SINAMICS G120: Using STARTER-Trace-Function to Record Drive Data in Offline Mode

STARTER, SINAMICS G120, V4.4, V4.6

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1 Using Trace Function to Record SINAMICS G120 Drive Data in Offline Mode

Abstract

This document introduces a method to get the trace data offline. So when a fault occurs, the value of some parameters can be recorded. This can help analyze the cause of the fault.

Overview

STARTER provides a powerful "Trace" function, i.e. tracking and recording, which can record some important parameter values, such as output voltage, output current and output torque in SINAMICS S120/G150/G120 when the drive is running.

In general, these parameters are recorded using trace function through connecting a PC to the drive; setting online mode and then activating trace function. The trace function can record the changes in the parameters and then the results are shown online immediately after the trace function is completed. On some sites, faults occur sporadically. So it is difficult for the engineer and the operator on site to trace the drive status when faults happen. To find out the root cause of the faults and eliminate them, it is very important to know the drive status before and after faults. The solution is to use the trace function of STARTER offline. First set and activate the trace function online. Then disconnect the PC with the drive, i.e. offline. The trace function records data when a fault occurs. Finally connect the PC to the drive. Go online and upload the trace data from the drive.
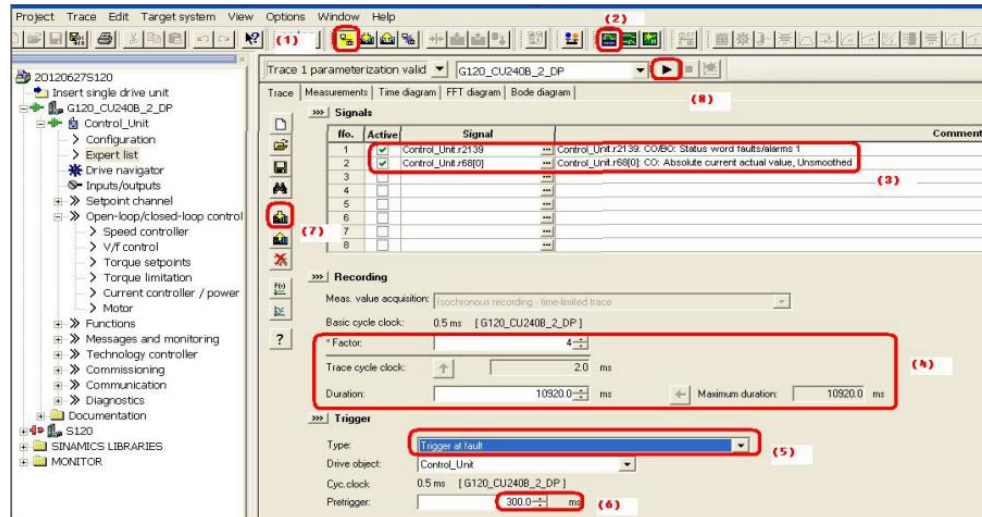
NOTE	• The offline trace method in this document is applicable to SINAMICS G120-2 (All variants of CU230P-2, CU240B/E-2 and CU250S-2 with firmware version of V4.4, V4.5 and V4.6).
	• If the drive is switched off, the offline trace data will be lost.
	• The SINAMICS G120 CU240B-2 DP V4.4 is used in the example for the procedures below.

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Step 1: **Set and active trace function online.**
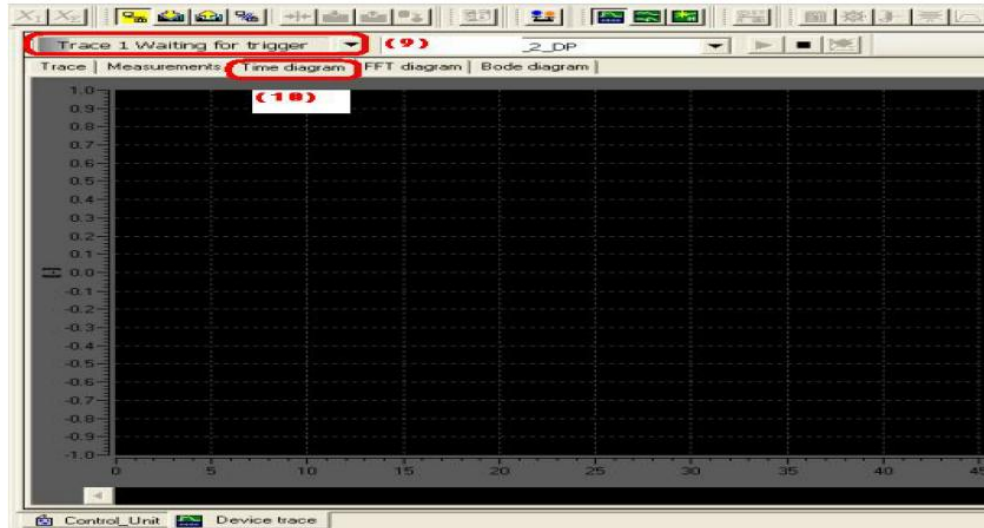
Figure 1

1. Create a new SINAMICS G120 project in STARTER, establish online connection between PC and CU240B-2 DP V4.4. (Assume that the configuration and connection procedures are done).

