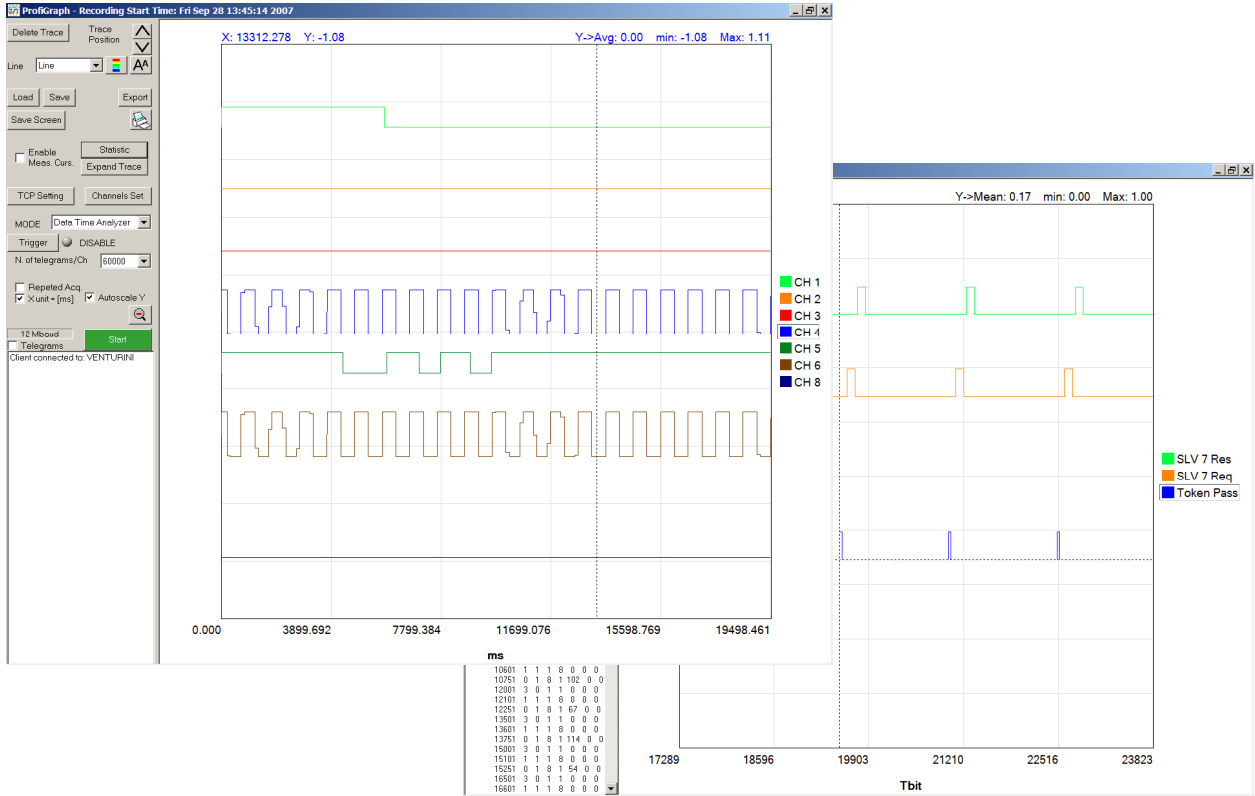


ProfiGraph

Application Examples

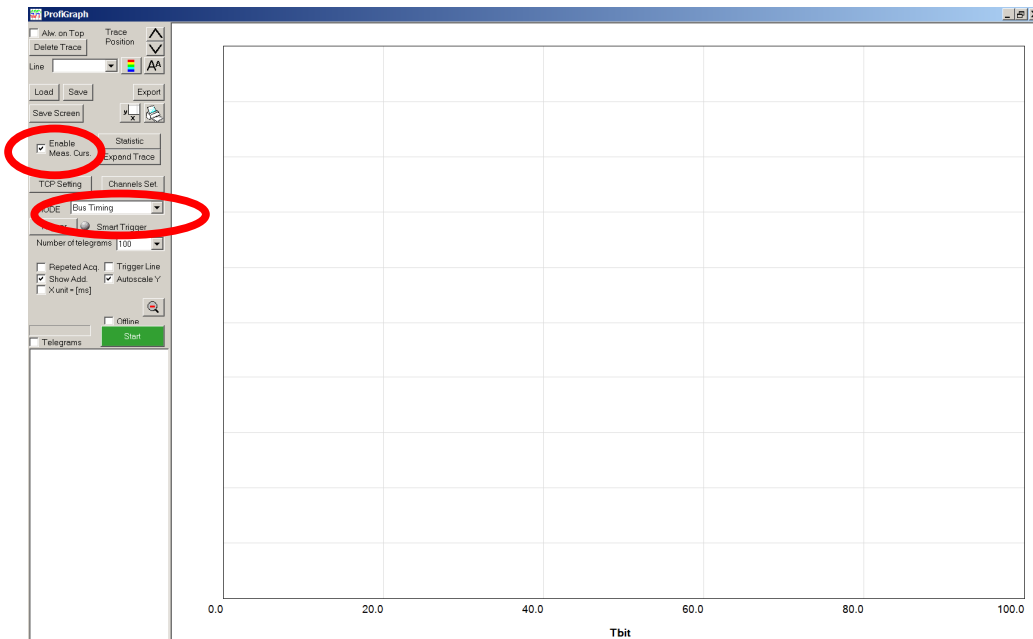


Example 1

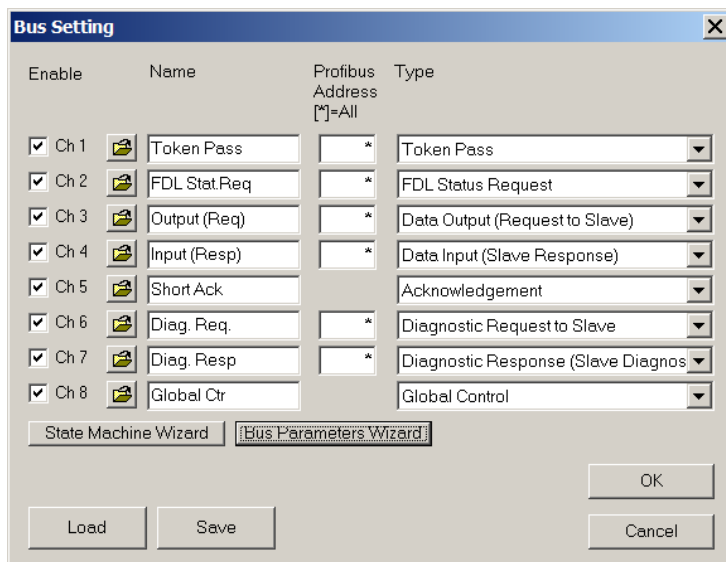
Bus Timing

With this example you will learn how to measure: telegram length, T_{sl} , T_{id1} , T_{sdX} , Token Cycle

