GENII RADIO DATA LOGGING SYSTEMS

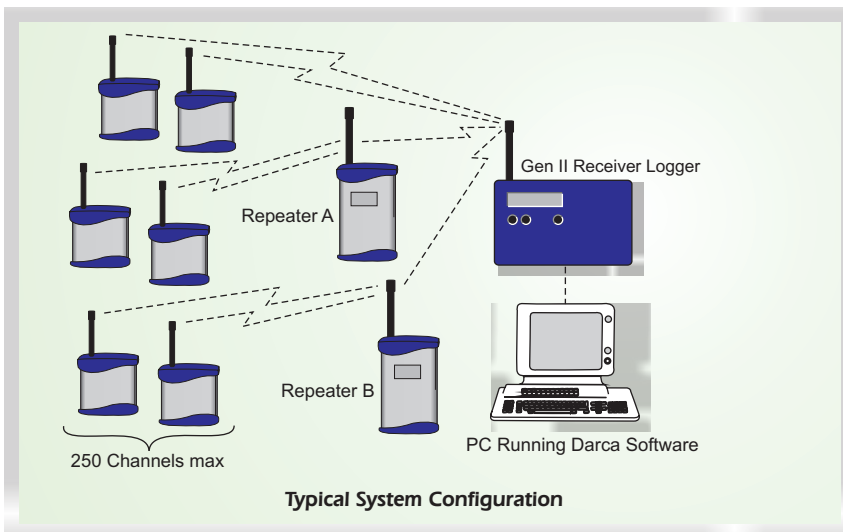**Eltek**
S P E C I A L I S T
D A T A   L O G G E R S

Easy to use customised data loggers

Eltek GenII monitoring systems provide data logging and alarm generation for a very wide range of applications. Systems are already installed in museums, laboratories, storage and warehousing facilities, pharmaceutical, production, and domestic premises - just about any environment where accurate and reliable data is essential for monitoring, manufacturing, research or audit purposes.

Radio Telemetry offers a cost-effective, flexible and practical alternative to hard-wired data logging systems without forfeiting system reliability or security. The use of telemetry does not restrict the range of sensor types that can be connected or measurement accuracy or metering capability. Licence exempt UHF frequencies are used and sensors can be located almost anywhere. Customised thermal barriers are available for through-process measurement in extreme temperatures.

Gen II Receiver Logger

Repeater A

Repeater B

PC Running Darca Software

250 Channels max

Typical System Configuration

Radio Telemetry Logging System Features

- UHF
- Wireless connection of sensors
- 12 bit resolution for high accuracy
- 250 channel system capability
- Easy system design and installation
- Flexible configurations for permanent and temporary installations
- Complete turnkey system solution
- Range easily extended by Repeaters
- Options for use in extreme ranges of temperature and physical environments
- Tamperproof indoor or outdoor wall mounting brackets

Transmitter Features

- Available with or without LCD display
- High performance transmitter compliant to EN 300-220
- Transmitters with up to 8 inputs
- Sensors can be integral, external or a combination of both
- Inputs available for Voltage, Current, Temperature, Pulse, Digital or Light
- Program from PC or Receiver Logger
- Battery operation allows flexible and rapid installation
- Powered by standard alkaline batteries
- 5 - 10 year battery life (30 minute logging interval)
- Compact size and light weight
- Unobtrusive rugged aluminium customised case and wall bracket

Receiver Logger Features

- Data Logger with integral receiver
- Alarm and GSM text output
- 24 hour built-in standby battery
- 247K readings expandable to 2M readings
- Dual RS232 serial ports

- Transmitter battery alarm
- Display and keypad for "on line" metering
- Darca setup, graphing and data export software
- Extensive communications options

GENII Rx250AL RECEIVER / LOGGER

The RX250AL Receiver logger is the heart of a GenII logging system. It is not necessary to have a PC permanently connected and the built in battery means data logging is not interrupted if there is a temporary AC mains failure. Versions of the RX250AL are available to suit a broad spectrum of uses.

