MultiSmart Configurator

Configurator User Guide

This Manual is the support documentation for Configurator for the MultiTrode MultiSmart Pump Controller and RTU.

Revision 02

14 April 2011

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1 Introduction

1.1 About this Manual

This manual provides a basic introduction to the MultiSmart Configurator. The first section describes the conventions and basic requirements for the Configurator. The second section offers a brief overview and guide on how to use the application. And the third section provides a project specific guide.

1.2 System Requirements

Windows

- 1.8GHz or faster processor
- Microsoft® Windows® XP with Service Pack 2 (Service Pack 3 recommended) or Windows Vista®
- Home Premium, Business, Ultimate, or Enterprise with Service Pack 1 (certified for 32-bit
- Windows XP and 32-bit and 64-bit Windows Vista)
- 1GB of RAM (2GB recommended)
- 70MB of available hard-disk space for installation

1.3 Glossary & Symbols

Activation Level	The point at which a pump or alarm is switched On.
Alternate Mode	The pump controller automatically switches the lead (duty) pump each cycle.
Deactivation Level	The point at which a pump or alarm is switched Off.
Decommissioned Pump	A pump that has been removed from duty or an installation, e.g. for maintenance purposes.
Duty (Lead) Pump	The main pump or the first pump to start within a pumping cycle.
Empty (Discharge) Mode	When the pump controller is set to empty a tank or pit.
Fill (Charge) Mode	When the pump controller is set to fill a tank or pit.
Fixed Sequence	Pump 1 or pump 2 is fixed as the lead (duty) pump.
InterPump Start Delay	The delay between any two pumps starting.
InterPump Stop Delay	The delay between any two pumps stopping.
Probe	Multitrode manufactures a range of conductive level sensors. They have many advantages over traditional devices such as ball floats. Advantages include: resistance to fatty deposit build-up, tangle-free and an adjustable sensitivity to liquid to prevent false readings.
Standby (Lag) Pump	The secondary pump or the next pump to start within a pumping cycle.
ISaGRAF	ISaGRAF is a control software environment which supports all of the internationally recognised IEC 61131-3 control languages and offers a combination of highly portable and robust control engine.

Ω	Resistance Value (Ohm)
EMC	Electromagnetic Compatibility

Hz	Frequency (Hertz)
LED	Light Emitting Diode
MTU	Master Terminal Unit
N/O	Normally Open
N/C	Normally Closed
RTU	Remote Telemetry Unit
VAC	Alternating Current Voltage
VDC	Direct Current Voltage

2 Configurator Basics

This chapter provides an overview of the Configurator and describes how to use it. In the coming section, the manual will cover how to use the Configurator in order to modify MultiSmart settings. It will not be describing functionality of the MultiSmart modules or suitable values for these fields. To learn more about functionality of the configurable modules please refer to the MultiSmart operational and installation manual.

2.1 Overview

Configurator gives the user a less time consuming, simplified method to change MultiSmart configurations. At the same time, it also gives an overview of what is currently set in a MultiSmart configuration.

2.2 Installation

Configurator can be downloaded from the MultiTrode webside.

www.multitrode.com

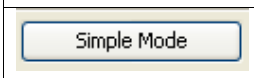
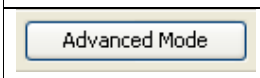
Double Click on the downloaded file and follow the instructions to install the program.

2.3 Starting the Configurator

To start the configurator go to Start Menu ->Multitrode->Configurator -> Configurator.

2.4 Configurator ToolBar

	Import and Export Bulk Configuration
	Retrieve Configuration from the Unit
	Delete
	Save All Files
	Cut
	Copy
	Paste
	Undo
	Redo

	Back Up configuration of Directory
	Compare files with the Unit configuration
	Retrieve Configuration From the Unit
	Edit Connection Settings
	Send Configuration to the Unit
	Simple Mode with Basic Configuration edits
	Advanced Mode with All Advanced Screen edits

2.5 Retrieving Configuration Settings

Configuration data belonging to a MultiSmart can be retrieved through the Configurator.

Firstly power up the MultiSmart. Make sure that the MultiSmart has an IP address and it is connected to the same network that the Configurator installed PC is in.

Go to file menu and click "*retrieve configuration from unit wizard*".

