Quick Start Guide

Nexto Xpress Compact PLC

SUEN00395 - High-speed datalogging

Beijer
ELECTRONICS

1 Function and area of use

This document provides guidelines when working with …….

2 About this Startup document

This Startup document should not be considered as a complete manual. It is an aid to be able to Startup a normal application quickly and easily.

Use the following hardware, software, drivers and utilities in order to obtain a stable application:

In this document we have used following software and hardware

- BCS Tools 3.30
- Nexto Xpress

For further information refer to

- Nexto Xpress CPU User's manual (Click here to download)
- Beijer Electronics knowledge database, HelpOnline

This document and other Startup documents can be obtained from our homepage.
Please use the address *support.europe@beijerelectronics.com* for feedback about our Quick Start documents.

3 Table of Contents

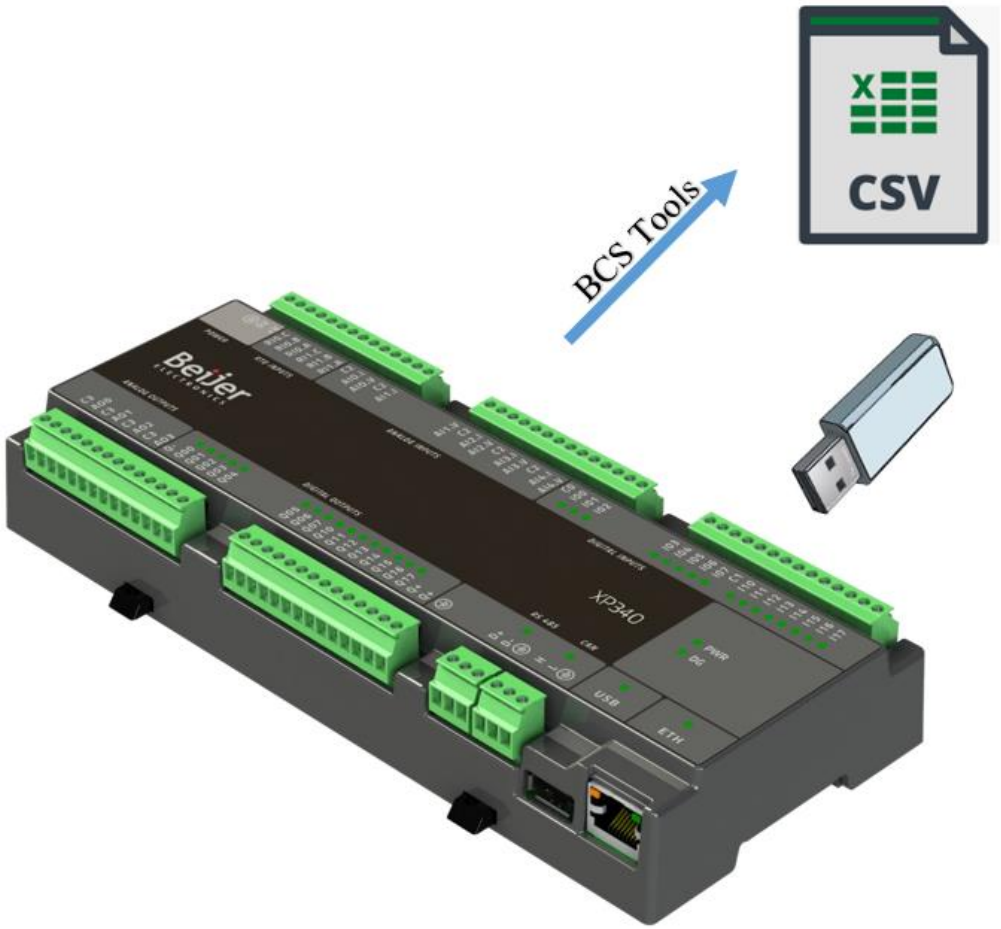
4 Introduction

The Nexto XPress series from Beijer Electronics includes a library (LibDatalogger) for logging high-speed data to local files in CSV format. The files are stored in persistent memory for later analysis in a spreadsheet (eg Excel®). The minimum logging frequency is 10ms in triggered mode and 100ms in continuous mode.

The generated CSV files can be stored as follows:

- Internal FLASH memory (retrieved with BCS Tools)
- USB memory

The code can easily be adapted to the larger PLC system in the Nexto series as well as the Xtorm RTU.

