
Irrigation Terminal Unit Quick Start Guide



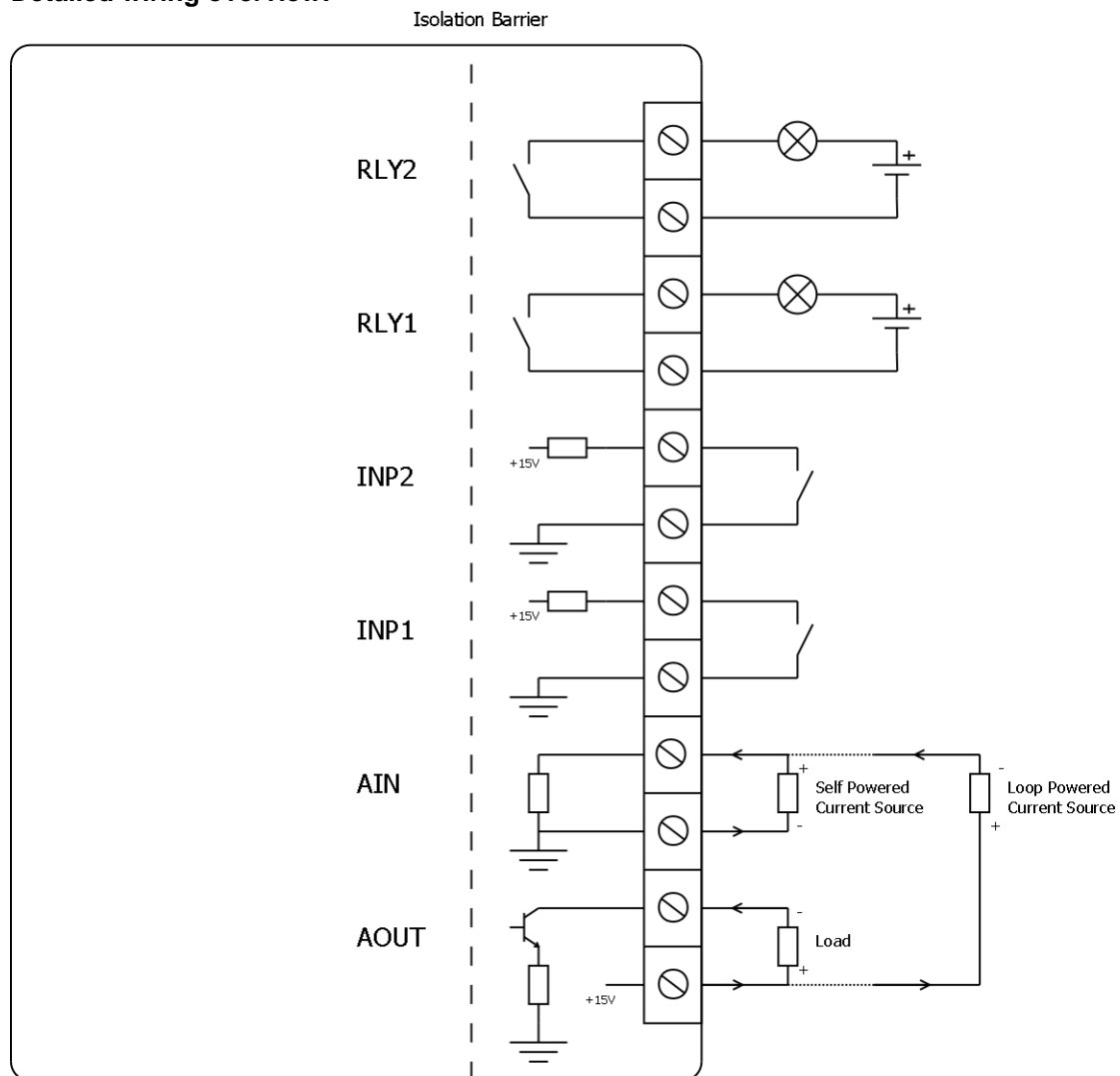
WATER-INSIGHT

Irrigation Terminal Unit Overview

The Irrigation Terminal Unit (ITU) module incorporates high speed digital radios which have a range of up to two kilometres. The modules use the integrated low power 900MHz digital radios to communicate their input state to the INC.

Each ITU module has two switch inputs, two relay outputs, one analogue input and one analogue output.

