R829 SERIES
SCHOOL ZONE BEACON COMPARISON

carmanah® Traffic

FEATURES	R829-E	R829-F	R829-G
Power options	DC	DC	DC or AC
Solar panel	10, 20 W	30 W	20, 50, 80 W
Solar panel angle	45°	45°	45°
Solar engine design	Self-contained	Self-contained	Cabinet
Terminal blocks for wiring connections	No	No	Yes
Enclosure/Cabinet colors	Natural Aluminum, Black, Yellow, Green	Natural Aluminum, Black, Yellow, Green	Black, Natural Aluminum
Interactive user interface	Yes	Yes	Yes
Battery options	2 x 7 Ah	17.2, 34.4 Ah	33, 75, 100 Ah
Maximum beacons	2	4	4
Signal housing colors	Black, Yellow, Green	Black, Yellow, Green	Black, Yellow, Green
MUTCD, ITE, and 1.7x ITE intensity	Yes	Yes	Yes
MUTCD and ITE-compliant chromaticity and output shape	Yes	Yes	Yes
MUTCD-compliant flash pattern	Yes	Yes	Yes
Alternate flash patterns	Yes	Yes	Yes
LED modules, yellow, 8" or 12"	Yes	Yes	Yes
LED embedded signs	Yes	Yes	Yes
Wireless communication	Yes	Yes	Yes
Internal Carmanah calendar	Yes	Yes	Yes
Third-party time clock compatible	Yes, RTC	Yes, RTC or AI	Yes, RTC or AI
Manual override switch	Yes	Yes	Yes
Remote monitoring option	No	Yes	Yes
Top of pole mounting	Yes	Yes	Yes
Side of pole mounting	Yes	Yes	Yes
Square Telespar or 2 3/8" round poles	Yes	Yes	No
Wood post mounting	Yes	Yes	Yes, side of post

WHICH SCHEDULING DEVICE WORKS FOR YOUR BEACON?

carmanah® Traffic

APPLIED INFORMATION: AI 500-070B

- Time clock with cellular modem
- Utilizes AI's Glance software
- Remote scheduling
- **Compatible with: R829-F, R829-G**

RTC MANUFACTURING: AP22

- Time clock
- Scheduling possible through radio, cellular, ethernet, keyboard, or laptop
- **Compatible with: R829-F, R829-G**

INFORMATION DISPLAY COMPANY: DEVICE CONTROLLER

- Time clock
- Scheduling possible through radio, cellular, ethernet, keyboard, or laptop
- **Compatible with: R829-F, R829-G**

CARMANAH: CALENDAR SOFTWARE

- Computer program
- Site scheduling with laptop
- Includes uploading housing kit
- **Compatible with: R829-E, R829-F, R829-G**

R829-E
SOLAR SCHOOL ZONE FLASHING BEACON

carmanah® Traffic

Schedule-based, solar school zone flashing beacon

- Decreases vehicle speeds by five to seven miles per hour in school zones
- Industry-leading high-intensity light output
- Compact, lightweight design to simplify installation
- Simple, software-based calendar program
- Proven technology platform
- Meets and exceeds MUTCD requirements

Superior Design and Technology
The R829-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 flash patterns, available ITE intensity, and multiple configurations enable the R829-E to handle all school zone and speed limit sign 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 school zones and speed limit signs in minutes, and new installations can be completed without the cost of larger poles, new bases, and trenching.

Calendar Operation
Schedule beacon operation with our easy software-based calendar program.

Advanced User Interface
The R829-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. Optional wireless connection enables one beacon's calendar settings to control multiple school zone beacons.

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.

WE SIMPLIFY PLANNING.
Contact us to get your Energy Balance Report and purchase specifications.

1.844.412.8395
traffic@carmanah.com
carmanahtraffic.com

REPRESENTED IN YOUR REGION BY:

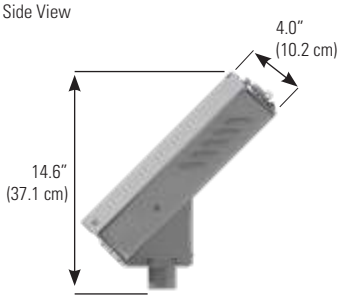
R829-E
SOLAR SCHOOL ZONE FLASHING BEACON

