EM-181

Advanced Programming Guide

Revision: 1.0.2147.24

PIXEL TECHNOLOGIES

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Revision History

The latest revision of the product manual can be obtained through the Pixel Technologies website located at www.pixeltechnologies.com.au

The following is a list of changes made to this document:

Revision	Description of Changes
1.0.1929.0	Initial Release
1.0.1938.2	Added hotline function
1.0.1942.4	Added factory default reset feature
1.0.2008.6	Added SP Mode feature
1.0.2011.8	Changed default setting for Output 2 Option to '1' (Line On)
1.0.2015.10	Added alarm button debounce readback example
1.0.2035.12	Added Breakdown trigger and FSAL modes
1.0.2039.14	Updated Station Input information as well as ammened FSAL operation
1.0.2042.16	Amended wording around FSAL mode and the MR operation
1.0.2133.18	New features added to firmware versions x.x.2128.0 • Forced Alarm Reset • Alarm Filter Time • Scream Detection • Report Fail Alternating LED Indicator • System Setup via SD card (For EM-181Mu ONLY)
1.0.2136.20	Fixed verification command for RPMS Alternating LED Behaivior
1.0.2142.22	Added Extended Station Addressing (8 additonal stations)
1.0.2147.24	Added Alarm Log LED Indicator (Enable/Disable) Added Alarm Log RPMS Sync (Enable/Disable)

Table 1 - Revision History

Contents

Tables

1. Configuration

The EM-181 can be configured using an SD Card, loaded with any setting you wish to program into a text file format. *Please reference section 1.18 for further details.*

Alternatively you can program any setting by dialing in remotely and entering programming sequences using a touch tone telephone or mobile handset.

NOTE: After successfully entering a programming sequence an audible message "Sequence Accepted" will be played. If this message is not played back, this is an indication that the sequence was entered incorrectly and has not been registered into memory.

Whilst entering a programming sequence the unit will allow 3 seconds between each key press and the next. If this time lapses the sequence is reset and you will need to commence the sequence from the beginning.

1.1. Security Auto-Answer

The Security Auto-Answer mode allows the unit to answer an incoming call if the auto-answer feature has been disabled as detailed in section 1.6.5 of the Advanced System Settings.

To enter security auto-answer mode, follow the steps below:

1. Dial into the unit and hang up after one ring tone.
2. The unit is now in Security Auto-Answer mode for 20 seconds.
3. Dial into the unit during this period and it will auto-answer an incoming call.
4. You are now ready to program the unit.

NOTE: If a call to the unit is not made within the 20 second window, it will return to normal mode, and the process will need to be repeated.

After connecting to the unit, enabling the auto-answer feature can be achieved, refer to section 1.6 Advanced System Settings for further details.

1.2. Programming PIN Code

The factory default PIN code required to successfully enter a programming sequence is **123**.

To change the PIN code, enter the following sequence:

NOTE: New PIN must be 3 digits long.

#	PIN	#	3	NEW PIN	*

1.3. Help Numbers

There are multiple ways to program these numbers depending on the installation and dialing requirements.

1.3.1. Help Number Programming Rules

- Telephone help numbers cannot exceed 16 digits.
- A '#' within the telephone number will be replaced with a 3 second pause when dialing. This becomes a useful entry when dialing out on a PABX system, giving the system time to establish an external line before dialing the telephone number.
- The unit will not dial 000 emergency services. *(Please contact the manufacturer to enable this feature).*

1.3.2. Programming a Single Telephone Number

To program the same number into all eight memory locations enter the following sequence:

#	PIN	9	#	0	TELEPHONE NUMBER	*

1.3.3. Programming Multiple Telephone Numbers

To program up to eight different help numbers into their individual memory locations, enter the following set of sequences:

