User Manual

DuraFon PRO
Digital Long Range Cordless System

Safety Instructions

> **Caution**: *Your wireless telephone gives you freedom and flexibility to stay in touch while you move around. However, when using your phone equipment, safety instructions should be followed to avoid the risks of fire, electric shock, injury to person, and damage to property.*

General Safety Instructions

1. When using your wireless phone, ensure your safety and the safety of others:
   a. Always watch where you are walking and standing.
   b. Don't let a phone call distract you from working safely.
   c. If power goes out, it won't work. Recommend backup power.
2. In an emergency:
   a. If an emergency occurs, dial the emergency phone number. Remember: if you are in an area where your phone does not have a clear signal from the base, it is highly probable that the call may not go through. Locate the nearest landline telephone or other communications device to call for help.
   b. Emergency calls may not automatically provide emergency personnel with your name, phone number or location.
3. Notice to Hearing Aid Users: This phone system is compatible with inductively coupled hearing aids.
4. Notice to Cardiac Pacemaker Users: Preliminary studies done by the US FDA and others have shown that, although interference to the implanted cardiac pacemaker may occur when operating very closely, wireless telephones "do not seem to pose a significant problem for pacemaker wearers." However, until more is known, FDA suggests that people with pacemakers may want to take precautions when using or carrying a wireless telephone to ensure that there is ample distance between the telephone and the pacemaker. Do not carry the handset in a breast pocket. If you have any reason to suspect that interference is taking place, turn off your handset immediately.

Product Safety Instructions

1. Read and understand all instructions.
2. Follow all warnings and instructions including those marked on the product.
3. Changes or modifications to this product not expressively approved by the manufacturer will void the warranty and the FCC authorization to operate the equipment. Use only manufacturer provided accessories.
4. Do not use the telephone near water. Never spill liquid of any kind on this product.
5. Unplug the product from the wall telephone jack and power outlet before cleaning. Do not use liquid or aerosol cleaners. Use damp cloth for cleaning.
6. Do not place this product on an unstable cart, stand, or table. The product may fall and cause personal injury or damage to the product or other property.
7. Power Outage: In the event of a power outage, your handset charger will not recharge the handset battery, and the base station will not allow you to make an outgoing call or take an incoming call. Both the charger and the base station require electricity for operation. You should have a telephone that does not require electricity available for use during power outage, or have a temporary backup power supply.
8. Slots or openings in the product's housing are provided for ventilation. These openings must not be blocked or covered. Placing the product on a bed, carpeting, or other similar surface may block these openings and should be avoided. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
9. Never push objects of any kind into this product through housing slots/openings as they may damage the product, touch dangerous voltage points or short out parts that could result in fire, electric shock, or injury.
10. This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your dealer or local power company.

11. Do not overload wall power outlets and extension cords as this may result in fire or electric shock.

12. To avoid electric shock or burn, do not disassemble this product. Send this product to an authorized service center when service or repair work is required. Call Customer Service for locations near you. Opening or removing covers may expose you to dangerous voltages, electrical currents or other risks. Incorrect reassembling of the product may cause electric shock when the product is subsequently used.

13. Avoid using the product during a storm. There may be a risk of electric shock from lightning.

14. Do not place the product where persons can step, trip, or fall on it.

15. Do not place conductive objects over or near the antenna.

16. Do not use the product to report a gas leak while in the vicinity of the leak.

17. Do not install the base station or the handset charger near microwave ovens, radios, TV sets, speakers, or other electrical equipment. These appliances may cause interference to the product or experience interference from the product.

18. Unplug the base station or the charger adaptor from the power outlet and refer to an authorized service center under the following conditions:

   a. If liquid has been spilled into the product.
   b. When the power supply cord or plug is damaged or frayed.
   c. If the product has been exposed to rain or water.
   d. If the product does not operate normally by following the operating instructions.
   e. If the product has been dropped or housing has been damaged.
   f. If the product shows a distinct change in performance.

Regulatory Information

> **DuraFon PRO**
> **FCC ID: A8J-SP922PROV3**
> **IC: 10103A-SP922PROV3**
>
> 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.
>
> Privacy of communications may not be ensured when using this phone.

