

iRIS 150 Compact Multi-Parameter Datalogger



The iRIS 150 has been designed and constructed for portable, outdoor use. It is distinguished by being water-proof, self-powered and compact, yet still featuring an LCD display and keypad.

It can be connected to a wide variety of sensors, and features two analogue (0-5V, 0-20mA) inputs, two digital inputs, limited SDI-12 serial instrument support and a single digital output for alarm or control purposes.

Communication with the iRIS 150 is via its RS232 port. This port can be connected directly to a PC / laptop or else to a telemetry device such as a modem or the iQuest iCE³ for IP based communication.

Optional USB slave communication is also supported via a miniature USB slave connector. The iRIS is supplied with this connector protected behind the label. NOTE: The front panel must be voided to use the USB port.

When not in telemetered mode, the iRIS 150 serves out its own menus via a terminal session, allowing configuration to be performed with any standard terminal software such as HyperTerminal®.



GENERAL DESCRIPTION

LCD / Keypad User Interface

The iRIS 150 has a small graphics LCD with 4 text lines of 19 characters, plus a small set of pictorial icons. This display, in conjunction with the 4 button keypad provides a simple yet powerful method of viewing general and sensor information as well as running totals etc.

Power Supply. The iRIS 150 is equipped with an internal AA size, 3.6V lithium backup battery with a nominal life expectancy of up to 2 years depending on operating modes. This battery is able to be changed in the field by the user. Normally, the unit will operate from an external 5-15V DC supply. When an external supply is connected (or the USB interface is active) the internal battery is disconnected. To be able to use the SDI-12 communication port, the external supply must be provided.

I/O Connection. An internal 12 way miniature (3.5mm spacing) screw terminal block is provided to terminate the I/O and signal cables. Maximum wire size is 0.75mm². Two NG12 compression glands give cable access.

LED Indicators. Five status indicator LEDs are provided on the iRIS 150 to the right of the LCD window. A blue status LED provides a visual indication of program operation and scan status. Three red LED's provide feedback for the digital I/O and lastly, a single red LED provides indication of communication activity (either RS232/USB or SDI-12). NOTE: The I/O and comms LEDs only operate when external power or USB is connected

Physical Size. The unit fits comfortably in the palm of a hand and is small enough to fit inside the housing of some instruments such as rain gauges.

Enclosure. The iRIS 150 is encapsulated in a die-cast aluminum case that is powder coated. This provides a cost-effective, lightweight, resilient and waterproof casing whilst maintaining a compact footprint and physical size. Mounting is done through two hollow pillars that are outside the sealing zone of the enclosure.

Logging Memory. Non-volatile 8MB flash storage of over 1,000,000 time/date stamped data points. The storage mode is a circular buffer (i.e. the oldest data is overwritten when the buffer is full).

RS232 / USB Interface. One DTE configured DB9 male RS232 communication port is provided for interfacing with laptops or other external equipment. A small plastic cap provides protection when the port is not in use. The RS232 port operates in an auto-switching mode between terminal and binary modes at a default. A "telemetry" mode is provided where the port will revert to a dedicated binary mode at one of two speeds (1200bps or 9600bps) for telemetry applications.

Optional USB slave communication is also supported but requires the front label to be voided to gain access. The RS232 and USB are different physical interfaces to the same communication port. If the USB is active, the RS232 port is disabled.

PHYSICAL I/O SPECIFICATION

Digital Inputs

Two digital inputs operating with either a clean contact activation to 0V or a 5 to 30V DC signal. Maximum input frequency is 5kHz in frequency mode. Input debounce timing is user selectable by jumper links.

Digital Output

One digital output configured as open-drain pull-down sinking to 0V (max 300mA @ 30V). This can be used to switch a small external load such as a lamp or relay.

Analogue Inputs

Two 12-bit uni-polar analogue inputs are included. Range 0-5000mV. Input impedance approx 100kΩ. Referenced to 0V common. Internal 250R resistors are provided for current (0-20mA or 4-20mA) inputs. The mode is selectable by the user via jumper links.

SDI-12 Interface

The integral SDI-12 interface fully complies with the SDI-12 electrical standard. The firmware support level is to SDI-12 V1.2. NOTE: The SDI-12 interface is only operational when an external supply is connected.

BASIC SPECIFICATIONS

- **SIZE:** 115mm x 79mm x 32mm (4.5in x 3.1in x 1.3in) (W x H x D)
- **MASS:** 280g (9.9oz) including lithium backup battery.
- **POWER SUPPLY:** User replaceable AA size 3.6V, 2400 mA/hr lithium battery. Optional external supply voltage of 5-15VDC can be connected which will disconnect the internal battery. Over-voltage and reverse polarity protected with a self-resetting fuse is installed.
- **I/O ISOLATION:** None
- **COMMUNICATIONS:**
 - Non-isolated DTE RS232 at 1200 - 115200 bps (default 38400 bps)
 - SDI-12 instrumentation port.
- **DATA STORAGE:** 2MB flash memory (262,144 samples). A typical site with 2 parameters logged every 15 minutes plus battery voltage logged hourly will give 3 years of storage before data overwrite occurs.
- **ENVIRONMENTAL:**
 - Enclosure:** IP65 unless the USB port is opened.
 - Operating:** -10°C - +70°C.
 - Storage:** -20°C - +85°C

iQuest (NZ) Ltd reserves the right to alter the specification without notice.



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