Detailed wiring overview:



The analogue I/O can be configured for current loop or voltage operation. The factory default configuration is current loop operation. The analogue I/O operates over a range of 0-20mA, which makes the DIGITAL & ANALOGUE modules compatible with the industry standard 4-20mA range. It also allows detection of an open circuit failure.

The Analogue I/O has 12 bit resolution, a stated accuracy of +/-1%FSD, and is sampled at a rate of once per second.

Please note the polarity of the analogue I/O connections.


Power Supply Notes

Power Supply & Current Consumption

The D/A operates from a nominal 12 Volt DC power supply. Current consumption is ~66mA in standby (no output relays active) to 83/100mA (one or two relays active).

The power connector is a 2.1mm DC Socket, centre pin positive. The supply voltage should be clean, continuous and transient free with an output of 12 Volts +/- 1.5 Volt DC. The D/A incorporates reverse and overvoltage protection.

The absolute maximum supply voltage is 13.8 V DC and any solar/battery design needs to take this into account.

 **Warning – Do NOT use Switch Mode Power Supplies (SMPS) with this product. The DC power supply used for this product MUST have a grounded negative or be a “linear” transformer based plug pack. The reason is that the aerial, programming port and external connections can provide exposed earth points and the SMPS can impose an AC voltage on the DC ground, which can lead to damage. Suitable cost effective plug packs are available from Water-Insight P/N PD5412, PD5413 & PD5414.**

Internal Fuse

The D/A module circuitry is protected by a 20mm x 5mm 500mA fast blow fuse. This is located on the internal circuit board. To access the fuse, remove the top cover by prizing it off its retaining dimples. Only replace the fuse with an identical type, do not use alternatives. This fuse will blow if the power supply maximum voltage is exceeded.

Over Voltage Protection


The D/A module is over voltage protected by a 13 volt Zener Diode ‘crow bar’ that will conduct and blow the internal fuse for voltages >14 volts. The D/A will tolerate 13.8 volts, but will begin to draw excessive current and blow the fuse at input voltages >14.6V.

 **Note – Solar Supplies and design considerations**
Before using any D/A module in a solar powered system please check our “Solar Application Note” on our website. Explicit consideration must be given to the maximum voltage and voltage regulation to prevent damage.

Installation and Operation Notes


Output Relays

The output relays (Labelled RLY1 and RLY2) are normally open contacts that are rated at maximum of 2 Amps. The relays are internally protected by solid state snubbers for operating with inductive loads.

 **Warning – Do not directly connect to 220V AC voltage. The New Zealand and Australian wiring regulations require that any wiring in excess of 32 volts must be carried out, or be certified by a registered electrician. Consult your local electrical installer for further guidance.**

Switched Inputs


The inputs (Labelled INP1 and INP2) are electrically isolated, normally open inputs. They are connected to suitable mechanical switches, contacts and other closure devices. An input is active or ON when the input switch is closed and inactive or OFF when the input switch is open.

 **Warning – Only mechanical switches or mechanical closure devices should be connected to the inputs. No external voltage or other electrical source is to be connected to the inputs.**

Antenna

The D/A is a low power device that is designed specifically for operation in New Zealand and Australia. Each D/A is supplied with a stub antenna that will provide an operating range of 50 to 350 meters, dependent upon terrain and obstacles such as trees and buildings. All radio systems work most reliably when the path between the radios is clear "line of sight". This needs to be considered when planning longer range systems.


Optional higher gain, long range antennas are available. Please contact your equipment supplier for details and advice.

 **Warning – Do not operate the D/A without an antenna attached. Do not substitute antennas; use only those antennas recommended by your equipment supplier. Failing to comply with these requirements can damage the D/A.**

Never operate the devices in violation of RSM conditions. AS/NZS 4268:2008 specifies a maximum EIRP of 1 watt.

Mounting

The D/A should be mounted onto a flat surface using the Qty 4x M4 fixing holes at ~102mm x 50mm centres. Where the D/A is to be operated outside or in other adverse site conditions, then, the D/A should be housed in an appropriate plastic enclosure.

 **Note – If the D/A is to be enclosed in a metal cabinet then an optional external antenna will be needed. Please contact your equipment supplier for alternative antenna details and advice.**

Adjustments & Settings

There are no user settings or adjustments required.

Specifications may be subject to change

