



OCS Training Workshop
LAB6
Data Logging

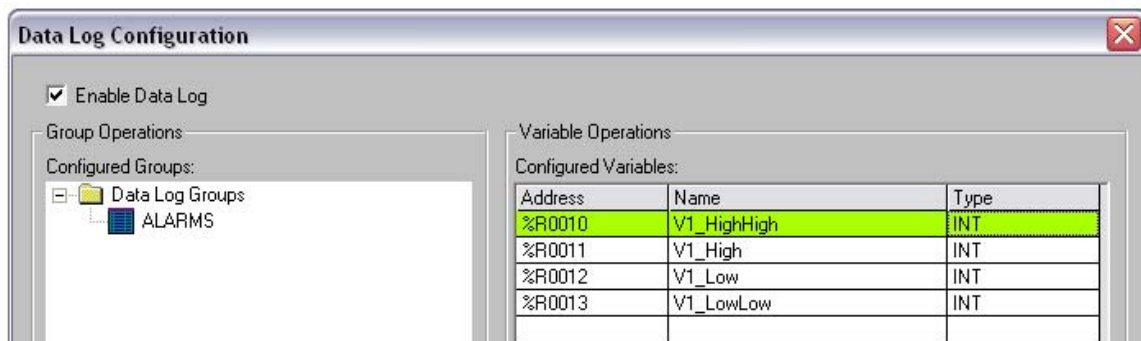
Lab 6: Datalogging

Introduction

The purpose of this lab is to demonstrate the Datalog feature and how it can be applied in two different ways (auto & manual mode).

Overview

Data Log Configuration – can be found in the top Cscape menu (menu Program -> Datalog 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. For the purpose of this Lab we are going to call it the **Auto Mode**.

Removable Media Functions – set of commands that can be executed directly from ladder (or IEC languages). They can be found on the standard Cscape toolbar (section Special Operations).

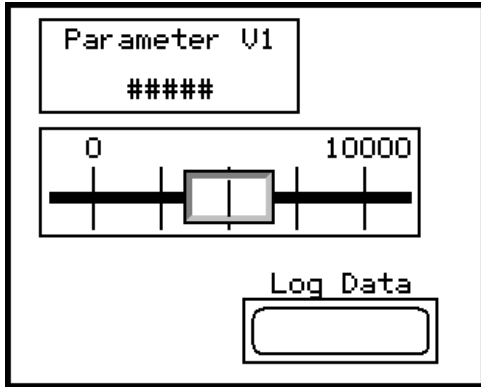


Removable Media section in System Menu – System (diagnostic) menu can be accessed via 'System Key' (touch screen OCS units such as XL6) or by pressing Up & Down arrow buttons (on non-touch units). Removable Media section allows you to perform simple operations such as deleting files, formatting the whole card or saving the current project.

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Procedure

PART 1 – Creating the screen



Step 1

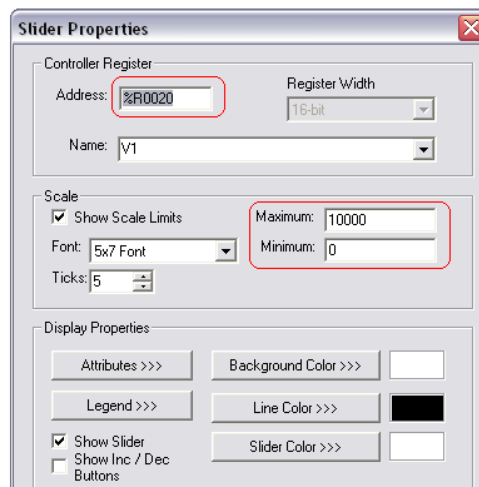
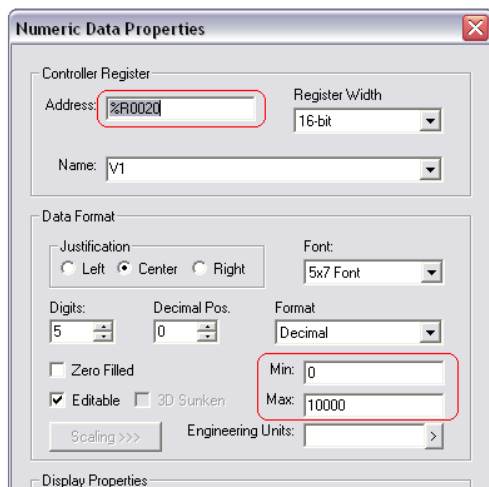
Create similar screen. Please note that an XLt screen was used as an example here, however the procedure would be identical with any other X-series OCS unit.

