# Long-Range, Durable, SIP-based, Industrial Cordless Voice Communication System

Call Handoff between Base Units

## Product Highlights

The DuraFon Roam is EnGenius 2nd generation durable, long-range SIP cordless phone.
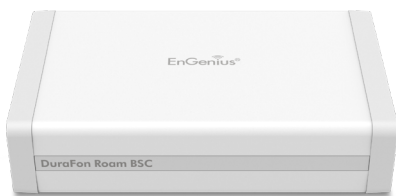
The DuraFon Roam Voice Communication System delivers new levels of industry-leading range with the ability to roam between base units while on a call. The new DuraFon Roam system can provide up to 4 times the coverage of even our range-leading 1st generation platform. The brand's renowned durable handset's design and built-in digital two-way radio functions remain.

The DuraFon Roam allows for up to eight (8) base units with SIP and even an analog port on each base. The system can support up to 32 concurrent calls, 90 handsets and 32 SIP accounts. Designed to serve demanding environments where communication can be challenging due to the size or configuration of the environment. The DuraFon Roam well exceeds the range of a Wi-Fi or DECT phone. Built for use at these and similar environments:

- Large Retail Stores
- Assisted Living Facilities
- Manufacturing & Industrial Plants
- Warehouses
- Grocery Stores
- Hotels
- Expansive Agricultural Properties
- Equipment Rental Yards
- Vehicle Service Centers

## Features & Benefits

- Long Range Multi-Base SIP Voice Communication System (phone and digital two-way radio)
- Supports up to 8 Base Units with Roaming
- Range Performance up to:
    - 200,000 sq. ft. or 24 Floors In-Building Penetration (Office)
    - 1,000,000 sq. ft. in Warehouse / Retail Store
    - 3,000 Acres Open Land (Farm / Ranch) Coverage
- Multi-Mode Communications
    - Total 8 Bases, Supports up to 32 Concurrent Calls (32 SIP or 24-SIP + 8-PSTN)
    - Works with Standard SIP protocols of IP-PBXs or hosted service providers
    - Intercom & Broadcast over IP
- Durability, Rugged Design
- Secure 900 MHz (902 ~ 928MHz) FHSS
- Web-GUI Configuration
- Doesn't use valuable Wi-Fi bandwidth

DuraFon Roam - Voice Communication System

## Premises Mobility Communications Solution

DuraFon Roam is a powerful, reliable, versatile multi-mode communications system that delivers industry-leading range and durability while providing significantly lower CapEx and OpEx when compared to other SIP cordless phone solutions.

### Lower CapEx, faster deployments:

DuraFon Roam features EnGenius high-power, easy-to-deploy multi-cell technology that covers up to 4 times indoors and outdoors coverage, penetrates in-building, minimizing the amount of equipment required.

### Reduced OpEx, less downtime:

The proven durability of the DuraFon series-over 10 years of continued innovation and testing-ensures that the phones will survive in the most challenging environments where handsets are subjected to drops and shocks.

### Flexible and easy-to-deploy:

Easily configured web-GUI via EnGenius Cloud, DuraFon Roam supports both PSTN and SIP functions, and works with any IP-PBX system or hosted service provider that supports the standard SIP protocol. In addition to long-range connectivity, the multi-mode system also enables users to communicate via 2-Way Intercom and PTT Broadcast modes.

## Flexible, Multi-Mode Communications

### Independent 2-Way Intercom

The DuraFon Roam's Handset provides handset-to-handset communication with or without going through the Base Station for quick contact with specific users without group chatter.

### Broadcast Feature

DuraFon Roam offers the favored, "Push-to-Talk" feature through the Handset's Broadcast button, allowing users to create 1-way communications for 1-to-All or 1-to-A Handset Group for instant group communication.

### Dual Interface

Support for both SIP and PSTN lines permit the connection of the Base Station to a legacy PBX, IP-PBX or phone service provider and gives users up to four (4) talk paths via four (4) digital calls or three (3) digital calls and one (1) analog line.

## Cloud Access

EnGenius Cloud improves users operational efficiencies, help maintain high customer satisfaction, and cut the operational costs.

### Easy Configuration

User can remotely configure the networking connectivity, multi-base, SIP account, audio setting, phonebook and all related settings in anywhere and anytime.

### Easy Management

Real time and visualized information helps user to easily manage the DuraFon Roam's devices.

### Easy Monitoring

User can collect the trunk/account/line status, handset/base status, call statistics and traffic statistics, present and analysis through dashboard, help user to monitor the whole operation of DuraFon Roam system.