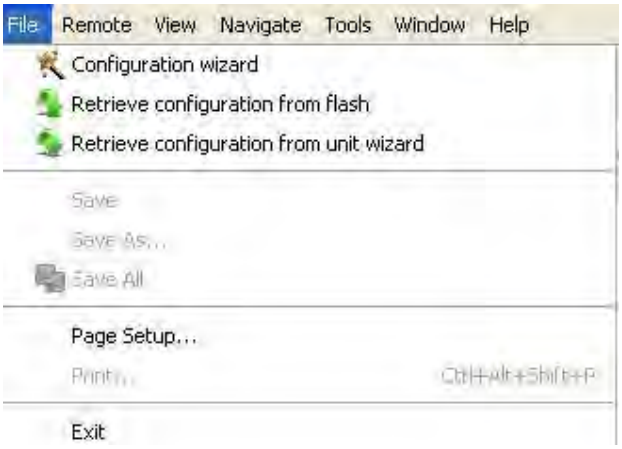


Figure 1 – File Menu

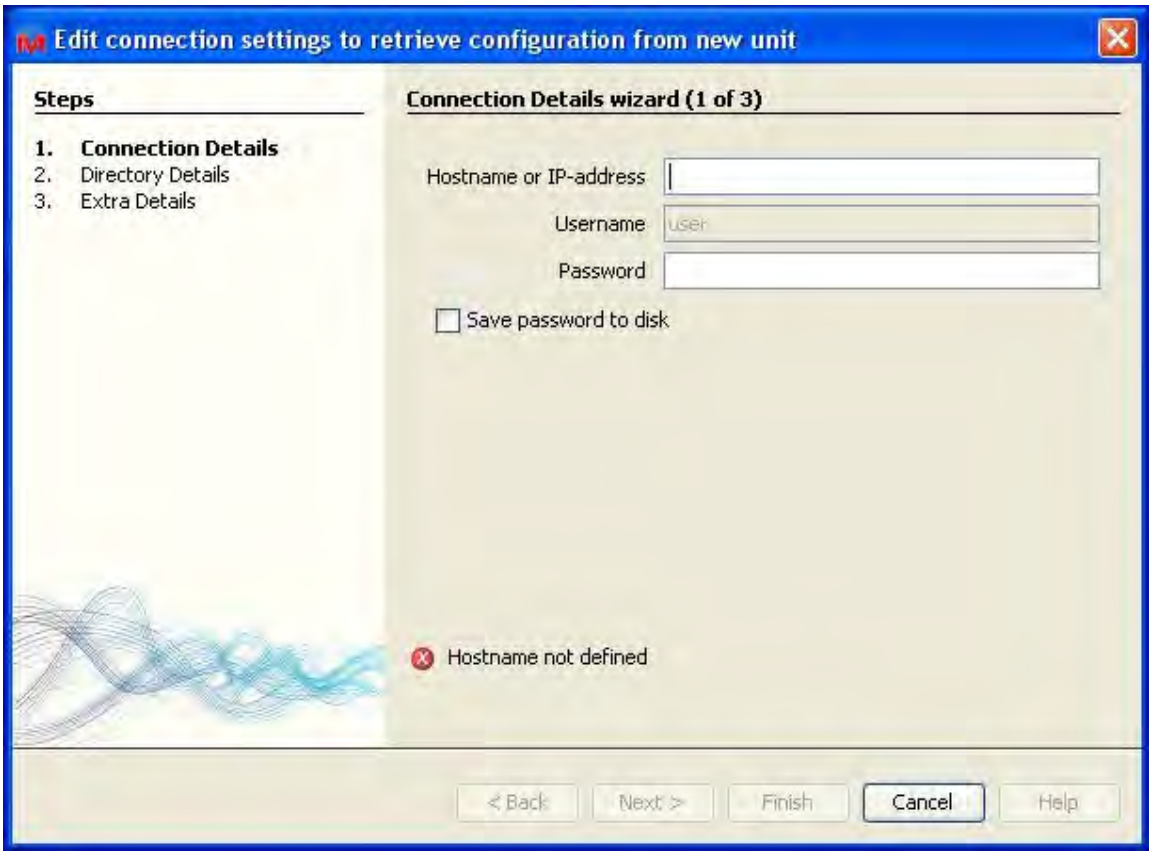


Figure 2 – Retrieve Configuration 1

"*Hostname or IP-address*" is the MultiSmart IP address and Password is the password for the username "*user*". By checking the tickbox called "*Save password to disk*" will remember the password for future use.

If the password is lost or not known then please contact Engineering Services at MultiTrode.

