R920-E
RECTANGULAR RAPID FLASHING BEACON

MUTCD-compliant, pedestrian-activated warning beacon for uncontrolled marked crosswalks

- The R920-E is the benchmark for Rectangular Rapid Flashing Beacons (RRFBs)
- Ultra-efficient optics and Energy Management System (EMS)
- Compact design to simplify installation
- Proven technology platform
- Meets and exceeds MUTCD requirements, including IA-21

RRFBs have been found to provide vehicle yielding rates between 72 and 96 percent for crosswalk applications, including 4 lane roadways with average daily traffic (ADT) exceeding 12,000*.

Superior Design and Technology
The R920-E utilizes a self-contained solar engine integrating the Energy Management System (EMS) with an on-board user interface, housed in a compact enclosure together with the batteries and solar panel. MUTCD interim approval IA-21 flash pattern and multiple configurations enable the R920-E to handle all crosswalk applications.

Easy Installation
With its highly efficient and compact design, installation is quick and uncomplicated, dramatically reducing installation costs. Retrofitting can be done where existing sign bases are used to enhance existing marked crosswalks in minutes, and new installations can be completed without the cost of larger poles, new bases, and trenching.

Advanced User-Interface
The R920-E comes with an on-board user interface for quick configuration and status monitoring. It allows for simple in-the-field adjustment of flash pattern, duration, intensity, ambient auto adjust, night dimming, and many more. Settings are automatically sent wirelessly to all units in the system.

Reliable
Designed with Carmanah’s industry-leading solar modeling tools to provide dependable year-after-year operation.

Trusted
With thousands of installations, Carmanah’s beacons are the benchmark in traffic applications and other transportation applications worldwide.

* U.S. Department of Transportation Federal Highways Administration; Publication No. FHWA-HRT-10-043 - “Effects of Yellow Rectangular Rapid-Flashing Beacons on Yielding at Multilane Uncontrolled Crosswalks”
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DIMENSIONS

Side View

Bottom View

4.0" (10.2 cm)

13.5" (34.2 cm)

14.6" (37.1 cm)

SOLAR ENGINE MOUNTING

2.0" - 2.5" Perforated Square Pole Mount
2.38" - 2.88" Diameter Round Pole Mount
4.0" - 4.5" Diameter Round Pole Mount
Side Pole Mount

LIGHT BAR CONFIGURATION

Uni-directional Configuration
Bi-directional Configuration

IN-THE-FIELD AIMING

Rotate the light bar towards the incoming vehicle lane, independent of the wire hole location.

Specifications subject to local environmental conditions, and may be subject to change. All Carmanah products are manufactured in facilities that are certified to ISO quality standards. US Patent No 6,573,659. Other patents pending. “Carmanah” and Carmanah logo are trademarks of Carmanah Technologies Corp. © 2018, Carmanah Technologies Corp. Document SPEC_TRA_R920-E_RevS

Adjustable system settings with auto-scrolling LED display on our latest EMS

System test, status, and fault detection: battery, solar, button, beacon, radio, day/night

Flash patterns: RFB1 (WW+S), RFB2 (WSDOT), 0.5 sec. alternating (MUTCD), 0.5 sec. union (MUTCD), 0.1 sec. union, 0.25 sec. union, 0.1 sec. x3 quick flashes union, 0.1 sec. x3 quick flashes alternating

Input: momentary for push button activation, normally open switch, normally closed switch

Flash duration: 5 sec. to 1 hr.

Intensity setting: 20 to 1400 mA for multiple RRFBs, circular beacons, or LED enhanced signs

Nighttime dimming: 10 to 100% of daytime intensity

Ambient Auto Adjust: increases intensity during bright daytime

Automatic Light Control: reduces intensity if the battery is extremely low

Temperature correction: yellow or red beacons

Calendar: internal time clock function

Radio settings: enable/disable, selectable channel from 1 to 14

Output: enabled when beacons flashing daytime and nighttime, or nighttime only

Activation counts and data reporting via OBUI or optional USB connection

Optical

MUTCD interim approval IA-21 and MUTCD compliant

Purpose-built light bar optics = maximum efficiency and no stray light

Exceeds SAE J595 class 1 intensity by 2.5 to 3x when used as recommended

Means SAE J578 chromaticity

3 in (76 mm) x 7 in (178 mm) clear, UV-rated polycarbonate lens with yellow LEDs

High-power LEDs: >90% lumen maintenance (L90) based on IES LM-80

Side-emitting pedestrian confirmation LEDs

Independent, stainless steel mounting brackets make back-to-back installation simple and enable in-field aiming for maximum effectiveness

Yellow, black, or green powder coated light bar covers

Connectivity

Encrypted, wireless radio with 2.4 GHz mesh technology

Wireless update of settings from any unit to all systems on the same radio channel

User-selectable multiple channels to group different beacons and ensure a robust wireless signal

Communicates with all other Gen III radio-enabled systems including our R820-E, -F, and -G circular beacons

Instantaneous wireless activation: <150 ms

Wireless range: 1000 ft (305 m)

Integrated, vandal-proof antenna

Energy Collection

13 W high-efficiency photovoltaic solar panel

45 deg tilt for optimal energy collection

Maximum Power Point Tracking with Temperature Compensation (MPPT-TC) battery charger for optimal energy collection in all solar and battery conditions

Energy Storage

12 V 14 Ahr. battery system

Replaceable, recyclable, sealed, maintenance-free, best-in-class AGM batteries offer the widest temperature range and longest life

Battery design life: >5 yrs.

Tool-less battery change with quick connect terminals and strapping for easy installation

Solar Engine Construction

Weatherproof, gasketed enclosure with vents for ambient air transfer (NEMA 3R)

Lockable, hinged lid for access to on-board user interface and batteries

Corrosion-resistant aluminum with stainless steel hardware

Raw aluminum finish or yellow, black, or green powder coated

Prewired to minimize installation time

High-efficiency optics and EMS = the most compact, lightweight system

19 lb (8.6 kg) including batteries, excluding beacons and push button

Environmental

-40 to 165° F (-40 to 74° C) system operating temperature

-40 to 140° F (-40 to 60° C) battery operating temperature

150 mph (241 kph) wind speed as per AASHO LTS-6

Activation

Push button; ADA-compliant, piezo-driven with visual LED and two-tone audible confirmation

Warranty

5-year limited warranty