

### RADEAGLE-Cx (RECx) leverages ORTEC's proven ID isotope algorithms in a versatile hardware platform.

#### Versatility

**Interactive or Independent Operations:** The RECx can function as interactive systems with active user participation (such as backpacks, vehicle systems, airborne systems, pop-up portals), or as standalone systems that are permanently installed and connected through the Industrial Internet of Things (IIoT).

**Adaptable Gamma and Neutron Detection:** The RECx is versatile in meeting your application's sensitivity needs with three different sizes of gamma detectors available. The optional LiZnS neutron detector provides outstanding neutron detection performance without the need for <sup>3</sup>He.

#### Innovative Isotope ID Algorithm for Exceptional Real-World Performance

**Next-Generation Identification:** The RECx utilizes innoRIID's thoroughly tested, reliable, and groundbreaking isotope identification algorithm. Instead of depending solely on template matching like many other systems, our strategy integrates template matching, peak search, and multi-agent analysis. This sturdy technique minimizes false alarms while precisely identifying radionuclides of interest, even in complex real-world situations involving masked and shielded sources.

#### Modular and Interconnected with IIoT Capabilities

Multiple RECx modules can be interconnected to build larger, integrated measurement setups that are controlled and monitored via the on-board web interface. Additionally, RECx units are compatible with Industrial Internet of Things (IIoT) standards, so networked units (RJ-45, Wi-Fi) are fully interoperable and can send semantic identification information to become virtually integrated into any existing IT infrastructure. The RECx supports Message Queue Telemetry Transport (MQTT) data streaming, provides an interactive REST API to retrieve data, and has a classical serial output port. All RECx units have batteries onboard, so autonomous units operate continuously through temporary mains power losses.

#### Rugged and Lightweight Design

The RECx module enclosure combines aluminum and carbon fiber, delivering durability without compromising portability. Shock absorbent material is employed to protect sensitive internal components.

#### Key Features and Benefits

- Three sizes, each available with and without neutron detectors allow tailoring to specific applications and budgets
- Color display and 3-button interface allows fail-safe means of user communication should external devices become unavailable
- Multiple RECx modules can be interconnected and accessed via the web interface enabling the user to easily set-up and control highly sensitive detection systems for either permanent or temporary applications (such as choke-point monitors)
- Proprietary method for addressing background radiation permits seamless transition from stationary to mobile operation without the need to change modes
- Unrivaled ID algorithms provide similar performance to RadEAGLE and RadEAGLET-R, but with much greater sensitivity
- REST, MQTT, MFK, and SIGMA APIs provide multiple means of data sharing
- Industrial Internet of Things (IIoT) ready for simple integration into customer's infrastructure
- Intuitive RADsync IoS app along with a web-based interface facilitate ease of use
- GPS "breadcrumb" mapping to record and review routes and locations of radiation alarms/IDs



# RADEAGLE-Cx

Highly Sensitive, Adaptable Detection units for a Variety of Radiation Detection and Identification Applications

## The RECx Backpack

The RECx backpack is optimized for use in a wearable configuration that provides exceptional radioisotope detection and identification performance in a discreet, ergonomic military-grade backpack. The RECx backpack is available with either a 2" x 4" x 4" or 2" x 4" x 8" gamma detector, and with or without a LiZnS neutron detector to tailor performance, weight, and budget to fit your specific needs. The RADsync app provides the user all relevant information in an intuitive, easily navigable format, and even supports augmented reality glasses for a true "heads-up" capability.



### RECx Backpack Key Features:

- Proprietary ID algorithms provide fast, accurate identification and classification.
- Intuitive RADsync iOS app along with a web-based interface facilitate ease of use.
- RADsync provides "breadcrumb" tracking and locations of potential threats.
- Discreet, ergonomic backpack provides comfortable operation even over the longest missions.
- Hot-Swappable batteries allow continuous operation.
- Multiple APIs facilitate sharing information: REST, MQTT, MFK, SIGMA.
- Can interface with augmented reality glasses via RADsync app and smart phone to maximize the operator's situational awareness while performing discreet operations (compatible with any brand incorporating ActiveLook® technology).

