

## 5100<sup>Series</sup> Portable Radio

700/800 VHF UHF

EFJohnson's 5100 Series Portable Radio is rugged, lightweight, versatile, and designed to operate in 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-protocol portable radio that leads the industry in feature richness and system interoperability, then the 5100 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.

### 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.



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

### More Key Features and Benefits

#### Multiple Configuration Offerings

Includes a Model II (display, basic keypad) and a Model III (display, DTMF keypad) version that features an enhanced backlit display and backlit keypad for easier viewing and usage.

#### Significant Product Flexibility

Enables programming of up to 512 channel/talkgroups, supports both narrowband (12.5 kHz) and wideband (25 kHz) channel spacing, and multiple system protocols.

#### Simplified Feature Modifications and Updates

Easy radio programming and feature updating using EFJohnson's PC Configure™ application.

#### Extensive Accessory Suite

Complete line of accessory products including speaker microphones, headsets, surveillance kits, batteries, chargers, carrying apparatus, and encryption "keyloading" devices.

#### Enhanced Product Robustness

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.

# 5100 Series Portable Radio

## Typical Performance Specifications

| GENERAL                            | 700/800                                         | VHF                                   | UHF R1                                | UHF R2                                |
|------------------------------------|-------------------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Frequency Range                    | 762-806 MHz<br>806-870 MHz                      | 136-174 MHz                           | 380-470 MHz                           | 450-512 MHz                           |
| Channel Spacing                    | 12.5 kHz, 25 kHz                                | 12.5 kHz, 25 kHz                      | 12.5 kHz, 25 kHz                      | 12.5 kHz, 25 kHz                      |
| Maximum Frequency Separation       | Full Bandsplit                                  | Full Bandsplit                        | Full Bandsplit                        | Full Bandsplit                        |
| FCC Type Acceptance Certification  | ATH2425171                                      | ATH2425111                            | ATH2425131                            | ATH2425141                            |
| Industry Canada Type Certification | IC: 933B-2425171                                | IC: 933B-2425111                      | IC: 933B2425131                       | IC: 933B-2425141                      |
| FCC Emissions Designators          | 11K0F3E, 16K0F3E,<br>14K0F3E, 8K10F1E, 8K10F1D  | 16K0F3E, 11K0F3E,<br>8K10F1E, 8K10F1D | 16K0F3E, 11K0F3E,<br>8K10F1E, 8K10F1D | 16K0F3E, 11K0F3E,<br>8K10F1E, 8K10F1D |
| Input Voltage                      | 7.2 V                                           |                                       |                                       |                                       |
| 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 (with standard battery)     | 24 oz. (675 g)                                  |                                       |                                       |                                       |
| Case                               | Polycarbonate-black, yellow, orange             |                                       |                                       |                                       |
| Temperature Range                  | -30°C to +60°C                                  |                                       |                                       |                                       |

## TRANSMITTER

|                                      |                                       |          |          |          |
|--------------------------------------|---------------------------------------|----------|----------|----------|
| RF Power Output                      | 2.5/1 W (700 MHz),<br>3/1 W (800 MHz) | 5/1 W    | 4/1 W    | 4/1 W    |
| Frequency Stability (-30°C to +60°C) | ±1.5 ppm                              | ±1.5 ppm | ±1.5 ppm | ±1.5 ppm |
| Modulation Limiting                  |                                       |          |          |          |
| 25 kHz channels                      | ±5 kHz                                | ±5 kHz   | ±5 kHz   | ±5 kHz   |
| 12.5 kHz channels                    | ±2.5 kHz                              | ±2.5 kHz | ±2.5 kHz | ±2.5 kHz |
| Emissions (Conducted/Radiated)       | -75 dBc                               | -75 dBc  | -75 dBc  | -75 dBc  |
| Audio Response                       | +1, -3dB                              | +1, -3dB | +1, -3dB | +1, -3dB |
| FM Hum and Noise                     |                                       |          |          |          |
| 25 kHz channels                      | -45 dB                                | -45 dB   | -45 dB   | -45 dB   |
| 12.5 kHz channels                    | -40 dB                                | -40 dB   | -40 dB   | -40 dB   |
| Audio Distortion                     | 2%                                    | 2%       | 2%       | 2%       |

