

Application Note – Sasquatch Plunger Velocity Sensor

Integration Guide for ABB Controllers



Revision 1

July 11, 2016

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Revision History

Revision	Date	Author	Changes
1	11 July 2016	Valens D'Silva	Initial Version

Acronyms

SCADA	Supervisory Control and Data Acquisition

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1 Introduction

1.1 Overview

Sasquatch Plunger Velocity Sensor (“Sasquatch”) is the next state in the evolution of plunger detection. Sasquatch will measure the surface velocity of the plunger in addition to detection the plunger arrival.

ABB TotalFlow controllers including the XRC and XFC series are common wellsite RTU and flow measurement devices. PCCU is a software program that is the local interface to all ABB field products. PCCU enables one to: calibrate and configure all I/O; collect and view historical data files; perform diagnostics and troubleshooting; and program and monitor custom math and logic operations.

1.2 Purpose

This application note will detail the device setup so a compatible ABB Controller can communicate with Sasquatch using PCCU. The document will detail how Sasquatch can be integrated into a new controller application and an existing controller application.

2 New Controller Application Integration

If Sasquatch will be integrated into a new application on an ABB Controller it is recommended to use the configuration file (Sasquatch.xfc32) that can be found with this application note. The application will display the plunger surface velocity (current and previous arrivals), in a scrolling list, on the display.

The configuration file can be loaded using the 32bit Loader Application that is part of PCCU. For details on how to use the 32bit Loader Application please refer to the ABB website.

3 Existing Controller Application Integration

When integrating Sasquatch into an existing Controller Application Sasquatch must be configured as a generic COM device. After the device is configured the Modbus register Request Blocks must be configured.

3.1 COM2 Device Setup

Sasquatch must be configured as a COM2 device. This can be found under the Communications tab.

