SIEDrive

SOFTSCOPE

English

Quick start guide
for ADV200
XVY-EV
TPD32-EV & APC300

GEFRAN

User Manual Rev.0.6 - 26 Sept 2013

Drive/Software version

Softscope:
Version: 2.89
Build: Mar. 29 2012

This manual applies to the hardware and software configurations of the following drives:
ADV200: software version V 6.0.0
XVY-EV: software version V 4.4.0
APC300: software version V 1.0.0
TPD32-EV: software version V 10.08

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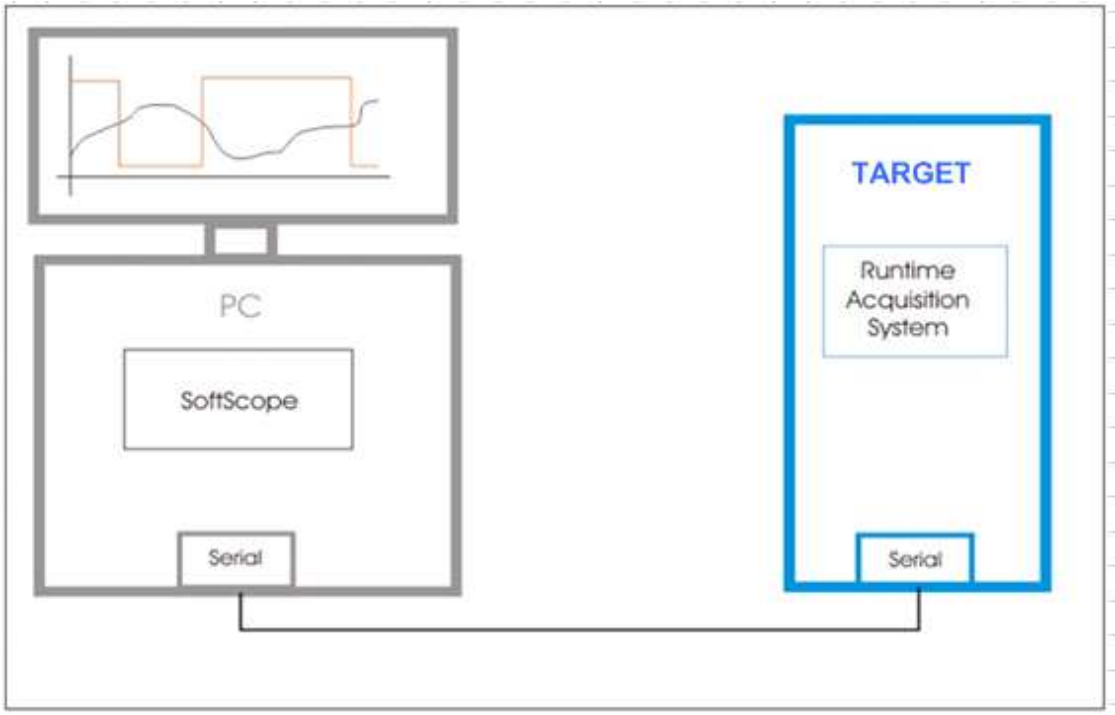
Introduction

This document is a quick guide for using **SoftScope** tool.
SoftScope is a digital scope software designed to sample and display in real time drives parameter variables, and it is particularly useful during drive commissioning phase.
This manual describe the operations with ADV 200, APC300, TPD32-EV and XVy-Ev SoftScope for those products can be used either with the basic software (Factory Sw) and also with MDPLC applications developed for ADV200, APC300, TPD32-EV or XVY-EV.
The parameters list that can be monitored are included in the definition file (file .osc) related to the Drive/Firmware version loaded into the Drive.

SoftScope operation principle

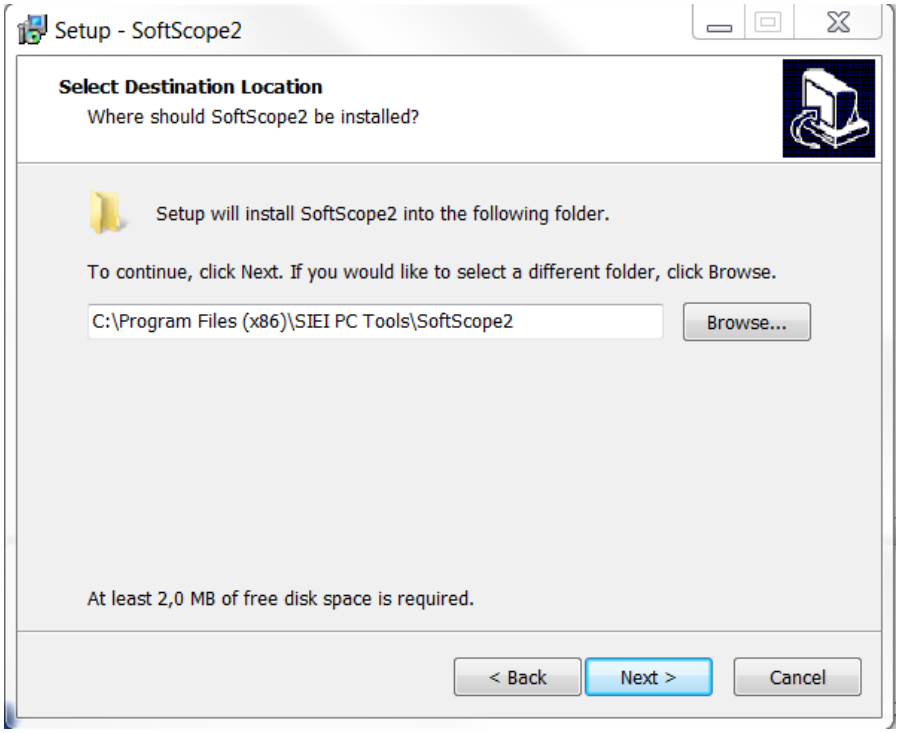
SoftScope is intended to sample the value of a list of parameters (signals) within the target and to acquire the corresponding value for a given time (acquisition time).
By selecting a definition file related to the Firmware version loaded into the Drive, the user gives SoftScope the information required to detect the available software signal values. Later, it will be possible to select the signals to be sampled during the acquisition phase and to define a trigger that, together with a given signal value and slope, will start the preset acquisition.
It is important to note that, during the acquisition phase, all signals to be sampled are first acquired in a specific storage area within the drive ("Runtime Acquisition System"); when the acquisition is complete, all the sampled values are sent to SoftScope to be displayed. In this way, acquisition performance and consistency are ensured, thus avoiding problems due to serial communication delays.
A diagram with the operation principle is given below:



Installing the SoftScope tool

SoftScope can be installed on the computer by means of the setup program Run the setup.exe program and follow the wizard procedure:

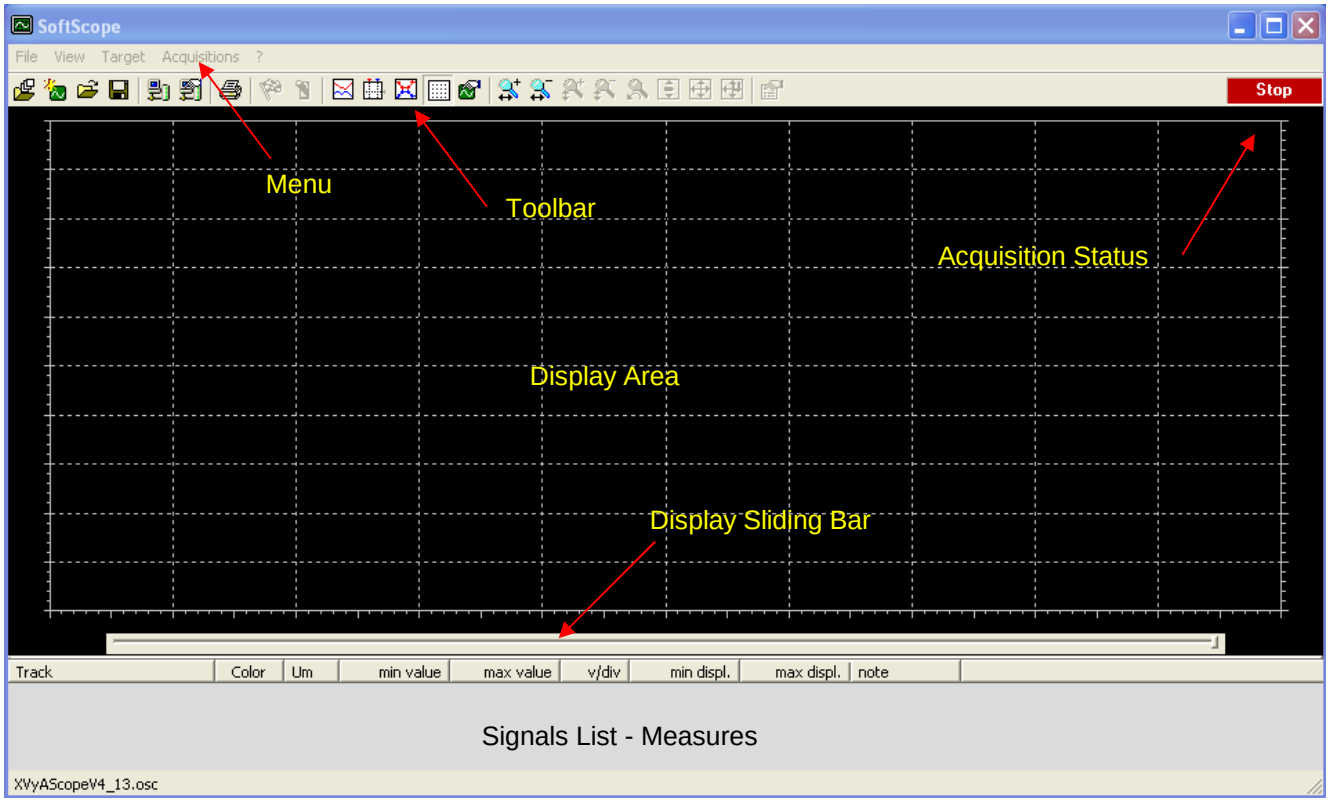
Note: it is recommended not to change the program setup destination directory.



Using the SoftScope Tool

Once the SoftScope is installed on the computer, Drive ADV200, APC300, TPD32-EV or XVy-EV can be connected to the computer serial port with the same serial connection used for GF-eXpert.

If you open the program (with the icon or in the start menu folder: SIEI PC Tools), the main SoftScope screen is as follows:



Menu: SoftScope menu.
Toolbar: toolbar including the most frequently used controls.
Display Area: area where the waveforms of the sampled signal values are displayed.
Display Sliding Bar: sliding bar of the “Display Area”, useful when signals are zoomed.
Acquisition Status: status of the acquisition.
Signals List – Measures: list of sampled signals, signal measurements and signal value corresponding to measurement cursor.