Base Station
Federal Communication Commission Interference Statement
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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this 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.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada statement:
This device complies with RSS-210 of the Industry Canada 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.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

IMPORTANT NOTE:
Radiation Exposure Statement:
This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This device has been designed to operate with an antenna having a maximum gain of 2 dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

Déclaration d'exposition aux radiations:
Cet équipement est conforme aux limites d'exposition aux

rayonnements IC établis pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20cm de distance entre la source de rayonnement et votre corps.

Ce dispositif a été conçu pour fonctionner avec une antenne ayant un gain maximal de dB 2. Une antenne à gain plus élevé est strictement interdite par les règlements d'Industrie Canada. L'impédance d'antenne requise est de 50 ohms.

Telecom
This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the EUT of this equipment is a label that contains, among other information, a product identifier in the format US: SNIW401B-SP922PROV3. If requested, this number must be provided to the telephone company.

The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US: SNIW401B-SP922PROV3. The digits represented by 01 are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

If your equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC. Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please contact the following address and phone number for information on obtaining service or repairs.
The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

Company: EnGenius Technologies
Address: 1580 Scenic Avenue, Costa Mesa, CA92626
Tel no.: 888.735.7888 ext. 827

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

''NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.''

''NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is 0.1. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.''

« AVIS : Le présent matériel est conforme aux spécifications techniques d'Industrie Canadaapplicables au matériel terminal. Cette conformité est confirmée par le numérod'enregistrement. Le sigle IC, placé devant le numéro d'enregistrement, signifie quel'enregistrement s'est effectué conformément à une déclaration de conformité et indique queles spécifications techniques d'Industrie Canada ont été respectées. Il n'implique pasqu'Industrie Canada a approuvé le matériel. »
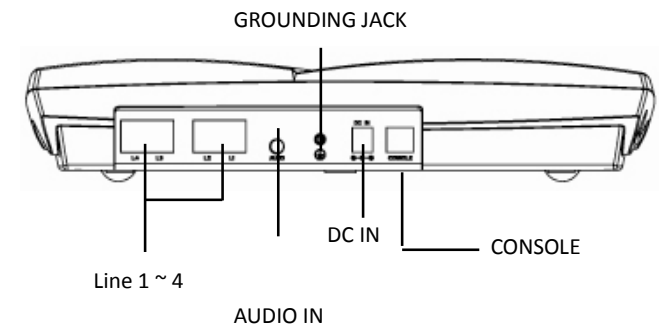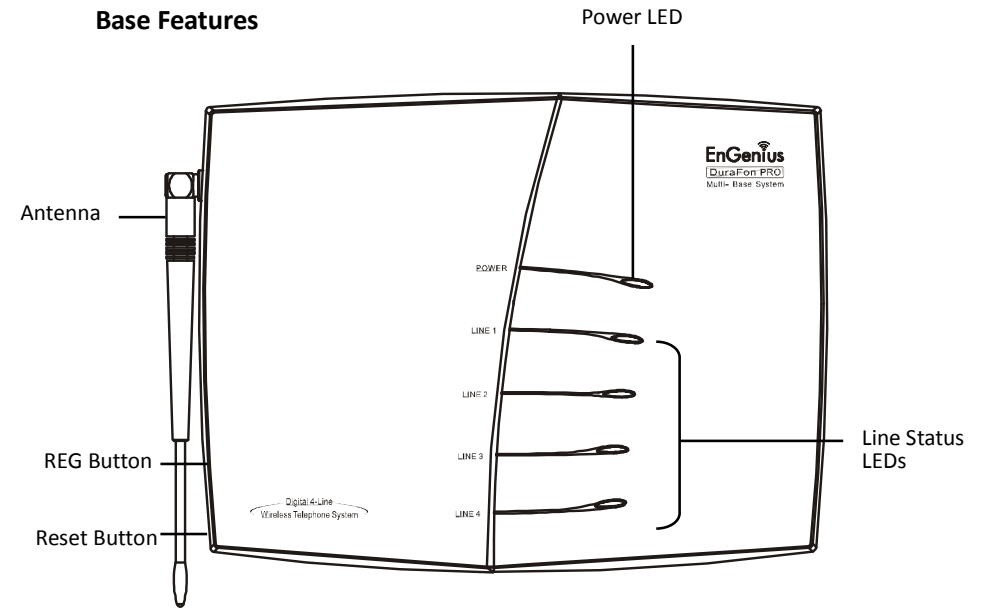
« AVIS : L'indice d'équivalence de la sonnerie (IES) du présent matériel est de 0.1. L'IESassigné à chaque dispositif terminal indique le nombre maximal de terminaux qui peuvent êtreraccordés à une interface téléphonique. La terminaison d'une interface peut consister en unecombinaison quelconque de dispositifs, à la seule condition que la somme d'indicesd'équivalence de la sonnerie de tous les dispositifs n'excède pas 5. »