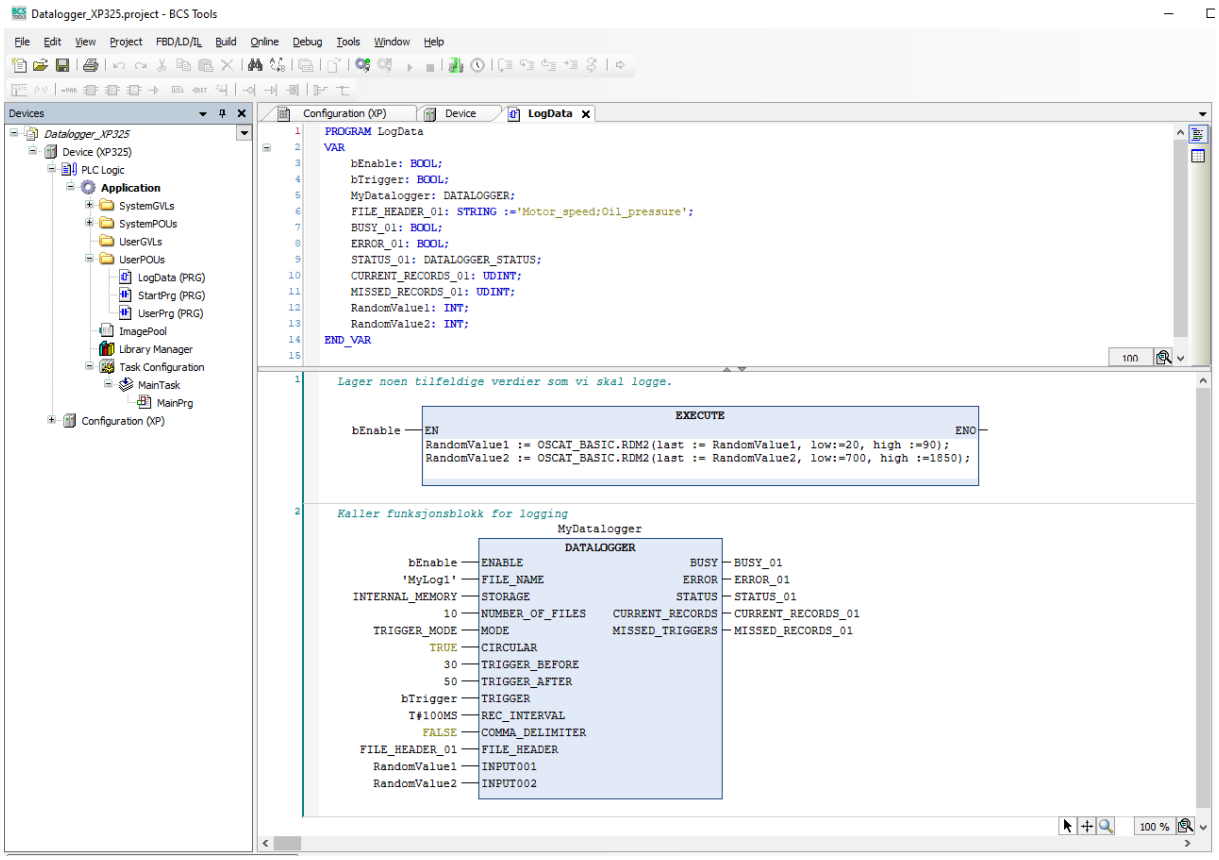


4.1 Add datalogging to the project

Start BCS Tools and open the project where you want to add data logging. In my example, I use the 'HelloWorld' project from the basic get started document (SUEN00393).

The datalog functionality is in the library 'LibDatalogger'. Add this library via 'Add Library' to 'Library Manager'. Here you find the function block, 'DATALOGGER' and associated object structure.

In my example, I have added 'DATALOGER', and associated object structure and settings in the 'LogData' program.

