

Electrocorder LS-1V 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. High voltages that cause burns and lethal shocks are present during voltage monitoring and recording!

Voltage inputs are not isolated from each other, as one input is energised, other will become live!

GENERAL DESCRIPTION

Two versions of the Electrocorder are available:

The Electrocorder Range of miniature data recorders is housed in a strong compact ABS case with integral plug pins to provide safe and trouble free data logging for electrical distribution companies. The Electrocorder IP65 Range is supplied in a waterproof case with flying leads to provide safe and trouble free data logging in industrial environments. A typical application would be the Electrocorder IP65 used to record voltages supplied to street lighting circuits. Both versions allow the user to cost effectively monitor voltage supply, enabling real voltage problems to be highlighted quickly for further investigation using traditional recorders. The Electrocorder package consists of four main components:

1. The Electrocorder IP65 Range is supplied in an IP65 case with flying leads. The Electrocorder IP65 can be hardwired directly into a circuit and will record and store the voltage levels, dates & times to internal memory for later analysis using Electrosoft software. To communicate with the Electrocorder, the unit must be connected to a Personal Computer (PC) via the correct RS232 serial cable.
2. The Electrosoft package runs under Microsoft® Windows NT4.0, 2K, XP, Vista, Win 7. It will allow the user to:- Set-up the Electrocorder to record voltage on/off dates & times. Read recorded data from the Electrocorder to the PC. Display on the PC the customer's details with the recorded data in both tabular and graphical format. Store the data to disk in Electrocorder and / or spreadsheet format. Print all the necessary dispatch / return documentation. Print customer user instructions. Use internal database to effectively manage distribution of multiple units.
3. RS232 serial cable Used to connect the Electrocorder to a PC, order code EC-SL-REDEL
4. The Electrocorder has been designed such that it can be mailed to your customer and returned by them in the available reusable mailing case. Order code EC-1A-CC.

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 a Electrocorder, run Electrosoft. Connect a Electrocorder to the PC serial port using the correct 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 plugged in to the mains socket 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.

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Version 1.00.11.12

Select the recording method – The LS-1V is designed to monitor the mains voltage, and record the dates and times of up to 32,000 on's (voltages above the user set threshold voltage) and off's (voltages below the user set threshold voltage).

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 has completed recording, a 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.

IP65 example of use

Step 1	You are aware that you have a voltage supply problem in a remote location e.g. lighting company aware that there is a problem with their street lighting circuits
Step 2	Connect the Electrocarder to the PC & set up using Electrosoft, the supplied Windows software. This can be done by non-technical staff and will only take a few minutes. Electrosoft will automatically update the internal database with details of the Electrocarder
Step 3	The Electrocarder IP65 is delivered to the fault location and installed in the circuit. A flashing green light will appear on the unit to show that recording has started
Step 4	When the Electrocarder has completed recording, the green light is replaced by a red light. The control centre will know recording has finished because the database in Electrosoft will warn them when the unit is overdue
Step 5	From the database within Electrosoft, print a reminder docket to advise the unit is to be collected
Step 6	When logging is complete, the Electrocarder IP65 should be collected and returned to the control centre
Step 7	Connect the Electrocarder to the PC and upload the data. Analyse the data and print off the report to discuss with the customer. From this decide if further analysis necessary

Features & benefits common to IP65 & Plug-in models

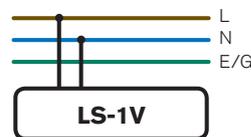
Feature	Benefit
Unit is small and lightweight	Easy to install
Easy to use Windows software	Can be used by non-technical staff
Electrosoft contains internal database	Allows effective management of distributed Electrocarders
True RMS voltage measurement	Complies to EN50160:1994
Can be dispatched immediately - with customer next day	Company are able to act quickly

Additional features & benefits of Plug-in model

Feature	Benefit
Unit is small and lightweight	Can be mailed to the customer
No leads or attachments	Can be plugged in by customer or any employee
Facility to print reminder letter	Advise customer when unit due for return
Print dispatch / return documentation	No additional documents, mailing labels etc. necessary
Print customer user instructions	No additional documents necessary
Reusable mailing case available	Can be mailed to the customer - quick turnaround of complaints

Additional features & benefits of IP65 model

Feature	Benefit
Facility to print reminder docket	Advise works department when unit ready for collection
Flying leads fitted with crimp connectors	Easy to install
Unit is small and lightweight	Easy to install



Electrocarder plug-in model example of use

Step 1	A customer complains to their power distribution company they have a problem with their supply e.g. their lights are dim
Step 2	Connect the Electrocarder to the PC & set up using Electrosoft, the supplied Windows software. This can be done by non-technical staff and will only take a few minutes. Electrosoft will automatically update the internal database with details of the Electrocarder
Step 3	Print off the necessary dispatch/return documentation and customer user instructions
Step 4	The Electrocarder has been designed such that it can be delivered by mail in the available reusable mailing case, or delivered by any member of staff
Step 5	To monitor voltage at a customer's house simply plug the Electrocarder in and turn the wall socket on. This can be done by either the customer or an employee of the Power Company. A flashing green light will appear to show that the unit has started recording
Step 6	The customer will know the unit has completed recording - the green light on the unit will be replaced with a red light. The Power Company will know because the database will warn the unit is overdue
Step 7	From the database within Electrosoft, print a reminder letter to send to the customer
Step 8	When logging is complete, turn the mains socket off and have the customer mail the unit in the available reusable mailing case, or have an employee collect from the customer
Step 9	Connect the Electrocarder to the PC and upload the data. Analyse the data and print off the report to discuss with the customer. From this decide if further analysis necessary

Technical specifications

Measurement accuracy	±1% of reading (within 70 - 260 Vac)
Sampling Frequency	1600Hz (50Hz) 1920Hz (60Hz)
Memory capacity	32,000 dates & times of interruptions (on/off events)
Memory type	Non-volatile SEEPR0M
Memory endurance	100,000 - 1,000,000 read/write cycles
Real-time clock accuracy	Greater than 0.001%
Logging resolution	1 second
Battery life (while plugged in)	Unlimited - mains powered and battery back up
Battery life (9V Alkaline)	9,000 hours (1 year)
Interface type	RS232 serial
Electrosoft Software`	Windows (NT4.0, 2K, XP, Vista, Win 7)
Operating temperature	0C to +40C
Weight	300 g
Dimensions 'Plug-in' model	100 x 85 x 65 mm (4"x3"x2.5")
Dimensions IP65	120mm x 80mm x 60mm
Recording Standard	EN50160:1994 (CAT II, 300V)

(subject to change without notice)

Calibration

Each unit is individually calibrated during testing.

Battery life (while plugged in)

Unlimited - mains powered and battery back up.

Battery life (while unplugged)

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



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.