controller, hold down the button for 10 seconds and release. Note: Configuration will be lost.
5	**Earth Connection Terminal**	This terminal provides an earth connection point providing a common ground for the Controller PCB with ancillary devices.
6	**Auxiliary 12 V Output**	The SPC Controller provides an auxiliary 12 V DC output that can be used to supply power to Expanders and devices such as latches, bells, etc. See Section 16.5 Appendix F: Powering Expanders from the Auxiliary Power Terminals. The maximum deliverable current is 750 mA.
7	**X-BUS Interface**	This is the SPC communications bus used to network Expanders together on the system. See Section 7.1 Wiring the X-BUS Interface. SPC4000 supports one communication channel (1A 1B) for manually addressed Expanders only.
8	**On-board Outputs**	Outputs OP4, OP5, and OP6 are 12 V open collector resistive outputs that share a 400 mA current rating with the auxiliary 12 V Output.
9	**Relay Output**	The SPC Controller provides a 1 A, single-pole, changeover relay that can be used to drive the strobe output on the external bell.
10	**Internal Bell / External Bell**	Internal and external bell outputs (INT+, INT-, EXT+, EXT-) are resistive outputs with a 400 mA current rating. The BHO (Bell Hold Off), TR (Tamper Return), and EXT outputs are used to connect an external bell to the Controller. The INT+ and INT- terminals are used to connect to internal devices such as an internal sounder. See Section 7.6 Wiring an Internal Sounder.
11	**Zone Inputs**	The Controller provides eight on-board zone inputs that can be monitored using a variety of supervision configurations. These configurations can be programmed from system programming. The default configuration is Dual End of Line (DEOL) using resistor values of 4K7. See Section 7.4 Wiring the Zone Inputs.
12	**Front Tamper**	This on-board front tamper (switch & switch) provides the cabinet tamper protection.
13	**Tamper Terminals**	The Controller provides two additional tamper input terminals that can be connected to auxiliary tamper devices to provide increased tamper protection. These terminals should be shorted when not in use.
14	**Tamper Bypass [LK1]**	The jumper setting determines the operation of the tamper. The tamper operation can be overridden by fitting LK1. The engineer must ensure that LK1 is removed before leaving site for the system to comply with standards.
15	**USB Interface**	The USB interface is used to access terminal programs.
16	**Fast Programmer**	Port for connecting to the Fast Programmer.
17	**Serial Port 1**	This RS232 serial port may be used to interface to an X10 protocol device.
18	**X10/Serial Port 2**	This port may be enabled for connecting to the X-10 port or it may be enabled as a communications channel with the back-up modem module. If a back-up modem is installed, ensure no devices are connected to this serial port.
19	**Optional Plug-in Modules**	A primary (left slot) and back-up (right slot) module can be connected to the SPC Controller. These modules can be GSM or PSTN modules offering increased communication functionality. The back-up module should not be connected if serial port 2 interface is connected to an external modem or other device.

7 Wiring the System

7.1 Wiring the X-BUS Interface

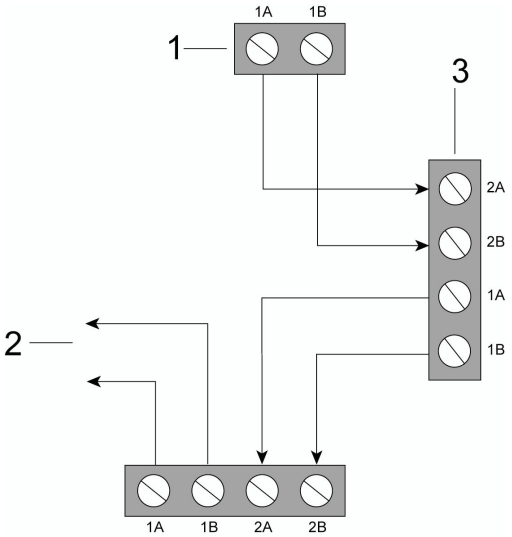
The X-BUS interface provides for the connection of Expanders to the SPC Controller. The X-BUS can be wired in a number of different confirmations depending on the installation requirements. The X-BUS interface baud rate is 307kb. Tab. 1 shows the maximum distances between Controller / Expander or Expander / Expander for all cable types.

Cable Type	Distance
CQR standard alarm cable	200 m
UTP Category: 5 (solid core)	400 m
Belden 9829	400 m
IYSTY 2 x 2 x 0.6 (min)	400 m

Tab. 1 Cable Type and Distance

Each device has 2 terminals, 1A and 1B, for connection to Expanders via the X-BUS cable. The SPC Controller initiates a detection procedure on power up to determine the number of Expanders connected on the system and the topology in which they are connected.

The following modules have Branch Expander wiring capability: 8 Input / 2 Output Expander, 8 Output Expander. See Section 7.2 Wiring of Branch Expander for instructions on branch expander wiring.



1	From Previous Expander
2	To Next Expander
3	SPC Controller

Fig. 4 Wiring of Expanders

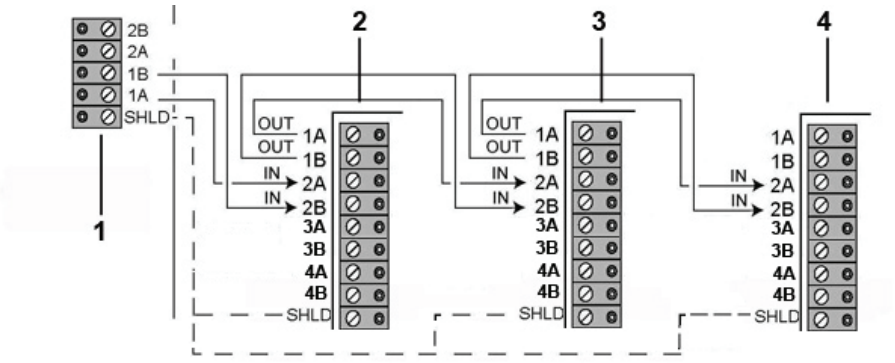
7.1.1 Spur (Chain) Configuration

The Spur, or open loop, cabling method offers a high level of fault tolerance and may be more convenient on certain installations. In the case of a cable fault or break, all Expanders and detectors up to the fault continues to be supervised.

On the SPC, only a single port supports a group of Expanders. The last Expander in an open loop configuration is not wired back to the controller and can be identified by the fast LED flashing light (one flash every 0.2 seconds approx) when in Full Engineer programming.

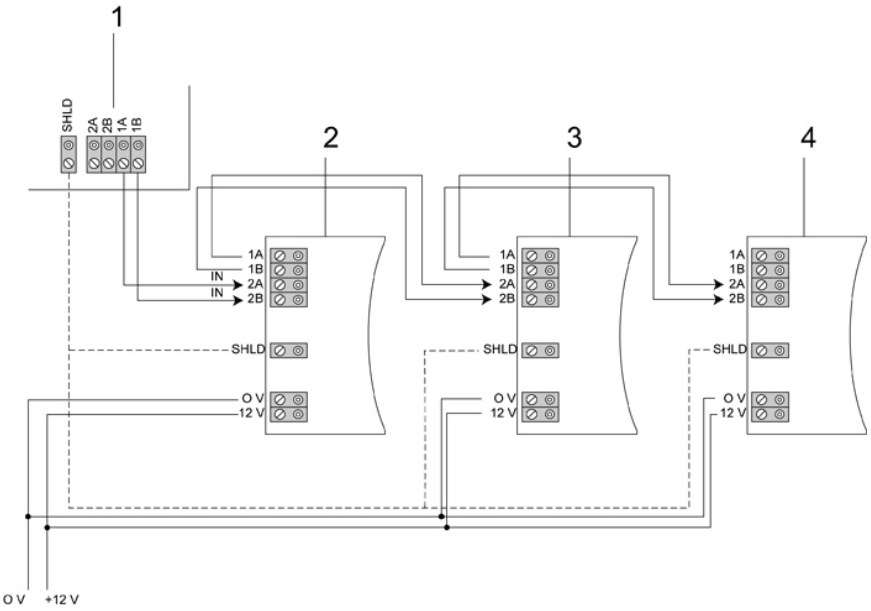
Numbering for the Expanders commences at the Expander nearest to the Controller and ends with the Expander connected farthest from the SPC Controller. Eg. if six Expanders are connected in an open loop configuration, then the nearest Expander on the X-BUS connection is Expander 1, the second nearest Expander is 2, etc. ending with the Expander wired farthest from the SPC Controller, which is Expander 6.

Within the open loop wiring configuration all Expanders/Keypads are fitted with a jumper, as default, allowing termination on the device.



1	Controller
2	Expander Three
3	Expander Two
4	Expander One

Fig. 5 Spur (Chain) Configuration

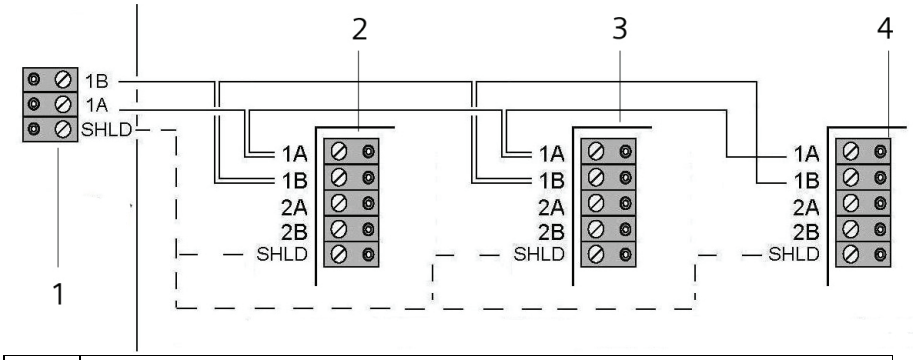


1	SPC Controller X-BUS Terminal Block
2	Expander Three
3	Expander Two
4	Expander One

Fig. 6 Open Loop (Spur) Configuration

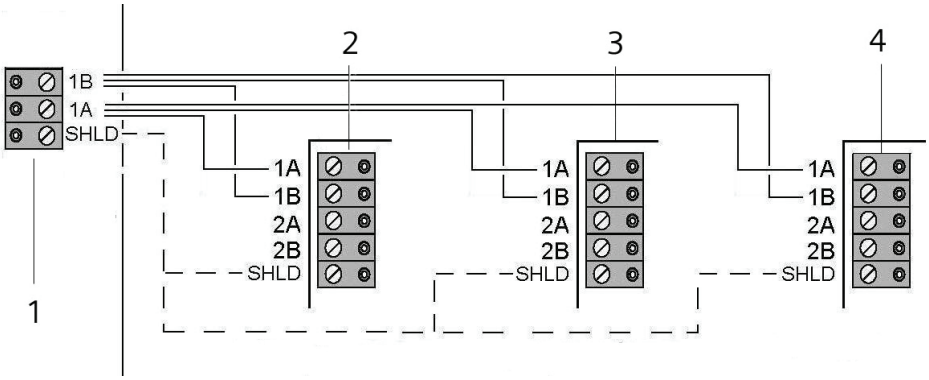
7.1.2 Star (Multi-drop) Configuration

The star cabling method is most effective with homes that are prewired with four-core cable. These configurations allow for a maximum cable length of 200 metres. A star configuration is established when multiple Expanders are wired back to the same input channel of the X-BUS on the SPC Controller. See wiring configuration in Fig. 7.



1	SPC Controller
2 - 4	Expanders

Fig. 7 Star Configuration



1	SPC Controller
2 - 4	Expanders

Fig. 8 Multi-Drop Configuration

The multi-drop configuration varies in that each Expander uses the same communication channel as it wires onto the next Expander, with all Expanders using the same input channel. See multi-drop configuration in Fig. 8.

A cable break in the X-BUS connection results in disconnection with the single Expander on that cable. All other Expanders are unaffected as there are separate communication paths. A short in the cable renders all Expanders disabled.

NOTE

On a Star wiring or Multi-Drop configuration, all Expanders should not have a jumper fitted (no termination).

NOTE

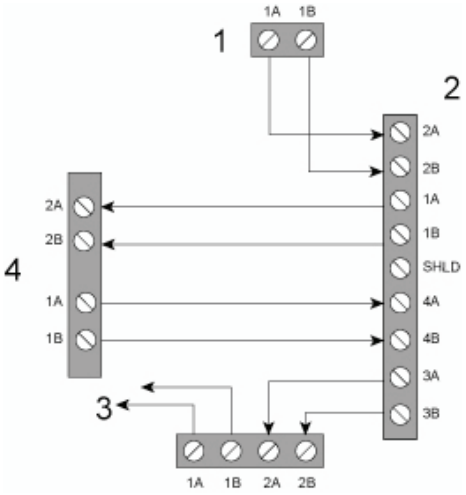
Cable Shielding

The shielding terminals (SH) should only be used for cables types with shielding (e.g. Belden 9829). If shielding is required (i.e. sites with high electric field interference) connect the cable shield to the SH terminals on the SPC Controller and all networked Expanders. Earth the SH terminal on the Controller ONLY. Do NOT earth the SH terminal on any of the Expanders.

7.2 Wiring of Branch Expander

The wiring of the X-BUS interface with eight terminals 1A/1B to 4A/4B provides for the connection of an additional branch Expander.

If the branch is not used then the terminals 1A/1B are used to connect to the next Expander/Keypad. Terminals 3A/3B 4A/4B are then not used. Branches are on all Expanders except Keypads.



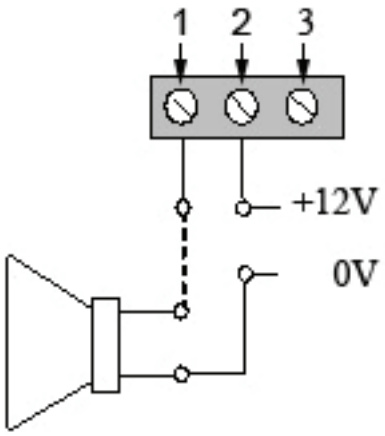
1	Previous Expander
2	Wireless Gateway Expander *(NOTE: Wireless features and devices will be available with a later market package.)*
3	Next Expander
4	Branch

Fig. 9 Wiring of a Branch Expander

7.3 Wiring the Relay Output

The SPC Controller has one on-board 1-Amp single pole changeover relay that can be assigned to any of the SPC system outputs. This relay output can switch a rated voltage of 30 V DC (non-inductive load).

When the relay is activated the Common terminal connection (COM) is switched from the Normally Closed terminal (NC) to the Normally Open terminal (NO).



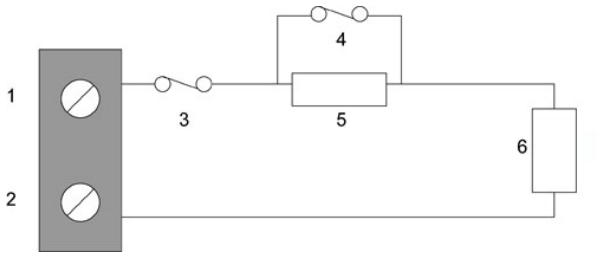
1	Normally Open terminal (NO)
2	Common terminal connection (COM)
3	Normally Closed terminal (NC)

Fig. 10 Standard Wiring

7.4 Wiring the Zone Inputs

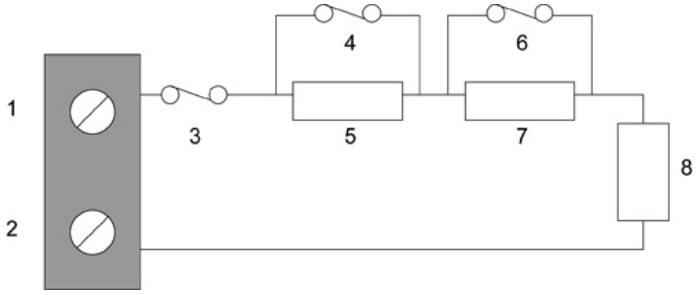
The SPC Controller has eight on-board zone inputs. By default these inputs are monitored using End of Line supervision. The installer can choose from:

- NEOL
- SEOL
- DEOL
- Anti-masking PIR



1	Input 1	**4**	Alarm
2	COM	**5**	Resistor
3	Tamper	**6**	4K7 EOL

Fig. 11 Default Configuration (DEOL 4K7)



1	Input 2	**5**	Alarm
2	COM	**6**	Anti-masking
3	Tamper	**7**	2K2
4	1K	**8**	EOL IK

Fig. 12 Anti-Masking PIR Configuration

Anti-Masking is only reported as "Alarm" type to ARC and if area or system is set.

Range	Value	Status
None	<100	Closed
	>300	Open
1K	<100	Short
	300 ↔ 9K0	Closed
	>10K	Open
2K2	<100	Short
	300 ↔ 9K0	Closed
	>10K	Open
4K7	<100	Short
	300 ↔ 9K0	Closed
	>10K	Open
1K0 470R	<100	Short
	300 ↔ 600	Closed
	1K1 ↔ 9K0	Open
	>10K	Discon
1K 1K	<100	Short
	300 ↔ 1K3	Closed
	1K6 ↔ 9K0	Open
	>10K	Discon
2K2, 2K2	<100	Short
	300 ↔ 2K8	Closed
	3K5 ↔ 9K0	Open
	>10K	Discon
2K7, 8K2	<100	Short
	300 ↔ 9K8	Closed
	10K2 ↔ 14K0	Open
	>15K	Discon
3K0, 3K0	<100	Short
	300 ↔ 3K9	Closed
	4K5 ↔ 9K0	Open
	>10K	Discon

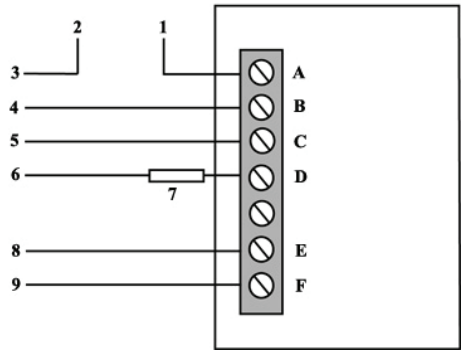
Range	Value	Status
3K3, 3K3	<100	Short
	300 ↔ 9K9	Closed
	4K5 ↔ 9K0	Open
	>10K	Discon
3K9, 8K2	<100	Short
	300 ↔ 10K6	Closed
	8K5 ↔ 14K0	Open
	>15K	Discon
4K7, 2K2	<100	Short
	300 ↔ 2K9	Closed
	4K8 ↔ 14K0	Open
	>15K	Discon
4K7, 4K7	<100	Short
	300 ↔ 6K1	Closed
	7K5 ↔ 14K0	Open
	>15K	Discon
5K6, 5K6	<100	Short
	300 ↔ 7K3	Closed
	8K9 ↔ 14K0	Open
	>15K	Discon
6K8, 4K7	<100	Short
	300 ↔ 6K1	Closed
	9K2 ↔ 14K0	Open
	>15K	Discon
MPIR, 2K2, 1K, 1K	<100	Short
	300 ↔ 1K3	Closed
	1K6 ↔ 2K5	Open
	2K7 ↔ 14K0	Mask
	>15K	Discon

Tab. 2 Shows the Resistance Ranges Associated with each Configuration

7.5 Wiring an External SAB Bell

On an external bell to the SPC Controller board the relay output is wired to the strobe input with Bell Hold Off (BHO) and Tamper Return (TR) connected to their respective inputs on the external bell interface.

A resistor (2K2) is pre-fitted on the SPC Controller board between the BHO and TR terminals. When wiring an external bell, connect this resistor in series from the TR terminal on the SPC Controller to the TR terminal on the external bell interface. For further details on wiring connections, consult the installation sheet of the SAB device.

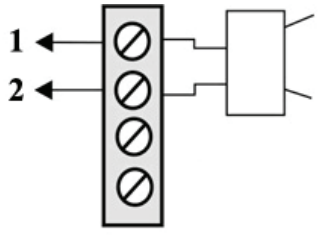


1	+12V	**9**	EXt +
2	Gnd		
3	COM	**A**	Strobe +
4	NO	**B**	Strobe -
5	BHO	**C**	Hold Off
6	TR	**D**	Tamper Return
7	2K2	**E**	Bell -
8	EXT-	**F**	Bell +

Fig. 13 External Bell Wiring

7.6 Wiring an Internal Sounder

To wire an internal sounder to the SPC controller connect the INT+ and INT– terminals directly to the 12 V Sounder input. Please consult the installation sheet of the Sounder device for further details on wiring connections.



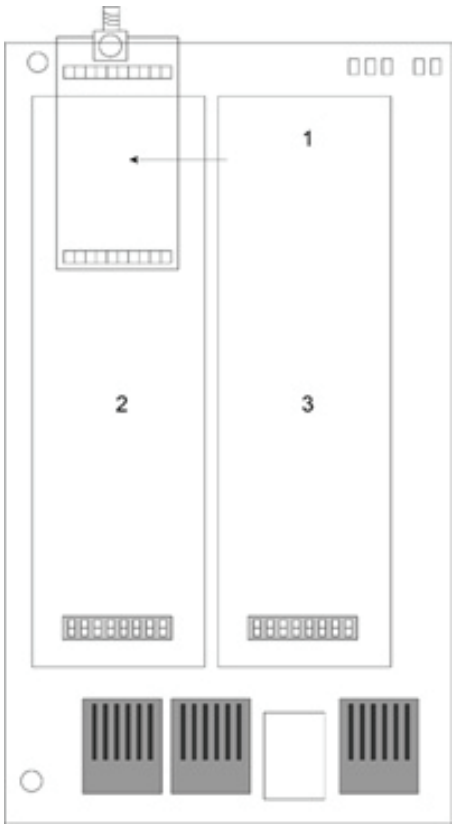
1	INT - (SPC controller)
2	INT + (SPC controller)

Fig. 14 Internal Sounder Wiring (12 V)

7.7 Installing Plug-in Modules

Two modem modules (PSTN or GSM) may be installed on the Controller board to increase functionality. Figure 24 shows the two slots available for each modem module, the primary (left) slot and the back-up (right) slot.

If both modem slots are available, always install the plug-in module in the primary slot; the system always attempts to make PSTN or GSM calls on a modem installed on the primary slot before attempting to use the back-up slot.



1	Wireless Receiver Slot (NOTE:*Wireless features and devices will be available with a later market package.)*
2	Primary Modem Slot
3	Back-Up Modem Slot

Fig. 15 Plug-in Modules

NOTE
For installation please refer to the corresponding Installation Instruction.

7.8 Wireless Receiver Module

Wireless features and devices will be available with a later market package.

7.8.1 Installing a Wireless Receiver Module

Wireless features and devices will be available with a later market package.

7.8.2 Installing an External Antenna

Wireless features and devices will be available with a later market package.

7.8.3 Installing an External Antenna with Mounting Bracket

Wireless features and devices will be available with a later market package.

8 Keypad User Interface

The Keypad is a wall-mounted user interface that allows the engineer to program the system through the Engineer Programming menus (password protected) and to set/unset the system; a user can control the system on a day-to-day basis. Three LEDs on the Keypad provide an indication of AC power, system alerts, and communications status.

The standard Keypad may be factory fitted with a Portable ACE (PACE) proximity device reader.