Equipment Checklist

1. In a Base package(DuraFon PRO BU), please find the following components:
   a. Base Station x 1
   b. Base Antenna x 1
   c. Base AC/DC Adaptor x 1
   d. Telephone Cord x 4
   e. Warranty Card
   f. Audio-in Cable x 1
   g. Grounding wire x 1

2. Optional Accessories
   a. Outdoor Antenna Kit (including antenna and cable)
   b. Lightning Protection Kit (including cable)
   c. Antenna Splitter (including cable)

Base Illustration

Base Features

Power LED

Antenna

REG Button

Reset Button

Line Status LEDs

GROUNDING JACK

Line 1 ~ 4

AUDIO IN

DC IN

CONSOLE

Basic Base Station Features

1. Antenna
   a. The antenna port has a **reverse thread connector**; to remove antenna or cable, turn clockwise; to install, turn counterclockwise. Improper installation may damage the connector.
   b. When using an outdoor antenna, locate the antenna (not the base station itself) as high as possible for a clear transmission path.

2. Audio-in Jack (3.5mm)

3. Line Status LED
    Indicates an active telephone line.

4. Power LED
   Indicates base station has power.

5. L1 – L4
   Standard RJ-11C/CA-11A connector to plug in the telephone line

6. DC In Jack (for AC power adapter)
   Re：The AC power adapter is 100~240VAC/12VDC, do not use other non-compatible AC, in case any damage or safety issue.

7. Registration Key (REG)
   Enters registration mode along with handset, assigns handset ID (10-90).

8. Reset Button
   a. Restores base station to factory settings
   b. Reset button is indented to prevent accidental system reset.
   c. All handsets (including administrator) and additional base(s) need to be re-registered after a base station reset.

9. Grounding jack
   Connecting with grounding wire

10. Console jack
    Jack for firmware upgrade (Type-B USB connector)

Re: Please consult with EnGenius Tech support about the firmware upgrade.

Additional Base Station Features

1. 4-channel Auto-Attendant
   a. 4 Auto-Attendant can be active at the same time in case of 4 simultaneous incoming calls.
   b. Allows private paging to a single handset (with individual Handset ID) or group paging to a group of handsets (with Group ID).
   c. Per line AA enable/disable by administrator. When disabled for a line, the administrator can set all handsets to ring with an incoming call on that line, or a particular Handset/Group ID (either one; not simultaneously) can be assigned to have both incoming and outgoing call privileges on that line. See AA Configuration by Administrator
   d. Up to 120 seconds customizable main greeting message.
   e. Default of 4 lines AA is OFF.

2. Optional Outdoor Antenna Kit with cable.

Getting Started

Base Station Installation
For best performance, maintain a distance of at least 1 meter (about 3 feet) between the base station and other electronic devices (e.g., TV, computer, stereo, fax machine, answer machine, cordless phone, etc.)

1. Install base station antenna.
   The base station's antenna port has a **reverse-thread connector**; to install antenna or cable, turn counter-clockwise; to remove, turn clockwise. Improper installation may damage the connector.