Location 1	#	PIN		#	0	TELEPHONE NUMBER	*
Location 2	#	PIN		#	1	TELEPHONE NUMBER	*
Location 3	#	PIN		#	2	TELEPHONE NUMBER	*
Location 4	#	PIN	1	#	0	TELEPHONE NUMBER	*
Location 5	#	PIN	1	#	1	TELEPHONE NUMBER	*
Location 6	#	PIN	1	#	2	TELEPHONE NUMBER	*
Location 7	#	PIN	2	#	0	TELEPHONE NUMBER	*
Location 8	#	PIN	2	#	1	TELEPHONE NUMBER	*

To playback each of the programmed telephone numbers, enter the following set of sequences for each location:

Location 1	*	0		Location 5	*	#	11
Location 2	*	1		Location 6	*	#	12
Location 3	*	2		Location 7	*	#	20
Location 4	*	#	10	Location 8	*	#	21

1.3.4. Programming for HOTLINE Operation

A HOTLINE is a telephone line which will automatically dial a single predetermined number when the phone goes off-hook. This feature is provided by the telecom service provider or wireless gateway.

When connecting to a HOTLINE, disable the unit from dialing a number when an alarm call is raised by entering the following sequence:

 # PIN 9 # 0 *

1.4. Voice Identification Message

A built-in voice message is played upon answering of the emergency call. The system comes with a factory default message although this message will need to be re-recorded to identify the calling location of the unit installed. The message will act as an aid to those with communication difficulties when an alarm call is raised.

1.4.1. Recording the Voice Identification Message

Recording can be achieved by using a remote telephone handset to dial into the system, ensuring there is minimal background noise when recording.

NOTE: The maximum recording length is 16 seconds. If the message is shorter than 16 seconds, press the '0' digit to stop recording, alternativly 4 audible beeps will play when it reaches 16 seconds.

1. Enter the following sequence, wait until 2 audible beeps are played then begin recording:

   # PIN # 9

2. To stop the recording process enter: **0**

To hear an audible playback of the recorded message, enter: *** 9**

If a voice identification message is not required, refer to section 1.7 to disable this feature.

1.5. Lift CAR Alarm Button Debounce Time

The lift CAR station can be programmed with a different alarm button debounce time.

 # PIN # 4 A B *

	Setting	Formula	Minimum	Maximum	Default Value
A	Station ID	2 = CAR	2	2	2
B	Alarm Debounce	B x 1 seconds	1	9	3

Table 2 - Alarm Button Debounce Time

To playback these settings, enter the following sequence: *** 4**

The unit will respond with 0 0 **x** 0 0 0 0 0, where 'x' is the alarm button time programmed.

1.6. Advanced System Settings

1.6.1. Dial Time (A)

The time the unit will dial a help number before it proceeds to the next help number.

1.6.2. Talk Time (B)

The maximum length of conversation time during a call.

1.6.3. Silence Time (C)

The unit will end a call when there is no conversation detected for the duration of the silence time.

1.6.4. Auto-Answer Ring Count (D)

When dialing in remotely to the unit, and if the auto-answer feature has been enabled, the ring count will determine how many rings the unit will detect before picking up the call.

1.6.5. Auto-Answer (E)

The unit will auto-answer a call if this feature is enabled. If disabled it will not pick up a call.

1.6.6. PABX Continuous Tone Detector (F)

Certain PABX systems send a continuous tone as opposed to a busy tone when a call ends, the unit can sample this tone and disconnect the call when enabled.

1.6.7. Programming the Advanced Settings

To program the advanced settings, once values are defined, enter the following complete sequence:

#	PIN	#	5	A	B	C	D	E	F	*

	Setting	Formula	Minimum	Maximum	Default Value
A	Dial Time	A x 5 seconds	1	9	5
B	Talk Time	B x 2 minutes	1	9	2
C	Silence Time	C x 5 seconds 0 = Disabled	0	9	4
D	Auto-Answer Ring Count	E x 2 rings	1	9	2
E	Auto-Answer	Disabled = 0 Enabled = 1	0	1	1
F	PABX Continuous Tone Detector	Disabled = 0 Enabled = 1	0	1	1

Table 3 - Advanced System Settings

To playback these settings, enter the following sequence:

*	5

1.7. Voice Message & Output Settings

1.7.1. Voice Identification Message (A)

The built-in digital voice message can be disabled or set to play automatically when a call is answered or by a remote DTMF sequence of '*9'.

