STARTER scripted trace to text file for MICROMASTER 4 and SINAMICS G120

MICROMASTER 4, SINAMICS G120 firmware version < V4

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Answers for industry.

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Description

This document and supporting files will allow the user to capture a trace of one or two parameters to a text file for further analysis by Microsoft Excel.

This works with MICROMASTER 4 and SINAMICS G120 firmware version < V4, and demonstrates the Microsoft VB script functionality available to the user in STARTER.

Table of content

1 Introduction

The trace feature available in many drives has proven a valuable tool. Recently, this tool was added to the new line of SINAMICS G120 control units CU2xx-2. However, for MICROMASTER 4 and SINAMICS G120 (firmware version < V4), trace was not available.

To get a equivalent fuction for converter without trace, this document and supporting files demonstrates the use of a script file to capture data (referred to here as trace) from an MICROMASTER 4 or SINAMICS G120 to a Microsoft text file.

Two script files, one for a single parameter trace and one for a two parameter trace, are attached which can be imported into STARTER.

Alternatively, the script text can be copied and pasted into an open script file in STARTER.

2 Variants adding a script

This FAQ describes two ways importing the script files into Starter, with the same result.

2.1 Variant 1 “copy and paste”

1. In STARTER, right-click on the top line drive object (i.e. MICROMASTER_440, SINAMICS_SINAMICS G120), and choose Expert \ Insert script folder.

NOTE Do not add the script folder to the top project line, it will not work! The Script folder must be within a drive object.

2. In the new scripts folder Double-click on “Insert script” and then name the script (i.e. Trace_1).
3. Find either of the two scripts near the end of these instructions (Trace_1 or Trace_2, and copy and paste (insert) the contents into the empty script folder. You can have multiple scripts in the script folder.

You are now ready to use the script, proceed to the section “Executing the script”.

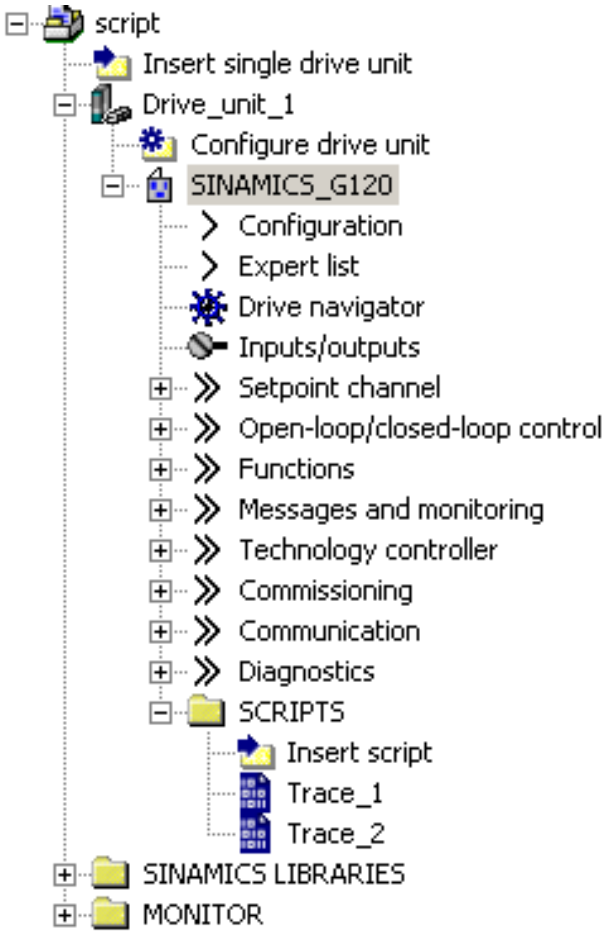
2.2 Variant 2 “Import”

1. In STARTER, right-click on the top line drive object (i.e. MICROMASTER_440, SINAMICS_SINAMICS G120), and choose Expert \ Insert script folder.

NOTE Do not add the script folder to the top project line, it will not work! The Script folder must be within a drive object.

2. Right-click on the Scripts folder, and choose ASCII import…
3. Browse to the folder Trace_1.txt or Trace_2.txt, choose Open, and then name the file as you desire (i.e.Trace_1 or Trace_2). You can have multiple scripts in the script folder.

