

Ascend™ ES Series Mobile Radio

7/800 MHz

KEY FEATURES & BENEFITS

Robust & Flexible

- ▶ Lightning™ Control Head - Clearest & Brightest Display Available
- ▶ Up to 512 Channels / Talkgroups
- ▶ SMARTNET II®/SmartZone® P25 Digital & Analog
- ▶ All Supported Protocols Available Simultaneously
- ▶ DES & DES-OFB Encryption with 64 keys
- ▶ P25 Conventional & Trunked OTAR
- ▶ Conventional Vote Scan is Standard
- ▶ Supports Key Elements of MDC1200
- ▶ Compatible with Motorola Astro®
- ▶ Supports Motorola® System v7.7
- ▶ Simplified Cabling with a Single Multi-Function Accessory Rear Connection

Trunking

- ▶ EFJohnson's Multi-Net
- ▶ SMARTNET II®/SmartZone®
- ▶ Project 25

Data & Control Interfaces

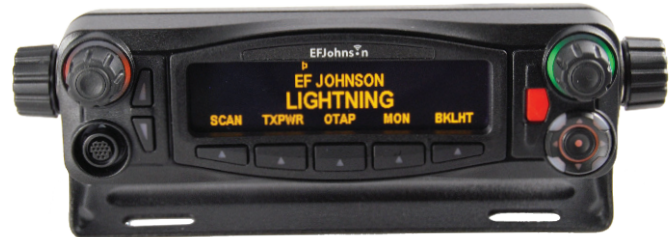
- ▶ Supports P25 Conventional IP Packet Data
- ▶ Supports GPS AVL Data

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

Configuration Options

- ▶ Dash Mount
- ▶ Trunk Mount
- ▶ 2 Control Heads
- ▶ Hand-Held Controller
- ▶ Fixed Control Stations
- ▶ Siren Option
- ▶ Motorcycle Configuration



Rugged... Solid... Reliable.

The EFJohnson® Ascend™ ES Mobile Radio is designed to provide EFJohnson Multi-Net® customers with a robust upgrade path to the industry-standard Project 25 Common Air Interface (CAI) and beyond. This feature-packed mobile radio provides seamless interoperability among Multi-Net, Project 25 conventional and trunked, SMARTNET® II / SmartZone®, as well as conventional analog systems. No other radio on the market supports all of these systems, yet offers such simplicity. Once programmed, switching systems is as easy as changing channels. Make the EFJohnson Ascend ES Mobile Radio your choice for 800 MHz Multi-Net rebanding and more.

▶ 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.

▶ AMBE+2 Vocoder for Outstanding Voice Quality and Noise Reduction

Hear the Difference! EFJohnson is one of the only radio manufacturers with a full implementation of this second generation 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.

SMARTNET®
Licensed Since 1994
SmartZone®

(AMBE+2)
ENHANCED DIGITAL VOCODER

DIGITAL WIRELESS + SMARTNET
P25
DIGITAL WIRELESS + SMARTNET

MADE IN AMERICA

EFJohnson®
TECHNOLOGIES
We Respond.

www.efjohnsontechnologies.com

Ascend ES Series Mobile Radio

700/800 MHz

Typical Performance Specifications

GENERAL	7/800,	GENERAL	7/800, 30/35W
Frequency Range (band splits)	762-870 MHz		
Channel Spacing			
Analog	25kHz, 12.5kHz		
P25 Digital	12.5kHz		
Maximum Frequency Separation	Full Band Split		
Display	Backlit LCD. 10 alpha-numeric characters plus Zone, Channel and Status. Electronically adjustable viewing angle		
Power Supply			
Nominal Voltage (negative ground)	13.6VDC		
Operating Supply Voltage Range	10.9 ~ 16.3VDC		
Standby Current (back-light off)	700 mA		
Receive Current at Rated Audio Power	2.65A		
Current at Max Rated Transmit Power	12.5A		
Temperature Range			
Operating	-30°C to +60°C		
Storage	-40°C to +85°C		
Nominal Dimensions (H x W x D)	2.1" x 7.2" x 8.3"		
exclusive of mounting, cables, knobs	(5.3 cm x 18.2 cm x 21.1 cm)		
Nominal Weight	6.5 lbs (2.3 kg)		
FCC ID	ATH2425372		
Industry Canada	IC: 933B-2425372		
Vocoder	Enhanced (AMBE+2) Project 25 Vocoder		

TRANSMITTER

RF Output Power (variable)	15 ~ 30 W (762-806MHz)
	15 ~ 35 W (806-870MHz)
Transmitter Frequency Range(s)	762~776, 792~806, 806~825, 851~870 MHz
Maximum Frequency Separation	Full Band Split
Frequency Accuracy	
(-30°C ~ +80°C, +25°C ref.)	±1.5 ppm
Modulation Limiting	
25kHz channels	±5 kHz
12.5kHz channels	±2.5 kHz
Modulation Fidelity	
(C4FM, 12.5kHz Digital)	< 5%
Spurious Emissions	-75 dBc
Audio	
Analog Frequency Response	
(TIA 6dB/octave pre-emphasis)	+1dB, -3dB
FM Hum and Noise Ratio	
(25kHz Analog)	40 dB
FM Hum and Noise Ratio	
(12.5kHz Analog)	34 dB
Distortion	2%
FCC Emission Designators	8K10F1D, 8K10F1E, 11K0F3E, 16K0F3E

RECEIVER

Receiver Frequency Ranges	762~776, 851~870 MHz
Maximum Frequency Separation	Full Band Split
Sensitivity	
Analog Mode: 12dB SINAD (25 & 12.5kHz)	.25µV (-119 dBm)
Digital Mode: (5% BER)	.25µV (-119 dBm)
Selectivity (Adjacent Channel Rejection)	
25kHz channels, Analog	> 80 dB
12.5kHz channels	> 63 dB
Offset, Digital	< 9 dB / kHz
Intermodulation	-80 dB
Spurious Response Rejection	-83dB
Audio	
Analog Frequency Response	
(TIA 6dB/octave pre-emphasis)	+1dB, -3dB
Output Power (3Ω load)	12W rms
Distortion (1kHz, 60% Deviation)	< 3%

ENVIRONMENTAL SPECIFICATIONS

Environment	Mil Spec M	810G P
Low Pressure	500.5	II
High Temp.	501.5	I, II
Low Temp.	502.5	I, II
Temp. Shock	503.5	I (D)
Solar Radiation	505.5	I (A1)
Rain/Blown Rain	506.5	I, III
Humidity	507.5	--
Salt Fog	509.5	--
Sand and Dust	510.5	I, II
Vibration	514.6	I (4), II
Shock	516.6	I, II, V, VI

M = Method

P = Procedure

Also meets equivalent superseded C, D, and E standards

ENCRYPTION OPTIONS

Supported Encryption Algorithms	DES, DES-OFB
Encryption Keys/Radio	64 Common Key Reference (CKR) 64 Physical Identifier (PID) Compatible with Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 msec
Encryption Keying	External Key Loader, OTAR
Synchronization	CFB – Cipher Feedback OFB – Output Feedback
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital
Key Erasure	Keyboard Command
Code Key Initialization	Internal pseudorandom generator
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197



ACCESSORIES

- Antennas
- Keypad Microphones
- Desk Microphones
- Hand-Held Controller
- Remote Control Heads
- External Speakers
- Power Supplies
- Control Station Components
- Tone Remotes
- Encryption Key Management Tools
- Radio Programming Tools
- Mounting Hardware
- Siren Control Kit

All EFJohnson radios are made in the U.S.A.