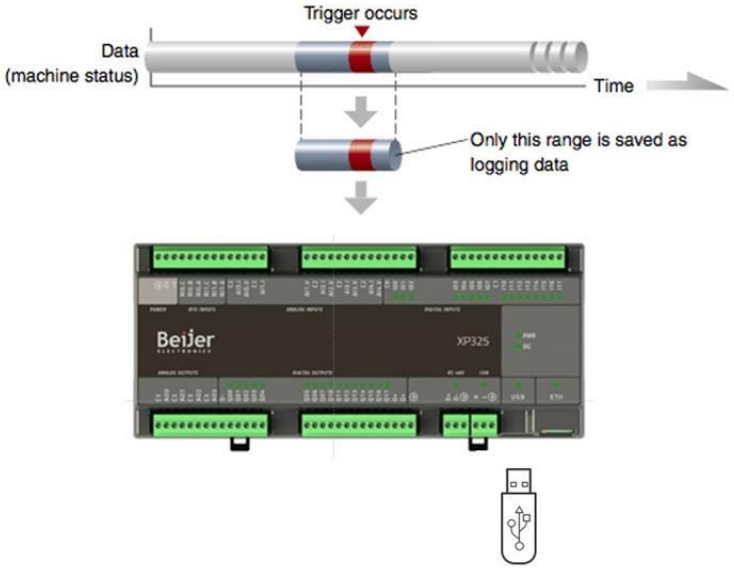


I use the RDM2 function in the OSCAT library to generate random values for the log. They are called as ST code in an 'EXECUTE' function. See the SUEN00393 document for details on how to add the OSCAT library.

The data logger client is controlled by several parameters. I have only configured what is needed to log 2 values every 100ms to internal memory on a trigger-signal. It is possible to log up to 255 values for each instance. The complete data logger manual (MU214604) contains a list of all possibilities

4.2 Trigger based logging

I have chosen trigger-based logging. When the data logger enables, it continuously stores the variables we have configured to an internal buffer. This is to remember the number of values we have configured before the trigger ('TRIGGER_BEFORE'). When the trigger signal becomes active, the number of values we have configured ('TRIGGER_AFTER') is logged. Once logged, the internal buffer is transferred to the log file the timestamp.

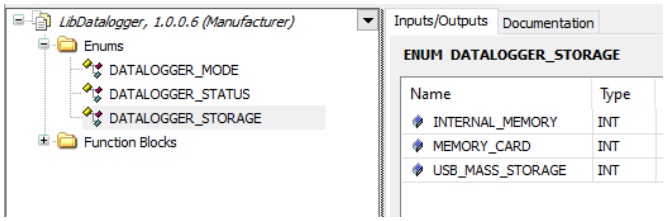


'FILE_NAME':

Text variable containing a unique file name for the log. In my example I have defined this as 'MyLog1'.

'STORAGE':

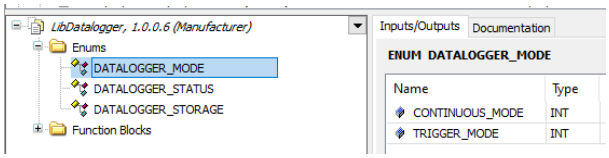
Parameter for specifying where to save the log files. In my example of internal memory.



Memory cards can only be used for the rack-based Nexto systems in the NX series as well as Xtorm.

'MODE':

Parameter for selecting log method. In my example it is set to 'TRIGGER_MODE'



'TRIGGER_MODE'

The logging is controlled by a trigger event, defined by the 'TRIGGER' parameter as described above.

'CONTINUOUS_MODE'

The logging runs continuously when the data logger is enabled. The CSV file is saved when the maximum number of rows is entered in the log. This is controlled by parameter 'FILE_RECORDS'.

‘NUMBER_OF_FILES’:

Maximum number of CSV files stored. What happens when the maximum number is reached is controlled by the overwriting parameter. If 'CIRCULAR' is set to 'TRUE', the oldest file will be overwritten. If set to 'FALSE', the data logger will stop and provide error code 'ERROR_NUMBER_OF_FILES_REACHED'. In my example, the oldest file is overwritten when 10 files are saved.

‘COMMA_DELIMITER’:

Parameter that determines whether the CSV file should use comma ('TRUE') or semicolon ('FALSE') as a delimiter. In my example I use semicolon.

