GENII RADIO DATA LOGGING SYSTEMS

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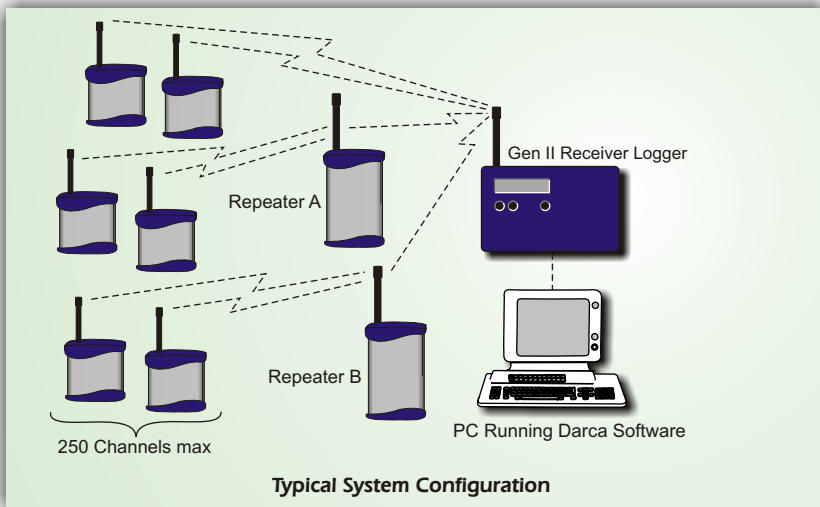
Eltek GenII monitoring systems provide data logging and alarm generation for a very wide range of applications. Systems are already installed in museums, laboratories, storage and warehousing facilities, pharmaceutical, production, and domestic premises - just about any environment where accurate and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

Easy to use customised data loggers

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 crystal controlled transmitter compliant to EN 300-220
· Models with up to 15 channels
· 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
· 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

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 - 1.8Ah
Backup battery life	Typically 24 hours
Memory	247,000 readings expandable to 2,000,000
Clock accuracy	I second/day at 20ºC
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: 115dB
Antenna connector	SMA 50 ohm female
Antenna	Quarter wave standard, lightweight dipole optional

RX250 versions

RX250AL	is the basic version with one alarm providing change-over contacts
RX250ALD	two independent configurable common alarms - each output is a contact closure in alarm.
RX250REL8	8 independent configurable common alarms - each output is a contact closure in alarm
RX250REL16	16 independent and configurable common alarms - each output is a contact closure in alarm
RX250DAC8	8 analogue outputs (0-5VDC) for channels 1 to 8 corresponding to the associated transmitter sensor values.
RX250DAC16	16 analogue outputs (0-5VDC) for channels 1 to 16 corresponding to the associated transmitter sensor values.
SC250	version for use with Darca Secure software

RX250DAC8 and RX250DAC16

RX250DAC8 and RX250DAC16 are versions of the RX250AL receiver logger providing analogue outputs (0-5VDC) for the first 8 or 16 input channels of the RX250AL. This option enables integration of the GenII radio logger system with BMS or Control systems.

- Full functionality of RX250AL, including datalogging and metering features.
- Provides wireless connected sensor outputs for use with, for instance BMS and control systems
- 12 bit resolution for high accuracy
- High quality screw cage terminals for easy connection.
- Transmitter input e.g. -50 to +150ºC presented as 0-5VDC.
- Full battery backup
- 250 channel system capability - with first 8 or 16 channels providing analogue outputs.
- Easy system design and installation
- Suitable for permanent and temporary installations

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 details see table on next page.