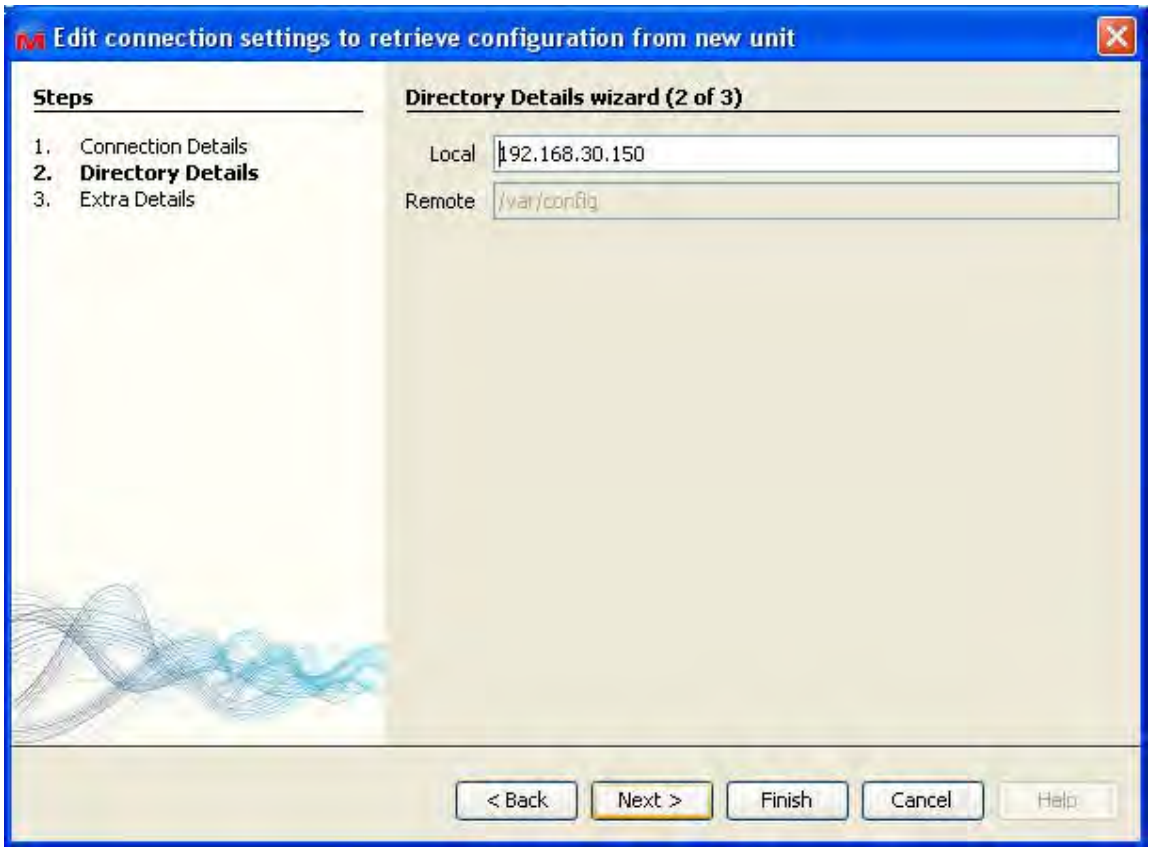


Figure 3 – Retrieve Configuration 2

In figure 3 "*Local*" is the Directory Name for the local copy

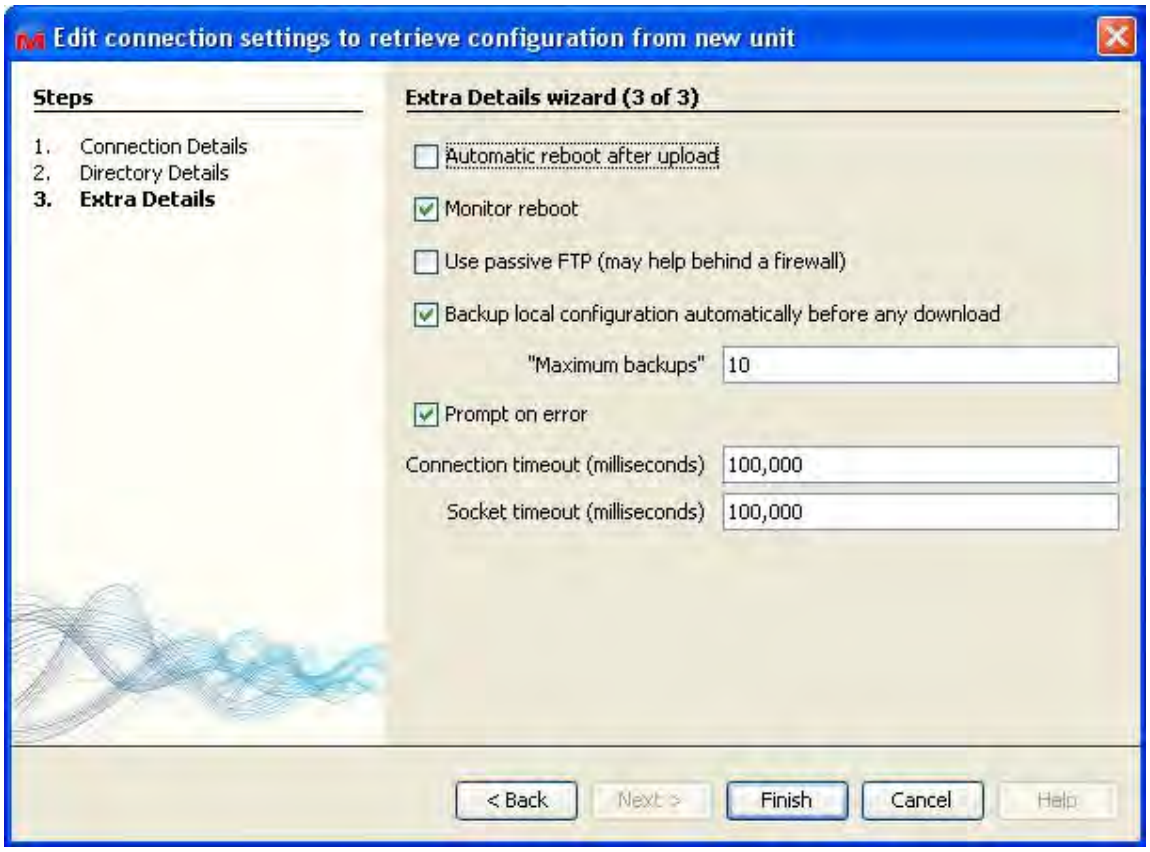


Figure 4 – Retrieve Configuration 3

2.6 Uploading a Configuration Settings

Once all configuration changes are done, perform the following to restore it on to the MultiSmart.

From the tool bar select "*Remote" tab and click "send configuration to x.x.x.x*". Then follow the screens. (x.x.x.x is the uploaded ip address of the unit.)

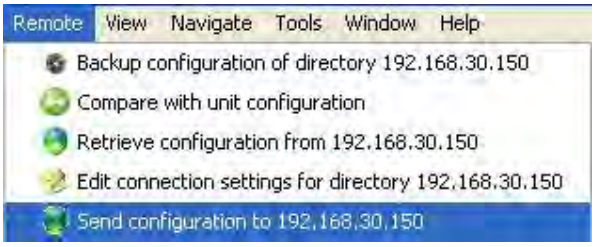


Figure 5 – Remote Menu

To upload to a different unit click the "*Edit connection settings for …"* under the "*Remote*" tab

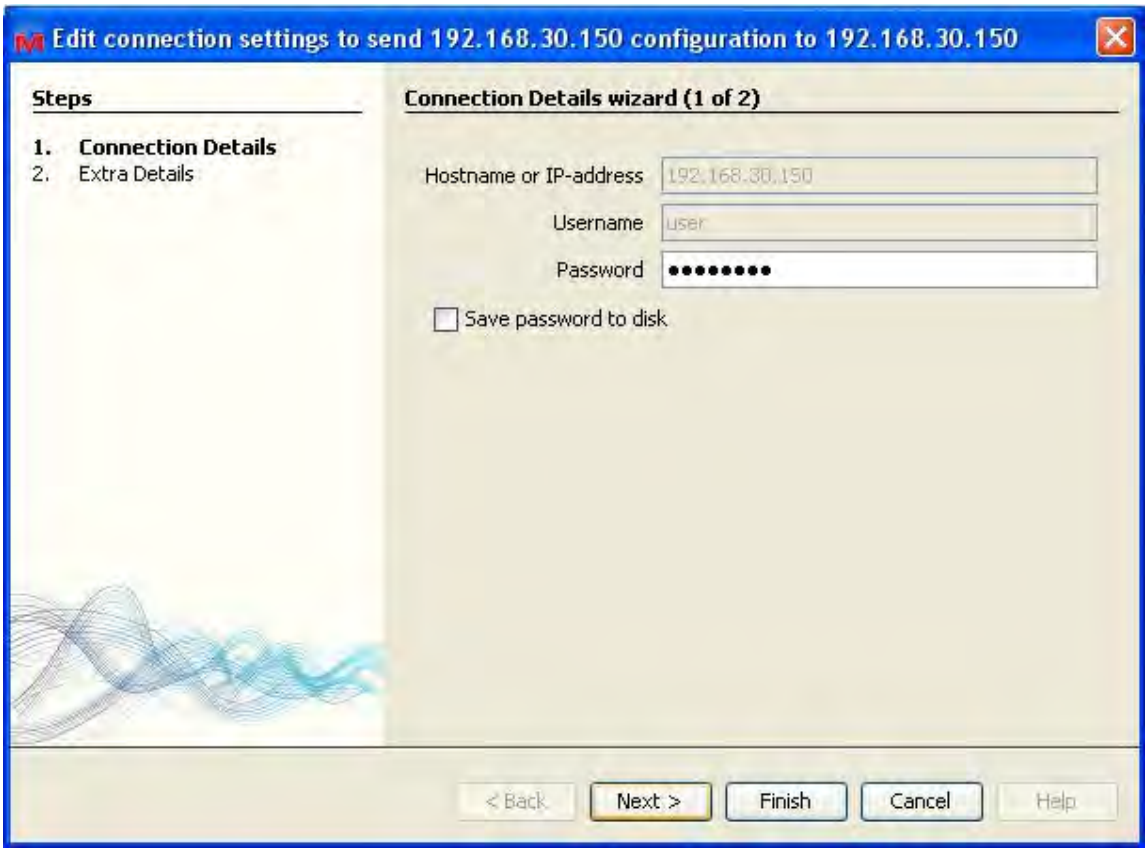


Figure 6 – Upload Configuration 1

"*Hostname or IP-address*" is the Multismart IP address and Password is the password for the username "*user*".

If the password is lost or not known then please contact Engineering Services Team at MultiTrode.

