

Electrocorder SR-1R User Instructions



WARNING!
This product must only be used by suitably qualified personnel; do not attempt to use this product unless you are qualified to do so.

GENERAL DESCRIPTION

Thank you for purchasing the Electrocorder SR-1R, we hope you enjoy using this product, this package consists of nine main components:

1. Electrocorder logger (1)
The logging unit is housed in a strong ABS case.
2. Carry Case (1)
The ABS case of the logging unit is in turn contained within a soft carry case.
3. EC-SP-110 Pyranometer (1)
The EC-SP-110 DC solar Pyranometer.
4. Communications Lead (1)
For the SR-1R a serial RS232 lead is provided to allow connection between the logger and any PC with an RS232 port.
5. 12Vdc PSU, power supply unit (1)
6. Software CD (1)
Electrosoft software is provided free.
7. User Instructions (1)
These User Instructions are provided to give guidance, to qualified personnel.

PC HARDWARE REQUIREMENTS

To run Electrosoft you must have certain hardware and software installed on your computer. The system requirements include:-

- Microsoft Windows XP, Vista, 7, 8 or 2003/2008/2012 Server.
- An RS232-compatible. Serial Port and/or USB Port is required for interfacing to an Electrocorder, depending on model.
- Our minimum system specification is a 2Ghz Intel Core2Duo, 2GB RAM, 1GB free disk space.
- 136x768 resolution, 24-bit colour and Windows XP.
- Our recommended system specification is a 3.1Ghz Intel i5-3450, 8GB RAM, 1GB free disk space.
- 1920x1200 resolution, 24-bit colour and Windows 7.

Installing Electrosoft

When you run the Setup program, it will automatically set a path on When you insert the Electrosoft CD, it will prompt you to run the setup program; follow the on-screen instructions to install Electrosoft. If the setup program does not start automatically, please run "ElectrosoftSetup.exe" on your DVD/CD-ROM Drive.

The setup program will create a shortcut for Electrosoft in the Start menu.

GETTING STARTED

In order to set-up an Electrocorder, you must first run Electrosoft on your PC. Then connect an Electrocorder to the PC serial port using the correct (supplied) serial lead. In Electrosoft, use the 'Setup' dialog box window and input the details of the location to be monitored. The Electrocorder does NOT need to be connected in to the mains voltage to perform this task.

The recording mode is set by default to commence recording when the Electrocorder detects voltage and to stop recording when the memory is full.

Select the recording method - two options are available:

1. Record to EN50160 standard - the Electrocorder will take 800 samples every second (per channel) for 10 minutes. It then averages the samples taken over that 10 minute period and stores the values. In this mode the unit will record for approximately 50 days until the memory is full.

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2. Take a sample over a discrete period - the Electrocarder can be set to take an average over a selected period, 1 (one) sec to 60 (sixty) min and also record the max and min during each period. For example, a unit set to record every 1 (one) second will record for approximately 2 hours. A unit set to record every 12 seconds will record for approximately 1 day. A unit set to record every 60 (sixty) minutes will record for approximately 300 days.

When the required information has been input, download to the connected Electrocarder by clicking the 'Write Setup' icon. The Electrocarder is now ready to monitor voltage.

When the Electrocarder is recording a flashing red light will show, when it has completed recording, a steady green light will appear on the unit. The database contained within Electrosoft will also advise that the unit has completed recording and is ready to be collected. To download the recorded data connect the Electrocarder to the PC serial port and click the 'Read Setup' icon. The recorded data is displayed for analysis.

This document is produced in conjunction with the Help file contained in Electrosoft, which contains a detailed explanation of all features and contains information, which should be studied prior to using this product.

USB to RS232 Serial Converter

If you have purchased a USB to RS232 converter, you must install the drivers. You can use the drivers shipped with the program which may be in the USB sub-folder within the Program Folder, normally C:\Program Files\Electrosoft\USB. You can download them from the website www.electrocarder.com or use the disk, if one came with the converter.

The following describes the XP installation, other operating systems will vary slightly. When you plug the converter into the PC, it will detect it and identify the new hardware as UC232R, Windows will then ask to search for the drivers, choose "Yes, this time only", then on the next screen choose, "Install from a list location" then specify the location of the drivers, possibly the USB sub folder, in the installation folder, or wherever you saved the files to when you downloaded from the internet.

When installed, make a note of the serial or COM port number the converter has been assigned to and when you run Electrosoft, select the appropriate serial port or COM port number.



SAFETY TIPS

Take extreme care when working at heights or on roofs, please refer to your working practices and/or consult a suitably qualified professional.