Built-in Temperature

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

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, GS-52H, GD-52, GD-52H (2 inputs)

Temperature and humidity
GC-13E, GD-13E (1 input)
GD-14E, GD-14R (Plus 2 basic thermistor inputs)

Voltage and Current

Inputs for voltage or current
GS-42 (2 inputs)
GS-44 (4 inputs)
sensor supply: 12V / 5V @ 50mA
external sensor supply switching
(GS-44 only)

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)

Light

Built in ultraviolet and visible light with temperature and humidity
GL-70
External ultraviolet and visible light with temperature and humidity
GS-71, GS-72

GENII TELEMETRY TRANSMITTERS

Common Specifications

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

WBG Tamper resistant wall bracket available.

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 the GC-13E, GD-13E, GD-14E, GD-14R and GDEx16 transmitter.

Dimensions: L 66mm x Dia. 10mm
weight: 18g (probe only)

Temperature:
Range: -40 to +85°C
Resolution: 0.1°C
Accuracy: ±0.4°C (+5 to +40°C)
±1.0°C (-20 to +80°C)

Relative Humidity:
Range: 0 to 100%
Resolution: 0.1%
Accuracy: ±2% (10 to 90%Rh)
±4% (0 to 100%Rh)

Models	Inputs	Range	Resolution	Accuracy	Case Height
GC-05/GD-05	1 x built-in temperature	-30 to 65ºC	0.1ºC	±0.5ºC (-10 to +55ºC)	85 mm
GC-10/GD-10	1 x built-in temperature	-30 to 65ºC	0.1ºC	±0.4ºC (+5 to +40ºC) ±1.0ºC (-20 to +80ºC)	85 mm
	1 x built-in RH	0-100%	0.1%	±2% (10 to 90%Rh) ±4% (0 to 100%Rh)	
GD-11	1 x built-in temperature and RH	As GC-10			85 mm
	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 (-29 to +65ºC) 0.3ºC (-36 to +70ºC) 0.4ºC (-40 to -36ºC)	±0.2ºC (-15 to +40ºC) ±0.4ºC (-29 to +65ºC) ±0.6ºC (-36 to +70ºC) ±0.8ºC (-40 to -36ºC)	85 mm
GC-13E/GD-13E	1 x external RH (RHT10-D)	0-100%	0.1%	±2% (10 to 90%Rh) ±4% (0 to 100%Rh)	85 mm
	1 x external temperature (RHT10-D)	-40 to +85ºC	0.1ºC	±0.4ºC (+5 to +40ºC) ±1.0ºC (-20 to +80ºC)	
GD-14E	1 x external RH (RHT10-D)	As GS-13E			85 mm
	1 x external temperature (RHT10-D)	As GS-13E			
	2 x external thermistor temperature	As GC-12			
GD-14R	1 x external RH (Rotronic Hygroclip S3)	0-100%		At 23ºC ± 1.5%rh	85 mm
	1 x temperature (Rotronic Hygroclip S3)	-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	-200 to 200ºC	0.1ºC/0.2ºC	±0.3ºC	115 mm
GD-21AL	1 x external T or K type thermocouple temperature with built–in audible and visual alarm.	As GS-21			115 mm
GS-24/GD-24	4 x external T or K type thermocouple temperature	As GS-21			115 mm
GD-24H	4 x external K type thermocouple temperature	-200 to 1200ºC	0.5ºC	±2.0ºC	115 mm
GS-31/GD-31	1 x external type U thermistor temperature	-50 to 150ºC	0.1ºC (-25 to +100ºC) 0.2ºC (-40 to +125ºC)	±0.2ºC (-25 to +100ºC) ±0.4ºC (-40 to +125ºC)	115 mm
GS-32/GD-32	2 x external type U thermistor temperature	As GS-31			115 mm
GS-34/GD-34	4 x external type U thermistor temperature	As GS-31			115 mm
GS-38/GD-38	8 x external type U thermistor temperature	As GS-31			115 mm
GS-42	2 x external voltage or current with sensor supply sensor supply: 12VDC / 5VDC 50mA	0-1V DC 0-10V DC 0-20mA DC 4-20mA	0.25mV 2.5mV ~5.4uA 0.05%	±0.5mV ±5mV 25uA 0.1%	115 mm
GS-44	4 x external voltage or current	As GS-42 plus slave output for use with external sensor supply			115 mm
GS-52/GD-52	2 x 2 or 4 wire Pt100 temperature	-100 to 200ºC	0.1ºC	±0.3ºC	115 mm
GS-52H/GD-52H	2 x 2 or 4 wire Pt100 temperature	0 to 300ºC	0.1ºC	±0.3ºC	115 mm
GC-60	2 x state indications	Volt free contacts or signal <1V / >2.5, max 5V			85 mm
GS-61	8 x state indications	As GC-60			115 mm
GC-62	2 x pulse inputs	0 to 10,000 counts, max. frequency 100Hz			115 mm
GL70	1 x built-in temperature and RH	As GC-10			135 mm
	1 x visible light	0-4,000 Lux 0-200 KLux	0.1Lux 0.01KLux		
	1 x UV light	0-5000 mW/M² 0-10,000 µW/Lumen			
GS71	1 x external visible and UV light	as GL70			115 mm
GS72	1 x external visible and UV light	as GL70			115 mm
	1 x external temperature and RH (RHT10D)	as GC13E			