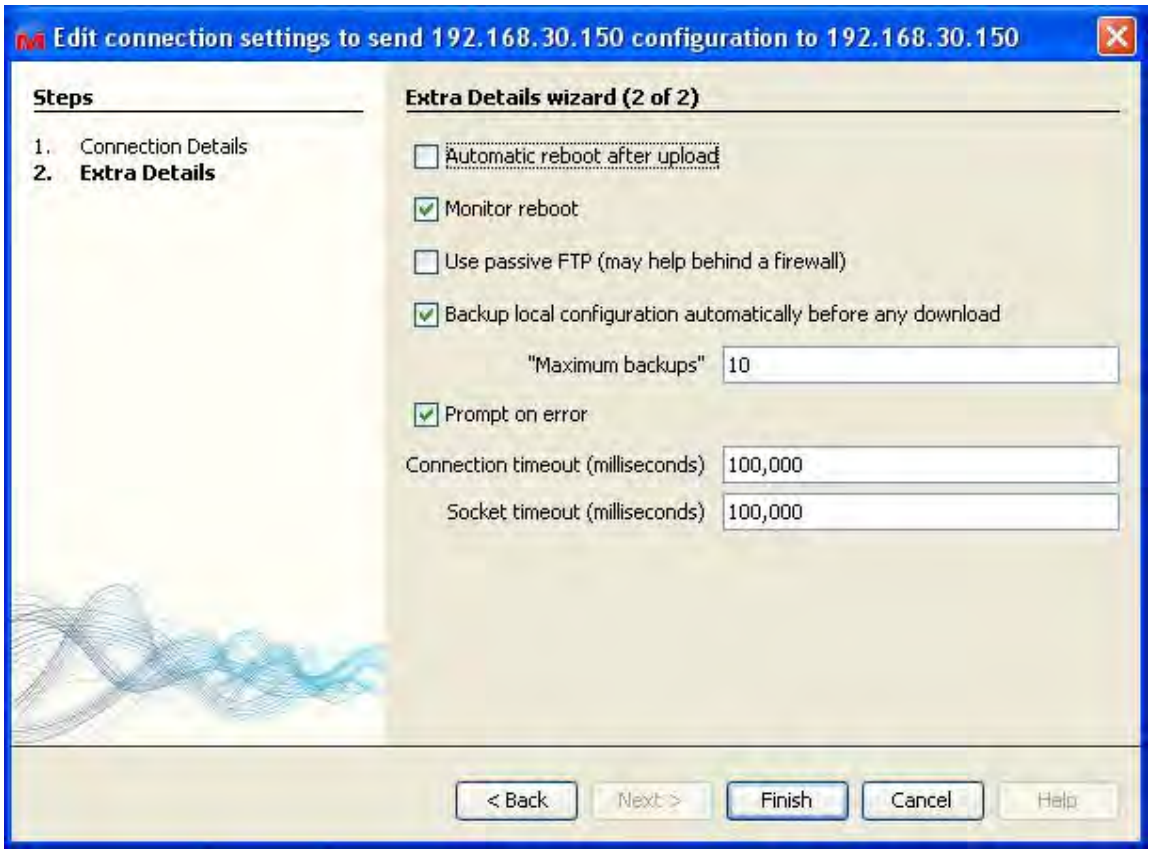


Figure 7 – Upload Configuration 2

2.7 View Modes

2.7.1 Simple View

Figure 8 – Simple View

Once the configuration has been retrieved from the MultiSmart, the user needs to select the downloaded configuration from the drop down menu located just above the "*Level control Setpoints*" button.

In simple mode, most commonly used setpoints can be altered. All level Setpoints, Alarm setpoints, Delays and Group alternations can be modified in simple mode menus. To go in to these sub menus click on the appropriate button.

2.7.2 Advanced View

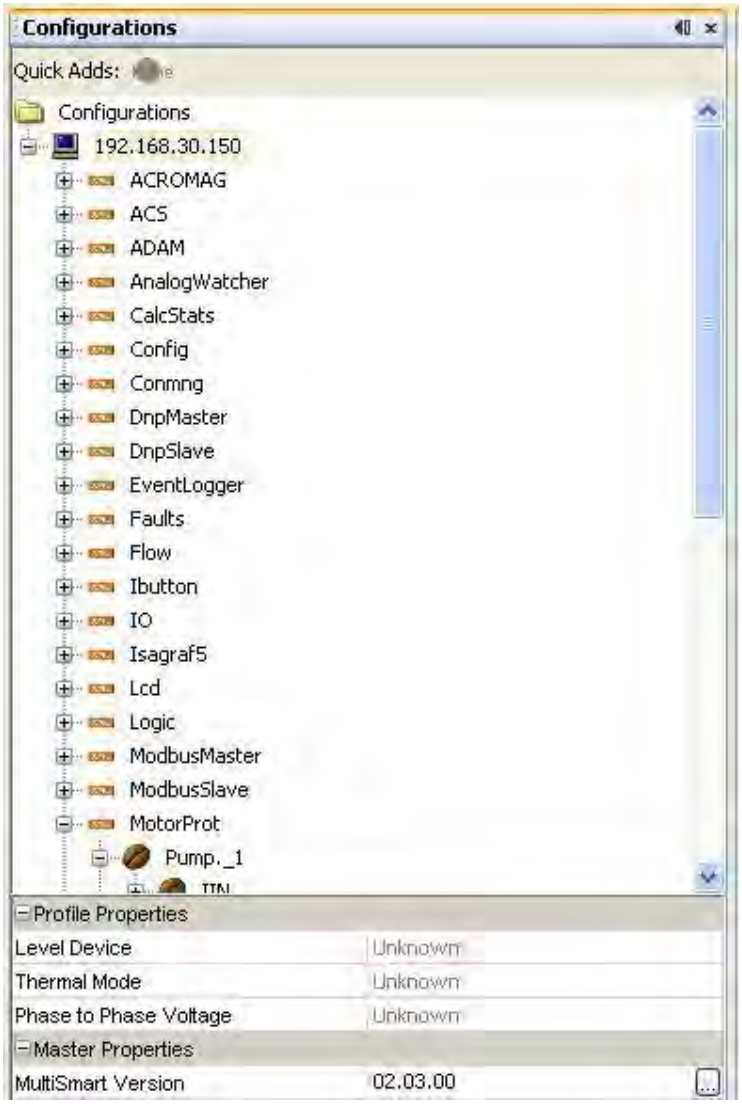


Figure 9 – Advanced View

All other setpoints can be altered or added from this Advanced View

In both these modes there are two types of changes that can be done. One is a change that can be selected from a drop down menu. The other is a string or a numerical value edit. Following is an example for two above mentioned types.

In the figure 10 "*Level units*" has a drop down menu and "*Level Full At*" is an editable field.

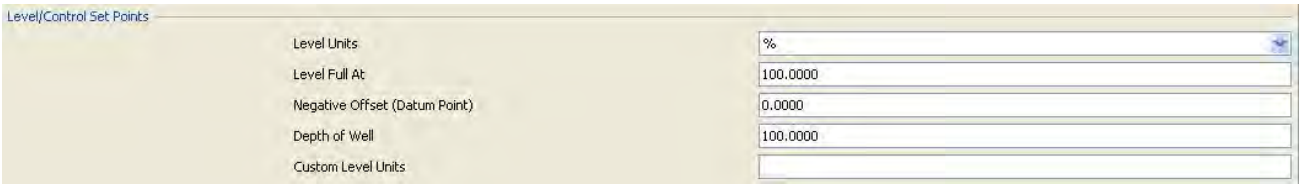


Figure 10 – Different Types of Edits

3 Advanced Settings

3.1 Duty/Standby pumps Cut In /Cut Off Set Points and Mode Changes

To change the mode (fill /empty) of the configuration go to simple mode and click the Level Control Setpoints. Pump direction value corresponds to the mode mentioned above. From the same window, Lead/Lag pump Activation/Deactivation Set Points can be modified.

