Electrocorder EC-1A 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

Thank you for purchasing the Electrocorder EC-1A, we hope you enjoy using this product, this package consists of six main components:

1. Electrocorder logger (1)
   The logging unit is housed in a strong ABS case.
2. Rogowski Coil (1)
   Current input sensor.
3. USB Lead (1)
   A USB lead is provided to allow connection between the logger and any PC with a USB port.
4. Software CD (1)
   Electrosoft software is provided free.
5. User Instructions (1)
   These User Instructions are provided to give guidance, to qualified personnel.
6. 12Vdc PSU within most regions (1).

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 recording mode is set by default to commence recording when the Electrocorder Start button is pressed 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 50 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 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 Electrocorder by clicking the ‘Write Setup’ icon. The Electrocorder is now ready to monitor current.

T : +44 (0)870 225 1790
F : +44 (0)870 225 1791
E : sales@acksen.com
acksen.com

Powerfully Measured

Version 1.00.11.12

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 current.

When the Electrocorder is recording a flashing green light will show. When it has completed recording, the green light will fully extinguish and IF an external PSU is being used than a steady red light will appear on the unit. Otherwise the red (stopped) light will not light, so completion is signified by the absence of a flashing green. 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 only with RS232 models)
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.

SAFETY TIPS

Current input is labelled 'A1'.
Prior to connection of the logger to any system:-

1. f possible electrically isolate the conductors to which you wish to connect.
2. Current input sensor must only be used around insulated conductors.
3. Using insulating gloves, connect the each current sensor in turn around each current carrying conductor.
4. The sensor lead is double layer, with a copper braid. Should the lead become scuffed and/or damaged, the white inner braid could become visible through the black outer layer. If this is the case seek further advise on the condition of the unit and whether it may be used safely.
5. Do not connect the PC while the current sensors are around conductors, unless the conductors are heavily insulated.

Features & benefits of the EC-1A logger system

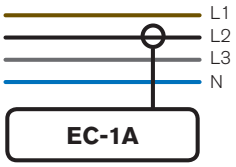
Feature	Benefit
Unit is small and lightweight	Easy to install
Easy to use Windows software	Can be used by non-technical staff
Electrosoft contains internal database	Allows effective management of distributed Electrocorders
True RMS current measurement	A true reading
Soft carry case, with handle	Allows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

Conductor colour codes around the world

Phase	New EU Colour Code	UK Colour Code	US Color Code
A (L1)	Brown	Red	Black
B (L2)	Black	Yellow	Red
C (L3)	Grey	Blue	Blue
N (Neutral)	Blue	Black	White
G (Ground/Earth)	Yell/Green Stripe	Yell/Green Stripe	Green Yell/Green

Inputs and Connections on Various Systems

Colour and Input Terminal	Single Phase (1-Wire)	Single Phase (2-Wire)	Single Phase (3-Wire)
Brown (A1)	X (L1)	X (L1)	X (L1)
Black (A2)		X (G/E)	X (L2)
Grey (A3)			X (L3)



Single Phase Systems (logging current in 'L1')
Simply connect sensor A1 around the 'L1 conductor' and press the start button.

Single Phase 3 Wire Systems (logging current in 'L1')
Connect sensor A1 around the 'L1 conductor','L2 conductor' or 'L3 conductor' then press the start button.

Power Measurement (power in 'L1')
Connect sensor A1 around the 'L1 conductor' then press the start button. When logging is complete, upload the data to a PC using Electrosoft. Now click on the Power Tab and input the nominal voltage on the conductors. The graphs shown represent the power.

Technical specifications

Current range	Model EC-1A various, 0.1A to 10kA
Current measurement accuracy	5% of reading 100 to 500A, otherwise 10%
Sampling frequency	16 samples/cycle 800Hz @ 50Hz or 960Hz @ 60Hz
Data recorded	Average current, max & min current-cycle-value during the averaging period
Memory capacity	64kB able to record 32,000 current levels
Memory type	Non-volatile SEEPROM
Memory - averaging period & duration	1 sec to 60 mins (1sec. avg gives 2 hrs of log-ging, 60min. avg gives 300 days of logging)
Real-time clock accuracy	Greater than 0.001%
External PSU (nominal 12Vdc)	9Vdc to 24Vdc @ 100mA, 2.5mm jack, core is +ve and outer is common (0V)
Battery life (without external PSU)	100 days, 14 weeks
Battery life (with external PSU)	Unlimited, all power is taken from external PSU
Battery type	Unit contains five 9V Alkaline batteries (E-Block, PP3, 1604A, 6LF22)
Communications interface type	USB, baud of 19,200
Electrosoft software	Windows (9x, 2K, ME, NT,XP Vista, Windows 7); 1024 x 768 min resolution
Environmental (temp & sealing)	-10C to +40C or +14°F to +104°F – IP54 for indoor or protected environment!
Dimensions & weight	Metric 250 x 140 x 100mm & 500g Imperial - 10" x 7" x 5" & 1lb

(subject to change without notice)

Calibration
Each unit is individually calibrated during testing.
Battery life (while connected)

Unlimited - mains powered (via 12Vdc PSU) and battery back up.
Battery life (while unconnected to mains)

The 9V Alkaline batteries should last for at least 2,000 hours (3 months)

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 Electrocorder 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 damped 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.