2. Plug the transformer end of the base station AC/DC adaptor into a standard AC electrical power outlet, plug the other end into the "DC In" jack on the back of the base station.
   a. The base adaptor's DC plug is larger in dimension than the charger's DC plug. The charger adaptor's DC plug will not fit into the base's DC In jack.
   b. The base station's power supply (DC Adaptor) and telephone line should be plugged into a surge protector with phone line protection.

3. Plug one end of the phone cord into one of the 4 phone jacks marked L1 ~ L4 and plug the other end into the telephone outlet. Since DuraFon PRO has the built-in "line detection" feature, it is okay to plug in the phone jacks in random order.

4. Connect an external telephone answering device by following the instructions that come with the answering device. An exemplary configuration: install the external answering device in-between the wall phone jack(s) and the Base Station. Either a multiple of single-line answering devices or a multiple-line answering device can be used.

5. To use the Music/Message-On-Hold feature: Connect one end of a standard audio cable into a radio or audio player, and plug the other (3.5 mm) end into the MOH jack on back of the base.

6. To ground the grounding wire
   a. Loosen the screw of grounding jack (⏚) on the rear of base.
   b. Insert the grounding wire (enclosed in the box).
   c. Tighten the screw.
   d. Connect the grounding wire to the ground.

Re: Proper grounding is very important to protect the base station from the external noise and to reduce the risk of electrocution in the event of a lightning strike.

Notes:
Recommended phone line features from the local phone company:
Multiple phone lines "hunt group" is a useful feature and works well with this phone system. This feature "ties" multiple phone lines to a single phone number. When an outside caller calls this common phone number, the phone company automatically finds a free line. In a hunt group, the Call Waiting and the Caller ID with Call Waiting (or called Type II Caller ID) features are unnecessary because a 2nd call will come in on a separate line, rather than on the same line. For a 2nd call coming in on a separate line, the phone system's built-in Call Waiting feature will alert the user and allow the user to toggle between 2 lines.

Multi-base setups:
EnGenius DuraFon PRO has the capability to expand the coverage or capacity.
Re: For best performance, maintain a distance of at least 10 meters (about 30 feet) between any two base stations.

● Expanding coverage :
   Parallel connects all L1/L2/L3/L4 in each base as below schematic(up to 8 bases), the use coverage will be several times increased.
   **Note:** Telephone calls cannot be handed off between base units.
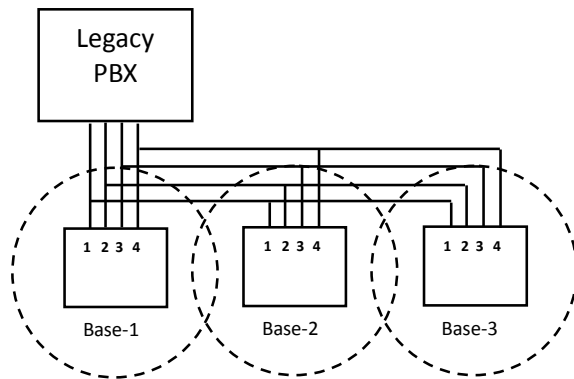
Re : when a call is coming in from L1, all handsets can pick up the call, as long as the handsets are in the coverage of base1~3.

1. Handset Registration.
   a. Press REG button on Base 00(default), four LEDs will light up in setting mode
   b. Handset operation: Press MENU→ 6 → 1 . (It will complete the registration process)
   c. Repeat, as needed, to add handsets
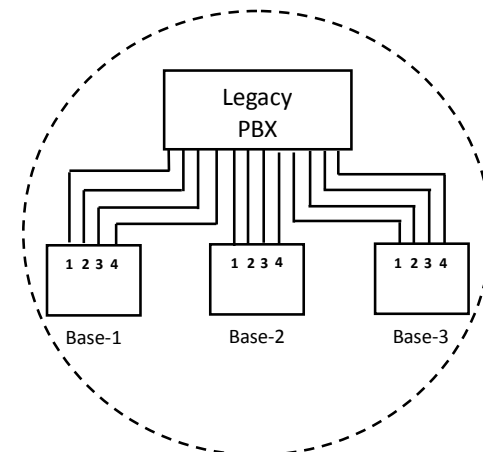   **Note**: Additional handsets should be added to the system before adding additional base units.