## Ordering Information

All models include rechargeable NiMH Battery, 100 to 240 V, 50 to 60 Hz Power Supply, 12 V Car Adapter, BlueTooth and Wi-Fi dongles, and Operator Manual.

"BP" models include military-grade backpack and spare NiMH battery.

Weight ranges from 13 lbs (6 kg) to 33 lbs (15 kg).

## Specifications

Radiological Performance	
Gain Stabilization	Automatic on Naturally Occuring Isotopes
Energy Range	<b>NaI:</b> 15 keV to 3 MeV; <b>GM:</b> 45 keV to 1.5 MeV
Dose Rate Range	<b>NaI:</b> 0.01 to 50 µSv/h; <b>GM:</b> 10 to 100,000 µSv/h
Multi-Channel Analyzer (MCA)	Digital MCA, 2048 Channels
Neutron Detector	Efficient, LiZnS-Based, He-3 free neutron detector
GM Tube	For dose rates up to 100,000 µSv/h
Physical	
Enclosure	Carbon Fiber and Aluminum
Display	640 x 480, 89 mm (3.5 in) Transflective Color TFT
Batteries	Rechargeable; hot-swappable; NiMH
Battery RunTime	>10 hours
Time until Full Charge	<2 hours
Power Supply	100 to 240 V, 50 to 60 Hz; Car Adapter for 12 V

Environmental	
Operating Temperature	-20°C to +55°C (-4°F to +131°F)
Storage and Transport	-20°C to +55°C (-4°F to +131°F)
IP Designation	IP65 according to IEC 60529
Humidity	up to 90%

Interfaces and Communication	
USB	USB A (USB Stick, Bluetooth, Serial RS-232)
Ethernet	RJ45, Wi-Fi
REST	HTTP Request
MQTT	Continuous Data Stream
Database	Included on Instrument
Web Interface	On-Board Web Server
GPS	Supports internal and external GPS, NMEA
API	REST, MQTT, MFK, SIGMA
Direct UI	3-button interface with color display

Model	NaI(Tl) Scintillation Gamma Detector	Neutron Detector	Unit Size
RECx 4	2" x 4" x 4" (5 cm x 10 cm x 10 cm)		16.5" x 10.2" x 4.7" (420 mm x 260 mm x 120 mm)
RECx 4-N	2" x 4" x 4" (5 cm x 10 cm x 10 cm)	✓	16.5" x 10.2" x 4.7" (420 mm x 260 mm x 120 mm)
RECx 4-BP	2" x 4" x 4" (5 cm x 10 cm x 10 cm)		16.5" x 10.2" x 4.7" (420 mm x 260 mm x 120 mm)
RECx 4-N-BP	2" x 4" x 4" (5 cm x 10 cm x 10 cm)	✓	16.5" x 10.2" x 4.7" (420 mm x 260 mm x 120 mm)
RECx 8	2" x 4" x 8" (5 cm x 10 cm x 20 cm)		20.5" x 10.2" x 4.7" (520 mm x 260 mm x 120 mm)
RECx 8-N	2" x 4" x 8" (5 cm x 10 cm x 20 cm)	✓	20.5" x 10.2" x 4.7" (520 mm x 260 mm x 120 mm)
RECx 8-BP	2" x 4" x 8" (5 cm x 10 cm x 20 cm)		20.5" x 10.2" x 4.7" (520 mm x 260 mm x 120 mm)
RECx 8-N-BP	2" x 4" x 8" (5 cm x 10 cm x 20 cm)	✓	20.5" x 10.2" x 4.7" (520 mm x 260 mm x 120 mm)
RECx 16	2" x 4" x 16" (5 cm x 10 cm x 40 cm)		28.3" x 10.2" x 4.7" (720 mm x 260 mm x 120 mm)
RECx 16-N	2" x 4" x 16" (5 cm x 10 cm x 40 cm)	✓	28.3" x 10.2" x 4.7" (720 mm x 260 mm x 120 mm)



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