1.1 Definition File

As already mentioned, SoftScope requires a file containing the signal definitions (software parameters) which can be sampled into the drive. This file is strictly connected to the firmware version loaded into the Drive and is directly delivered in the GF_eXpress Catalog for Basic software:

For **ADV200** asyncronous version **V6_0_0** the file is: *Adv200asy_6_0_0_Scope.osc*
Folder: *C:\Programmi\Gefran\Catalog\Drives\Inverter\ADV200\ADV200_6_0_0\Service\SoftScope*
For **ADV200** syncronous version **V6_0_0** the file is: *Adv200syn_6_0_0_Scope.osc*
Folder: *C:\Programmi\Gefran\Catalog\Drives\Inverter\ADV200\ADV200_6_0_0\Service\SoftScope*

For **XVY-EV** version **V4_4_X brushless** the file is: *XVyScopeV4_40.osc*
Folder: *C:\Programmi\Gefran\Catalog\Drives\Servodrive\XVy\XVy_4_40\Service*
For **XVY-EV** version **V4_4_X asychronous** the file is: *XVyAScopeV4_40.osc*
Folder: *C:\Programmi\Gefran\Catalog\Drives\Servodrive\XVyA\XVyA_4_40\Service*

For **APC300** version **V1_0_0** the file is: *APC300_1_0_0_Scope.osc*
Folder: *C:\Programmi\Gefran\Catalog\Drives\DCConverter\APC300\APC300_1_X_0\Service\SoftScope*

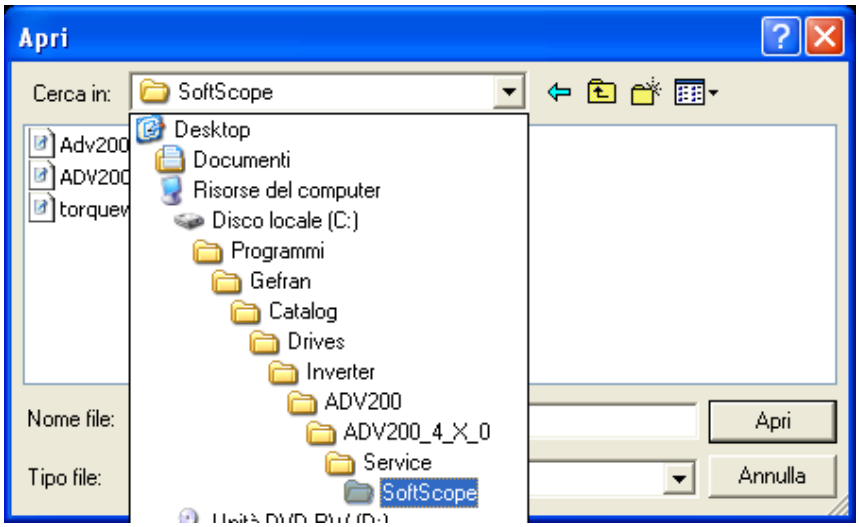
For **TPD32-EV** version **V10_08_0** the file is: *TPD32_10.08A.osc*
Folder: *C:\Programmi\Gefran\Catalog\Drives\DCConverter\TPD32-EV/TPD32_EV_10_08\Service\SoftScope*

1.2 Setting up the signals to be sampled

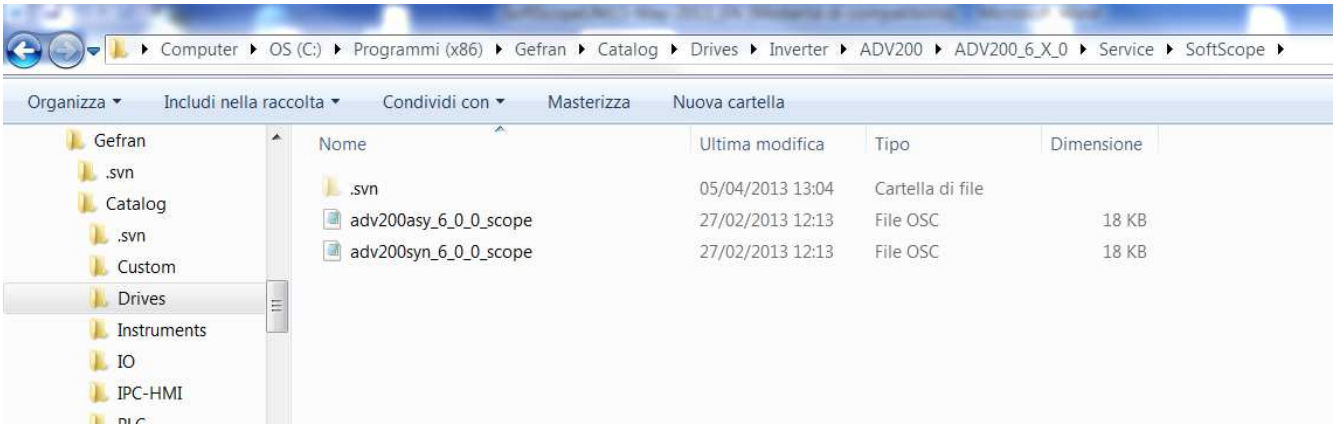
The following example refers to the ADV200 drive, firmware version 4.0.0.
The **setting procedure of signals to be sampled is given below;** in the following example, the speed reference and motor speed will be set as signals to be acquired:

1. From the “File” menu, select “Open definition file”

2. A window will appear allowing selection of the definition file of the signals to be loaded (.OSC file); in the example below, “*Adv200_4_0_0_Scope.osc*” is selected.

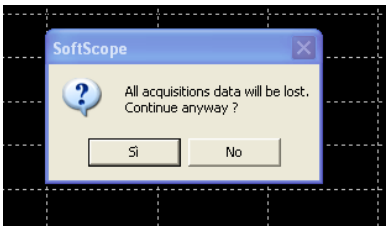


With firmware version Adv200_6_0_0:



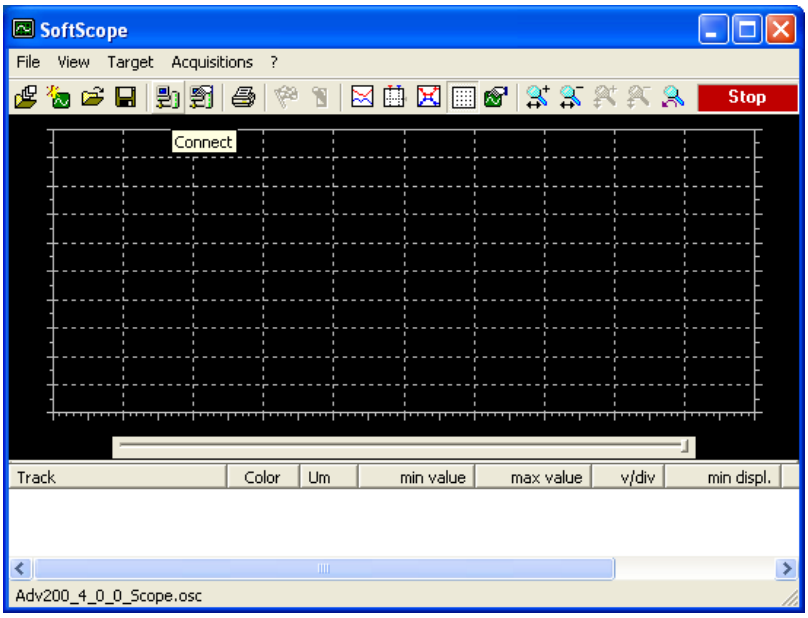
Select between asy and syn version..

3. After selecting the file, the following message will appear:

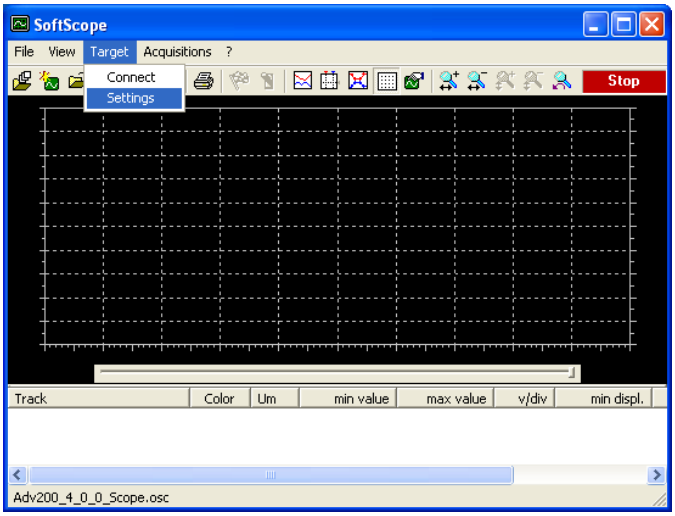


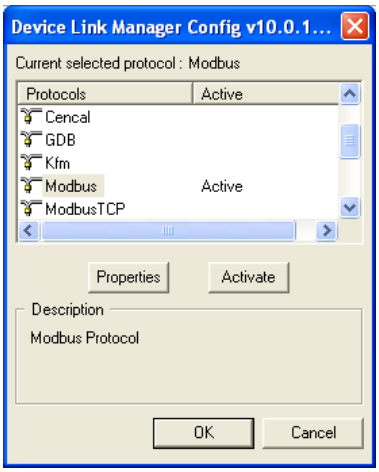
This message indicates that, after loading the file, all the previously set acquisitions will be overwritten (this warning is useful if acquisitions have already been set within the current working session). Select “YES” to continue or “NO” to stop loading.

4. Now, the serial communication with the Drive must be enabled; open the “Target” menu and select “Connect”. The drive is connected and signal sampling can now be configured into the drive; if communication problems arise, some error messages will appear.



In case error, check the serial link configuration in “Target/Settings”:

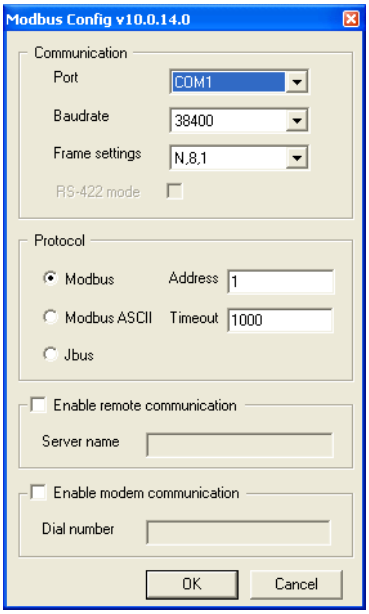




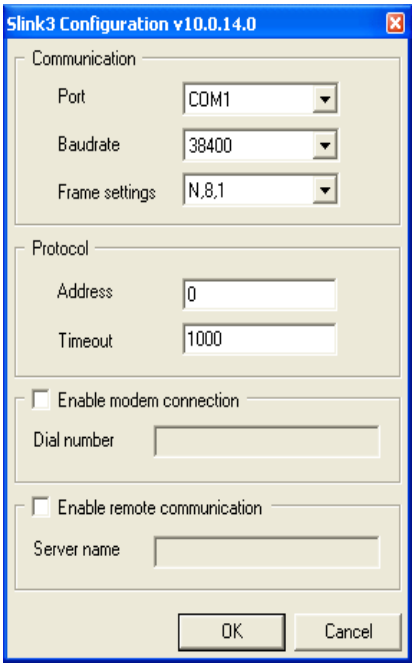
NOTE!

