Datalogging Tutorial
For i3 Intelligent Control Station

Feature Tutorial

Introduction

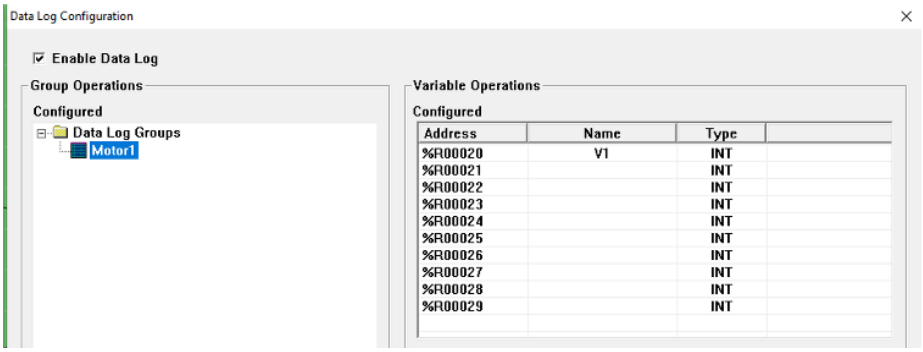
The purpose of this document is to demonstrate the Data log feature and how it can be applied in two different ways (Data log Config utility or Function Blocks).

Overview

Data Log Configuration utility. With up to 30 register variables in a log group and up to 10 separate log groups, a maximum of 100 register variables can be logged. Each log group has its own configurable timer, which determines how often the log group's variables will be automatically sampled and logged. In addition, a log group's variables can be manually sampled and logged, by setting the group's manual trigger register bit.

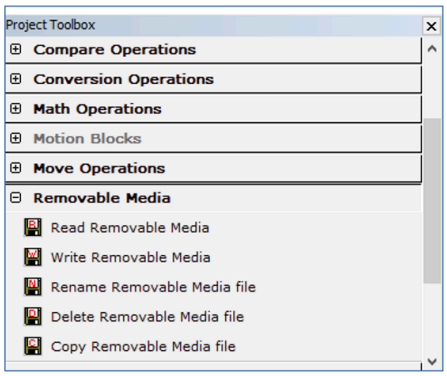
Data Log Configuration – can be found in the top i3 configurator menu (menu Program -> Data log Configuration).

Data Log feature is designed to allow the application to periodically log register values to removable media. Registers can be organized in groups and every group can be configured separately.



Removable Media Functions – A set of commands that can be executed directly from ladder (or IEC languages). In i3 configurator Classic mode, these can be found on the i3 configurator toolbar (section Special Operations).

Using standard i3 configurator mode these can be selected from **Project Toolbox** – **Removable Media**



Functions

Read Removable Media:
This function allows reading a comma separated value file from the Removable Media interface into controller register space.

Write Removable Media:
This function allows writing a comma separated value file to the Removable Media interface from controller register space.

Rename Removable Media File:
This function allows renaming a file on the Removable Media card. The data in the file is not changed.

Delete Removable Media File:
This function allows deleting a file on the Removable Media card.

Copy Removable Media File:
This function allows copying a file on the Removable Media card. The data in the file is not changed.

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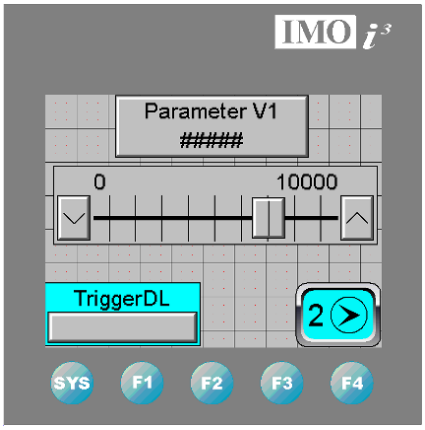
Procedure