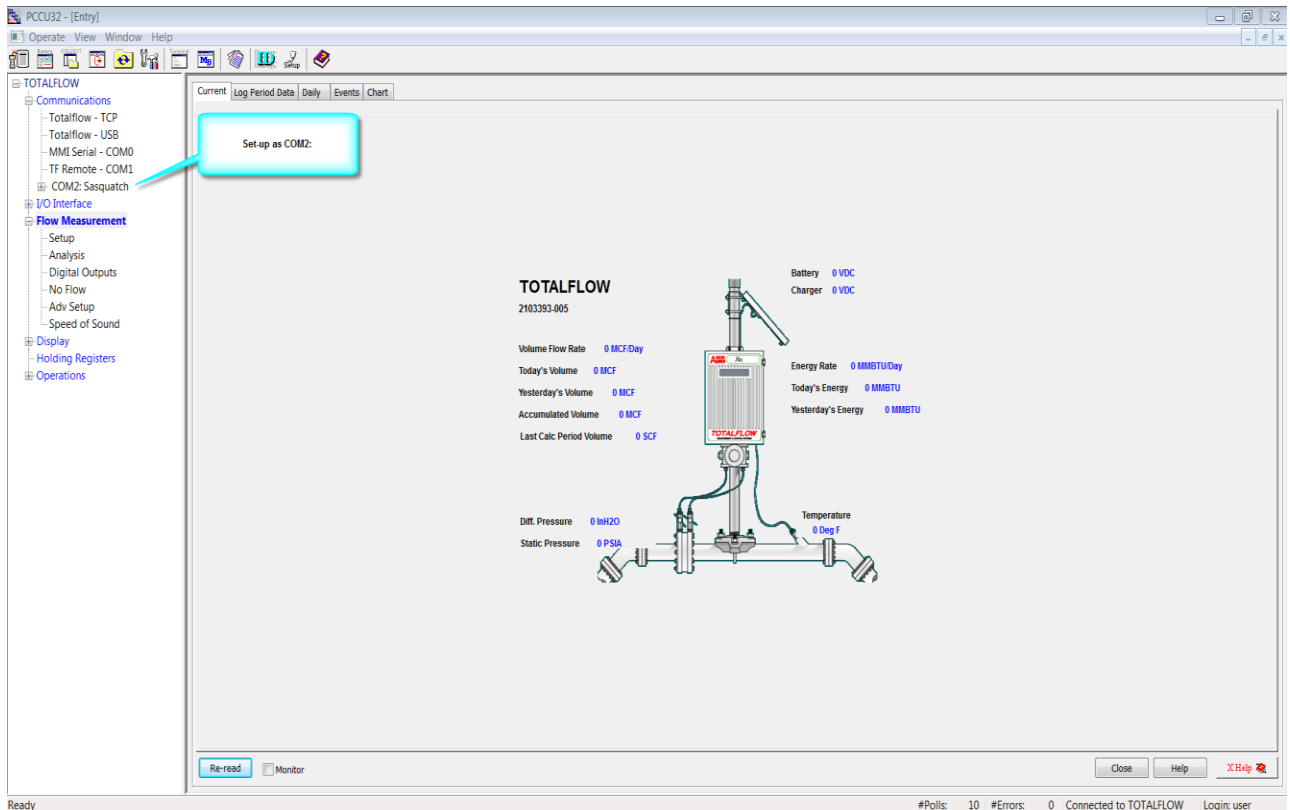


Figure 1: COM2 Device

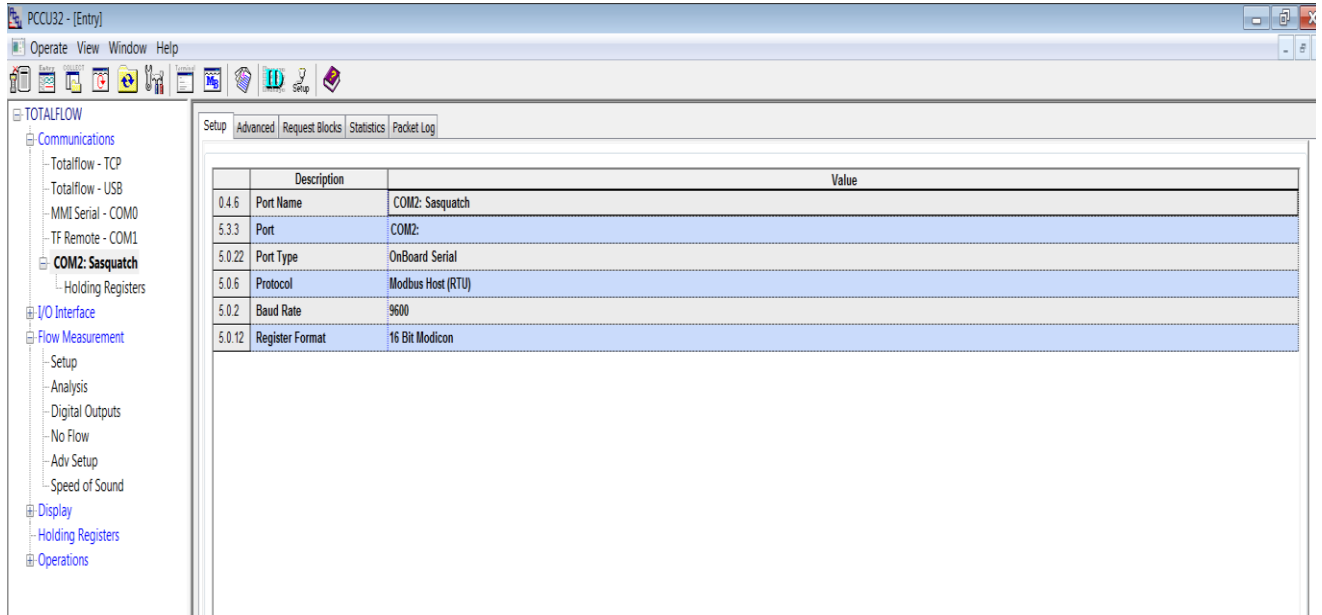


Figure 2: COM2 Setup

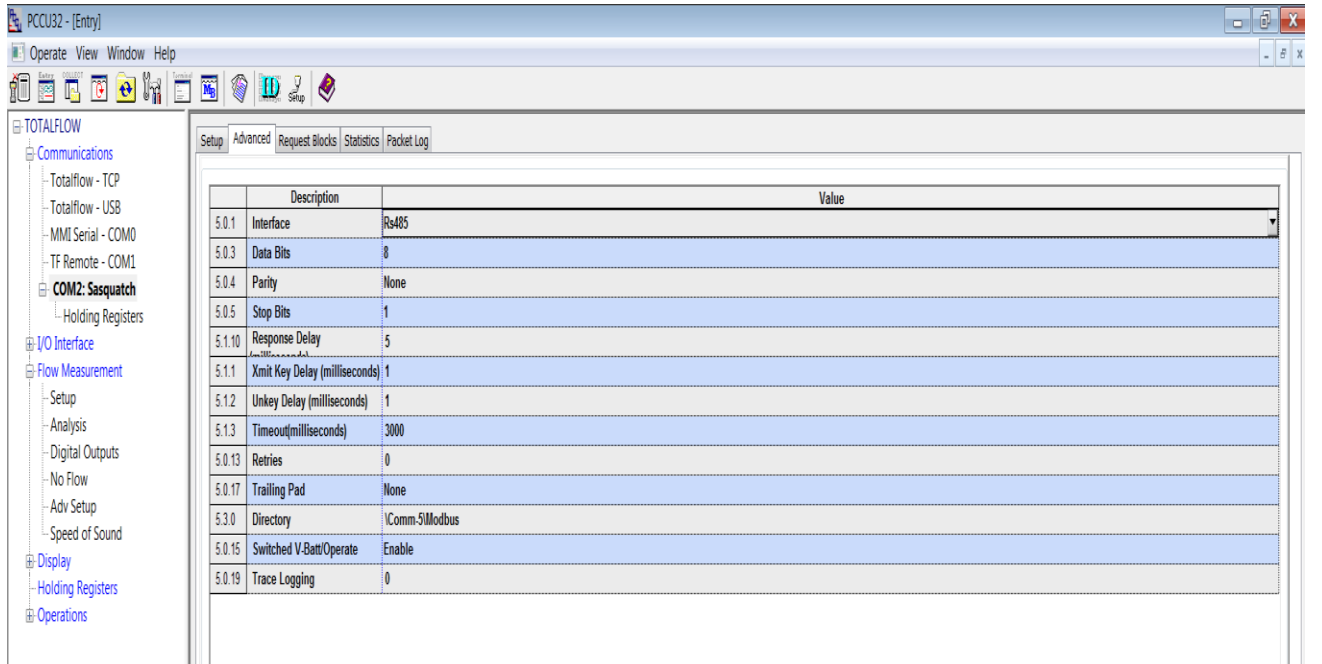


Figure 3: COM2 Advanced

3.2 Request Blocks

There are several sections of the Sasquatch Modbus Register map that must be configured by the Application. These are translated in several Request Blocks. The Request Block configuration have been provided in five files (.mrb) with this application note. The files can be loaded into the Application using PCCU. The figures below are to illustrate each of the Request Block’s configurations.

When the Request Blocks are configured all the data from Sasquatch can be found under the Holding Registers. As a reference the velocity for the most recent plunger arrival is stored in 5.102.1 under the velocity log. This register can then be retrieved into the SCADA system under plunger history.