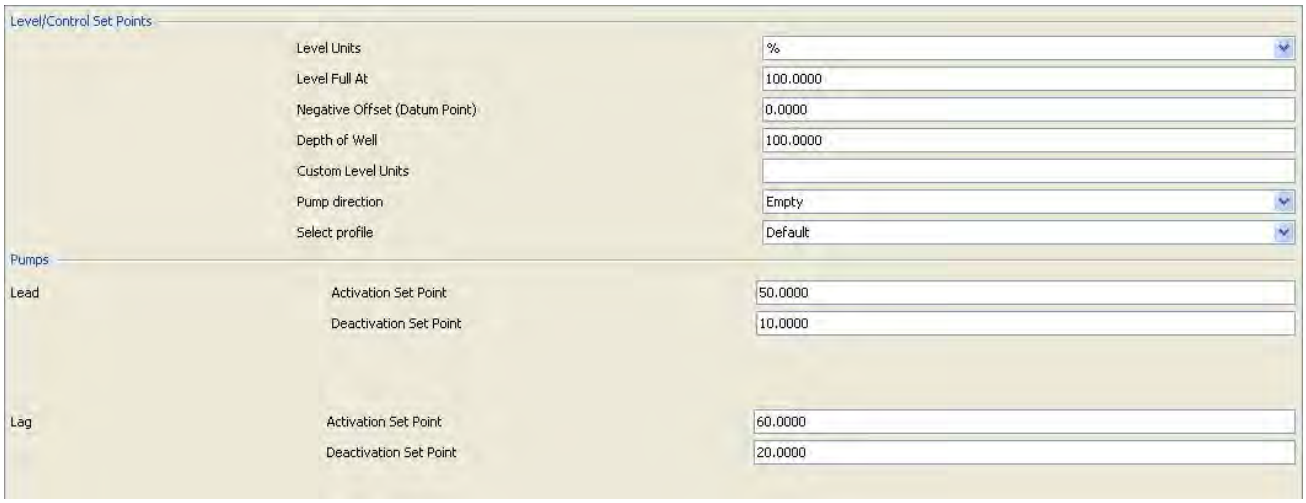


Figure 11 – Level Control Set Points

3.2 Alarm Level Set Points

In Simple mode there is a button named "*Alarm Set Points*" in the left hand side window. By clicking this will display all well level alarms.

Firstly select the correct well from the drop down menu. To enable an alarm simply check the enabled tick box. To set the activation level set point change the on value and to alter the deactivation level set point modify the off value.

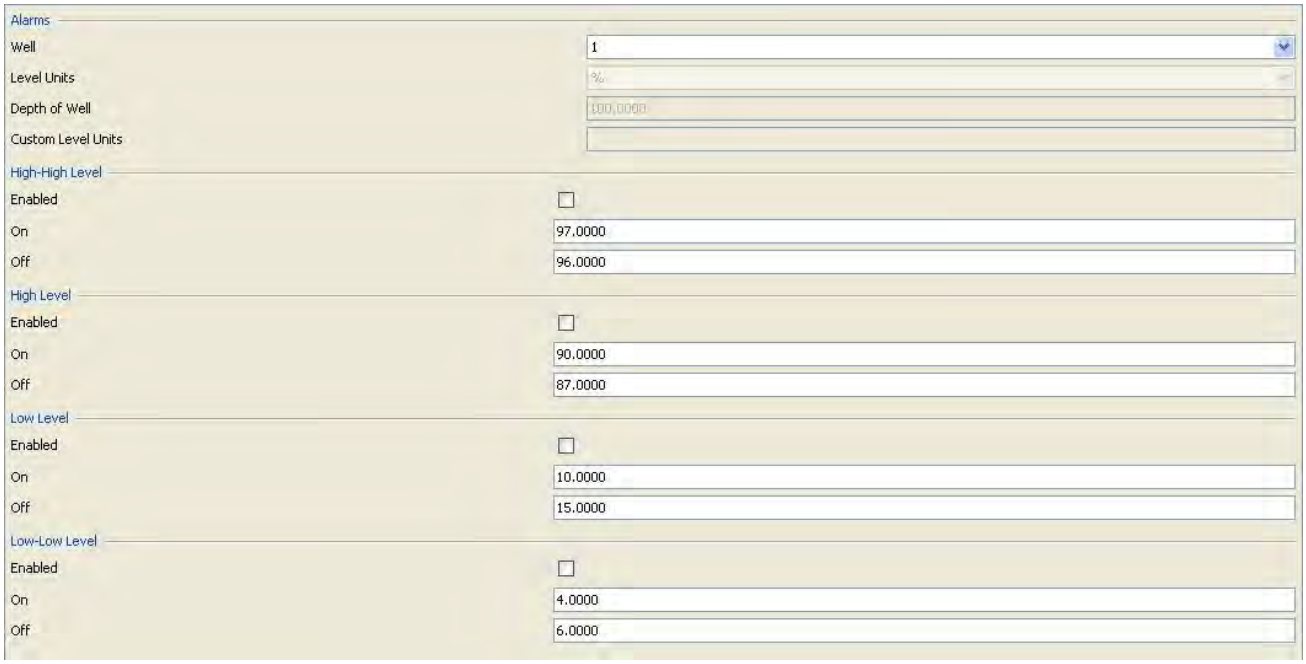


Figure 12 – Alarm Level Set Points

3.3 Alarm Level and Pump Start Stop Delay Set Points

Choose Simple mode and click on "*Delays*" button. For all level alarms activation and deactivation delays and Pump act/deact start-start stop/start.. delay set points can be configured here.

Figure 13 – Delay Set Points

3.4 Alternate the pumps

In Simple mode click the Alternation and Grouping button. Choose the correct mode from the drop down menu. All possible options will be displayed in this menu. If there are other fields that need changing, then those fields will be enabled. If not then it will remain as the disabled field. For more information on these modes and fields please refer to the MultiSmart Installation and Operational Manual.

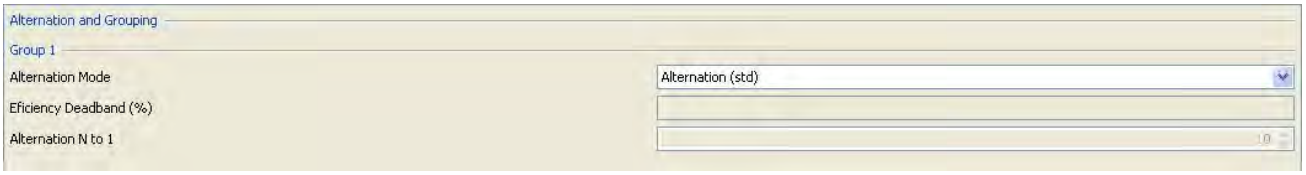


Figure 14 – Alternate and Group Settings

3.5 Custom Made Faults

Any digital input can be used as a source for a custom faults in the MultiSmart. There are 10 General faults that can be customized. These can be found in "*Advanced*" mode in fault section in the Configurator.

To set up a custom fault, first select a free General fault. The locations for these faults are shown in the figure 15. Once a free general fault has been selected, choose a source for your General fault using the drop down menu from the source. Then give an appropriate description for the fault. This description will be displayed in the fault page whenever the fault becomes active. Most settings are self explanatory. If in doubt, please refer to the MultiSmart Installation and Operational Manual.