## Durable, Rugged Design

The DuraFon Roam's durable, rugged Handset is designed for use in demanding environments and tested to withstand 6-foot drops, over 50 times onto concrete floor without breaking.

## Superior Long-Range Performance

DuraFon Roam implements a high-powered 900MHz proprietary air protocol, with high RF transmission and sensitivity to provide superior range and coverage for large footprint environments; covering up to 1,000,000 sq. ft. (retail store/warehouse), 3,000 acres (farm/ranch) and penetrating up to 24 floors or 200,000 sq. ft. (hotel/office).

## Secure Wireless Communications

Adopting 900MHz (902~928MHz) FHSS (Frequency Hopping Spread Spectrum) technology, the DuraFon Roam ensures secure communications during conversations.

## Multi-Cell Technology Expand Coverage

The DuraFon Roam features multi-cell technology that leverages multiple 900 MHz Base Stations for long-range coverage, expanding the coverage by adding Base Stations, helping companies enlarge the user capacity and range through multi-base installation.

## 20-Years of Trusted Reliability

EnGenius brings over 20 years of product and engineering experience with long-range leadership for voice communication to the DuraFon Roam system.

## Low Total Cost of Ownership Available for SIP Deployments

Unlike other SIP systems, the DuraFon Roam offers the low TCO available for large-area SIP deployments. By simplifying and expediting system deployments, the DuraFon Roam lowers overall equipment costs and ensures less downtime through its proven reliability, reducing overall operating expenses for the life of the system.

## Operates Independently of Wi-Fi Networks

By using the 900MHz frequency, DuraFon Roam operates independently of the Wi-Fi network and doesn't require valuable Wi-Fi bandwidth or present Wi-Fi QoS concerns. available for large.

# Technical Specifications

## SIP

Voice code: G.711a, G.711u, G.729A

SIP protocol: RFC3261

DTMF: RFC2833, SIP INFO Hold: RFC3264

Transfer: RFC3515, RFC3891, RFC3892

Support Outbound Proxy

DNS SRV Support

## Long-Range (8-Base)

24 Floors In-Building Penetration, 200,000 sq. ft. (Hotel/Office)

1,000,000 sq. ft. (Warehouse/Retail Store)

3,000 Acres of Open Area (Farm/Ranch)

## Durable

1Tested to withstand 6-Foot Drops, Over 50 Times onto Concrete Floors

## PHandset Features

Cordless telephone

2-Way Radio

User Handset Naming

Keypad Lock

Speakerphone

Caller ID

Call Waiting

Vibrate Mode

Line Select

Call Logs – Dialed & Received

Redial

Speed Dial

Call Hold

Call Transfer

Wireless PBX Function Sharing

Wireless Phone Book Sharing

Silent Ring

Mute

Wired Headset

BlueTooth

900 MHz, DSS, Frequency Hopping

Selectable Handset Grouping (7 groups)

Phone Book Supports 50 Entries

Intercom (Handset-to-Handset)

PTT Broadcast (One-to-Many)

## System

900MHz

Multi-Cell Architecture

Roaming & Handoff

Multi-Base up to 8

1 LAN and 1 PSTN Ports per Base Unit

Multi-Handset up to 90

Removable Base Antenna

Flexible Port Dedication: Single, Group or All

Standard SIP Protocol Connection

Remote Configuration via EnGenius Cloud

Any Analog Line Connection:
• Landline, ATA, Cellular, VoIP or Satellite

Supports Ring Groups & Hunt Groups

Type I/II Caller ID (FSK and DTMF)

Visual Message Waiting Indication (VMWI) for PSTN

Conference Calling

Modifiable Flash and DTMF Tone Timing

Secure, Digital Spread Spectrum w/Frequency Hopping Technology

EnGenius Cloud Remote Access

## Battery & Charger

Li-Ion Technology

6-Hours of Talk Time

50-Hours of Stand-By Time

Desktop Charger Supports Handset & Spare Battery

4-Hour Recharge Time

Battery Hot-Swap While Call is On-Hold

## Optional Equipment

External Base Antenna Kits: Optional indoor or outdoor antenna with 20-meter low-loss LMR-400 cable

Lightning Protection Kit (static charge surge arrestor)

Antenna Splitter

DuraPouch Phone Case

## DuraFon Roam Value

No Monthly Bill

No Per Minute charges

No Contracts

No Annual FCC License Fees

No Extensive Infrastructure Installation

No QoS Concerns

No Wireless Network Interference

## Manufacturer's Part Numbers

DuraFon Roam-BSC (Base Station Controller)

DuraFon Roam-HC (Handset)

DuraFon Roam-BU (Base Unit)