You are now ready to use the script, proceed to the section “Executing the script”.


script
Insert single drive unit
Drive_unit_1
Configure drive unit
SINAMICS_G120
Configuration
Expert list
Drive navigator
Inputs/outputs
Setpoint channel
Open-loop/closed-loop control
Functions
Messages and monitoring
Technology controller
Commissioning
Communication
Diagnostics
SCRIPTS
Insert script
Trace_1
Trace_2
SINAMICS LIBRARIES
MONITOR

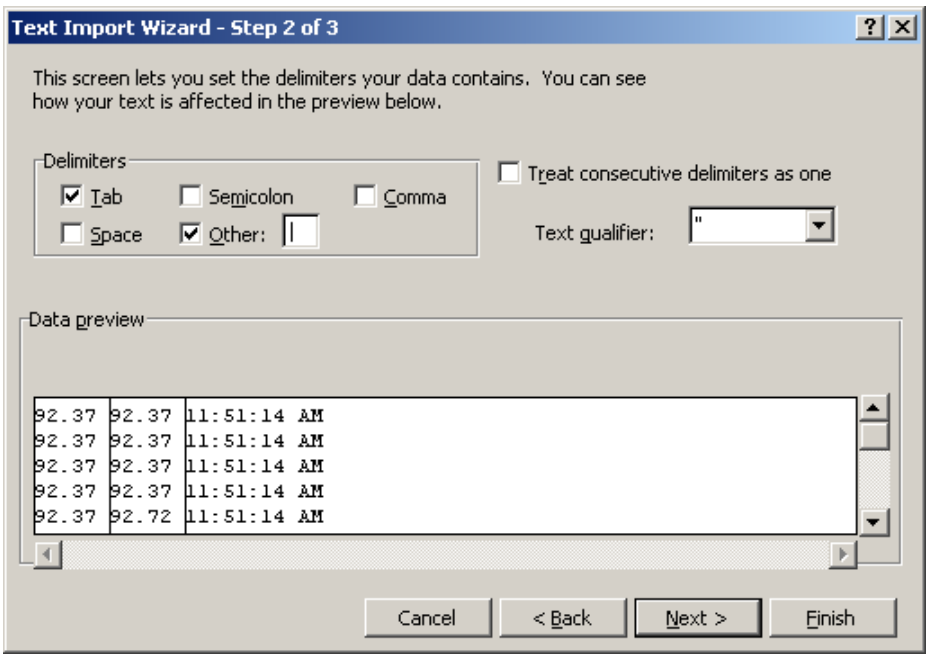
3 Executing the Script

1. Get connected to the drive using the fastest interface available to you (The script will execute online or offline, but is not too interesting offline).
2. Right-click on the desired script and choose “Accept and execute”. A sequence of dialog boxes will appear in succession.
3. Name the .txt file and path on the computer where the script should be saved (i.e. c:\mytrace.txt). A default name is supplied (trace.txt).
4. Select the parameter to be traced, without P or r. For Trace_2, you will select 2 parameters in successive input boxes. r63 (63) Actual Frequency and r1170 (1170) Frequency Setpoint after RFG are preselected, but you can enter any desired parameter number.
5. Select the number of sampling points to trace. 100 is preselected. When you select OK, the trace will commence. The scripting tab near the bottom of STARTER will show the progress of the script. When complete, a dialog will announce that the text file has been created.
6. After script execution import the text file into excel for graphical evaluation[1].

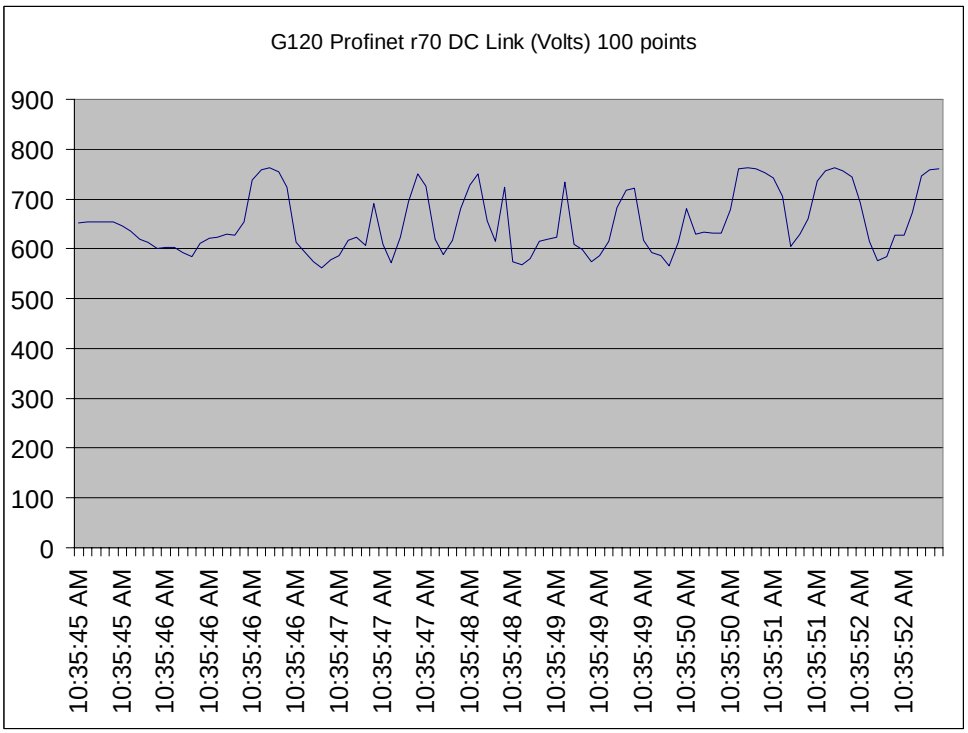
[1] The scaling of the signals for the desired graphical display can be adapted in Microsoft Excel.

