IML Communicator

Installation Guide

INDEX

Safety and General Information

FCC – using the IML communicator in the USA

FCC CAUTION:

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: *This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

European Union Directives Conformance Statement

Hereby, IML Ltd declares that this product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

You can view your product's Declaration of Conformity (DoC) to Directive 1999/5/EC (The R&TTE Directive) at www.iml.co.uk.

France

In order to comply with power restrictions in the 2.4 GHz band in France, the IML communicator can only be used indoors.

IML communicator

A unique, state of the art handheld radio device, fusing advanced audience interaction features with a voice communication system for meetings of all kinds and in all situations.

Base
station

RS232
Cable

Computer
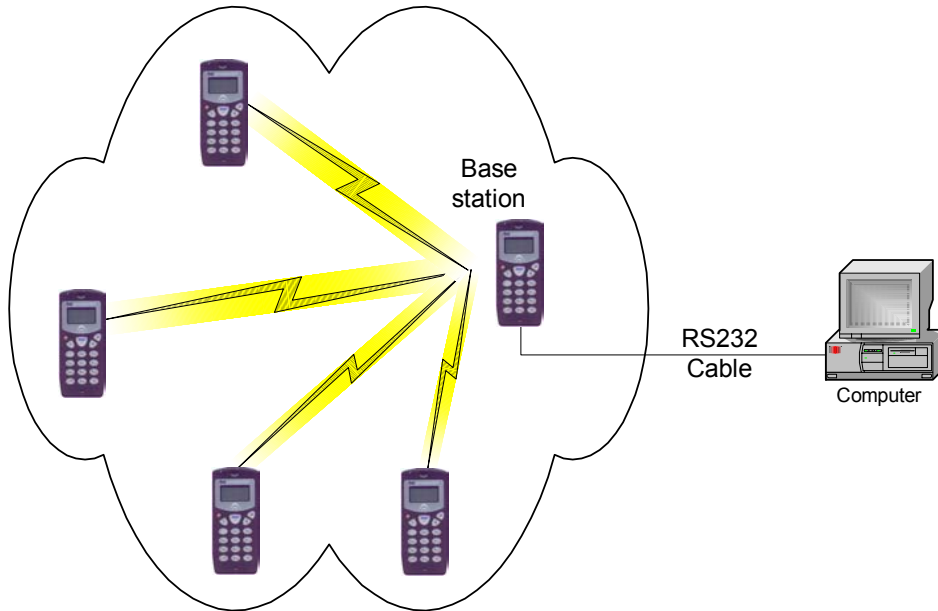
IML communicators enable an audience to view information on the handset screen, respond with data by using the keypad, and to listen to audio, and to transmit audio. The handsets use radio communication to transmit/receive data and audio between a base station and the audience handsets. The base station is a normal handset that is configured by the application or the operator to work as a base station. The handsets are typically used with a PC application such as IMLPort and IML Question Wizard. The PC is connected to the base station via data (RS232) cable. The presenter runs the application and can then initiate votes where the audience can then vote on their handsets, with the information being transmitted back to the application via the base station. Applications such as Question Wizard will display the vote results.

IML System Hardware

Base Station:

The base station comprises the radio module that transmits and receives information to and from the keypads. The unit is connected to an available serial port on the PC by means of a data cable and is monitored and controlled by the application software.

PC & Application Software		Requires: • Microsoft Windows Operating System • Serial Port – for data connection • Application Software *Note that the application software may have specific system requirements*
Base Station Data Cable		The communications cable that connects the PC serial port to the base station. It is identified by a mini-jack plug (Blue) at one end and a 9-pin female D-type connector at the other end of the cable.
Self Powered Communicator Keypad Base Station (battery powered)		ANY Communicator keypad can be initialised to operate as a base station. (Refer to chapter 'Initializing the Base Station and connecting the Communicator keypads' for initializing instructions). A fully charged keypad working as a base station will last approx. 6 hours.

Self Powered Communicator Keypad Base Station (Battery powered)

Data Cable

Keypads and Chargers:

Communicator Keypads		Rechargeable batteries power the keypads. The keypads are stored and charged in stackable charging racks.
Charging module & Storage Case		Each charging module can contain 5 keypads for both storage and charging. Up to 5 modules can be clamped together to form a single 25-keypad rack.
Charging Rack Power Supply & IEC Mains lead		The chargers require an external AC/DC power supply. Each power supply can charge up to 50 keypads. International Voltage Input: 100–240 Volts

Charging the Communicator Keypads

For power, a Communicator keypad requires 4 x NiMH (Environmentally friendly) AAA rechargeable batteries. The keypads are charged in modular racks that are also used to store them when they are not in use.

25 keypad wall mounted charging rack

Each charging module contains up to 5 keypads and up to 5 of these modules can be locked together to form a 25 keypad rack.