## RECEIVER

|                                      |                    |                    |                    |                    |
|--------------------------------------|--------------------|--------------------|--------------------|--------------------|
| Audio Output Power                   | 500 mW             | 500 mW             | 500 mW             | 500 mW             |
| Frequency Stability (-30°C to +60°C) | ±1.5 ppm           | ±1.5 ppm           | ±1.5 ppm           | ±1.5 ppm           |
| Sensitivity                          |                    |                    |                    |                    |
| Analog Mode: 12 dB SINAD             | 0.25 uV (-119 dBm) | 0.25 uV (-119 dBm) | 0.25 uV (-119 dBm) | 0.25 uV (-119 dBm) |
| Digital Mode: 5% BER                 | 0.25 uV (-119 dBm) | 0.25 uV (-119 dBm) | 0.25 uV (-119 dBm) | 0.25 uV (-119 dBm) |
| Selectivity                          |                    |                    |                    |                    |
| 25 kHz channels                      | -75 dB             | -75 dB             | -75 dB             | -75 dB             |
| 12.5 kHz channels                    | -63 dB             | -63 dB             | -63 dB             | -63 dB             |
| Intermodulation                      | -75 dB             | -78 dB             | -77 dB             | -77 dB             |
| Spurious & Image Rejection           | -75 dB             | -75 dB             | -75 dB             | -75 dB             |
| FM Hum and Noise                     |                    |                    |                    |                    |
| 25 kHz channels                      | -40 dB             | -40 dB             | -40 dB             | -40 dB             |
| 12.5 kHz channels                    | -35 dB             | -35 dB             | -35 dB             | -35 dB             |
| Audio Distortion                     | 2%                 | 2%                 | 2%                 | 2%                 |

All specifications are measured per TIA 102.CAAA, TIA 102.CAAB and per TIA 603 standards.

## BATTERIES

| Battery Type               | Dimensions (HxWxD)     | Weight                   | Aprox. Life (5/5/90)<br>(With Encryption/Without Encryption) |
|----------------------------|------------------------|--------------------------|--------------------------------------------------------------|
| Extra-High Capacity NiMH   | 6.0" x 2.3" x 0.85"    | 0.81 lbs                 | 12 hrs/13 hrs                                                |
| Extra-High Capacity NiMH   | FM 6.0" x 2.3" x 0.85" | 0.81 lbs                 | 12 hrs/13 hrs                                                |
| Alkaline Battery Clamshell | 7.2" x 2.6" x 2.0"     | 0.98 lbs (w/12 AA batt.) | 14-16 hrs/16-18 hrs                                          |

## ENVIRONMENTAL SPECIFICATIONS

| Environment     | Mil Spec 810C |           | Mil Spec 810D |          | Mil Spec 810E |           | Mil Spec 810F |           |
|-----------------|---------------|-----------|---------------|----------|---------------|-----------|---------------|-----------|
|                 | M             | P         | M             | P        | M             | P         | M             | P         |
| Low Pressure    | 500.1         | I         | 500.2         | II       | 500.3         | II        | 500.4         | II        |
| High Temp.      | 501.1         | I         | 501.2         | I, II    | 501.3         | I, II     | 501.4         | I, II     |
| Low Temp.       | 502.1         | I         | 502.2         | I, II    | 502.3         | I, II     | 502.4         | I, II     |
| Temp. Shock     | 503.1         | I         | 503.2         | I        | 503.3         | I         | 503.4         | I         |
| Solar Radiation | 505.1         | I         | 505.2         | I        | 505.3         | I         | 505.4         | I         |
| Rain/Blown Rain | 506.1         | I, II     | 506.2         | II       | 506.3         | I, II     | 506.4         | I, II     |
| Humidity        | 507.1         | II        | 507.2         | II, III  | 507.3         | II, III   |               |           |
| Salt Fog        | 509.1         | I         | 509.2         | I        | 509.3         | I         |               |           |
| Dust and Sand   | 510.1         | I         | 510.2         | I        | 510.3         | I         | 510.4         | I         |
| Vibration       | 514.2         | VII, VIII | 514.3         | I(8)     | 514.4         | I(8)      | 514.5         | I(24)     |
| Shock           | 516.2         | I, II, V  | 516.3         | I, IV, V | 516.4         | I, IV, VI | 516.5         | I, IV, VI |

M=Method P=Procedure

## ENCRYPTION OPTIONS

|                                   |                                                                                        |
|-----------------------------------|----------------------------------------------------------------------------------------|
| Supported Encryption Algorithms   | DES, DES-OFB, AES                                                                      |
| Encryption Algorithm Capacity     | 4 Maximum                                                                              |
| Encryption Keys/Radio             | 16 Common Key Reference (CKR)<br>16 Physical Identifier (PID)                          |
| Encryption Frame Re-sync Interval | P25 CAI 360 msec                                                                       |
| Encryption Keying                 | External Key Loader, OTAR                                                              |
| Synchronization                   | CFB - Cipher Feedback<br>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

### 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<br>D Propane and Methane<br>E Conductive metal<br>F Carbonaceous material coal, coke dust<br>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<br>B Hydrogen<br>C Ethylene<br>D Propane and Methane |
|---------|--------------------------------------------------------------------------------------|------------------------------------------------------------------|