1. Select “**Bus Timing**” mode.
2. Select **Enable Meas. Curs.**



3. Press **Channel Set.**
4. Press “**Bus Parameter Wizard**”

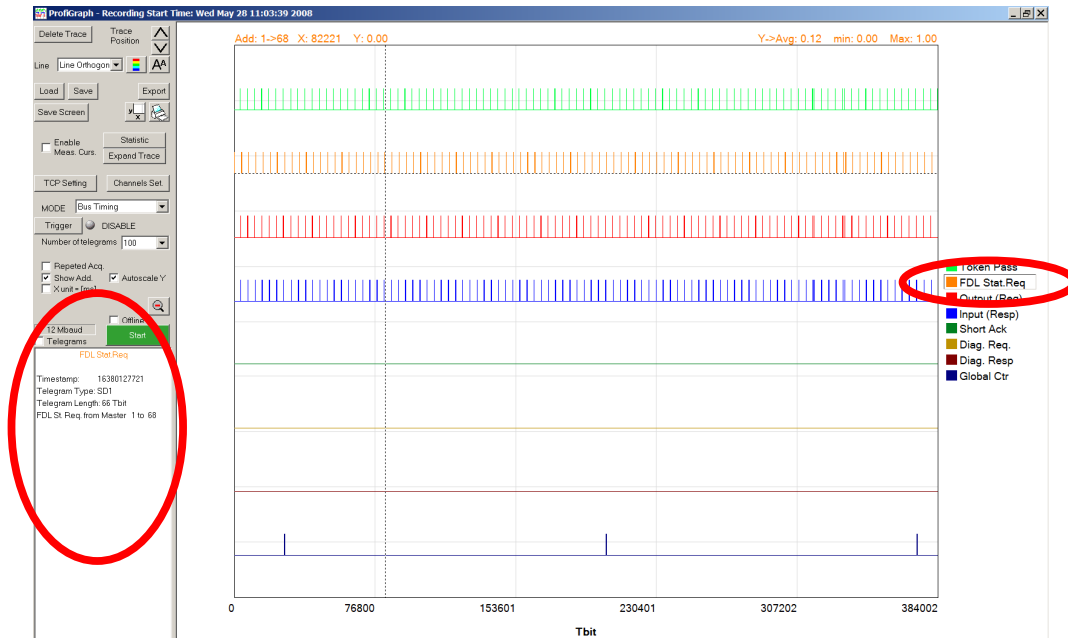


5. Press **OK.**
6. Press **Start.**



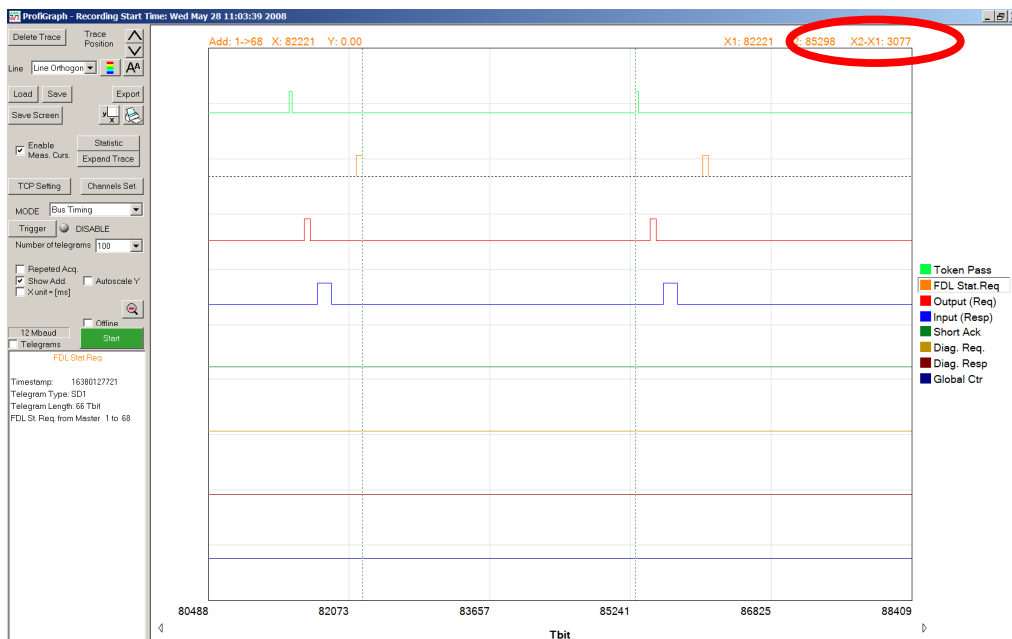
Telegram Length

Select the type of the telegram, clicking on the right side of the graph (for example FDL Stat. Reg.). With the cursor choose the telegram. At the left side, in the Info Panel, you can read the Telegram Length.



T_{sl} (Slot Time)

Select a “FDL Stat. Reg.” telegram without response, place the first cursor at its end. Select the following “Token Pass” telegram, place the second cursor at the begin. Now at the top right corner you can read the T_{sl} .



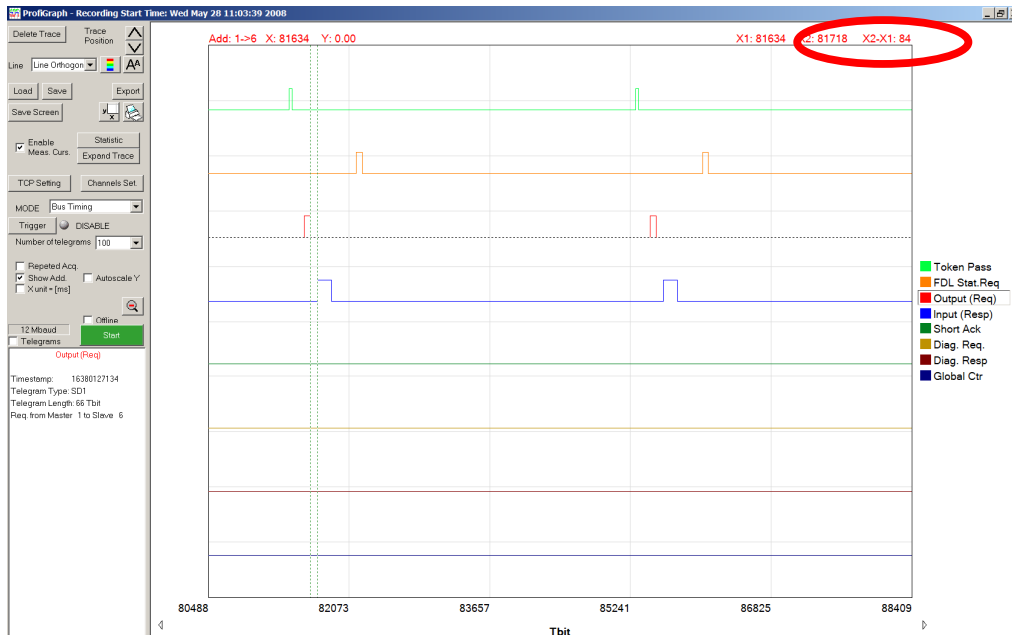
T_{id1} (Idle Time 1)

Select a “Token Pass” telegram, place the first cursor at its end. Select the following “Output” telegram, place the second cursor at the begin.



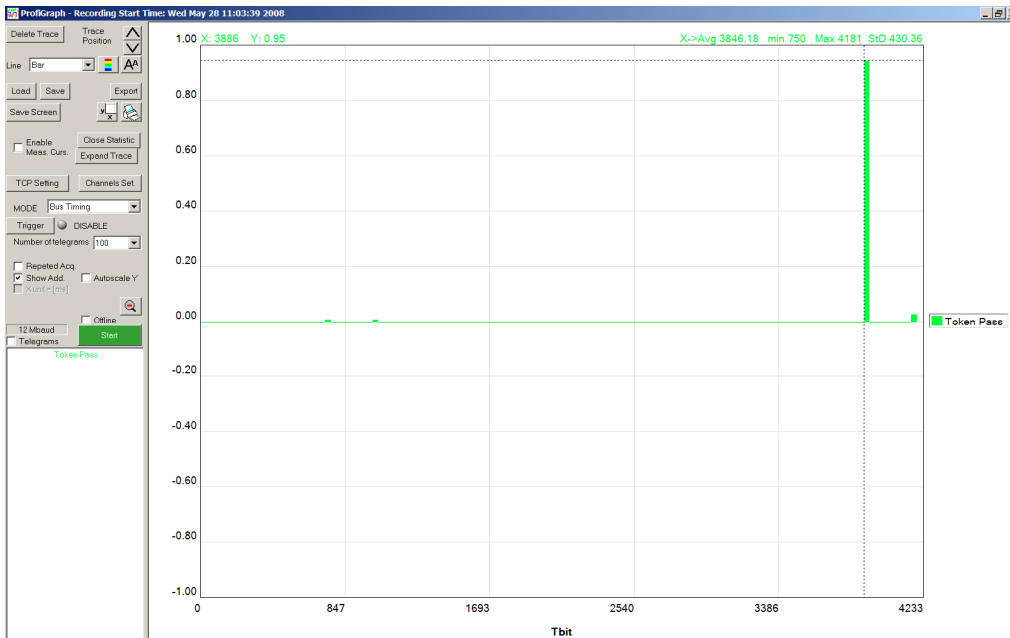
T_{sdx} (Station Delay Time)