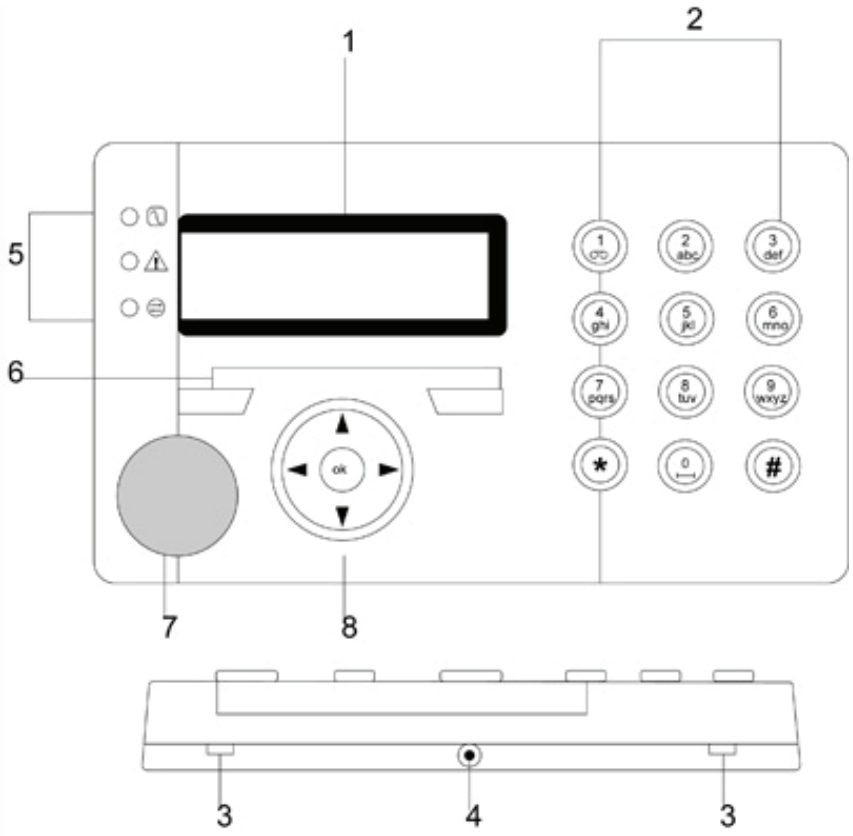


Fig. 16 SPC Basic LCD Keypad

1. **LCD Display:** The Keypad display (2 lines x 16 characters) shows all alert and warning messages and provides a visual interface for programming the system. The display can be adjusted fro contrast and under which conditions the backlight comes on.
2. **Alphanumeric Keys:** Alphanumeric keypad allow for both text and numeric data entry during programming. Alphabetic characters are selected by applying the appropriate number of key presses. To switch between upper and lower case characters, press the hash (#) key. To enter a numeric digit, hold down the appropriate key for two seconds.
3. **Leverage Access Tabs:** The leverage access tabs provide access to the Keypad back assembly clips. Users can unhinge these clips from the front

assembly by inserting a 5mm screwdriver into the recesses and pushing gently.

4. **Back Assembly Securing Screw:** This screw secures the front and back assemblies on the Keypad. This screw must be removed to open the Keypad.
5. **LED Status Indicators:** The LED status indicators provide information on the current status of the system.

LED	Description
AC Mains (Green) 	Indicates the presence or failure of the mains supply FLASHING: AC Mains fault detected STEADY: AC Mains OK
System Alert (Yellow) 	Indicates a system alert FLASHING: System Alert detected; display indicates the location and nature of alert. If the system is SET, then NO indication is given of system alerts OFF: No Alert detected; If a Keypad is assigned to more than one area, LED does not indicate an alert condition if any of those areas is SET
X-BUS Status (Red) 	Indicates the status of the X-BUS communications when in FULL ENGINEER programming Flashes regularly: (once every 1.5 seconds approx) indicates communications status is OK Flashes quickly: (once every 0.25 seconds approx) indicates the Keypad is the last expander on the X-BUS If the Keypad is being installed for the first time and power is supplied to it before a connection to the controller X-BUS interface is made, the LED remains in the ON state

Tab. 3 LED Status Indicator

6. **Soft Function Keys:** The left and right soft function keys are context sensitive keys to navigate through menus/programming.
7. **Proximity Device Receiver Area:** For SPCK421, users should present the Portable ACE Fob to within 1cm of this area to SET/UNSET the system.
8. **Multi-functional Navigation Key:** The multi-functional navigation key in combination with the Keypad display provides an interface for programming the system.

8.1 Keypad Display

TOP LINE OF DISPLAY

In the normal state, displays the current date and time.

In Programming Mode, this line displays one of the following:

→ The programming feature to be selected

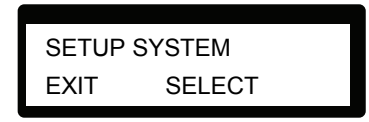
→ The current setting of the selected feature

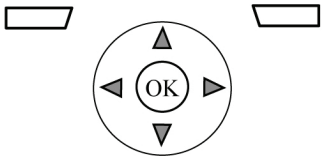
During an alert condition, this line displays the nature of the current alert

BOTTOM LINE OF DISPLAY

In the normal state, this line is blank.

In Programming Mode, this line displays options available to the user. These options align over the left and right soft keys for selection as required.





LEFT SOFT KEY

This key is used to select the option presented on the left side of the bottom line display.

Possible values are:

→ EXIT to exit programming

→ BACK to return to previous menu

RIGHT SOFT KEY

This key is used to select the option presented on the right side of the bottom line display.

Possible values are:

→ SELECT to select the option displayed on the top line

→ ENTER to enter the data displayed on the top line

→ SAVE to save a setting

MULTI-FUNCTION NAVIGATION KEY

OK The OK button acts as a SELECT key for the menu option displayed on the top line and also as an ENTER/SAVE key for data displayed on the top line.

In Programming Mode, the right arrow key advances the user through the menus in the same way as pressing the SELECT option (right soft key).

In data entry mode, press this key to move the cursor one position to the right.

In Programming Mode, the left arrow key returns the user to the previous menu level. Pressing this key when in the top menu level exits the user from programming.

In data entry mode, press this key to move the cursor one position to the left.

In Programming Mode, the up arrow key moves the user to a previous programming option in the same menu level. Continually press this key to scroll through all programming options available on the current menu level.

In alphanumeric mode, press this key over a lower case character to change the character to upper case.

In Programming Mode, the down arrow key moves the user to the next programming option in the same menu level. Continually press this key to scroll through all programming options available on the current menu level.

In alphanumeric mode, press this key over an upper case character to change the character to lower case.

8.2 Data entry on the SPC Keypad

Entering data and navigating the menus on the SPC Keypad is facilitated through the use of the programming interface. The use of the interface for each type of operation is detailed below.

8.2.1 Entering Numeric values

In numeric entry mode, only the numeric digits (0 - 9) can be entered.

- To move the position of the cursor one character to the left and right respectively, press the left and right arrow keys
- To exit from the feature without saving, press the BACK menu key
- To save the programmed setting press ENTER or OK

8.2.2 Entering Text

In Text Entry Mode, both alphabetic characters (A-Z) and numeric digits (0 – 9) can be entered.

- To enter an alphabetic character, press the relevant key the required number of times
- To enter a digit, hold the relevant key down for two seconds and release
- To move the position of the cursor one character to the left and right respectively, press the left and right arrow keys
- To exit from the feature without saving, press BACK
- To save the programmed setting press ENTER or OK
- To change the case of an alphabetic character, press the up or down arrow keys when the character is highlighted by the cursor
- To toggle between upper and lower case for all subsequent characters, press the hash (#) key
- To delete character to the left of the cursor, press the star key(*)

8.2.3 Selecting a Programming Option

In navigation mode, the Engineer/User selects one of a number of pre-defined programming options from a list.

- To scroll through the list of options available for selection, press the up and down arrow keys
- To exit from the feature without saving, press BACK
- To save the selected option, press SAVE or OK

9 Starting the System

The SPC system must be installed by an authorised installation engineer. To do so, wire the keypad to the X-BUS interface on the SPC Controller. To enter Engineer Programming, enter the default engineer code (1111). The programming tools to configure the system are available in engineer programming and are accessible from the Keypad or SPC Pro.

9.1 Engineer Modes

The SPC system works under two Programming modes for authorised installation engineers: Full and Soft.

Full Engineer Mode

Full Engineer mode provides extensive programming functionality. However, programming in Full Engineer mode disables all alarm settings, reports and output programming for the system. For full review of Full Engineer menu options, refer to Appendix C: Keypad Full Engineer Menu.

All alerts, faults and tampers must first be isolated or cleared before exit from the Full Engineer mode is allowed.

[Soft] Engineer Mode

Soft Engineer mode provides fewer programming functionality and does not affect any outputs programmed in the system. For full review of [soft] Engineer menu options, refer to Appendix B: Keypad Engineer Menu.

9.2 Programming Tools

Once the SPC system has been installed, configuration and use may be done using the keypad or the SPC Pro software. Both tools work independently.

The **Keypad** is quick onsite navigation of menus and programming. The authorised installation engineer must set initial default configurations using the Keypad. Programming of proximity card/device reader and assignment to users also must be done using the Keypad.

SPC Pro is a SDK application providing the ability to program configurations on or offline. SPC Pro programming provides additional advanced communication and X10 functionality not found on the Keypad.

9.2.1 Fast Programmer

The SPC Fast Programmer is a portable storage device that provides the engineer with the ability to upload and download configuration files in a quick and convenient manner. Fast Programmer can be used in conjunction with he above programming tools. For more details, refer to Section 13 Using the Fast Programmer.

9.3 Configuring Start-up Settings

The installation engineer sets the start-up configuration. These settings can be changed at a later time. An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

To configure the system start-up settings:

1. The first item that appears on the Keypad is the version number of the SPC system. The Keypad prompts the user to press a key.

2. Enter the date and time on the subsequent two screens.

3. Using the up/down arrow keys, choose the appropriate REGION. Choose IRELAND, EUROPE, or UK and press SELECT.

4. Choose a type of installation: DOMESTIC or COMMERCIAL. The Domestic setting is appropriate for home use: houses and apartments. Commercial setting provides additional zone types and commercial zone descriptions for the first eight zones.

For more details see 16.7 Appendix H: Domestic and Commercial Mode Default Settings

➔ X-BUS configuration is detected.

5. Scroll if changing configuration.
X-BUS wiring configuration is detected.

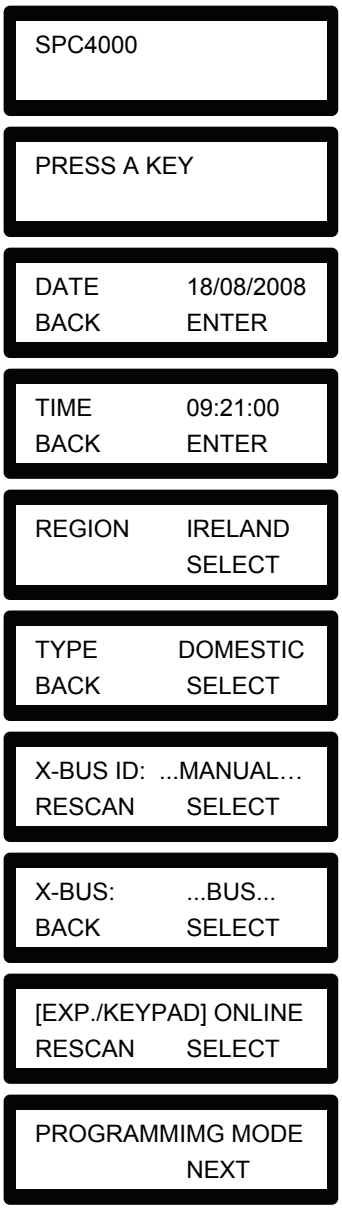
6. Scroll if changing the wiring configuration.

➔ The system scans for Expanders/Keypads that are wired into the system and displays the Expander/Keypad ID(s) number(s) that have been added.

7. Press NEXT for each status as well as for relative Zones.

➔ Start-up settings are complete.

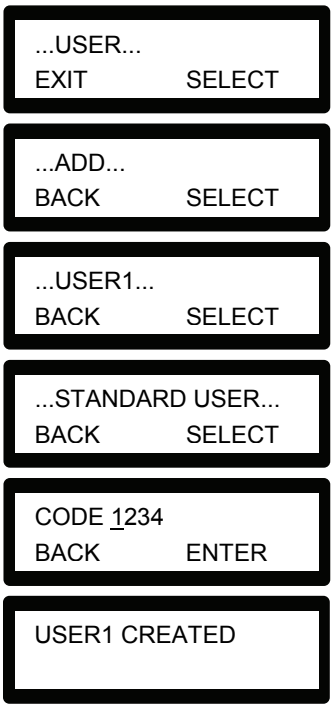
8. Enter the default programming code (1111) to start configuring the system.



9.4 Creating System Users

By default the SPC system only allows engineer access on the system. The engineer must create a user profile to allow on-site users to Set, Unset, and perform basic operations on the system as required. An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

To create a user:



1. Enter the Engineer Programming code (default 1111).

2. Using the up/down arrow keys, scroll to the USERS option.

3. Press SELECT.

➔ The option to ADD a user is displayed.

4. Press SELECT.

➔ The system generates and displays next available user name.

5. Press SELECT to use the default name and numbers displayed, or use the Keypad to enter a customized user name and press SELECT.

6. There are three types of users available: STANDARD USER, MANAGER, or LIMITED USER. Scroll to the preferred type and press SELECT. Note that these profiles are defaults and can be changed.
The system generates a default code for each new user. To change this code, overwrite the digits shown in the initial digits field.

7. Enter the user code that will be assigned to the new user and press SELECT.

Where User Duress feature is enabled, consecutive user codes (i.e. 2906, 2907) are not permitted, as entering this code from the Keypad would activate a user duress event.

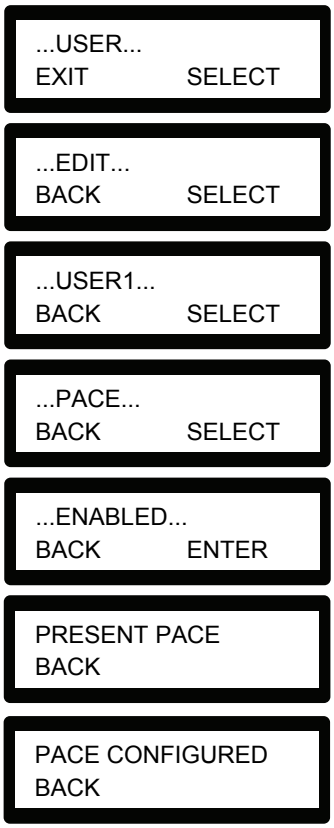
➔ The Keypad confirms that the new user has been created.

9.5 Configuring and Using the Portable ACE Profile

The SPC Keypad can be configured with a proximity card/device reader. Users whose profiles are configured as such may remotely SET or UNSET the system, as well as conduct programming, depending on the level of profile. When a proximity device has been programmed on the Keypad, the user has the ability to set or unset the system or enter User Programming by presenting the device within 1cm of the receiver area on the keypad.

To program a Portable ACE on the Keypad:

1. Enter the Engineer Programming code (default 1111).
2. Using the up/down arrow keys, scroll to the USERS option.
3. Press SELECT.
4. Select the EDIT option and select the USER1 from the list.
5. Scroll to the PACE option and press SELECT.
6. Toggle for ENABLE and DISABLE of the PACE functionality.
   ➔ The Keypad flashes PRESENT PACE on the top line display.
7. Position the PACE fob within 1cm of the receiver area on the Keypad.
   ➔ The keypad indicates that the device has been registered by displaying PACE CONFIGURED.



To disable a Portable ACE on the system:

1. Enter the Engineer Programming code (default 1111).
2. Using the up/down arrow keys, scroll to the USERS option.
3. Press SELECT.
4. Select the EDIT option and select the USER1 from the list.
5. Scroll to the PACE option and press SELECT.
6. Toggle to the DISABLED option
   ➔ The Keypad indicates UPDATED.

9.6 Configuring 868MHz Wireless Fob Devices

Wireless features and devices will be available with a later market package.

9.6.1 Clearing Alerts Using the Wireless FOB Device

Wireless features and devices will be available with a later market package.

10 Engineer Programming Via the Keypad

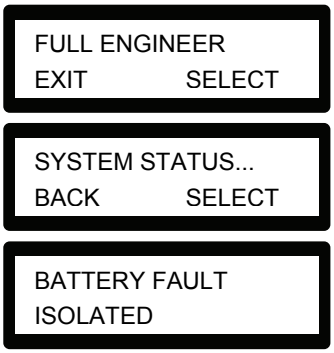
The Keypad is quick onsite navigation of menus and programming. The Engineer default code is 1111 and should be used only by authorised engineers. An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

10.1 System Status

The System Status feature displays all faults on the system.

To view these faults:

1. Enter the Engineer Programming code (default 1111).
2. Press SELECT for FULL ENGINEER programming.
   ➔ SYSTEM STATUS option appears.
3. Press SELECT.
   ➔ All detected faults on the system are displayed in turn on the display.



NOTE
Users cannot exit from FULL ENGINEER menus if there are any alert conditions displayed in the system status menu.

10.2 Configuring Communication Modules

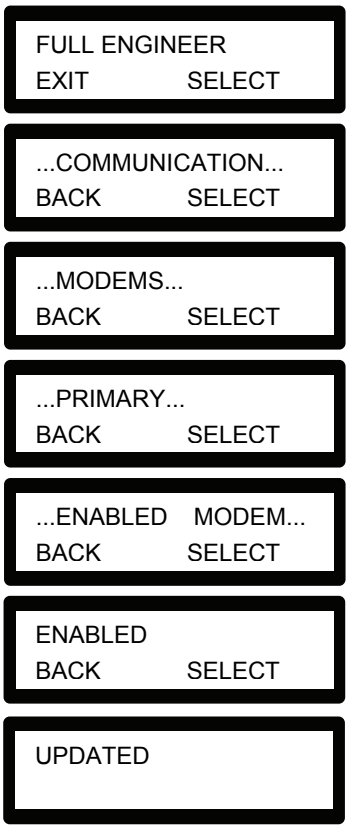
The SPC system supports the SPC intell-modems for communications with analogue lines and mobile network interfacing for enhanced communications and connectivity. The SPC system must be configured accordingly.

10.2.1 Configuring a GSM or PSTN Modem

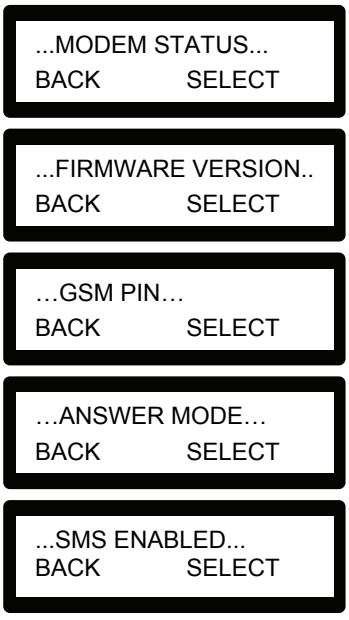
Before changing PIN or new SIM card, ensure all power sources are disconnected (AC mains and battery) or card will not be activated.

To configure a GSM modem:

1. Enter the Engineer Programming code (default 1111).
2. Press SELECT for FULL ENGINEER programming.
3. Using the up/down arrow keys, scroll to COMMUNICATION> MODEMS programming option.
4. Press SELECT.
5. Toggle between PRIMARY and BACKUP for correct modem slot and press SELECT.
   The ENABLE MODEM option is displayed.
6. Press SELECT and toggle between ENABLED and DISABLED for the preferred setting and press SELECT.
   ➔ Modem is enabled/disabled and UPDATED displays.



1. Scroll from this modem menu to MODEM STATUS.
2. Press SELECT to view the status of the modem.
   The FIRMWARE VERSION option is displayed.
3. Press SELECT to view the version of firmware.
4. Select GSM/PSTN PIN to enter the PIN code for the SIM card.
5. Select ANSWER MODE to enter the manner the modem answers incoming calls.
6. Select SMS ENABLE to enable SMS text messages to mobile phones.



Before changing PIN or new SIM card, ensure all power sources are disconnected (AC Mains and battery) or card will not be activated.

To configure a PSTN modem:

1. Enter the Engineer Programming code (default 1111).

2. Press SELECT for FULL ENGINEER programming.

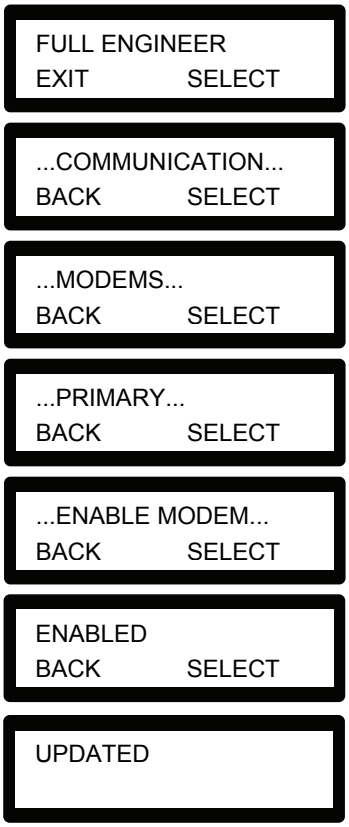
3. Using the up/down arrow keys, scroll to COMMUNICATION> MODEMS programming option.

4. Press SELECT.

5. Toggle between PRIMARY and BACKUP for correct modem slot and press SELECT.
The ENABLE MODEM option displays.

6. Press SELECT and toggle between ENABLED and DISABLED for the preferred setting and press SELECT.

➔ Modem is enabled/disabled and UPDATED displays.



1. Scroll from this modem menu to MODEM STATUS.

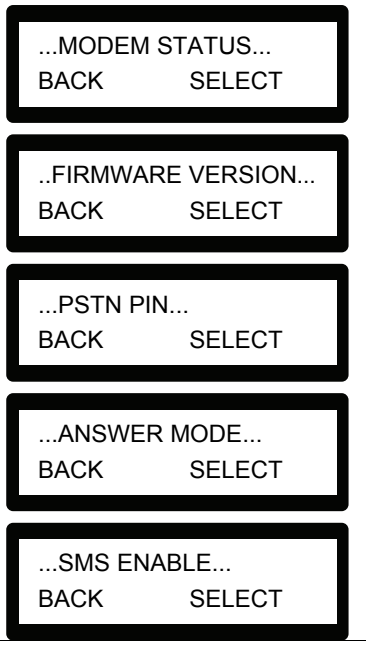
2. Press SELECT to view the status of the modem.
The FIRMWARE VERSION option is displayed.

3. Press SELECT to view the version of firmware.

4. Select GSM/PSTN PIN to enter the PIN code for the SIM card.

5. Select ANSWER MODE to enter the manner the modem answers incoming calls.

6. Select SMS ENABLE to enable SMS text messages to mobile phones.



NOTE

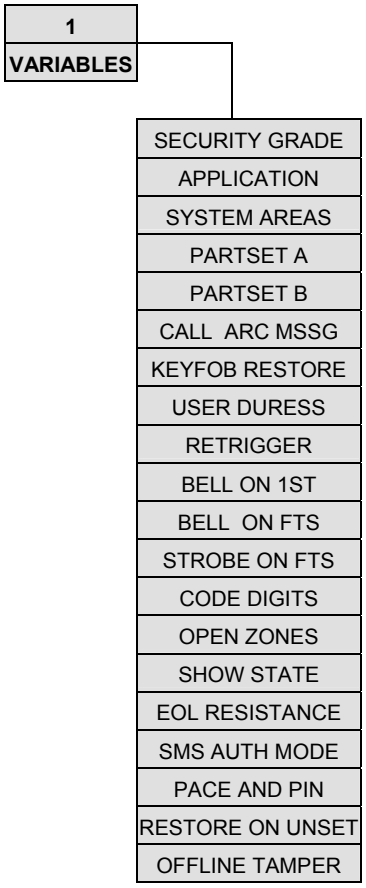
When a PIN is programmed on the GSM module, it is sent to the SIM card. It is also sent every time the GSM module is powered up (this is the same operation as a GSM phone).

If an incorrect PIN is sent to the SIM card three times, the SIM is **blocked**. If this happens, it is recommended that the SIM card be removed and unblocked using a mobile phone. If the SIM card is being changed on the GSM module or if a SIM card is being used with a PIN, it is recommended that the PIN code be programmed **before** it is placed in the SIM holder, to ensure that incorrect PINs are not sent to it.All power should be **removed** (AC Mains and Battery) when loading the SIM card into the SIM holder.

10.3 Variables

The variables are programmable from the keypad under the VARIABLES menu in Tab. 4 and the PSC Pro.

Tab. 5 reveals its location in the Full Engineer menu.