The charging racks may be wall mounted or supplied with either a soft carrying case or a hard shelled flight case which includes an integral cooling fan to keep the keypad batteries cool during charging.

The charging racks require an external AC/DC power supply that connects to an external socket at the back of a flight case or to one of two sockets on the module itself. Each power supply is capable of charging up to a maximum of 50 Communicator keypads.

Charging Procedure:
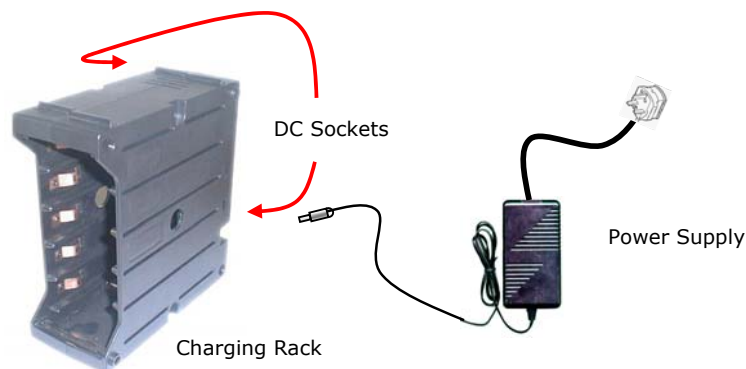
Step 1:

> **IMPORTANT**
> To avoid overheating of the keypad batteries, you MUST remove the charging racks and keypads from the soft case before charging.

- Remove the charging rack from the soft case and place in a ventilated area.
- Locate either one of the two DC sockets visible at the rear of the rack and plug in the 10V DC power supply.

DC Sockets

Power Supply

Charging Rack

Step 2:

If the keypads are not already in the racks, slide each of them into the charging rack with the charging contacts end first so that the smart card slots are visible from the outside.

Ensure that the Communicators' charging contacts positively click to the magnetic contacts in the rack.

Smart Card Slot

LED

Ensure that each keypad's LED initially illuminates red when it makes contact with the charger. If the LED does not illuminate, push the keypad gently into the rack until the LED comes on.

A full charge cycle of 10 – 12 hours is necessary for a completely flat Communicator. Partially charged Communicators will take less time to fully charge.

Each Communicator gets fast charged for a minute at a time in a cycle within each rack.

During the charging process the LEDs will change from red through orange to green.

Charging Contacts

LED Status when in a charger	Function
Red flashing LED	The keypads are charging, but still only have low capacity
Orange flashing LED	The keypads are charging and have now reached medium capacity
Green flashing LED	Indicates that the battery capacity is 100% fully charged and is currently being trickle charged to maintain 100% charge.
Green LED (Not flashing)	Indicates that the battery capacity is 100% fully charged and the charge cycle is complete. After a period of time as the battery capacity decays, the handsets will go back into the trickle charge (i.e. flashing green LED part of the cycle

Battery Duration:

It is estimated that a fully charged Communicator keypad will last:

- 36 hours in standby or data response mode (voting)
- 20 hours in talk mode (microphones)

8

Battery Status Icon:

When the Communicator keypad is powered up, the LCD display displays a battery power icon at the top left of the screen. This icon gives a visual display on how much charge there is left in the Communicators' batteries. There are 3 segments within the icon that represent 30% of the full battery capacity.

Flashing

Charge Capacity

90 - 100%   60 - 90%   30 – 60%   10% or less
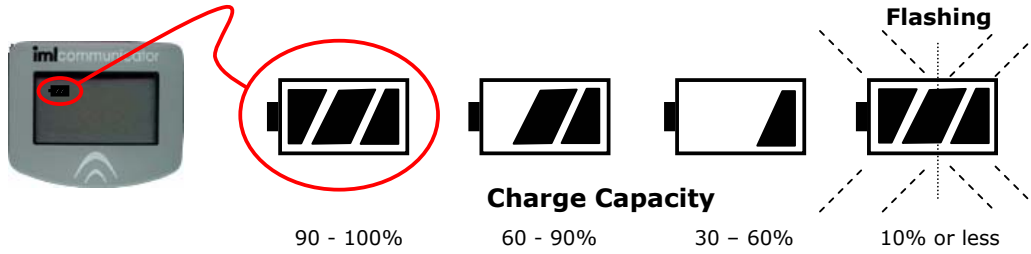
Initializing the Base Station & Connecting the Communicator Keypads.

PC Application

Start up the PC and its applications (e.g. IMLPort) following the guide for the application.

Initialising the Base Station:

- Select a fully charged Communicator keypad from the charging rack.

- Identify the base station cable and connect the blue mini-jack, to the blue I/O data socket at the base of the keypad.

- The I/O port socket on the Communicator is located at the bottom right hand side of the keypad, is coloured blue and labeled with an 'opposing arrows' symbol inscribed on the underside of the case.

- Connect the other end of the cable (9-pin female D-Type) to the correct serial port on the PC (This is the serial port that was configured in the application).