Attention the factory configuration is different between ADV200/APC300, TPD32-EV and XVY-EV.

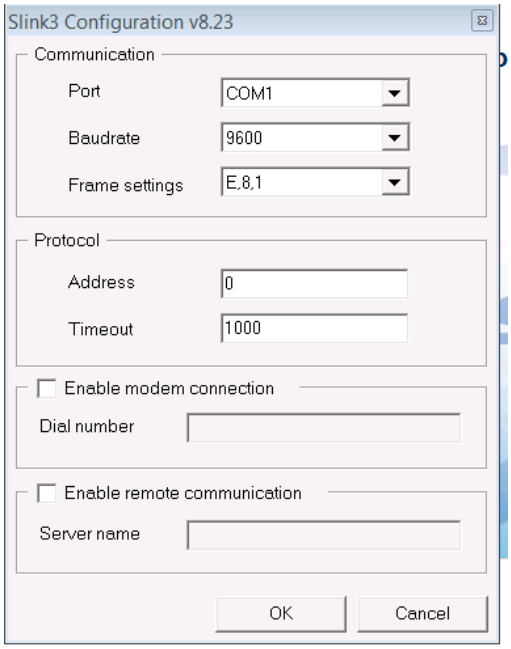
ADV200/APC300
factory configuration: ModBus



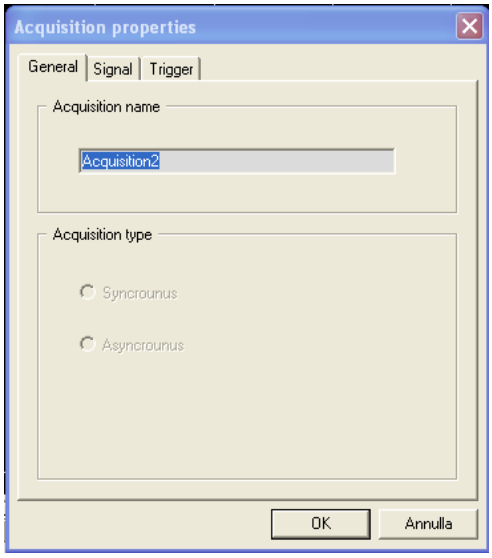
XVY-EV factory configuration: Slink3



TPD32-EV factory configuration: Slink3

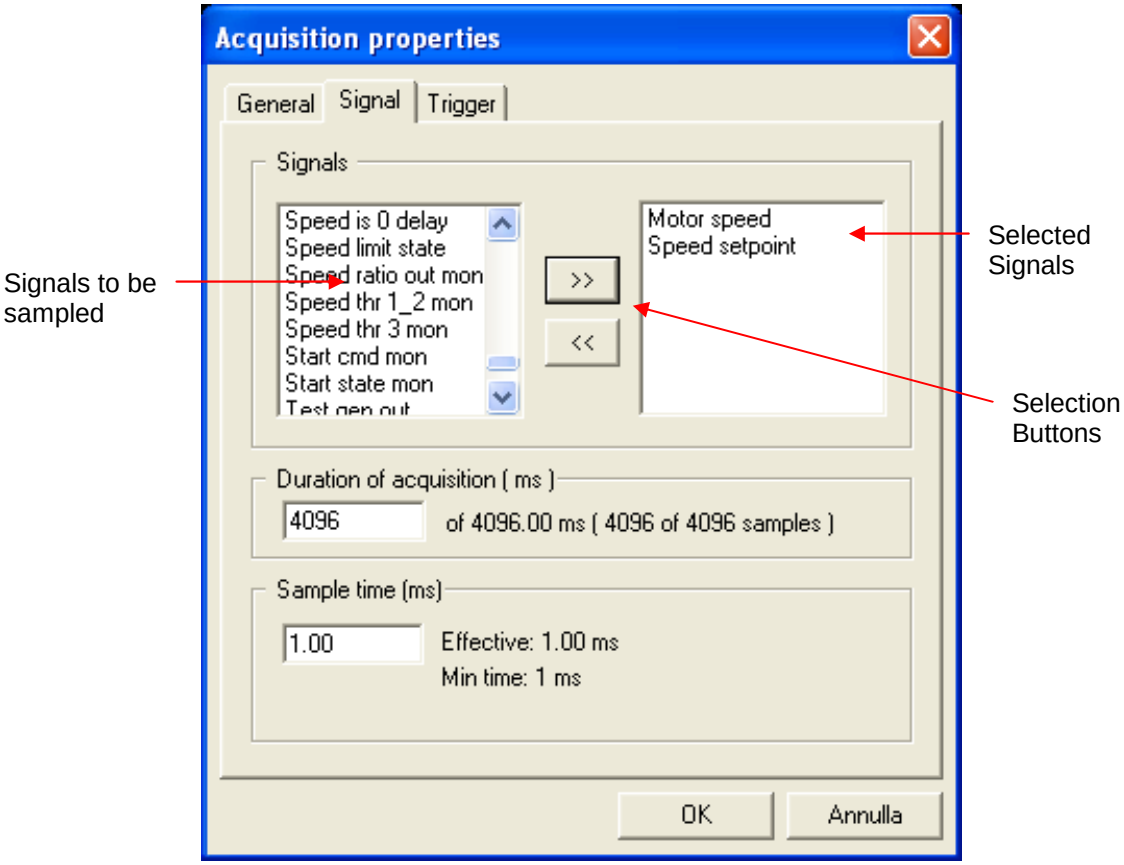


5. The signal acquisition definition can start now: from the “Acquisitions” menu, select “Properties”; a window with the acquisition properties to be defined will appear.



A descriptive name of the acquisition can be optionally entered in “Acquisition name”; it is useful if the acquisition must be saved to file (the file will take this name).

6. The “Signal” window lists all the signals which can be sampled:



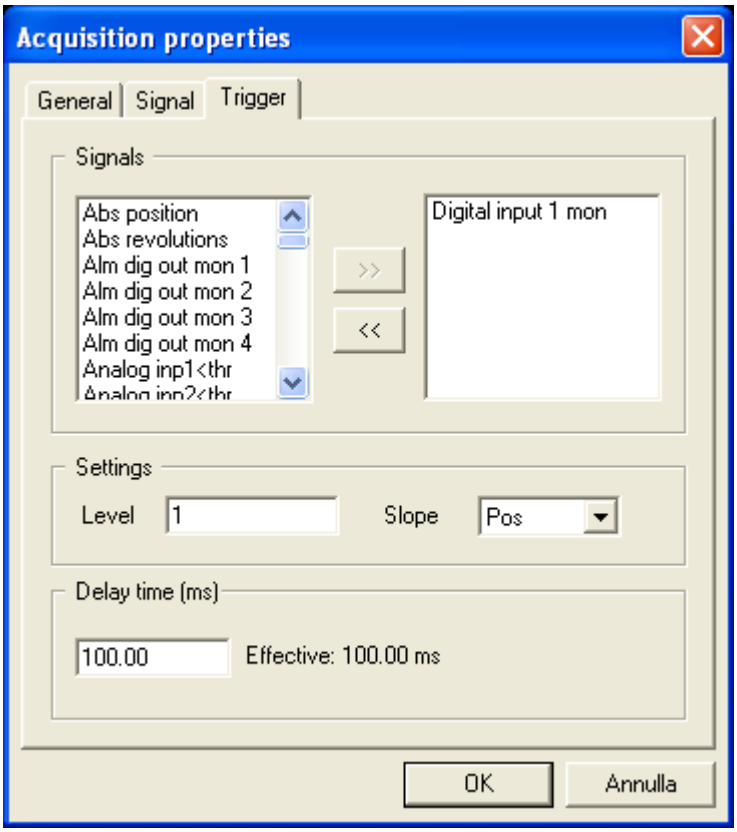
Left side of the window above shows the complete list of the signals to be sampled (for further details on signals, see appendix); the right side lists the signals selected for current acquisition.

The signal can be selected by clicking on its name in the left side, then pressing the right arrows: in this way, the signal will be moved to the selected signal list. To de-select a signal, click on its name in the right side, then press the left arrow key.

In "**Sample time(ms)**", the signal sampling time is set in the drive, i.e. the time between two subsequent acquisitions of a signal value. For a high-accuracy time acquisition, values close to the minimum sampling time (1millisecond for ADV200, APC300, TPD32-EV or 0.25 milliseconds for XVY-EV) must be set; in this case, the acquisition will last a few seconds (it depends on the number of sampled signals and on the drive storage buffer size). If signals must be sampled for a longer period, increase the "Sample time" value. The right side of "Sample Time" shows the actual value used on the drive and the minimum value which can be set.

The overall acquisition time is set in "**Duration of Acquisition (ms)**"; as mentioned above, the time limit depends on "Sample time". If a value higher than the maximum one is selected, this will be automatically adjusted to the maximum value. On the right side of "Duration of Acquisition", the maximum allowed value is shown.

7. In the “Trigger” window, the signal generating the acquisition trigger can be optionally set:



As in the “Signal” window, the trigger signal can be selected in the left box and moved to the right box (in this case: Speed Setpoint). Only one trigger signal can be selected.

In “**Settings**”, the trigger and slope values can be defined (direction of the signal value, when passing from the trigger level, which starts the acquisition).

“**Level**”, i.e. the trigger level, is expressed in the measurement unit of the sampled signal (in this example, “Digital Input 1 mon” is a digital signal TRUE/FALSE)

“**Slope**” can be positive if trigger should occur when the slope will define whether the trigger is active on the positive or negative slope of the digital signal.
If a signal trigger is selected, the trigger level will be set; for example “motor speed” is expressed in Rpm, therefore the trigger is set to 100 for 100 Rpm. in this case, positive trigger should occur when signal passes from lower values to values higher than the trigger level; otherwise the slope will be negative.

In “**Delay time (ms)**”, the pre-trigger value is set, i.e. the time during which signals are recorded before trigger intervention. The maximum pre-trigger value corresponds to the preset acquisition time.

Trigger setting is not required if the acquisition should be started manually.

8. To complete the acquisition setting, press OK. The programmed data are sent to the Drive “Runtime Acquisition System”.

9. By now, the acquisition has been set and downloaded into the Drive; if a trigger has been set, it should be **armed.** From the “Acquisitions” menu, select “Arm trigger”.