Common specifications

Number of channels	Up to 250
Number of transmitters	Up to 125
Ambient temperature	-10 to +55°C
Humidity	Up to 95% (non condensing)
Power supply	12V DC at 500mA powered using type MP12U, input 97-263V AC)
Built-in batteries	6 x AA Ni Mh battery
Backup battery life	Typically 24 hours
Memory	247,000 readings expandable to 2,000,000
Clock accuracy	I second/day at 20°C
Dimensions	D 60mm x W 180mm x H 120mm
Weight	1Kg inc. batteries
Case material	Scratch resistant Nextel coated ABS
PC/modem interface	RS232C up to 38.4K Baud
Receiver	Crystal controlled
Sensitivity	UHF: -117dBm
Antenna connector	SMA 50 ohm female
Antenna	Quarter wave standard, lightweight dipole optional
Communication options	USB, GSM and Ethernet

RX250 versions

RX250AL	is the basic version with one alarm providing a contact closure in alarm.
RX250ALD	two independent configurable common alarms - each output is a contact closure in alarm.

GENII RP250GD REPEATER

The RP250GD receives and rebroadcasts signals from GenII transmitters, significantly extending the distance over which a system can operate. Multiple repeaters can be used in a system.

Features

- Contains high performance receiver and transmitter compliant to EN 300-220
- LCD indicates on-air transmitter identity, status and signal strength
- Extends range of transmitters many fold
- Multiple repeaters can be used, enabling difficult sites to be covered easily
- Mains powered with built-in rechargeable batteries to provide up to 48 hours standby in the event of a mains failure.
- Free standing or wall mountable
- Antenna socket permits use of external antenna to improve performance in difficult conditions
- Software is used to configure the repeater, download transmitter activity data and specify transmitter authorisation.

Specification

Ambient temperature:	-10 to +55°C
Humidity:	Up to 95% (non condensing)
Power supply:	12V DC (Type MP12U, 97-263V AC input)
Backup batteries type:	Ni MH pack
Backup battery life:	Typically 24 to 48 hours dependant on activity
Dimensions:	D 41mm x W 80mm x H 125mm
Weight:	500g inc. batteries
Receiver/Transmitter:	Crystal controlled
Antenna connector:	SMA 50 ohm female

GENII TELEMETRY TRANSMITTERS

Sensors can be located almost anywhere, giving a system which is simple to install and use.

Eltek's telemetry transmitters are designed to complement each other, sharing a common case style, RF specification, battery system and choice of antennas. GD models have a display. For specification details see table on next page.

Built-in sensors

Built-in temperature
GC-05, GD-05
Built-in temperature and humidity
GC-10, GD-10

Built-in temperature and humidity and input for thermistor temperature
GD-11

Temperature transmitters

*Thermocouple sensors
GS-21, GD-21 (1 input)
GS-24, GD-24, GD-24H (4 inputs)

*Thermistor sensors
GC-12 (2 inputs), range (-40 to 70°C)
GS-31, GD-31 (1 input)
GS-32, GD-32 (2 inputs)
GS-34, GD-34 (4 inputs)
GS-38, GD-38 (8 inputs)

*Platinum resistance sensors
GS-52, GD-52, GD-52H (2 inputs)

Temperature and humidity
GD-13E 1 x Eltek RHT10D RH/temp probe
GD-14E 1 x Eltek RHT10D RH/temp probe + 2 x thermsitor
GD-14R 1 x Rotronic HygroclipS RH/temp probe + 2 x thermsitor

GD versions can be ordered with built in audible and visual alarm.

Voltage and Current

Inputs for voltage or current
GS-42 (2 inputs)+ 1 x sensor supply
GS-44 (4 inputs) + *2 x sensor supply
sensor supply output: 12V (80mA) or 5V (20mA).

I x sensor supply can be configured to switch an external supply.