- Power up the Communicator by pressing the red power button on the keypad.

- Some applications will automatically switch the handset into base station mode, others require the use of a base station smart card.

- Confirm that a beep is heard and that the keypad has been initialized as a 'BASE STATION'. The LCD will be displaying the words 'BASE STATION'.

LCD Display
The display will verify 'BASE STATION' and the BASE' number

Back of Case
Data socket designation symbol engraved on the underside of the keypad

To PC Serial Port

End View
I/O data socket is coloured Blue

Data Cable
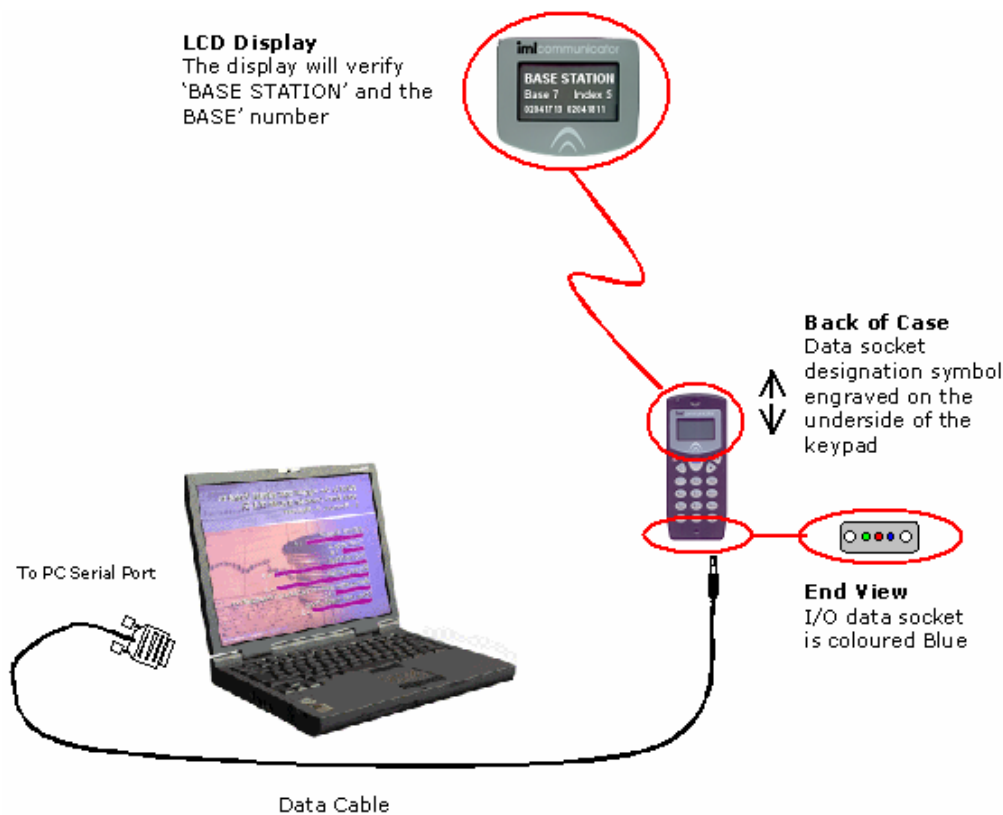
Connecting the Communicator keypads to the system:

There are two methods of connecting the Communicator keypads to the system:

(1) Individually from power down
If the Communicator keypads are switched off (the display is blank), press the round red power on button at top left side of the keyboard.

Allow up to 10 – 15 seconds for the keypad to connect to the base station.
- The flashing LED at the top edge of the Communicator and the 'Signal Strength' icon on the display will indicate the connection status.
- Flashing green indicates a connection with a strong signal
- Flashing orange indicates an acceptable signal for data (i.e. voting) but not for audio (i.e. microphone).
- Flashing red indicates that the keypad has not connected to the base station.

(2) Globally from the charging rack
Ensure that the charging rack(s) are switched on and charging the Communicator keypads.

To automatically connect the keypads to the base station, either remove the keypads from the rack or switch off the power to the charging rack(s).

When Communicator keypads are in their charging racks with the charger on they are automatically switched off and cannot communicate with any Base station. As soon as the charging is stopped or the keypads are removed from the charger the keypads switch on and snoop around for a base station with the same base number as their own. If a Base station signal is not detected after 15 seconds, the Communicator keypad will power down.

Allow up to 10 –15 seconds for the keypad to connect to the base station.
- The flashing LED at the top edge of the Communicator and the 'Signal Strength' icon on the display will indicate the connection status.
- Flashing green indicates a connection with a strong signal
- Flashing orange indicates an acceptable signal for data (i.e. voting) but not for audio (i.e. microphone).
- Flashing red indicates that the keypad has not connected to the base station.