   As soon as the trigger signal matches the required settings, the acquisition configured signals will be stored into the Drive memory for a period corresponding to the acquisition time (unless a pre-trigger happens).
   In this example, as soon as Speed Reference exceeds 100 Rpm with a positive slope, the Speed Reference and Speed signals will be stored with a 100 milliseconds pre-trigger.

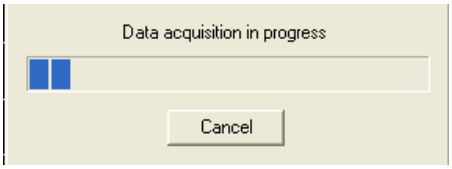
   In order to revoke the “Arm trigger” command, re-select it from the “Acquisitions” menu: the trigger will be disabled and the acquisition property can be changed.

   If trigger setting is not required, the acquisition can be started **manually**: from the “Acquisitions” menu, select “Start acquisition”; the configured signals will be sampled immediately and stored into the drive during the whole acquisition time.

   The acquisition status appears at the top right side:

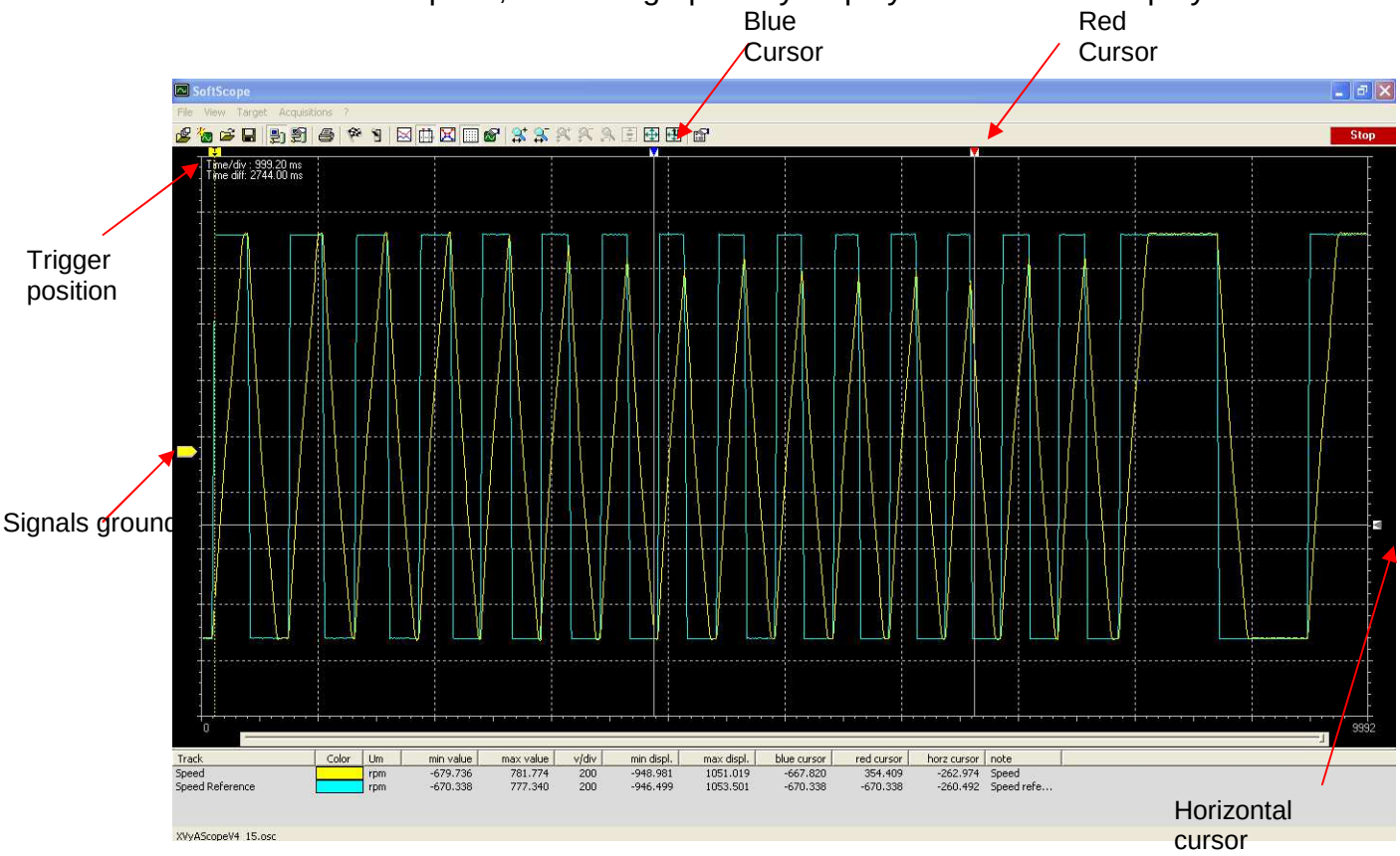
   It can be:
   - **Stop**: the acquisition is disabled.
   - **Ready**: the trigger is armed.
   - **Triggered**: the trigger signal matches the required settings, or the acquisition has been enabled manually. Drive signal acquisition is in progress.

10. Once the Drive signal storage is complete, data are sent to SoftScope on the PC; during transfer, the following progress window appears:



    To start a new acquisition, press “Cancel” to stop the transfer (if necessary, the trigger must be re-armed).

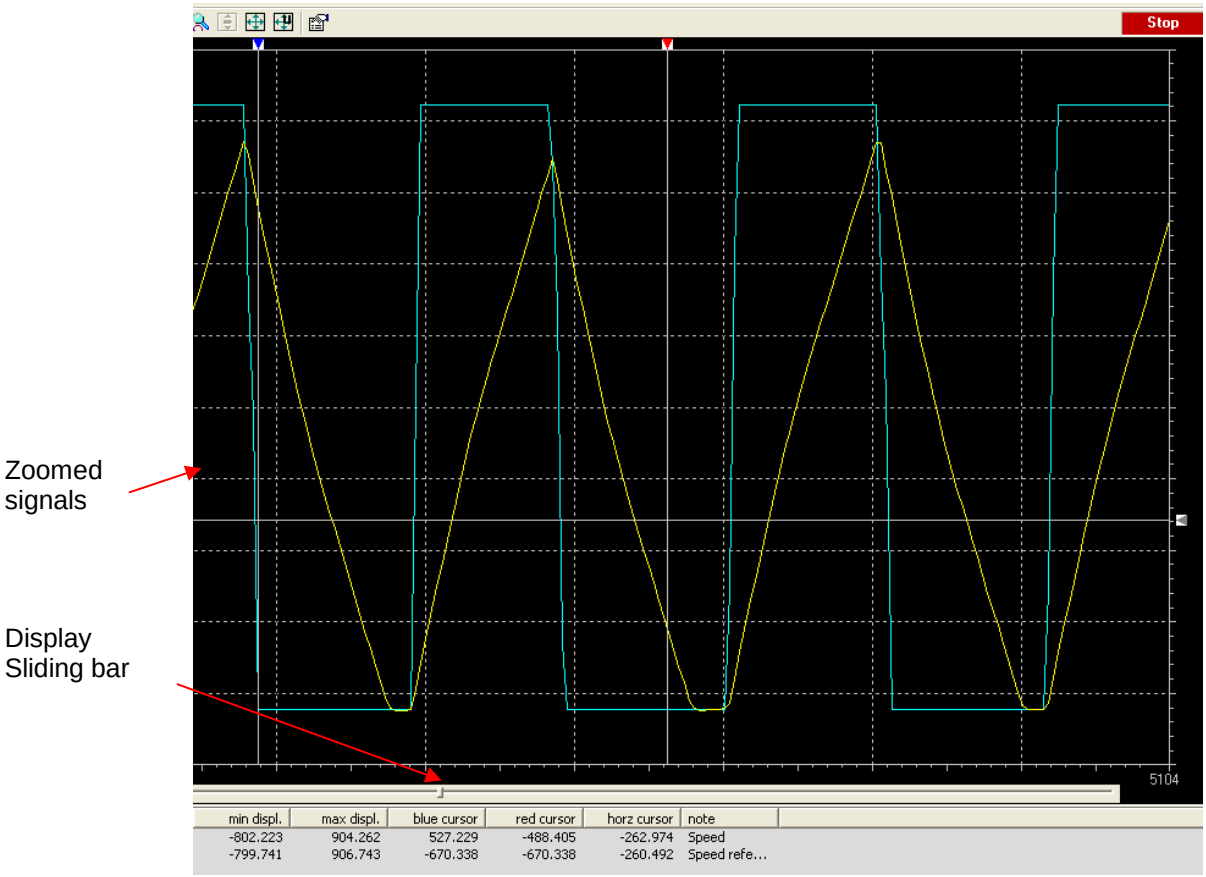
11. When transfer is complete, data are graphically displayed within the “Display Area”.



On the left side, next to the ordinate axis, the signal zero position is indicated by means of an arrow with the same colour of the corresponding signal.
The trigger position is highlighted at the top. The signal zero position can be moved upwards or downwards using the mouse.

12. Using the mouse, it is possible to **zoom** a display area so as to better highlight parts of the waveform; to restore the original display, select the “View\Zoom\View all” menu.

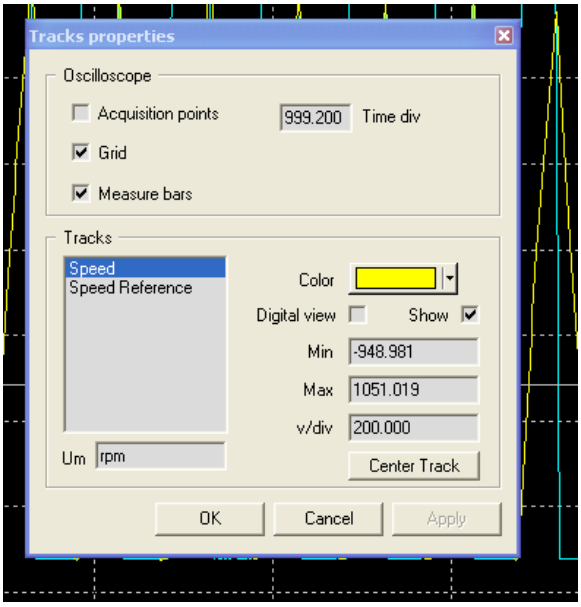
    If the zoom function is enabled, the sliding bar below the “Display Area” allows one to scroll the waveform to observe its development during the acquisition phase.



13. The “**Signals List**”, in the lower part of the window, shows the acquisition information (min/max value of waveform, colour and unit of measurement).
14. An important and useful function to analyse waveforms is represented by **cursors**, which allow measurement of the signal value at a specific position of the acquisition and detection of time differences. They can be enabled from the “View\Tracks\Measure bars” menu.

    The blue and red cursors move vertically, while the grey cursor moves horizontally. Through cursor movement, signal values within the measures window can be detected (“Blue cursor”, “Red cursor”, “Horz cursor”); the time differences are shown in the top left part of the “Display Area” (“Time diff”).

