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INSTALLATION MANUAL

FastCom

4 Channel Digital Communicator

CE

Texecom

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Contents

The *FastCom* Digital Communicator conforms to European Union (EU) Low Voltage Directive (LVD) 73/23/EEC (amended by 93/68/EEC) and Electro-Magnetic Compatibility (EMC) Directive 89/336/EEC (amended by 92/31/EEC and 93/68/EEC).

The CE mark indicates that this product complies with the European requirements for safety, health, environment and customer protection.

1 Regulatory Requirements

The *FastCom* unit must be installed by an electrically competent person. Before attempting to install the *FastCom*, the installer must be aware of the following:

Application

The *FastCom* digital communicator is suitable for connection to the following types of telephone line:

- Direct exchange lines (PSTN) supporting DTMF (Tone dialling).
- PABX exchanges (with or without secondary proceed indication).

Approval

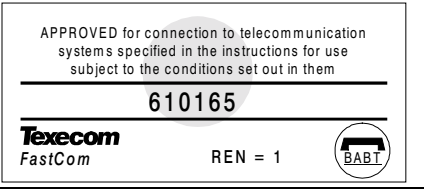
The *FastCom* is classified as a stand-alone modem apparatus and has been approved for connection to analogue PSTN in the UK for the following usage:

- Automatic Call Initialisation.
- Automatic Dialling.
- Multiple Repeat Attempts.
- Serial Connection.

Any other usage will invalidate any approval given to the apparatus, and as a result, the apparatus ceases to comply with the standards against which the approval was granted. The standards against which the approval was granted are as follows:

- NTR 3
- EN 41003
- EN 60950

The apparatus is marked in accordance with the Telecommunications Apparatus marking and Labelling order 1985 (SI 1995 / 717).



REN Rating

As a guide to the number of apparatus that can be simultaneously connected to an exclusive line, the sum of the REN values must not exceed 4. A BT telephone is assumed to have a REN = 1 unless otherwise marked.

The *FastCom* has REN = 1.

Mounting the Unit

The *FastCom* is enclosed in a plastic casing and is small enough to be mounted inside most control panels.

- Once the unit is installed the cover must be secured using the two screws supplied.

Compatibility with PABXs

The FastCom is only approved for use with compatible PABX systems. Correct operation in all circumstances is not guaranteed.

Connection to the Telephone Network

The person responsible for connection of the *FastCom* to a PABX system is as follows:

- If the wiring is owned by British Telecom PLC - British Telecom
- If the wiring is not owned by British Telecom, either:

  (a) British Telecom

  (b) The authorised maintainer

  (c) A professional installer after 14 days written notice to the authorised maintainer.

2 Overview

The *FastCom* digital communicator consists of a single PCB enclosed in a small plastic case. It is used to transfer alarm status information from an alarm system to a dedicated Alarm Receiving Centre (ARC), Pager or Telephone/Mobile via the Public Switched Telephone Network (PSTN). The *FastCom* is intended for connection to the analogue PSTN in the UK.

The *FastCom* can accept serially connected telephone apparatus. When the *FastCom* needs to dial out it will temporarily disconnect all serially connected telephone apparatus (e.g. phones, answer-phone, etc.). This means that the *FastCom* does not have to be connected to a dedicated line.

Operating Modes

The *FastCom* is designed to be used as a stand-alone communicator and can be connected to most control panels that support either switched –ve or switched +ve communicator outputs. The *FastCom* can be used to communicate the following:

- Send industry standard “Fast Format” data to digital alarm receivers housed at Alarm Receiving Centres (Central Stations).
- Send numeric messages to pagers such as BT Easy Reach etc.
- Send audible alarm messages to standard telephones and mobile telephones. These consist of a number of repeated “beeps” depending on the channel that was triggered, e.g. if channel 2 was triggered the unit repeatedly sends two short beeps, if channel 3 was triggered the unit repeatedly sends three short beeps etc.

NVM Programming

All programmed data (Telephone numbers, account codes etc.) is stored in a plug-in NVM (non-volatile Memory) which will be retained for up to five years with no power present. The NVM device can be programmed in a number of ways:

- Using a PC running *FastCom Programmer Software* and *PC-Com* module.