Signal Strength Icon:

Signal Strength

Strong Signal Data / Audio		Acceptable Signal for Data but not for Audio	Poor Signal Unreliable for Data & Audio	No Connection
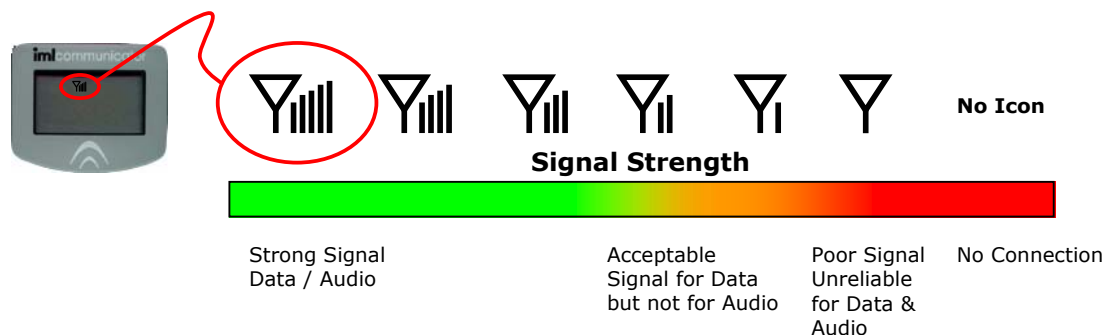
Powering down the Communicator keypads

There are several methods of powering down the keypads. These methods depend on whether the keypads have connected to a base station or not.

If the Keypads have not connected to a base station then there are two ways of powering down the keypads:

1. Press the red Power On/Off button on the keypad

2. Place the keypads in the charge racks and switch on the power to the racks.

If the keypads have connected to a base station the Power On/Off button on the keypad may have been disabled by the application e.g. IML Question Wizard (this is to stop the delegates from accidentally switching off the keypad during a meeting).

1. Place the keypads in the charge racks and switch on the power to the racks.

2. Press the power On/Off button if this has not been disabled by the application

3. Use application specific commands or methods, refer to application documentation for details.

Base Numbers, UIDs and Indexes

The IML Communicator System utilizes a license free radio band 2.45 GHz employing spread spectrum frequency hopping protocols. Basically this means that the system provides assurance that it will operate in high interference situations and when other radio based system are being used e.g. wireless LAN, Blue Tooth etc.

You may have noticed that when a Communicator keypad is powered up and not connected to a base station, the LCD display shows a Base Number and an Index Number.

What is a BASE number?

A Base number is similar to channels and can be set to any value from 0 to 99. The base number must be set in each Communicator and it must be the same as the base number set in the base station that you want it to connect to.

The advantage of being able to set different base numbers in a system is that it allows different interactive presentations to be run in close proximity without interference.

When a system leaves the factory, the default base number for the keypads is set to Base 1.

How to change the Base Number

There are two methods of changing the base number on a keypad:

(1) Using a Base Number Smart Card (Currently not released)

(2) By placing the keypad into Base Number Setup Mode by entering a special coded number.

Step 1 - Ensure that the base station and keypads are switched off

Step 2 - Switch on a keypad. The keypads LCD will display COMMUNICATOR, the BASE number and the INDEX number.

Step 3 - Type in the word BASE on the keypad using the letters printed on the buttons, i.e. 2273

Step 4 –

- Enter the new Base Number. Use the 'C' button to clear your input if necessary.

- Press the Blue Soft Key to set the new Base Number

- Power down the keypad

Ensure that all the keypads have the same base number – including the base stations.

13

What is a Unique ID (UID)?

A Unique ID (UID) is the number printed on the Communicator label. It is set inside the Communicator during manufacture and will never be changed. It ensures that all Communicators can work together on the same base station without clashing.

Communicator Keypad Features

(1) Wrist strap / neck lanyard attachment.

(9) Smart Card Slot

(2) Red, Orange, Green LED indicator

(10) Internal Earpiece

(3) Backlit LCD

(11) In built Questionnaire Response Memory

(4) Power On / Off

(5) Cancel Key

(12) Soft Key

(6) Internal anti-theft alarm & sounder

(13) Rechargeable batteries

(7) Backlit alpha numeric keypad

(8) Internal Microphone

(14) Power Charging Contacts

(15) External Headphone Socket

(16) External Microphone Socket

(17) Data Socket

Communicator Keypad Functions & Accessories

(1) Wrist strap	- The Communicator comes with a wrist strap that can be removed by unlooping it from the bar located at the back of the unit. - Neck lanyards with crocodile clips can be used that allow the keypad to be quickly released and then reattached. - The straps can be supplied with the client's name.

(2) Red, Orange, Green LED indicator	The LED indicator on the Communicator performs two visual uses to the user: • Base Station: This indicator flashes green to show that the Communicator keypad is connected to the base station, flashes orange to show that the signal level is low and flashes red to show that it is attempting to connect to the base station. • Charging: When the Communicator is in the battery charging rack, the indicator shows the keypads recharging progress within the charging cycle. Red for low, orange from low to nearly complete and green for complete. The LED blinks to show it is being charged and is viewable from outside the charging rack.