1.7.2. Output 1 and Output 2 Options (B and C)

The output open-collectors can drive a maximum of 100mA at 24V dc. There are five configurable options to choose from as detailed in Table 4.

1.7.3. Output ON Time (D)

The output 'ON' time is configurable, this sets the duration of which the output will stay high once triggered.

1.7.4. Programming the Voice Message & Output Settings

To program the voice message and output relay settings, once values are defined, enter the following complete sequence:

 # PIN # 7 A B C D *

	Setting	Formula	Minimum	Maximum	Default Value
A	Voice Identification Message	0 = Disabled 1 = Play when alarm call is answered 2 = Play only when (*9) is entered	0	2	1
B	Output 1 Options	0 = Disabled 1 = Line on 2 = Any fault[1] 3 = Call answered 4 = Code sent (#81)	0	4	4
C	Output 2 Options	0 = Disabled 1 = Line on 2 = Any fault 3 = Call answered 4 = Code sent (#82)	0	4	1
D	Output ON Time (Code sent ONLY)	D x 2 seconds	1	9	2

Table 4 - Voice Message & Output Relay Settings

To playback these settings, enter the following sequence: *** 7**

[1] Any fault setting will turn on the output(s) when a telephone line fault, power fault, battery is missing or there is a battery low condition (less than 1 hour backup).

1.8. Telephone Line & Volume Control Settings

1.8.1. DTMF Transmit Level (A)

The DTMF transmit level can be adjusted. It is recommended that this feature is not altered from the factory default setting unless the unit is having difficulty dialing.

1.8.2. Line Receive Level (B)

The line receive level adjusts the level of the incoming signal. This should be adjusted to achieve a nominal 80dB level at the speaker when the unit is conversation. Adjust this level at single increments until the best result is achieved.

1.8.3. BUS Transmit Level (C)

Adjusts the gain of the audio signal level to all connected stations.

1.8.4. BUS Receive Level (D)

Adjusts the gain of the audio signal from all connected stations.

1.8.5. Busy Tone Cadence (E)

Some systems have different busy tone cadences that will not be detected by the default setting. This setting can be changed if the unit is connected to a system that has a busy tone consisting of short pules or tone bursts.

1.8.6. Programming the Telephone Line & Volume Control Settings

To program the telephone line and volume control settings, once values are defined, enter the following sequence:

#	PIN	#	8	A	B	C	D	E	*

	Setting	Formula	Minimum	Maximum	Default Value
A	DTMF Transmit Level	A x 1dB	0	9	3
B	Line Receive Level	-	0	9	6
C	BUS Transmit Level	-	0	9	5
D	BUS Receive Level	-	0	9	5
E	Busy Tone Cadence	210ms - 750ms = 0 (long beeps) 60ms - 750ms = 1 (short beeps)	0	1	0

Table 5 - Telephone Line Settings & Volume Control

To playback these settings, enter the following sequence:

*	8

1.9. Multiple EM-181s on a Single Telephone Line

It is possible to connect up to nine EM-181s on a single telephone line.

When dialling out in this mode, if the phone line is in use the Alarm call will be placed in a queue.

Note: When an increased amount of alarms are present, due to the single phone line being in-use the concurrent alarms will experience slight delays in connecting to the call centre.

To mitigate and ensure optimal response times, we recommend limiting the number of units shared across a single phone line.

Each EM-181 must be programmed with a **unique** lift number from 1-9.

One of the EM-181 units sharing the telephone line must be set as ***Master*** and the remainder set as ***Slaves***.

To program each EM-181 unit with its lift number and master/slave setting, only have one unit connected to the phone line at a time and enter the following sequence:

 # PIN 3 # A B *

	Setting	Minimum	Maximum	Default Value
A	Lift Number	1	9	0
B	Slave / Master	0 (Slave)	1 (Master)	0

Table 6 – Multiple EM-181 on a single line

To disable this feature program both A and B parameters to 00.