To obtain your FREE copy of the *FastCom Programmer Software* and *Veritas upload*/*download* (*Veritas UDL*) software please complete and return the Software Registration form enclosed with the *FastCom*.

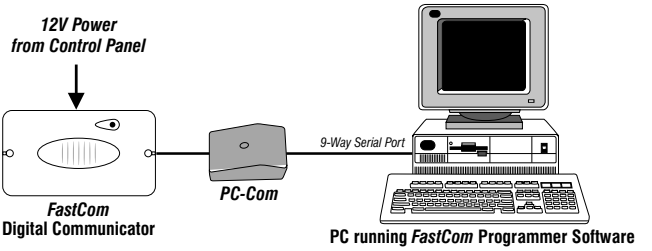


Figure 1. Using a PC and FastCom Programming Software

Communicator Operation

When triggered from one of the four input channels, The indicator LED is then illuminated and the *FastCom* seizes the PSTN line and looks for a dial tone. Once the dial tone is detected the followin7g sequence of events occur.

- The appropriate telephone number is dialled, when answered, the alarm receiver will send an I.D tone. If no I.D tone is received, the *FastCom* will release the line, and repeat the process for up to a maximum of three times to each ARC telephone number.
- When the *FastCom* receives the I.D tone it transmits the appropriate fast format data to the alarm receiver. If the data is successfully received the alarm receiver responds with an acknowledgement tone. The *FastCom* then releases the line and flashes the red LED 4 times (a visual indication of a successful call).
- If the acknowledgement tone is not received, the *FastCom* releases the line and tries again.
- If after using all dialling attempts the *FastCom* has still failed to communicate with the ARC, a “Line Fault” condition is generated. If the output on the *FastCom* is programmed as Line Fault the relay output will change over. This can be used to signal a “Line Fault” condition at the control panel, which will normally result in any bell delay being cancelled.

Pager Operation

When triggered from one of the four input channels, the indicator LED is then illuminated and the *FastCom* seizes the PSTN line and looks for a dial tone. Once the dial tone is detected the following sequence of events occur.

- The appropriate telephone number is dialled, the *FastCom* waits for a pre-programmed time then sends the programmed numeric message. After sending the message the *FastCom* will look for a pager acceptance tone (**Note:** Not all paging services have this feature). If the acceptance tone is detected the *FastCom* hangs up and will not attempt to dial this number until the unit is triggered again.
- If the acceptance tone is not detected and if the “Pager Repeat Attempts” is set to a number greater than 1 the *FastCom* will repeat the process for the selected pager telephone number until all “Pager Repeat Attempts” have been used.
- After using all dialling attempts the *FastCom* releases the line and the red LED is flashed 4 times.

Three-Way Calling

This is a feature that is available from BT Network Services. For this feature to work correctly the telephone line must have this service enabled (contact BT for further details). When the *FastCom* is triggered the unit checks for incoming ringing or off-hook (i.e., someone trying to block the call). The unit then sends a “Recall” signal, which is detected by the exchange as a request for a new line. With a new line available the *FastCom* then attempts to dial out.

Line Fault Monitor

The line fault monitor continuously monitors the PSTN line and will detect:

- The loss of line voltage (cut line)
- A line voltage less than 35V (other equipment being used or telephone off-hook)
- An incoming ringing signal that will prevent *FastCom* operation

If the *FastCom* is used on a shared line then the line fault monitor can be selected to only monitor a cut line by setting the “Line Monitor” option to “Line Cut Only”. It is also recommended that “three-way calling” is used (see above) so that the security of the system is not compromised.

Relay Output

The *FastCom* has a programmable changeover relay, this output can be programmed for one of the following operation:

- **Line Fault** – Activates when the unit detects telephone line faults. This includes a cut line, off hook and incoming ringing. These types of line fault conditions will restore the output when the telephone line is restored to its normal condition.
- **Line Fault/Fail** – Operates as "Line Fault" and the output also activates after the third failed attempt to the ARC and will restore when the next attempt to the ARC is successful.
- **Active** – Activates when unit is active.
- **Failed** – Activates when the unit fails to communicate with ARC deactivates when the unit next communicates successfully.
- **Successful** - Activates after a successful transmission to the ARC or pager, deactivates when the unit is next triggered.