(3) Backlit LCD	• Blue on green dot matrix LCD
	• Backlit – A display backlight is switched on automatically for approx. 10 seconds whenever a key is pressed.
	• 97 x 32 pixels display
	• The display includes 5 icons to display battery power, signal strength, current time, message pending and alarm bell.
	
	   - The battery power icon has three segments to indicate the amount of battery remaining.
	   - The signal strength (aerial) icon has five bars indicating the signal strength.
	   - The clock icon displays the system time in HH:MM which follows the PC clock.
	   - The envelope icon is currently not implemented.
	   - The alarm icon is displayed if the keypad anti-theft alarm has been enabled.
	• Customizable fonts and icons may be configured for the display (i.e. company logo).

(4) Power On / Off	Power button for switching the Communicator on or off. • During normal operation (e.g. when used with IML Question Wizard), the keypad cannot be manually powered off once it has connected to the base station; this prevents the user accidentally switching off the device during a meeting. A password can be entered onto the keypad to re-enable the power off mode. • A global power down command from the IML Question Wizard can be sent to power down all connected keypads.
(5) Cancel Key	• In number entry fields the cancel key clears the display & clears any previously submitted values sent to the PC whether the submit key (Soft Key) has been enabled or not.

(6) Internal anti-theft alarm & sounder	• The internal sounder is used …. ○ to generate an audible sounds when keys are pressed on the keypad ○ to trigger an alarm sound when a keypad is out of range of the base station. i.e. If the Communicator is taken out of the meeting room and loses the base station signal, the sounder will automatically trigger and a message to return the keypad back to the administrator will be displayed on the LCD display. The sounder will stop and the message will clear from the LCD display when the Communicator reconnects back to the base station. The trigger signal strength can be adjusted to suit the room.
(7) Backlit alpha numeric keypad	• Molded silicon tactile feedback pad with gold contacts. • Backlit - The keyboard is switched on for approx. 10 seconds when ever a key is pressed. • 0-9 plus decimal point. • The keyboard makes a quiet click if a valid key is pressed otherwise a beep is heard. These sounds are generated from the internal sounder. • A-Z upper and lower (similar to a mobile phone layout) plus symbols and space bar. Alpha text input is currently unavailable but is intended for name / email details and short message response.
(8) Internal Microphone	• The internal microphone is indicated by the small indentation near the lower edge of the communicator. • The microphone is fairly omni-directional. • 60Db (20Hz – 3.5KHz). • Sibilance is good.
(9) Smart Card Slot	• PC/SC compatible • Currently, Smart cards can be provided for different uses: ○ Logging on ○ Manually setting the Communicator base number • Manually setting the Communicator index number.
(10) Internal Earpiece	• The internal earpiece is located above the LCD display and is currently only enabled on the base station.
(11) In built Questionnaire Response Memory	• The Up/Down selector keys are currently enabled for asynchronous voting allowing delegates to enter up to 100 multiple responses to either printed questionnaires or whilst they roam around an exhibition in their own time and respond to questions on display boards. The responses can be downloaded into Question Wizard at a later time for processing. • Future development will allow these keys to be used for other types of applications where menu selection may be necessary.
(12) Soft Key	• As in mobile phones the large central blue key changes function depending on the current mode. A flashing, reversed out text in the lower centre of the display will prompt the user what action the blue key will perform. e.g. To submit the vote, request to talk. • Normal text is used to indicate a state or feedback e.g. response sent, valid response.

(13) Rechargeable Batteries	• Charging time: 10-12 hours for full charge.
	• Battery type: Re-chargeable NiMH (Environmentally friendly).
	• Battery Size: 3 x AAA pack.
	• 3 year estimated battery life.
	• Estimated charge capacity:
	  ▪ 36 hours in standby or data response mode (voting)
	  ▪ 20 hours in talk mode (microphones)
	  ▪ 6 hours in base station mode

(14) Power Charging Contacts	• The power charging contacts on the Communicator are attracted and lock onto magnetic contacts in the charger. This provides a reliable connection for charging and stops the Communicators from falling out of the charging case when put into any position. • Nickel plated contacts for anti-corrosion and high conductivity.
(15) External Headphone Socket	• Currently only enabled on the Base Station • An external headphone switches off the internal headphone when it is plugged into the 3.5mm stereo jack socket. • A designation showing the headphone is engraved on the underside of the case and the socket is coloured green for quick identification.
(16) External Microphone Socket	• The central microphone socket provides the usual power for PC type microphones (electret) dynamic microphones. An external microphone switches off the internal microphone when it is plugged into the 3.5mm stereo jack socket. • A designation showing the headphone is engraved on the underside of the case and the socket is coloured red for quick identification.
(17) Data Socket	• The I/O port is used to turn a Communicator to a base station by connecting a base station lead from the Communicator to a serial port on a PC or Laptop. • A designation showing the data socket is engraved on the underside of the case and the socket is coloured blue for quick identification.