Tab. 4 System Options under the VARIABLES Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

Tab. 5 Location of Variable Menu in Full Engineer Menu

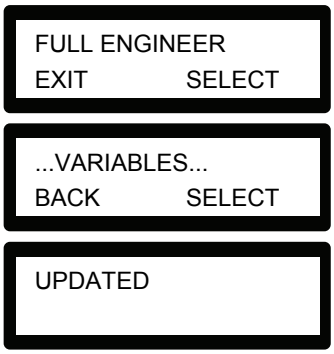
Variable	Description	Default
SECURITY GRADE	The Security Grade of the SPC4000 Installation is determined by the setting of this variable. For further details on security grade requirements see [1]. Security Grade: Choose between Engineer, Grade 2, or Grade 3 Security Country: Choose between Ireland, Europe, or UK.	Grade: 2 Country: n/a
APPLICATION	The Application variable determines whether SPC is being installed for use in a commercial business or a private residence. Choose between Commercial or Domestic	Domestic
SYSTEM AREAS	The SPC system may be installed in a building that is partitioned into distinct and separate areas of operation. To cater for the requirements of these installations, the SPC supports the use of multiple areas. Setting the SYSTEM AREAS variable to enabled allows the engineer to define two or more areas on the system.	Disabled
PARTSET A TIMED	The PARTSET A TIMED variable provides the PARTSET A alarm mode with exit time functionality by triggering the EXIT TIMER as soon as PARTSET A is set.	Enabled
PARTSET B TIMED	The PARTSET B TIMED variable provides the PARTSET B alarm mode with exit time functionality by triggering the EXIT TIMER as soon as PARTSET A is set.	Enabled
PARTSET A ACCESS TO E/EXIT	Enable this variable to automatically change zones with the Access attribute set to entry/exit zones when Partset A alarm mode is activated.	
PARTSET B ACCESS TO E/EXIT	Enable this variable to automatically change zones with the Access attribute set to entry/exit zones when Partset B alarm mode is activated.	
PARTSET A E/EXIT TO ALARM	Enable this variable to automatically change entry /exit zones to alarm zones when Partset A alarm mode is activated.	
PARTSET B E/EXIT TO ALARM	Enable this variable to automatically change entry /exit zones to alarm zones when Partset B alarm mode is activated.	
PARTSET A RENAME	Enter a text description for the Partset A alarm mode.	
PARTSET B RENAME	Enter a text description for the Partset B alarm mode.	
PART A LOCAL	Enable this variable to ensure alarms activated in Partset A alarm mode do not report the alarm activation to a remote central station.	
PART B LOCAL	Enable this variable to ensure alarms activated in Partset B alarm mode do not report the alarm activation to a remote central station.	
CALL ARG MSSG	The Confirmation variable determines when an alarm is deemed to be a confirmed alarm. Garda: This enforces the policies for confirmed alarm required by the Irish Garda. DD243: This enforces compliance with the UK Police requirements, and is a specific requirement for UK commercial installations.	
KEYFOB RESTORE	The Keyfob Restore variable allows the user to restore alert functionality remotely.	
USER DURESS	The User Duress variable allows the user to report a User Duress event while entering a user code on the Keypad. This feature is particularly useful for locations where the threat of physical force or coercion by a third party is a real possibility.	
RETRIGGER	The retrigger variable determines if bells/sirens will resound after a second zone activation is detected.	
BELL ON 1ST	The Bell on 1st variable determines the manner in which internal and external bell outputs are activated.	
BELL ON FTS	The Bell on FTS variable provides a mechanism to inform a user who has just set the alarm that the system has failed to set, after that user has exited the building.	
STROBE ON FTS	The Strobe on FTS variable provides a visual mechanism to inform a user who has just set the alarm that the system has failed to set, after that user has exited the building.	
CODE DIGITS	The code digits variable assigns the number of digits for both user and engineer pass codes.	
OPEN ZONES	This variable determines if open zones are shown when the system is in the Unset state without any events.	
SHOW STATE	This variable determines whether the armed status (Set or Unset mode) of the system is displayed permanently on the second line of the Keypad.	
EOL RESISTANCE	Allows the engineer to program the End Of Line [EOL] resistance configuration for all inputs connected to the system in one simple action. The engineer can select whether the EOL on all NEW zones only, or if ALL new and existing zones are to be programmed by choosing the appropriate option.	

Variable	Description	Default
SMS AUTH MODE	This variable indicates the login procedure required for SMS functionality.	
PACE AND PIN	This variable determines the login requirements for a user.	
RESTORE ON UNSET	This variable allows user to unset and restore alarm functionality at the same time.	
OFFLINE TAMPER	This creates a tamper for when zones are offline.	

Tab. 6 Variables and Descriptions

NOTE
The programming options displayed in the VARIABLES menu vary depending on the security grade of the system.

This section provides programming steps found within Variables using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the first menu option VARIABLES:



1. Enter the Engineer Programming code (default 1111).
2. Press SELECT for FULL ENGINEER programming.
3. Using the up and down arrow keys, scroll to VARIABLE programming option.
   ➔ An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.
   ➔ Upon completion of the programming options, the Keypad displays UPDATED momentarily.

10.3.1 Security Grade

To program the security grade details:

1. Scroll to SECURITY GRADE programming option.
2. Press SELECT and choose from one of the 3 security grade options:
   – Grade 2 (Conforms to Security Grade 2 requirements)
   – Grade 3 (Conforms to Security Grade 3 requirements)
   – Engineer configure (When a system is in Grade 2 or Grade 3 and the engineer selects engineer configure the system remains compliant to previous grade setting. Once options are changed under Engineer configure, the system may or may not be compliant. Any changes away from standards should be noted as deviation and agreed with end customer.)

If Grade 2 or 3 is selected, a list of countries is displayed; the country setting of the system sets the market specific security requirements for the installation in accordance with the country specific standards [2], [3].

3. Scroll to the appropriate country setting: IRELAND, EUROPE, or UK and press SAVE.

10.3.2 Application

To program application type:

1. Scroll to APPLICATION programming option.
2. Press SELECT and scroll to the appropriate application setting:
   - Domestic: Suitable for domestic installations (see 14.2, Domestic Mode Operation)
   - Commercial: Suitable for commercial installations (see Section 14.1, Commercial Mode Operation)
3. Press SAVE.

   ➔ The Keypad displays UPDATED momentarily.

10.3.3 System Areas

To enable System Areas:

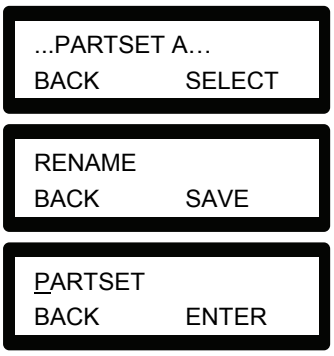
1. Press SELECT.
2. Toggle the setting between DISABLED and ENABLED.
3. Press SAVE.

10.3.4 Partset A / Partset B

To rename the PARTSET A or B option:

1. Scroll to the PARTSET A or PARTSET B programming option.
2. Press SELECT.

   ➔ The option to RENAME displays.
3. Press SELECT and use the Keypad to enter the preferred name.
4. Press ENTER to save new name.



10.3.5 Call ARC Mssg

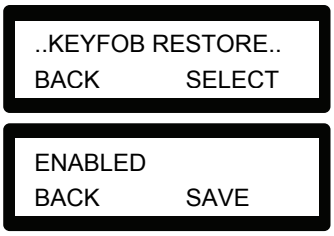
To enable the Call ARC Message and to enter details:

1. Scroll to the CALL ARC MESSAGE programming option.
2. Press SELECT.
   ➔ The DISPLAY MESSAGE option displays.
3. Press SELECT.
4. Toggle between ENABLED and DISABLED for preferred option.
5. Press BACK and scroll to the next setting: MESSAGE DETAIL 1.
6. Press SELECT.
7. Use the Keypad to enter the preferred message detail.
8. Press ENTER to save.

10.3.6 Keyfob Restore

To enable or disable the Keyfob Restore feature:

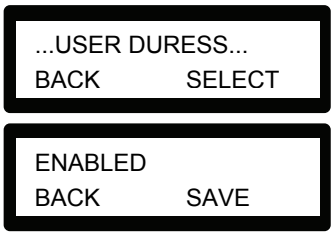
1. Scroll to the KEYFOB RESTORE programming option.
2. Press SELECT.
3. Toggle between ENABLED and DISABLED for preferred option.
4. Press SAVE to update the setting.



10.3.7 User Duress

To enable or disable the User Duress feature:

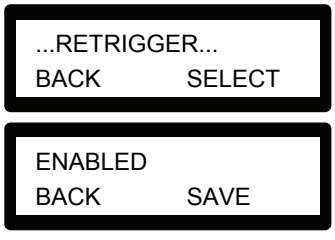
1. Scroll to the USER DURESS programming option.
2. Press SELECT.
3. Toggle between ENABLED and DISABLED for preferred option.
4. Press SAVE to update the setting.



10.3.8 Retrigger

To enable or disable the Retrigger feature:

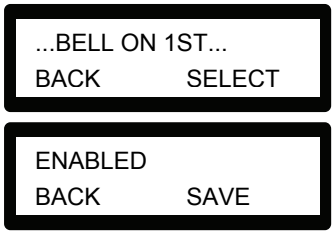
1. Scroll to the RETRIGGER programming option.
2. Press SELECT.
3. Toggle between ENABLED and DISABLED for preferred option.
4. Press SAVE to update the setting.



10.3.9 Bell on 1st

To enable or disable the Bell on 1st feature:

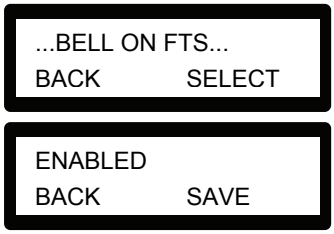
1. Scroll to the BELL ON 1ST programming option.
2. Press SELECT.
3. Toggle between ENABLED and DISABLED for preferred option.
4. Press SAVE to update the setting.



10.3.10 Bell on Failed to Set (FTS)

To enable or disable the Bell on Failed to Set (FTS) feature:

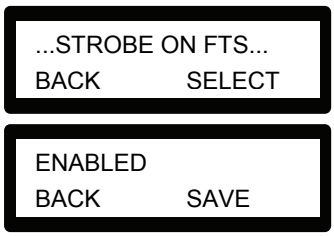
1. Scroll to the BELL ON FTS programming option.
2. Press SELECT.
3. Toggle between ENABLED and DISABLED for preferred option.
4. Press SAVE to update the setting.



10.3.11 Strobe on Failed to Set (FTS)

To enable or disable the Strobe on Failed to Set (FTS) feature:

1. Scroll to the STROBE ON FTS programming option.
2. Press SELECT.
3. Toggle between ENABLED and DISABLED for preferred option.
4. Press SAVE to update the setting.



10.3.12 Code Digits

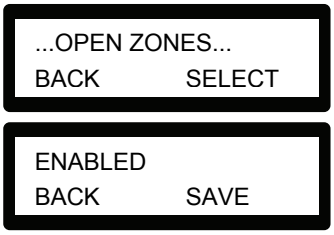
To program the number of code digits:

1. Scroll to the CODE DIGITS programming option.
2. Press SELECT.
3. Scroll to the preferred number of code digits (4 through 8).
4. Press SAVE to update the setting.

10.3.13 Open Zones

To enable or disable the open zones feature:

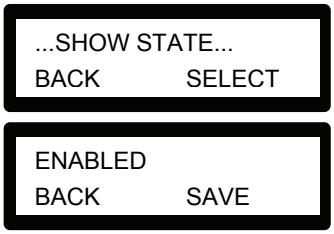
1. Scroll to the OPEN ZONES programming option.
2. Press SELECT.
3. Toggle between ENABLED and DISABLED for preferred option.
4. Press SAVE to update the setting.



10.3.14 Show State

To enable or disable the show state feature:

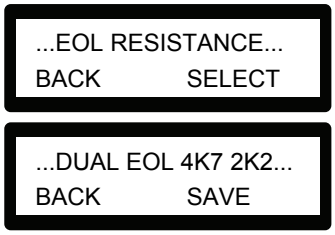
1. Scroll to the SHOW STATE programming option.
2. Press SELECT.
3. Toggle between ENABLED and DISABLED for preferred option.
4. Press SAVE to update the setting.



10.3.15 EOL Resistance

To set the EOL Resistance:

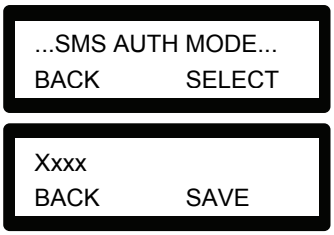
1. Scroll to the EOL RESISTANCE programming option.
2. Press SELECT.
3. Scroll to the desired EOL Resistance settings. For more detail on settings refer to Section 7.4, Wiring the Zone Inputs.
4. Press SAVE to update the setting.



10.3.16 SMS Auth Mode

To set the SMS Auth Mode:

1. Scroll to the SMS Auth Mode programming option.
2. Press SELECT.
3. Scroll to the desired xxxx settings.
4. Press SAVE to update the setting.



10.3.17 Pace and Pin

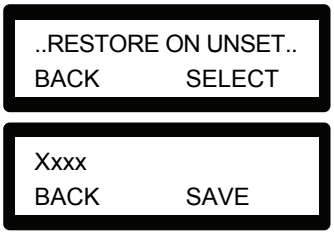
To set the Pace and Pin:

1. Scroll to the SMS Auth Mode programming option.
2. Press SELECT.
3. Scroll to the desired xxxx settings.
4. Press SAVE to update the setting.

10.3.18 Restore on Unset

To set Restore on Unset:

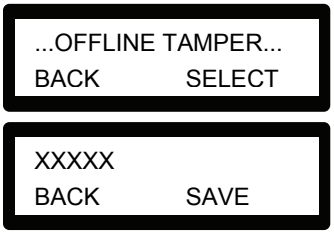
1. Scroll to the SMS Auth Mode programming option.
2. Press SELECT.
3. Scroll to the desired xxxx settings.
4. Press SAVE to update the setting.



10.3.19 Offline Tamper

To set the EOL Resistance:

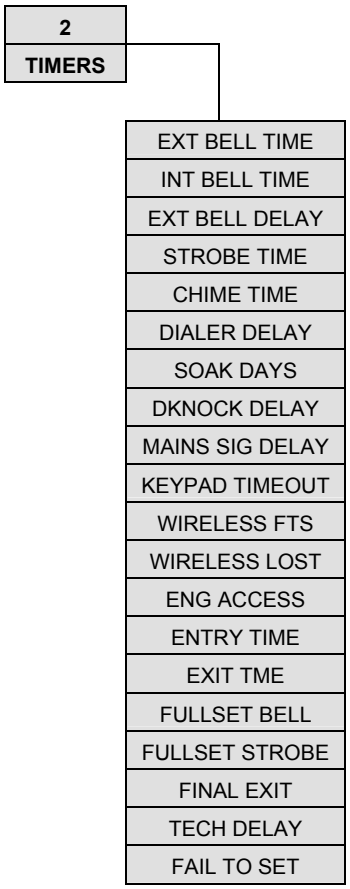
1. Scroll to the OFFLINE TAMPER programming option.
2. Press SELECT.
3. Scroll to the desired XXXX settings. For more detail on settings refer to Section 7.4, Wiring the Zone Inputs.
4. Press SAVE to update the setting.



10.4 Timers

System options are available from the Keypad under the TIMERS menu in Tab. 7 listed below.

Tab. 8 reveals its location in the Full Engineer menu.



Tab. 7 System Options under the TIMERS Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

Tab. 8 Location of TIMERS Menu in the Full Engineer Menu

Timer	Description	*Default
EXTERNAL BELL TIME	Duration that external sounders will sound when alarm is activated (Note: minimum bell time is 90 seconds)	15
INTERNAL BELL TIME	Duration that Internal sounders will sound when alarm is Activated	15
EXTERNAL BELL DELAY	Causes a delayed activation of the external bell	0
STROBE TIME	Duration that the strobe output is active when an alarm is Activated	15
CHIME TIME	Number of seconds that a chime output will activate, when a zone with CHIME attribute opens	2
DIALLER DELAY	The dialler delay initiates a pre-defined delay period (0 -30 seconds) before the system dials out to an Alarm Receiving Centre. This is specifically designed to reduce unwarranted responses from Alarm Receiving Centres and the constabulary. In the event of a subsequent zone being tripped, the dialler delay period is ignored and the dialler dials out immediately.	30
SOAK DAYS	The number of days a zone remains under soak test before it automatically returns to normal operation	14 Days
DOUBLE KNOCK	The maximum delay between activations of zones with the double attribute, which causes an alarm	10 Seconds
MAINS SIGNAL DELAY	The time after a Mains fault has been detected before an alert is activated by the system	0 Minutes
KEYPAD TIMEOUT	The number of seconds that an RKD will wait for key entry before it leaves the current menu	30 Seconds
WIRELESS FAILED TO SET (FTS)*	The number of minutes without supervision that will prevent arming **Wireless features and devices will be available with a later market package.*	0 Minutes
WIRELESS LOST*	The number of minutes without a supervision signal being received by the SPC Controller before it reports the sensor as being lost ** Wireless features and devices will be available with a later market package.*	720 Minutes
ENGINEER ACCESS TIME	The time period engineer access is permitted; this timer starts as soon as the user selects ALLOW ENGINEER in the GRANT ACCESS user menu option	0 Minutes
ENTRY TIME	The time period allowed for the user to UNSET the alarm, having opened an entry/exit zone of an armed system	45 Seconds
EXIT TIME	The time period allowed for the user to exit the building after having set the system	45 Seconds
BELL ON FULLSET	Activates the external bell momentarily to indicate a full set condition	0 Seconds
STROBE ON FULLSET	Activates the strobe on the external bell momentarily to indicate a full set condition	0 Seconds
FINAL EXIT TIME	The number of seconds arming is delayed after a zone programmed with the final exit attribute is closed	7 Seconds
TECH DELAY	The number of seconds before attributes for tech zones are activated	0 Seconds
FAIL TO SET	The number of seconds before the system notifies user of a Fail to Set status following attempt to set alarm	10 Seconds

Tab. 9 Timers

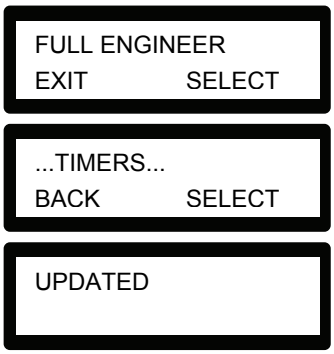
NOTE

Default times are dependent upon the Engineer configuration.

* The default times denoted may or may not be allowable and is dependent on the configuration by the Engineer.

This section provides programming steps found within TIMERS using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the menu option TIMERS:

1. Enter the Engineer Programming code (default 1111).
2. Press SELECT for FULL ENGINEER programming.
3. Using the up and down arrow keys, scroll to TIMERS programming option.



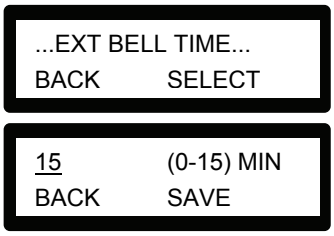
➔ An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

➔ Upon completion of the programming options, the Keypad displays UPDATED momentarily.

10.4.1 Ext Bell Time

To set the external bell time:

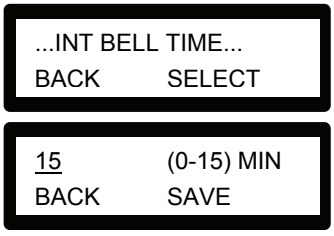
1. Scroll to the EXT BELL TIME programming option.
2. Press SELECT.
3. Enter the preferred time (0-15 mins)
4. Press SAVE to update the setting.



10.4.2 Int Bell Time

To set the internal bell time:

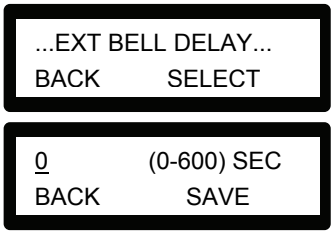
1. Scroll to the INT BELL TIME programming option.
2. Press SELECT.
3. Enter the preferred time (0-15 mins)
4. Press SAVE to update the setting.



10.4.3 Ext Bell Delay

To set the external bell delay:

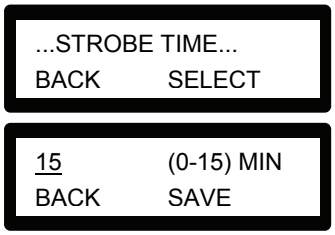
1. Scroll to the EXT BELL DELAY programming option.
2. Press SELECT.
3. Enter the preferred time (0-600 secs)
4. Press SAVE to update the setting.



10.4.4 Strobe Time

To set the strobe time:

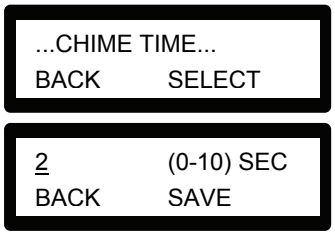
1. Scroll to the STROBE TIME programming option.
2. Press SELECT.
3. Enter the preferred time (0 - 15 mins)
4. Press SAVE to update the setting.



10.4.5 Chime Time

To set the chime time:

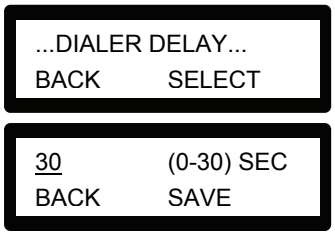
1. Scroll to the CHIME TIME programming option.
2. Press SELECT.
3. Enter the preferred time (0-10 sec)
4. Press SAVE to update the setting.



10.4.6 Dialler Delay

To set the dialler delay:

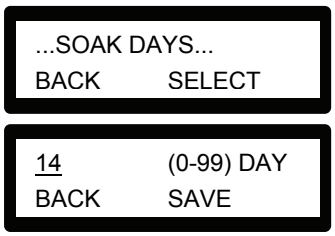
1. Scroll to the DIALER DELAY programming option.
2. Press SELECT.
3. Enter the preferred time (0-30 sec).
4. Press SAVE to update the setting.



10.4.7 Soak Days

To set the number of soak days:

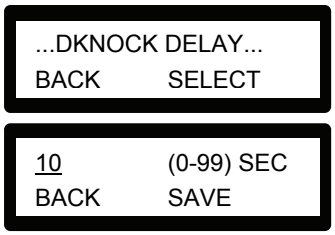
1. Scroll to the SOAK DAYS programming option.
2. Press SELECT.
3. Enter the preferred number of days (1-99).
4. Press SAVE to update the setting.



10.4.8 Dknock Delay

To set the dknock delay:

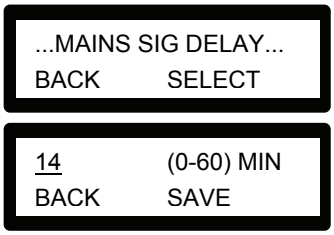
1. Scroll to the DKNOCK DELAY programming option.
2. Press SELECT.
3. Enter the preferred time (0-99 sec).
4. Press SAVE to update the setting.



10.4.9 Mains Sig Delay

To set the mains sig delay:

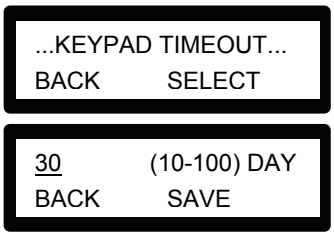
1. Scroll to the MAINS SIG DELAY programming option.
2. Press SELECT.
3. Enter the preferred time (0-60 min).
4. Press SAVE to update the setting.



10.4.10 Keypad Timeout

To set the keypad timeout:

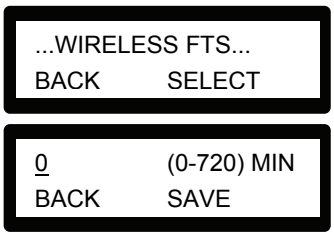
1. Scroll to the KEYPAD TIMEOUT programming option.
2. Press SELECT.
3. Enter the preferred time (10-300 DAY).
4. Press SAVE to update the setting.



10.4.11 Wireless Fail to Set (FTS)*

To set the wireless fail to set (FTS) setting:

1. Scroll to the WIRELESS FTS programming option.
2. Press SELECT.
3. Enter the preferred time (0-720 min).
4. Press SAVE to update the setting.



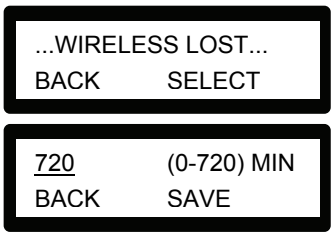
** Wireless features and devices will be available with a later market package.*

10.4.12 Wireless Lost*

To set the wireless lost setting:

1. Scroll to the WIRELESS LOST programming option.
2. Press SELECT.
3. Enter the preferred time (0-720 min).

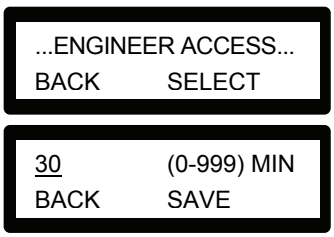
**Wireless features and devices will be available with a later market package.*



10.4.13 Engineer Access

To permit an engineer access to the system, use this setting:

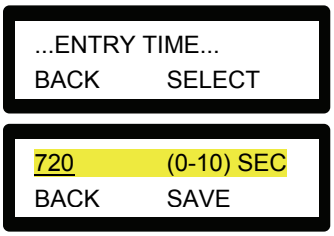
1. Scroll to the ENGINEER ACCESS programming option.
2. Press SELECT.
3. Enter the preferred time (0-999 min).
4. Press SAVE to update the setting.