1.844.412.8395 | traffic@carmanah.com | carmanahtraffic.com

carmanah® Traffic

DIMENSIONS

Side View



Bottom View

SOLAR ENGINE MOUNTING

2.0"- 2.5" Perforated Square Pole Mount

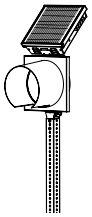
2.38" - 2.88" Diameter Round Pole Mount

4.0" - 4.5" Diameter Round Pole Mount

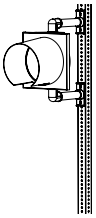
Side Pole Mount

BEACON MOUNTING

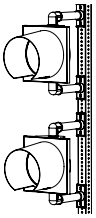
Single – Integrated Engine and Beacon



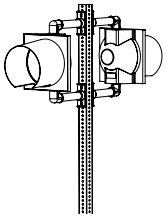
Single



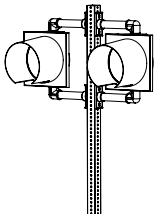
Dual – Vertical



Dual – Horizontal Back-to-back



Dual – Horizontal



*** Other solar engine and beacon mounting configurations are available.**

On-Board User Interface (OBUI)	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. unison (MUTCD), 0.1 sec. unison, 0.25 sec. unison, 0.1 sec. x3 quick flashes unison, 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 circular beacons, RRFBs, 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 compliant:** 2009 MUTCD, Chapter 4L, Flashing Beacons, Manual on Uniform Traffic Control Devices (MUTCD)
	ITE VTCSH-LED Circular Signal Supplement compliant: meets ITE or 1.7x ITE intensity when used as recommended
	12 in (305 mm) or 8 in (203 mm) diameter LED modules, yellow
	High-power LEDs: +90% lumen maintenance (L90) based on IES LM-80
	Yellow, black, or green signal heads in UV-resistant polycarbonate or aluminum
Connectivity	Optional encrypted, wireless radio with 2.4 GHz mesh technology
	Optional radio allows calendar program, manual override switch, or input device from one system to remotely control other systems
	User-selectable multiple channels to group different beacons and ensure a robust wireless signal
	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 AASHTO LTS-6
Activation	**Internal time clock:** calendar programming via our simple software
	Manual override switch: allows local control of beacons
	Junction box: lockable, hinged door, corrosion-resistant aluminum enclosure allows easy calendar programming and access to manual override switch
Warranty	**5-year limited warranty**

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.

Document: SPEC_TRA_R829-E_RevA

R829-F
SOLAR SCHOOL ZONE FLASHING BEACON

carmanah® Traffic

Schedule-based, solar school zone flashing beacon

- Decreases vehicle speeds by five to seven miles per hour in school zones
- Industry-leading high-intensity light output
- Compact, lightweight design to simplify installation
- Simple, software-based calendar program or programmable time clock operation
- Proven technology platform
- Meets and exceeds MUTCD requirements

Superior Design and Technology
The R829-F 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. A larger solar engine enables the R829-F to work with third-party time clocks and remote monitoring, as well as operate at higher intensities in challenging environments.

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 school zones and speed limit signs in minutes, and new installations can be completed without the cost of larger poles, new bases, and trenching.

Calendar Operation
Schedule beacon operation with our easy software-based calendar program, or use third-party time clocks for local or remote control.

Advanced User Interface
The R829-F 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. Optional wireless connection enables one beacon's calendar settings to control multiple school zone beacons.

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.

WE SIMPLIFY PLANNING.
Contact us to get your Energy Balance Report and purchase specifications.

1.844.412.8395
traffic@carmanah.com
carmanahtraffic.com

REPRESENTED IN YOUR REGION BY:

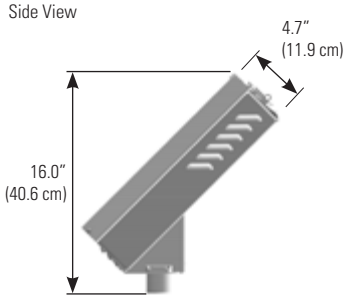
R829-F
SOLAR SCHOOL ZONE FLASHING BEACON