To playback these settings, enter the following sequence: **# 3 3 ***

1.9.1. Dialling into multiple EM-181 units (Operation)

1. Dial the telephone number connected to the system(s).
    a. The unit programmed as the master will Auto-answer the call.
2. Enter the desired lift number (1-9) you wish to connect to.

NOTE: You will have a 15 seconds window to enter your lift number, if no digit is entered and time elapses it will end the call.

3. You are now connected to the respective EM-181 system.

1.10. Alarm Log LED Indicator

The EM-181 system registers all alarm calls made from any of the intercom stations. After an alarm call has been made the Yellow LED will stay illuminated.

1.10.1. Forced Alarm Reset

NOTE: *Available in firmware version x.x.2128.0 or greater.* The EM-181 system is shipped to comply to EN81-28, therefore this feature is **disabled** by default.

To program the settings, enter the following sequences:

 # PIN 8 # 3 0 2 A *

	Setting	Disable	Enable	Default
A	Forced Alarm Reset	0	1	0

Table 7 – Forced Alarm Reset

To playback these settings, enter the following sequence: *** # 8 3 0 2**

1.10.2. Alarm Log LED Indicator

NOTE: *Available in firmware version x.x.2147.0 or greater.* The EM-181 system is shipped to comply to EN81-28, therefore this feature is **enabled** by default.

To program the settings, enter the following sequences:

 # PIN 8 # 3 0 4 A *

	Setting	Disable	Enable	Default
A	Alarm Log LED Indicator	0	1	1

To playback these settings, enter the following sequence: *** # 8 3 0 4**

1.10.3. Alarm Log RPMS Sync

NOTE: *Available in firmware version x.x.2147.2 or greater.* The EM-181 system is shipped to comply to EN81-28, therefore this feature is **enabled** by default.

To program the settings, enter the following sequences:

 # PIN 8 # 3 0 5 A *

	Setting	Disable	Enable	Default
A	Alarm Log LED Indicator	0	1	1

To playback these settings, enter the following sequence: *** # 8 3 0 5**

1.10.4. Alarm Log PINs

Up to 8 unique alarm reset pins can be programmed for use by multiple technicians.

To program any of the 8 alarm reset pins, enter the following sequence:

 # PIN 9 # 5 P A B C D *

	Setting	Minimum	Maximum	Default Value
P	Alarm PIN Location	1	8	-
A - D	4 Digit PIN Code	0000	9999	1234

Table 8 - Alarm Log PIN's

To playback these settings for any of the 8 alarm log pins;

Enter the following and include the PIN location at P; *** # 5 P**

1.11. Alarm Filtering

Alarm filtering is used to ensure an alarm is not raised in situations that are not necessary, for example when the lift doors are already open. To override the alarm filter hold down the alarm button for the default programmed debounce period plus an additional 3 seconds (default).

Note: Applicable to Lift CAR stations only. All other intercom stations will playback the following; *"Rescue services are on-site and will attend to you shortly"*

To program the settings, enter the following sequence:

 # PIN 9 # 9 A *

	Setting	Disable	Enable	Default Value
A	Alarm Filter	0	1	1

Table 9 - Alarm Filtering

To playback these settings, enter the following sequence: **# 9 1 ***

1.12. Alarm Filter Time

NOTE: *Available in firmware version x.x.2128.0 or greater.*

To adjust the default period of 3 seconds, enter the following sequence:

 # PIN 8 # 0 N N *

	Setting	Minimum	Maximum	Default Value
NN	Alarm Filter Time	00	99	03

Table 10 -Alarm Filter Time

To playback these settings, enter the following sequence: *** # 8 0**

1.13. Scream Detection

NOTE: *Available in firmware version x.x.2128.0 or greater.*

Scream detection is a feature that when enabled will automatically raise an alarm call when and if it detects a scream of a person who is in distress.