10.4.14 Entry Time

To set the entry time setting:

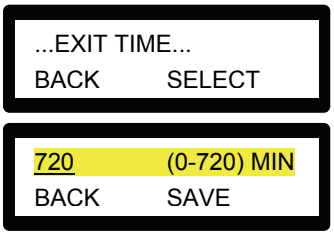
1. Scroll to the ENTRY TIME programming option.
2. Press SELECT.
3. Enter the preferred time (XX-XXX sec).
4. Press SAVE to update the setting.



10.4.15 Exit Time

To set the exit time setting:

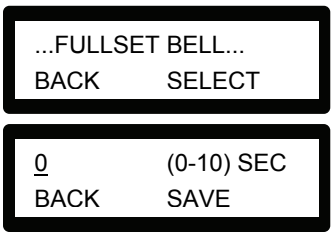
1. Scroll to the EXIT TIME programming option.
2. Press SELECT.
3. Enter the preferred time (0-720 min).
4. Press SAVE to update the setting.



10.4.16 Fullset Bell

To set the fullset bell setting:

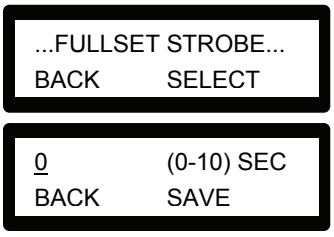
1. Scroll to the FULLSET BELL programming option.
2. Press SELECT.
3. Enter the preferred time (0-10 sec).
4. Press SAVE to update the setting.



10.4.17 Fullset Strobe

To set the fullset strobe setting:

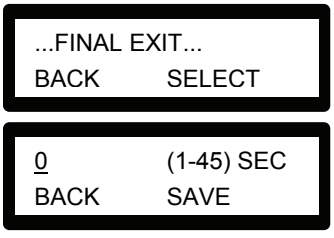
1. Scroll to the FULLSET STROBE programming option.
2. Press SELECT.
3. Enter the preferred time (0-10 sec).
4. Press SAVE to update the setting.



10.4.18 Final Exit

To set the final exit time:

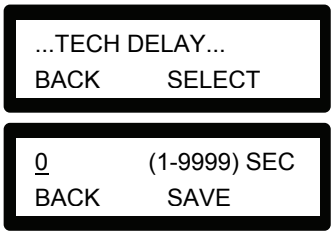
1. Scroll to the FINAL EXIT programming option.
2. Press SELECT.
3. Enter the preferred time (1-45 sec).
4. Press SAVE to update the setting.



10.4.19 Tech Delay

To set the technical delay time:

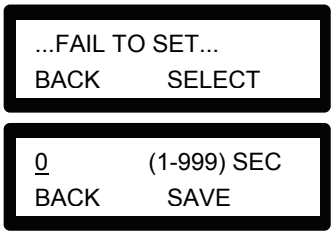
1. Scroll to the TECH DELAY programming option.
2. Press SELECT.
3. Enter the preferred time (1-9999 sec).
4. Press SAVE to update the setting.



10.4.20 Fail to Set

To set the fail to set time:

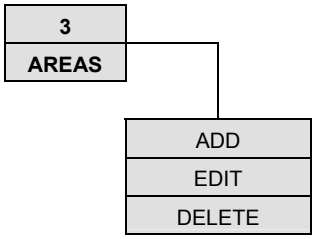
1. Scroll to the FAIL TO SET programming option.
2. Press SELECT.
3. Enter the preferred time (1-999 sec).
4. Press SAVE to update the setting.



10.5 Areas

System options are available from the Keypad under the AREAS menu in Tab. 10 listed below.

Tab. 11 reveals its location in the Full Engineer menu.

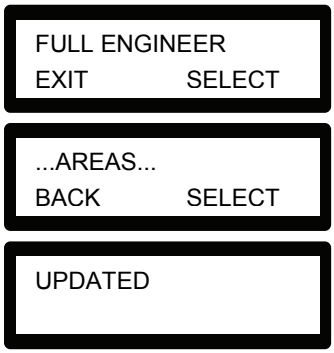


Tab. 10 System Options under the AREAS Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

Tab. 11 Location of AREAS Menu in the Full Engineer Menu

This section provides programming steps found within AREAS using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the menu option AREAS:



1. Enter the Engineer Programming code (default 1111).
2. Press SELECT for FULL ENGINEER programming.
3. Using the up and down arrow keys, scroll to AREAS programming option.

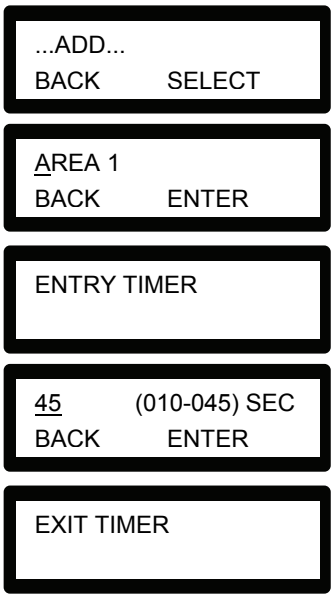
➔ An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

➔ Upon completion of the programming, the Keypad displays UPDATED momentarily.

10.5.1 Add

To add an area:

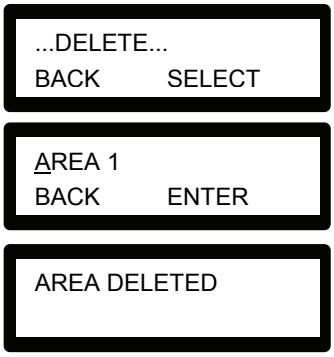
1. Scroll to the ADD programming option.
2. Press SELECT.
3. Enter the name of the area and press ENTER.
   ➔ The ENTRY TIMER setting is displayed.
4. Input the preferred entry time setting and press ENTER.
   ➔ The EXIT TIMER setting is displayed.
5. Input the preferred exit time setting and press ENTER. The new area is added.



10.5.2 Delete

To delete an area:

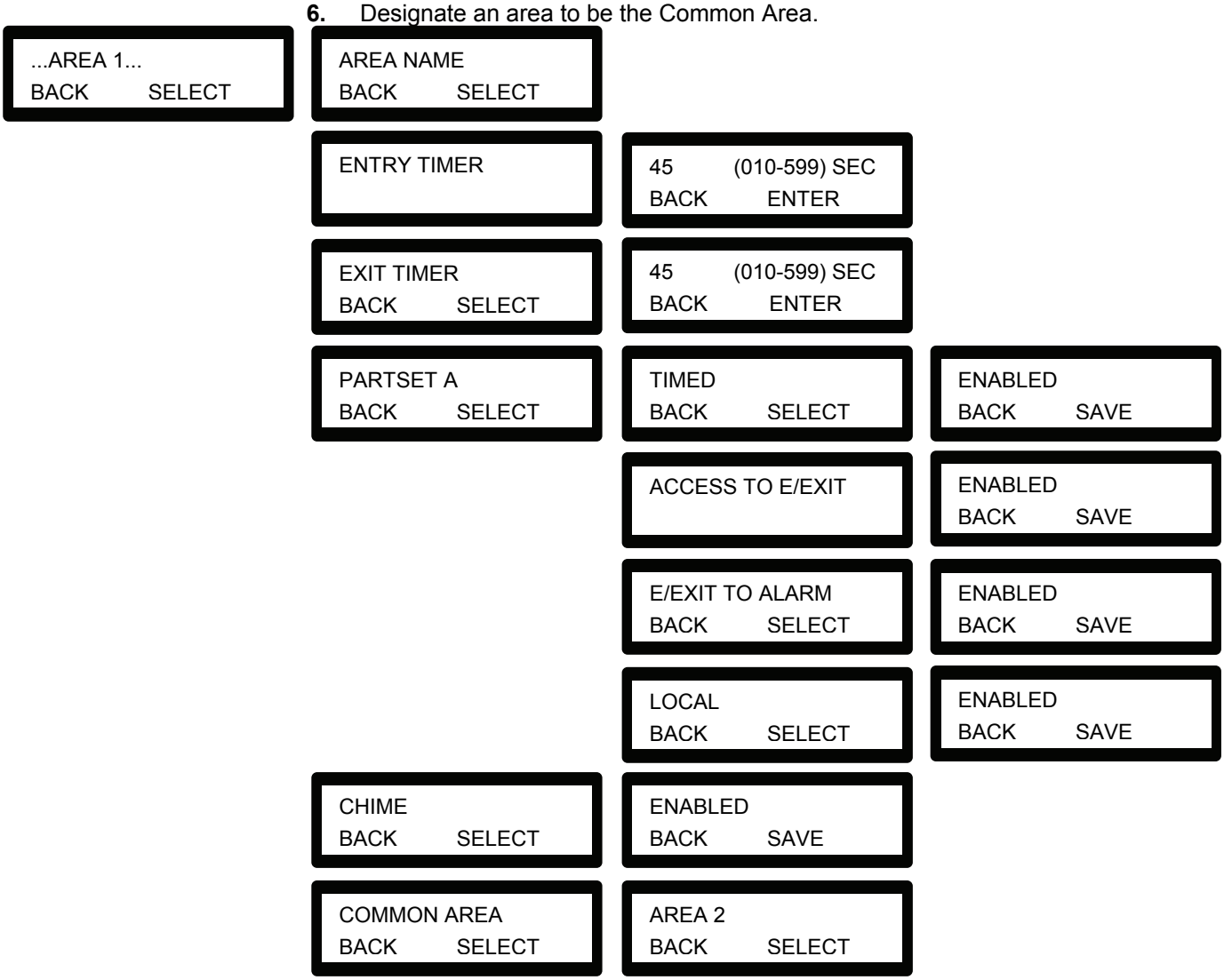
1. Scroll to the DELETE programming option.
2. Press SELECT.
3. Scroll to area to be deleted and press SELECT.
   ➔ Confirmation that the area has been deleted is displayed.



10.5.3 Edit

To edit an area:

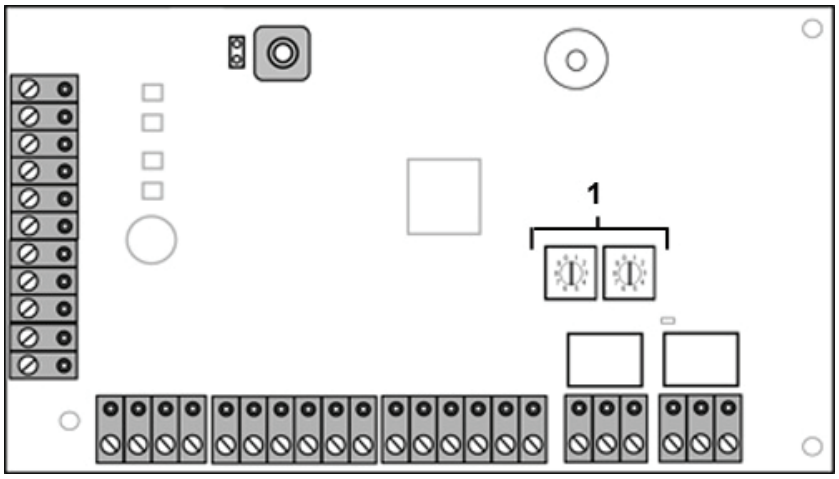
1. Scroll to the EDIT programming option.
2. Press SELECT.
3. Scroll to the area to be edited and press SELECT.
4. Edit the following settings:
   - Area name
   - Entry Timer
   - Exit Timer
5. Enable or disable the following settings:
   - Partset A/B
     - Timed
     - Access to E/Exit
     - E/Exit to Alarm
     - Local
   - Chime
6. Designate an area to be the Common Area.



10.6 X-BUS

Expanders, Keypads and subsequent Zones may be configured, located and monitored, with the steps provided in this section. X-BUS settings such as type, communication times and retries are also accessed within this menu.

Rotary switches on the Expanders provide functionality allowing the Engineer to define each device's numbered identification. Fig. 17 shows each rotary switch with an arrow symbol pointing to a number for identification (ie. 3, 8). The right switch is the first unit digit and the left switch is the 10s digit. The Expander in Fig. 17 is identified as 38.



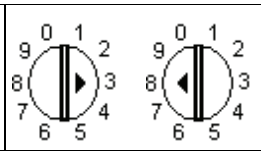
1	 Rotary Switches identifying Expander as 38

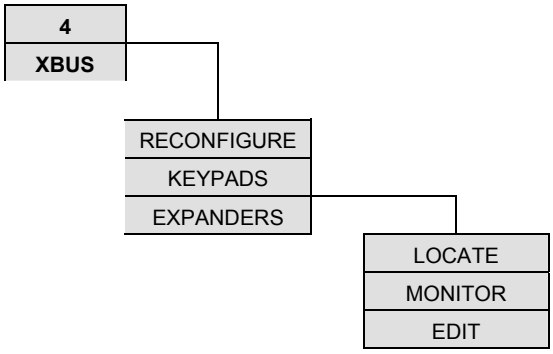
Fig. 17 Rotary Switches

Each Keypad and Expander is to be uniquely addressed. In this manual configuration, the system automatically allocates zones to each Expander. For this reason, devices with no zones, such as 8 Output Expanders should be addressed last.

NOTE
Automatically-Addressed Expanders are not supported by the SPC4000.

Programming options are available from the Keypad under the XBUS menu in Tab. 12 listed below.

Tab. 13 reveals its location in the Full Engineer menu.



Tab. 12 System Options under the XBUS Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

Tab. 13 Location of XBUS Menu in the Full Engineer Menu

The following section provides programming steps found within X-BUS using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the menu option X-BUS:

1. Enter the Engineer Programming code (default 1111).

2. Press SELECT for FULL ENGINEER programming.

3. Using the up and down arrow keys, scroll to the X-BUS programming option.

➔ An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

10.6.1 X-BUS Programming

10.6.2 Reconfigure

If the system has a mixture of expander types (with and without address switches) then the system can only be automatically reconfigured.

To reconfigure Expanders/Keypads/zones on the system:

1. Scroll to the RECONFIGURE programming option.
2. Press SELECT.
   ➔ Any new Expanders or zones are automatically added to the system.

If no new Expanders or zones are detected on the X-BUS, the message 0 EXPANDERS ADDED / 0 ZONES ADDED is displayed.

10.6.3 Locate

To locate an Expander follow these steps:

1. Scroll to the LOCATE programming option.
2. Press SELECT.
3. Scroll to the Expander or Keypad to be located and press SELECT.
   ➔ The selected device beeps and the LED flashes allowing Engineer to locate it.
4. Press BACK to exit the menu.
   ➔ Locate Keypads using the same menus and following the Keypad choice instead of Expander.

10.6.4 Monitor

The Monitor feature presents an overview of all Keypads and Expanders connected to the system.

To obtain an overview of the Expanders/Keypads* connected to the system:

1. Scroll to the EXPANDER programming option.
2. Press Select.
3. Scroll to desired Monitor programming option.
4. Press SELECT.
   ➔ A list of detected Expanders displays.
5. Scroll through the list and press SELECT on preferred Expander.

   The following parameters and details, if applicable, are displayed:

   Status: online or offline

   Serial Number: used to track and identify

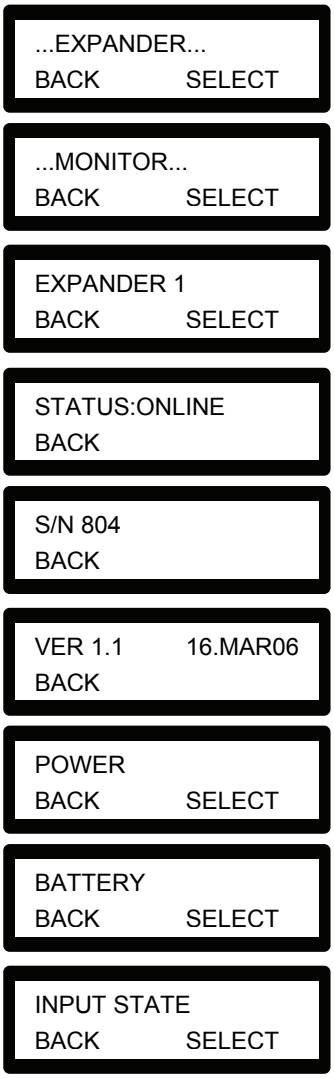
   Firmware Version

   Power parameters: real-time voltage and current readings

   Battery voltage: battery voltage level (SPC PSU Expanders only)

   Input state: state of each zone input associated with an Expander as follows: C: Closed, O: Open, D; Disconnected, S: Short (Expanders with inputs only)
6. Press BACK to exit the menu.

*Monitor Keypads using the same menus and following the Keypad menu instead of Expander.



10.6.5 Edit

To edit Expanders/Keypads*:

1. Scroll to the EXPANDERS> EDIT programming option.
2. Press SELECT.
3. Scroll to the device to be edited and press SELECT. The following parameters and details, if applicable, are displayed for editing:

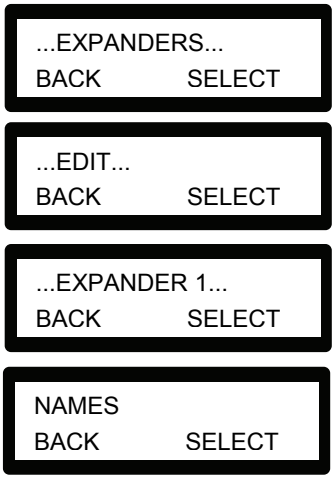
   Names

   Keypad Backlight: normal, always, off

   Buzzer Output: active, silent

   Keypad LED: on, off

   Areas: (Areas must be enabled in programming: FULL ENGINEER> VARIABLES)



Pace Entry: enabled, disabled

Panic Buttons: enabled, enabled silent, disabled

4. Press BACK to exit the menu.

*Monitor Keypads using the same menus and following the Keypad menu instead of Expander.

NOTE

For naming and identifying, Expanders are allocated Zones (in groupings of 8) with subsequent identities of 1 to 512. (The greatest number in zone identification is 512.) Therefore, any Expander named or identified by a number greater than 63 has no allocated Zones.

10.7 Wireless

10.7.1 Add

Wireless features and devices will be available with a later market package.

10.7.2 Remove

Wireless features and devices will be available with a later market package.

10.7.3 Ext Antenna

Wireless features and devices will be available with a later market package.

10.7.4 Supervision

Wireless features and devices will be available with a later market package.

10.7.5 Sensor Type

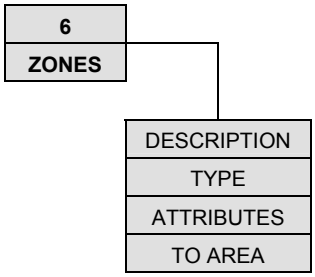
Wireless features and devices will be available with a later market package..

10.8 Zone Types and Assignable Attributes

See Appendix N: Zone Types and Assignable Attributes.

10.9 Programming Zones

Programming options for zones are available from the Keypad under the ZONES menu in Tab. 14 listed below. Tab. 15 reveals its location in the Full Engineer menu.



Tab. 14 System Options under the ZONES Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

Tab. 15 Location of ZONES menu in the Full Engineer Menu

The following section provides programming steps found within ZONES using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the menu option ZONES:

1. Enter the Engineer Programming code (default 1111).

2. Press SELECT for FULL ENGINEER programming.

3. Using the up and down arrow keys, scroll to the ZONES programming option.

An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

To program the zone inputs from the Keypad:

1. Scroll to the zone to be programmed and press SELECT.
2. The following programming options are available:
   - **Description:** used to help identify the zone; enter a specific and descriptive name
   - **Zone Type:** determines the zone type; see Section 10.8 for a description of zone types
   - **Attributes:** determines the attributes of the zone; see Section 10.8 for a description of zone attributes
   - **To Area:** determines which zone is mapped to which area. This menu option is only displayed if multiple areas are defined on the system. Selecting this feature allows users to build a set of zones that are identified with a particular area in the building.
3. Press BACK to exit the Zones menu.

NOTE

The number and type of attributes displayed in the Keypad menus for a particular zone vary depending on the type of zone that is selected. See Appendix N: Zone Types and Assignable Attributes.

10.10 Outputs

Each zone type on the SPC system has an associated output type (an internal flag or indicator). When a zone type is activated, ie. a door or window opens, smoke is detected, an alarm is detected, etc., the corresponding output is activated.

10.10.1 Outputs Types and Output Ports

Each output type can be assigned to one of the six physical output ports on the SPC Controller or to an output on one of the connected Expanders. Output types that are not assigned to physical outputs act as indicators of events on the system and may be logged and/or reported to remote central stations if required.

The output ports on the SPC Expanders are all single pole relay type outputs (NO, COM, NC); therefore, output devices may need external power sources to activate if they are wired to Expander outputs.

The activation of a particular output type depends on the type of Zone (see Section 10.8) or alert condition that triggered the activation. If multiple areas are defined on the system then the outputs on the SPC are grouped into system outputs and area outputs; the system outputs are activated to indicate a system wide event (e.g. mains fault) whereas the area outputs indicate events detected in one or more of the defined areas on the system. Each area has its own set of area outputs, if the area is a common area for other areas then its outputs will indicate the state of all the areas it is common for including its own state. For example if Area 1 is common for Area 2 and 3, and Area 2 Ext. Bell is active, then the Area 1 Ext Bell output is also active.

Some output types can only indicate system wide events (no specific area events).
Please refer to Tab. 16 for further information.

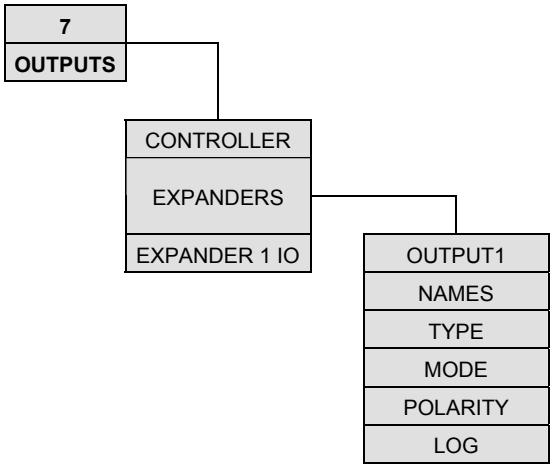
OUTPUT TYPE	DESCRIPTION
External Bell	This output type is used to activate the system external bell and is active when any Area External Bell is active. By default, this output is assigned to the first output on the SPC Controller board (EXT+, EXT-).
	 An external bell output is automatically activated whenever a zone programmed as an Alarm zone triggers an alarm in Fullset or Partset modes.
External Bell Strobe	This output type is used to activate the strobe on the system external bell and is active when any area strobe is active. By default, this output is assigned to the strobe relay output (Output 3) on the Controller board (NO, COM, NC).
	 An external bell strobe output is automatically activated whenever a zone programmed as an alarm zone triggers an alarm in Fullset or Partset modes. The external bell strobe activates on a Fail to Set condition if the strobe on the Fail to Set option is checked in system options.
Internal Bell	This output type is used to activate the internal bell and is active when any area Internal Bell is active. By default, this output is assigned to the second output on the SPC Controller board (INT+, INT-).
	 An internal bell output is automatically activated whenever a zone programmed as an Alarm zone type triggers an alarm in Fullset or Partset modes. The internal Bell activates on a Fail to Set condition if the Bell on the Fail to Set option is checked in system options.
Alarm	This output turns on following an alarm zone activation on the system or from any area defined on the system.
Alarm Confirmed	This output turns on when an alarm has been confirmed. An alarm is confirmed when 2 independent zones on the system (or within the same Area) activate within a set time period).
Panic[1])	This output turns on following activation of Panic Alarm zone types from any area. A Panic Alarm output is also generated if a user duress event is generated or if the panic option for the SPC Keypad is enabled.
Hold-up	This output turns on whenever a zone programmed as a Hold-up type zone triggers an alarm from any area
Fire	This output turns on following a Fire zone activation on the system (or from any area)
Tamper	This output turns on when a tamper condition is detected from any part of the system
Medical	This output turns on when a medic zone is activated
Fault	This output turns on when a Technical Fault detected
Technical	This output follows tech zone activity
Mains Fault[1])	This output activates when Mains power is removed
Battery Fault[1])	This output activates when there is a problem with the backup battery. If the battery voltage drops below 11 V this output activates. The Restore option for this fault is only presented when the voltage level rises to above 11.8 V.
Partset A	This output is activated if the system or any area defined on the system is in Partset A mode
Partset B	This output is activated if the system or any area defined on the system is in Partset B mode
Fullset	This output is activated if the system is in Fullset mode
Fail to set	This output activates if the system or any area defined on the system failed to set; it clears when the alert is restored
Entry/Exit	This output activates if an Entry/Exit type zone has been activated; i.e. a system or area Entry or Exit timer is running
Latch	This output is ON at the end of exit time and OFF at the beginning of entry time
Fire Exit	This output turns ON if any Fire-X zones on the system are activated
Chime	This output turns on momentarily when any zone on the system with chime attribute opens
Smoke	This output turns on momentarily when a user unsets the system; it can be used to reset smoke detectors
Walk Test[1])	This output turns on momentarily when a walk test is operational and a zone becomes active
Auto Arm	This output turns on if the auto-arming feature has been activated on the system
User Duress	This output turns on if a user duress state has been activated (PIN code + 1 has been entered on the Keypad)
PIR Masked	This output turns on if there are any masked PIR zones on the system
Zone Omitted	This output turns on if there are any inhibited, isolated, or walk test zones on the system
Fail to Communicate[1])	This output turns on if there is a failure to communicate to the central station

[1])This output type can only indicate system wide events (no area specific events). Please refer to the table above for further information.