Part 1 - Creating the screen



Step 1

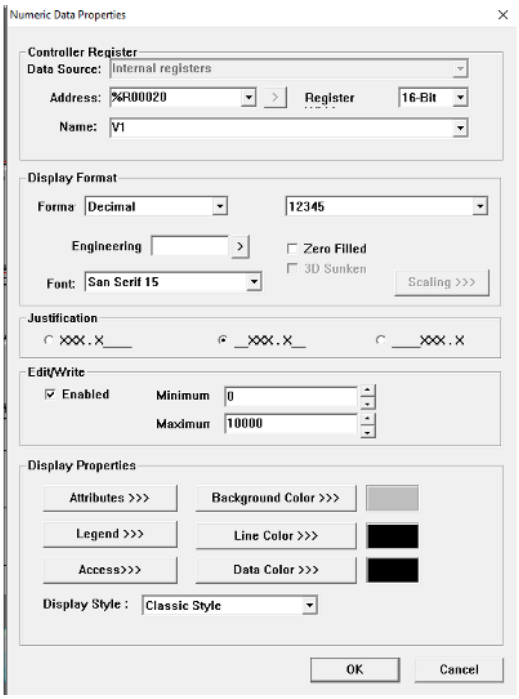
Create a similar screen. Please note that an i3BX screen was used as an example here, however the procedure would be identical with any other i3 controllers.

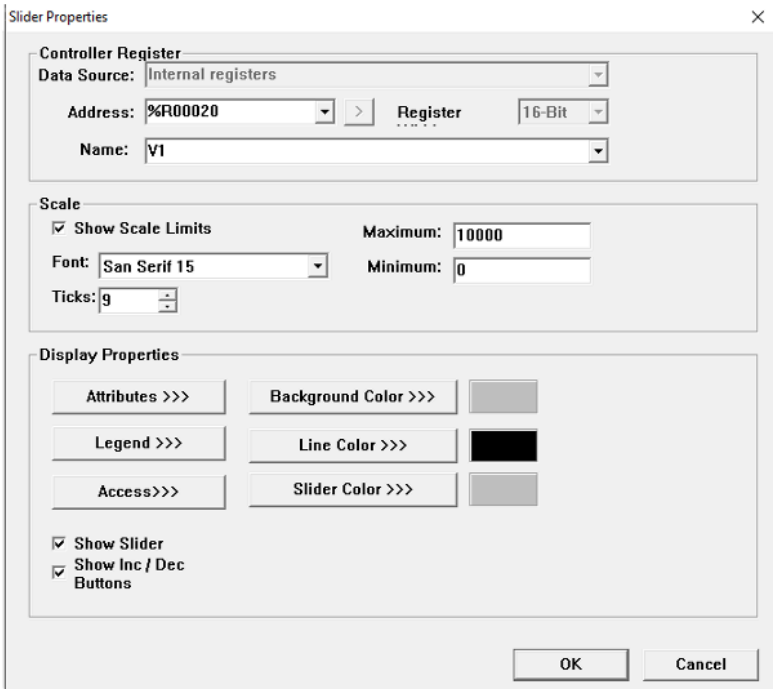
Objects used:

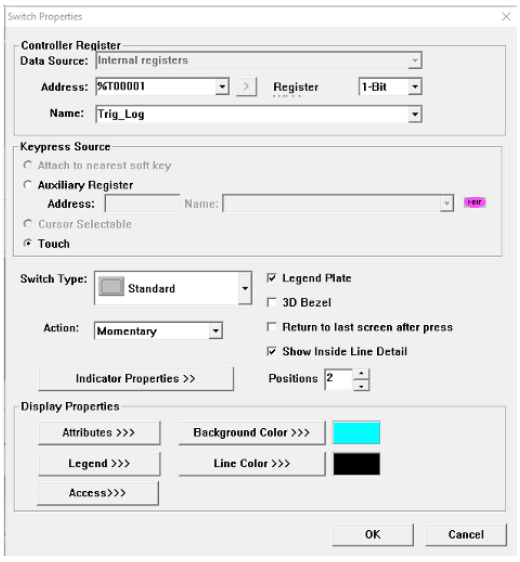
- Numeric Data Object
- Slider
- Switch (Button)
- Screen Jump

Step 2

Configure the Numeric Data and Slider objects. Assign the same register to both. Make sure you specify the same value limits.







Step 3

Configure the Switch (Button) Object:

Specify an unused bit as a Controller Register and configure the action as Momentary.

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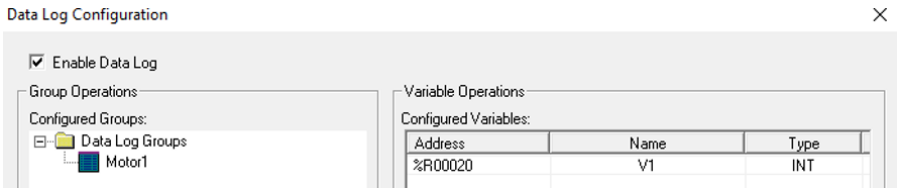
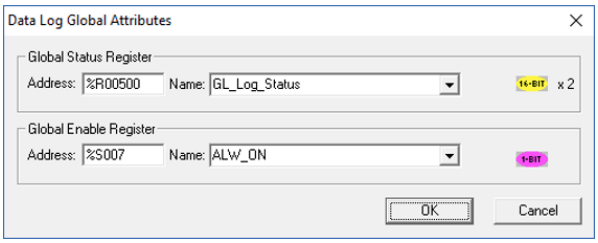
Part 2 - Data Log Configuration Utility