1.13.1. Station ID

The station ID of each intercom you wish to enable the scream detection, table below;.

Station ID	Digit
MR	0
TOP	1
CAR	2
PIT	3
SPARE	4
AUX-A	5
AUX-B	6
AUX-C	7

Table 11 - Station ID

1.13.2. Scream Duration (B)

The scream duration sets the minimum constant scream length required to trigger scream detection.

1.13.3. Level Threshold (C)

The level threshold sets the minimum level (dB) required for the unit to detect a scream.

To program the scream detection settings, once values are defined, enter the following complete sequence:

#	PIN	8	#	1	A	B	C	*

	Setting	Formula	Minimum	Maximum	Default Value
A	Station ID	-	0	7	-
B	Scream Duration	1 second = 1, Add 250ms increments Where 8 = 2.75 seconds	0	8	0 (Disable)
C	Level Threshold	80dB = 1 Add 2 dB per increment Where 8 = 93dB.	1	8	0 (Disable)

Table 12 - Scream Detection Settings

To playback the settings for each station, enter the following sequence:

#	8	1	N

Where N is the Station ID.

1.14. Remote Phone Monitoring System (RPMS)

The unit comes with a built in auto self-test and health check reporting feature.

Designed to test and report system information to a remote communication centre at regular periods.

1.14.1. Reporting Conditions

The system will make a health check report when the following conditions are valid:

- After an alarm call has been raised.
- If a power failure has been valid for 20 minutes.
- If a telephone line failure has been valid for 20 minutes.
- If the backup battery level is low.
- When any of the fault reports are rectified and healthy for a period of 20 minutes.
- When a manual report is initiated.
- Automatically as per the periodic report specified in section 1.12.4.

1.14.2. RPMS Enable

By default RPMS is disabled.

To enable the feature enter the following sequence:

 # PIN 9 # 7 A *

	Setting	Formula	Minimum	Maximum	Default Value
A	RPMS Enable	0 = Disable 1 = Enable	0	1	0

Table 13 - RPMS Settings

To playback these settings, enter the following sequence: *** # 7**

1.14.3. Reporting Number

To program the reporting number, enter the following sequence:

 # PIN 9 # 4 REPORTING NUMBER *

To playback these settings, enter the following sequence: *** # 4**

1.14.4. Periodic Reports

If enabled the unit is set to dial out and report its health check status back to a Remote Monitoring System. The frequency of which the unit will perform an auto self-test and auto-report is set by the sequence below:

 # PIN 2 # 7 N N *

	Setting	Minimum (Days)	Maximum (Days)	Default Value
NN	RPMS Enable	01	30	03

Table 14 - RPMS Periodic Reports

To playback these settings, enter the following sequence: **# 0 7 ***

1.14.5. Lift Breakdown Report

Input 2 (IN-2) on the EM-181Mu can be configured to send an RPMS report when triggered.

To send a report, RPMS must also be enabled.

To program the Lift Breakdown Report settings, enter the following of sequences:

 # PIN 8 # 2 2 A A B *

	Setting	Minimum	Maximum	Default
AA	Input Debounce Period	01	99	03
B	N/O = 0, N/C = 1	0	1	0

Table 15 – Lift Breakdown Reports

To playback these settings, enter the following sequence: *** # 8 2 2**

1.14.6. Report Fail Alternating LED Indicator

NOTE: *Available in firmware version x.x.2128.0 or greater.*

If a report is unsuccessful the system will alternate the LED's on stations connected to the system. The EM-181 system is shipped to comply to EN81-28, therefore this feature is **enabled** by default.

To program the settings, enter the following sequences:

 # PIN 8 # 3 0 1 A *

	Setting	Enable	Disable	Default
A	Report Fail LED Mode	0	1	0

Table 16 - Report Fail Alternating LED Indicator

To playback these settings, enter the following sequence: *** # 8 3 0 1**

1.15. P100 Protocol Mode

The P100 protocol is a non proprietary protocol used for fast exchange of small amounts of data.

