



## Solar Electric Generator Systems

PROVIDING POWER TO CELLULARMS  
IN REMOTE LOCATIONS



When conventional power and telephone services are too costly or unavailable, RACO's solar powered Cellularm™ systems can provide alarm autodialing, remote monitoring, reporting, and control over the standard cellular telephone network.

Solar cellular autodialing may be the best choice when you consider the cost of lines, together with service and maintenance costs over the life of the installation. Reliability is also an important factor. Telephone and power lines to remote areas are frequently disabled during severe weather conditions. They are also subject to outages resulting from people activities such as tree trimming, excavating, and construction.

A RACO solar Cellularm system provides you with everything you need for two-way wireless communications with your remote facilities. You get a full-function alarm autodialer and cellular phone system powered by a compact, self-contained solar electric generator.

### The Communications System

The RACO Cellularm consists of a 3 watt cellular phone transceiver packaged together with any one of RACO's family of alarm autodialers in a compact, weather resistant housing that is easy to transport and set up. The autodialers available for use in a Cellularm unit include RACO Verbatim®, Verbatim® Gateway, Guard-It™, Chatterbox®, and Catalyst™ models (described below).

### The Autodialer

RACO autodialers are designed to sense digital and/or analog signals originating at remote facilities. They accept information coming from level and temperature indicators, flow meters, switches, annunciator panels, motors, pumps, compressors, PLCs, SCADA systems, or other devices being monitored.

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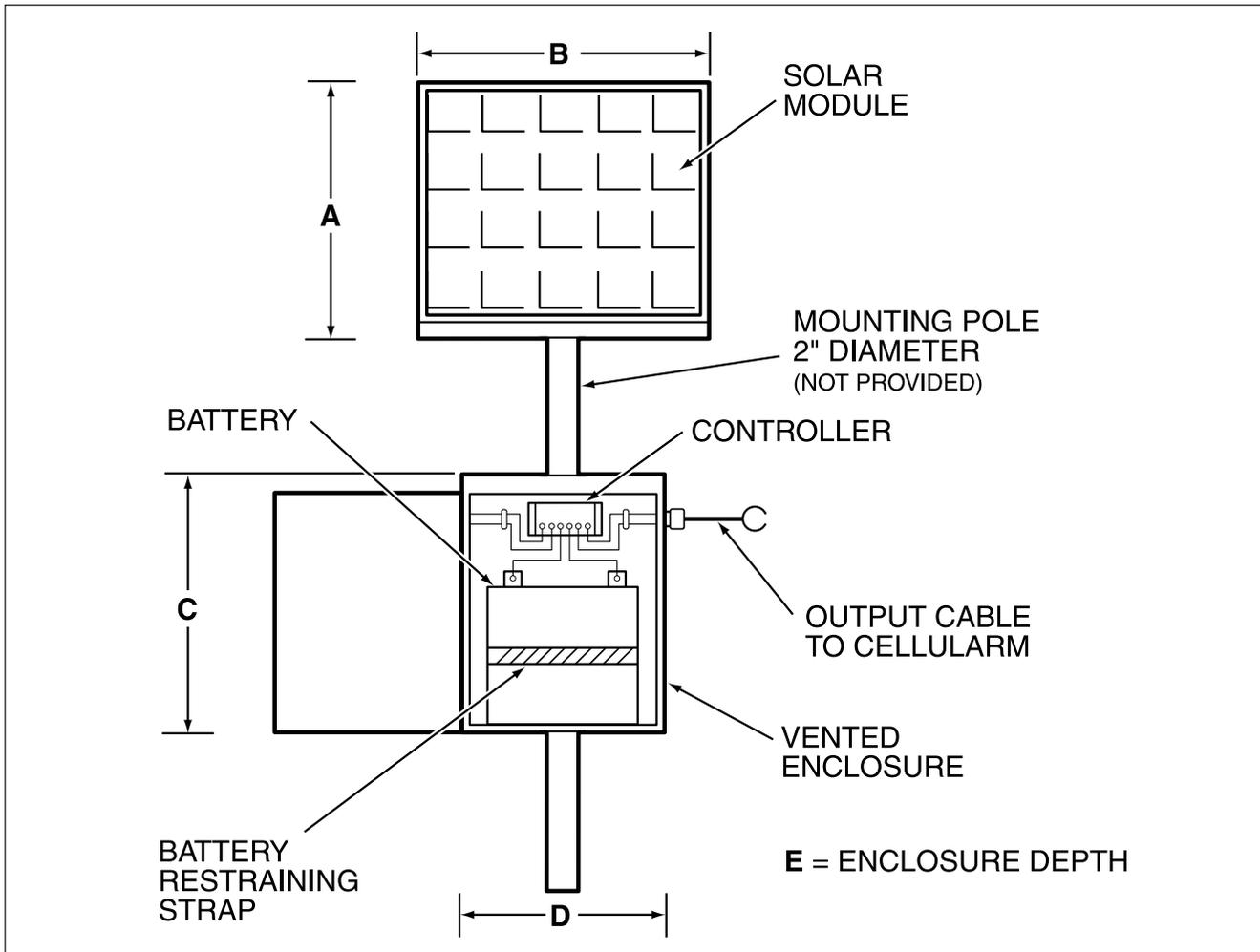
If an alarm condition is sensed at a point being monitored, the RACO autodialer will automatically dial a preprogrammed sequence of emergency telephone numbers, calling until it gets an answer. When contact is made, the system will report the site location and type of alarm via a sequence of digital voice messages.