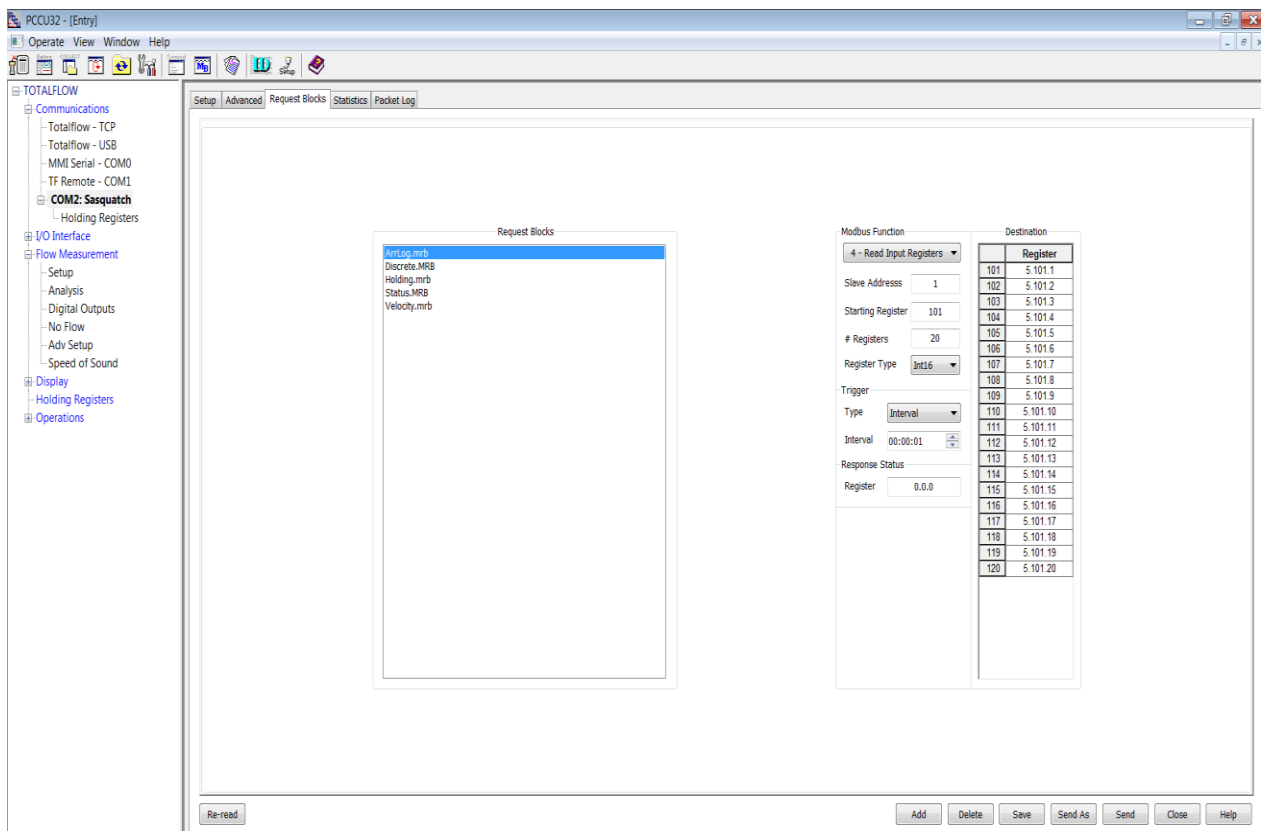


Figure 4: Request Blocks

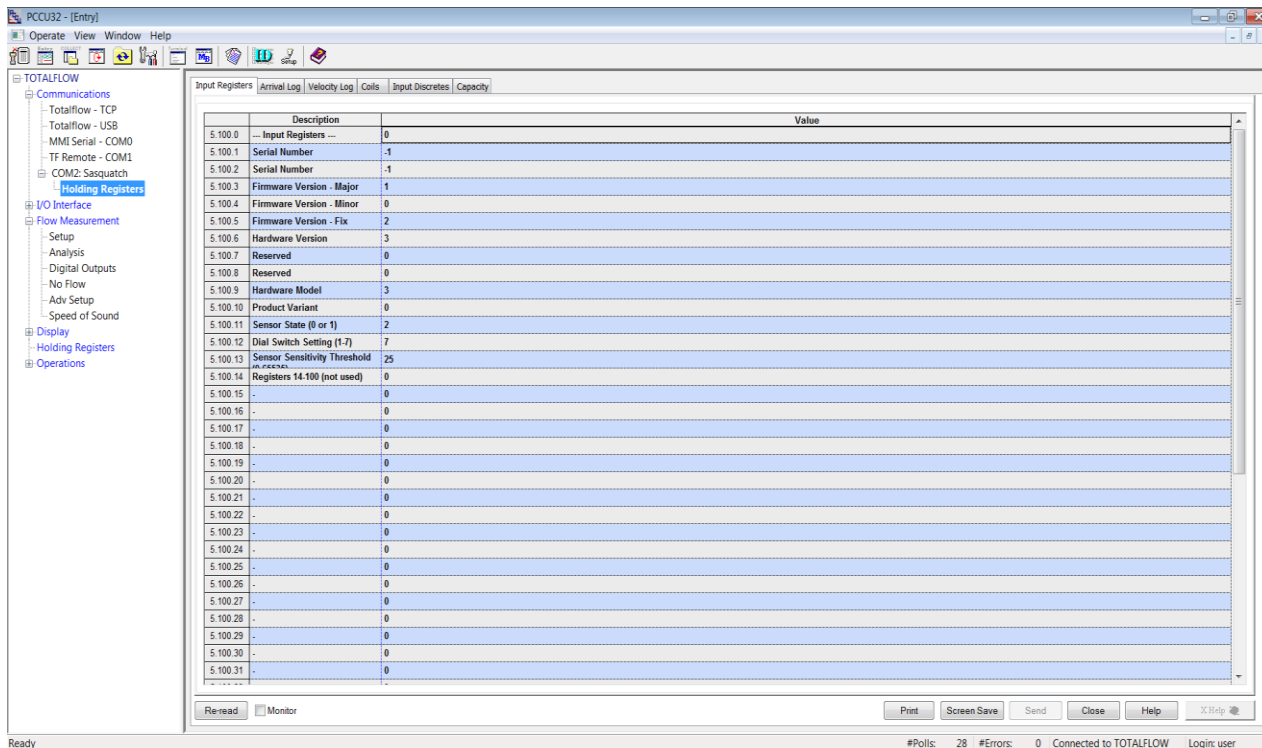