15. The waveform colour, the scale and the display min/max values can be changed using the settings shown in the “View\Tracks\Track properties” menu.



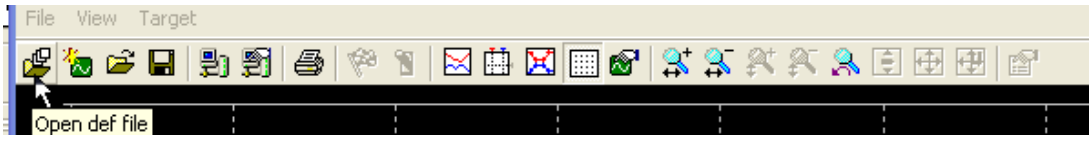
Printing, storing and loading the acquisition file

The sampled waveforms can be printed by selecting “File\Print”.

The acquisition can be saved on file for future use.
From the “File” menu, select “Save acquisition”. A file name with .ACQ extension is prompted; it corresponds to the acquisition name, if present.
This acquisition can later be recalled through “File\Load Acquisition”.

Toolbar

The toolbar includes the most frequently used commands; if the cursor is left for few seconds over a button, the corresponding command name will appear.



The buttons are enabled or disabled according to the drive communication state and to the acquisition state.

SoftScope With MdPlc Applications

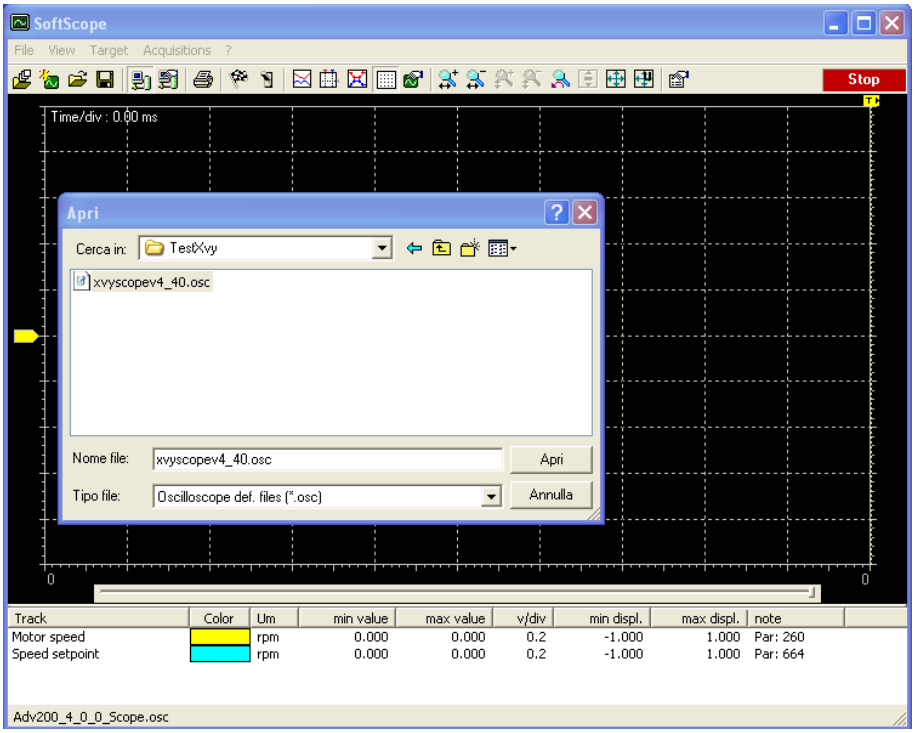
When you use SoftScope with MDPLC application, it's possible add to the list also the target variable (application parameter and variables) and also the project global variable.
This is very useful for the use, test and debug of the application program.

In the application folder there are all the files needed to softscope.

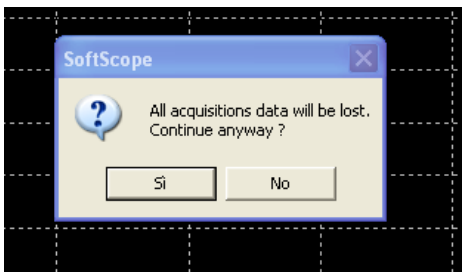
In this case, the setting procedure is as follow:

1. From the "File" menu, select "Open definition file"

2. A window will appear allowing selection of the definition file of the signals to be loaded (.OSC file); in the example below, "*Adv200_4_0_0_Scope.osc*" is selected in the application folder.



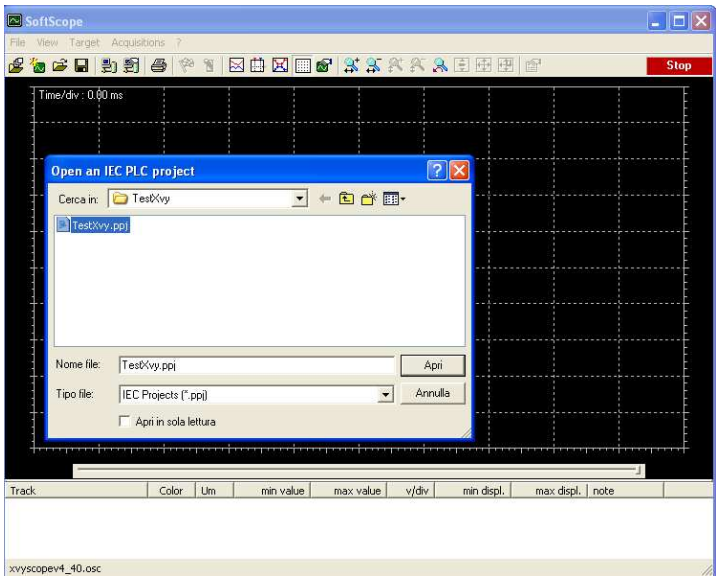
3. After selecting the file, the following message will appear:



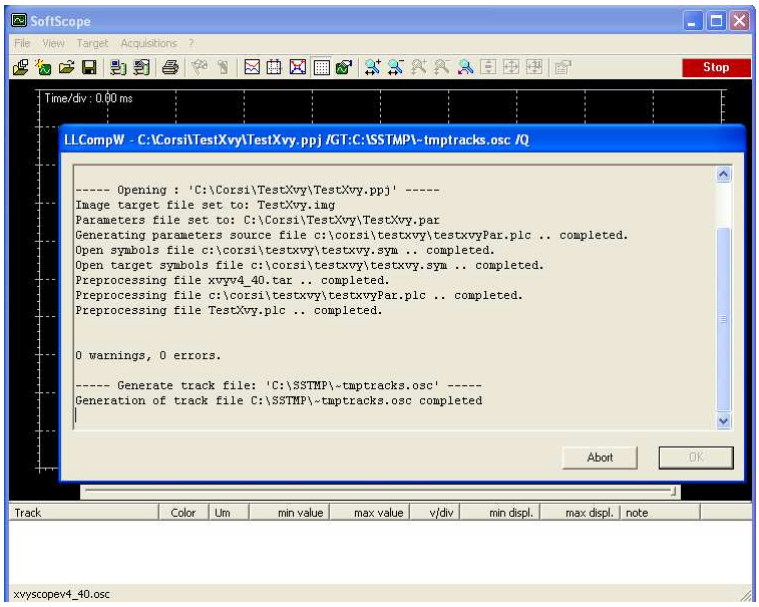
This message indicates that, after loading the file, all the previously set acquisitions will be overwritten (this warning is useful if acquisitions have already been set within the current working session). Select "YES" to continue or "NO" to stop loading.

4. From the “File” menu, select “Append target vars”

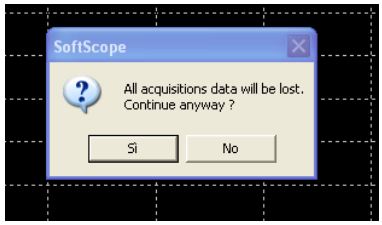
A window will appear allowing selection of the project target vars.



Check that the generation of the track file is completed without any error.



5. After selecting the file, the following message will appear:

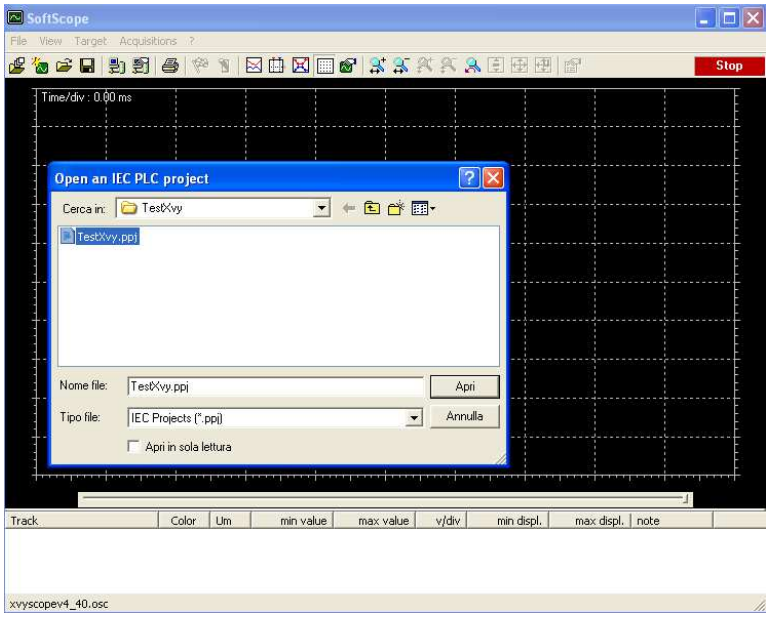


This message indicates that, after loading the file, all the previously set acquisitions will be overwritten (this warning is useful if acquisitions have already been set within the current working session). Select “YES” to continue or “NO” to stop loading.

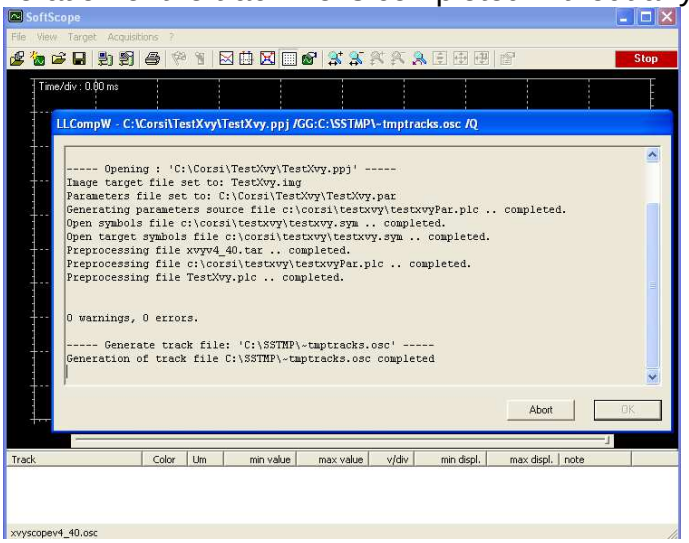
If you press YES, all the target variables are added to the acquisition list.

