Electrocorder EC-1V & EC-2V

Mains Voltage Recorder - 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!

General Description

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, domestic and office buildings.
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. Electrocorder unit

The **Electrocorder 'Plug-in' Range** is housed in a case with integral plug pins. Four standards are available: Australia & New Zealand (AS3112, NZ SS 198-1967), UK & Ireland (BS 1363), EU (CEE 7/16), North America (NEMA 5-15) pin-outs are available - for any other variation please contact Acksen or your local distributor. The Electrocorder can be plugged into any domestic electrical socket and will record and store the voltage levels, dates & times to internal memory for later analysis using Electrosoft software.

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 USB or RS-232 serial cable.

2. Electrosoft (download free from www.acksen.com)

The Electrosoft package runs under Microsoft® Windows NT4.0, 2K, XP, Vista, Win 7, 8 10. It will allow the user to:-
Set-up the Electrocorder to record voltage levels, 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. USB or RS-232 serial cable

Used to connect the Electrocorder to a PC.

4. Reusable mailing case

The Electrocorder has been designed such that it can be mailed to your customer and returned by them in the available reusable mailing case.

Hardware requirements

To run Electrosoft you must have certain hardware and software installed on your computer. The system requirements include:-
An IBM® - compatible Personal Computer with a minimum of an 80486 processor.
A hard disk, with at least 30MB spare capacity.
CD/DVD drive.
1024 x 768 or higher.
At least 64MB of random access memory (RAM).
A mouse.
Microsoft® Windows 9X, NT4.0, 2000, XP, Vista, Windows 7.

Installing Electrosoft (download free from www.acksen.com)

When you run the Setup program, it will automatically set a path on your hard disk and install Electrosoft there.

In Windows 9X, NT4.0, 2000, XP, Vista, Windows 7 the Setup program will create an option in your Programs menu, which is in the Start menu.

Step 1: To install Electrosoft; run Setup.

For Windows 9X, NT4.0, 2000, XP, Vista, Windows 7, 8, 10

Step 2: From the Taskbar menu click Start and choose Run. The Run dialogue box appears.
Step 3: Type a:\Setup. Click OK. Follow the instructions on the screen to install Electrosoft - you will be alerted when the installation is complete.

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.

Select the recording method - two options are available:
1. Record to EN50160 standard - the Electrocorder will take a sample once every second for 10 minutes. It then averages the samples taken over that 10 minute period and stores the value. In this mode the unit will record for approximately 37 days until the memory is full.

2. Take a sample over a discrete period - the Electrocorder can be set to take an average over a selected period, 1 (one) sec to 15 (fifteen) 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 1 ½ hours. A unit set to record every 16 seconds will record for approximately 1 day. A unit set to record every 15 (fifteen) minutes will record for approximately 56 days.

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

When the Electrocorder is recording a flashing green light will show and when it has completed recording, a red light will appear on the unit. If both red and green LEDs are illuminated when connected to voltage, this signifies a 'reset', the battery may have been dislodged, check the battery, then again set-up the logger to record.

When the Electrocorder 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 Electrocorder 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 (for use with RS232 models only).

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.electrocorder.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.

Features & Benefits common to IP65 & Plug-in models

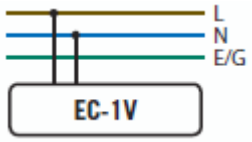
Feature	Benefit
Unit is small and lightweight.	Easy to install
Easy to use Windows software.	Can be used by non-technical staff.
Electrosoft contains internal database.	**Allows effective management of distributed Electrocorders.**
True RMS voltage measurement.	Complies to EN50160:1994.
Can be dispatched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

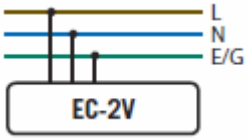
Additional Features & Benefits of Plug-in model

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.

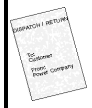
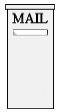
Additional Features & Benefits of IP65 model

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





Electrocorder 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 Electrocorder 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 Electrocorder.	
	**Step 3:** Print off the necessary dispatch/return documentation and customer user instructions.	
	**Step 4:** The Electrocorder 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 Electrocorder 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 Electrocorder 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	16,000 Voltage levels (32kB)
Memory type	Non-volatile SEEPROM
Memory endurance	100,000 - 1,000,000 read/write cycles
Real-time clock accuracy	Greater than 0.001%
Logging resolution	1 second - 60 minutes
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 based (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)**
Specifications subject to change without notice.	

Calibration
Each unit is individually calibrated during testing.

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
Prior to each use of the logger check the Electrocorder casing for signs of damage (cracks, broken or loose parts) or misuse. Check the leads for any signs of damage, ensure the outer insulation later is not broken. 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 damped with IPA (Isopropyl Alcohol).

Warranty
All Acksen products carry a minimum 1 year back to base 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. WEEE Reg. No. WEE/DD2117VU.

Part No: EC-1V-UI-En.PDF

acksen

Web: www.acksen.com