Select a “Output” telegram, place the first cursor at its end. Select the following “Input” telegram, place the second cursor at the begin. ($\min T_{sdr} < T_{sdx} < \max T_{sdr}$)



Token Cycle

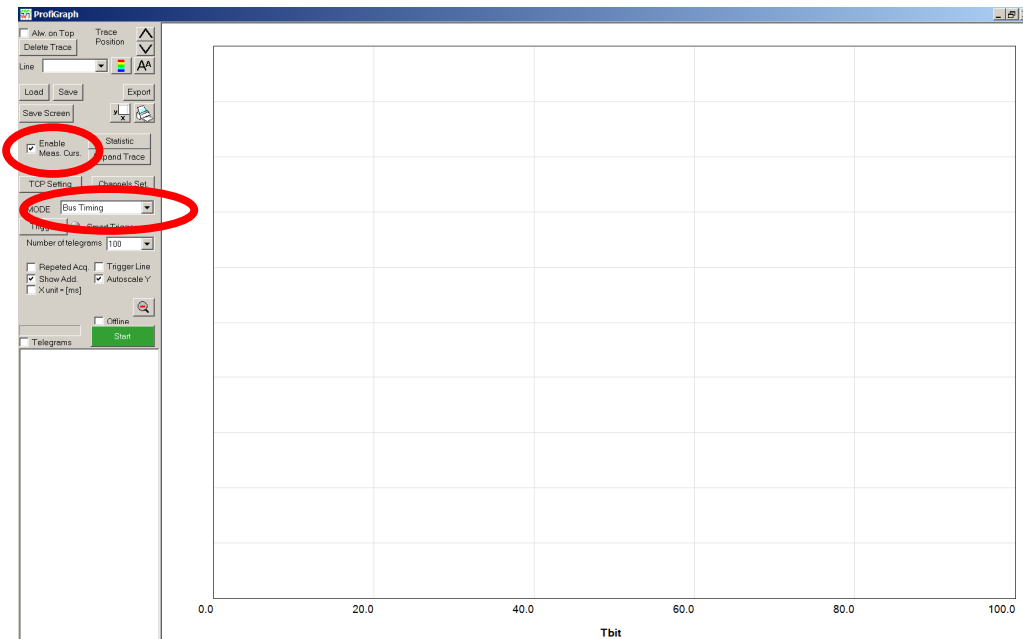
Select the type “Token Pass”, press the button statistics. You can see the distribution, the mean, the minimum, the maximum, the standard deviation of the Token Cycle.



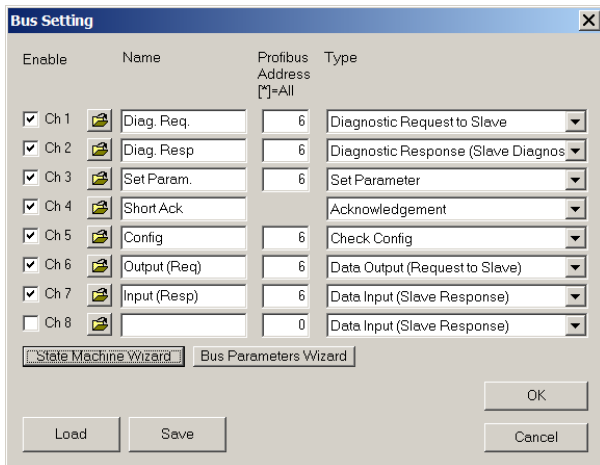
Example 2

State Machine

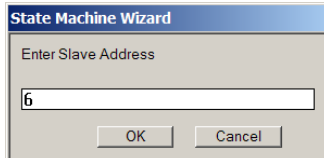
1. Select “**Bus Timing**” mode.
2. Select **Enable Meas. Curs.**




3. Press **Channel Set.**
4. Press “**State Machine Wizard**”

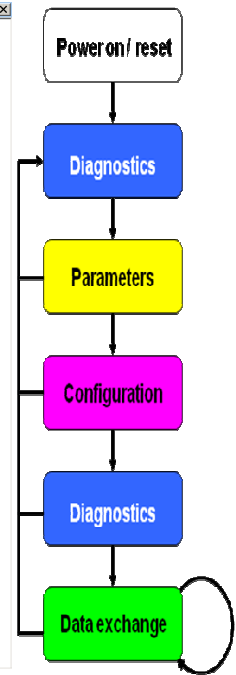
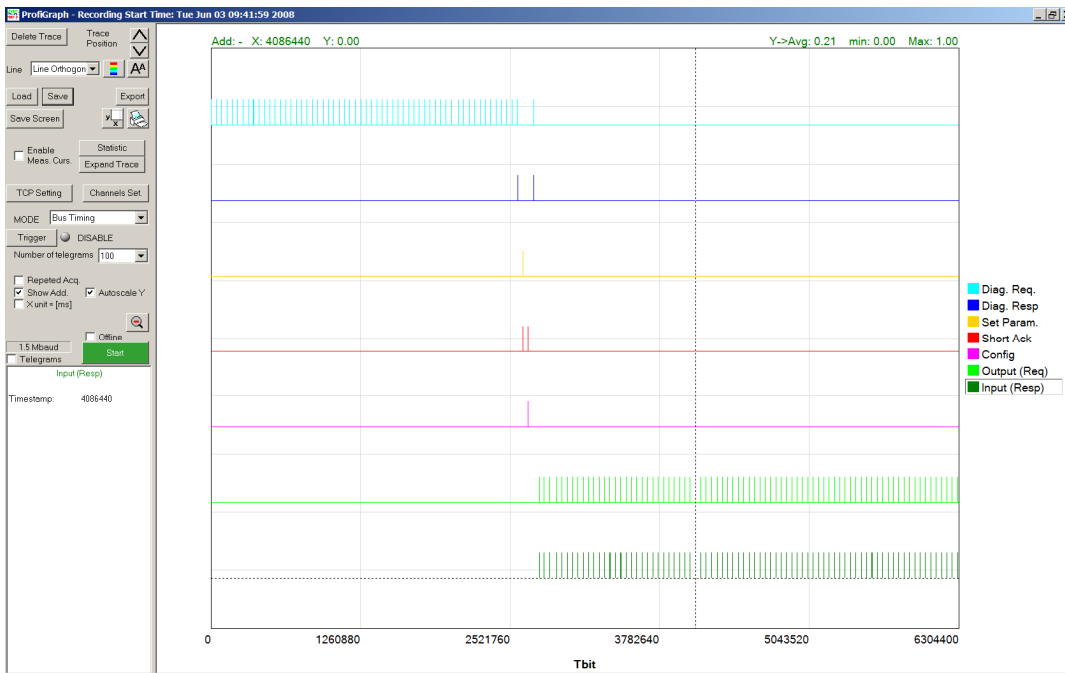