Tab. 16 Output Types

10.10.2 Programming Outputs

Programming options for zones are available from the Keypad under the OUTPUTS menu in Tab. 17 listed below. Tab. 18 reveals its location in the Full Engineer menu.



Tab. 17 System Options under the OUTPUTS Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

Tab. 18 Location of OUTPUTS Menu in the Full Engineer Menu

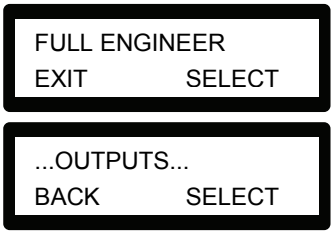
The following section provides programming steps found within Outputs using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the menu option OUTPUTS:

1. Enter the Engineer Programming code (default 1111).

2. Press SELECT for FULL ENGINEER programming.

3. Using the up and down arrow keys, scroll to the OUTPUTS programming option.

➔ An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.



To program the zone outputs from the Keypad:

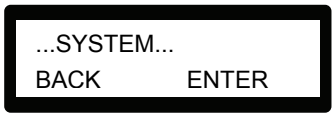
1. Scroll to either the CONTROLLER or EXPANDER setting and press SELECT.

If programming Expanders, scroll to the Expander to be programmed.

2. Scroll to the output to be programmed and press SELECT.

3. If the output activations are recorded in the system event log (ie., Enabled, items recorded / Disabled, items) the following programming options are available:

- **Names:** used to help identify the output; enter a specific and descriptive name
- **Output Type:** determines the output type; see 0, for a description of output types
- **Output Mode:** determines the style of the output: Continuous, Momentary, or Pulsed
- **Polarity:** determines whether the output is activated on a positive or negative polarity
- **Log:** determines if system log is enabled or disabled

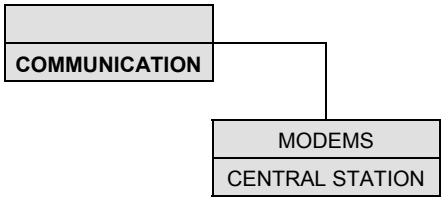


4. Press BACK to exit the Outputs menu.

For the Output test procedure, see Section 10.12.4, Output Test.

10.11 Communication

Programming options for communication are available from the Keypad under the COMMUNICATION menu in Tab. 19 listed below. Tab. 20 reveals its location in the Full Engineer menu.



Tab. 19 System Options under the COMMUNICATION Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

Tab. 20 Location of COMMUNICATION Menu in the Full Engineer Menu

The following section provides programming steps found within Communication using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the menu option COMMUNICATION:

1. Enter the Engineer Programming code (default 1111).
2. Press SELECT for FULL ENGINEER programming.
3. Using the up and down arrow keys, scroll to the COMMUNICATION programming option.

➔ An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

10.11.1 Modems

For instructions on programming modems via Keypad, see Section 10.2, Configuring Communication Modules. The SPC system supports intell-modems for communication with analogue lines and mobile network interfacing for enhanced communications and connectivity. The SPC system must be configured accordingly. For configuring a GSM or PSTN Modem, refer to Section 10.2.1, Configuring a GSM or PSTN Modem.

10.11.2 Central Station

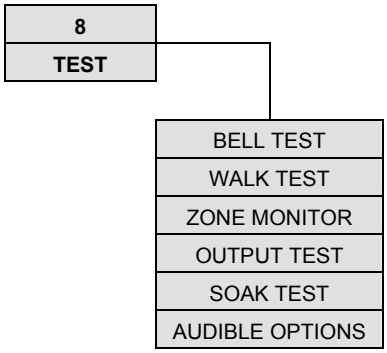
To program the central station settings:

1. Scroll to the CENTRAL STATION programming option.
2. Press SELECT.
   ➔ The option to ADD a Central Station displays
3. Press SELECT.
4. These programming options for entry follow:
   - **Account ID:** this information should be available from the receiving station and is used to identify users each time a call is made to the ARC
   - **Account Name:** description of the Remote Alarm Receiving Centre
   - **Protocol:** the communication protocol to be used (SIA, Contact ID, Fast Format)
   - **1ST Phone Number:** the first number to be dialled to contact the ARC
   - **2nd Phone Number:** the second number to be dialled to contact the ARC; the system only attempts to contact the ARC on this number if the first contact number did not successfully connect
   - **Priority:** the modem (primary or back-up) to be used to communicate with the ARC

   ➔ After programming is complete, the option to make a test call to the station is displayed on the Keypad.

10.12 Test

Programming options for Test are available from the Keypad under the TEST menu in Tab. 21 listed below. Tab. 22 reveals its location in the Full Engineer menu.



Tab. 21 System Options under the TEST Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

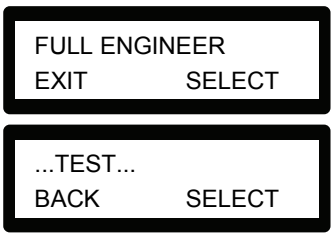
Tab. 22 Location of TEST Menu in the Full Engineer Menu

The following section provides programming steps found within Test using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the menu option TEST:

1. Enter the Engineer Programming code (default 1111).

2. Press SELECT for FULL ENGINEER programming.

3. Using the up and down arrow keys, scroll to the TEST programming option.



➔ An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

10.12.1 Bell Test

To perform a bell test:

1. Scroll to the BELL TEST programming option.
2. Press SELECT.

10.12.2 Walk Test

A walk test is a test performed on the SPC to ensure the sensors are operating correctly.

To perform a walk test:

1. Scroll to the WALK TEST programming option.
2. Press SELECT.
   ➔ The display indicates the total number of zones on the system with the text 'TO TEST XX' (where XX is the TOTAL number of zones).
   ➔ Panic zones, Fire zones, Fire Exit zones and Holdup zones are included in the walk test as activation of these zone types do not generate an alarm.
3. Locate the sensor on the first zone and activate it (open the door or window).
   ➔ The Keypad buzzer sounds continuously for approximately two seconds indicating that the zone activation has been detected; the number of zones remaining for test (displayed on the Keypad) decreases.
4. Continue until all zones have been tested. If a zone activation is not acknowledged by the system, check the wiring of the sensor and/or replace with another sensor if necessary.

NOTE
Alarm zones programmed as Panic, Fire, Fire Exit, or Holdup type zones are all included in the walk test in Full Engineer mode.

10.12.3 Zone Monitor

The Zone Monitor option displays status information on each of the zones on the system.

To view zone status information:

1. Scroll to the ZONE MONITOR programming option.
2. Press SELECT.
3. Scroll to a preferred zone and press SELECT.
   ➔ The status of the zone and its associated resistance value is displayed.
4. Press NEXT to locate the zone (e.g. CONTROLLER 1 = first zone on Controller).
   ➔ Refer to the table below for correlating status information (valid for Dual EOL resistors).

Zone Status	Abbreviation
CLOSED	CL
OPEN	OP
SHORT	SH
DISCONNECTED	DIs

Tab. 23 Status Information

All zones on a system can be monitored for correct operation by performing a monitoring test.

To perform a zone monitoring test:

1. Scroll to the FULL ENGINEER> TEST> ZONE MONITOR programming option.
2. Press SELECT.
3. Scroll to a preferred zone and press SELECT, or enter the zone number directly.
   ➔ If the zone is located close to the Keypad, the status of the Keypad can be viewed as it changes. The Zone status and resistance value displays on the top right.
4. Change the state of the sensor; e.g. for a door contact sensor, open the door.
   ➔ The Keypad buzzer beeps and the status of the sensor changes from CL (Closed) to OP (Open). The corresponding resistance value changes to a value that depends on the EOL resistance scheme.

NOTE

It is advisable to check the operation of all zones on the system after installation is complete. To locate the zone select NEXT (bottom right) on the Keypad. A zone status value of SH or DI indicates that the zone is shorted or disconnected.

10.12.4 Output Test

To perform an output test:

1. Scroll to the OUTPUT TEST programming option.
2. Press SELECT.
3. Toggle between CONTROLLER and EXPANDER for preferred option.
4. If testing the controller outputs, scroll to the preferred output and press SELECT. If testing the Expander outputs, select the Expander and then the output.
   ➔ The Keypad display indicates the current state of the output on the top line.
5. Toggle the output state ON/OFF. Check that the device connected to the selected output changes state accordingly.

10.12.5 Soak Test

A Soak Test provides a method of putting selected zones on test. Zones on soak test do not cause any alarms but are recorded in the event log. Zones on soak test will remain on soak test until the soak test timer expires as in the timers default (14 days).

To perform a soak test:

1. Scroll to the SOAK TEST programming option.
2. Press SELECT.
3. Toggle between ENABLE SOAK and CANCEL SOAK for preferred option.
4. Scroll to preferred zone and press SELECT.

   ➔ A message confirming that the zone is in soak is displayed.

10.12.6 Audible Options

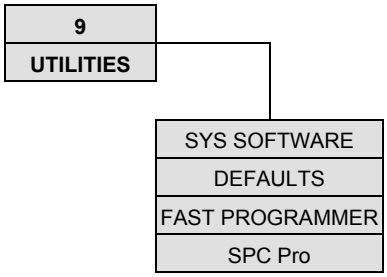
The Audible Options setting provide Tests.

To set the audible options:

1. Scroll to the AUDIBLE OPTIONS programming option.
2. Press SELECT.
3. The following options are available:
   - Keypad
   - All
   - Ext Bell
   - Int Bell
4. Press BACK to exit the Audible Options menu.

10.13 Utilities

Programming options for Utilities are available from the Keypad under the UTILITIES menu in Tab. 24 listed below. Tab. 25 reveals its location in the Full Engineer menu.



Tab. 24 System Options under the UTILITIES Menu

0	SYSTEM STATUS
1	VARIABLES
2	TIMERS
3	AREAS
4	XBUS
5	WIRELESS
6	ZONES
7	OUTPUTS
	COMMUNICATION
8	TEST
9	UTILITIES

Tab. 25 Location of UTILITIES Menu in the Full Engineer Menu

The following section provides programming steps found within Utlities using the Keypad. For each menu option, the Keypad must be in Full Engineer programming and within the menu option UTILITIES:

1. Enter the Engineer Programming code (default 1111).
2. Press SELECT for FULL ENGINEER programming.
3. Using the up and down arrow keys, scroll to the UTILITIES programming option.
   ➔ An ellipsis (…) on accompanying graphics denotes when there is a choice of menu selection by scrolling.

10.13.1 Sys Software

To view the current system software:

1. Scroll to the SYS SOFTWARE programming option.
2. Press SELECT.
   ➔ The software version currently installed on the system is displayed.

10.13.2 Defaults

To reset users or return the system to factory default settings:

1. Scroll to the DEFAULTS programming option.
2. Press SELECT.
3. Toggle between RESET USERS and FACTORY DEFAULT for preferred setting and press SELECT.
   ➔ A prompt is displayed, asking if the user is sure.
4. Press YES to confirm the reset.

10.13.3 Fast Programmer

Transferring Data from the Controller (panel) to the Fast Programmer:

1. Scroll to the FAST PROGRAMMER programming option.
2. Press SELECT.
3. Scroll to DATA FROM PANEL and press SELECT.
   ➔ A prompt to enter the name of the configuration file is displayed.
4. Enter name of the file and press ENTER.
   ➔ The message TRANSFER OK displays to indicate that the panel configuration has been stored to the fast programmer.

Transferring data to the Controller (panel) from the Fast Programmer

1. Scroll to the FAST PROGRAMMER programming option.
2. Press SELECT.
3. Scroll to DATA TO PANEL and press SELECT.
   ➔ The names of all configuration files stored on the fast programmer are displayed.
4. Choose the required file and press SELECT.
   ➔ The message TRANSFER OK displays to indicate that the configuration file has been stored on the Controller (panel).

10.13.4 SPC Pro

To program SPC Pro options:

1. Scroll to the SPC PRO programming option.
2. Press SELECT.
3. The following options are available:
   - **Enable SPC Pro:** determine if SPC Pro is enabled or disabled
   - **Engineer Access:** determine if engineer access is enabled or disabled
   - **Password:** edit the existing system password
4. Press BACK to exit the SPC Pro menu.

10.14 Isolate

Zones or faults on the system can be manually isolated from the Keypad. Isolating a zone removes that zone from the system until the user de-isolates it.

To isolate a zone:

1. Scroll to the FULL ENGINEER> ISOLATE programming option.
2. Scroll to the area of desired zones or fault: ZONES/SYSTEM/X-BUS option and press SELECT.
3. A list displays. Select as desired and toggle the setting from NOT ISOLATED to ISOLATED using the up/down arrow keys.
4. Press SELECT to exit.

   ➔ Viewing of isolated zones or faults is also available at this menu option.

10.15 Event Log

Recent events on the system are displayed in the EVENT LOG option. Events flash in one second intervals.

To view the event log:

1. Scroll to the FULL ENGINEER> EVENT LOG programming option.
2. Press SELECT to view the event log.

10.16 Change Code

To change the Engineer's code:

1. Scroll to the FULL ENGINEER> CHANGE CODE. Present code is displayed.
2. Edit as necessary
3. Press SELECT.
4. Press SAVE to confirm.

NOTE

Engineer code may be changed and should be noted accordingly as Siemens is unable to retrieve this new code. Forgotten codes are be remedied only by a factory default of the system, rendering loss of programming. Programming can be restored if a backup is available.

10.17 Users

10.17.1 Adding

To add users to the system:

1. Scroll to the FULL ENGINEER> USERS> ADD programming option.
2. Press SELECT.
3. Enter the user's name and press ENTER.
4. Choose from one of the following user types :
   - Limited
   - Standard
   - Manager
5. Press SELECT.
6. Enter the user code and press ENTER.

10.17.2 Editing

To view and edit and program user rights, enter the programming menus listed below.

To edit users on the system:

1. Scroll to the FULL ENGINEER> USERS> EDIT programming option.
2. Press SELECT.
3. The following user settings are available to be edited:
   - **Change Name:** edit the current user name
   - **Change Type:** edit the current user type
   - **User Options:** enable or disable available user options (unset, partset A, isolate, etc.)
   - **Change Areas**: enable or disable user access to areas
   - **PACE:** enable or disable PACE capability
   - **RF Fob:** enable or disable RF Fob access
4. Press BACK to exit from the USER menu options.

10.17.3 Deleting

To delete users on the system:

1. Scroll to the FULL ENGINEER> USERS> DELETE programming option.
2. Press SELECT.
   ➔ A prompt is displayed, asking if the user is sure.
3. Press YES to delete the user.

10.18 Setup SMS

To set up the SMS functionality on the system:

1. Scroll to the FULL ENGINEER> SETUP SMS programming option.
2. Press SELECT.
3. The following configuration options are available:
   - **Enable SMS:** toggle between the SMS ENABLED and SMS DISABLED for preferred option
   - **Phone Number:** enter phone number for SMS calls
   - **Reported Events:** enable or disable SMS calls for specific events; Alarms, Confirmed, Fault, Mode Change, Inhibit Isolate, Other Events
4. Press BACK to exit the SMS SETUP menu.

10.19 Installer Text

The Installer Text setting allows the engineer to enter system information and engineer contact information.

To program installer text:

1. Scroll to the FULL ENGINEER> INSTALLER TEXT programming option.
2. Press SELECT.
3. The following configuration options are available:
   - **System Name:** used to help identify the system; use a clear and descriptive name for the installation
   - **System ID:** used to help identify the installation when connected to a central station (max 10 digits)
   - **Installer Name:** used for contact purposes
   - **Installer Phone:** used for contact purposes
   - **Display Installer:** setting to display installer details can during the idle state
4. Press BACK to exit the INSTALLER TEXT menu.

NOTE

The Installer contact details programmed in these menu options should also be entered on the Keypad pull-down label on completion of the installation.

11 User Access Via the Keypad

The following functions are available to users by entering their user code; these functions do not require menu navigation on the Keypad. User codes can be 4, 5, or 6 digits, depending upon the Grade the system has been programmed to.

A user's ability to see menus and options available on the SPC system is programmed by the installation engineer. If users cannot see an option described in this manual, they do not have rights to access that functionality. For security reasons, users code appear as asterixes on the display. The left function key displays the QUIT option.

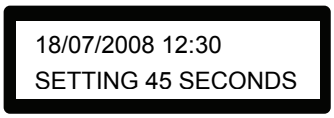
After entering the user code, the following options are displayed: FULLSET, PARTSET A, PARTSET B, MENUS. Scroll through these options by using the up/down arrow keys.

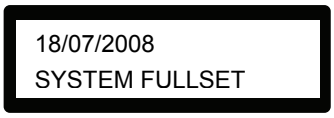
11.1 Setting the System: FULLSET

The FULLSET option provides the following functionality:

- Full protection to a building (opening of alarm zones activates alarm)
- Opening of entry/exit zones starts the entry timer. If the alarm is not unset before the entry timer expires, the alarm is activated

To select the FULLSET option, enter a valid user code, and press SELECT (right soft key). The second line displays the exit time and the buzzer sounds to indicate that the user should exit the building. When the system has been fully set, the LCD displays FULLSET on the bottom line for approximately 10 seconds.



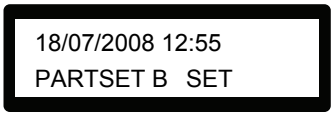


If the alarm fails to set, see Section 11.4, Failing to Set the System.

11.2 Setting the system: PARTSET A

The PARTSET A option provides the following functionality:

- Perimeter protection to a building while allowing free movement through the exit and access areas
- Exclusion of EXCLUDE A zones from protection
- Instant activation of alarm on selection of mode; by default there are no exit times associated with PARTSET A



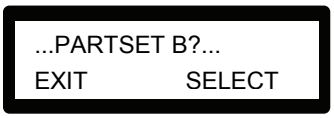
To select PARTSET A, enter a valid user code, scroll to the PARTSET A option and press SELECT (right soft key).

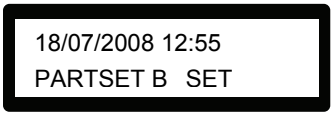
If the alarm fails to set, see Section 11.4, Failing to Set the System.

11.3 Setting the System: PARTSET B

The PARTSET B option provides the following functionality:

- Perimeter protection to a building while allowing free movement through the exit and access areas
- Exclusion of EXCLUDE B zones from protection
- Instant activation of alarm on selection of mode; by default there are no exit times associated with PARTSET B





To select PARTSET B, enter a valid user code, scroll to the PARTSET B option and press SELECT (right soft key).

NOTE

Partset A and Partset B configuration modes are dependent upon how the system has been programmed.

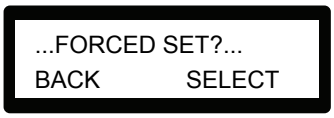
11.4 Failing to Set the System

The system fails to set if there is an open or fault condition detected on an alarm zone when the FULLSET or PARTSET A/B option is selected. The Keypad displays the zone number and description.

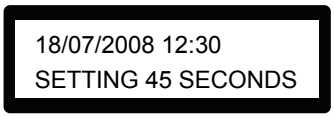
To set the system, locate the zone and close or fix the fault. Repeat the FULLSET or PARTSET A/B operation.

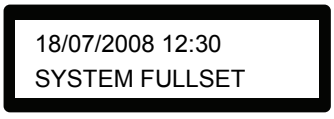
11.5 Force Setting the System

The system can be forced to set while an alarm zone is still open. This operation inhibits the open zone and sets the system as normal.



If a user has the right to FORCE SET the system and an alarm zone is open, when the FULLSET or PARTSET option is selected, the Keypad buzzer beeps and the first line of the display indicates the open zone. The user is presented with the options to QUIT (left soft key) or FORCE (right soft key).





QUIT: Selecting this option aborts the attempt to set the system and returns the user to User Programming.

FORCE: Selecting this option inhibits the open zone and forces the system to set.

11.6 Unsetting the System

To UNSET a system:

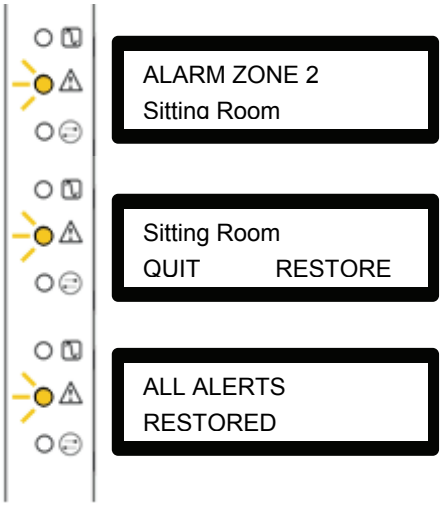
1. Enter a valid user code. The Keypad displays a prompt to unset the system.
2. To UNSET the system, press SELECT (right soft key). The Keypad display indicates that the system is unset on the bottom line of the display for approximately five seconds. After this time has elapsed, the bottom line is cleared.
3. If the alarm has been activated, entering the user code silences all bells and strobes and the message PANEL DISARMED displays on the Keypad for approximately five seconds.
4. The source of the alarm condition displays on the Keypad and the Alert LED flashes. The Keypad continues to display the alert until the alert is restored.

11.7 Restoring an Alarm Activation (Alert)

Alert conditions on the SPC are indicated on the Keypad by a flashing yellow Alert LED and by activation of the buzzer. The Keypad indicates the location and nature of the alert condition. The ability of a user to restore alerts depends on the security grade setting of the system (in accordance with standards [1]). An alert condition can only be restored once the fault or zone that caused the alert has been physically reset to its normal operating state; e.g. an open zone has been closed again or a severed X-BUS connection re-established. The SPC system does NOT provide the Restore option without detection of the restored fault.

Users may be restricted from using the Restore feature if an Engineer chooses not to select 'Restore' within the User Rights menu for select users. Users who cannot restore an alert receive fault messages on the Keypad until the zone or fault condition is either inhibited or Isolated.

Alarm conditions on the SPC4000 are indicated on the Keypad by a flashing yellow Alert LED and by activation of the buzzer. The Keypad displays the location and nature of the alert condition.



To restore an alert condition triggered by a zone opening:

1. Locate the open zone (displays on the Keypad) and restore the alarm sensor to its normal state by closing the door or window.
2. Enter a valid user code and select the RESTORE option (right soft key). The zone that caused the alert displays on the top line.

3. Press the right menu key to restore the alert. The message ALL ALERTS RESTORED displays and the flashing Alert LED turns off.

For system or communications type alert conditions (Mains failure or X-BUS disconnect), locate the source of the alert condition and check that all wires and cables are properly connected.

For a tamper alert, ensure the lids on all enclosures and devices are correctly closed. If the physical fault cannot be restored to its normal operating state, contact the installation engineer. The alarm system still operates by either inhibiting or isolating the fault condition.