Eltek can supply other ranges or input types. Please contact Eltek or your distributor for more details.

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

Downloading And Remote Control Application

- 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
- Engineering units conversion on graphs
- Customise and save graphs
- Insert text/comments at points of interest on graph
- Graphing can be paged or scrolled
- "Shed" scheduling utility
- Settings can be password protected
- Transmitter low battery warning and voltage display
- Set up transmitters from Darca
- SMS messaging using GSM modem
- Ethernet (LAN/WAN) connectivity using external adaptor
- Program transmitter from PC or Receiver Logger
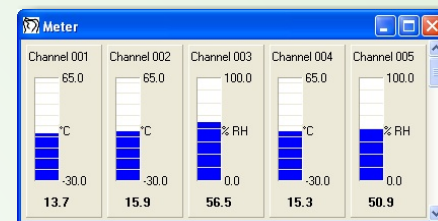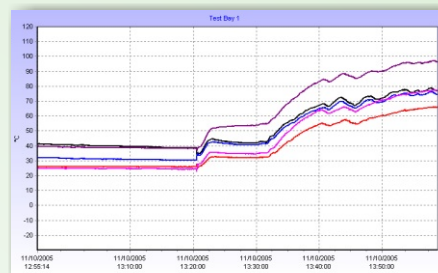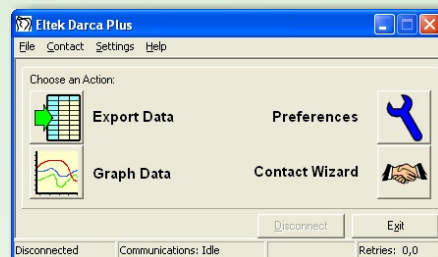
Darca Secure

FDA 21 CFR Part 11

Darca Secure is a version of the Darca Plus software designed in line with the recommendations as prescribed in FDA 21 CFR Part 11. It is primarily for the Pharmaceutical market and requires a special Data Logger type SC250.

- Tamper proof and secure data
- Audit trails
- Administrator and user hierarchy

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.
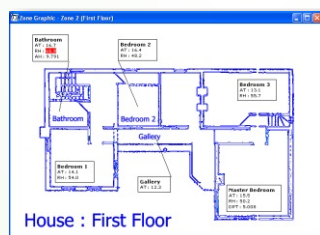
- Physical 'Zoning' of site
- User formulae creation
- Multi-level user access control
- Template creation
- Report generation
- Download Scheduling

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 at 500mA
	(Type MP12U, 97-263V AC input)
Batteries:	1.8AH 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

INTRINSICALLY SAFE TRANSMITTERS - GDEx15 & GDEx16

- 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
- External inputs: GDEx15 - temperature
                                      GDEx16 - RH & temperature