1.15.1. P100 Protocol Enable

By default P100 protocol is disabled.

To enable the feature enter the following sequence:

 # PIN 9 # 8 A *

	Setting	Formula	Minimum	Maximum	Default Value
A	P100 Protocol Enable	0 = Disable 1 = Enable	0	1	0

Table 17 - P100 Protocol Enable

To playback these settings, enter the following sequence: **# 9 8 ***

The P100 'Reporting Number' is programmed as detailed in section 1.12.3.

1.15.2. P100 ID

To program the P100 ID (8 digits maximum), enter the following set of sequences:

 # PIN 9 # 3 P100 ID *

To playback these settings, enter the following sequence: **# 9 3 ***

1.16. Station – Aux Input (IN1) Modes

1.16.1. Alarm Filter (Default)

When the IN1 contact is closed an additional 3 seconds is added to the alarm button debounce period.

NOTE: *All stations can be programmed for Alarm filter.*

1.16.2. SP

When a station (SL or SLX type) is set to SP Mode, the alarm filter input will operate to directly page the CAR station acting as a "push-to-talk" intercom.

NOTE: *A maximum of 7 stations can be programmed to SP mode.*

1.16.3. FSAL

The Fire Service Access Level mode allows for the firefighter to initiate communication between the activated station and the lift car station.

When activated this link takes precedience over all other functionality.

When deactivated the system and all respective stations return to idle.

The SK (MR) station speaker will become active when FSAL is keyed ON. To enter the conversation, press and hold the 'I' button to speak. The speaker will remain active until FSAL mode is keyed off.

NOTE: *A maximum of 1 landing station can be programmed to FSAL mode.*

To program a station mode , enter the following sequence:

#	PIN	2	#	2	A	B	*

	Setting	Minimum	Maximum	Default Value
A	Station ID **(excluding '2' Lift Car)**	0	7	0
B	Mode	0 = Alarm filter mode 1 = SP Mode 2 = FSAL Mode	-	0

Table 18 - Advanced System Settings

To playback these settings, enter the following sequence:

*	#	2	2	A

1.17. Reset to Factory Default

To reset programmable setting to factory default, enter the sequence below:

#	PIN	0	#	9	9	9	*

NOTE: This feature does not revert the Voice ID recording, Aux Input Modes, RPMS & P100 Programmed values to the factory default.

1.18. Extended Station Addressing

The system has the capability to add 8 additional stations above the standard eight.

1.18.1. Program the extended stations ID via Dipswitch

1. Set DIP switch to all off (MR)
2. Power on device
3. Set DIP 1,2,3 to ON
4. Set DIP 1,2,3 to OFF
5. The Yellow LED will start blinking, indicating landing programming mode
6. You have 10s to program the new landing address:
7. After 10s it will reboot and announce its new station ID I.e “Spare 1" for landing station 1.

1.19. System Setup via SD Card

The EM-181 system can be configured using an SD Card.

1.19.1. Create a System Setup File

8. Create a **conf181.txt** file on your PC.
9. Enter any programming command you wish to program into your EM-181Mu, formatted as follows;
   NOTE: *The format below, must commence with a **colon**, followed by the program setting.*

:PPP = 123 This is mandatory and defines the PIN code for any of the commands below
:#PPP9#098745624* Set all HELP numbers to 98745624

10. Insert your SD Card into your PC
11. Ensure your SD Card is formatted to FAT16 or FAT32.
12. Create a **CONFIG** folder on the SD Card root directory.
13. Save your **conf181.txt** file in the **CONFIG** folder on the SD Card like follows:
    a. CONFIG\conf181.txt
14. Safely remove the SD Card from your PC.

1.19.2. Updating the EM-181Mu Settings using SD card

1. Ensure your EM-181Mu is powered up and has a phone line connected.
2. The Status LED in Idle mode will blink Blue.
3. Insert the SD card into the SD card socket.
4. The programming will take up to 10 seconds to commence.
5. When the update commences the RGB Status LED will cycle through all the colors.
6. The update process this will take less than ~ 1 minute to complete.
7. Once complete the status LED will blink blue.
8. Remove SD Card.