2. Click [icon] to open the trace function

3. Select parameter r68 (output current) and r2139 (Alarm/Fault status word).

4. Set the factor of the basic cycle clock to 4. Accordingly the trace cycle clock is 2 ms. The time length for recording is 10920ms.

5. Set the trigger condition: select "Trigger at fault". The trace function is triggered when a fault occurs

6. Set "pre-trigger" to 300ms, to record 300ms before a fault occurs. So the record time after fault is 10920-300=10620ms.

7. Click [icon] to download trace function setup.

8. Click [icon] to activate trace function. After the function is activated, start the drive, and make the motor run. Because if the motor is not running, the output current will stay at zero.

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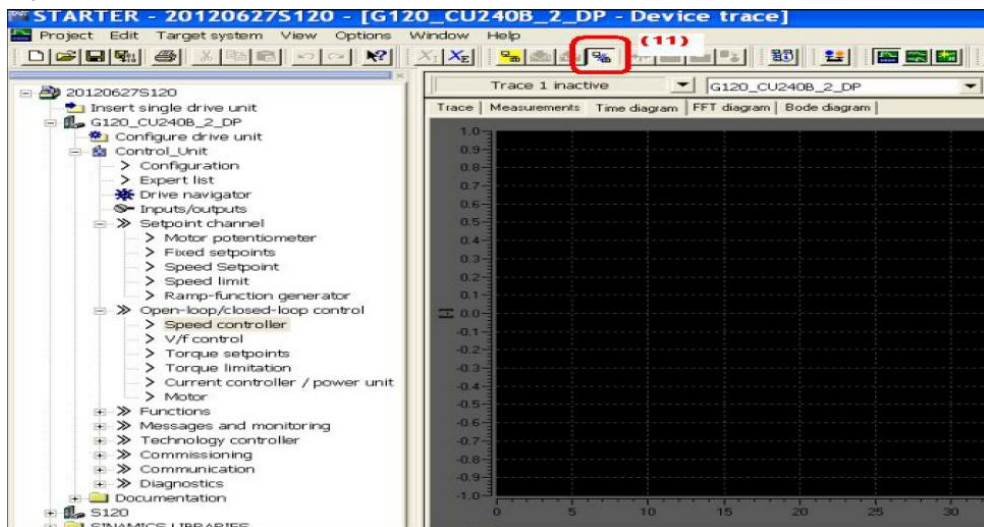in Offline Mode; ID:102048034

Figure 2

9. Wait for trigger.
10. No fault, so nothing is recorded as shown in figure 2.

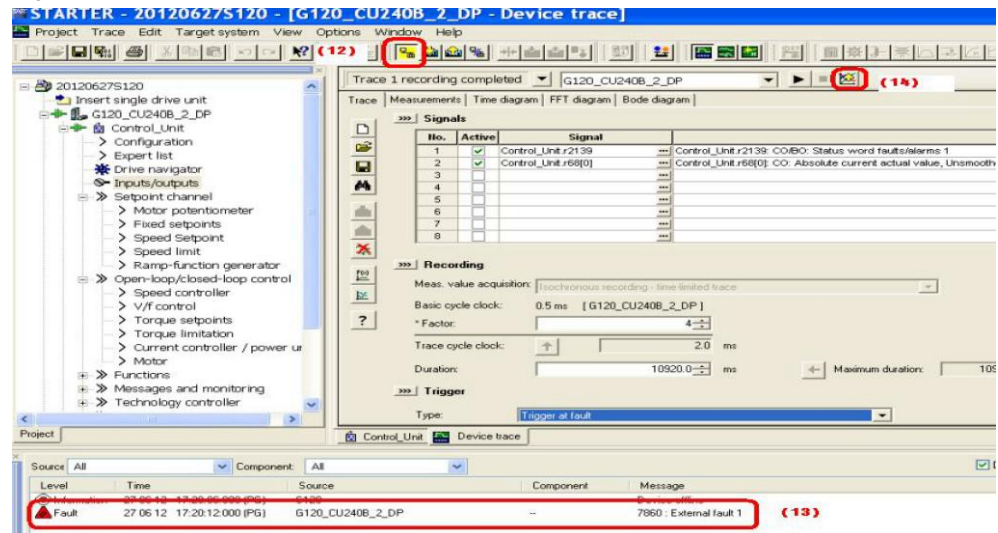**Step 2:** **Disconnect PC with SINAMICS G120 CU240B-2 DP.**