3 Installation

Connection Status

Connection terminals on the *FastCom* are described as either "Safety Extra-Low Voltage" circuits (SELV) or "Telecommunications Network Voltage" circuits (TNV).

The PCB layout and table below shows the two types of circuits.

- It is important that the installer ensures that TNV connections are only connected to the PSTN and SELV circuits are only connected to other circuits designated as SELV circuits.
- Interconnection circuits should be such that the equipment continues to comply with the requirements of 4.2 of EN 41003 for TNV circuits and 2.3 of EN 60950 for SELV circuits, after making connections between circuits.

FastCom PCB Layout

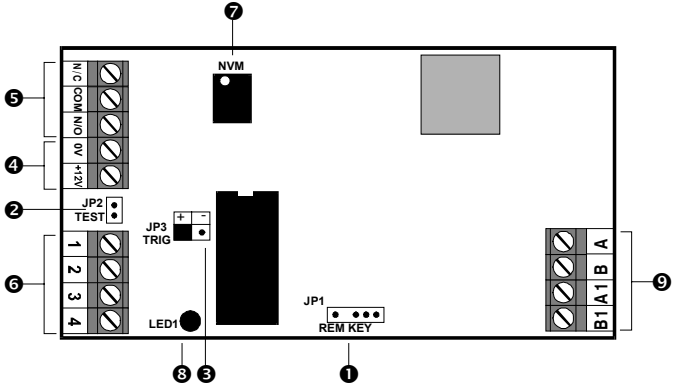


Figure 2. FastCom PCB Layout

❶	JP1 - REM KEY (**SELV**)	Connector for *PC-Com* interface to PC. This port is used for programming the FastCom.
❷	JP2 – TEST (**SELV**)	Short these two pins to initiate a test call to the Alarm Receiving Centre / Pager / Telephone.
❸	JP3 – TRIG (**SELV**)	Input channel trigger polarity mode only. [+] = +ve applied (0v going to 12v) [-] = -ve applied (12v going to 0v)
❹	0V +12V - (**SELV**)	12V dc power input.
❺	N/C COM N/O (**SELV**)	A programmable set of voltage free change-over contacts.
❻	1 – 4 (**SELV**)	Trigger input channels 1 - 4, used for triggering the *FastCom*. The polarity of the trigger inputs can be selected by JP3.
❼	NVM - U6	Removable Non-Volatile Memory chip, that is used for storing all programmed data.
❽	LED 1	Status LED, flashes every 1 seconds whilst communicator is idle. Lights up permanently when the *FastCom* is active and flashes on and off 4 times after a successful communication, after which it returns to flashing every second.
❾	A B A1 B1 (**TNV**)	Telephone line connections.

Mounting the FastCom

➢ **To install the *FastCom* proceed as follows:**

1) Isolate ALL power from the control panel (battery and mains). Do not attempt to continue if the mains or battery supply is still present.

2) Remove the two cover screws from the *FastCom* and unclip the two halves of the case. If you are using a pre-programmed NVM chip, remove the existing NVM and fit the pre-programmed one (**NOTE**. *Pin 1 to the top*).

3) Connect the input channels to the appropriate outputs on the control panel feeding all cables through the cable entry hole "A" (see Figure 3) in the base.

4) Ensure that channel trigger polarity "JP3" is set for the appropriate setting.

5) Connect AUX + and AUX – from the control panel to the 12V and 0V connections on the *FastCom*, if a line fault output is required use N/O and COM (see Figure 6).

6) Secure the *FastCom* to the control panel base using the self-adhesive pads.

7) Refer to "Telephone Line Connections".

