iRIS 350 Wireless (IP Capable) Datalogger

The iRIS 350 has been designed and constructed for use in harsh outdoor and industrial environments. It is compact, cost effective and easily configured, with support for a wide range of instrumentation: There are four physical communication interfaces:

- RS232
- Optional wireless modem. GSM/GPRS or HSDPA (3G).
- SDI-12 serial instrumentation
- Serial camera

Data may be accessed / downloaded in several ways:

- Direct RS232 connection e.g. laptop or data radio
- IP based packet transfer
- CSD dial-up data link
- SMS text back (immediate sensor values only)
- Voice annunciation (iRIS 350V only)

GENERAL DESCRIPTION

LCD / Keypad User Interface
The iRIS 350 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 default power supply for the iRIS 350 is an internal and/or external 12V rechargeable SLA battery. Two high efficiency switch-mode regulators are used to charge the battery and supply all other onboard requirements. Both the battery voltage and charger input voltage are monitored internally and are available to be logged, displayed or alarmed.

Temperature measurement
The iRIS 350 (PCB) temperature is also monitored. This can also be read and logged as a scaled -10.0˚C to +70.0˚C (14 ºF to +158 ºF) range.

Real Time Clock / Calendar.
This is backed up by replaceable an on-board lithium battery to prevent loss of date/time if the main battery or supply is disconnected. The clock is software trimmable to optimise accuracy.

Processor
The iRIS 350 processing core uses a high performance, multi-speed (max 100MHz) micro-controller. The CPU speed is varied to minimise power consumption, but when needed, handle intensive computing tasks.

Memory
A total of 16MB of flash memory is provided. Of this, 8MB is allocated for logged data and/or image storage. On the iRIS 350V model, the second 8MB is used for audio file storage for up to two languages.

LED Indicators
A tri-colour LED is provided to indicate iRIS 350 general status. A range of conditions may be determined through this innovative display. Eight other LED indicators allow diagnostics of I/O status and communications.

I/O Connector
Pluggable screw terminals fitted to the PCB provide all the connection points for the iRIS 350 I/O and power supply. A DB9M connector on the front of the enclosure is used for the RS232 communications port.

Wireless Modem Antenna
Connects by a standard SMA RF connector on the lower front of the case.

Enclosure
The case is constructed from die-cast aluminium alloy with a hard grey paint finished. A neoprene gasket provides the seal to achieve the IP66 rating. Cable entry is through a set of four compression glands.

RS232 Port
One DTE configured RS232 communication port is provided for interfacing with laptops or suitably equipped serial data radios or external equipment.

Wireless (GSM/GPRS or CDMA/CDMA-1X) Modem
The iRIS 350 includes a high performance wireless modem. Depending on the market, this may be a GSM, CDMA-1X or HSDPA (Next G®) device. This modem enables high-speed data transfer virtually on demand. Extensive software options give flexibility and minimise data traffic.

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.

4 x Digital I/O Channels
Four digital I/O channels are provided. Each channel may be configured as either an input or an output.

The **digital input** mode operates with either a clean-contact activation to 0V or else a dc input signal (min 3.6V, max 12V) referenced to 0V (GND).
The **digital output** modes may be selected for either a switched 12V output, or open-drain sinking to 0V. Both modes are limited to 100mA maximum.

4 x Analogue Inputs
The four analogue inputs are uni-polar, 16-bit resolution. The variable input range is up to 0-5V, with protection to 30V d.c. Current (e.g. 4-20mA) inputs are also accepted using internal sink resistors selectable by jumper links.

1 x Analogue (Excitation) Output
A variable (selectable as 0-5V or 4-20mA) excitation output is provided to energise passive instruments such as potentiometer type wind vanes or alternatively, send a derived analogue signal to other equipment.

BASIC SPECIFICATION

- **SIZE:** 160mm x 130mm x 70mm (6.29in x 5.11in x 2.75in) (WxHxD)
- **MASS:** 1300g (2.86lb) including internal SLA battery.
- **POWER SUPPLY:** Internal and/or external 12V SLA battery. Lowest power mode current ~ 3mA. An integral charger accepts a 15-30Vdc input. A solar panel can be directly connected to the charger input. Over-voltage and reverse polarity protected with self-resetting fuse.
- **DATA STORAGE:** 8MB flash memory (1,084,576 samples). A typical site with 2 parameters logged every 15 minutes plus battery voltage logged hourly will give 12 years of storage before data overwrite occurs.
- **COMMUNICATIONS:**
  - Non-isolated DTE RS232 at 1200 - 115200 bps (default 38400 bps)
  - Optional multi-band GSM/GPRS or HSDPA (3G) modem.
  - SDI-12 instrumentation port.
  - Serial VGA camera proprietary connection (3.3V CMOS levels)
- **ENVIRONMENTAL:**
  Enclosure: IP66
  Operating: -10ºC to +70ºC (14 ºF to +158 ºF).
  Storage: -10ºC to +85ºC (14 ºF to +185 ºF)

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