Objects used:

- Numeric Data Object
- Slider
- Switch (Button)

Step 2

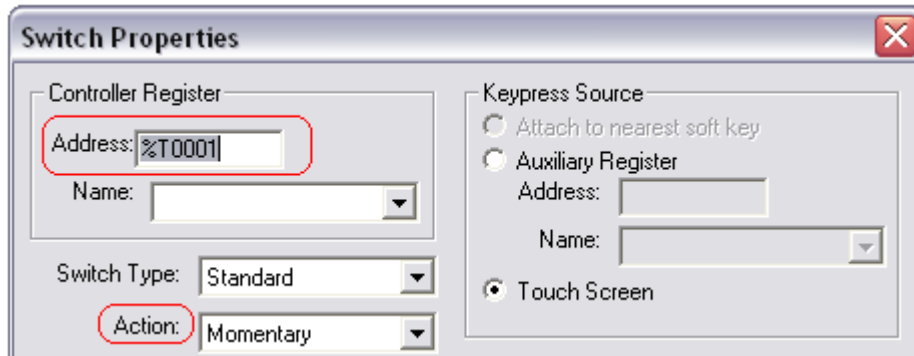
Configure the Numeric Data and Slider objects. Assign the same register to both. Make sure you specify the same value limits.



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Step 3

Configure the Switch (Button) Object:



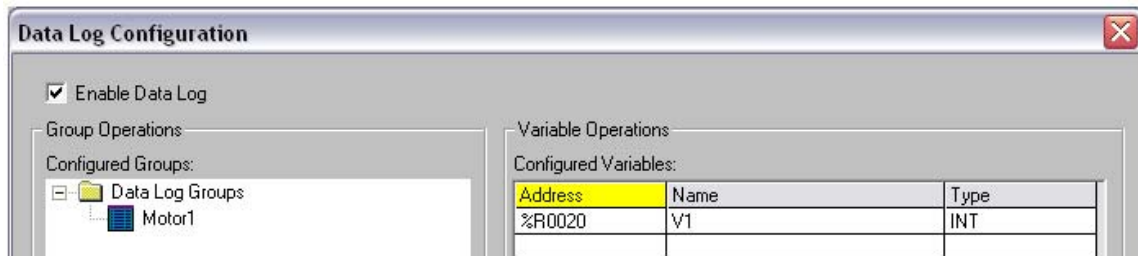
The 'Switch Properties' dialog box is shown. It has two main sections: 'Controller Register' and 'Keypress Source'. In the 'Controller Register' section, the 'Address' field is set to '%T0001' and is highlighted with a red rectangle. Below it, the 'Name' field is empty. The 'Switch Type' is set to 'Standard'. The 'Action' is set to 'Momentary' and is also highlighted with a red rectangle. In the 'Keypress Source' section, the 'Attach to nearest soft key' and 'Auxiliary Register' options are unselected. The 'Touch Screen' option is selected. The 'Address' and 'Name' fields for the Auxiliary Register are empty.

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

PART 2 – Datalog Configuration (Auto Mode)

Step 1

Configure the Datalog Settings (menu Program -> Datalog Configuration) so there's one Group and one Register (associated previously with Numeric Data and Slider objects).

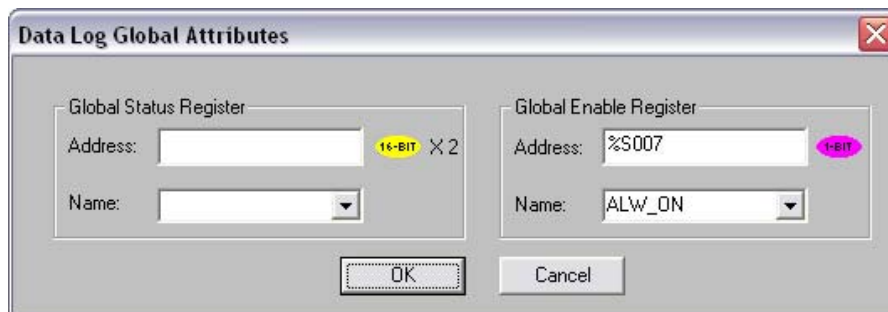


The 'Data Log Configuration' dialog box is shown. It has a checkbox 'Enable Data Log' which is checked. Below it, there are two sections: 'Group Operations' and 'Variable Operations'. In the 'Group Operations' section, there is a tree view showing 'Data Log Groups' and 'Motor1'. In the 'Variable Operations' section, there is a table titled 'Configured Variables'.

Address	Name	Type
%R0020	V1	INT

Step 2

Configure the Global Attributes (Status is Optional, more information in Cscape Help).