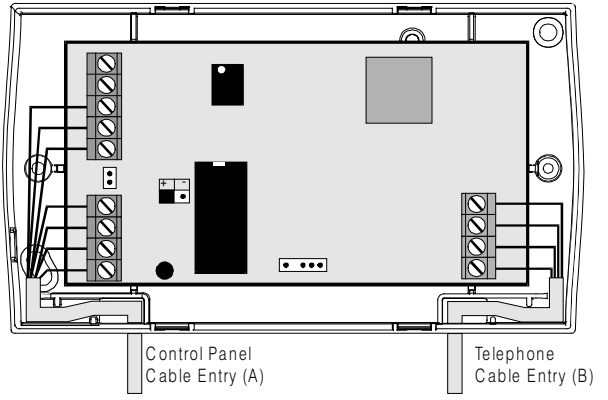


Figure 3. Cable Routing

Connecting the *FastCom* to the Telephone Line

Any serially connected telephone apparatus must have approval for direct connection to analogue PSTN in the UK. Serially connected telephone apparatus is connected to the *FastCom* as shown in Figure 4.

➢ **To connect the telephone line, proceed as follows:**

1) Connection to the telephone network must be made via an NTE5 master socket (Line Box).

2) Using the cable type 1/0.5mm CW1308, strip back 5mm of the required cores and feed through cable entry “B”.

3) CW1308 cable is available from RS Components (Part No. 368-413). Alarm or any other type of cable must not be used.

4) Connect the cores to the terminal blocks marked “A”, “B”, “A1" and “B1”.

5) Remove the two screws from the BT master socket and remove the bottom section from the master socket.

6) Connect the cable from the *FastCom* to the BT master socket terminals 2 and 5.

7) A special insertion tool will be required to connect the cable to the master socket, this is available from RS Components (Part No. 470-487).

8) Replace the bottom section of the master socket and re-secure the two screws.

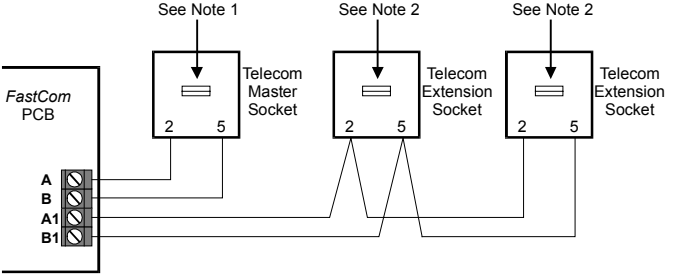


Figure 4. PSTN Connections

Note 1: All apparatus that require access to emergency services (999 & 112) must be connected to the master socket. Devices that do not require access to the emergency services such as faxes, modems and answer machines etc can be connected the extension sockets (see Note 2 below).

Note 2: Devices that are connected to the extension sockets will be isolated from the telephone line whilst the *FastCom* is active and therefore access to the line (including emergency services) during this period is inhibited.

Wiring the Trigger Inputs

The four trigger inputs on the *FastCom* can be connected to panels that provide either switched +ve outputs or switched –ve outputs (+ve removed). In general most alarm control panels provide switched –ve outputs.

When using the *FastCom* with control panels with switched –ve outputs, JP3 must be set to "- " and when using switched +ve outputs JP3 must be set to "+".

Figure 5 shows the two connection types.

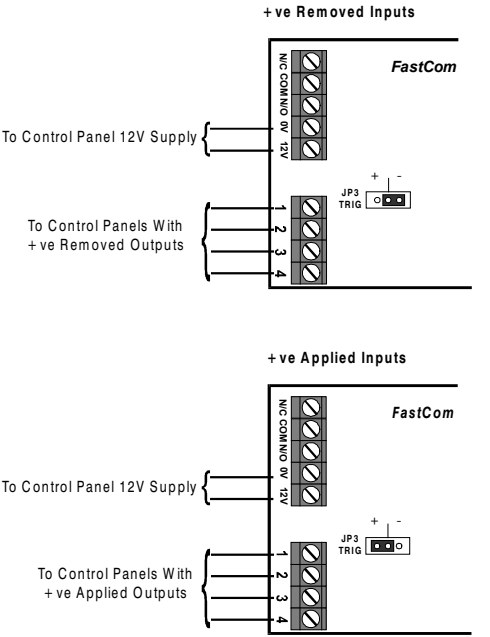


Figure 5. Trigger Input Connections

Line Fault Output

The *FastCom* has a programmable relay output, which can be programmed for a variety of functions. This section describes how the output could be configured for a “Line Fault” output.