NOTE

An Alert condition only displays on the Keypad when the system is UNSET. If the system is SET when an alert condition occurs, the Keypad gives no indication of that alert condition until such time as the system is UNSET.

11.8 Coded Restore

The coded restore option is only available if the Security Grade of the system is set to Grade 3 or Engineer Configure. It provides the user with the ability to restore alert conditions that would normally only be available to the installation engineer. To provide the user with this ability, it is necessary to protect this feature with a code.

To perform a coded restore on the system:

1. Ensure that the zone or fault that caused the alert condition has been physically restored to its normal operating state.
2. Contact the installer before entering user programming and selecting the coded restore feature in the menus option. (The contact details of the installer should be available from the drop down label beneath the Keypad.)
3. Press SELECT on the Coded Restore option. A 6-digit reset code displays on the top line.
4. Provide 6-digit code to installer.
5. Receive newly generated code from installer.
6. Enter new code at the AUTH CODE prompt.
7. Press SELECT.
8. The message SYSTEM RESTORED displays on the top line of the display.

12 User Menus Via the Keypad

The following functions are available to users through the navigational menus on the Keypad.

In navigation mode, the user selects one of a number of pre-defined programming options from a list. Pressing the up/down arrow keys scrolls through the list of options available for selection.

12.1 Inhibiting a Zone

Zones on the system can be manually inhibited from the Keypad. Inhibiting a zone removes that zone from the system for one alarm set period only.

1. Enter a valid user code.
2. Using the up/down arrow keys, scroll down to the MENUS option and press SELECT.
   ➔ The INHIBIT option is displayed on the Keypad.
3. Press SELECT.
4. Scroll down to the ZONES option and press SELECT.
5. A list of zones on the system is displayed. Select the required zone and toggle the setting from NOT INHIBITED to INHIBITED using the up/down arrow keys.
6. Press SELECT to exit User Programming.

NOTE

Only the Alarm, Exit/Entry, Fire Exit and Line Zone types can be inhibited on the SPC system. All other zone types are not displayed in the inhibit menus.

If the security grade setting of the SPC system is set to Engineer Configure, then the option to inhibit zones and fault conditions is displayed in the engineer inhibit menus.

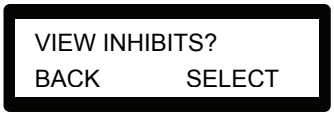
12.2 Viewing Inhibited Zones

By default, a Manager or Standard type user has the option to manually inhibit a Zone on the system from the Keypad. The inhibit operation is active for only one alarm set period. The engineer, in accordance with standards [1], cannot perform the inhibit operation but can view a list of all of the inhibited zones on the system.

1. Enter a valid user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
   ➔ The INHIBIT option is displayed on the Keypad.
3. Press SELECT.

The option VIEW INHIBITS? displays.

4. Press SELECT.



5. If no zones are inhibited on the system the display shows NO INHIBITS.
6. If the user had inhibited zones on the system then each inhibited zone is displayed briefly in turn for approximately 1 second.
7. Press any key to return to the VIEW INHIBITS menu.

12.3 Inhibiting a Zone or Fault

Zones or faults on the system can be manually inhibited from the Keypad. Inhibiting a zone removes that zone from the system for the present arming occurrence.

To inhibit a zone:

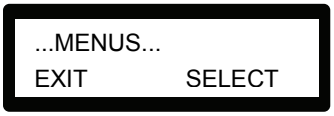
1. Enter a valid user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
3. Scroll down to the INHIBIT option and press SELECT.
   ➔ A list of zones on the system is displayed.
4. Toggle between NOT INHIBITED and INHIBITED.
5. Press SELECT to save setting.

12.4 Isolating a Zone or Fault

Zones or faults on the system can be manually isolated from the Keypad. Isolating a zone removes that zone from the system until the user de-isolates it.

To isolate a zone:

1. Enter a valid user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
3. Scroll down to the ISOLATE option and press SELECT.
4. Scroll down to the ZONES option and press SELECT.
   ➔ A list of zones on the system is displayed.
5. Select the required zone and toggle the setting from NOT ISOLATED to ISOLATED using the up/down arrow keys.
6. Press SELECT to save setting.



12.5 Setting the Time and Date

The date and time can be manually entered on the system. The time and date information is displayed on the Keypad and is used on time-related programming features.

To program the Date and Time:

1. Enter a valid user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
3. Scroll to the SET DATE/TIME option and press SELECT. The date displays on the top line of the display.
4. To enter a new date, press the required numeric keys. To move the cursor to the left and right, press the left and right arrow keys. Press ENTER to save the new date. If an attempt is made to save an invalid date value, the text INVALID VALUE is displayed for 1 second and the user is prompted to enter a valid date.
5. To enter a new time, press the required numeric keys. To move the cursor to the left and right, press the left and right arrow keys. Press ENTER to save the new time. If an attempt is made to save an invalid time value, the text INVALID VALUE is displayed for 1 second and the user is prompted to enter a valid time.

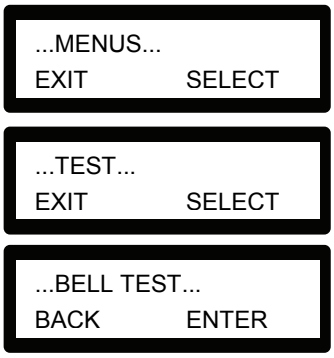
12.6 Performing Tests on the System

Simple tests can be performed on the system to determine if the bells, buzzers, and other audible devices are operating correctly.

To perform a test on the system:

1. Enter a valid user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
3. Scroll to the TEST option and press SELECT.

The user is presented with the option to select a BELL TEST, WALK TEST, or to test the AUDIBLE OPTIONS.



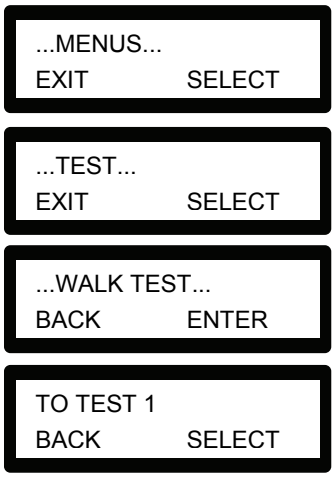
When BELL TEST is selected, users are presented with the options: external bells, strobe, internal bells, or buzzer. When each of these options is selected, the device sounds to verify it is operating correctly.

When WALK TEST is selected, users can test the operation of each alarm device by activating the device and checking to hear if an audible beep sounds at the Keypad.

12.7 Performing a Walk Test

A walk test ensures that the sensors are operating correctly on the SPC.

To perform a walk test:

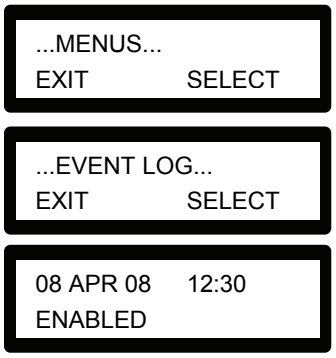


1. Enter a valid user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
3. Scroll to the TEST option and press SELECT.
   - ➔ The display indicates the number of zones to be tested on the system with the text 'TO TEST XX' (where XX is the number of valid walk test zones).
   - ➔ Valid walk test zones are defined as all zone types with the exception of Panic zones, Fire zones, Fire Exit zones, and Holdup zones. Do NOT activate these zone types during a walk test.
4. Locate the sensor on the first zone and activate it (open the door or window).
   - ➔ The Keypad buzzer sounds continuously for approximately two seconds to indicate that the zone activation has been detected and the number of zones left to test (displayed on the Keypad) decreases.
5. Continue with the remaining zones on the system until all zones have been tested. If a zone activation does not get acknowledged by the system, check the wiring of the sensor and/or replace with another sensor if necessary.

12.8 Viewing the Event Log

The most recent events on the system can be viewed by selecting the EVENT LOG option. The most recent events are displayed on the bottom line of the display and all previous events are displayed for one second in turn.

To view the event log on the Keypad:



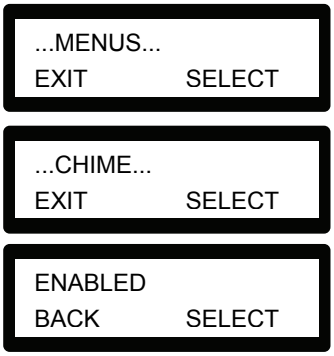
1. Enter a valid user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
3. Scroll to the EVENT LOG option and press SELECT.
   - ➔ The Keypad displays the most recent event logged on the system on the bottom line, and all previous events are displayed for one second in turn.
4. To view an event from a particular date, enter the date with the numeric keys.

12.9 Enabling the Chime Function

The chime function can be enabled or disabled on all zones where the chime has been programmed as an audible alert feature.

To enable or disable the chime function:

1. Enter a valid user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
3. Scroll to the CHIME option and press SELECT.
4. Toggle between ENABLED and DISABLED for the chime.



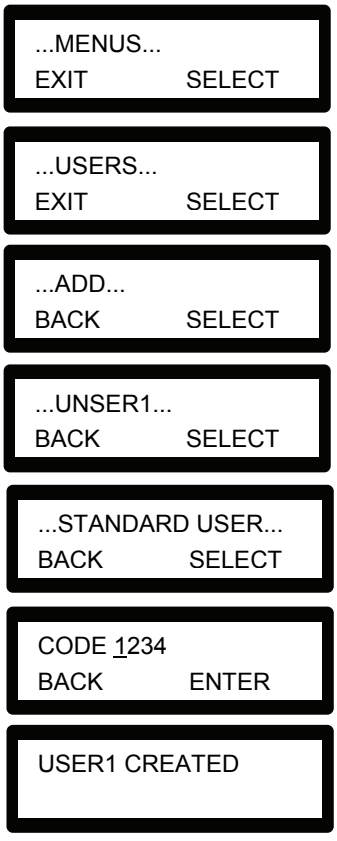
12.10 Adding, Editing, and Deleting Users

Only Manager type users have the ability to add, edit, or delete users, unless a user profile has this capability assigned to their profile. Managers may add, edit or delete users with these steps:

12.10.1 Adding

To add users to the system:

1. Enter a valid [Manager] user code.
2. Using the up/down arrow keys, scroll to the MENUS option and press SELECT.
3. Scroll to the USERS> ADD programming option.
   ➔ The system generates and displays next available user name.
4. Press SELECT for the default name and number, or enter a customized user name and press SELECT.There are three types of users available: STANDARD USER, LIMITED USER, or MANAGER. Scroll to the preferred type and press SELECT.
   Note: user profiles may be changed at any time.
   The system generates a default code for each new user.
   To change this code, overwrite the digits shown in the initial digits field.
5. Press SELECT to accept or enter a new user code and press SELECT.
   ➔ The Keypad confirms that the new user has been created.

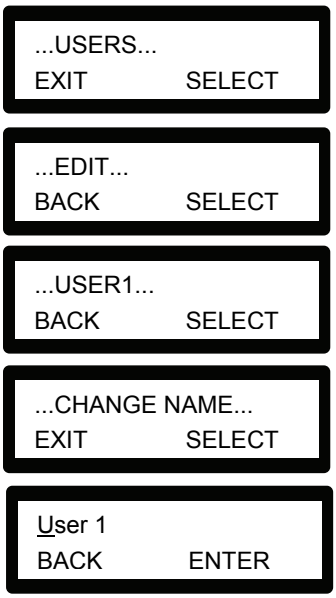


12.10.2 Editing

To view and edit and program user rights, enter the programming menus listed below.

To edit users on the system:

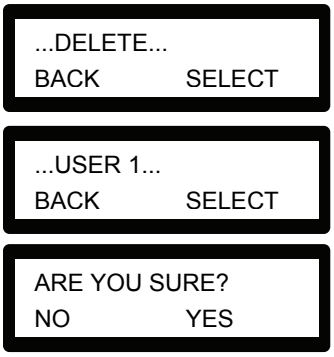
1. Scroll to the USERS> EDIT programming option.
2. Press SELECT.
3. The following user settings are available to be edited:
   - **Change Name:** edit the current user name
   - **Change Type:** edit the current user type
   - **Change Name:** edit the current user name
   - **User Options:** enable or disable available user options (unset, partset A, isolate, etc.)
   - **Change Areas:** enable or disable user access to areas
   - **Valid Code Time:** enable or disable the code time
   - **Valid Code Days:** enable or disable the code days
   - **PACE:** enable or disable PACE capability
   - **RF Fob:** enable or disable RF Fob access
4. Press BACK to exit from the USER menu options.



12.10.3 Deleting

To delete users on the system:

1. Scroll to the USERS> DELETE programming option.
2. Press SELECT.
   ➔ A prompt displays, confirming command to delete.
3. Press YES to delete the user.



12.11 Changing a User Code

If users have the right to change their user code, this can be done through the Keypad.

Note if the system is set for 5-digit user codes, a new 5-digit code must be entered. The system will not accept a code with fewer numbers than it is set to receive.

To change a user code:

1. Scroll to CHANGE CODE and press SELECT (right soft key).
   ➔ A randomly generated user code appears.
2. Select new code, if acceptable. Or overwrite by entering the new user code and press ENTER (right soft key).
3. Confirm the new code, press SAVE (right soft key).
4. Press BACK (left soft key) to return to the previous screen to amend the code.
   ➔ During the process if the display times out, the old code remains valid.

NOTE
Where User Duress feature is enabled, consecutive user codes (i.e. 2906, 2907) are not permitted, as entering this code from the Keypad would activate a user duress event.

12.12 Using SMS

SPC systems with modems and appropriate configuration, allow SMS messaging. To use SMS, each user must have the appropriate user profile rights. SMS Events Notification of the following events can be sent to users as SMS messages:

- Alarm Activation
- Confirmed Alarms
- Fault and Tamper
- Arming and Disarming (Mode Change)
- Inhibit and Isolate
- All other types of events

12.12.1 SMS Events

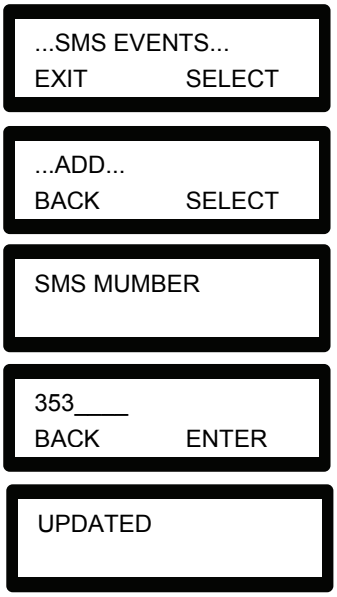
To receive Event notifications, SMS setup must have the phone number; the number must be enabled for SMS; and the Events must be toggled for SMS Event notification.

Add the phone number for SMS use:

1. Scroll to the SMS EVENTS option and press SELECT. The following configuration options are available:
2. Add by providing phone number for receipt of event notification (Requires three-digit country code prefix)

   Edit phone number as needed. (Within this level is also enabling SMS and selecting Reported Events.) Delete: Remove phone number as needed
3. Press BACK to exit the SMS EVENTS menu.

Each user may set a maximum of five phone numbers for SMS receipt.



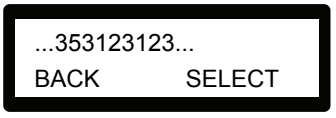
Enable phone number for SMS [receipt] within SMS Events menu:

1. Scroll to the SMS EVENTS option and press SELECT.
2. Select EDIT.
3. Using the up/down arrow keys, scroll to the appropriate registered number and press SELECT.
4. Scroll to ENABLE NUMBER and press SELECT.
5. Press SELECT for ENABLED [Alternatively, press SELECT for DISABLED.]
6. Press BACK to exit the SMS EVENTS menu.

   ➔ The keypad displays UPDATED once the setting has been saved.

Select Events for SMS notification within SMS Events menu:

1. Scroll to the SMS EVENTS option and press SELECT.
2. Select EDIT. Using the up/down arrow keys, scroll to the appropriate registered number and press SELECT.
3. Using the up/down arrow keys, scroll to the REPORTED EVENTS and press SELECT.
4. Scroll and toggle ENABLED for each Event notification desired.
   ➔ Events display preceded by an asterisk.
5. Press BACK to exit the SMS EVENTS menu.



12.12.2 SMS Control

Depending on the SMS authentication chosen by the installation engineer, the user's mode of SMS may vary.

If the system SMS Authentication is set to the SMS PIN Code or Caller ID, it is necessary to set up SMS Control:

1. Scroll to the SMS CONTROL option and press SELECT. The following configuration options are available:
   – **SMS CALLER ID:** Provide phone number (Requires three-digit country code prefix)
   – **SMS PIN CODE:** Provide pin number
   – **Delete:** Remove phone number as needed
2. Press BACK to exit the SMS SETUP menu.

NOTE

Beyond User Type, Engineer settings allow specific rights for functionality to be granted to each user. If a function explained herein does not appear on User keypad menus, the user does not have permission for that functionality. Consult with authorised installation Engineer for appropriate rights and settings.

12.12.3 SMS Commands

Once the SMS setup and configuration is complete, SMS features may be activated. Commands, depending on SMS configuration are sent using a code or caller ID. The type of code depends on the system SMS Authentication. An installation Engineer provides the appropriate setting and instructions for use.

The table below provides all available SMS commands. Subsequent action and response are also provided.

SMS Commands are sent as texts to the phone number of the SIM card on the controller.

For commands using code, the format of the text is the code followed by either a space or a full stop. Where **** is the code and “command” is the command: ****.command or **** command.

For example, the command “HELP” is this text: **** HELP or ****.HELP

COMMANDS (**** = code)

12.13 Allowing Engineer Access

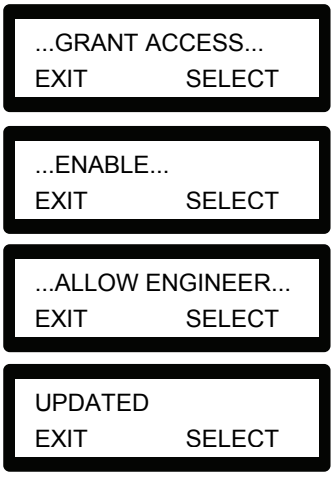
When engineer or manufacturer access has been allowed, the Keypad displays the text ENGINEER ENABLE. Once access has been granted, the user cannot access the system until the engineer has logged off.

To allow engineer access:

1. Scroll to the GRANT ACCESS option and press SELECT (right soft key).
2. Select the ALLOW ENGINEER option (right soft key) and select ENABLED.

To disallow engineer access, follow the same path and toggle to DISABLED and press SELECT (right soft key).

New users with unique passwords can be created in Engineer Programming.



12.14 Language

On the login page available languages is provided and optional using the flag icons located in the bottom right corner.

12.15 Status Summary

The system status page follows login and provides User Programming menus. **User->Status** displays the current status of the alarms, including options such as system status, alerts, and inhibits. If multiple areas are defined on the system, the status of each of the areas is displayed.

For each area on the system, the following options are displayed:

12.15.1 Zones

The zone status page displays each of the zones on the system with the following information:

- **Zone Name:** a 16 character name that identifies the Zone
- **Area:** the area to which the zone is mapped
- **Zone Type:** the type of zone
- **Input:** the condition of the input (open/closed, etc.)
- **Status:** the status of the input (OK, Tamper, etc.)
- **Action:** if the user has the rights to inhibit or isolate a zone, these options are presented for that zone; to perform the isolate or inhibit action, click the relevant option

12.15.2 System Alerts

The system alerts User Programming page provides information on all of the alerts that the user can clear or isolate. The alert signal (or input) and its current status is displayed along with the action available to the user for each of the alert conditions. Isolating an alert condition deactivates that system alert until it is de-isolated again. Inhibiting an alert condition deactivates that system alert for one set period only.

NOTE

A User Duress alert can only be restored; it cannot be isolated or inhibited. The User Duress functionality, which is triggered by entering the sum of PIN code + 1 at the Keypad, must be enabled in Engineer Programming for this feature to work.

12.15.3 Expanders

A complete list of the Expanders detected on the system is at **Status-> Expanders**. Upon clicking any of the identifying parameters (ID, description, type, serial number), further status and options appear.

12.15.4 Keypads

A complete list of the Keypads detected on the system is at **Status-> Keypads**. Upon clicking any of the Keypad identifying parameters (ID, description, type, serial number), further status and options for Keypads provide the following:

- **Communication:** Input and Status revealed. Isolate/de-isolate is an option.
- **Cabinet Tamper:** Faults and Status revealed. Isolate/de-isolate is an option.
- **PACE:** check this box to disable key presses on a Keypad when the entry timer is running; this applies only to Keypads with a PACE receiver installed
- **Panic:** check this box to enable the Keypad Panic Alarm option. A Panic alarm is generated (All bells, strobes activated) if the left and right soft programming keys on the Keypad are pressed simultaneously.

12.16 Log

The system log, which is accessible from both User and Engineer Programming, is a list of all the events on the system. The date, time, and the event description is logged with each event.

The contents of the system log can be copied and pasted to a text file by clicking Text File.

The complete list of recorded events can be viewed by clicking All.

NOTE

In order to avoid multiple events from the same source filling the log, the SPC system in accordance with standards [4], permits the logging **of only three activations** of the same zone in the one set period.

12.17 Utilities

From the Utilities page, users can grant engineer access, change their own code, and set the date and time.

12.17.1 Allowing Engineer/Manufacturer Access

Users can permit or restrict engineer access to the system. Engineers are only able to access the controller when this permit is enabled. A manager type user also has the option to permit or restrict access to Manufacturer Access. Firmware upgrades are only possible when Manufacturer Access is enabled.

12.17.2 Changing Access Code

The change access code feature allows users to change their PIN code. The old PIN code must be entered first, followed by the new access code (twice).

12.17.3 Setting the Time and Date

The time and date of the system displaying on the Keypad and event log displays here. Daylight saving time can be automatically set by clicking the checkbox at the bottom of the page.

12.18 SMS

The PSC Provides remote access using SMS. Once a modem is installed and the SPC system is configured for SMS Authentication, features include these SMS abilities:

- Event notification
- Remote Commands

12.18.1 SMS Events

The SMS feature allows selection of notifications of the following system events to be messaged remotely.

- Alarm Activation
- Confirmed Alarms
- Fault and Tamer
- Arming and Disarming
- Inhibit and Isolate
- All other types of events

At **SMS->SMS Events**, configure for SMS Events with these steps:

1. Select to enable SMS
2. Provide phone number for sending and retrieval (Requires three-digit country code prefix)
3. Toggle the Events that warrant an SMS notification
4. Press Save to retain all settings.
5. Test if desired.

NOTE
The SMS test is provided only for the purpose of ensuring the SMS feature is operating correctly. A short text message using alphabetic characters (A-Z) should be used to test this feature.

12.18.2 SMS Control

If the system has been configured and authenticated for pin code other than user login, this SMS option appears. Users must provide settings for remote commands using a code different than that of the login code. At **SMS->SMS Control** follow these steps:

1. Provide phone number for sending and retrieval (Requires three-digit country code prefix)
2. Create new code for use (this is to be different than login code)
3. Repeat with new code for confirmation
4. Save to retain settings.

12.19 X-10 Outputs

An X-10 output is designed to be used with X-10 devices, with a system maximum of 16 X-10 outputs, and are identified uniquely with labels A1 through A16.

The state of an X-10 output is unknown by the controller after it is powered up or reset. The X-10 state may however be kept by X-10 devices. In any case, after power-up or reset changes of X-10 state can happen as a result of the user entering a keypad shortcut, through trigger transitions, or through external commands.