2. Establishing additional Base Units:
   a. Press REG button on new Base.
   b. Use Handset 10 or 11 to Add base :
      Press MENU→ 8 → 1
   c. Enter 01~07 (base ID)
   d. Repeat, as needed, to add base units

☎ ▯ 10
Select Mode:
1. Add Base

☎ ▯ 10
Added Base
Number : **
CANCEL
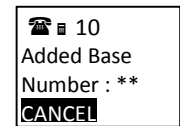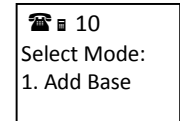
Notes:
1. Only Handset 10, 11 can assign Base ID.
2. Base 00 is a primary base. All handsets must register only on Base 00.

● Expanding capacity
   User capacity can be increased by adding additional base units.
   Up to 8 base units can be supported.

Re : Handsets can answer calls from any port or line, unless port is dedicated to a specific handset or group.

1. Handset Registration.
   a. Press REG button on Base 00(default), four LEDs will light up in setting mode
   b. Handset operation: Press MENU→6→1. (It will complete the registration process)
   c. Repeat, as needed, to add handsets

2. Establishing additional Base Units:
   a. Press REG button on new Base.
   b. Use Handset 10 or 11 to Add base :
      Press MENU→8→1
      Enter 01~07 (base ID)
   c. Repeat, as needed, to add base units

> ☎ ▯ 10
> Select Mode:
> 1. Add Base

> ☎ ▯ 10
> Added Base
> Number : **
> CANCEL

Notes:
1. Only Handset 10, 11 can assign Base ID.
2. Base 00 is a primary base. All handset must register only on Base 00.
3. To avoid interference, the interval between any two bases should be at least 10 meters.

Basic Operations

Operation Modes

The base station has levels of operation at which time only certain procedures of functions can be performed.

Base Operation Modes
1. **IDLE mode**- this is the default mode. The intercom, broadcast, and volume keys are active in IDLE mode.

2. **TALK mode**- the base operates in this mode during a phone call, intercom use, and broadcast operation. The "In Use", "Intercom", and "Broadcast" LED will light up respectively.

3. **REGISTRATION mode**- the base enters this mode by pressing the REG button for three seconds. There are no active base unit keys once this mode has been entered. Four LEDs will light up in Registration mode.

Technical Specifications

Electrical Specifications	Base Station
Frequency	902-928 MHz
RF Power	Peak: 708 mW
	Average: 304 mW
Channel Spacing	200 kHz
Number of Channels	128
Modulation	MSK
Multiple Access	Frequency Hopping TDMA
Frequency Hopping Rate	100 per second
TDMA Frame Length	10 ms
Number of Slots/Frame	8
Number of Users/Carrier	4
Receiver Sensitivity	< -108 dBm (@ BER 10^{-2})
Antenna Connector	Reverse TNC
Antenna Gain	2 dBi
TX Power Control Range	NA
Telephone Interface	RJ11 x 4
Speech Coding	8 kbps G.729A
Channel Coding	8 kbps Convolutional + CRC
Transmission Data Rate	170.667 kbps
User Data Rate	128 kbps duplex
Duplex	Time Division Duplex (TDD)
Voice Quality	TIA/EIA-470B
No. of System ID	65,536
Ring Signal	20-50 Hz, 15-90 Vrms
Auto-Attendant Coding	8 kbps G.729
Flash Time	100-900 ms programmable
Power Source	100~240V/12V AC/DC Adapter
Charger Current	NA
Charge Time	NA
Regulation Compliance	FCC Part 15, Part 68
Operating Temperature	0 – 50 °C
Storage Temperature	-10 – 70 °C
Humidity	20 – 75 %
Dimension without antenna	280 x 215 x 53 mm
	8.5" x 11.0" x 2.1"
Weight	**32 ounces**

Notes:

1. NA = Not Applicable.
2. The manufacturer reserves the right to change designs and specifications without notice.