IML Communicator Keypad Technical Specifications

Manufacturer Details

Manufacturer	IML Ltd 8 London Road Liphook Hampshire GU30 7AN UK
Name/Model	Communicator
Country of origin	United Kingdom
Description	Rechargeable radio audience handheld device for polling and audio feedback.

Size and Material

Enclosure material	Black ABS plastic
Dimensions Length x Width x Height	150mm x 65mm x 25mm
Weight	0.180Kg

Microprocessor

Microprocessor	16 bit 10MHz RISC base band microprocessor with re-programmable FLASH memory for firmware upgrades / customization and future proofing.

Power Management

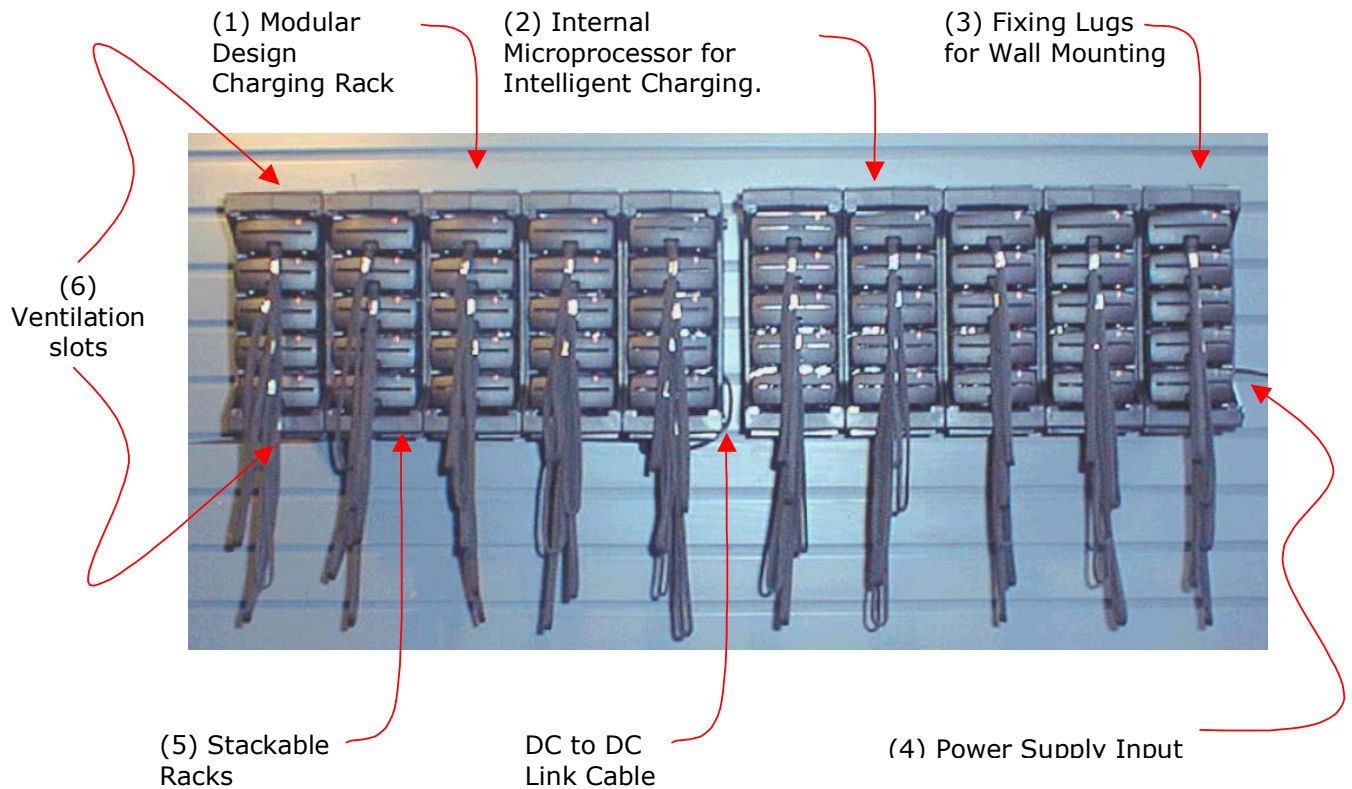|	
Power management features	Automatic power management saves battery energy when a keypad detects low activity.

Asset Tracking

Asset tracking	A bar coded label is attached to the back of the keypad for use in inventory control.

Transmission Standards

RF Wireless Specification	ISM license free radio band 2.45 GHz employing Spread Spectrum Frequency Hopping system according to ETS 300 328 and FCC part 15 standards adopted in USA, Europe and Asia. This standard provides assurance that the system will operate in high interference situations and will interoperate with other radio users, other electronic or non-electronic devices when operated in conjunction with these devices. i.e. Wireless LAN, Blue Tooth.

