

# EFJohnson®

Our Mission—Your Safety

## 5100 ES Series Portable Radio

700/800 MHz

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

These are just a few words to describe the new 5100 ES Series Portable Radios from EFJohnson. The 5100 ES Series meets the needs of first responders. Specifically designed for public safety, the ES Series offers crisp and powerful digital audio, Project 25 trunked and conventional operation, and a sleek ergonomic design. If you need a multi-protocol portable radio that leads the industry in feature richness and system interoperability, then the 5100 ES Series Portable Radio is the right choice.

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EFJohnson is a leading provider of Project 25 compliant two-way radios and communication systems for law enforcement, fire fighters, EMS, and military.

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### More Key Features and Benefits

#### Reliable and Rugged

- Magnesium 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 Programming

- 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!*



#### ■ 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 P25 Vocoder

Outstanding voice quality for public safety applications.

#### ■ Industry's Only SMARTNET® II / SmartZone® Licensee

Industry's 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.

# 5100 ES Series Portable Radio

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	7.2	
Dimensions (w/o antenna) (HxWxD)	6.7" x 2.52" x 1.8" (6.4 cm x 17.0 cm x 4.6 cm)	
Weight (without 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	Approx. Life (5/5/90)
Extra-High Capacity NiMH	6.0" x 2.3" x 0.85"	12.96 ounces	UHF/VHF: 10 hours 700/800 MHz: 12 hours
Extra-High Capacity NiMH, IS	6.0" x 2.3" x 0.85"	12.96 ounces	UHF/VHF: 10 hours 700/800 MHz: 12 hours
Extra-High Capacity NiMH, Immersion Rated	6.0" x 2.3" x 0.85"	12.96 ounces	UHF/VHF: 10 hours 700/800 MHz: 12 hours
Alkaline Battery Clamshell	7.2" x 2.6" x 2.0"	15.68 ounces (w/12 AA batt.)	14–16 hours

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## ENVIRONMENTAL SPECIFICATIONS

Environment	Mil Spec	810F
	M	P
Low Pressure	500.4	II
High Temp.	501.4	I, II
Low Temp.	502.4	I, II
Temp. Shock	503.4	I
Solar Radiation	505.4	I
Rain/Blown Rain	506.4	I, II
Humidity	507.3	II, III
Salt Fog	509.3	I
Dust and Sand	510.4	I
Vibration	514.5	I(24)
Shock	516.5	I, IV, VI
Immersion*	512.4	I

M=Method P=Procedure  
Also meets equivalent superseded C, D, and E standards  
\*Optional



## ENCRYPTION OPTIONS

Supported Encryption Algorithms	DES, DES-OFB, AES
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

## FACTORY MUTUAL APPROVALS

<b>Intrinsically Safe</b>		
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
<b>Non-Incendive</b>		
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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