In general most control panels that support outputs to trigger communication equipment also have an input to monitor the telephone line status. This input will normally require either a +ve/-ve applied signal or +ve/-ve removed signal to indicate a fault condition. The control panel response under such a condition will vary depending on the make and model of control panel (refer to the manufacturers instructions).

1) Wire the output to the control panel line fault input as shown in Figure 6.
2) Ensure the output on the *FastCom* is programmed as “Line Fault” (see Programming section).

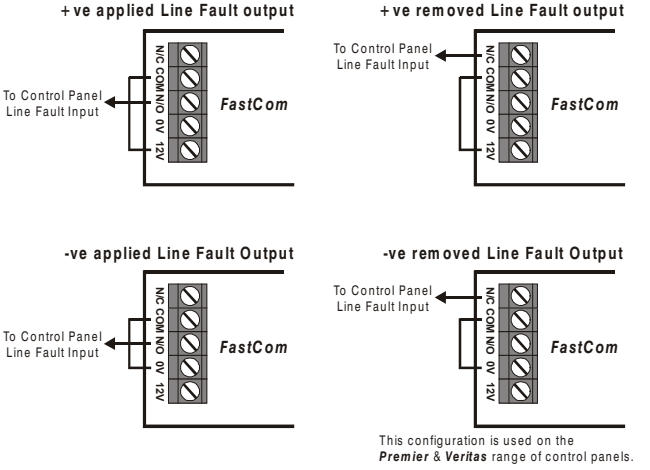


Figure 6. Line Fault Wiring Options

4 Programming

Using the *FastCom Programmer* Software

The *FastCom* is programmed via a PC running *FastCom Programmer Software* and a *PC-Com* module (see page 6). The software comes complete with online help, which can be accessed at any time by pressing F1. The default Log-in password for the *FastCom Programming Software* is **1234.** Figure 7 below shows the main programming screen where all programming parameters for the *FastCom* are configured.

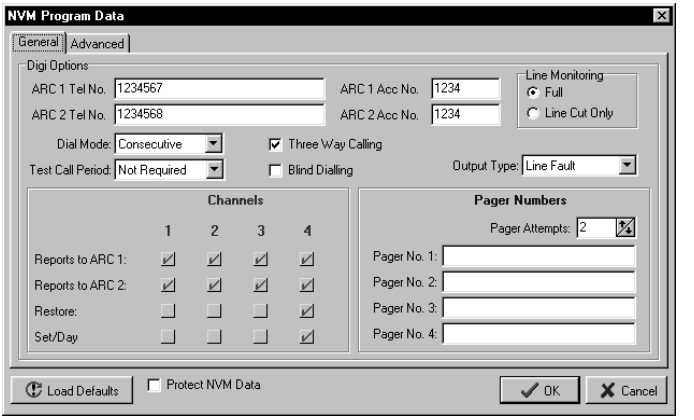


Figure 7. Main Program Screen

ARC 1 & 2 Telephone Numbers

Two telephone numbers can be programmed for the Alarm Receiving Centre, telephone numbers can be up to 24 digits long.

- Inserting a Pause for PABX's

If the *FastCom* is connected to an internal PABX telephone exchange system, normally the exchange requires a pre-fixed digit to be dialled before obtaining an outside line (normally 9). Some exchanges also require a pause after the pre-

fixed digit before dialling the telephone number. To insert a 5 second pause, enter the PABX digit (normally 9) then enter a "," followed by the actual telephone number, e.g. "9,01811234567".

When programming telephone numbers it is very important to check that they have been entered correctly otherwise the *FastCom* could dial a private number inadvertently.

ARC Account Numbers

This is a 4-digit number that the Alarm Receiving Centre uses to identify the alarm site. Up to two accounts can be programmed. Account numbers can only be programmed if the corresponding telephone number is programmed i.e., if "ARC Telephone No. 2" is blank then the option to program "ARC Account No. 2" is disabled.