2. Operation

2.1. Raising an Alarm Call

To make an alarm call, press the 'Alarm' button on the SK unit's or press and hold the 'Alarm' button connected to the lift CAR station.

2.2. Dialing into System

When dialing into the system, if an alarm call has been made and alarm logs are present, your call will be automatically be routed to the last station which raised an alarm.

To disconnect a call to from any connected station and return your call to the master, enter the following sequence:

If there are no alarm logs (all cleared), once the master has answered, simply press the digit of the desired station you wish to communicate with below:

Station ID	Digit	Extended Stations ID	Digit
MR	0	Spare-1	8 1
TOP	1	Spare-2	8 2
CAR	2	Spare-3	8 3
PIT	3	Spare-4	8 4
SPARE	4	Spare-5	8 5
AUX-A	5	Spare-6	8 6
AUX-B	6	Spare-7	8 7
AUX-C	7	Spare-8	8 8
PAGE ALL	9		

Table 19 - Station ID

2.3. System Paging from SK Station

To page all stations from any of the connected SK stations, press the 'i' button.

To answer an incoming page, press the 'i' button.

This will now establish a two-way intercom call.

Press the 'END' button on either of the connected SK units to end the call.

2.4. Commands

The following commands can be used remotely when you have established a call with the unit using a touch tone telephone or mobile handset.

Commands are sent via DTMF digits to activate certain features of the telephone as detailed below.

2.4.1. Reset Talk Time / Stop Playback of Digital Voice Message

To reset the Talk Time during conversation, enter the following:

0

2.4.2. Hang Up a Call

To manually hang up the call, enter the following sequence:

*** ***

2.4.3. Activate Outputs (Open Collector Contacts) on the master

If the output contacts on the master have been set to turn on via 'Code Sent' as detailed in section 1.7.2, to turn on each respective output contact, enter the following individual sequences:

Output 1 **# 8 1**

Output 2 **# 8 2**

2.4.4. Manual Report

A manual system fault report can be made during a call, so when the call ends, the unit will proceed to process a manual report.

To request a manual report, enter the following sequence:

 # 0 0 *

2.4.5. Alarm Log Reset (Operation)

To reset the alarm logs, dial into the EM-181 and enter the following sequence:

Note: The factory default for each **Alarm Log PIN** is 1234.

 # ALARM PIN *

2.5. Automated Self Diagnosis

The EM-181 performs self-diagnostic checks.

If the unit detects a problem, an audible message will play through the speaker to alert a fault.

2.5.1. Power Supply Check

The unit will continuously check the power supply input voltage.

If the power drops out, the unit will remain powered from the internal backup battery.

The following audible message will play every 20 minutes to alert of a power failure:

"Power supply test failed. Please report this failure to building management immediately".

2.5.2. Telephone Line Check

The unit will continuously check the telephone line voltage.

If the telephone line voltage drops, then the following audible message will play every 20 minutes to alert of a telephone line failure:

"A telephone line fault has been detected, please contact building management immediately".

2.6. SD Card Call Record

If an SD is inserted into the EM-181Mu it will record all alarm calls for later retrieval.

The SD Card will need to formatted as FAT16.

3. Unit Testing Procedure

3.1. Speaker, Microphone & Alarm Button Test

To test the speaker and microphone ensuring they are functioning correctly follow the steps below:

1. Dial into the EM-181 and enter the following sequence to disconnect from any connected station:

   # #

2. To initiate the test enter the following sequence:

   # 3 2 *

3. The unit will play a series of beeps from the speaker.

   You will need to wait until the unit has stopped playing these beeps for the result to be heard.

   It will play back the following via an audible message on you remote handset:

   "Station position, acoustic test [passed/failed], Alarm Button Test [passed/failed]"

   Note: In order for this test to pass you must ensure there is no background noise and the speaker and microphone are within 10cm of each other.