Compact: iRIS 150FX
Multi-Parameter Datalogger

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The Reliable iRIS 150FX Datalogger

The iRIS 150FX is a small, compact datalogger 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, SDI-12 serial instrument support and a single digital output for alarm or control purposes.

Primary communication is RS232. This can be connected directly to a PC / laptop or else to a telemetry device such as the iQuest iCE3 FX for IP based communication or a radio or dial-up modem.

Optional USB slave communication is available via a miniature USB slave connector. The iRIS 150FX is shipped with this connector protected behind the label. NOTE: The front panel must be voided to use the USB port.

The iRIS 150FX is configured and managed using the iQuest software products, iLink 2012 or HydroTelTM. It also supports remote firmware and software upgrades.

Models
To cater to a diverse market, two models are available:

iRIS 150FXC (pictured). Has an external 14 way terminal block fitted to the base of the enclosure.

iRIS 150FXG has two NG12 compression glands providing cable access to a small 12 way I/O connector inside the unit.

Both variants are supplied with an AA-size backup only lithium battery. Alternatively a D-size lithium battery can be supplied at extra cost instead of the AA for standalone use (this feature is I/O and application dependent).

General Description
LCD / Keypad User Interface
The iRIS 150FX 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 method of viewing general and sensor information as well as running totals etc.

Enclosure
The iRIS 150FX is housed 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 outside the sealing zone of the enclosure.

RS232 / USB Interface
One DTE configured DB9 male RS232 communication port is provided for interfacing with laptops or other external equipment. A rubber 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 native iQuest protocol at a user-defined speed for telemetry applications.

A USB slave port is also fitted, but requires the front label to be voided with a scalpel to gain access. The RS232 and USB are different physical interfaces to the same communication port. If the USB port is active, the RS232 port is automatically disabled.

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Power Supply

Normally, the unit operates from an external 5-15V DC supply. When the external supply is connected (or the USB interface is active) the internal battery is disconnected. To be able to use the SDI-12 instrumentation port, the external supply must be connected.

The iRIS 150FX is fitted with an internal 3.6V lithium backup battery. The size of this depends on the model. Both battery types (AA or D) may be changed in the field by the user. Replacements are available from iQuest.

LED Indicators

Five status indicator LEDs are provided on the iRIS 150FX to the right of the LCD window. A blue status LED provides a visual indication of program operation and scan status. Three red LEDs 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.

Logging Memory

Non-volatile 8MB flash storage of over 1 million time/date stamped data points. The storage mode is a circular buffer (i.e. the oldest data is overwritten when the buffer is full). NOTE: Earlier units (prior to serial number AG3-0643) have 2MB of data storage.

Physical I/O
Analogue Inputs

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

Digital Inputs

Two non-isolated digital inputs operating with either 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. On the iRIS 150FXC version this also controls a switched supply voltage output via an inbuilt transistor switch.

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 Specification

- **Size:** 115mm x 65mm x 56mm (4.5in x 2.6in x 2.2in) (W x H x D).
- **Mass:**
  iRIS 150FXC (connector) 420g (14.8oz).
  iRIS 150FXG (glands) 410g (14.5oz).

- **Power Supply:** External dc supply: Range 5-15V. Reverse polarity/over voltage protected.
  Internal backup lithium battery: Standard AAsize 3.6V, 2400 mA/hr or alternatively a Dsize 19000mA/hr for standalone use.
- **Communications:**
  - Non-isolated DTE RS232 at 1200 - 115200 bps (default 115200 bps)
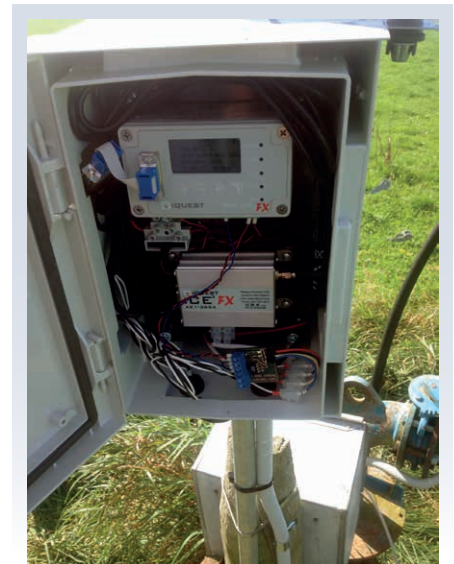 - SDI-12 instrumentation port.
- **Data Storage:** 8MB flash memory (top 64KB is reserved for firmware/software upgrade files). Total storage is 1,040,384 samples.
- **Environmental:**
  Enclosure: IP65 unless the USB port is opened.
  Operating: -10°C - +70°C.
  Storage: -20°C - +85°C.

iRIS 150FX mounted in an iBox custom enclosure

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