Dialling Modes

The *FastCom* can be programmed for the following Dialling Modes:

- **Consecutive** - In this mode the *FastCom* will dial the first telephone number and attempt to report the alarm signal. If the attempt fails, it will shut down and re-dial the first telephone number. If the second attempt fails, it will shut down for 1 minute then re-dial the first telephone number again. If the third attempt fails the unit shuts down and now attempts the second telephone number. This sequence continues until all three attempts to each telephone number have been used, after which the unit will shut down completely.
- **Alternative** - In this mode the *FastCom* will dial the first telephone number and attempt to report the alarm signal. If the attempt fails, it will shut down and dial the second telephone number. If the second attempt fails, it will shut down and revert to the first telephone number. This sequence continues until all three attempts to each telephone number have been used, after which the unit will shut down completely.
- **Both** - In this mode the FastCom will dial consecutively, but also requires a successful communication from both alarm receivers.

Output Type

The *FastCom* has a programmable changeover relay, this relay output can be programmed for the following operation:

- **Line Fault** – The relay activates when the unit detects telephone line faults. This includes a cut line, off hook and incoming ringing. These types of line

fault conditions will deactivate the relay output when the telephone line is restored to its normal condition.

- **Line Fault/Fail** – Operates as "Line Fault" and the output also activates after the third failed attempt to the ARC and will restore when the next attempt to the ARC is successful.
- **Active** – Activates when unit is active.
- **Failed** – Activates when the unit fails to communicate with ARC deactivates when the unit next communicates successfully.
- **Successful** - Activates after a successful transmission to the ARC or pager, deactivates when the unit is next triggered.

Test Call Period

The *FastCom* can be programmed to send a periodic Test Call to the Alarm Receiving Centre. The Test Call period can be programmed for:

- **Not Required** - Test Calls are not enabled.
- **Every Day** - Once a day, the FastCom will dial both ARC numbers and send a Test Call.
- **Every 3 Days** - Once every 3 days, the FastCom will dial both ARC numbers and send a Test Call.
- **Every Week** - Once a week, the FastCom will dial both ARC numbers and send a Test Call.
- **Every 2 Weeks** - Once every 2 weeks, the FastCom will dial both ARC numbers and send a Test Call.

Three Way Calling

This option enables or disables the three-way calling option (see "Operation" on page 8).

Blind Dialling

Normally the *FastCom* will look for a dial tone before proceeding to dial the telephone number. If the "Blind Dialling" option is enabled then the *FastCom* will blind dial, i.e. it will seize the line and dial the number without looking for a dial tone.

Reports to ARC 1 / 2

Each input channel can be programmed to report to either or both ARC numbers. For example channel 1 can be programmed to report to both ARC telephone numbers, whereas channel 3 can be programmed to only report to ARC telephone number 1. Reporting channels can only be programmed if the corresponding telephone number is programmed i.e., if "ARC Telephone No. 2" is blank then the option to program "REPORTS TO ARC 2" is disabled.

Restore Channels

Any input channel can be programmed as a "Restore" channel, this type of channel will report a "Alarm" signal when the input channel is active and a "Restore" signal when the input channel is restored.

If a channel is programmed without "Restore", only the "Alarm" signal will be transmitted.

If any channel is programmed as "Set/Day", its channel will automatically be programmed as "Restore".

Set/Day Channels

Any channel can be programmed as a '"Set/Day" channel, this type of channel will report an "Open" signal when the input channel is active and a "Close" signal when the input channel is restored.

Normally channel 4 is used to report an "Open/Close" signal, but if required this can be changed.

Line Monitoring

The *FastCom* can be programmed for two levels of line monitoring:

- **Line Cut Only** - In this mode the *FastCom* will only detect a line cut condition. **NOTE:** *This mode is normally used if the FastCom is connected to a shared telephone line.*
- **Full** – In this mode the *FastCom* will detect all forms of line fault (low line voltage, line cut, off-hook and ringing). **NOTE:** *This mode should only be used if the FastCom is connected to a dedicated telephone line.*

Pager Attempts

This is the number of attempts that the *FastCom* will use when dialling pager numbers 1 to 4. The default is 2 and the maximum is 15.