Specification	Value
Frequency	2400 – 2483.5 MHz
Power	+20dBm
Modulation	FHSS
Hop Dwell Time	10 ms
Sequence	Pseudo Random

IML Communicator Charging Rack Features

(1) Modular Design Charging Rack

(2) Internal Microprocessor for Intelligent Charging.

(3) Fixing Lugs for Wall Mounting

(6) Ventilation slots

(5) Stackable Racks

DC to DC Link Cable

(4) Power Supply Input

(1) Modular Design Charging Rack	Each 5-slot charger can be used on its own with a 9 to 12V (500mA) DC power supply. Five modules can be locked and held together by using two tie bars and two power inter-connectors to form a standard block of 25 Communicators.
(2) Internal Microprocessor for Intelligent Charging.	The charger is controlled by microprocessor which gives a 60 second charge to each Communicator in turn. The Communicator controls the colour of its LED from red through orange to green to indicate its charge state. If a slot is not filled or a Communicator is fully charged then the intelligent charger skips the slot and carries on with the next. If a Communicator LED is not solid green it gets a 60 second rest between charges.
(3) Fixing Lugs for Wall Mounting	Two Keyhole slots are provided at the back of each rack for attachment to vertical surfaces using Pan head screws.
(4) Power Supply Input	Two DC inlets are available on each 5 keypad module.
	Any of the DC inlets can be used for power supply input or linking to another block using a **DC to DC link cable**.
	No more than 50 communicators should be linked together.
(5) Stackable Racks	The racks are designed to stack on top of each other.

(6) Ventilation slots	The ventilation slots at the top and bottom and at the back should be kept clear when charging is in progress.
Reversible	The Communicators can be inserted either way round in a mixed fashion into the charging rack.
LED Power On Indicator	A green LED on the inside-middle-back of the rack indicates that the power is on.

IML Communicator Charging Rack Technical Specifications

Manufacturer Details

Manufacturer	IML Ltd 8 London Road, Liphook, Hampshire GU30 7AN UK
Name/Model	PDC (Personal Digital Communicator) Charging Rack
Country of origin	United Kingdom
Description	- A modular charging rack designed to hold 5 Communicator keypads. 5 modules can be clamped together to form a single 25 keypad charging rack. - Suitable for permanent wall mounting for side keypad access or placing on horizontal surface for pull up access. - Can be housed into mobile trolleys or flight cases for transportation.

Rack Size and Material

5 Keypad Rack:

Enclosure material	Black ABS plastic
Dimensions Length x Width x Height	184mm x 75mm x 132mm
Weight (Net)	0.490Kg

External Power Supply

(50 keypad capacity):

Input	120-240VAC 50-60Hz
Output	9V DC 5A (Centre Pin +ve)
Max. Keypad Capacity	Up to 50 keypads
Dimensions Length x Width x Height	145mm x 76mm x 44mm
Weight	0.750Kg
Listings	UL, CE, GS, CB listed

Fault finding and Fixes

Communicator does not function

Fault: Display is dead even after pressing on/off key.

Fix: Charge and re-test

Action: Make sure keypads are on charge the day before you use them.

Fault: Display is dead after charging and pressing on/off key.

Fix: None

Action: Contact supplier

Communicator does not connect

Fault: Communicator flashing red LED does not turn green.

Check: Communicator(s) and base station must be configured with the same Base number.

Fix: Change the base number so that all the communicators and the base station are running with the same base number.

Fault: Signal strength meter icon has no bars.

Fix: Switch of Communicator and switch it on again. If position is not the cause then there is no fix.

Action: Contact supplier.

The Communicator Keypad FAQ

Base station

Q: Can any Communicator be used as a base station?

A: Yes, any Communicator goes into base station mode when connected to a PC that is running the appropriate IML software, or if manually changed into base station mode.

Q: Will the Communicators stay connected if I disconnect the Base Station data lead?

A: Yes.

Q: Why doesn't the LED flash normally on the base station?

A: The base station LED cannot indicate the signal strength of every Communicator that is connected to it so it is not used in this way – see next Q.

Q: What do the occasional red, orange and green LED flashes indicate on the base station?

A: The Communicator LED behaves differently in base station mode. It does not indicate signal strength as it does in normal mode. A red flash indicates a message has been received by the base station from one or more Communicators. A green flash indicates that a command has been transmitted from the base station to one or more of the connected Communicators. An orange flash indicates that commands and messages are passing between the base station and Communicators.

Base number

Q: What is the Base number?

A: The base number can be any value from 0 to 99. Using different base numbers allows different interactive presentations to be run in close proximity without interference.

The base number must be set in each Communicator and it must be the same as the base number set in the base station that you want it to connect to.