Figure 5: Input Registers

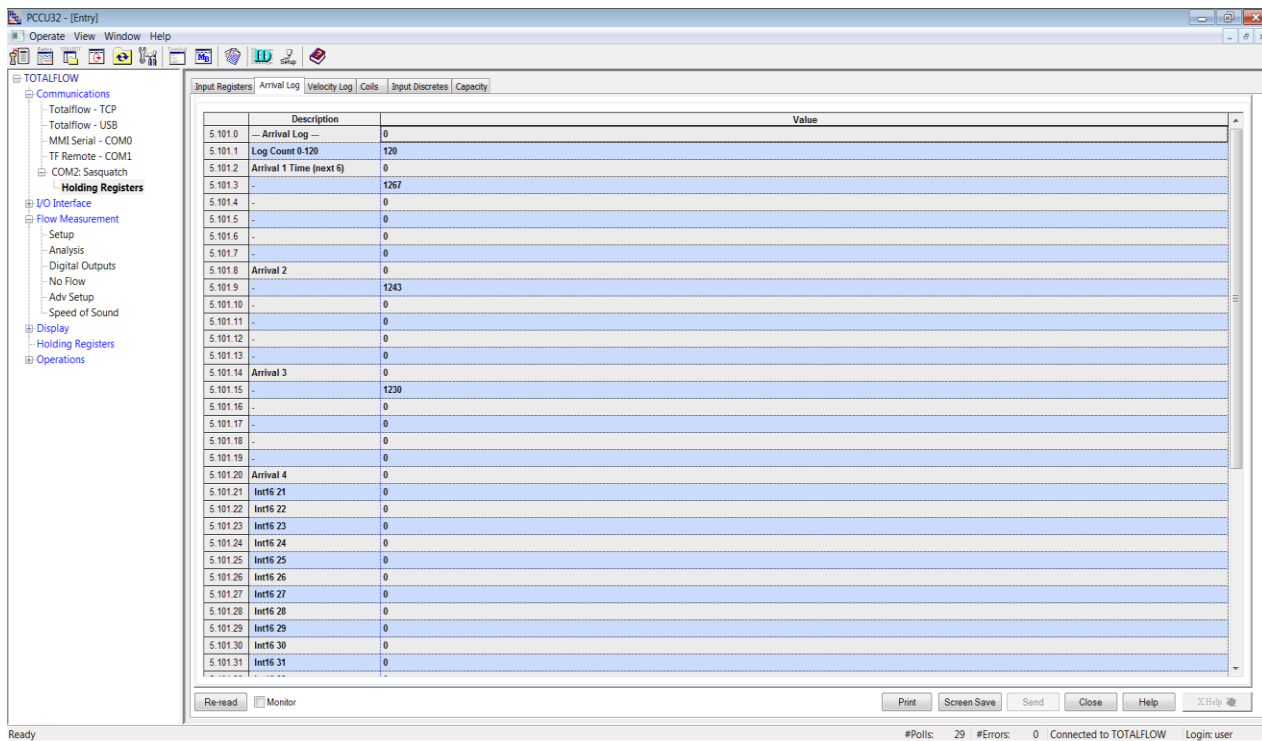