5. Enter the Slave Address.



6. Press OK.
7. Press Start. 
8. Switch off and on the slave.

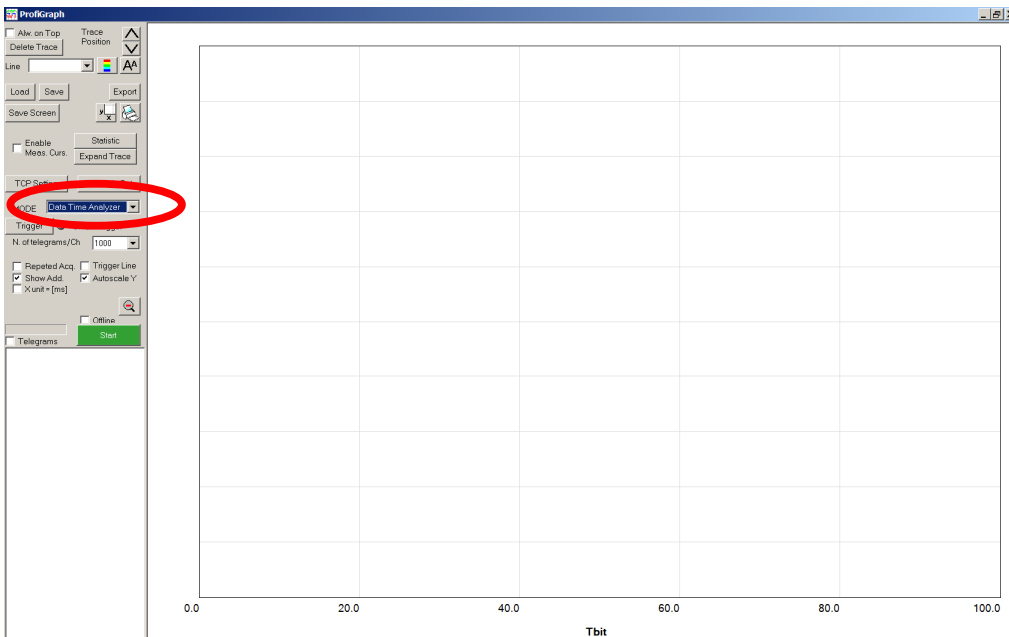
State Machine



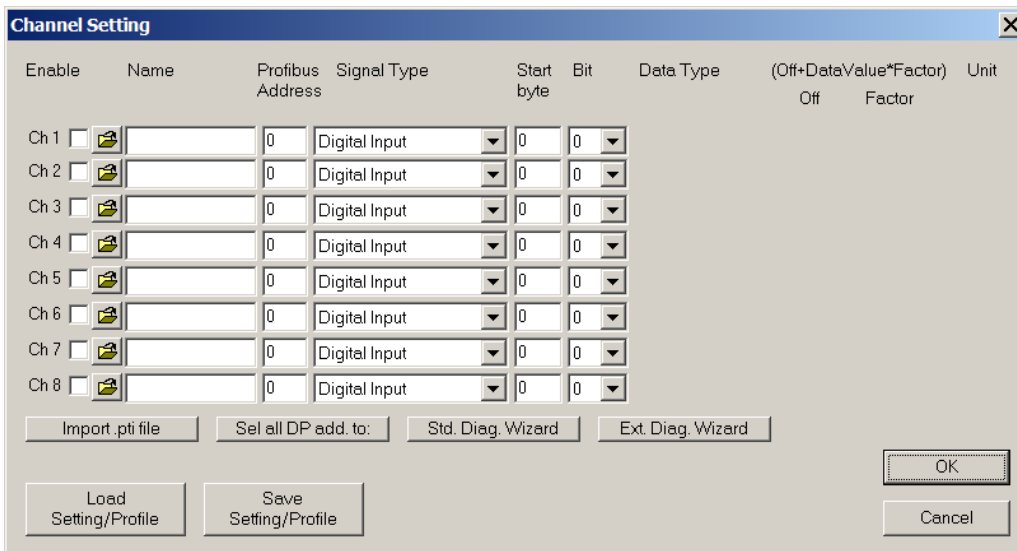
Example 3

Data Analysis

1. Select “Data Time Analyzer” mode.



2. Press Channel Set.




3. Enable Ch1. Enter the name and the Profibus Address. Select the Signal Type.

Now you need to know the position of your data inside the Data Telegram. You can get this information from your engineering tools. If you are using a standard DP profile, you have these information inside the profile documentation.


If you are using Step 7 you can export the configuration.

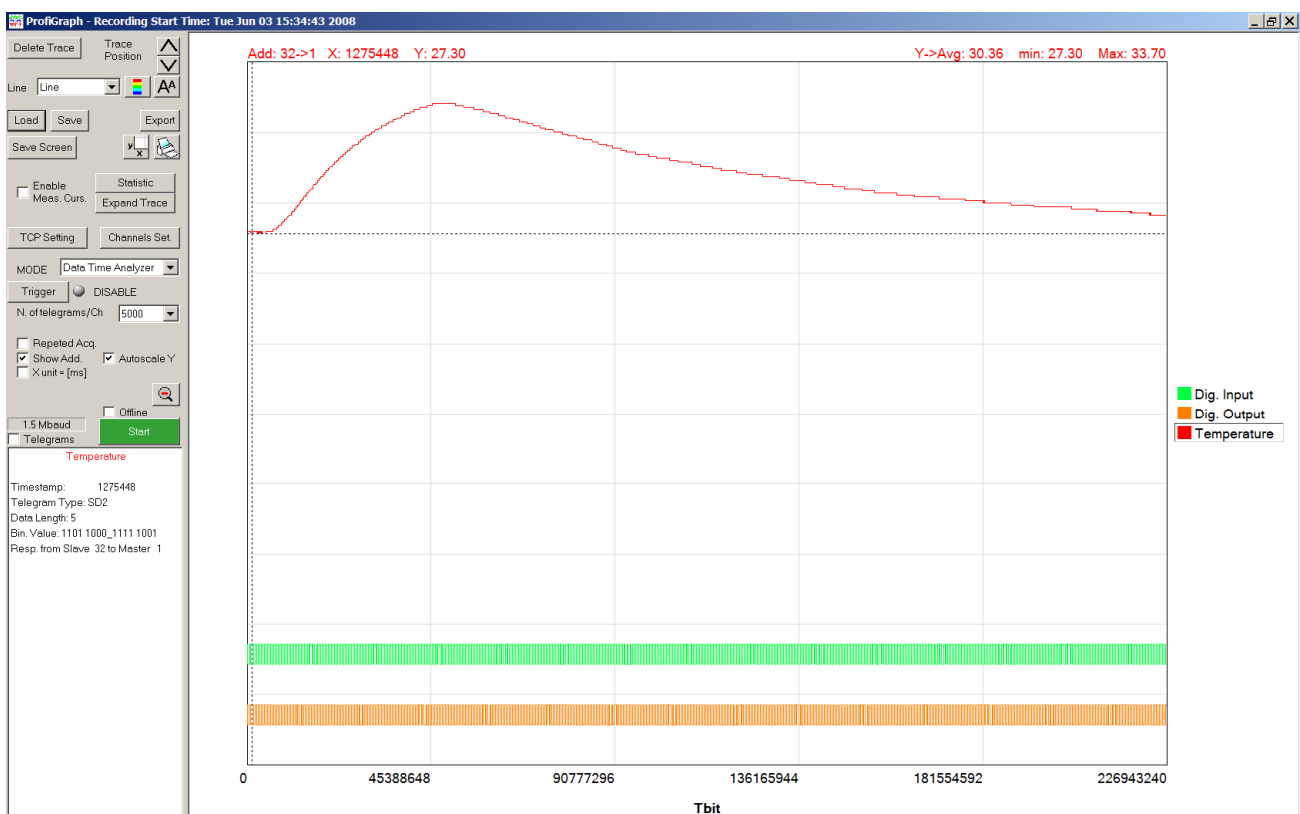
In Step 7 open HW Config and select **Station->Export**. Press Browse and select the directory C:\Program\ProfiTrace_V1_6_2\ProfiGraph\HW_Configuration. Insert the file name. Select Option “Export symbols” and Format “Readable”, and press Save.

Press  before the channel Name, and import the configuration.

You can also press **“Import .pti files”**. It can be used to read a ProfiTrace “Data Inspection” file.

4. Press OK.

5. Press Start. 



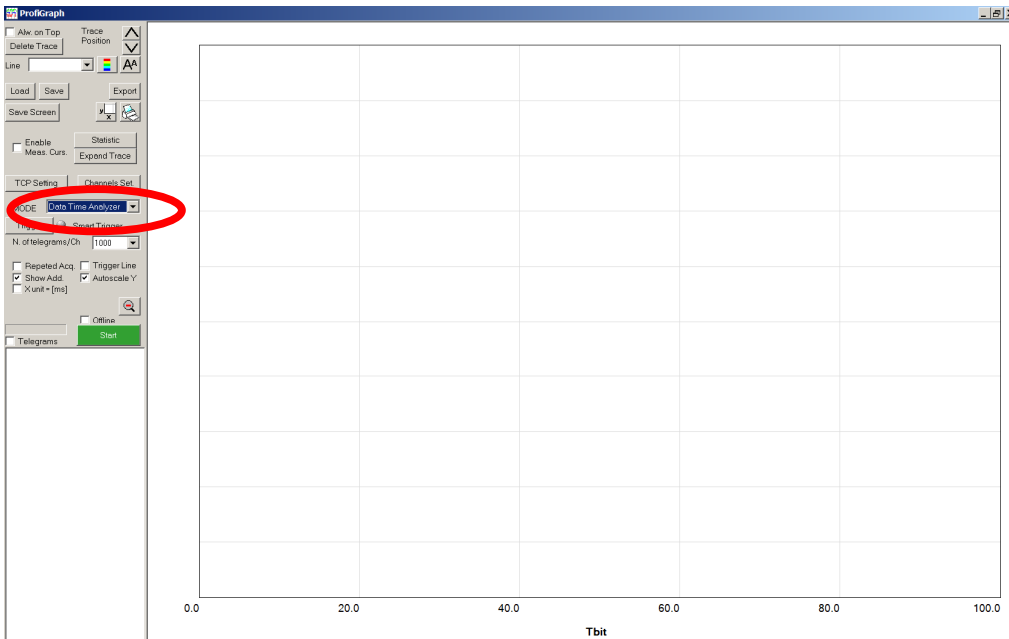
Press **“Expand Trace”** to see the selected trace in full screen mode.