Features & benefits of the SR-1R logger system

Feature	Benefit
Unit is small and lightweight	Easy to install
Easy to use Windows software	Can be used by non-technical staff
Electrosoft contains internal database	Allows effective management of distributed Electrocarders
True RMS measurement	Complies to EN50160:1994
Soft carry case, with handle	Allows you to keep and carry all the leads etc. together with the logger

Inputs and Connections on Various Systems

Colour and Input Terminal	Channel Inputs
Orange (R1)	0 to 1,500 W/m ²
Black (A1)	-10A to +10A, -100A to +100A
Red (V1)	0V to +300Vdc
Black (01)	Common Ground, MUST be 0V



Solar Irradiation Logging (using input 'R1')

Position the Pyranometer on a flat, level (horizontal) surface close to or beside the solar installation. Where the solar collector is on a pitched roof, the pyranometer may also be placed on this angled roof, this will better represent the energy irradiating the surface. Connect the 12Vdc PSU, and to start logging, press the 'Start' Button, logging is signified by a flashing Green light, when finished the Green light will extinguish and if you are using the 12Vdc PSU a red light will illuminate.

Technical specifications

Solar irradiance	1 to 1,500 W/m ²
Measurement accuracy	±5% of reading (10 bit) within 10% to 90% of scale else ±10% of scale
Sampling frequency	All channels are 800Hz.
Data recorded	Average, max & min values during the averaging period
Memory capacity	192kB able to record 32,000 readings per channel
Memory type	Non-volatile SEEPR0M
Memory - averaging period & duration	1 sec to 60 mins (1sec. avg gives 2 hrs of logging, 60min. avg gives 300 days of logging)
Real-time clock accuracy	Greater than 0.001%
Pyranometer input lead length	Metric 5 metres Imperial 16' (16 feet)
Battery life (while powered from PSU)	Unlimited - mains powered & battery backup (100 hours, 4 days while unpowered)
Battery type	Unit contains 1 (one) 9V Alkaline battery (E-Block, PP3, 1604A)
Power supply	12Vdc +/-10%
Communications interface type	RS232, baud of 19,200
Electrosoft software	Windows (9x, 2K, ME, NT, XP & Vista, Win 7, 1024 x 768 min resolution
Environmental (temp & sealing)	-10C to +40C or +14°F to +104°F – IP65, protected environment
Dimensions & weight	Metric 120 x 65 x 40mm & 300g Imperial/English - 5" x 4" x 3" & 0.5lb

(subject to change without notice)

Calibration

Each unit is individually calibrated during testing.

Battery life (while connected to PSU)

Unlimited, 12Vdc external powered and battery back-up.

Battery life (while not logging)

The 9V Alkaline battery should last for at least 9,000 hours (1 year).

Battery life (while logging, with no PSU)

The 9V Alkaline battery should last for up to 100 hours. We recommend you ALWAYS use the 12Vdc PSU.



Caution

The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace with a 9V Lithium or Alkaline battery IEC Type 6-F22 (PP3, MN1604). Use of another battery may present a risk of fire or explosion. Dispose of used batteries promptly. Check for signs of battery (electrolyte) leakage. If leakage has occurred, the PCB must be cleaned in an approved manner by a competent (trained) person. Keep away from children.

Maintenance

Regularly check the Electrocarder casing for signs of damage (cracks, broken or loose parts) or misuse. If the unit is damaged in any way it must NOT be used and should be returned to the supplier. The unit must not be used for any other purpose than for that recommended by the manufacturer. The unit must not be submerged in any liquid.

Cleaning

Wipe the outside of the case with a clean cloth dampened with IPA (Isopropyl Alcohol).

Warranty

All Acksen products carry a minimum 1 year warranty covering manufacturing defects and component failures. The device contains no user-serviceable parts and as such should only be repaired by skilled and authorised personnel. Failure to comply could result in unsafe operation and should not be attempted under any circumstances. Contact below for a list of approved service agents. Note: Any unauthorised repair or adjustment will automatically render the warranty invalid.

Repair and spare parts

Acksen Ltd, 28 Station Road, Whiteabbey Newtownabbey, Co. Antrim BT37 0AW United Kingdom

Or an approved repair company.

Returning a product for repair

If returning a product to the manufacturer for repair, it should be sent freight pre-paid to the appropriate address. A copy of the Invoice and of the packing note should be sent simultaneously by airmail to expedite clearance through Customs. A repair estimate showing freight return and other charges will be submitted to the sender, if required, before work on the device commences.

WEEE

For EU customers Acksen Ltd offer a product take-back service. For customers within the European Union (only) and products manufactured or sold by us; when those products reach the end of their life, simply send them back to us at your expense, we will dispose of them according to the relevant legislation. Acksen Ltd's WEEE Registration Number WEE/DD2117VU.