# Physical Interface

1. Controller: DuraFon Roam - BSC

| LED | Button | Jack |
|---|---|---|
| Power (Orange) | Reset | RJ-45 x 2 |
| LAN (Green) | Lower | Micro SD Slot |

| Controller: DuraFon Roam - BSC | |
|---|---|
| Port Mirroring | Support one to one and many to one |
| Port Trunking | V |
| Packet Suppression Control/ Storm Control | Broadcast/Multicast/ Unknown-multicast, and unknown-unicast |
| Static MAC Address | V (support 256 entries) |
| Dynamic MAC List | V |
| Bandwidth control | Rate limit according to network speed: |
| **VLAN** | |
| 802.1Q support | v |
| VLAN Group | Number of VLANs supported per device Max. Static VLAN #: 4094 Be able to configure VID from 1-4094 |
| Port-base VLAN | Max. VLAN Group: equivalent to switch's port number |
| Voice VLAN | v |
| 802.1ad Double VLAN (Q-in-Q) | N/A |

| CoS | |
|---|---|
| Queue | Number of priority queues supported : 8 |
| CoS based on 802.1p priority | V |
| CoS based on physical port | V |
| CoS based on MAC | Destination address only |
| CoS based on TOS | V |
| CoS based on DSCP | V |
| **Security** | |
| 802.1X Port-based Access Control | V |
| 802.1X Guest VLAN | V |
| Port security | 0~16383 entries |
| Storm control | Support Min. granularity: 64Kbps |
| DOS Attack Prevention | V |
| Access Control List (ACL) | V |

## Management

| PoE management | Power on/off per port |
| --- | --- |
| | Power class configuration (autoclass/userdefine) |
| | Power feeding with priority |
| | User define power limit |
| Telnet Server | V |
| TFTP Client | V |
| BootP/DHCP Client | V |
| Web-based support | V |
| SNMP v1 support | V |
| SNMP v2c support | V |
| SNMP v3 support | V |
| TFTP upgrade | V |
| Command Line Interface (CLI) | V |
| Web MAC address Browsing | V |
| SNTP | V |
| TACAS+ Authentication | V |
| RADIUS Authentication | This is implemented with 802.1X Port-Based Access Control etc. for client centralize management |
| Web UI supports non-IE browser | Chrome, Firefox, Safari |
| RMONv1 | Support 4 Groups of RMON (Statistics, History, Alarms, Events) |
| SMTP client & Log enhancement | V |
| SYSLOG | Support Log admin password/IP change activity enhancement |
| Cable Diagnostic | V |

## MIB Support

| MIB II | RFC1213 |
| --- | --- |
| Bridge | RFC1493 |
| RMON | RFC1757 |
| 802.1p | RFC2674 |

## Controller Software Specification

| IEEE1588 Precision Time Protocol (PTP) | V |
| --- | --- |
| Beacon time slot | V |
| Auto-ACK | V |
| Web-GUI | V |
| System monitoring | V |
| SIP trunk | 32 (DuraFon H/S: 32 + SIP H/S: 32 ) |
| Simultaneous call | 32 + 32 |
| H/S capacity | 90 (DuraFon H/S x 90 + SIP H/S x 200) |
| Support number of B/S | 8 |
| Support number of PSTN line | 8 |
| Caller ID | V |
| Call transfer | V |
| Call hold | V |
| Intercom | V(via B/S and BSC) |
| Broadcast | V(via B/S and BSC) |

## Environmental

| Power Input | 100-240V AC, 50/60 Hz |
| --- | --- |
| Power Consumption | TBD |
| | TBD |
| | TBD |
| Operating Temp | 0 - 50'C |
| Storage Temp | -30 - 70'C |
| Humidity | 10%-90%, relative, non-condensing |
| Dimensions | 100 x 60 x 24mm |
| Unit Weight | 80g |

## 2. Base Station: DuraFon Roam - BU

| LED | Button | Jack |
|---|---|---|
| Power | Reset x 1 | Line x 1 |
| Link 1 | Reset x 1 | LAN x 1 |
| Link 2 | | DC x 1 |
| Link 3 | | Grounding |
| Link 4 | | |



| Hardware Specification | |
|---|---|
| Frequency | 902 - 928 MHz (Programmable) |
| RF Power | Peak: 28.5dBm(708mW) |
| Average: 19dBm(76mW) | V |
| RF Sensitivity | -108dBm |
| 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 |
| Speech Coding | 8 kbps G.729A |
| User Data Rate | 128 kbps duplex |
| No. of System ID | 65536 |
| **Port Functions** | |
| RJ45 | 1 |
| RJ11 | 1 |
| RJ45 Console | 1 |