If you have a digital signal press the button statistics. You can see the distribution, the mean, the minimum, the maximum, the standard deviation of this signal.

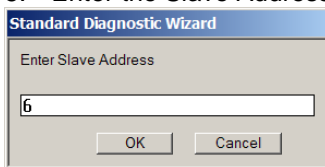
Example 4

Extended Diagnostic

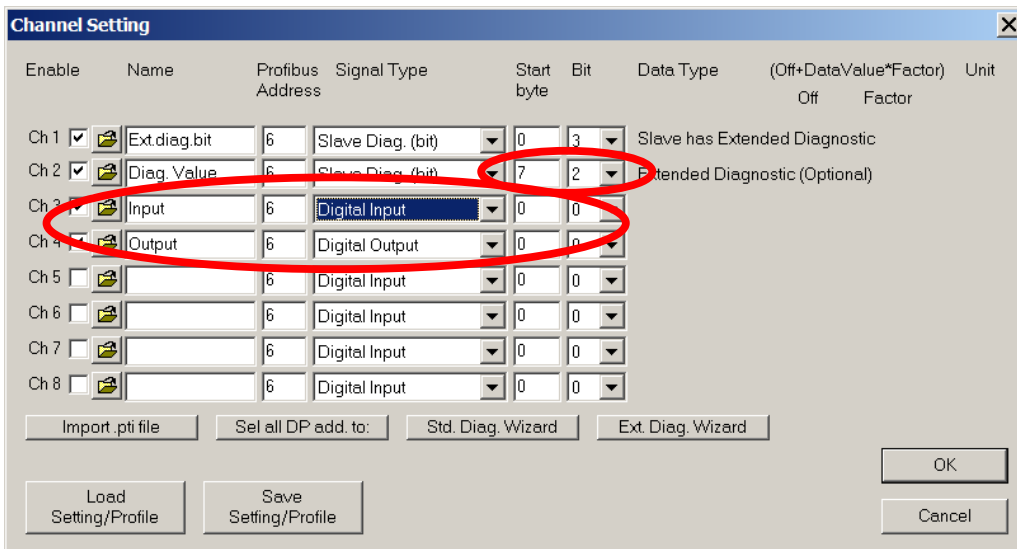
1. Select “Data Time Analyzer” mode.
2. Select **Enable Meas. Curs.**