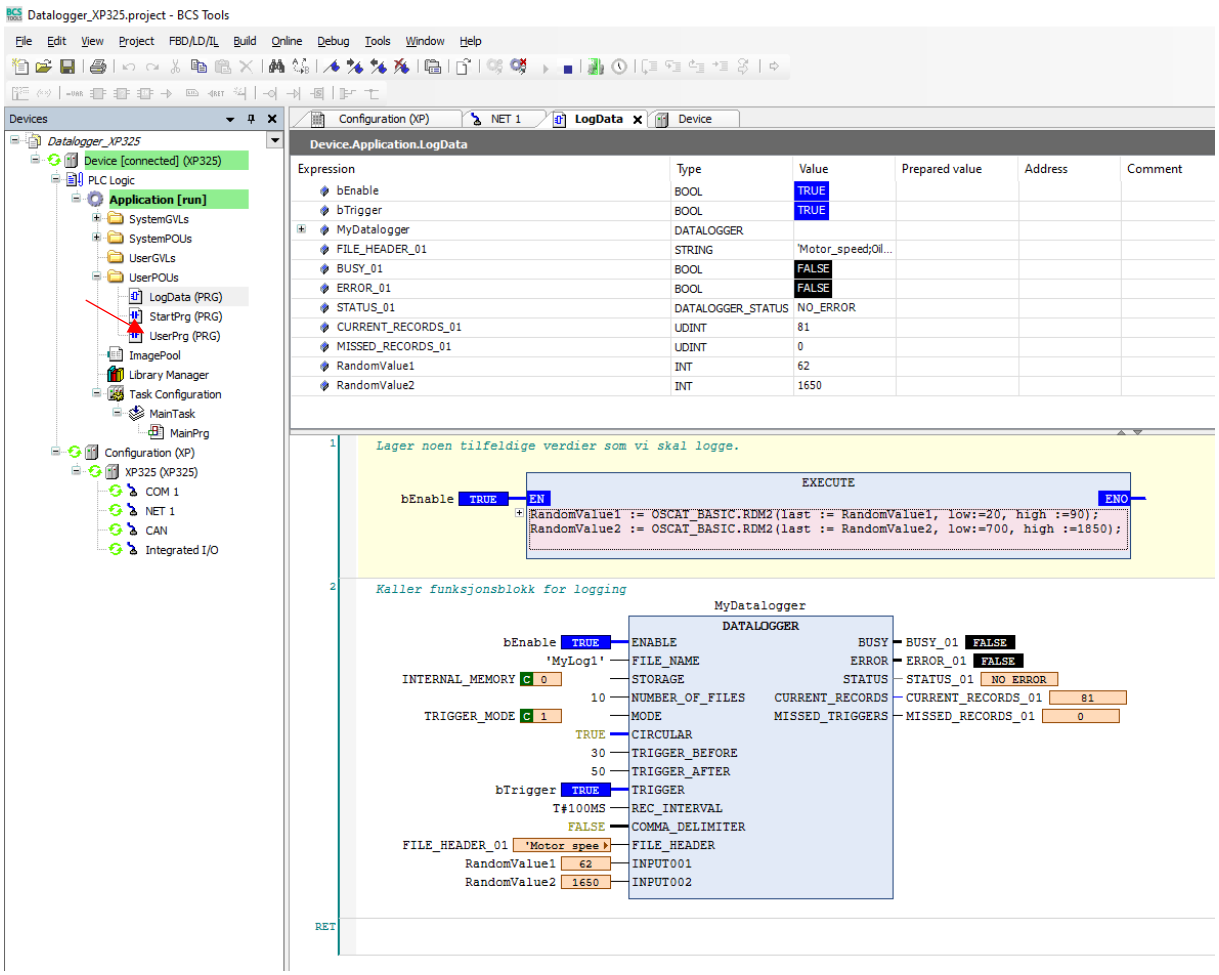
‘FILE_HEADER’:

Text variable containing column name for log if you want. In my example, I log two variables and call them 'Motor_speed; Oil_pressure '