Figure 6: Arrival Log

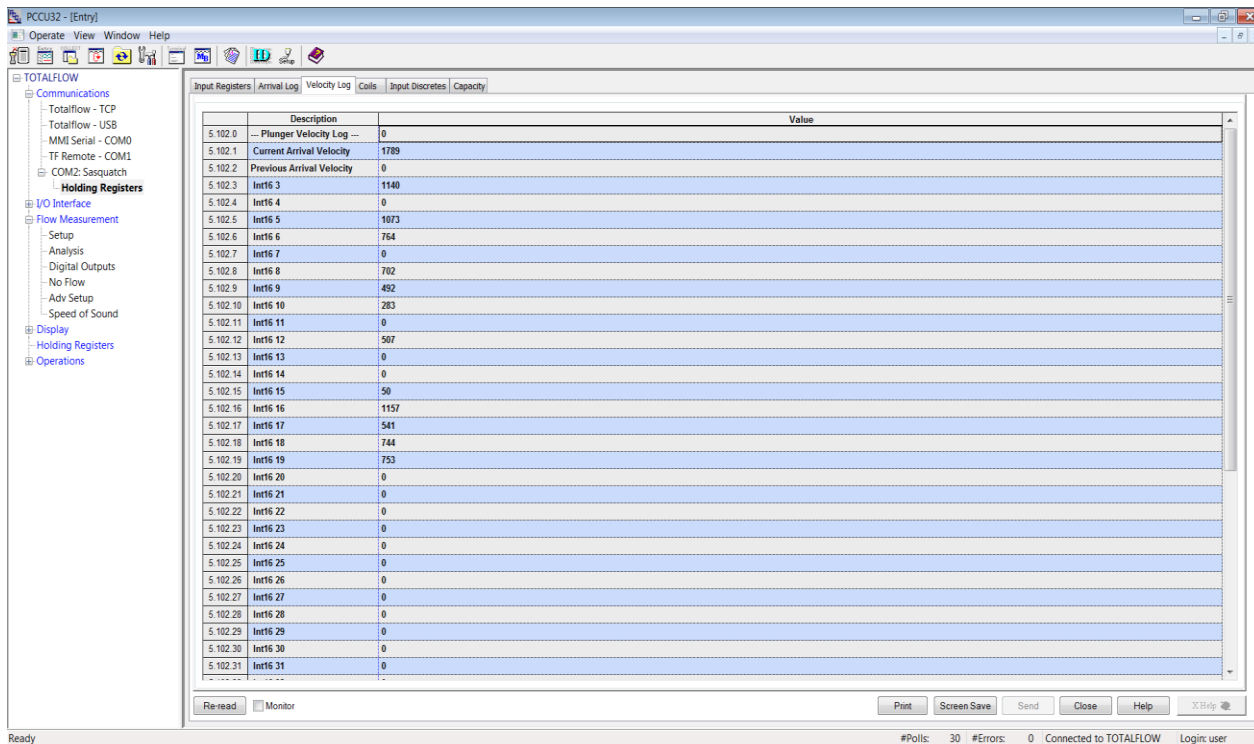


Figure 7: Velocity Log