3. Press **Channel Set.**
4. Press “Ext. Diag. Wizard”
5. Enter the Slave Address.

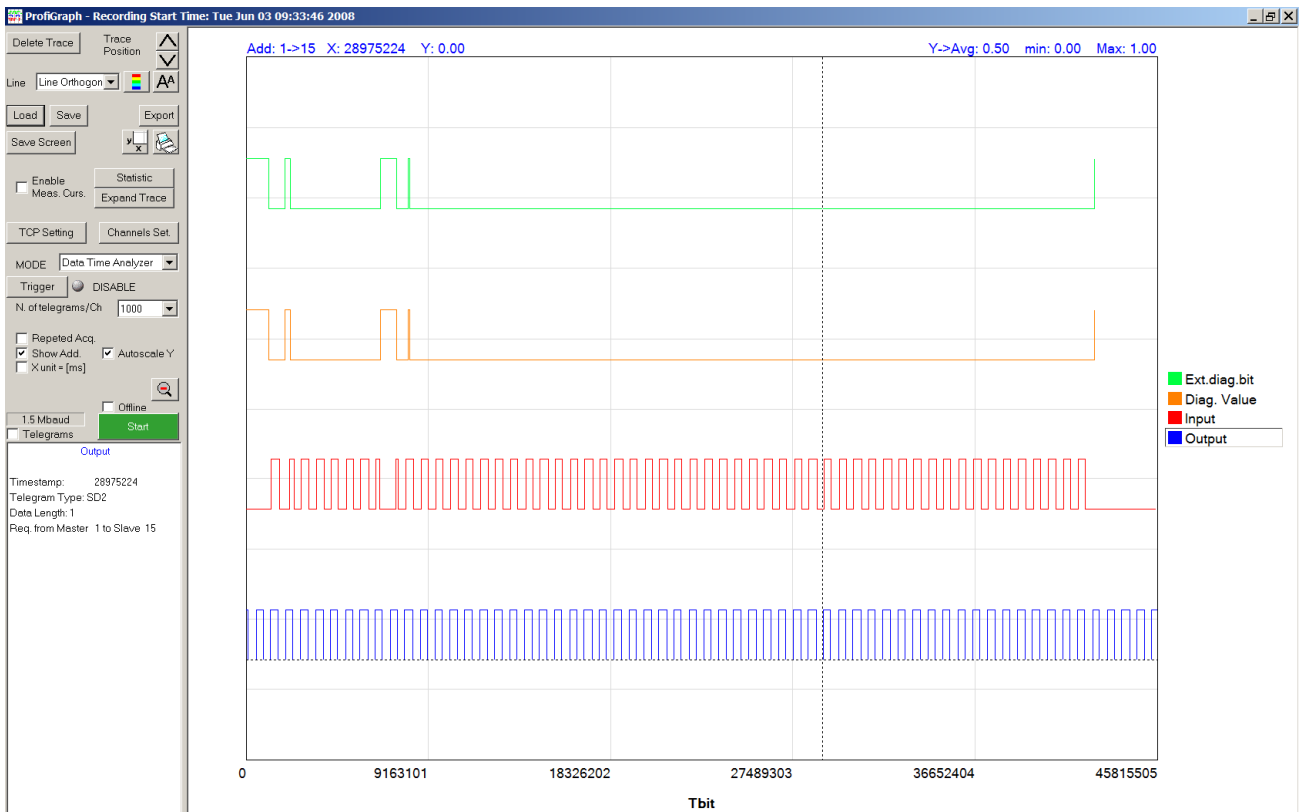


6. Set the extended Diagnostic Data and the Input/Output data to analyze.



7. Press OK.

8. Press Start.

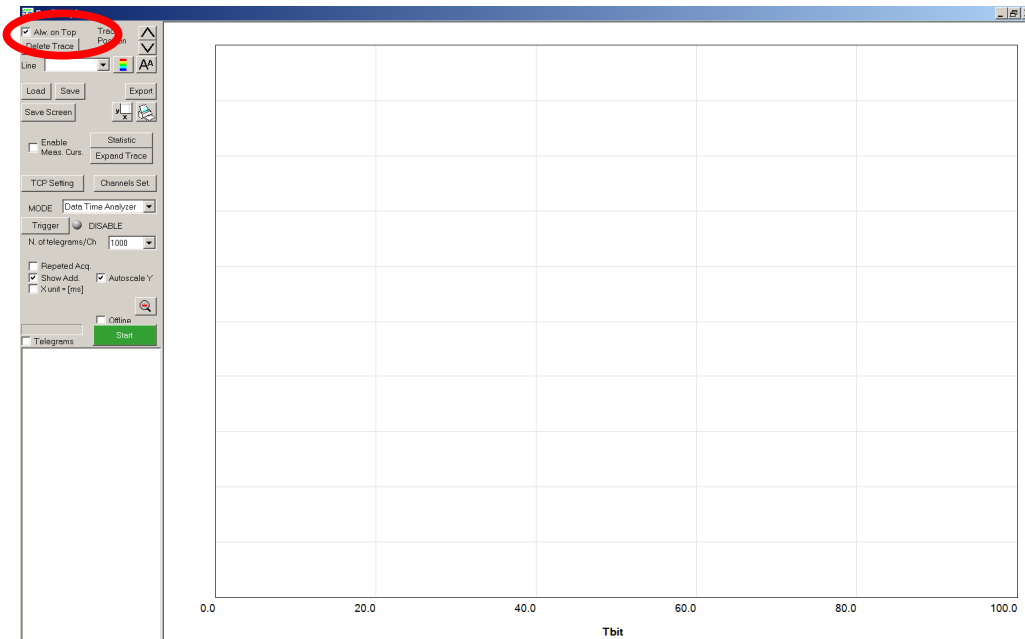


Example 5

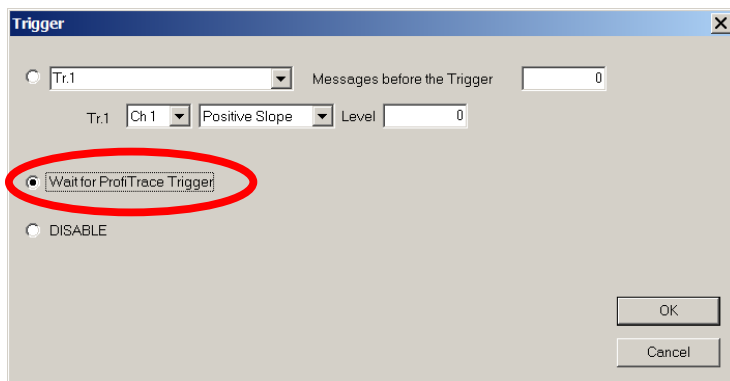
Using ProfiTrace for triggering and filtering

You can use the ProfiTrace Filter and Trigger for to capture the telegrams. You can also use ProfiTrace to save the telegram in .ptd format.

1. Select “Alw. On Top”.

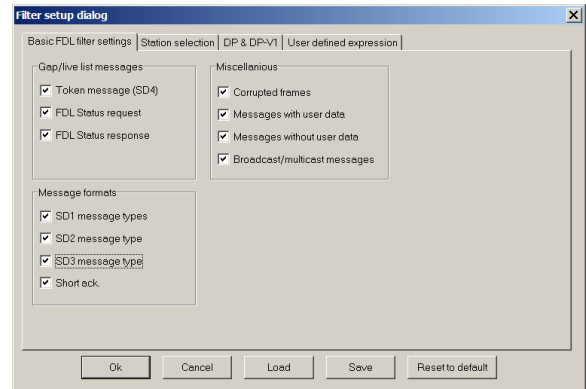
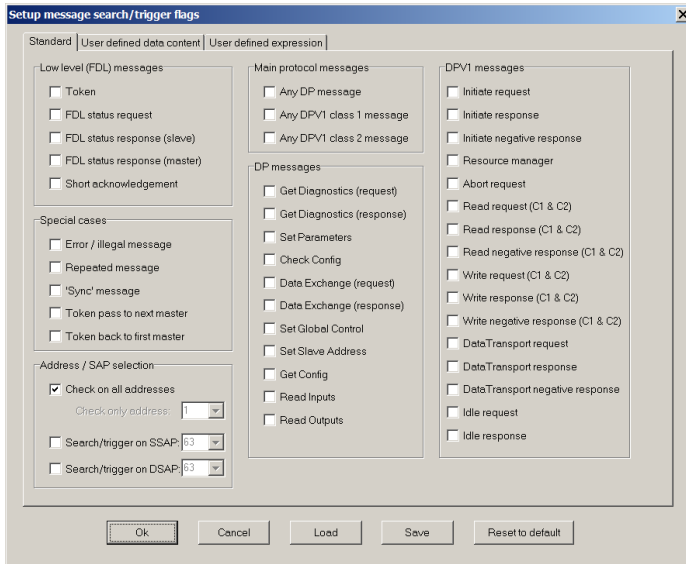


2. Press the “Trigger” Button.



3. Select “Wait for ProfiTrace Trigger”.
4. Press OK.

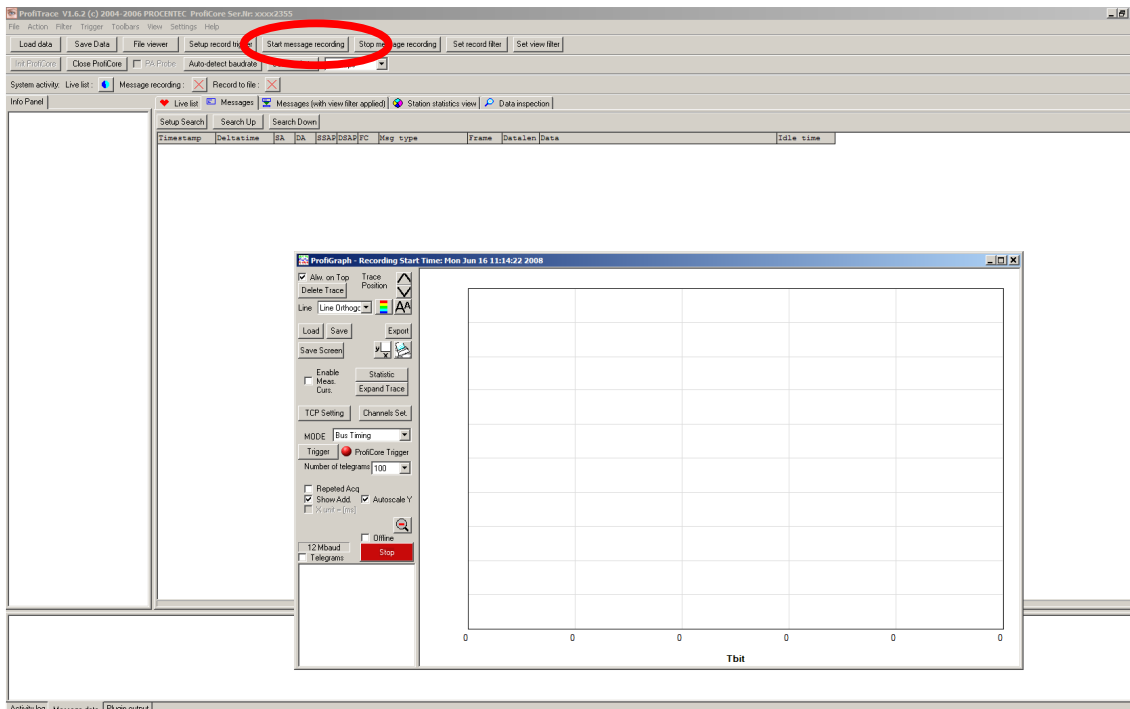
- Select the ProfiTrace filter (Filter->Set Record Filter) and/or the ProfiTrace trigger (Trigger->Setup Message Record Trigger)



- Press ProfiGraph Start.



- Press the ProfiTrace Button “Start message recording”.



- Press ProfiTrace Save Data to save the telegram in .ptd format. You can use this file with ProfiGraph in “Offline” mode.