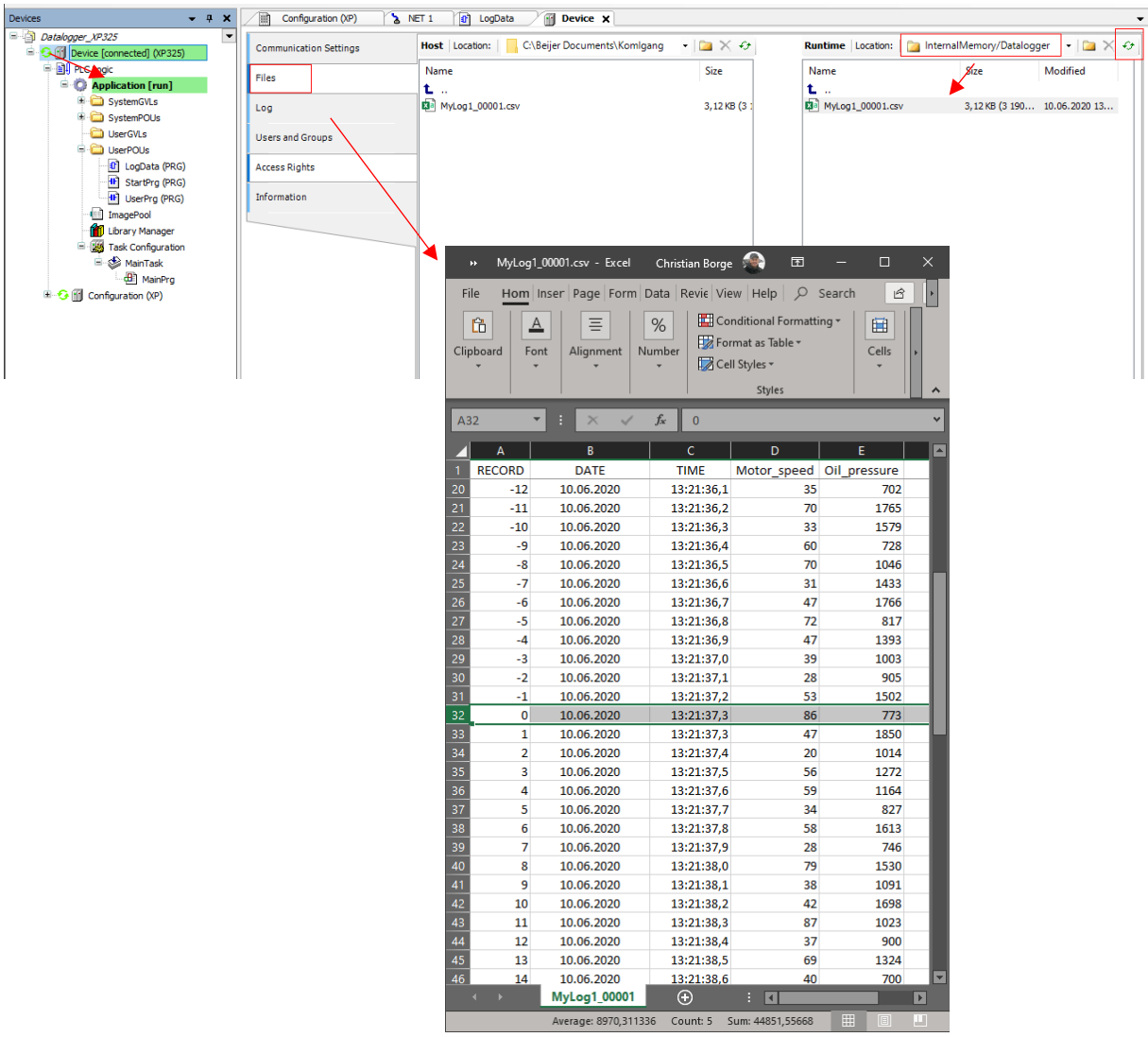
It is possible to run multiple instances of 'DATALOGS' at the same time but remember to use different filenames.

4.3 Test of function

Then my datalogger is configured and I can download and start the Nexto project. I start the logger with 'bEnable' and trigger saving a new log file with 'bTrigger'. Each trigger creates a file with 81 rows. These are the values at the time of the trigger (Record 0), as well as 30 logs before the trigger and 50 after the trigger as configured.



I save the files to internal memory in this example and they can be moved to my PC using the browser under Device / Files in BCS Tools.



5 About Beijer Electronics

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and services for the Industrial Internet of Things, we empower you to meet your challenges through leading-edge solutions.

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5.1 Contact us

Global offices and distributors

Beijer Electronics AB – *a Beijer Electronics Group company*

Head Office
Beijer Electronics AB
P.O. Box 426, Stora Varvsgatan 13a
SE-201 24 Malmö, SWEDEN
Telephone +46 40 35 86 00

Subsidiaries
Click here for details

Reg no. 556701-4328 | VAT no SE556701432801 | www.beijerelectronics.com | info@beijerelectronics.com