4 Evaluating the Trace, using Microsoft Excel

1. You will need to either open the text file in excel or import the text file.
2. In either case, you will need to specify the “Pipe” key as a delimiter, by checking “other:” on import wizard 2 of 3 and typing in the pipe character to separate the columns of data correctly. (Shift - \, character looks like (I), with two vertical lines above one another).



3. To open the trace file as text (.txt) in excel, select File – Open with Files of Type All Files (*.*), then browse to the folder where you saved the text file.
4. To import the file, use the data menu Import External Data – Import data, then browse to the folder where you saved the text file.
5. Once the data is imported, chart the data by selecting the two or three columns with values and time, and then using the Excel Chart Wizard Icon. You will want the one or two columns of data to be the “values”, and the time column should be the category (x) axis labels.



NOTE

The resolution will vary depending on the PG/PC interface version and speed, the number of parameters captured, and other factors. A PROFINET trace will capture many more data points per second than an RS232 interface. The data captured is not isochronous.

With a MICROMASTER 4, for example the time in the trace example shown showed in the data that in the first second, 10 data points were recorded (100 ms per point), but most of the seconds had six data points recorded (166 ms per point).

For a SINAMICS G120 and PROFINET interface, sampling rates varied from 16 to 23 sampling points per second (62 ms per point to 43 ms per point).

In any case, despite the irregularities in sampling rate based on Windows processes and communications interfaces, the function does provide a window into the process that might not otherwise be available!

5 Trace Scripts

5.1 Trace_1 Script

```
APP.LogActive = True

On Error Resume Next

Dim MyFileName, values, recordtime, parameter, samples, i

MyFileName=InputBox("Enter path and filename.txt for output"  & vbCrLf &
"(i.e. c:\mytrace.txt","Save File As", "c:\trace.txt")

parameter=InputBox("Enter parameter to trace (i.e. 63 for r63", "Enter
parameter To trace","63")

samples=InputBox("Enter number of sampling points", "Duration of Trace",
100)

Dim filesys, filetxt, getname, myPath

Set filesys = CreateObject("Scripting.FileSystemObject")
Set filetxt = filesys.CreateTextFile(MyFileName, 8, True)
myPath = filesys.GetAbsolutePathName(MyFileName)
getname = filesys.GetFileName(myPath)



For i = 1 To samples

  recordtime = Time()
  values = (Parameters(parameter, 0))&"|"&recordtime
  filetxt.WriteLine(values)

Next

filetxt.Close
Set filesys = Nothing
Set filetxt = Nothing

If filesys.FileExists(myPath) Then
    MsgBox(MyFileName & " has been created")

End If
```

5.2 Trace_2 Script

```
APP.LogActive = True

On Error Resume Next

Dim MyFileName, values, recordtime, parameter, samples, i

MyFileName=InputBox("Enter path and filename.txt for output"  & vbCrLf &
"(i.e. c:\mytrace.txt","Save File As", "c:\trace.txt")



parameter=InputBox("Enter first parameter to trace (ie 63 for r63", "Enter
parameter #1 To trace","63")
parameter2=InputBox("Enter second parameter To trace (i.e. 1170 For r1170",
"Enter second parameter To trace","1170")

samples=InputBox("Enter number of sampling points", "Duration of Trace",
100)

Dim filesys, filetxt, getname, myPath

Set filesys = CreateObject("Scripting.FileSystemObject")
Set filetxt = filesys.CreateTextFile(MyFileName, 8, True)
myPath = filesys.GetAbsolutePathName(MyFileName)
getname = filesys.GetFileName(myPath)

For i = 1 To samples

  recordtime = Time()
  values = (Parameters(parameter, 0))&"|"&(Parameters(parameter2,
0))&"|"&recordtime
  filetxt.WriteLine(values)

Next

filetxt.Close
Set filesys = Nothing
Set filetxt = Nothing

If filesys.FileExists(myPath) Then
    MsgBox(MyFileName & " has been created")

End If
```