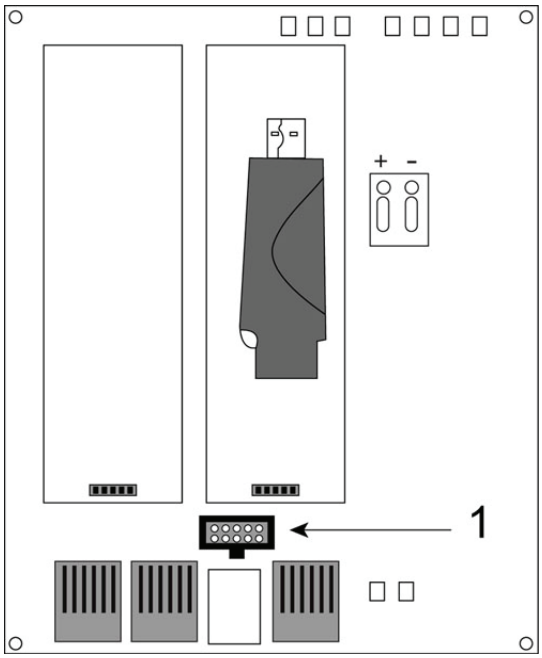
13 Using the Fast Programmer

The SPC Fast Programmer is a portable storage device that provides the engineer with the ability to upload and download configuration files in a quick and convenient manner. The Fast Programmer has two interfaces located on opposite ends of the device:

1. **SPC Controller Interface:** This 10-pin serial interface is located at the top of the Fast Programmer and connects directly to the Fast Programmer interface on the SPC Controller board. Once connected, the engineer can upload and download files directly from the Fast Programmer via the browser programming interface.
2. **PC USB Interface:** This USB interface is located at the bottom of the Fast Programmer and connects directly to the USB interface on a PC. Configuration files can only be stored and accessed by using the SPC Pro programming application.

13.1 Connecting the Fast Programmer to a PC

To access the data on the Fast Programmer from a PC, the drivers for the Fast Programmer must firstly be loaded onto the PC to enable the operating system to recognize the device.



1	Fast Programmer Interface

Fig. 18 Fast Programmer Interface

For **Windows XP and 2000** install the Fast Programmer driver using this SPC CD and the following steps:

1. Insert the Fast Programmer into the USB port on the PC
2. The Found New Hardware wizard is displayed.
3. Press Cancel on the "Found New Hardware Wizard" Note: if there are two devices, cancel both wizards before proceeding
4. Double click the "SPC.exe " install file
5. Installation in progress. A dialog box regarding Windows certification appears. Siemens deems this acceptable to continue. For further queries, please contact network administrator or a Siemens technician.
6. Click Continue Anyway. Installation safely proceeds.
7. At the end of the installation process, a window indicates that the installation process is complete.
8. Click Finish to confirm the completion of the installation.

For **Windows Vista** users with administration privileges can install the Fast Programmer driver using the SPC CD and the following steps:

1. Double click the "SPC.exe " install file
   ➔ The installation wizard appears.
2. Proceed with the wizard instructions
   ➔ Installation in progress.
   ➔ At the end of the installation process, a window indicating that the installation process is complete.
3. Click Finish to confirm the completion of the installation.
4. Plug the Fast Programmer into the USB port.

NOTE
When installing, the user must have administration rights in order for the Fast Programmer driver to install on the Windows Vista platform.

The SPC Fast Programmer is now installed on the PC. The configuration files can be accessed only by running the SPC Pro programming application.

For complete details on using the SPC Pro programming application, consult the SPC Pro Configuration Manual.

13.2 Connecting the Fast Programmer to the SPC Controller

To connect the SPC Fast Programmer to the SPC Controller follow these steps:

1. Open the SPC Controller Enclosure and locate the Fast Programmer interface. Do NOT power down the SPC Controller.
2. Align the Fast Programmer over the Fast Programmer interface on the SPC Controller board with the 10-pin serial interface facing down.
3. Ensure the pins match up correctly with the holes in the socket and firmly but gently press into place.
4. The LED on the Fast Programmer flashes momentarily as the data is accessed. DO NOT remove the Fast programmer while the LED is flashing.

Continue on the Keypad or browser for configuring as described in Section 13.3.

To remove the Fast programmer – gently pull the device out of the fast programmer interface.

13.3 Configuring with the Fast Programmer

Configure the Fast programmer using the browser with these steps:

1. Enter Full Engineer in browser programming and select the Files programming page.
2. Click Fast Programmer.
   ➔ The options to upload and download files are displayed.
3. A list of the configuration files stored on the fast programmer is displayed along with the options to download or delete them.
4. To upload a configuration file from the Fast Programmer to the SPC, enter the file name in the file name box and click Upload.
   ➔ Configure the Fast programmer using the browser with these steps:
5. Enter Full Engineer in browser programming and scroll and select the Utilities option menu.
6. Select Fast Programmer.
7. Scroll and select the desired option:
   - **Data From Panel:** Select desired file from list
   - **Data To Panel:** Select desired file from list
   - **Delete Files:** Select desired file from list
   - **Firmware Upgrade**

   ➔ Each menu choice provides file lists and the options to Select the desire file.

13.4 Firmware Upgrade using the keypad

1. Select utilities.
2. Fast programmer.
3. Upgrade firmware.

➔ The panel searches the Fast programmer for a valid firmware file. Once if finds the firmware file it will allow the user to select and upgrade the panel.

14 Intruder Alarm Functionality

The SPC system can accommodate 2 distinct modes of intruder alarm operation, Commercial Mode or Domestic Mode, both of which support multiple areas.

Each area in turn can support 4 different alarm modes. Commercial Mode presents more programmable alarm types than Domestic Mode. The default zone name and type settings for each mode is listed in Appendix H: Domestic and Commercial Mode Default Settings.

14.1 Commercial Mode Operation

Commercial Mode is suitable for business installations with multiple areas and a large number of alarm zones. Each area defined on the system supports the alarm modes listed below.

Alarm Mode	Description
UNSET	Area is disarmed, only alarm zones classified as 24Hour will activate the alarm.
PARTSET A	This mode provides perimeter protection to a building while allowing free movement through the exit and access areas. Zones that have been classified as EXCLUDE A remain unprotected in this mode. By default there is no exit time (the system instantly sets on selection of this mode). An exit timer can be applied to this mode by enabling the Partset A Timed variable.
PARTSET B	This setting mode applies protection to all zones except those that have been classified as EXCLUDE B. By default there is no exit time (the system instantly sets on selection of this mode). An exit timer can be applied to this mode by enabling the Partset B Timed variable.
FULL SET	Area is fully armed; opening of entry/exit zones starts the entry timer. If the alarm is not Unset before entry timer expires, the alarm is activated.

Tab. 26 Alarm Modes

14.2 Domestic Mode Operation

Domestic Mode is suitable for residential installations with one or more areas and a small-to-moderate number of alarm zones. Each area defined on the system supports the alarm modes listed below.

Alarm Mode	Description
UNSET	Area is disarmed, only alarm zones classified as 24Hour will activate the alarm.
PARTSET A	This mode provides perimeter protection to a building while allowing free movement through the exit and access areas (for example front door and hall) Zones which have been classified as EXCLUDE A remain unprotected in this mode. There are no Exit times associated with this mode and protection is applied instantly on selection of this mode.
PARTSET B	This setting mode applies protection to all zones except those that have been classified as EXCLUDE B. By default there is no exit time (the system setting instantly on selection of this mode). An exit timer can be applied to this mode by enabling the Partset B Timed variable.
FULL SET	Area is fully armed, opening of Entry/Exit zone start the Entry timer. If the alarm is not Unset before the Entry timer expires then the alarm is activated.

Tab. 27 Alarm Modes

14.3 Full and Local Alarms on the SPC

The type of alarms generated by the SPC system can vary depending on the type of zone that triggered the alarm activation. The vast majority of alarms require a visual (Strobe) and audible (Bell) indication of an intrusion to the premises or building.

By default, the first 3 physical outputs on the SPC4000 Controller are assigned to the External Bell, Internal Bell, and External Bell Strobe. When activated, these 3 outputs together provide sufficient warning of an alarm condition to persons located inside or within the immediate environment of the building or premises where the intrusion has taken place.

Full and local alarms on the SPC activate the following physical outputs:

- Controller Output 1: External Bell
- Controller Output 2: Internal Bell
- Controller Output 3: Strobe

For details on how to wire the bells and strobe see Section 7, Wiring the System.

A **Full Alarm** activation reports the alarm to the Alarm Receiving Centre (ARC) if one has been configured on the system.

A **Local Alarm** activation does not attempt to call the ARC even if one has already been configured.

A **Silent Alarm** activation does not activate outputs 1 – 3 (no visual or audible indications of the alarm). The alarm event is reported to the ARC. Silent alarms are only generated when alarm zones with the Silent attribute have been opened when the system is set.

15 System Examples and Scenarios

15.1 When to Use a Common Area

Common areas provide a convenient way of setting multiple areas within a single installation. A user assigned to a common area has the ability to SET ALL areas within that common area (even those areas that have not been assigned to that user). However, the users can only UNSET areas assigned to them.

Common areas should only be used when a single Keypad is installed at the primary access location and is shared by all users within the building (defining a common area on a system with multiple Keypads in different areas is not recommended).

Scenario I: Two departments of a business (Accounts and Sales) share a common access point (front door)

In this case, create 3 areas on the system (Common Area, Accounts, and Sales). The Common Area must include the main access point (front door). Assign the zones in Accounts to Area 2 and the zones in Sales to Area 3. Install a Keypad at the front door and assign it to all 3 areas. Define 2 users (minimum) on the system, one for each department, and assign the users to their respective areas and the common area.

Operation: Setting the System

The Accounts Manager leaves the office at 5 pm. When he enters his code at the Keypad, the FULLSET option presents the following 3 sub-menus:

- ALL AREAS: sets all areas assigned to the common area (Common Area, Accounts, and Sales) and any additional areas assigned to the account manager; in this case there are no additional areas. The exit timer for the front door informs the user to exit the building.
- COMMON: sets all areas assigned to the Common Area (Common Area, Accounts and Sales) and starts the exit timer for the front door
- ACCOUNTS: sets the Accounts area only; the Sales area remains unset and access is still permitted through the front door

When the last worker in the Sales department is leaving the building, he/she closes all doors and windows in AREA 3 and enters his/her code at the Keypad. The FULLSET option presents the following 3 sub-menus:

- ALL AREAS: sets all areas assigned to the Common Area (Common area, Accounts, and Sales) and any additional areas assigned to the sales worker; in this case there are no additional areas. The exit timer for the front door informs the user to exit the building.
- COMMON: sets all areas assigned to the Common Area (Common Area, Accounts, and Sales) and starts the exit timer for the front door.
- SALES: sets ALL areas assigned to the Common Area (Common area, Accounts and Sales); this is because there are no other unarmed sub-areas on the system

Operation: Unsetting the System

When the Accounts Manager returns to open the building and enters his code on the Keypad, the UNSET option presents the following 3 sub-menus:

- ALL AREAS: unsets all areas assigned to the accounts worker (Common Area, Accounts) and any additional area assigned to the accounts worker. In this case there are no additional areas. NOTE: The accounts worker cannot UNSET the Sales area.
- COMMON: unsets ONLY the Common Area (Reception). This provides the option to unarm the reception area only while leaving the Accounts and Sales offices set.
- ACCOUNTS: unsets the Accounts area and the Common Area (Reception). In this case the Sales area remains set while access is still permitted through the front door.

Use of Common Areas:

- Keyarm Zone

If the entry/exit route in the common area is programmed as a Keyarm zone, when it is activated all areas in the Common area are SET. Deactivating the keyarm zone UNSETs all areas in the Common Areas.

- Multiple Keypads

If areas assigned to the common area have their own Keypads for entry/exit, it is important that the exit times associated with those areas provide sufficient time to allow the user to reach the common area exit. This is in case the area being armed is the last un-armed area on the system and therefore will trigger arming of the entire common area.

NOTE

As a rule it is advisable to use common areas in installations that have only one Keypad located at the common access point, i.e. front door access to the entire building.

16 Appendix

16.1 Appendix A: Keypad User Menu

To select an option in the user menus using only the keypad digits, press the user code plus the digit listed to the left of the menu option, shown below: eg. to activate a Partset A, enter the user code **+ 3**.

1	UNSET	Performs an Unset on the system. If multiple areas are defined then each area is presented in a sub-menu. For a single area system this option is only presented when the system is Set.
2	FULLSET	Performs a Fullset on the system. If multiple areas are defined then each area is presented in a sub-menu. For a single area system this option is only presented when the system is Unset.
3	PARTSET A	Performs a Partset A on the system. If multiple areas are defined then each area is presented in a sub-menu.
4	PARTSET B	Performs a Partset B on the system. If multiple areas are defined then each area is presented in a sub-menu.
5	RESTORE	Performs Restore operation. This option is only presented when there are active alerts to restore.
0	MENUS	

1	INHIBIT	Allows users to inhibit a zone
2	ISOLATE	Allows users to isolate a zone
3	SET DATE/TIME	Allows users to set the time and date
4	TEST	Allows users to perform a Bell test or Walk test OR change the audible settings
5	EVENT LOG	Allows users to view a log of the most recent events on the system
6	CHIME	Allows users to set the chime attribute on a zone; used for testing zone inputs without triggering an alarm
7	USERS	Allows Manager type users to add, edit, and delete users
8	CHANGE CODE	Allows users to change their user code
9	SETUP SMS	Allows users to set up the SMS service for sending short text messages to mobile phones via the PSTN Line
0	GRANT ACCESS	Allows users to grant Engineer or Manufacturer access to the system

16.2 Appendix B: Keypad Engineer Menu

Engineer Code: 1111

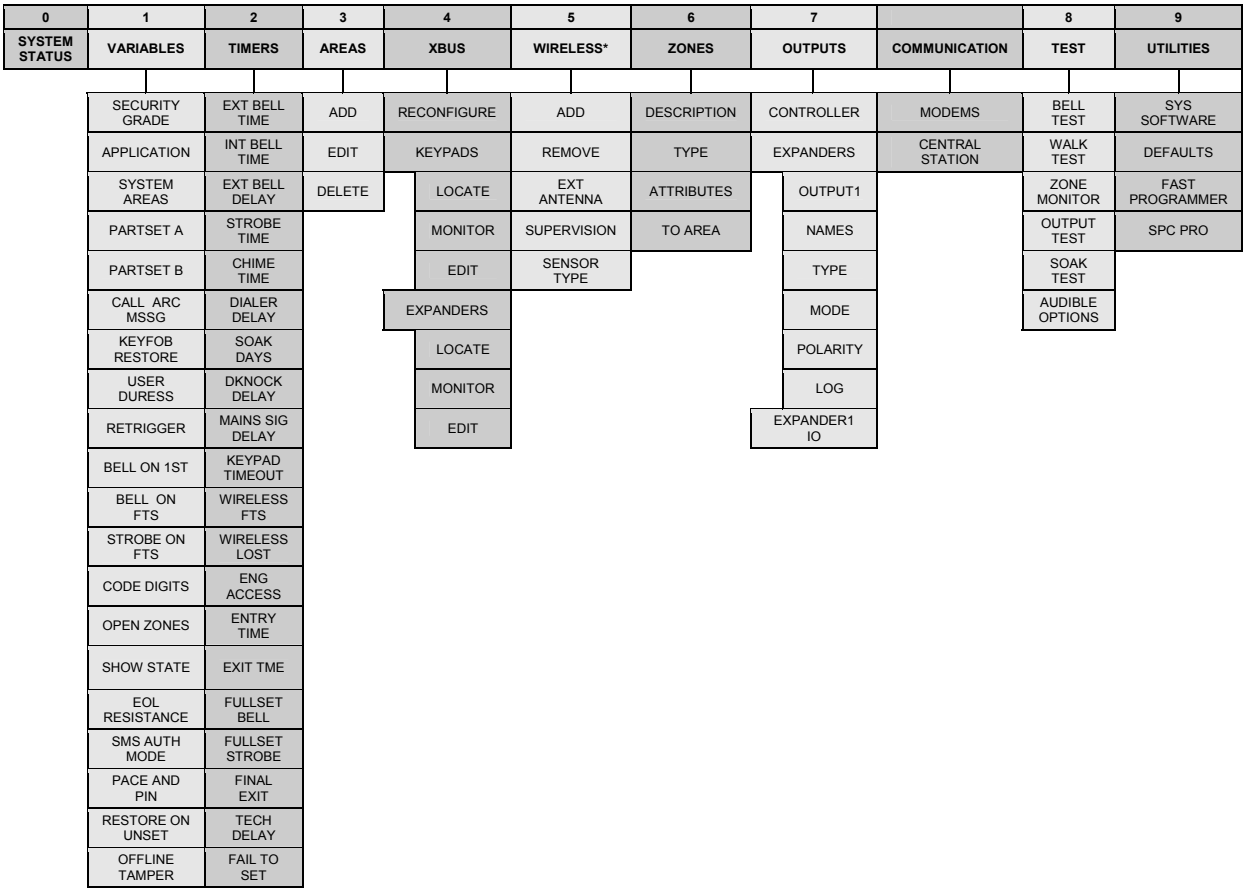
To select an option in the Engineer menus using only the keypad digits, press the engineer code plus the digit listed to the left of the menu option as shown below: eg. to view Users, press engineer code (default **1111**) **+ 6** .

1	ARMING	
	UNSET	Performs an Unset on the system. For a multiple area system each area is presented in a sub-menu. For a single area system this option is only presented when the system is Set
	FULLSET	Performs a Fullset on the system. For a multiple area system each area is presented in a sub-menu. For a single area system this option is only presented when the system is Unset
	PARTSET A	Performs a Partset A on the system. For a multiple area system each area is presented in a sub-menu
	PARTSET B	Performs a Partset B on the system. For a multiple area system each area is presented in a sub-menu
2	INHIBIT	Displays a list of the Inhibited zones on the system
3	ISOLATE	Allows the engineer to isolate zones on the system
4	EVENT LOG	Displays a list of the most recent events on the system
5	CHANGE CODE	Allows the engineer to change the engineer code
6	USERS	Allows the engineer to add, edit or delete users
7	SETUP SMS	Allows the engineer to Enable or Disable SMS functionality
8	SET DATE/DATE	Allows the engineer to set the date and time
9	INSTALLER TEXT	Allows the engineer to program the installer details and configure whether these are displayed on the Keypad
0	FULL ENGINEER	The FULL ENGINEER Menu automatically disables alarms on the system and allows the engineer to program those engineer options that could trigger alarms on the system without doing so.

16.3 Appendix C: Keypad Full Engineer Menu

Full Engineer Code: 1111

To select an option in the Full Engineer menus using only the keypad digits, enter the Full Engineer code plus the digit to the left of the menu option as shown below: eg. to view Timers, enter Full Engineer code (default **1111**) **+ 2**.



**Wireless features will be available with a later market package.*

16.4 Appendix E: SPC Controller Status LEDs

LED	Function
LED 1	**Battery Status** ON: battery voltage has dropped below the deep discharge level (10.9 V) OFF: battery status OK
LED 2	**Mains Supply** ON: Mains failure OFF: Mains OK
LED 3	**X-BUS Status** ON: X-BUS configuration is functioning normally. A fast flash indicates discovery mode. FLASHING: Detects end of line Expanders or break in wiring.
LED 4	**System Fault** ON: a hardware fault has been detected on the board OFF: no hardware fault has been detected
LED 5	**Writing to Flash** ON: system is writing to flash memory OFF: system is not writing to flash memory
LED 6	**Heartbeat** FLASHING: system is functioning normally

ON	OFF	FLASHING

Tab. 28 SPC Controller Status LED's

16.5 Appendix F: Powering Expanders from the Auxiliary Power Terminals

The Auxiliary 12 V power terminals on the SPC Controller (0 V, 12 V) share a power supply (750 mA) with the Darlington outputs (OP4, OP 5, OP6) enabling connection to a number of external devices and/or Expanders to the Controller.

To calculate the number of Expanders/Keypads that can safely be powered from the auxiliary power terminals, add the total maximum current draw from all of the Expanders/Keypads to be powered and determine if this total is less than 750 mA. A table containing the current draw for each type of Expander is below. The max current values assume all relays on the Expanders are powered and no devices are connected to the Auxiliary power terminals on each Expander.

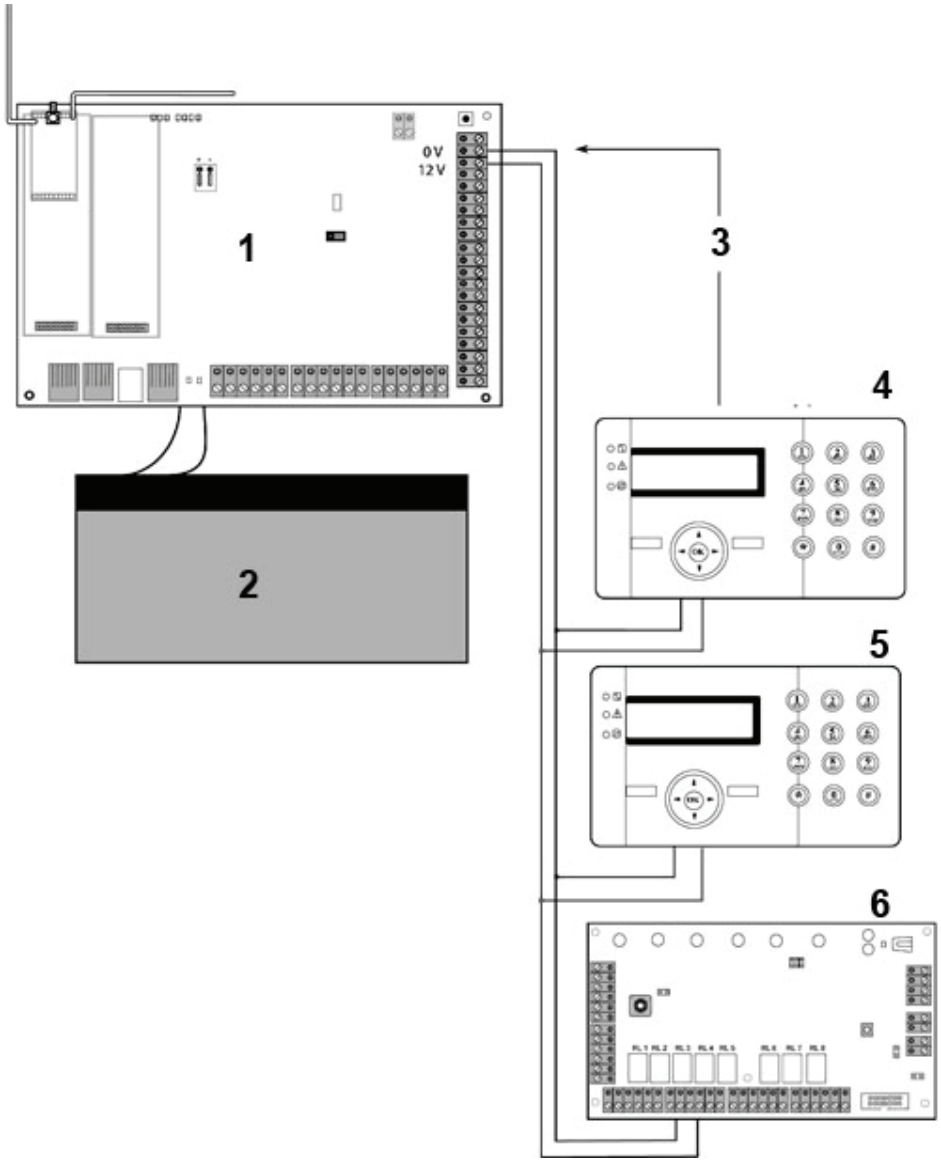
Expander	Quiescent Current	Max Current
SPCE650 Expander with 8 Input / 2 Output	45 mA	80 mA
SPCE450 Expander with 8 Output	55 mA	190 mA
SPCK420 LCD Keypad	60 mA	70 mA
SPCK421 LCD Keypad with Card Reader	90 mA	110 mA

(*) – The maximum current value displayed for the Keypad is with the backlight ON.

Tab. 29 Current draw for each type of Expanders

Expander 1 Current (mA) + Expander 2 Current (mA) + ….. <750 mA

If the Darlington outputs (OP4, OP5 & OP6) are already powering external devices then the power supplied to these devices from the 750 mA supply must be subtracted to determine the amount of available power from the Auxiliary power terminals (0 V, 12 V).



1	SPC Controller
2	Battery
3	Auxiliary 12 V Power Terminals
4	Keypad
5	Keypad
6	I/O Expander

Fig. 19 Powering Expanders from the Auxiliary Power Terminals

16.6 Appendix G: Calculating the Battery Power Requirements

It is important that adequate stand-by power is available to supply all devices in the event of a Mains supply failure. To ensure that enough power is available, always connect the appropriate back-up battery and PSU.

The table below gives an approximation of the maximum load current that can be drawn from each type of battery over the given stand-by periods of 12 hours, 30 hours and 60 hours.