| Power Spec | |
|---|---|
| Power Type | PoE / External 48VDC ADP |
| AC Adapter | vDC 48V |
| Grounding jack | V |
| **PoE Capability** | |
| PoE standard | 802.3af/at |
| **Mechanical & ID** | |
| Chassis Style | Ceiling mount / Wall mount |
| Material | Plastic |
| Color | White |
| **Functional Buttons** | |
| REG button | V |
| Reset Button | V |

| LED Indicators | | |
|---|---|---|
| Device | **Power LED: (GREEN)** <br> • Solid Light Power On <br> • Light off Power Off | |
| | **L1 ~ L4 LED: (RED)** <br> • Solid light in-use <br> • Light off standby | |
| Copper Ports | **LAN Mode:** <br> • Green Solid Light Speed 1000Mbps <br> • Amber Solid Light Speed 100Mbps <br> • Off Light off Speed 10Mbps | |
| | **Link/Act (GREEN) Solid Light Link** <br> • Blinking Transmit or receive on this port <br> • Light off No Link | |

| SIP | |
|---|---|
| Voice codec: G.711a, G.711u, G.729A | V |
| SIP protocol: RFC3261 | V |
| DTMF: RFC2833, SIP INFO | V |
| Hold: RFC3264 | V |
| Transfer: RFC3515, RFC3891, RFC3892 | V |
| Support Outbound Proxy | V |
| DNS SRV Support | V |

| Port Functions | |
|---|---|
| 1 LAN and 1 PSTN Ports per Base Unit | V |
| Removable Base Antenna | V |
| Flexible Port Dedication: Single, Group or All | V |
| Standard SIP Protocol Connection | V |
| Any Analog Line Connection: Landline, ATA, Cellular, VoIP or Satellite | V |
| Supports Ring Groups & Hunt Groups | V |
| Type I/II Caller ID (FSK and DTMF) | V |
| Visual Message Waiting Indication (VMWI) for PSTN | V |
| Conference Calling | V |
| Modifiable Flash and DTMF Tone Timing for PSTN | V |
| Secure, Digital Spread Spectrum w/Frequency Hopping Technology | V |

| Environmental | |
|---|---|
| Power Consumption | TBD |
| | TBD |
| | TBD |
| Operating Temp | 0 - 50'C |
| Storage Temp | -30 - 70'C |
| Humidity | 10%-90%, relative, non-condensing |
| Dimensions | TBD |
| Unit Weight | TBD |

## 3. Portable Handset: DuraFon Roam - HC

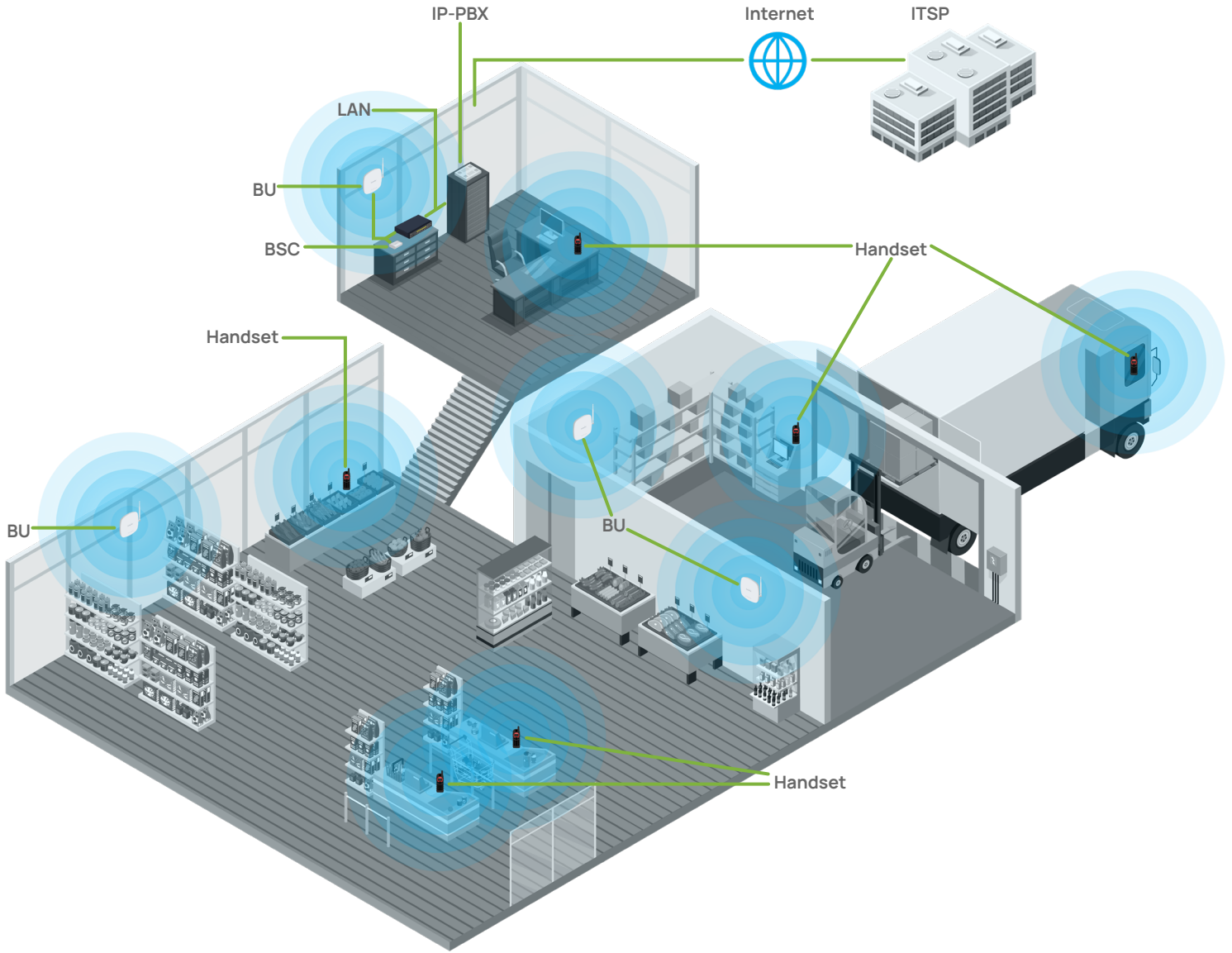| Button | Jack |
|---|---|
| Left & Right Soft-key | Headset Jack |
| Up | USB Jack |
| Down | |
| Talk/Speaker | |
| 2-Way Intercom | |
| End & Power | |
| Broadcast | |
| 0 ~ 9, *,# | |