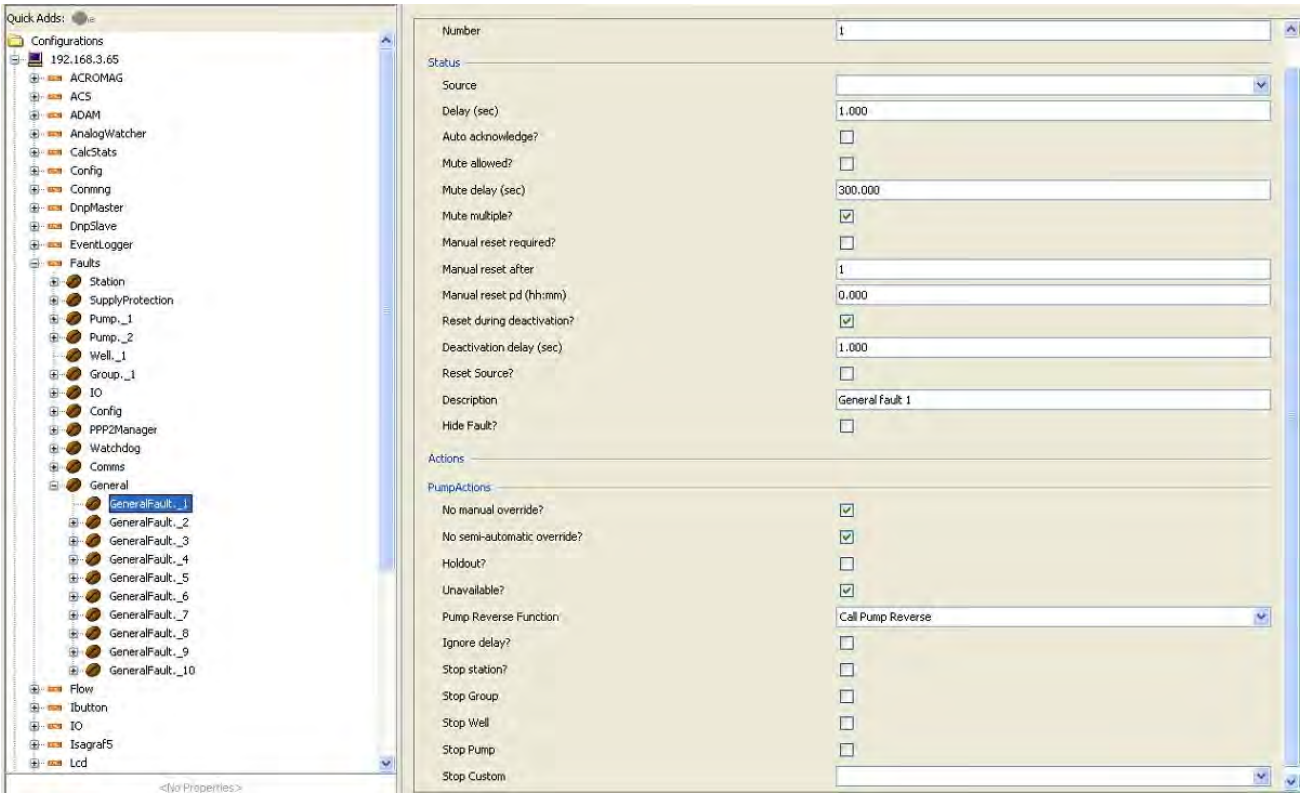


Figure 15 – General Alarms

3.6 Configuring Faults

As default most generally used faults are automatically created in every Multismart configuration. These can be seen in the "Advanced Mode" under "Faults" node. This "Faults" node has been used to categorise all the faults in the Multismart. It defines all behaviours of a fault. And all behaviours are divided in to statuses and actions.

In Status section Delays, descriptions, source tag can be found. And all pump actions that should caused by a fault such as holdout, unavailable are defined under "Action" section. "Fault" node does not give a user the option to enable or disable a fault, rather defines how the faults need to behave.

To enable or disable fault, user should go to the appropriate module.

Source of a fault is the digital tag it looks for to activate or deactivate the defined fault. Most faults will have the source preselected. If a source has not been defined, then use the drop down menu on the source tag to select the appropriate tag. If a source is already defined then source name can be taken as a guide to find where the fault can be enabled or disabled.

An example is given below.

The Fault->station->UnderVoltage has preselected source of “SupplyProt.Station.UnderVoltage._1FaultTag”

Figure 16 – Fault Behaviour

Enabling or disabling can be done for this fault on the “SupplyProt->Station->Undervoltage” location.

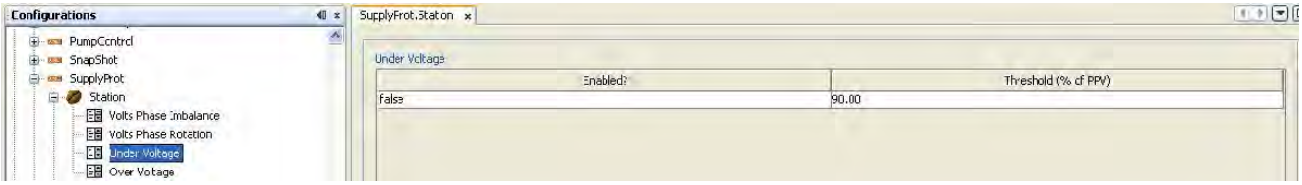


Figure 17 – Enable and disable Faults

3.7 DNP3 Points Lists Changes

All DNP3 editing needs to be done on the Advanced mode ->DnpSlave section. To add a point to Binary inputs click the Binary inputs and click new. To delete or to edit select the point and click the appropriate action.

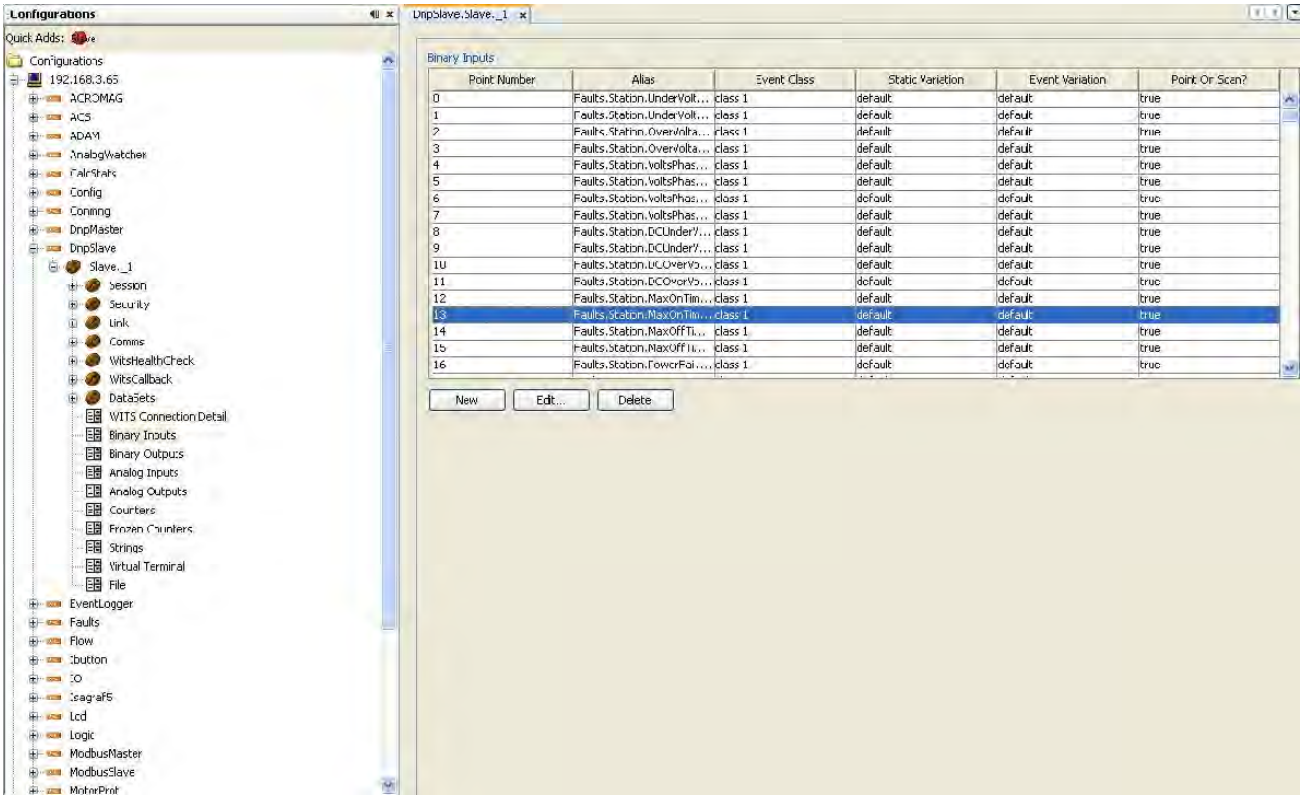


Figure 18 – DNP3 Points

Once the "*Edit*" or "*New*" button is clicked, following popup will be displayed on the screen. Use the drop down menu to select the appropriate values. Use "Alias" to select the tag that needs to be added to the points list.