Event / Pulse

Event inputs - Volt free or digital
GC-60 (2 inputs)
GS-61 (8 inputs)

Pulse inputs - Volt free or digital
GS-62 (2 inputs)

Combination Light transmitters

Built in ultraviolet and visible light with temperature and humidity
GL-70
External ultraviolet and visible light with temperature and humidity
GS-72, GS-72L

GS72 and GL70 Range information
RH and temperature: as GC-10
1 x visible light	0 - 4000 Lux (resolution 0.1 Lux)
	0 - 200 kLux (0.01 KLux)
1 x UV light	0 - 5000 mW/M2
	0 - 10000 uW/lumen

GS-72L Range information
RH and temperature: as GC-10.
1 x visible light	TBA

RHT10D

GS-72L   GS-72   GL-70

Voltage / current, RH & temperature

GD-43

Ideal for use in incubator monitoring
· 1 x Voltage / current input
· 1x RH / temperature probe input for Eltek / E+E / or Rotronic RH/Temp probes
· 1 x Thermistor temperature (-50 to 150ºC)

GD-43

CO₂ plus RH and temperature

GD-47

All in one air quality monitor
· CO_2 (0 to 5000ppm)
· RH (0 to 100%)
· Temperature (-10 to 65ºC)
· All sensors built-in

Mains operation with built-in

GD-47

Intrinsically safe transmitters

GDEx16 - external RH and temp

· ATEX groups IIA and IIB, classes T1, T2, T3 and T4.
· Battery life > 5 years (Lithium primary cell)
· LCD screen displays real time values of RH and temperature
· Approved RH & temperature probe and temperature only probe available

GDEx16

Differential pressure, RH & temp

GD-84
· Built in differential pressure sensor
· Range: -250 to 250 pascal
· Quick connect tube system
· LCD for continuous display of value

GD-84

TMET Weather transmitter

Use to include weather information in a system.

Use with Rx250AL if a stand alone wireless connected weather station is required.

For use with *Vaisala WXT520 weather or WMT50 windspeed/direction sensor. TMET includes serial inputs for Delta-T Devices SPN1 Sunshine Pyranometer or analogue inputs for temperature and voltage.

*Windspeed, direction, precipitation, barometric pressure, temperature and RH

For further information see brochure TD1083

RHT10- D Probe

The Eltek RHT10-D is a compact and robust stainless steel, precision humidity and temperature probe. The detachable probe head houses a calibrated sensor.
Designed for use with:
GD-13E, GD-14E, GD72, GD72L, GD43 and Ex version for GDEx16 transmitter.

Temperature:	**Relative Humidity:**	**Dimensions:** L 66mm x
Range: -40 to +85°C	Range: 0 to 100%	Dia. 10mm
Resolution: 0.1°C	Resolution: 0.1%	weight: 18g (probe only)
Accuracy: ±0.4°C (+5 to +40°C)	Accuracy: ±2% (10 to 90%Rh)	
±1.0°C (-20 to +80°C)	±4% (0 to 100%Rh)	

GENII TELEMETRY TRANSMITTERS

Common Specifications

RF specification	EN300-220	**Dimensions (footprint)**	78 x 41mm
RF power	10mW	**Battery endurance**	up to 5 years (interval set to 5 minutes) (less for GL-70 and GS-40 series)
Environment specification:		**Transmission interval range**	1 sec to 4 hours
Compliant to EN300-220	-10 to +55ºC	**Indicator (red LED)**	transmit active/on/off
Actual	-30 to +65ºC	**Control switch (concealed)**	test mode / hibernate
Humidity	100% non condensing	**Antenna socket**	SMA
Environmental rating	IP40		