The approximations below assume that the SPC Controller PCB is drawing its maximum load (no auxiliary load connected, no external bells connected, no diallers plugged) and that the usable output power from the battery is 85% of its maximum capacity.

$$\frac{0.85 \times \text{Max Battery Capacity (AH)}}{\text{Standby Time (Hours)}} - \text{SPC Controller Current} = \text{Max available load current}$$

Device with PSU		SPC5000 SPC6000		SPC4000 SPCP332/333	
Max. controller current		**Approx. 200 mA**		**Approx. 100 mA**	
Battery		7 AH	17 AH	7 AH	17 AH
Standby Time	12 hours	296 mA	1004 mA	396 mA	1104 mA
	30 hours	n.a	282 mA	98 mA	382 mA
	60 hours	n.a.	n.a.	n.a.	141 mA

Tab. 30 Battery Standby Time

See Appendix F for maximum load of devices and modules.

Values listed as N / A indicate that the selected battery does not have the capacity to power the minimum load of just the SPC Controller for the given standby time.

NOTE

Only Sealed Cell Valve Regulated Battery Types to be used.

For EN compliance the supplied current needs to be supported by the battery for required stand by time.

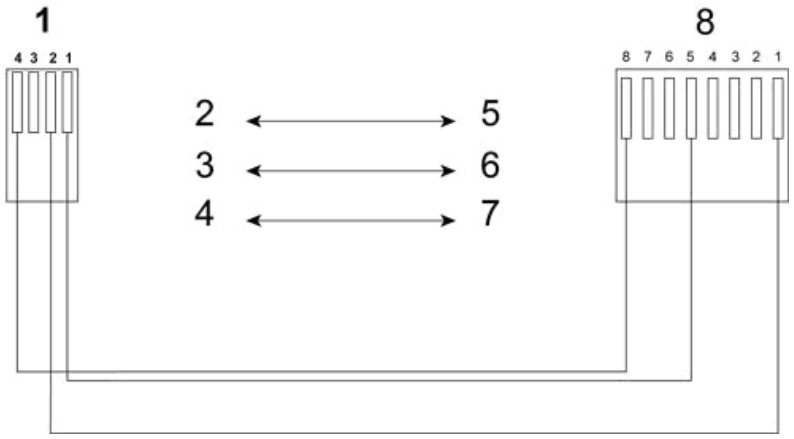
16.7 Appendix H: Domestic and Commercial Mode Default Settings

This table gives the default zone name and types on the Controller for each mode of operation. All zones on connected Expanders are be categorized as unused until explicitly configured by the installation engineer.

Feature	**Domestic mode**	**Commercial mode**
Zone Names		
Controller - Zone 1	Front door	Front door
Controller - Zone 2	Sitting room	Window 1
Controller - Zone 3	Kitchen	Window 2
Controller - Zone 4	Upstairs front	PIR 1
Controller - Zone 5	Upstairs rear	PIR 2
Controller - Zone 6	PIR Hallway	Fire exit
Controller - Zone 7	PIR Landing	Fire alarm
Controller - Zone 8	Panic button	Panic button
Zone Types		
Controller - Zone 1	ENTRY/EXIT	ENTRY/EXIT
Controller - Zone 2	ALARM	ALARM
Controller - Zone 3	ALARM	ALARM
Controller - Zone 4	ALARM	ALARM
Controller - Zone 5	ALARM	ALARM
Controller - Zone 6	ALARM	FIREX
Controller - Zone 7	ALARM	FIRE
Controller - Zone 8	PANIC	PANIC

Tab. 31 Domestic and Commercial Mode

16.8 Appendix I: Wiring of X10 Interface to the SPC Controller



1	RJ11
2	TX (4)
3	GND (1)
4	RX (4)
5	RX (1)
6	GND (5)
7	TX (8)
8	RJ45

Fig. 20 X10 Wiring to the Controller

16.9 Appendix J: SIA Codes

SIA Code	Short Description	Details
AR	AC Restoral	AC Mains power restored
AT	AC Trouble	AC Mains power fault
BA	Burglary Alarm	Burglary zone violated while armed
BB	Burglary Bypass	Burglary zone inhibited or disabled
BC	Burglary Cancel	
BD	Swinger Trouble	
BE	Swinger Trouble Restore	
BJ	Burglary Restore	
BR	Burglary Alarm Trouble Restore	
BT	Burglary Trouble	Short or Disconnect on alarm zone
BU	Burglary Un-Bypass	Zone inhibit/disable removed
BV	Burglary Verified	2nd Burglary zone activated causing Verified Alarm
BX	Burglary Text	
CD	Close Delinquent	
CF	Forced Close	
CG	Close Area	System has been Part Set/Armed
CI	Fail to Close	System/Area Fail to Set due to open zone or Service required etc.
CL	Closing Report	System has been fully Set /Armed
CP	Automatic Closing	

SIA Code	Short Description	Details
CQ	Remote Closing	
CS	Keyswitch Closing	
CT	Late to Open	System not disarmed on Time – Entry timeout.
EA	Exit Alarm	
EJ	Expansion Device Tamper Restore	Expander Tamper has been Restored
EM	Expansion Missing	
EN	Expansion Missing Restore	
ER	Expansion Device Restore	
ES	Expansion Device Tamper	Expander Tamper has occurred
ET	Expansion Trouble	
FA	Fire Alarm	Fire condition detected
FB	Fire By-pass	Fire zone bypassed (inhibited/ disabled)
FC	Fire Cancel	
FJ	Fire Trouble Restore	
FR	Fire Restoral	
FT	Fire Trouble	
FU	Fire Un-bypass	
HA	Hold-up Alarm	Silent Alarm, User Duress Code entered at Keypad
HB	Hold-up bypass	
HR	Hold-up Restoral	Silent Alarm has been restored
HT	Hold-up Trouble	
HU	Hold-up Un-bypass	
JA	User Code Tamper	User Code entered incorrectly 7 times
JT	Time change	System Time/Date has been changed
LB	Local Programming	Local programming begin – (Transmitted when Engineer code entered on System)
LR	Modem Restoral	Modem restoral – used with LINE zone type (Transmitted when zone closed)
LT	Modem Trouble	Modem trouble – used with LINE zone type (Transmitted when zone opened)
LX	Local Programming Ended	Local programming ended – Engineer off Site
MA	Medical Alarm	
MB	Medical Bypass	
MJ	Medical Trouble Restoral	
MR	Medical Restoral	
MT	Medical Trouble	
MU	Medical Un-bypass	
NL	Perimetre Armed	
NR	Network Link Restoral	
NT	Network Link Fail	
OA	Automatic Opening	
OG	Open Area	
OP	Opening Report	System has been unset/ disarmed
OS	Opening Keyswitch	
OQ	Remote Opening	
OR	Disarm From Alarm	
PA	Panic Alarm	Manual Panic Alarm activated – Emergency assistance requested
PB	Panic Bypass	Panic zone has been Inhibited/Disabled
PJ	Panic Trouble Restoral	
PR	Panic Restoral	Alarm/Trouble condition on Panic zone has been eliminated (Can be transmitted when System is Unset / Disarmed, or when zone

SIA Code	Short Description	Details
		closes depending on “Panic Restore” setting in alarm setting profiles)
PT	Panic Trouble	Short or discon on Panic zone
PU	Panic Un-bypass	Panic Zone inhibit/disable removed
RC	Relay Close	
RN	Remote Reset	
RO	Relay Open	
RP	Automatic Test	
RR	Power up	
RS	Remote Program Success	Successful connection made to SPC with remote programming software
RT	Data Lost	
RX	Manual Test	SIA Test Call (Time Command)
TA	Tamper	System Tamper Alarm – Enclosure opened
TB	Tamper By-pass	System Tamper Bypass – Enclosure Tamper bypass
TR	Tamper Restoral	System Tamper Restored – Enclosure closed
TU	Tamper Un-bypass	System Tamper Un-bypass – Enclosure Tamper un-bypass
TX	Test Call	
UA	Untyped Alarm	
UB	Untyped Bypass	
UJ	Untyped Trouble Restoral	
UR	Untyped Restoral	
UT	Untyped Trouble	
UU	Untyped Un-bypass	
YA	Bell Fault	Bell Tamper detected
XH	RF Jamming Restoral	
XJ	RF Tamper Restoral	
XQ	RF Jamming	
XS	RF Tamper	
YC	Communication Fail	
YF	Checksum Fault	
YH	Bell Restored	
YK	Communication Restoral	
YM	Battery Missing	
YP	PSU Trouble	
YQ	PSU Restoral	
YR	Battery Restoral	
YS	Communication Trouble	
YT	Battery Trouble	
YW	Watchdog reset	
YX	Service required	
YZ	Service Completed	

Tab. 32 SIA Codes

16.10 Appendix K: System Variables

Variable	Description	Default
SECURITY GRADE	The Security Grade of the SPC4000 Installation is determined by the setting of this variable. For further details on security grade requirements see [1]. Security Grade: Choose between Engineer, Grade 2, or Grade 3 Security Country: Choose between Ireland, Europe, or UK.	Grade: 2 Country: n/a
APPLICATION	The Application variable determines whether SPC is being installed for use in a commercial business or a private residence. Choose between Commercial or Domestic	Domestic
SYSTEM AREAS	The SPC system may be installed in a building that is partitioned into distinct and separate areas of operation. To cater for the requirements of these installations, the SPC supports the use of multiple areas. Setting the SYSTEM AREAS variable to enabled allows the engineer to define two or more areas on the system.	Disabled
PARTSET A TIMED	The PARTSET A TIMED variable provides the PARTSET A alarm mode with exit time functionality by triggering the EXIT TIMER as soon as PARTSET A is set.	Enabled
PARTSET B TIMED	The PARTSET B TIMED variable provides the PARTSET B alarm mode with exit time functionality by triggering the EXIT TIMER as soon as PARTSET A is set.	Enabled
PARTSET A ACCESS TO E/EXIT	Enable this variable to automatically change zones with the Access attribute set to entry/exit zones when Partset A alarm mode is activated.	
PARTSET B ACCESS TO E/EXIT	Enable this variable to automatically change zones with the Access attribute set to entry/exit zones when Partset B alarm mode is activated.	
PARTSET A E/EXIT TO ALARM	Enable this variable to automatically change entry /exit zones to alarm zones when Partset A alarm mode is activated.	
PARTSET B E/EXIT TO ALARM	Enable this variable to automatically change entry /exit zones to alarm zones when Partset B alarm mode is activated.	
PARTSET A RENAME	Enter a text description for the Partset A alarm mode.	
PARTSET B RENAME	Enter a text description for the Partset B alarm mode.	
PART A LOCAL	Enable this variable to ensure alarms activated in Partset A alarm mode do not report the alarm activation to a remote central station.	
PART B LOCAL	Enable this variable to ensure alarms activated in Partset B alarm mode do not report the alarm activation to a remote central station.	
CALL ARG MSSG	The Confirmation variable determines when an alarm is deemed to be a confirmed alarm. Garda: This enforces the policies for confirmed alarm required by the Irish Garda. DD243: This enforces compliance with the UK Police requirements, and is a specific requirement for UK commercial installations.	
KEYFOB RESTORE	The Keyfob Restore variable allows the user to restore alert functionality remotely.	
USER DURESS	The User Duress variable allows the user to report a User Duress event while entering a user code on the Keypad. This feature is particularly useful for locations where the threat of physical force or coercion by a third party is a real possibility.	
RETRIGGER	The retrigger variable determines if bells/sirens will resound after a second zone activation is detected.	
BELL ON 1ST	The Bell on 1st variable determines the manner in which internal and external bell outputs are activated.	
BELL ON FTS	The Bell on FTS variable provides a mechanism to inform a user who has just set the alarm that the system has failed to set, after that user has exited the building.	
STROBE ON FTS	The Strobe on FTS variable provides a visual mechanism to inform a user who has just set the alarm that the system has failed to set, after that user has exited the building.	
CODE DIGITS	The code digits variable assigns the number of digits for both user and engineer pass codes.	
OPEN ZONES	This variable determines if open zones are shown when the system is in the Unset state without any events.	
SHOW STATE	This variable determines whether the armed status (Set or Unset mode) of the system is displayed permanently on the second line of the Keypad.	
EOL RESISTANCE	Allows the engineer to program the End Of Line [EOL] resistance configuration for all inputs	

Variable	Description	Default
	connected to the system in one simple action. The engineer can select whether the EOL on all NEW zones only, or if ALL new and existing zones are to be programmed by choosing the appropriate option.	
SMS AUTH MODE	This variable indicates the login procedure required for SMS functionality.	
PACE AND PIN	This variable determines the login requirements for a user.	
RESTORE ON UNSET	This variable allows user to unset and restore alarm functionality at the same time.	
OFFLINE TAMPER	This creates a tamper for when zones are offline.	

Tab. 33 System Variables

16.11 Appendix L: Zone Types

The table below gives a brief description of each zone type available on the SPC system. Each zone type activates its own unique output type (an internal flag or indicator) that can then be logged or assigned to a physical output for activation of a specific device if required.

Zone Type	Description
ALARM	The ALARM zone type is the default zone type setting and is also the most frequently used zone type for standard installations.
ENTRY/EXIT	The entry/exit zone type should be assigned to all zones on an entry/exit route (i.e. a front door or other access area to the building or premises). This zone type provides an entry and exit time delay.
EXIT TERMINATOR	An Exit Terminator zone type is used in conjunction with a push button on an exit route and acts as an exit terminator – that is, it provides an infinite exit delay period and will not allow the system to set until the button is pressed.
FIRE	Fire zones are 24-hour zones for fire monitoring and their response is independent of panel operating mode. When any fire zone opens, a full alarm is generated and the FIRE output type is activated. If the 'Report only' attribute is set then activation will only be reported to the central station and a Full Alarm will not be generated.
FIRE EXIT	This is a special type of 24-hour zone for use with fire exit doors that should never be opened. In Unset mode, an activation of this zone will trip the Fire-X output, causing alert messages and sounding the Keypad buzzer and internal sounder.
LINE	Telemetry line monitoring input. This is usually used in conjunction with a telephone line health output from an external digital dialer or direct line communication system. When activated, it produces a local alarm in Unset mode and a full alarm in all other modes.
PANIC ALARM	Panic Alarm zone types are active on a 24-hour basis and activated via a panic button. When a Panic zone is activated it will report a Panic event, independent of panel arming mode. All activation's are logged and reported if log attribute is active. If the SILENT attribute is set then the alarm will be silent (Activation is reported to ARC), otherwise it will generate a Full alarm.
HOLD-UP ALARM	Hold-up zone types are active on a 24-hour basis and activated via a button. When a Hold-up zone is activated it will report a Hold-up event, independent of panel arming mode. If the SILENT attribute is set then the alarm will be silent, otherwise it will generate a full alarm. All activations are logged and reported if log attribute is active.
TAMPER	When open in the Unset mode, a Local Alarm is generated. If the system is Full Set, a Full alarm is generated. If the Security Grade of the system is set to Grade 3 then an engineer code is required to restore the alarm.
TECHNICAL	The tech zone controls a dedicated tech zone output. When a tech zone changes state, the tech zone output will follow.
MEDICAL	This zone type is used in conjunction with radio or hardwired medical switches. Activation in any mode activates the medical digital communicator output (unless 'Local attribute' is set) cause the Keypad buzzer to sound (unless 'Silent attribute' is set) and display the Keypad message " MEDICAL ZONE X " where X is the zone number.
KEYARM	A Keyarm zone is normally used in conjunction with a key lock mechanism. A Keyarm zone will SET the system/area/common areas when it is OPENED and will UNSET the System/Area/Common Areas when it is CLOSED.
UNUSED	Allows a zone to be disabled without the need for each zone to have EOL resistors fitted. Any activation on the zone will be ignored.
SHUNT	The shunt zone type when opened inhibits all zones that have the shunt attribute set. This operation applies for both SET and UNSET modes. As soon as the shunt zone is closed, the zones with the shunt attribute set will become un-inhibited again.
X-SHUNT	A zone programmed with the x-shunt zone type inhibits the next consecutive zone on the system whenever it is opened. This operation applies for both SET and UNSET modes. As soon as the x-shunt zone type is closed the next zone becomes de-inhibited again.

16.12 Appendix M: Zone Attributes

The Zone attributes on the SPC system determine the manner in which the programmed zone types function.

	Zone Type	Description
	**Access**	When the 'Access' attribute on a zone is set, then on opening that zone, an alarm will not be generated if either the entry or exit timer is running. When the system is full set the Access attribute is not active and opening the zone will initiate a full alarm. The 'Access' attribute is most often used for PIR sensors located close to an entry/exit zone. It allows the user free movement within the access area while the entry or exit timer is counting down. The 'Access' attribute is only valid for Alarm zone types. All connected devices (Bells - Internal & External, Buzzers, Strobe) are activated.  **NOTE** An alarm zone with Access attribute can automatically be changed to an entry/exit zone in Partset mode if the Partset Access Option is set.
	**Exclude A**	If the 'Exclude A' attribute on a zone is set, then an alarm will not be generated by that zone opening while the panel is in the Partset A mode. The 'Exclude A' attribute is valid for Alarm zone type and Entry/Exit zones only. A FULL alarm is generated if a zone with the EXCLUDE A attribute is opened while the system is in FULLSET or PARTSET B Mode (Bells - Internal & External, Strobe).
	**Exclude B**	When the 'Exclude B' attribute is set, the zone opening will not generate an alarm while the panel is in the Partset B mode. The 'Exclude B' attribute is valid for Alarm zone type and E/Exit zones only. A FULL alarm is generated if a zone with the EXCLUDE B attribute is opened while the system is in FULLSET or PARTSET A Mode (Bells - Internal & External, Strobe).
	**24 Hour**	If a Zone is assigned the '24 Hour' attribute, then it is active at all times and will cause a full alarm if opened in any mode. This attribute can only be assigned to the ALARM zone type. Generates a FULL Alarm in UNSET, SET and PARTSET modes.  **NOTE** The 24 Hour attribute overrides the settings of any of the other attributes for a particular alarm zone.
	**Local**	When the 'Local' attribute is set, an alarm generated by a zone opening will not result in the external reporting of the event. The 'Local' attribute is valid for Alarm, E/Exit, Fire, Fire Exit and Medic zone types.
	**Double Knock**	Use this attribute to deal with troublesome detectors. (i.e. some detectors may generate activation signals spuriously, thereby inadvertently trigger alarms on the system). If two armed double knock zones are triggered (or the same one activates twice) during the double knock period, then an alarm is generated. Double knock time is set in seconds. Two open actions within that time period will generate an alarm. All open double knock zones are logged when the system is armed.
	**Chime**	When the 'Chime' attribute is set for a zone, any opening of the zone during the Unset mode will cause the internal buzzers to activate for a short period (2 seconds approx.). The Chime attribute is valid for Alarm, Entry/Exit, and Tech. zones types.
	**Inhibit**	When the 'Inhibit' attribute is set, a user may inhibit this zone.
	**Normally Open**	When the 'Normally Open' attribute is set, the system expects that a connected detector/sensor is a Normally Open device. (i.e. a sensor is deemed to be activated whenever the contacts are closed on the device).
	**Silent**	If the 'Silent' attribute is set then there will be no audio or visual indications of the Alarm. The alarm activation will be sent to the Receiver station. If the system is unset then a warning message is shown on the display.
	**Log**	If this attribute is set then all zone state changes are logged.
	END OF LINE	The End Of Line (EOL) attribute provides a number of input zone wiring configurations on the system.
	ANALYSED	The Analysed Attribute must be set for a zone if that zone is wired with an inertial sensor. The Pulse count and Gross attack values should be programmed for each inertial sensor on the system in accordance with the results of a simple calibration of the device.
	**Final Set**	The Final Set attribute can only be assigned to an Entry/Exit Zone type. Use this attribute to override the standard process of counting down the exit timer whenever the system is full set. When all other entry/exit routes in the premises are closed, fullset the system and close the final exit/entry zone. As soon as the door is closed the Final Exit time will count down to arming the system.

	**Shunt**	A zone with the shunt attribute set will be inhibited whenever a shunt type zone is opened. This provides a mechanism to group the inhibition of zones with the opening of the shunt zone type.
	**Report Only**	This attribute only applies to the FIRE zone type. If this attribute is set, then activation of the fire zone will only report the activation to the central station. No alarms will be generated on site.
	**Open Only**	This attribute only applies to the KEYARM zone type. If set then the arming state of the building will toggle on openings only.
	Fullset Enable	This attribute only applies to the KEYARM zone type. If this attribute is set then zone activation will Fullset the system/area. Apply this attribute if it is intended that the user should only have the ability to FULLSET the system from a Keyarm zone.
	Unset Enable	This attribute only applies to the KEYARM zone type. If set then zone activation will Unset the system/area. Apply this attribute if it is intended that the user should only have the ability to UNSET the system from a Keyarm zone.
	**Keyarm Fullset**	This attribute only applies to the KEYARM zone type. If set then zone activation will Fullset the system/area.
	**Keyarm Unset**	This attribute only applies to the KEYARM zone type. If set then zone activation will Unset the system/area.
	**Tech Zone Report**	This attribute controls a dedicated tech zone output. When a tech zone changes state, the tech zone output will follow. That means; when the tech zone opens, then the trigger for the programmed output goes "ON" and when the tech zone closes, then the trigger for the output goes "OFF".  **NOTE** If more than one tech zone has been assigned to an area or to a system, the tech zone output will remain on until all tech zones are closed.
	**Tech Zone Display**	This attribute displays an alert on a keypad plus the LED **System Alert**. This alert is only shown in "unset mode".  **NOTE** The keypad has to be assigned in the same area as the Tech Zone, otherwise the alert will not be displayed.
	**Tech Zone Audible**	This attribute activates the buzzer on the keypad. The buzzer has to be enabled on the keypad and the area has to be in "unset mode".  **NOTE** The keypad has to be assigned in the same area as the Tech Zone, otherwise the buzzer will not be activated.
	**Tech Zone Delay**	This attribute delays all Tech Zones (Report/Display/Audible) for the dedicated zone. If the variable delay time from 0 to 9999 seconds is elapsed, then the activation will be activated as described in the Tech Zones (Report/Display/Audible).  **NOTE** The delay time of the zone will also delay the alarm transmission to the ARC.

16.13 Appendix N: Zone Types and Assignable Attributes

The following table shows which attributes are applicable to each zone type:

Attribute / Type	Access	Exclude A	Exclude B	24 Hour	Local	Double Knock	Chime	Inhibit	NO	Silent	Log	EOL	Analyse	Final Exit	Shunt	Report Only	Open Only	Fullset Enable	Keyarm Fullset	Keyarm Unset	Tech Zone Report	Tech Zone Display	Tech Zone Audible	Tech Zone Delay
Alarm	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓									
E/Exit		✓	✓		✓		✓	✓	✓		✓	✓	✓	✓	✓									
Ex/Term									✓		✓	✓												
Fire					✓				✓		✓	✓				✓								
Firex					✓			✓	✓		✓	✓			✓									
Line								✓	✓		✓	✓												
Panic									✓	✓	✓	✓												
Holdup									✓	✓	✓	✓												
Tamper									✓		✓	✓												
Tech							✓		✓		✓	✓									✓	✓	✓	✓
Medic					✓				✓		✓													
Keyarm									✓		✓	✓					✓	✓	✓	✓				
Unused																								
Shunt									✓		✓													
X-Shunt									✓		✓													

Attribute is not assignable for this type of alarm.

✓ Attribute is assignable for this type of alarm.

16.14 Appendix O: Wiring of Mains Cable to the SPC Controller

Requirements:

A readily accessible approved disconnect device must be incorporated in the building installation wiring. This must disconnect both phases at the same time. Acceptable devices are switches, circuit breakers, or similar devices

- Minimum size conductor used for connecting mains is 1.5 mm square
- The circuit breakers must have a maximum rating of 16 amps

Mains cable when fitted shall be secured as per the diagram below

The mains cable is secured to the metal V shaped bend in the base plate, via a tie wrap such that the metal bend is between the cable and the tie wrap. The tie wrap must be pulled extremely tightly such that when the cable is tugged there is no movement in the cable relative to the tie wrap.

The mains cable must be an approved type and marked HO5 VV-F or HO5 VVH2-F2.

The plastic tie wrap must be flammability rated V-1.

Fig. 21 Cable tie connection to metal indent in base of cabinet

17 Keyword index

R

S

T

U

V

W

X

Z

Issued by
Siemens Building Technologies
Fire & Security Products GmbH & Co. oHG
D-76181 Karlsruhe

www.buildingtechnologies.siemens.com/

Document no. **A6V10209305**
Edition 25.09.2008