

# Ascend™ ES Series Portable Radio 700/800 MHz

## Key Features & Benefits

### Reliable and Rugged

- ▶ Aluminum casting provides exceptional strength in a light weight package
- ▶ Meets applicable Mil Standard 810C, D, E, and F specifications, as well as approved by Factory Mutual as intrinsically safe for use in hazardous environments.

### Submersibility Option

- ▶ Immersible to a depth of 1 meter for 30 minutes (per MIL Spec 810F and IP67 standards)

### Significant Product Flexibility

- ▶ Enables programming of up to 864 channel/talkgroups
- ▶ Supports both narrowband (12.5 kHz) and wideband (25 kHz) channel spacing, and multiple system protocols

### Simplified Configuration Updates & Option Selection

- ▶ Over-the-Air Programming (OTAP) option enables you to program radios without connecting them to a computer
- ▶ Easy radio programming and feature updating using EFJohnson's PC Configure™ software for portable and mobile radios

### Extensive Accessory Suite

- ▶ Complete line of accessories including speaker microphones, headsets, surveillance kits, batteries, chargers, carrying apparatus, and encryption keyloading devices. Visit our website for the *EFJohnson Subscriber Accessories Catalog!*



## Reliable...Rugged...Submersible...Solid.

EFJohnson's Ascend™ ES Series Portable Radio is all of these, along with lightweight, versatile, and designed for Multi-Net® LMR applications. A significant additional benefit of the Ascend ES Series Portable Radio is that it is also a multi-protocol device, which means it can operate on conventional and trunking infrastructures, and in both analog and digital applications. It provides a seamless evolution to next generation networks while offering investment protection for your present communications system; all in a powerful software-controlled device that is easy on your mind and your budget. If you need a Multi-Net portable radio that leads the industry in feature richness, multi-protocol capability, and system interoperability, then the Ascend Series Portable Radio is your clear product choice.

### ▶ Project 25 Compliance

Supports Project 25 CAI (Common Air Interface), Project 25 trunked and conventional system protocols, and Project 25 Over-the-Air Rekeying (OTAR) functionality.

### ▶ Enhanced (AMBE+2) P25 Vocoder for Outstanding Voice Quality and Noise Reduction

Hear the Difference! EFJohnson is one of the only radio vendors with a full implementation of this second generation Enhanced Full-Rate Digital Vocoder (AMBE+2), P25 preferred vocoder.

### ▶ SMARTNET® II / SmartZone® Interoperability

EFJohnson is the only supplier licensed to support both analog and digital SMARTNET II and SmartZone trunking protocols.

### ▶ Numerous Encryption Protocols

Supports industry-standard encryption capabilities such as AES, DES-OFB and DES. Ask about our free Single Key DES-OFB encryption for P25.

*EF Johnson Technologies focuses on innovating, developing and marketing the highest quality secure communications solutions to organizations whose mission is to protect and save lives.*

# Ascend ES Series Portable Radio

700/800 MHz

Typical Performance Specifications

GENERAL	700/800 MHz
Frequency Range	762–806 MHz 806–870 MHz
Channel Spacing	12.5 kHz, 25 kHz
Maximum Frequency Separation	Full Bandsplit
FCC Type Acceptance Certification	ATH2425171
Industry Canada Type Certification	IC: 933B–2425171
FCC Emissions Designators	11K0F3E, 16K0F3E, 14K0F3E, 8K10F1E, 8K10F1D
Input Voltage	7.2V
Dimensions (w/o antenna) (HxWxD)	6.7" x 2.52" x 1.9" (6.4 cm x 17.0 cm x 4.8 cm)
Weight (without standard battery)	11 oz. (312 g)
Case	Polycarbonate—black, yellow, orange Immersion rated option available for all housings
Temperature Range	–30°C to +60°C