6. From the “File” menu, select “Append global vars”

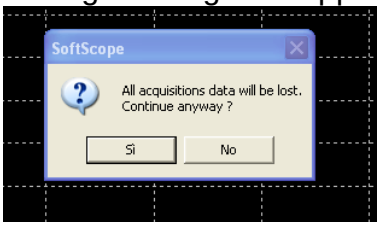
A window will appear allowing selection of the project global vars.



Check that the generation of the track file is completed without any error.



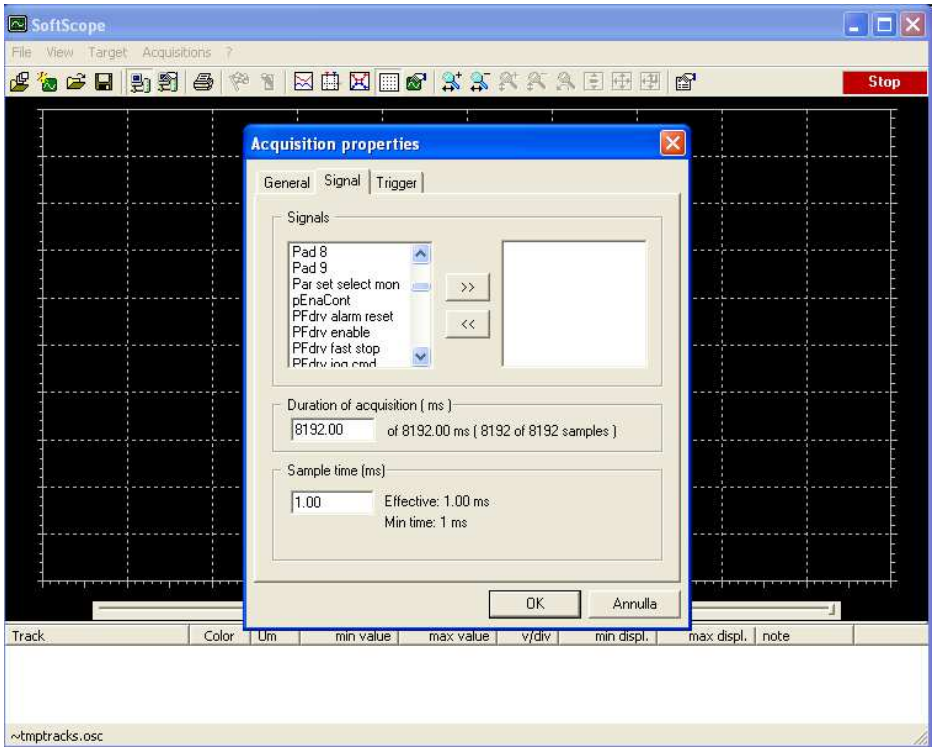
7. After selecting the file, the following message will appear:



This message indicates that, after loading the file, all the previously set acquisitions will be overwritten (this warning is useful if acquisitions have already been set within the current working session). Select “YES” to continue or “NO” to stop loading.

If you press YES, all the global variables are add to the acquisition list.

8. The “Signal” window lists all the signals which can be sampled:



Now you can operate with system variables, application target and global vars all in the list**.**

Appendix A – List of signals to be sampled target:

- **ADV200asyn V6_0_0 for AC motors**
- **ADV200syn V6_0_0 for BRS motors**

Ipa	Signal Name	Unit	Description
250	Output current	Apeak	Output current
252	Output voltage	V	Output voltage
254	Output frequency	Hz	Output frequency
256	Output power	kW	Output power
260	Motor speed	rpm	Motor speed
262	Motor speed nofilter	rpm	Motor speed nofilter
270	DC link voltage	V	DC link voltage
272	Heatsink temperature	cnt	Heatsink temperature
280	Torque current ref	Apeak	Torque current ref
282	Magnet current ref	Apeak	Magnet current ref
284	Torque current	Apeak	Torque current
286	Magnet current	Apeak	Magnet current
362	Drive overload trip	cnt	Drive overload trip
366	Drive overload 80	perc	Drive overload 80
368	Drive overload accum	perc	Drive overload accum
626	Ramp ref out mon	rpm	Ramp ref out mon
628	Ramp setpoint	rpm	Ramp setpoint
664	Speed setpoint	rpm	Speed setpoint
726	Multi ramp sel mon	cnt	Multi ramp sel mon
760	Ramp out mon	rpm	Ramp out mon
764	Ramp acc state	cnt	Ramp acc state
766	Ramp dec state	cnt	Ramp dec state
852	Multi ref out mon	rpm	Multi ref out mon
894	Mpot output mon	rpm	Mpot output mon
920	Jog output mon	rpm	Jog output mon
934	Ref is 0	cnt	Ref is 0
936	Ref is 0 delay	cnt	Ref is 0 delay
944	Speed is 0	cnt	Speed is 0
946	Speed is 0 delay	cnt	Speed is 0 delay
956	Speed thr 1_2 mon	cnt	Speed thr 1_2 mon
966	Set speed	cnt	Set speed
976	Speed thr 3 mon	cnt	Speed thr 3 mon
986	Current thr mon	cnt	Current thr mon
1024	Enable cmd mon	cnt	Enable cmd mon
1026	Start cmd mon	cnt	Start cmd mon
1028	FastStop cmd mon	cnt	FastStop cmd mon
1030	Local/remote mon	cnt	Local/remote mon
1034	Drv interlock mon	cnt	Drv interlock mon
1048	FR start mon	cnt	FR start mon
1050	FR reverse mon	cnt	FR reverse mon
1060	Sequencer status	cnt	Sequencer status
1062	Drive OK	cnt	Drive OK
1064	Drive ready	cnt	Drive ready
1066	Enable state mon	cnt	Enable state mon

Ipa	Signal Name	Unit	Description
1068	Start state mon	cnt	Start state mon
1070	FastStop state mon	cnt	FastStop state mon
1100	Digital input mon	cnt	Digital input mon
1110	Digital input E mon	cnt	Digital input E mon
1112	Digital input 1 mon	cnt	Digital input 1 mon
1114	Digital input 2 mon	cnt	Digital input 2 mon
1116	Digital input 3 mon	cnt	Digital input 3 mon
1118	Digital input 4 mon	cnt	Digital input 4 mon
1120	Digital input 5 mon	cnt	Digital input 5 mon
1200	Digital input X mon	cnt	Digital input X mon
1210	Digital input 1X mon	cnt	Digital input 1X mon
1212	Digital input 2X mon	cnt	Digital input 2X mon
1214	Digital input 3X mon	cnt	Digital input 3X mon
1216	Digital input 4X mon	cnt	Digital input 4X mon
1218	Digital input 5X mon	cnt	Digital input 5X mon
1220	Digital input 6X mon	cnt	Digital input 6X mon
1222	Digital input 7X mon	cnt	Digital input 7X mon
1224	Digital input 8X mon	cnt	Digital input 8X mon
1500	Analog input 1 mon	cnt	Analog input 1 mon
1530	Analog inp1<thr	cnt	Analog inp1<thr
1550	Analog input 2 mon	cnt	Analog input 2 mon
1580	Analog inp2<thr	cnt	Analog inp2<thr
1600	Analog input 1X mon	cnt	Analog input 1X mon
1650	Analog input 2X mon	cnt	Analog input 2X mon
2150	Encoder speed	rpm	Encoder speed
2154	Virtual position	cnt	Virtual position
2156	Revolutions	cnt	Revolutions
2162	Encoder position	cnt	Encoder position
2164	Abs position	cnt	Abs position
2166	Abs revolutions	cnt	Abs revolutions
2232	Spd reg P gain Inuse	perc	Spd reg P gain Inuse
2234	Spd reg I gain Inuse	perc	Spd reg I gain Inuse
2360	Torque climPos Inuse	Apeak	Torque climPos Inuse
2362	Torque climNeg Inuse	Apeak	Torque climNeg Inuse
2386	Torque ref	perc	Torque ref
2388	Torque ref nofilter	perc	Torque ref nofilter
2390	Torque ref eu	cnt	Torque ref eu
2392	Torque ref 1 mon	cnt	Torque ref 1 mon
3006	Speed ratio out mon	cnt	Speed ratio out mon
3070	Droop out mon	rpm	Droop out mon
3104	Inertia comp mon	perc	Inertia comp mon
3160	DC brake state	cnt	DC brake state (*)
3180	Brake control mon	cnt	Brake control mon
3192	Brake open thr mon	cnt	Brake open thr mon
3212	Motor overload accum	perc	Motor overload accum
3214	Motor overload trip	cnt	Motor overload trip
3260	Bres overload accum	perc	Bres overload accum
3262	Bres overload trip	cnt	Bres overload trip

Ipa	Signal Name	Unit	Description
3304	Par set select mon	cnt	Par set select mon
3374	Vf catch out	cnt	Vf catch out (*)
3442	Powerloss rampdown	cnt	Powerloss rampdown
3446	Powerloss nextratio	cnt	Powerloss nextratio
3448	Powerloss nextactive	cnt	Powerloss nextactive
3480	Vdc ctrl ramp freeze	cnt	Vdc ctrl ramp freeze
3676	Compare output	cnt	Compare output
3700	Pad 1	cnt	Pad 1
3702	Pad 2	cnt	Pad 2
3704	Pad 3	cnt	Pad 3
3706	Pad 4	cnt	Pad 4
3708	Pad 5	cnt	Pad 5
3710	Pad 6	cnt	Pad 6
3712	Pad 7	cnt	Pad 7
3714	Pad 8	cnt	Pad 8
3716	Pad 9	cnt	Pad 9
3718	Pad 10	cnt	Pad 10
3720	Pad 11	cnt	Pad 11
3722	Pad 12	cnt	Pad 12
3724	Pad 13	cnt	Pad 13
3726	Pad 14	cnt	Pad 14
3728	Pad 15	cnt	Pad 15
3730	Pad 16	cnt	Pad 16
3958	PlcReqDwCode_	cnt	PlcReqDwCode_
4024	Fieldbus M2S 1 mon	cnt	Fieldbus M2S 1 mon
4034	Fieldbus M2S 2 mon	cnt	Fieldbus M2S 2 mon
4044	Fieldbus M2S 3 mon	cnt	Fieldbus M2S 3 mon
4054	Fieldbus M2S 4 mon	cnt	Fieldbus M2S 4 mon
4064	Fieldbus M2S 5 mon	cnt	Fieldbus M2S 5 mon
4074	Fieldbus M2S 6 mon	cnt	Fieldbus M2S 6 mon
4084	Fieldbus M2S 7 mon	cnt	Fieldbus M2S 7 mon
4094	Fieldbus M2S 8 mon	cnt	Fieldbus M2S 8 mon
4104	Fieldbus M2S 9 mon	cnt	Fieldbus M2S 9 mon
4114	Fieldbus M2S 10 mon	cnt	Fieldbus M2S 10 mon
4124	Fieldbus M2S 11 mon	cnt	Fieldbus M2S 11 mon
4134	Fieldbus M2S 12 mon	cnt	Fieldbus M2S 12 mon
4144	Fieldbus M2S 13 mon	cnt	Fieldbus M2S 13 mon
4154	Fieldbus M2S 14 mon	cnt	Fieldbus M2S 14 mon
4164	Fieldbus M2S 15 mon	cnt	Fieldbus M2S 15 mon
4174	Fieldbus M2S 16 mon	cnt	Fieldbus M2S 16 mon
4352	DS402 enable	cnt	DS402 enable
4354	DS402 start	cnt	DS402 start
4356	DS402 fast stop	cnt	DS402 fast stop
4358	DS402 rfg enable	cnt	DS402 rfg enable
4360	DS402 rfg unlock	cnt	DS402 rfg unlock
4362	DS402 rfg useref	cnt	DS402 rfg useref
4364	DS402 halt	cnt	DS402 halt
4366	DS402 jog cmd	cnt	DS402 jog cmd