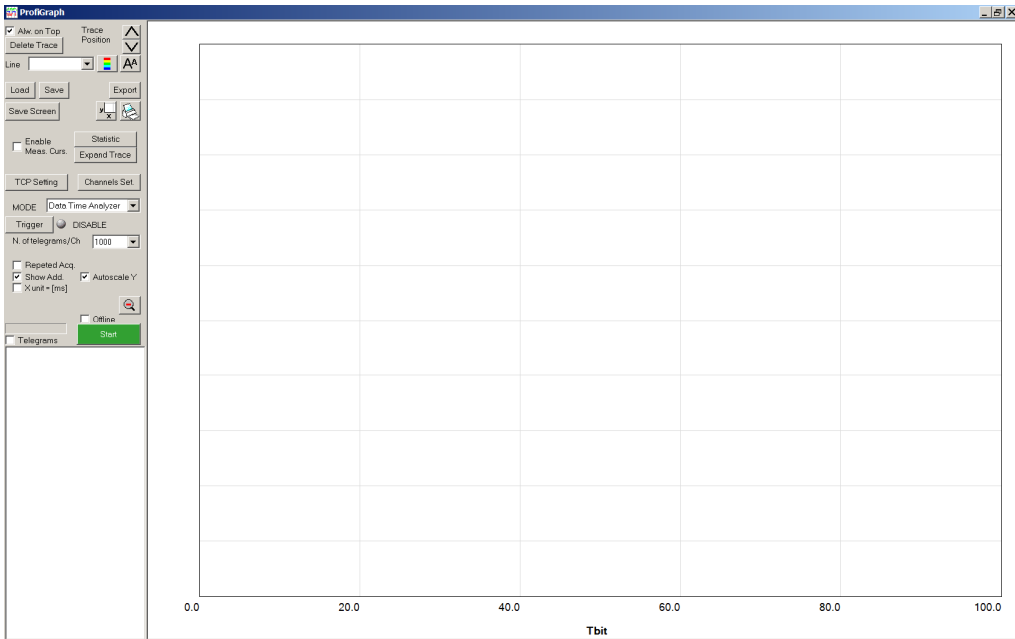
The screenshot shows the ProfiTrace V1.6.2 (C) 2004-2006 PROCENTEC ProfiCore Ser:1100002355 interface. The 'Save Data' button in the top toolbar is circled in red. The main window displays a table of telegram data with columns for Timestamp, Deltatime, SA, DA, SSAP, DSAP, FC, Msg type, Frame, DataLen, and Data. The ProfiGraph window is open, showing a timing diagram for address X: 165803 and Y: 0.00. The diagram plots various signals over time (Tbit) from 0 to 380993. The legend on the right includes: Token Pass (green), FDL StatReq (orange), Output (Req) (red), Input (Resp) (blue), ShortAck (yellow), Diag. Req (purple), Diag. Resp (brown), and Global Ctr (dark blue).

| Timestamp | Deltatime | SA | DA | SSAP | DSAP | FC | Msg type | Frame | DataLen | Data | Idle time |
|-----------|-----------|------|-----|------|------|----|------------------|-------|---------|----------------|-----------|
| 3144 | Bit | | | | | | | | | | |
| 3312 | Bit | 168 | Bit | 1 | 6 | 7D | Data Exchange | SD1 | | | 136 Bit |
| 3462 | Bit | 150 | Bit | 6 | 1 | -- | 08 Data Exchange | SD2 | 5 | 03 03 D0 00 00 | 84 Bit |
| 3900 | Bit | 438 | Bit | 1 | 106 | | 49 | SD1 | | | 284 Bit |
| 7044 | Bit | 3144 | Bit | 1 | | | Pass token | SD4 | | | 3078 Bit |
| 7212 | Bit | 168 | Bit | 1 | 6 | 5D | Data Exchange | SD1 | | | 136 Bit |
| 7362 | Bit | 150 | Bit | 6 | 1 | -- | 08 Data Exchange | SD2 | 5 | 03 03 D0 00 00 | 84 Bit |
| 7800 | Bit | 438 | Bit | 1 | 107 | | 49 | SD1 | | | 284 Bit |
| 10948 | Bit | 3144 | Bit | 1 | | | Pass token | SD4 | | | 3077 Bit |
| 11111 | Bit | 168 | Bit | 1 | 6 | 7D | Data Exchange | SD1 | | | 136 Bit |
| 11262 | Bit | 151 | Bit | 6 | | | | | | | 84 Bit |
| 11658 | Bit | 437 | Bit | 1 | | | | | | | 3077 Bit |
| 14843 | Bit | 3144 | Bit | 1 | | | | | | | 136 Bit |
| 15011 | Bit | 168 | Bit | 1 | | | | | | | 84 Bit |
| 15162 | Bit | 151 | Bit | 6 | | | | | | | 284 Bit |
| 15898 | Bit | 436 | Bit | 1 | | | | | | | 3078 Bit |
| 18741 | Bit | 3143 | Bit | 1 | | | | | | | 136 Bit |
| 18909 | Bit | 168 | Bit | 1 | | | | | | | 84 Bit |
| 19058 | Bit | 150 | Bit | 6 | | | | | | | 284 Bit |
| 19486 | Bit | 436 | Bit | 1 | | | | | | | 3078 Bit |
| 22640 | Bit | 3145 | Bit | 1 | | | | | | | 136 Bit |
| 22808 | Bit | 168 | Bit | 1 | | | | | | | 84 Bit |
| 22958 | Bit | 150 | Bit | 6 | | | | | | | 284 Bit |
| 23394 | Bit | 436 | Bit | 1 | | | | | | | 3078 Bit |
| 26538 | Bit | 3144 | Bit | 1 | | | | | | | 136 Bit |
| 26706 | Bit | 168 | Bit | 1 | | | | | | | 84 Bit |
| 26858 | Bit | 152 | Bit | 6 | | | | | | | 284 Bit |
| 27295 | Bit | 437 | Bit | 1 | | | | | | | 3078 Bit |
| 30439 | Bit | 3144 | Bit | 1 | | | | | | | 136 Bit |
| 30607 | Bit | 168 | Bit | 1 | | | | | | | 84 Bit |
| 30758 | Bit | 151 | Bit | 6 | | | | | | | 284 Bit |
| 31194 | Bit | 436 | Bit | 1 | | | | | | | 3078 Bit |
| 34338 | Bit | 3144 | Bit | 1 | | | | | | | 136 Bit |
| 34506 | Bit | 168 | Bit | 1 | | | | | | | 84 Bit |
| 34656 | Bit | 150 | Bit | 6 | | | | | | | 284 Bit |
| 35092 | Bit | 436 | Bit | 1 | | | | | | | 3078 Bit |
| 39336 | Bit | 3143 | Bit | 1 | | | | | | | 136 Bit |
| 39409 | Bit | 168 | Bit | 1 | | | | | | | 84 Bit |
| 38554 | Bit | 151 | Bit | 6 | | | | | | | 284 Bit |
| 38990 | Bit | 436 | Bit | 1 | | | | | | | 3078 Bit |
| 42318 | Bit | 3145 | Bit | 1 | | | | | | | 136 Bit |
| 42309 | Bit | 168 | Bit | 1 | | | | | | | 84 Bit |
| 42483 | Bit | 150 | Bit | 6 | | | | | | | 284 Bit |
| 42590 | Bit | 437 | Bit | 1 | | | | | | | 3078 Bit |
| 46094 | Bit | 3144 | Bit | 1 | | | | | | | 136 Bit |