Models	Inputs	Range	Resolution	Tx Accuracy
GC-05/GD-05	1 x built-in temperature	-30 to 65ºC	0.1ºC	±0.5ºC (-10 to +55ºC)
GC-10/GD-10	1 x built-in temperature	-30 to 65ºC	0.1ºC	±0.4ºC (+5 to +40ºC)
				±1.0ºC (-20 to +80ºC)
	1 x built-in RH	0-100%	0-100%	±2% (10 to 90%Rh)
				±4% (0 to 100%Rh)
GD11	1 x built-in temperature and RH	As GC-10		
	1 x external thermistor temperature	AS GC-12		
GC-12	2 x external thermistor temperature	-40 to 70ºC	0.1ºC (-15 to +40ºC)	±0.2ºC (-15 to +40ºC)
			0.2ºC (-29 to +65ºC)	±0.4ºC (-29 to +65ºC)
			0.3ºC (-36 to +70ºC)	±0.6ºC (-36 to +70ºC)
			0.4ºC (-40 to -36ºC)	±0.8ºC (-40 to -36ºC)
GD-13E	1 x external RH (RHT-10D)	0-100%	0.10%	±2% (10 to 90%Rh)
				±4% (0 to 100%Rh)
	1 x external Temperature (RHT-10D)	-40 to 85ºC	0.1ºC	±0.4ºC (+5 to +40ºC)
				±1.0ºC (-20 to +80ºC)
GD-14E	1 x external RH and temperature (RHT-10D)	As GD-13E		
	2 x external thermistor temperature	As GC-12		
GD-14R	1 x external RH (Rotronic Hygroclip S)	0-100%		At 23ºC ± 1.5%rh
	1 x external temperature (Rotronic Hygroclip S)	-40 to 85ºC		At 23ºC ± 0,3K
	2 x external thermistor temperature	As GC-12		
GS-21/GD-21	1 x external T or K type thermocouple temperature			
GD-21AL	1 x external T or K type thermocouple temperature with built-in audible and visual alarm	-200 to 200ºC	0.1ºC/0.2ºC	±0.3ºC(-50 to +200ºC)
GS-24/GD-24	4 x external T or K type thermocouple temperature			±0.5ºC(-200 to -50ºC)
GD-24H	4 x external K type thermocouple temperature	-200 to 1200ºC	0.5ºC	±2.0ºC
GS-31/GD-31	1 x external type U thermistor temperature			
GS-32/GD-32	2 x external type U thermistor temperature	-50 to 150ºC	0.1ºC (-25 to +100ºC)	±0.2ºC (-25 to +100ºC)
GS-34/GD-34	4 x external type U thermistor temperature		0.2ºC (-40 to +125ºC)	±0.4ºC (-40 to +125ºC)
GS-38/GD-38	8 x external type U thermistor temperature			
GS-42	2 x external voltage or current with sensor supply: 12Vdc @80mA or 5Vdc @50mA	0-100mV	0.025mV	
		0-1V	0.25mV	±0.5mV
		0-10V	2.5mV	±5mV
		0-20mA	~5.4uA	25uA
	Scaling (Engineering Units) available for all ranges	4-20mA	0.05%	0.10%
GS-44	4 x external voltage or current	As GS-42 plus slave output to switch an external sensor supply		
GS-52	2 x 2 or 4 wire PT100 temperature	-100 to 200ºC	0.1ºC	±0.3ºC
GS-52H/GD-52H	2 x 2 or 4 wire PT100 temperature	-0 to 300ºC	0.1ºC	±0.3ºC
GC-60	2 x state indicators	Volt free contact or signal <1V/>2.5V, maximum 5VDC		
GS-61	8 x state indicators	As GC-60		
GC-62	2 x pulse inputs	0 to 10,000 counts, maximum frequency 100Hz		
GD-43E	1 x external voltage or current	As GS-42		
	1 x external type U thermistor temperature	As GS-31		
	1 x external RH and temperature (RHT-10D)	As GD-13E		
GD-43R	1 x external voltage or current	As GS-42		
	1 x external type U thermistor temperature	As GS-31		
	1 x external RH and temperature (Rotronic HygroclipS)	As GD-14R		
GD-47	1 x built-in CO_2 sensor	0-5000ppm	< ± (50ppm + 3 % of measured value.)	
	1 x built in RH and temperature sensor	As GC-10		
GD-84	1 x differential pressure	+/- 250 Pascal	0.1 Pascal	
GL-70	1 x built in RH and temperature sensor	As GC-10		
	1 x built in UV sensor	0-5000mW/M^2 or 0-10000uw/Lumen		
	1 x built in visible light sensor	0-4000 Lux	0.1 Lux	
		0-200 Klux	0.01 Klux	
GD-72	1 x external RH and temperature (RHT-10D)	AS GD-13E		
	1 x external UV sensor and visible light sensor (LS70)	As GL-70		
GD-72L	Specification to follow			

GENII RADIO DATA LOGGING SYSTEMS

Eltek Support

Eltek's Technical help line is there to assist from project conception to completion and beyond. A three year warranty is standard. Visit www.eltekdataloggers.co.uk for full details on our products together with the latest updates, downloads and applications.