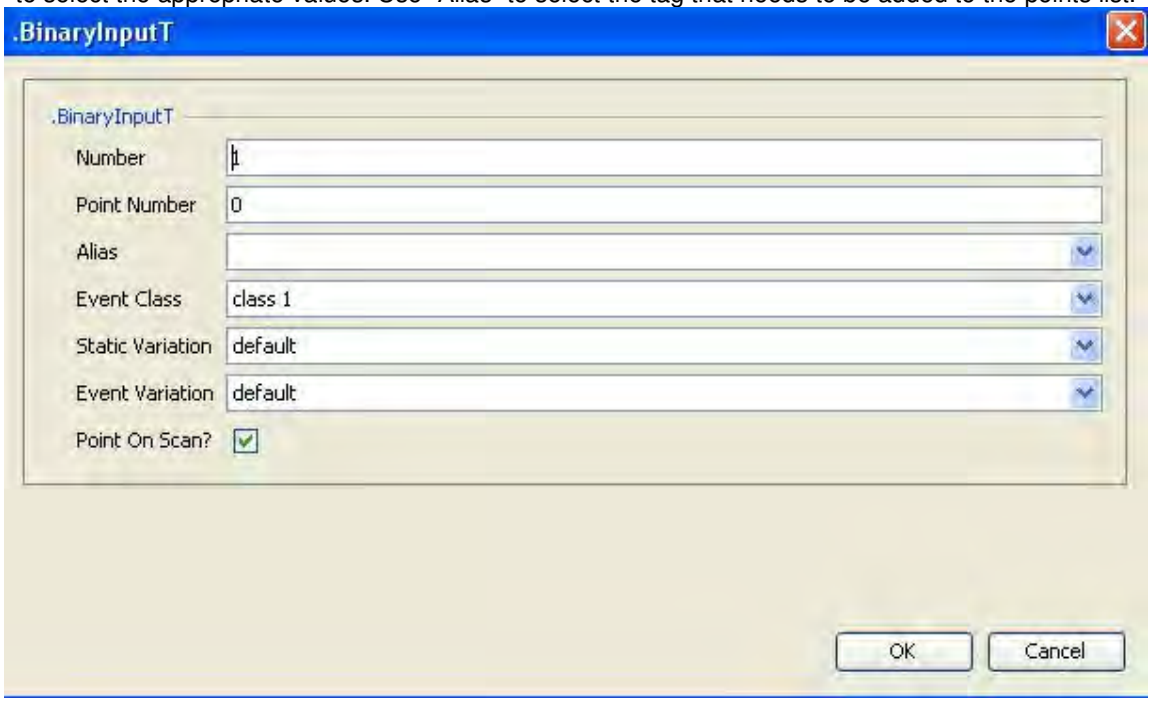


Figure 19 – DNP3 Points Edit Fields

3.8 Configuring an Analog Input for Flow Measurement

All flow calculation settings are accessible from the advanced screen of the Configurator.

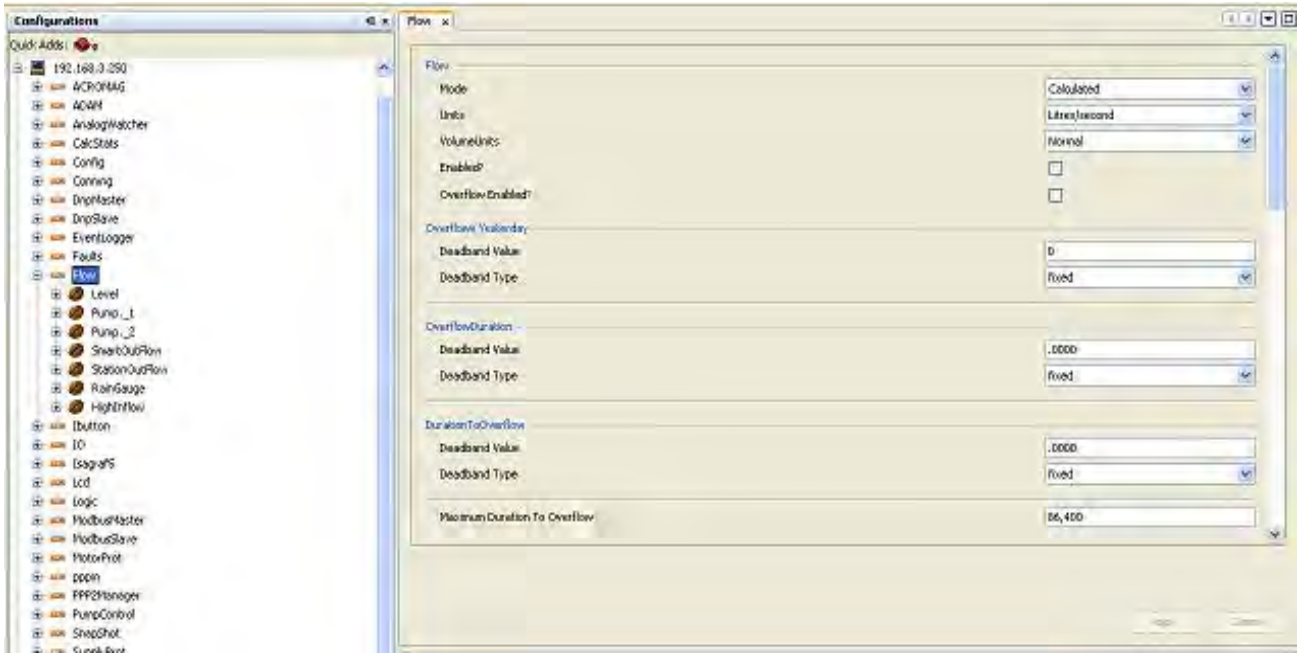


Figure 20 – Flow Module

Note: For help on functionality and choosing suitable values for these please refer to the MultiSmart Installation and Operational manual.

An analog flow meter can be used to measure instantaneous flow. To configure an analog input, choose Flow module and scroll to "*OutflowMeter*" entry. Enter the correct analog input. An example of a chosen analog input has been shown in figure 19.