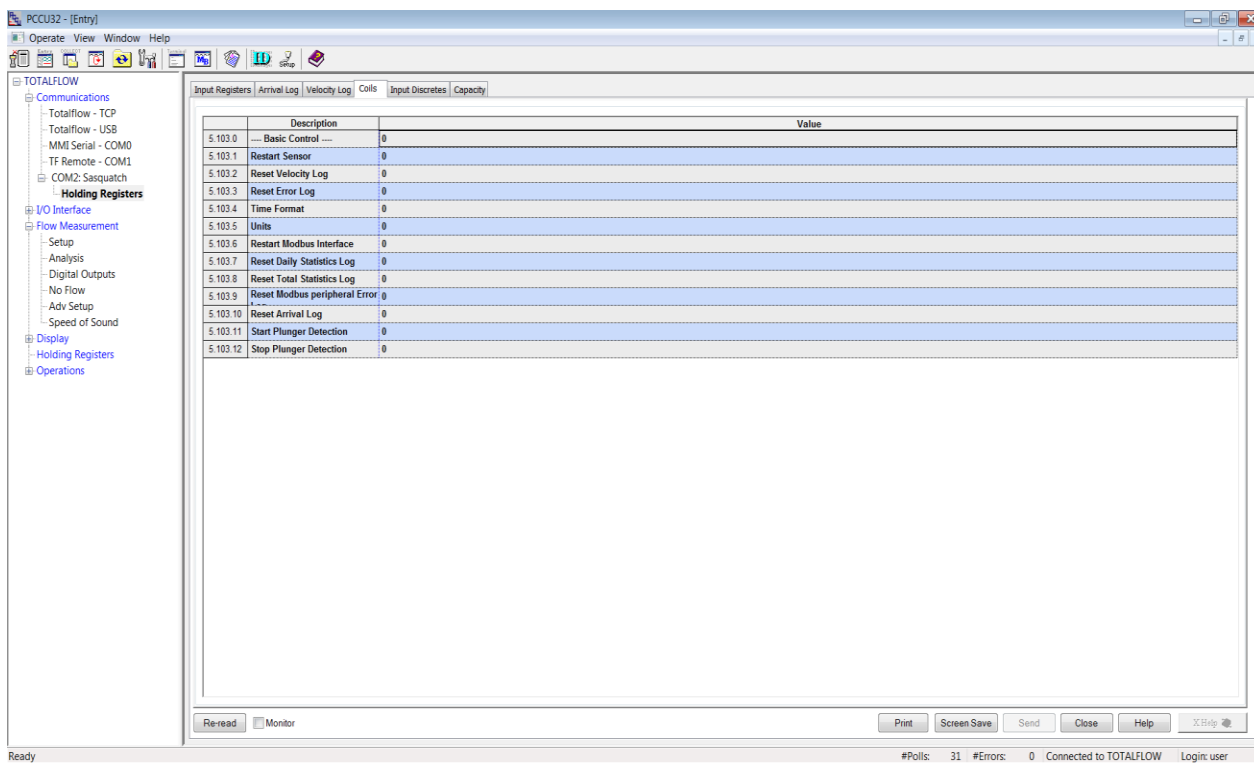


Figure 8: Coils

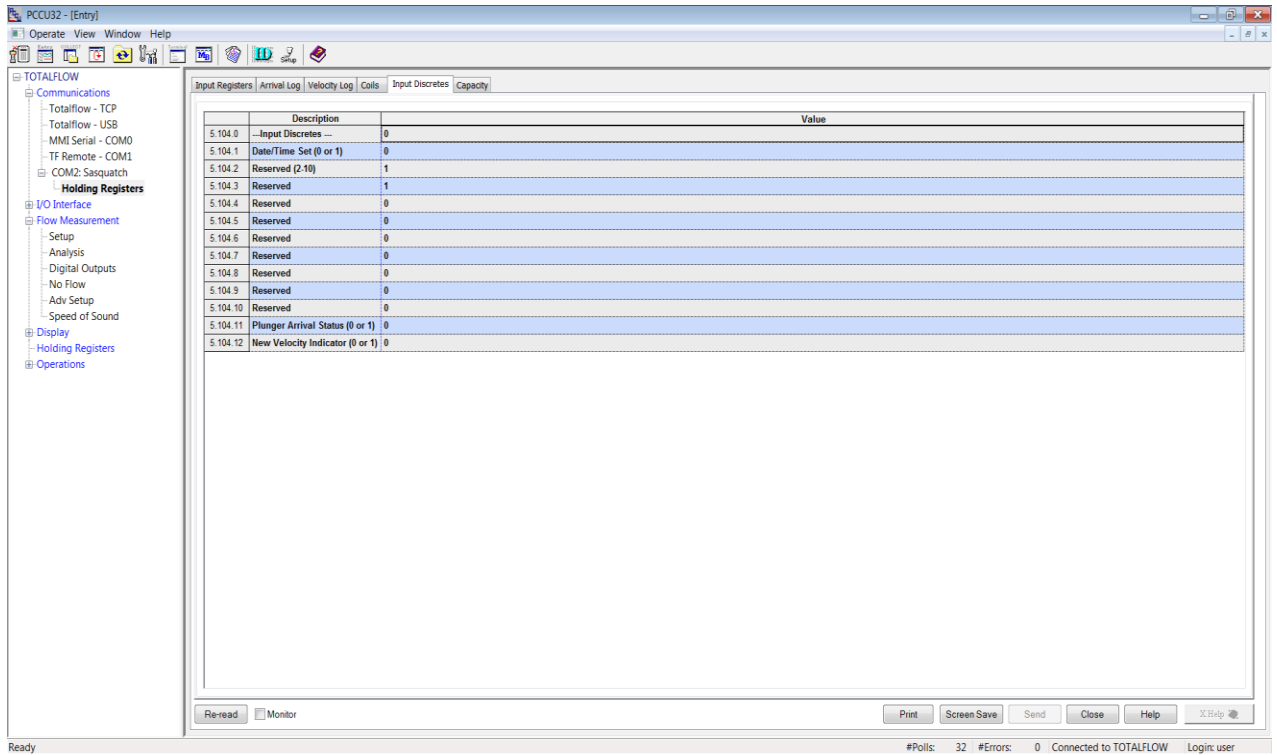