Technical Specifications

Common Features	GenII Radio data logging system	Accessories	
UHF* Frequency	434.225MHz (Europe and countries where applicable)	External antenna WBG	Light weight dipole Wall bracket for added security and difficult surfaces
Compliant to	EN 300-220		
Range	200 - >1000 metres dependent upon environment. Contact Eltek for more details.		

*Other frequencies available - please contact Eltek.

Software

Darca Plus

- System set-up
- Data analysis
- Connection to data logger via PC serial port
- Remote connection via modem - land line or GSM
- Export to popular spreadsheets
- Intuitive use and Wizard for first time users
- Real time metering
- Real time graphing
- Graph display options include: 3D, zooming, custom axes, statistics including threshold
- Insert text/comments at points of interest on graph
- "Shed" scheduling utility
- Settings can be password protected
- Transmitter low battery warning and voltage display
- Set up transmitters from Darca
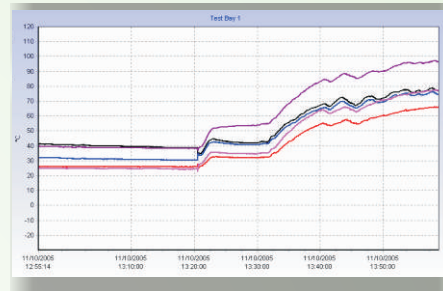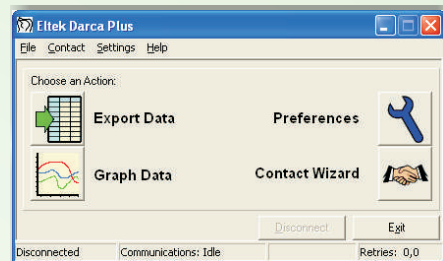
Darca Heritage

Darca Heritage has been designed specifically for conservation monitoring on a user-definable 'site', with sensors being referred to according to their physical location. It provides tools for updating site data automatically and analysing it either graphically or statistically.

- Physical 'Zoning' of site
- Automated data collection
- Data stored in central repository and viewed across a network
- Multi-user system with varying levels of user access control
- Report feature to print and store graphed data for a particular location and time period
- Set safe limits for statistical analysis
- User formulae creation for calculated parameters
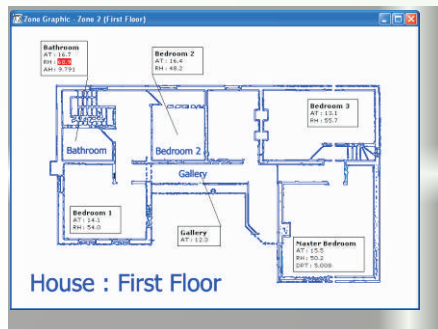
Scan architectural floorplans in and view data on 'Zone Graphic'

Eltek

ISO 9001 REGISTERED FIRM
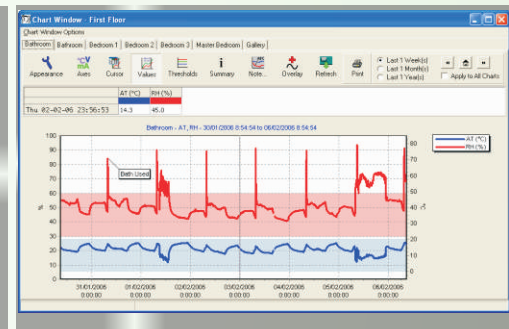
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