Ipa	Signal Name	Unit	Description
4368	DS402 jog invert	cnt	DS402 jog invert
4370	DS402 alarm reset	cnt	DS402 alarm reset
4372	DS402 status word	cnt	DS402 status word
4376	PFdrv enable	cnt	PFdrv enable
4378	PFdrv start	cnt	PFdrv start
4380	PFdrv fast stop	cnt	PFdrv fast stop
4382	PFdrv rfg enable	cnt	PFdrv rfg enable
4384	PFdrv rfg unlock	cnt	PFdrv rfg unlock
4386	PFdrv rfg useref	cnt	PFdrv rfg useref
4388	PFdrv jog cmd	cnt	PFdrv jog cmd
4390	PFdrv jog invert	cnt	PFdrv jog invert
4392	PFdrv alarm reset	cnt	PFdrv alarm reset
4394	PFdrv status word 1	cnt	PFdrv status word 1
4396	PFdrv status word 2	cnt	PFdrv status word 2
4432	Word comp mon	cnt	Word comp mon
4454	Bit0 decomp mon	cnt	Bit0 decomp mon
4456	Bit1 decomp mon	cnt	Bit1 decomp mon
4458	Bit2 decomp mon	cnt	Bit2 decomp mon
4460	Bit3 decomp mon	cnt	Bit3 decomp mon
4462	Bit4 decomp mon	cnt	Bit4 decomp mon
4464	Bit5 decomp mon	cnt	Bit5 decomp mon
4466	Bit6 decomp mon	cnt	Bit6 decomp mon
4468	Bit7 decomp mon	cnt	Bit7 decomp mon
4470	Bit8 decomp mon	cnt	Bit8 decomp mon
4472	Bit9 decomp mon	cnt	Bit9 decomp mon
4474	Bit10 decomp mon	cnt	Bit10 decomp mon
4476	Bit11 decomp mon	cnt	Bit11 decomp mon
4478	Bit12 decomp mon	cnt	Bit12 decomp mon
4480	Bit13 decomp mon	cnt	Bit13 decomp mon
4482	Bit14 decomp mon	cnt	Bit14 decomp mon
4484	Bit15 decomp mon	cnt	Bit15 decomp mon
4708	Alm dig out mon 1	cnt	Alm dig out mon 1
4710	Alm dig out mon 2	cnt	Alm dig out mon 2
4712	Alm dig out mon 3	cnt	Alm dig out mon 3
4714	Alm dig out mon 4	cnt	Alm dig out mon 4
4770	First alarm	cnt	First alarm
5008	Test gen out	perc	Test gen out
5150	Encoder 2 speed	cnt	Encoder 2 speed
5154	E2 Virtual position	cnt	E2 Virtual position
5156	E2 Revolutions	cnt	E2 Revolutions
5162	Encoder 2 position	cnt	Encoder 2 position
5254	E3 Virtual position	cnt	E3 Virtual position
5256	E3 Revolutions	cnt	E3 Revolutions
5262	Encoder 3 position	cnt	Encoder 3 position
5484	External IO state	cnt	External IO state
5510	Digital input 9X mon	cnt	Digital input 9X mon
5512	Digital input10X mon	cnt	Digital input10X mon
5514	Digital input11X mon	cnt	Digital input11X mon

Ipa	Signal Name	Unit	Description
5516	Digital input12X mon	cnt	Digital input12X mon
5518	Digital input13X mon	cnt	Digital input13X mon
5520	Digital input14X mon	cnt	Digital input14X mon
5522	Digital input15X mon	cnt	Digital input15X mon
5524	Digital input16X mon	cnt	Digital input16X mon
5720	Sync slave mon	cnt	Sync slave mon
5750	FL Fw 1 mon	cnt	FL Fw 1 mon
5752	FL Fw 2 mon	cnt	FL Fw 2 mon
5754	FL Fw 3 mon	cnt	FL Fw 3 mon
5756	FL Fw 4 mon	cnt	FL Fw 4 mon
5758	FL Fw 5 mon	cnt	FL Fw 5 mon
5760	FL Fw 6 mon	cnt	FL Fw 6 mon
5762	FL Fw 7 mon	cnt	FL Fw 7 mon
5764	FL Fw 8 mon	cnt	FL Fw 8 mon
5800	FL Fw 1 inv mon	cnt	FL Fw 1 inv mon
5802	FL Fw 2 inv mon	cnt	FL Fw 2 inv mon
5804	FL Fw 3 inv mon	cnt	FL Fw 3 inv mon
5806	FL Fw 4 inv mon	cnt	FL Fw 4 inv mon
5808	FL Fw 5 inv mon	cnt	FL Fw 5 inv mon
5810	FL Fw 6 inv mon	cnt	FL Fw 6 inv mon
5812	FL Fw 7 inv mon	cnt	FL Fw 7 inv mon
5814	FL Fw 8 inv mon	cnt	FL Fw 8 inv mon
6004	Speed limit state	cnt	Speed limit state
6006	Current limit state	cnt	Current limit state

(*) Parameters (3160 e 3374) present only in the asy version non with syn

Appendix B – List of signals to be sampled target XVY-EV V4_4_X:

Signal Name	Unit	Description
Ramp Reference	rpm	Global Ramp reference (sum of all references)
Act Ramp Ref	rpm	Actual ramp reference (after input commando processing)
Ramp Output	rpm	Ramp Output
Speed	rpm	Motor Speed
Speed Error	rpm	Speed error (Reference – Speed)
Actual Position	mech deg	Actual Motor Position
Actual Revs	#	Actual Motor Revolutions
DI Enc Speed	rpm	DI Encoder speed
Actual Pos Error	mech deg	Position error
Speed Reference	rpm	Speed reference for Speed Loop
Torque Reference	Nm	Torque reference for Torque Loop
Act Torque	Nm	Actual quadrature current
ActSysTrqLim	Nm	Actual system torque limit
Act pos trq limit	Nm	Actual upper torque limit
Act neg trq limit	Nm	Actual lower torque limit
Powerloss active	1/0	Powerloss active
Undervoltage	1/0	Undervoltage active (negated)
Act quad curr ref	Arms	Actual quadrature current reference
Act quad curr	Arms	Actual quadrature current
Flux Curr reference	Arms	Actual direct current reference
Flux Current	Arms	Actual direct current
Output current	Arms	Output current
Phase U current	Apk	Phase U current
Phase V current	Apk	Phase V current
Phase W current	Apk	Phase W current
Output frequency	Hz	Output frequency
Act quad volt ref	Vrms	Actual quadrature voltage reference
Act dir volt ref" Vrms"	Vrms	Actual direct voltage reference
Vdc link voltage	V	Vdc link voltage
Motor flux	Wb	Motor flux
Output voltage	Vrms	Output voltage
Filtered Vd	Vrms	Filtered Vd
Voltage reference	Vrms	Voltage reference
Drive enable status	1/0	Physical drive enable
Precharge status	1/0	Precharge status
Brake status	1/0	Brake status
Analog input 0	cnts	Analog input 0 (+10V = 30312)
Analog input 1	cnts	Analog input 1 (+10V = 30312)
Analog output 0	cnts	Analog output 0 (+10V = 1638)
Analog output 1	cnts	Analog output 1 (+10V = 1638)
Enable input	1/0	Enable input

Signal Name	Unit	Description
Digital input 1	1/0	Digital input 1
Digital input 2	1/0	Digital input 2
Digital input 3	1/0	Digital input 3
Digital input 4	1/0	Digital input 4
Digital input 5	1/0	Digital input 5
Digital input 6	1/0	Digital input 6
Digital input 7	1/0	Digital input 7
Digital output 0	1/0	Digital output 0
Digital output 1	1/0	Digital output 1
Digital output 2	1/0	Digital output 2
Digital output 3	1/0	Digital output 3
Digital output 4	1/0	Digital output 4
Digital output 5	1/0	Digital output 5
Cos ch of AN tracks	cnts	Cosine channel of AN tracks
Sin ch of AN tracks	cnts	Sinus channel of AN tracks
AN noise	cnts	AN noise
User scope var 1	cnts	User scope var 1
User scope var 2	cnts	User scope var 2
User scope var 3	cnts	User scope var 3
User scope var 4	cnts	User scope var 4

Appendix C – List of signals to be sampled target APC300 V1_00:

Ipa	Signal Name	Unit	Description
1200	Digital input X mon	cnt	Digital input X mon
1210	Digital input 1X mon	cnt	Digital input 1X mon
1212	Digital input 2X mon	cnt	Digital input 2X mon
1214	Digital input 3X mon	cnt	Digital input 3X mon
1216	Digital input 4X mon	cnt	Digital input 4X mon
1218	Digital input 5X mon	cnt	Digital input 5X mon
1220	Digital input 6X mon	cnt	Digital input 6X mon
1222	Digital input 7X mon	cnt	Digital input 7X mon
1224	Digital input 8X mon	cnt	Digital input 8X mon
1600	Analog input 1X mon	cnt	Analog input 1X mon
1650	Analog input 2X mon	cnt	Analog input 2X mon
3676	Compare output	cnt	Compare output
3700	Pad 1	cnt	Pad 1
3702	Pad 2	cnt	Pad 2
3704	Pad 3	cnt	Pad 3
3706	Pad 4	cnt	Pad 4
3708	Pad 5	cnt	Pad 5
3710	Pad 6	cnt	Pad 6
3712	Pad 7	cnt	Pad 7
3714	Pad 8	cnt	Pad 8
3716	Pad 9	cnt	Pad 9
3718	Pad 10	cnt	Pad 10
3720	Pad 11	cnt	Pad 11
3722	Pad 12	cnt	Pad 12
3724	Pad 13	cnt	Pad 13
3726	Pad 14	cnt	Pad 14
3728	Pad 15	cnt	Pad 15
3730	Pad 16	cnt	Pad 16
3958	PlcReqDwCode_	cnt	PlcReqDwCode_
4432	Word comp mon	cnt	Word comp mon
4454	Bit0 decomp mon	cnt	Bit0 decomp mon
4456	Bit1 decomp mon	cnt	Bit1 decomp mon
4458	Bit2 decomp mon	cnt	Bit2 decomp mon
4460	Bit3 decomp mon	cnt	Bit3 decomp mon
4462	Bit4 decomp mon	cnt	Bit4 decomp mon
4464	Bit5 decomp mon	cnt	Bit5 decomp mon
4466	Bit6 decomp mon	cnt	Bit6 decomp mon
4468	Bit7 decomp mon	cnt	Bit7 decomp mon
4470	Bit8 decomp mon	cnt	Bit8 decomp mon
4472	Bit9 decomp mon	cnt	Bit9 decomp mon
4474	Bit10 decomp mon	cnt	Bit10 decomp mon
4476	Bit11 decomp mon	cnt	Bit11 decomp mon
4478	Bit12 decomp mon	cnt	Bit12 decomp mon
4480	Bit13 decomp mon	cnt	Bit13 decomp mon
4482	Bit14 decomp mon	cnt	Bit14 decomp mon
4484	Bit15 decomp mon	cnt	Bit15 decomp mon