Figure 9: Input Discretes

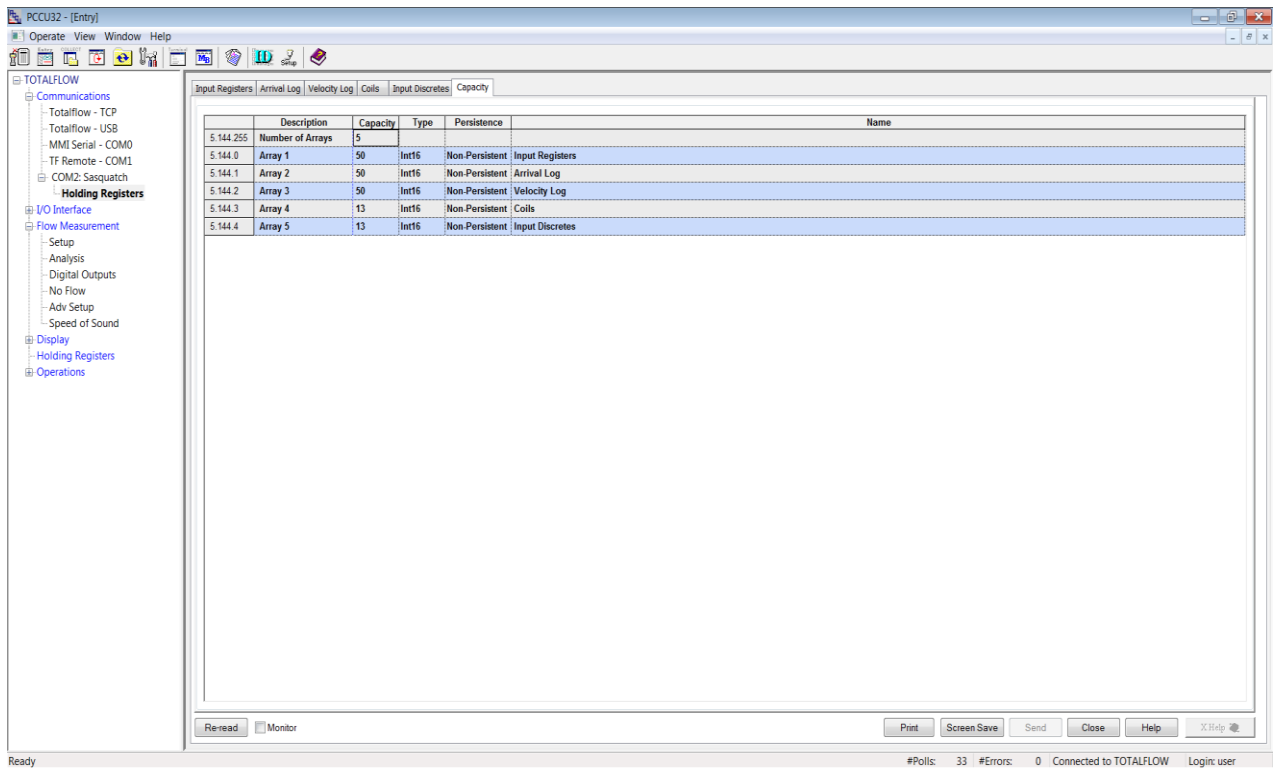


Figure 10: Array List