1.844.412.8395 | traffic@carmanah.com | carmanahtraffic.com

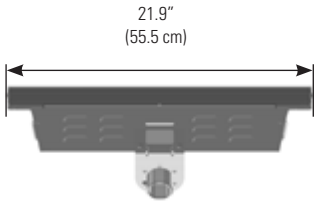
carmanah® Traffic

DIMENSIONS

Side View



Bottom View



SOLAR ENGINE MOUNTING

2.0"- 2.5" Perforated Square Pole Mount

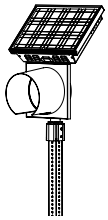
2.38" - 2.88" Diameter Round Pole Mount

4.0" - 4.5" Diameter Round Pole Mount

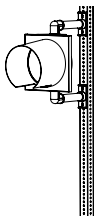
Side Pole Mount

BEACON MOUNTING

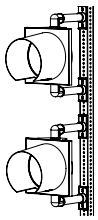
Single – Integrated Engine and Beacon



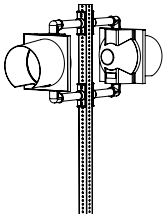
Single



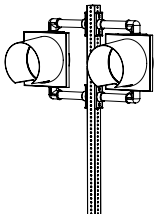
Dual – Vertical



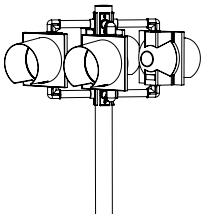
Dual – Horizontal Back-to-back



Dual – Horizontal



Quad – Horizontal



*** Other solar engine and beacon mounting configurations are available.**

Specifications subject to local environmental conditions, and may be subject to change.

Document: SPEC_TRA_R829-F_RevA

On-Board User Interface (OBUI)	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. unison (MUTCD), 0.1 sec. unison, 0.25 sec. unison, 0.1 sec. x3 quick flashes unison, 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 circular beacons, RRFBs, 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 compliant:** 2009 MUTCD, Chapter 4L, Flashing Beacons, Manual on Uniform Traffic Control Devices (MUTCD)
	ITE VTCSH-LED Circular Signal Supplement compliant: meets ITE or 1.7x ITE intensity when used as recommended
	12 in (305 mm) or 8 in (203 mm) diameter LED modules, yellow
	High-power LEDs: +90% lumen maintenance (L90) based on IES LM-80
	Yellow, black, or green signal heads in UV-resistant polycarbonate or aluminum
Connectivity	Optional encrypted, wireless radio with 2.4 GHz mesh technology
	Optional radio allows calendar program, manual override switch, or input device from one system to remotely control other systems
	User-selectable multiple channels to group different beacons and ensure a robust wireless signal
	Instantaneous wireless activation: <150 ms
	Wireless range: 1000 ft (305 m)
	Integrated, vandal-proof antenna
Energy Collection	30 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 34 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
	39 lb (17.7 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 AASHTO LTS-6
Activation	**Internal time clock:** calendar programming via our simple software
	Also compatible with 3rd-party time clocks: • Applied Information AI 500-070B • Temple FCU 500-071 (FL only) • RTC AP21, AP22, CPR2102, and M2M modem • Information Display DC-FB Other time clocks may also be compatible.
	Manual override switch: allows local control of beacons
	Junction box: lockable, hinged door, corrosion-resistant aluminum enclosure allows easy calendar programming and access to manual override switch
Warranty	**5-year limited warranty**

R829-G

SOLAR AND AC SCHOOL ZONE FLASHING BEACON

carmanah® Traffic

Schedule-based, solar and AC school zone flashing beacon

- Decreases vehicle speeds by five to seven miles per hour in school zones
- Solar-powered ITE intensity compliant system
- Simple, software-based calendar program or programmable time clock operation
- Solar and AC-powered models sized to meet site-specific demands
- Proven technology platform
- Meets and exceeds MUTCD requirements

Superior Design and Technology
The R829-G is a cabinet-based system with a separate, high-power solar panel. This design enables the R829-G to work with third-party time clocks and remote monitoring, as well as operate at higher intensities in challenging environments. MUTCD flash patterns, available ITE intensity, and multiple configurations enable the R829-G to handle all school zone and speed limit sign applications.

Easy Installation
All components, including the battery or AC power supply, Energy Management System (EMS) and optional time clocks are housed in a compact, lockable, purpose-built enclosure. It also incorporates a wire routing and termination system, and all components are wired at the factory for an efficient installation.

Calendar Operation
Schedule beacon operation with our easy software-based calendar program, or use third-party time clocks for local or remote control.

Advanced User Interface
The R829-G 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. Optional wireless connection enables one beacon's calendar settings to control multiple school zone beacons.

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.

WE SIMPLIFY PLANNING.
Contact us to get your Energy Balance Report and purchase specifications.