Ipa	Signal Name	Unit	Description
4708	Alm dig out mon 1	cnt	Alm dig out mon 1
4710	Alm dig out mon 2	cnt	Alm dig out mon 2
4712	Alm dig out mon 3	cnt	Alm dig out mon 3
4714	Alm dig out mon 4	cnt	Alm dig out mon 4
4770	First alarm	cnt	First alarm
5484	External IO state	cnt	External IO state
5510	Digital input 9X mon	cnt	Digital input 9X mon
5512	Digital input10X mon	cnt	Digital input10X mon
5514	Digital input11X mon	cnt	Digital input11X mon
5516	Digital input12X mon	cnt	Digital input12X mon
5518	Digital input13X mon	cnt	Digital input13X mon
5520	Digital input14X mon	cnt	Digital input14X mon
5522	Digital input15X mon	cnt	Digital input15X mon
5524	Digital input16X mon	cnt	Digital input16X mon
5720	Sync slave mon	cnt	Sync slave mon
5750	FL Fw 1 mon	cnt	FL Fw 1 mon
5752	FL Fw 2 mon	cnt	FL Fw 2 mon
5754	FL Fw 3 mon	cnt	FL Fw 3 mon
5756	FL Fw 4 mon	cnt	FL Fw 4 mon
5758	FL Fw 5 mon	cnt	FL Fw 5 mon
5760	FL Fw 6 mon	cnt	FL Fw 6 mon
5762	FL Fw 7 mon	cnt	FL Fw 7 mon
5764	FL Fw 8 mon	cnt	FL Fw 8 mon
5800	FL Fw 1 inv mon	cnt	FL Fw 1 inv mon
5802	FL Fw 2 inv mon	cnt	FL Fw 2 inv mon
5804	FL Fw 3 inv mon	cnt	FL Fw 3 inv mon
5806	FL Fw 4 inv mon	cnt	FL Fw 4 inv mon
5808	FL Fw 5 inv mon	cnt	FL Fw 5 inv mon
5810	FL Fw 6 inv mon	cnt	FL Fw 6 inv mon
5812	FL Fw 7 inv mon	cnt	FL Fw 7 inv mon
5814	FL Fw 8 inv mon	cnt	FL Fw 8 inv mon
7148	D->A Fast 1 mon	cnt	D->A Fast 1 mon
7150	D->A Fast 2 mon	cnt	D->A Fast 2 mon
7152	D->A Fast 3 mon	cnt	D->A Fast 3 mon
7154	D->A Fast 4 mon	cnt	D->A Fast 4 mon
7156	D->A Fast 5 mon	cnt	D->A Fast 5 mon
7158	D->A Fast 6 mon	cnt	D->A Fast 6 mon
7160	D->A Fast 7 mon	cnt	D->A Fast 7 mon
7162	D->A Fast 8 mon	cnt	D->A Fast 8 mon
7164	D->A Fast 9 mon	cnt	D->A Fast 9 mon
7166	D->A Fast 10 mon	cnt	D->A Fast 10 mon
7180	A->D Fast 1 dig	cnt	A->D Fast 1 dig
7182	A->D Fast 2 dig	cnt	A->D Fast 2 dig
7184	A->D Fast 3 dig	cnt	A->D Fast 3 dig
7186	A->D Fast 4 dig	cnt	A->D Fast 4 dig
7188	A->D Fast 5 dig	cnt	A->D Fast 5 dig
7190	A->D Fast 6 dig	cnt	A->D Fast 6 dig
7192	A->D Fast 7 dig	cnt	A->D Fast 7 dig

Ipa	Signal Name	Unit	Description
7196	A->D Fast 8 dig	cnt	A->D Fast 8 dig
7198	A->D Fast 9 dig	cnt	A->D Fast 9 dig
7180	A->D Fast 10 dig	cnt	A->D Fast 10 dig
7212	D->A Slow 1 mon	cnt	D->A Slow 1 mon
7214	D->A Slow 2 mon	cnt	D->A Slow 2 mon
7216	D->A Slow 3 mon	cnt	D->A Slow 3 mon
7218	D->A Slow 4 mon	cnt	D->A Slow 4 mon
7220	D->A Slow 5 mon	cnt	D->A Slow 5 mon
7222	D->A Slow 6 mon	cnt	D->A Slow 6 mon
7224	D->A Slow 7 mon	cnt	D->A Slow 7 mon
7226	D->A Slow 8 mon	cnt	D->A Slow 8 mon
7228	D->A Slow 9 mon	cnt	D->A Slow 9 mon
7230	D->A Slow 10 mon	cnt	D->A Slow 10 mon
7244	A->D Slow 1 dig	cnt	A->D Slow 1 dig
7246	A->D Slow 2 dig	cnt	A->D Slow 2 dig
7248	A->D Slow 3 dig	cnt	A->D Slow 3 dig
7250	A->D Slow 4 dig	cnt	A->D Slow 4 dig
7252	A->D Slow 5 dig	cnt	A->D Slow 5 dig
7254	A->D Slow 6 dig	cnt	A->D Slow 6 dig
7256	A->D Slow 7 dig	cnt	A->D Slow 7 dig
7258	A->D Slow 8 dig	cnt	A->D Slow 8 dig
7260	A->D Slow 9 dig	cnt	A->D Slow 9 dig
7262	A->D Slow 10 dig	cnt	A->D Slow 10 dig
7000	DP Sync mon	cnt	DP Sync mon
7002	DP Exchange mon	cnt	DP Exchange mon

Appendix D – List of signals to be sampled target TPD32-EV V10_08

Par	Signal Name	Unit	Description
P8314	Act Speed	rpm	Act Speed (P8314)
P8205	Curr Lim Red	%	Curr Lim Red (P8205)
P8247	Ctrl Word	cnt	Ctrl Word (P8247)
P8200	T curr lim +	%	T curr lim + (P8200)
P8201	T curr lim -	%	T curr lim - (P8201)
P8202	Act Tcur lim+	%	Act Tcur lim+ (P8202)
P8203	Act Tcur lim-	%	Act Tcur lim- (P8203)
P8302	Ramp Ref	rpm	Ramp Ref (P8302)
P8305	Ramp Out	rpm	Ramp Out (P8305)
P8310	Spd Ref	rpm	Spd Ref (P8310)
P8248	Status Word	cnt	Status Word (P8248)
P8240	Ramp Ref 2	rpm	Ramp Ref 2 (P8240)
P8236	Ramp Ref 1	rpm	Ramp Ref 1 (P8236)
P8234	Spd Ref 1	rpm	Spd Ref 1 (P8234)
P8235	Spd Ref 2	rpm	Spd Ref 2 (P8235)
P8231	T curr ref 1	%	T curr ref 1 (P8231)
P8232	T curr ref 2	%	T curr ref 2 (P8232)
P8233	T curr ref	%	T curr ref (P8233)
P8391	Motor curr %	%	Motor curr % (P8391)
	PAD0	cnt	PAD0
	PAD1	cnt	PAD1
	PAD2	cnt	PAD2
	PAD3	cnt	PAD3
	PAD4	cnt	PAD4
	PAD5	cnt	PAD5
	PAD6	cnt	PAD6
	PAD7	cnt	PAD7
	PAD8	cnt	PAD8
	PAD9	cnt	PAD9
	PAD10	cnt	PAD10
	PAD11	cnt	PAD11
	PAD12	cnt	PAD12
	PAD13	cnt	PAD13
	PAD14	cnt	PAD14
	PAD15	cnt	PAD15
P8711	Bitword PAD A	cnt	Bitword PAD A (P8711)
P8712	Bitword PAD B	cnt	Bitword PAD B (P8712)
P8756	Diginputs	cnt	Diginputs (P8756)
P8773	Digoutputs	cnt	Digoutputs (P8773)
P8619	Spd Enc 1	rpm	Spd Enc 1 (P8619)
P8612	Spd Enc 2	rpm	Spd Enc 2 (P8612)
P8389	Enc 1 pos	cnt	Enc 1 pos (P8389)
P8390	Enc 2 pos	cnt	Enc 2 pos (P8390)
P8396	Enc 1 last sample	cnt	Enc 1 last sample time (P8396)

P8397	Enc 1 last sample time high	cnt	Enc 1 last sample time high (P8397)
P8398	Enc 2 last sample	cnt	Enc 2 last sample time (P8398)
P8399	Enc 2 last sample time high	cnt	Enc 2 last sample time high (P8399)
P8890	Load comp	%	Load comp (P8890)
P8428	Spd reg out	%	Spd reg out (P8428)
P8659	Flux curr max	%	Flux curr max (P8659)
P9113	Out volt lvl pct	%	Out volt lvl pct (P9113)
P8692	Flux ref	%	Flux ref (P8692)
P9209	Speed ratio	cnt	Speed ratio (P9209)
P9210	Spd draw out	rpm	Spd draw out (P9210)
P9346	Roll Diam	m	Roll Diam (P9346)
P9386	Act tension ref	%	Act tension ref (P9386)
P9385	Torque current	%	Torque current (P9385)
P9409	W reference	rpm	W reference (P9409)
P9405	Actual comp	%	Actual comp (P9405)
P9372	Tension ref	%	Tension ref (P9372)
P9371	Tension red	%	Tension red (P9371)
P9400	Close loop comp	cnt	Close loop comp (P9400)
P8249	Malfunct code	cnt	Malfunct code (P8249)
P9486	Torque proving	%	Torque proving (P9486)
P8425	Output Voltage	V	Output Voltage (P8425)
P8543	Flux Current	A	Flux Current (P8543)