Pager Numbers

The *FastCom* can also be used to dial a pager or telephone, each number corresponds to the relevant input channel, i.e. “Pager No 1” corresponds to input channel 1. If the corresponding input channel is also programmed to report to either ARC 1 or ARC 2, the *FastCom* will first attempt to communicate with the ARC then attempt to dial the pager number. If the input channel is not programmed to report to either ARC numbers, then the unit will only attempt to dial the pager number when the input channel is triggered. The following codes can be inserted in to the pager numbers:

- **“,”** – 5 second delay, this can be used for either PABX delay or used with the 10 second delay to create a 15 second delay.
- **“W”** – 10 second delay, this is normally inserted after the pager number and prior to the pager message.
- **“#”** - Some paging systems require the message to be terminated with a *#*.
- “*” - Some paging systems require the message to be terminated with a *****.
- **“A”** – Alarm tones, if an “A” is inserted after the telephone number the *FastCom* will send audible alarm tones. This option is normally used when the *FastCom* dials normal or mobile telephones.

Some Typical Examples

Number Entered	Description
01811234567,W3333#	The *FastCom* dials 01811234567 waits for 15 seconds, then sends a numeric message of "3333" and terminates with a #.
9,01811234567WW2222*	The *FastCom* dials 9 then waits 5 seconds (PABX exchange) then dials 01811234567 waits for 20 seconds, then sends a numeric message of "2222" and terminates with a *.
07801123456A	The *FastCom* dials 07801123456, then repeatedly sends audible "Beeps" that correspond to the pager number triggered. For example, if pager number 3 was triggered the *FastCom* will repeatedly send 3 short "beeps".

Testing

- **Once all the installation steps have been completed and the NVM has been programmed, proceed as follows:**

1) Ensure that you have informed the Alarm Receiving Centre (ARC) that you will be sending test calls.
2) Connect power to the control panel.
3) Send a test call by momentarily shorting the "TEST" pins (JP2) together (see Figure 2). This will initiate a test transmission to the ARC.
4) Trigger all the relevant input channels by:
   - Setting and unsetting the control panel to send Open/Close signals.
   - Set the system and cause a full alarm to send an Intruder signal.
   - Press any PA buttons to send a PA signal.
   - Activate any other devices that require testing.
5) Secure the cover of the *FastCom* using the two screws supplied.
6) Finally replace and secure the cover on the control panel.

5 Specifications

Supply	11.5V – 14V; 35mA dc (Standby); 100mA dc (Active) The installer must ensure that power drawn by the FastCom plus any other auxiliary apparatus is within the rating of the control panel (host) power supply.
Low Battery	Detection threshold is at 10.3V +/-0.2V
Output	Voltage Free changeover contacts rated @1A
Ch 1 – 4	Maximum input voltage 14V. Channel input trigger either +ve or –ve applied (JP3)
Programmer	PC and *FastCom Programmer Software*.
Case Size	125(w) x 65(h) x 30(d) mm.
Weight	200g
Environment	0 – 40°C
REN	1.0

NVM Defaults

ARC 1 & 2 Tel No	Blank
Account No 1 & 2	Blank
Dialling Mode	Consecutive
Output Type	Line fault
Test call Period	Not Required
Three-way Calling	Disabled
Blind Dialling	Disabled
Reports to ARC 1	None
Reports to ARC 2	None
Restore Channels	None
Set/Day Channels	None
Line Monitor	Line Cut Only
Pager Attempts	2
Pager 1 –4 Tel No	Blank

6 Programming Record

ARC 1 Tel No.					
ARC 2 Tel No.					
Account No 1.					
Account No 2.					
Dialling Mode:	Consecutive ❒		Alternative ❒		Both ❒
Output Type:	Line Fault ❒	Line Fault/Fail ❒	Active ❒	Failed ❒	Successful ❒
Test Call Period	Off ❒	Daily ❒	3 Days ❒	Weekly ❒	2 Weeks ❒
Three-way Calling	Disabled ❒			Enabled ❒	
Blind Dialling	Disabled ❒			Enabled ❒	
	Channel 1	Channel 2	Channel 3	Channel 4	
Reports to 1	❒	❒	❒	❒	
Reports to 2	❒	❒	❒	❒	
Restore Channels	❒	❒	❒	❒	
Set/Day Channels	❒	❒	❒	❒	
Line Monitoring	Line Cut Only ❒		Full ❒		
Pager Attempts					
Pager No 1					
Pager No 2					
Pager No 3					
Pager No 4					

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INS132-2