1.844.412.8395
traffic@carmanah.com
carmanahtraffic.com

REPRESENTED IN YOUR REGION BY:

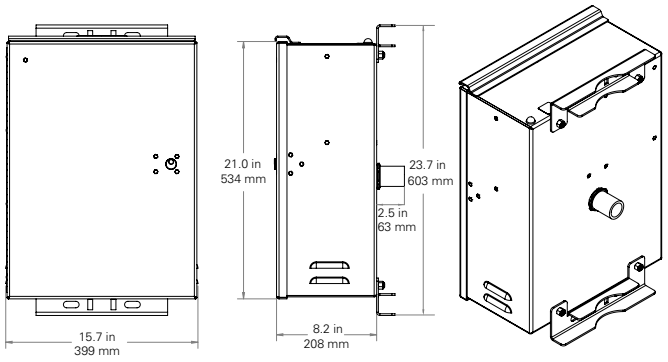
R829-G

SOLAR AND AC SCHOOL ZONE FLASHING BEACON

1.844.412.8395 | traffic@carmanah.com | carmanahtraffic.com

carmanah® Traffic

CABINET DIMENSIONS

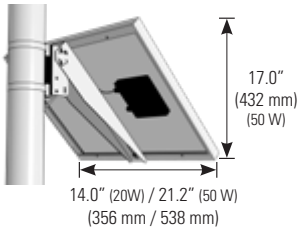


SOLAR PANEL MOUNTING

4.5" Diameter Round Top of Pole Mount
(50 W and 80 W panels)

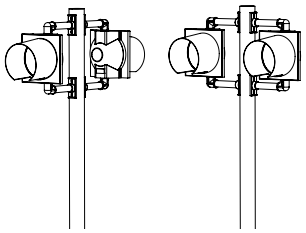
Top of pole to bottom of panel

Side of Pole Mount
(20 W, 50 W, and 80 W panels)

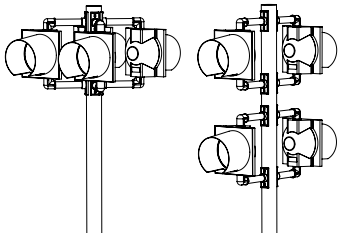


BEACON MOUNTING

Dual Beacon



Quad Beacon



On-Board User Interface (OBUI)	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. unison (MUTCD), 0.1 sec. unison, 0.25 sec. unison, 0.1 sec. x3 quick flashes unison, 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 circular beacons, RRFBs, 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 compliant:** 2009 MUTCD, Chapter 4L, Flashing Beacons, Manual on Uniform Traffic Control Devices (MUTCD)
	ITE VTCSH-LED Circular Signal Supplement compliant: meets ITE or 1.7x ITE intensity when used as recommended
	12 in (305 mm) or 8 in (203 mm) diameter LED modules, yellow
	High-power LEDs: +90% lumen maintenance (L90) based on IES LM-80
	Yellow, black, or green signal heads in UV-resistant polycarbonate or aluminum
Connectivity	Optional encrypted, wireless radio with 2.4 GHz mesh technology
	Optional radio allows calendar program, manual override switch, or input device from one system to remotely control other systems
	User-selectable multiple channels to group different beacons and ensure a robust wireless signal
	Instantaneous wireless activation: <150 ms
	Wireless range: 1000 ft (305 m)
	Integrated, vandal-proof antenna
Power System	Solar or AC-powered
	AC: 90-264 VAC input, 6-14 AWG Replaceable AC-DC power supply, circuit breaker, terminal block wiring
Energy Collection	20, 50, or 80 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 battery system with multiple sizes: 33, 35, 75, 100 Ahr.
	Replaceable, recyclable, sealed, maintenance-free, best-in-class AGM batteries offer the widest temperature range and longest life
	Battery design life: +5 yrs.
Cabinet Construction	Weatherproof, gasketed enclosure with vents for ambient air transfer (NEMA 3R)
	Lockable, hinged door with #2 lock
	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
Environmental	-40 to 165° F (-40 to 74° C) system operating temperature
	-40 to 162° F (-40 to 72° C) battery operating temperature
	150 mph (241 kph) wind speed as per AASHTO LTS-6
Activation	**Internal time clock:** calendar programming via our simple software
	Also compatible with 3rd-party time clocks: • Applied Information AI 500-070B • Temple FCU 500-071 (FL only) • RTC AP21, AP22, CPR2102, and M2M modem • Information Display DC-FB Other time clocks may also be compatible.
	Manual override switch: allows local control of beacons
	Junction box: lockable, hinged door, corrosion-resistant aluminum enclosure allows easy calendar programming and access to manual override switch
Warranty	**5-year limited warranty**

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.

Document: SPEC_TRA_R829-G_RevH