In addition to alarm reporting, supervisory personnel can call in at any time from any standard touch-tone telephone to get a system status report, change alarm parameters, or execute a command.

### Solar Electric Generator

The RACO Cellularm System is furnished with a high-efficiency solar electric generator designed to provide steady, clean power with sufficient storage capacity to operate during extended periods of overcast or inclement weather.

The high-performance photovoltaic (PV) modules exceed solar industry standards (JPL Block V) for durability in the harshest environments. They have a proven 20 year design life, along with a weatherproof j-Box and corrosion resistant frame. The modules are UL Listed and FM



Minimum Peak Sun Hour Ratings	RSEG MODEL NO.	MODULE OUTPUT	DIMENSIONS IN INCHES					Weight
			A	B	C	D	E	
3.5 and higher	RSEG-60/12/100	60 WATTS	20	44	20	26	8	126 Lbs.
3.0	RSEG-80/12/100	80 WATTS	20	57	20	26	8	131 Lbs.
2.5	RSEG-100/12/100	100 WATTS	40*	37	20	26	8	141 Lbs.
2.0	RSEG-120/12/100	120 WATTS	40*	44	20	26	8	145 Lbs.
1.5	RSEG-160/12/100	160 WATTS	40*	57	20	26	8	155 Lbs.

\*TWO SOLAR PANELS

approved for Class I and II Group D hazardous locations.

Energy from the PV modules is stored in maintenance-free, valve-regulated, sealed lead acid batteries specifically designed for photovoltaic applications. The systems have sufficient battery capacity to operate for a maximum of five days without charging.

Battery charge controllers are solid state and fully encapsulated. The controllers feature temperature compensation, LED status indicator, lightning protection, reverse current protection, and low voltage disconnect. Should a low voltage disconnect occur, the RACO Cellularm System can be configured to make an alarm call to advise personnel of a problem in the Solar Electric Generator. This is accomplished by a separate backup battery system in the RACO Cellularm System and a set of contact outputs built into the Solar Electric Generator control system. Batteries and controller are housed in a lockable, aluminum housing.

The RSEG model required for an installation is determined by the ampere-hour daily load of the Cellularm, adjusted for the amount of sunlight available at the geographical location of the equipment. A dry desert site will get more hours of sun per day than a location that is frequently rainy or foggy. A site located in the plains will get more hours of sun per day than a site located in a hilly region. And some areas have microclimate and special terrain issues to consider. At time of order, the factory will assist in determining the exact RSEG model needed for your specific application.

### Applications Assistance

**RACO sales engineers are ready to help you put together the optimum solar cellular system to fit your needs. Call, fax, or write us for complete system details.**

## Condensed Specifications—RACO Autodialers

*Any one of RACO's family of autodialers can be packaged with a RACO Cellularm. The autodialers offer a range of inputs and outputs to meet a wide range of remote monitoring, reporting, and control requirements.*



### Catalyst

<i>Internal inputs, analog or digital</i>	4
<i>External inputs, PLC monitoring</i>	Up to 56 std, 96, 256 PLC addresses optional
<i>Protocol</i>	Modicon Modbus RTU Master



### Chatterbox

<i>Inputs, contact</i>	4 standard; 8 optional
<i>Inputs, analog</i>	1 optional

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### **Guard-It**

*Inputs, analog or digital* 4  
*Output* 1 Local alarm relay



### **Verbatim**

*Internal inputs, contact* 4 standard; 8, 16, 24 or 32 optional  
*Internal inputs, analog* 1, 4, 8 or 16 optional  
*Outputs* 4 or 8 optional  
*External inputs* Modicon Modbus RTU Master Interface, optional, 32, 64, and 96 alarm channels



### **Verbatim Gateway**

*Internal inputs, contact* 4 standard; 8, 16, 24 or 32 optional  
*Internal inputs, analog* 1, 4, 8 or 16 optional  
*Outputs* 4 or 8 optional  
*External inputs, PLC monitoring* 32 std, 64 or 96 PLC addresses optional  
*Protocols* Allen-Bradley DH-485, DF-1; Modicon Modbus Master RTU, Modbus Plus

*Note: Power monitoring of solar electric generator requires 1 digital input.*

Specifications subject to change without notice.

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**SINCE 1948**  
**RACO**<sup>®</sup>  
**REMOTE ALARMS AND CONTROLS**

**RACO MANUFACTURING AND ENGINEERING CO., INC.**  
 1400-62nd Street • Emeryville, CA 94608  
 (510) 658-6713 • Fax: (510) 658-3153  
 1-800-722-6999  
 E-mail: sales@racoman.com  
 www.racoman.com