TRANSMITTER	
RF Power Output	2.5/1 W (700 MHz), 3/1 W (800 MHz)
Frequency Stability (–30°C to +60°C)	±1.5 ppm
Modulation Limiting	
25 kHz channels	±5 kHz
12.5 kHz channels	±2.5 kHz
Emissions (Conducted/Radiated)	–75 dBc
Audio Response	+1, –3dB
FM Hum and Noise	
25 kHz channels	–40 dB
12.5 kHz channels	–35 dB
Audio Distortion	2%

RECEIVER	
Audio Output Power	500 mW
Frequency Stability (–30°C to +60°C)	±1.5 ppm
Sensitivity	
Analog Mode: 12 dB SINAD	0.25 uV (–119 dBm)
Digital Mode: 5% BER	0.25 uV (–119 dBm)
Selectivity	
25 kHz channels	–75 dB
12.5 kHz channels	–63 dB
Intermodulation	–75 dB
Spurious & Image Rejection	–75 dB
FM Hum and Noise	
25 kHz channels	–40 dB
12.5 kHz channels	–35 dB
Audio Distortion	2%

BATTERIES			
Battery Type	Dimensions (HxWxD)	Weight	Aprox. Life (5/5/90)
Extra-High Capacity NiMH	6.0" x 2.3" x 0.85"	12.96 ounces	12 hrs
Extra-High Capacity NiMH, IS	6.0" x 2.3" x 0.85"	12.96 ounces	12 hrs
Extra-High Capacity NiMH, Immersion Rated	6.0" x 2.3" x 0.85"	12.96 ounces	12 hrs
Alkaline Battery Clamshell	7.2" x 2.6" x 2.0"	15.68 ounces (w/12 AA batt.)	14–16 hrs
High Capacity Lithium Ion	6.5" x 2.3" x .78"	8.1 ounces	12 hours

## ENVIRONMENTAL SPECIFICATIONS

Environment	Mil Spec	810F
Low Pressure	M	P
High Temp.	500.4	II
Low Temp.	501.4	I, II
Temp. Shock	502.4	I, II
Solar Radiation	503.4	I
Rain/Blown Rain	504.4	I
Humidity	505.4	I, III
Salt Fog	506.4	NA
Dust and Sand	507.4	NA
Vibration	509.4	I
Shock	510.4	I, IV
Immersion*	514.5	I, IV
	516.5	I
	512.4	I

M=Method P=Procedure

Also meets equivalent superseded C, D, and E standards

\*Optional



## ENCRYPTION OPTIONS

<b>Supported Encryption Algorithms</b>	DES, DES-OFB
<b>Encryption Keys/Radio</b>	64 Common Key Reference (CKR) 64 Physical Identifier (PID) Compatible with Motorola Key Variable Loader
<b>Encryption Frame Re-sync Interval</b>	P25 CAI 360 msec
<b>Encryption Keying</b>	External Key Loader, OTAR
<b>Synchronization</b>	CFB – Cipher Feedback OFB – Output Feedback
<b>Vector Generator</b>	National Institute of Standards and Technology (NIST) approved random number generator
<b>Encryption Type</b>	Digital
<b>Key Erasure</b>	Keyboard Command
<b>Code Key Initialization</b>	Internal pseudorandom generator

## FACTORY MUTUAL APPROVALS

### Intrinsically Safe

Class I	Division 1 An area where there is or could be an explosive atmosphere most of the time in normal conditions.	C Ethylene D Propane and Methane E Conductive metal F Carbonaceous material coal, coke dust G Grain dust and flour
Class II		
Class III	Division 1 Location in which easily ignitable fibers or materials producing combustible flyings are handled, manufactured, or used.	Ignitable fibers or flyings

### Non-Incendive

Class I	Division 2 An area where an explosive atmosphere exists only as a result of a fault.	A Acetylene B Hydrogen C Ethylene D Propane and Methane
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Form S852 3/10 (Supercedes 3/09) Printed in U.S.A.  
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