| Hardware Specification | |
|---|---|
| Frequency | 902 - 928 MHz (Programmable) |
| RF Power | Peak: 28.5dBm(708mW) Average: 19dBm(76mW) |
| RF Sensitivity | -108dBm |
| 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 |
| Speech Coding | 8 kbps G.729A |
| User Data Rate | 128 kbps duplex |
| No. of System ID | 65536 |

| Environmental | |
|---|---|
| Power Source | AC/DC 100~240V/5.5V, 1.5A 3.7 V, 1700 mAh Li-Ion |
| Regulation Compliance | FCC Part 15, Part 68 CAN/DOC RSS210, CS03 |
| Operating Temperature | -10 – 60 °C |
| Storage Temperature | -10 – 70 °C |
| Humidity | 20 – 75 % |

| Function | |
|---|---|
| Dimension | 161×58×31mm |
| Weight | 175g |
| Operation range | > 5km |
| Durable design | V |
| Multiple handsets | V, up to 90 |
| Half Duplex Broadcast | V |

| | |
|---|---|
| Full Duplex Intercom | V |
| Phonebook | V, 90 entries |
| PBX Functions | V, 9 entries per HS |
| Speakerphone | V |
| FSK/DTMF Caller ID | V, FSK |
| Security Code | 65,536 |
| Call Hold | V |
| Caller ID | V |
| Call Logs | V |
| Call Transfer | V |
| Call Waiting | V |
| Headset | V |
| Blue Tooth | V |
| Keypad Lock | V |
| Line/Base Select | V |
| Message Waiting Indicator | V |
| Mute | V |
| Redial | V |

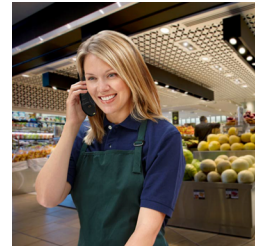| | |
|---|---|
| Handset Grouping (7 Groups) | V, up to 7 |
| Silent Ring | V |
| User Handset Naming | V |
| Vibrate Mode | V |
| Wireless PBX Options Sharingv | V |
| Wireless Phone Book sharing | V |
| **Handset buttons** | |
| - End/Power | V |
| - Left & Right soft keys | V |
| - Up & Down scrolling | V |
| - Broadcast | V |
| - Talk/Speakerphone/Flash | V |
| - Intercom | V |
| - 0 ~ 9, #, * | V |
| **Handset buttons** | |
| - Earphone | V |
| - Micro-USB | V |

# Application



Hotel

Warehouses

Grocery Stores