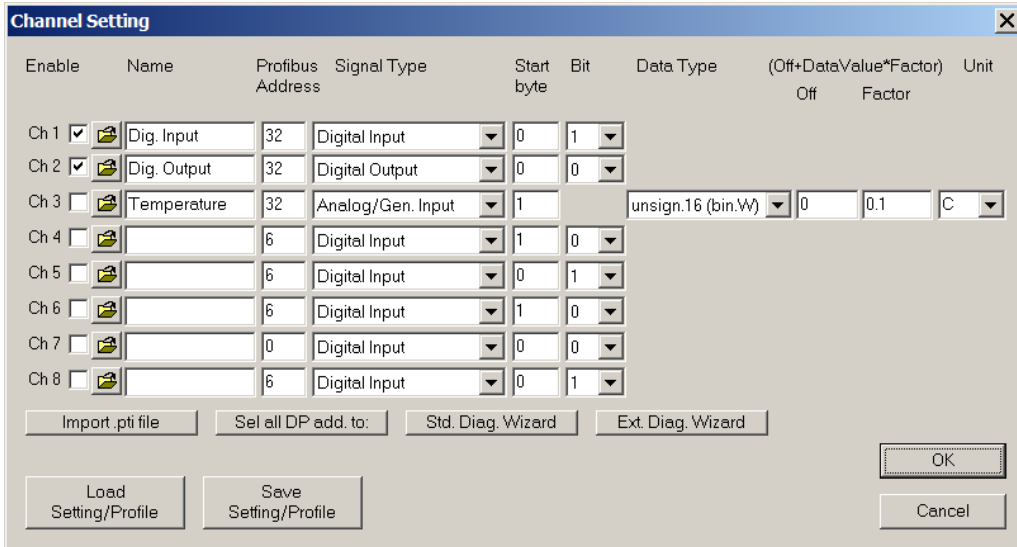
Example 6

Testing Slave with ProfiCaptain. Debugging PLC program

1. Select “Alw. On Top”.

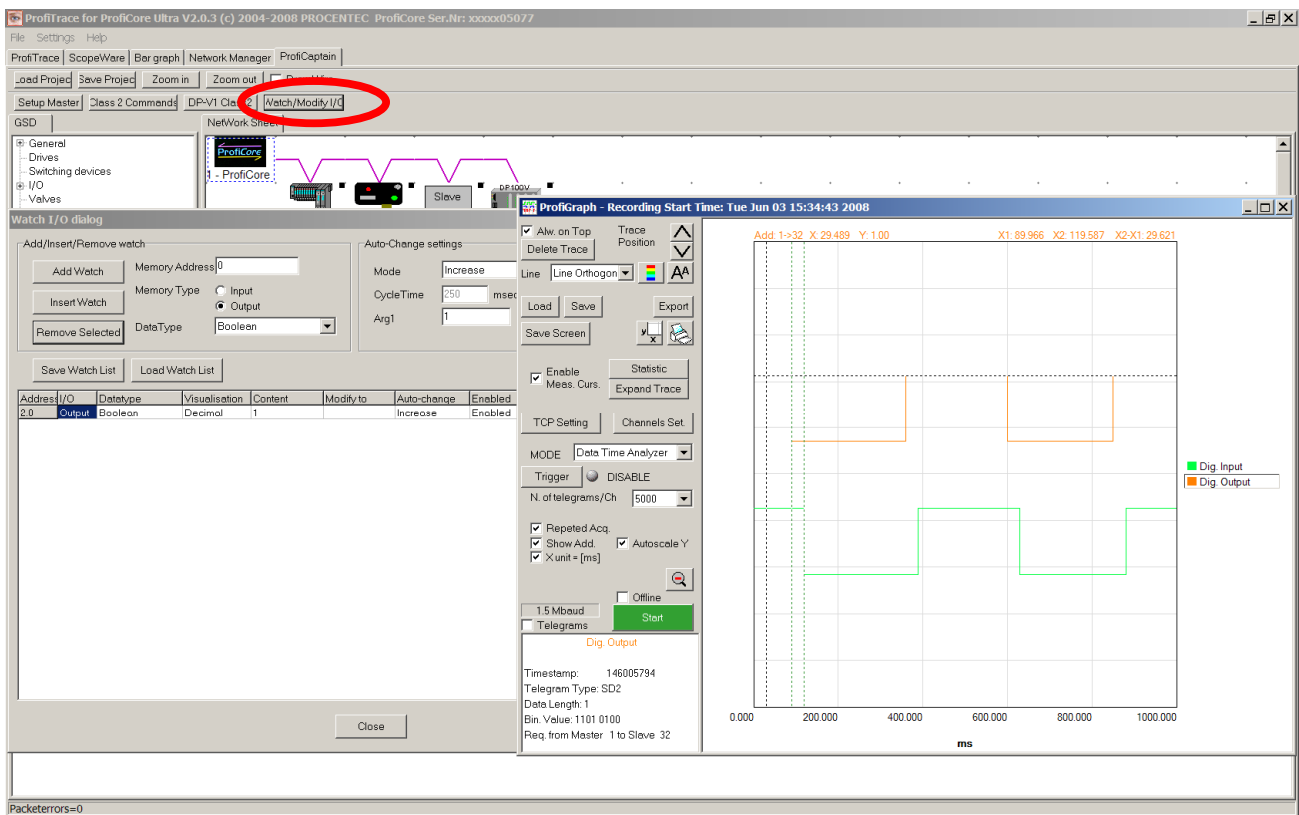


2. Press **Channel Set**.



3. Set the Input/Output data to analyze

4. Press the ProfiCaptain Button “Watch/Modify I/O”




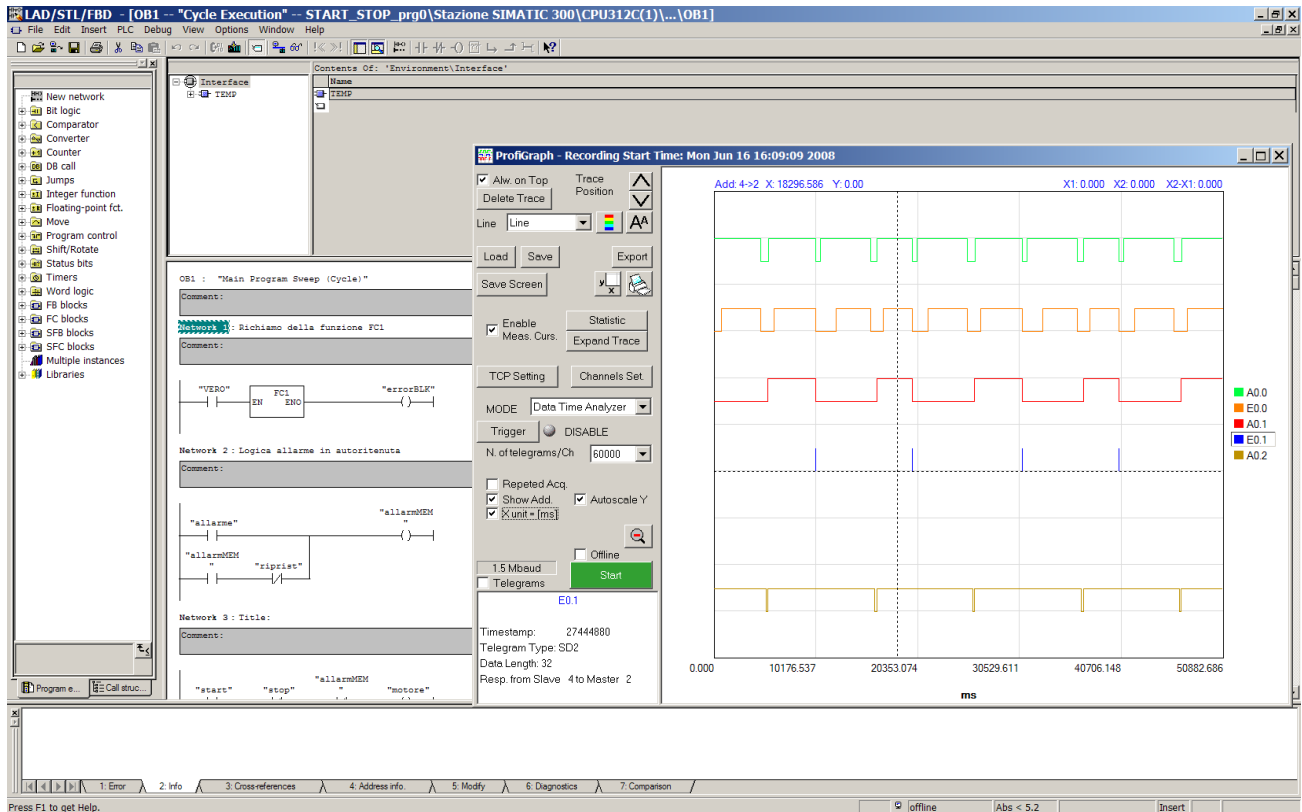
5. In ProfiGraph select Repeated Acq.

6. Press ProfiGraph Start.

7. Now in ProfiCaptain you can add your stimulus with “Add Watch” and check graphically the reaction of the slave.

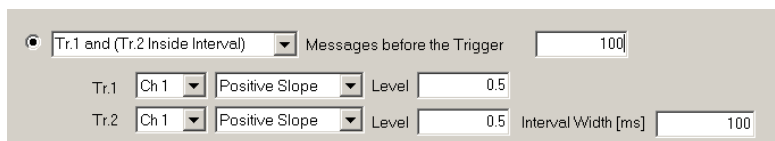
ProfiGraph can be used for debugging PLC program.

1. Select **“Alw. On Top”**.
2. Press **Channel Set**.
3. Set the Input/Output data to analyze
4. Press ProfiGraph Start. 



Unexpected condition can be captured with the Smart Trigger.

Example: Trigger 1 and (Trigger 2 Inside Interval)



The trigger is generated if after a positive edge on channel 1 occurs another positive edge on channel 1 within the selected interval of 100 ms.

C.S.M.T. Gestione S.c.a.r.l.

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