Step 1

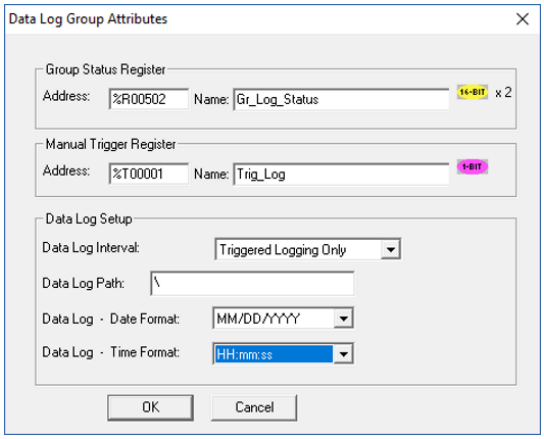
Configure the Data log Settings (menu Program -> Datal log Configuration) so there is one Group and 10 Registers (%R20 associated previously with Numeric Data and Slider objects).





Step 2

Configure the Global Attributes (Status Register is required, more information in i3 configurator Help).



Step 3

Configure the Group Attributes (Status Register is required). Manual Trigger should match the bit that was specified for the Switch object.

The Data Log Interval determines how often the log group's variables are automatically sampled and can be in either seconds (1-60) or in minutes (1-1440).

If the interval is in seconds, a new log file is created every hour with the filename: **MMDDHH.CSV**

If the interval is in minutes, a new log file is created every day with filename: **YYMMDD.CSV**

If the interval is selected as '**Triggered Logging Only**', data will be logged only when manual trigger bit is set to TRUE. The data is logged in filename **YYMMDD.CSV**

When Data Log Configuration is complete, download to the controller, ensure the controller must be in RUN mode. The application will set the Global Enable Register bit to start the Data Log process (Always ON bit was set up as global trigger).

Each time the group's Manual Trigger Register (%T1) transitions high, a log is performed for the group.

Here's an example of how a sample CSV file may look when viewed in Microsoft Excel:

	A	B	C	D
1	Date	Time	V1	
2	05/10/2019	09:54:53	3614	
3	05/10/2019	09:54:55	2129	
4	05/10/2019	09:54:58	8367	
5	05/10/2019	09:55:02	149	
6				

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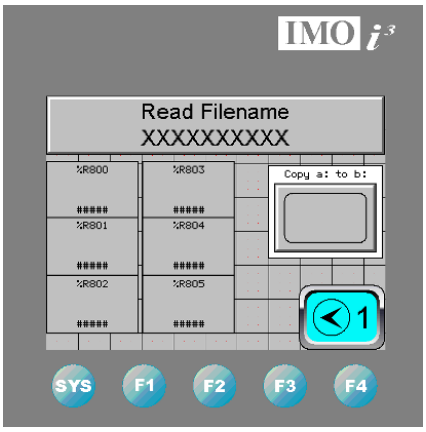
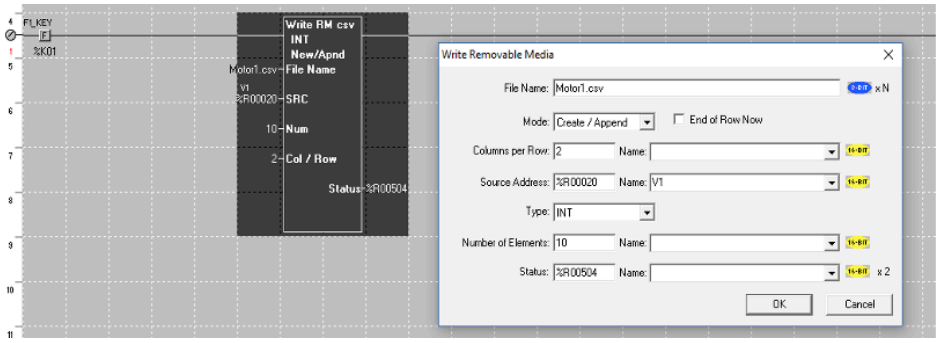
Part 3 - Using Function Blocks. Add a second screen similar to the one below:



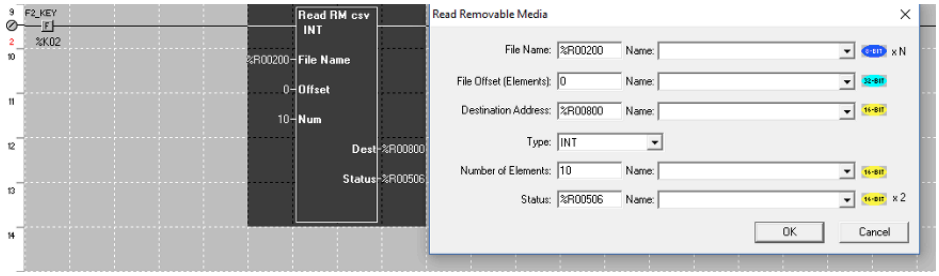
Objects used:

- ASCII Data Object (%R200 18 Characters)
- Numeric Data Object (6)
- Screen Jump (Simulate ESC)



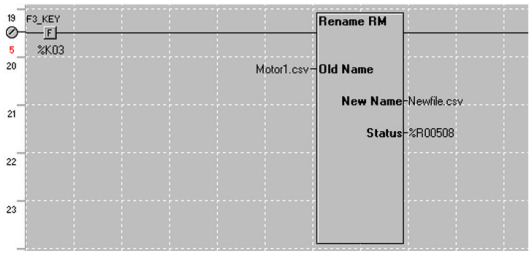
Write RM

The following line of code would cause the application to log 10 register values beginning with %R20 in the 2 columns per row mode every time the F1 key is pressed.



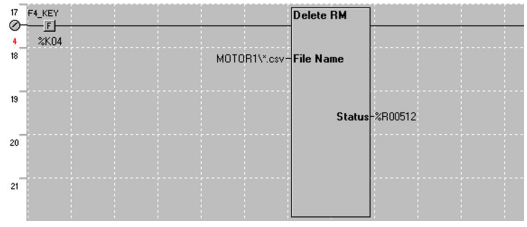
Read RM

The following line of code would read the first 10 words of data from a filename specified by the register contents beginning with %R200 (ensure file exists!) and place this data into the controller registers starting at %R80.



Rename RM File

The following line of code would rename file ‘Motor1.csv’ to ‘Newfile.csv’



Delete RM File

The following line of code will delete all files (* wildcard) in the folder named MOTOR1

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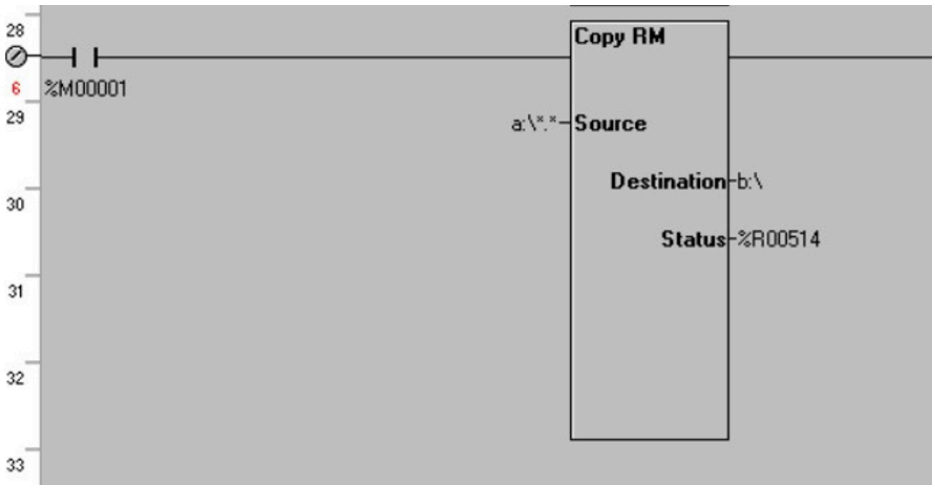

Copy RM FIle

The following line of code will copy all files from the top-level directory of RM slot 'a:' to the USB slot 'b:' if both ports have removable media present.

These blocks are comprehensively described in i3 configurator Help (Help -> Elements -> Removable Media Functions),

Main differences between Data Log utility and RM Function blocks:

- A log file created by ladder blocks doesn't have the date and time added automatically (it logs just the register's value by default)
- A file created by Data log Configurator has an automatically created filename (based on the current date) and is limited to log data points, 100 total.