Q: When would I need to change to a different base number?

A: If you discovered that you were using the same base number as another user close to you - either you or the other user would need to change to another base number.

Q: How do I tell what the current base number is?

A: Look at the displays on the base station or Communicators.

Q: What happens to a Communicator with the wrong base number.

A: Communicators with a different base number to the base station will not connect. They will not interfere with the system. Check the base number displayed on the base station and use the base numbering smart card as above to set the Communicator to the right number.

Q: What happens if I connect up more than one base station with the same base number?

A: This is not recommended and the system may be unreliable. Communicators do not necessarily connect to the strongest signal.

Handset

Q: What is the unique ID (UID)?

A: It is the number printed on the Communicator label. It is set during manufacture and will never be changed. It ensures that all Communicators can work together on the same base station without clashing.

Communicator Charging FAQ

Q: When Communicators are in the charger and you switch off the power supply, why do they sometimes stay on and at other times switch off?

A: You will notice that if the base station is on they will connect and stay on but if the base station is off they will also switch off. The rule is - if they have connected at any time they stay on but if they cannot connect at all they switch off.

Q: If I pull out a Communicator when it is on charge does it follow the same rule as above.

A: Yes. Pulling out a Communicator when it is on charge is the same as switching off the charger.

Q: Can the Communicators connect to the base station when they on charge?

A: No. The Communicators are disconnected from the base station when they go on charge.

Q: Does it matter in which order and which way round the Communicators are put into the rack?

A: No. As long as the Communicator is slid into the rack contacts first. The Communicator's keyboard can face up or down. The rack itself can also be used either way up.

Q: Do I need to fill all the rack positions when charging?

A: No. If you distribute the Communicators across the rack modules they will take less time to charge as the charger skips empty positions.

Q: Do fully charged or vacant rack positions get skipped?

A: Yes, they do not receive the 60 second charge cycle.

Q: Will Communicators charge faster when they are on their own?

A: A single Communicator in the rack will be fast charged one minute on and one minute off etc so it will take $2/5^{th}$ of the time it would normally take in a rack of five i.e. roughly 2 hours for a full charge. A full charge for two Communicators is also $2/5^{th}$.

Q: Sometime the charging cycle goes from top to bottom other times from bottom to top, why is this?

A: The cycle order, either top to bottom or visa versa, will depend on which way round you have positioned the rack.

Q. How do I know if the charging rack is powered on?

A. Either insert a Communicator keypad into the rack and check that the LED turns Red or remove the keypad that is in the middle rack position (third down) and note the green LED inside the back of the rack.

Q: Can the rack be stood on its backside?

A: Yes, as long as air can circulate into the racks from underneath.

Q: Can the charging rack be stood on it side?

A: This is not recommended, as the airflow is restricted.

Q: Can I charge more than 25 Communicators by linking up blocks of 25?

A: 2.5A power supply can charge up to 50 Communicators at a time, so you may link two blocks of 25 Communicators together using the interconnecting DC-DC cable between two outside charge rack sockets.

Q: How many racks can a power supply serve?

A: A 10V DC 5.5A power supply can power up to 50 Communicators in 10 racks. Do not try to power more than 50 Communicators from a single power supply.

Q: Is it best to top up the Communicators after use or to use them until flat before charging?

A: The NiMH batteries do not suffer the so-called memory effect experienced with NiCad batteries so the Communicators may be topped up as a routine.

Q: Can I stop the charging half way through, use the keypads and then put them on charge again?

A: Yes. They will start red but soon go to orange and then eventually to green.

Q: How do I extend the batteries serviceable life?

A: Store and charge in cool surroundings. Always allow air to circulate into charger during charging.

Q: Do I ever need to replace the batteries?

A: All rechargeable batteries lose their capacity over time. As this time depends on usage and operating environment it is not possible to be precise about this. However they should expect them to retain enough capacity for 3-5 years.

Q: How long do the Communicators keep their charge?

A: After a month the Communicators may lose 10% of their capacity.

Q: How long can a fully charged Communicator run for?

A: In base station mode it will last 6 hours.

In standby or response mode a Communicator will last 36 hours.

In talk mode it will last 20 hours.

Q: Can the power supply be used abroad?

A: Yes, the power supply is 110-240V AC 50-60Hz. You will however require the correct mains plug for the country you are working in.

Q: Can the racks be used individually?

A: Yes. Two metal ties hold the racks together. These may be unscrewed to release the individual racks. There are two inter-connecting pin sets between each pair of racks that must be kept for when the racks are re assembles into a block.

Q: Can different numbers of racks be fitted together?

A: Yes. Phone the IML Sales department for availability of different tie bar lengths.

Q: Can the contacts on the Communicator erase floppy disks?

A: No. The magnets are inside the charging case and the Communicator contacts never get magnetized.

Q: Can I get a shock from the Communicator contacts?

A: No. Power is not available from these.