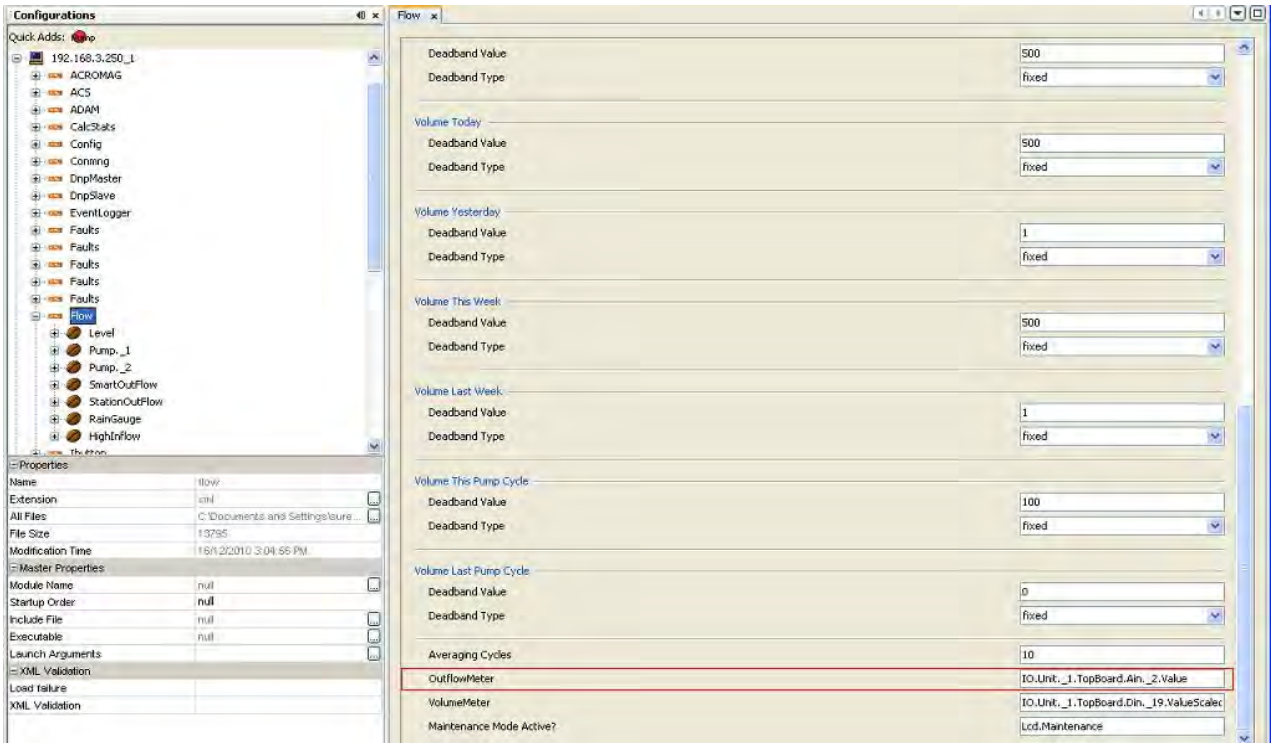


Figure 21 – Flow Module (OutFlowMeter)

3.9 Assigning a relay output to a Fault / Inverting a relay output

Everything to do with Inputs and Outputs are in the IO module in the advanced screen. To assign a fault to a digital output, go in to the IO module and select the correct unit and then select appropriate board. And finally select the output.

To assign a fault to the output, select the source and enter the tag that it needs to be looking at. In Figure 20 output 5 has assigned to the DC under voltage fault. And the tag has been assign to the source of the output 5.

Inverting the Digital output is also a fairly simple task. Under the same screen there is a tickbox called "*Invert?*". Check this box if the output needs to be inverted.

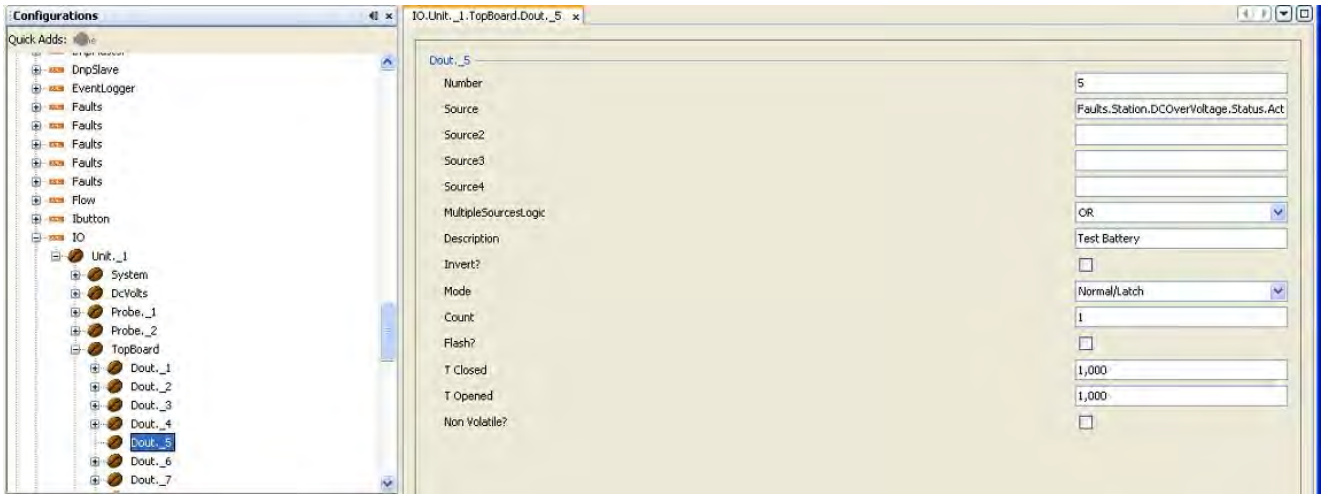


Figure 22 – IO Module

3.10 Importing and Exporting Bulk Configurations

Bulk configuration can be used to transfer new configurations to MultiSmart over DNP3. To transfer a new configuration, first export the bulk configuration to a local directory using "*Export Bulk Config*" button. Then using DNP3 file transfer, send the file from local directory to the Multismart. Once this process is completed, one can activate the configuration using the DNP3 Activate Configuration command. Specify bulk*.tar as the file name to be activated.

"*Import Bulk Config*" feature can be used to import a Bulk configuration to the Configurator. It is similar to uploading a configuration from a MultiSmart to the Configurator.

Importing and exporting of bulk configurations option gives another way of transferring configurations to and from CF cards. Once a bulk configuration is saved on to a CF card, then it can be used to restore on the MultiSmart via the Settings/More/More/Backup Options/Bulk Configurations/Activate Bulk Config screen.

Note: The name of a bulk configuration should always start with the word "bulk".

3.11 Editing Deadbands

Deadband of a tag represents the absolute value change it needs to create an event.

This attribute of a tag can be edited though the advanced screen. To edit a particular deadband first go to the advanced screen then select the tag by navigating through the menu.

Note:- Path of the tag self explanatory.

Ex-: To navigate to the Tag "Logic.Values.Analog01" and change its deadband… Go to advanced screen. Then expand the configuration. Select and expand Node "Logics". Click on the "Values" branch in the expanded node. Once it is selected this will show all configurable points on the right hand side window. Then change the deadband under Analog01.

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