Figure 3

11. Click [icon]. PC goes offline

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Step 3: **Trace function records and saves data in SINAMICS G120 when a fault occurs. Connect PC to the drive in online mode and upload the data from SINAMICS G120.**
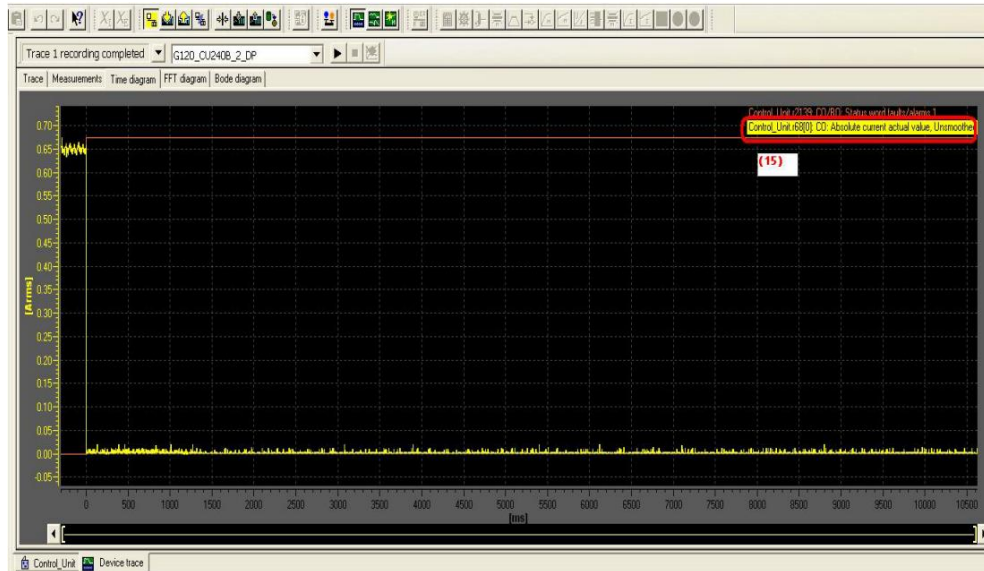
Figure 4

12. Click [icon]. The PC goes online.

13. The fault code is F07860, indicating external fault. The trace function is triggered to record r68 and r2139.

14. Click [icon]. Upload the trace data of r68 and r2139 from CU240B-2 DP to the PC.
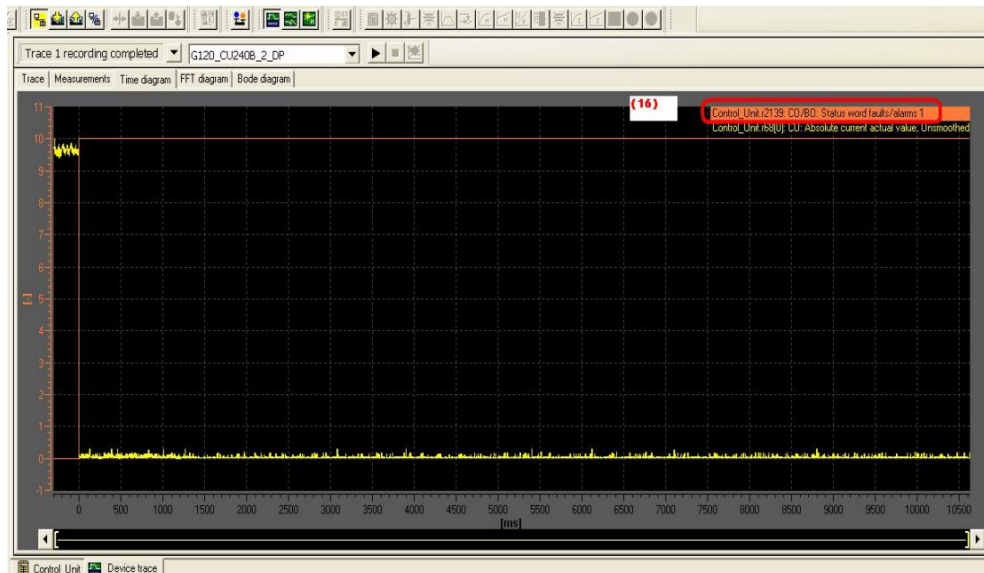
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Figure 5

15. The output current value r68 before the fault is 0.65A and changes to 0A when the fault occurs.

Figure 6

16. The value of r2139 (Alarm/Fault status word) is 10.

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Figure 7

17. The bit1 and bit3 of r2139 is1. So the r2139 value traced is 10.