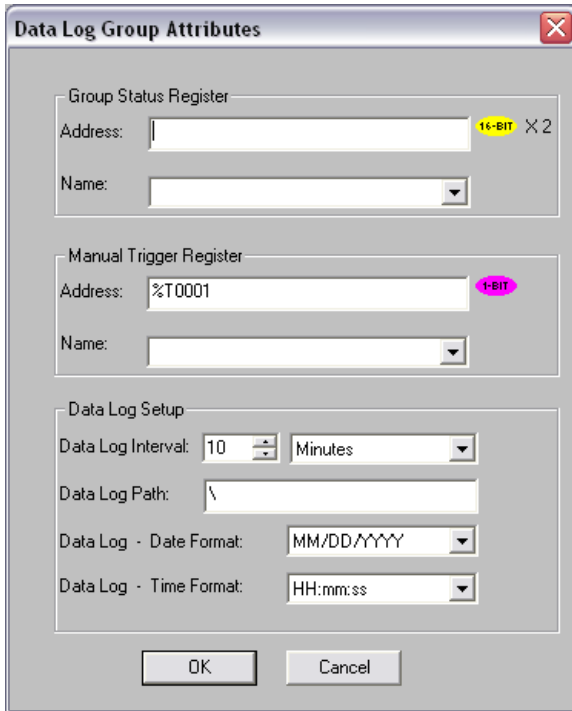


The 'Data Log Global Attributes' dialog box is shown. It has two main sections: 'Global Status Register' and 'Global Enable Register'. In the 'Global Status Register' section, the 'Address' field is empty and has a '16-BIT X 2' label. The 'Name' field is empty. In the 'Global Enable Register' section, the 'Address' field is set to '%S007' and has a '1-BIT' label. The 'Name' field is set to 'ALW_ON'. At the bottom, there are 'OK' and 'Cancel' buttons.

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Step 3

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



The dialog box titled "Data Log Group Attributes" contains three sections:

- Group Status Register:** Address: [text box], 16-BIT X 2, Name: [dropdown menu]
- Manual Trigger Register:** Address: %T0001, 1-BIT, Name: [dropdown menu]
- Data Log Setup:**
 - Data Log Interval: 10 [spin box] Minutes [dropdown menu]
 - Data Log Path: [text box]
 - Data Log - Date Format: MM/DD/YYYY [dropdown menu]
 - Data Log - Time Format: HH:mm:ss [dropdown menu]

Buttons: OK, Cancel

When Data Log Configuration is complete and downloaded to the target unit, 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).

At this point, the configured group starts sampling and logging data at its specified time interval (for example 10 minutes). Also, each time a group's Manual Trigger Register goes TRUE (%T1), an additional sample and log is performed for the group.

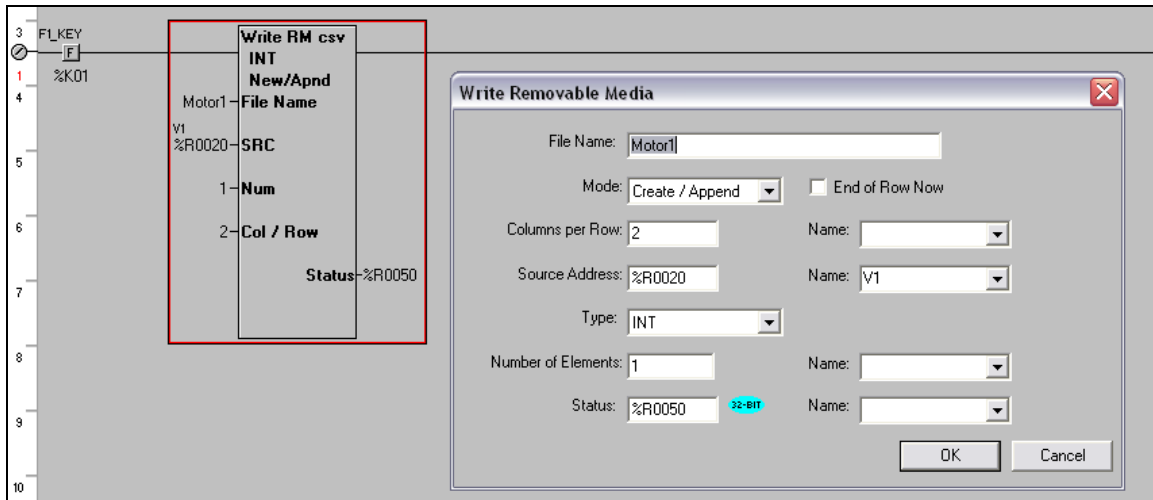
Here's an example of how a sample CSV file would look like:

	A	B	C
1	Date	Time	V1
2	5/21/2009	11:30:51	345
3	5/21/2009	11:40:51	10
4	5/21/2009	11:43:11	1040
5	5/21/2009	11:50:52	0

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PART 3 – Using the Ladder Functions (Manual Mode)

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



This and other function blocks like Read, Rename, Delete or Copy are fully described in Cscape Help (Help -> Elements -> Removable Media Functions),

Main differences between Auto and Manual modes:

- A log file created by ladder blocks (Manual mode) doesn't have the date and time added automatically (it logs just the register's value by default)
- A file created by Datalog Configurator (Auto mode) has an automatically created filename (based on the current date)

PART 4 – Practice

Please log data using both solutions and compare the created files by uploading them to your PC with Envision FX software.

End of LAB 6