Preparations [For use with NFO Sinus Manager 2.x.x]

- Uninstall any previous version of NFO Sinus Manager 2.x.x. before installing a new version
- Download and install latest version of NFO Sinus Manager from https://www.nfodrives.se/products
- At end of installation you may launch the program, or start it by clicking the icon on desktop
- When NFO Sinus Manager has started, select **Options** → **Settings**

NFO Sinus Manager		_	×
File Options Help			
Settings			
COM Ports COM 3 - UNUSED COM 8 - UNUSED Opened files	COM Log		~
			.:

- Click the Default COM Settings section and select protocol MODBUS_RTU
- Click the *Advanced* section, tick the box for *Enable developer functions* and then click *OK*.

NFO Sinus Manager - Options		×	× NFO Sinus Manager - Options	:	×
Log & Help Default COM Settings Identify Inverter CoP Flash Settings Simulation Advanced	Default COM Settings Default serial settings Port: Baud rate: 19200 Party: Even Stop bits: One Data bits: 8 Protocol: MODE Inverter ID: 1	✓ ✓ ✓ ✓ US_RTU ✓	Log & Help Default COM Settings Identify Inverter COP Flash Settings Simulation Advanced	Advanced Changes to these settings require a restart of the program. Enable developer functions Enable monitor functions Show extra Error info	
	OK			ОК	

• For changes to take effect, you need to **close the NFO Sinus Manager** and then start it again.

Firmware update part 1 – Download image and update Co-Processor

- Connect a USB-A cable between one of the USB ports of your computer and the USB connector of the control board of the NFO Sinus Optimal. *NOTE*: It may be convenient to look at the com port list while connecting the USB cable, and see which com port number that appears in the list.
- Right-click on the com port number that is connected to the Optimal and select *Identify Inverter*



• After a few seconds, data transfer is completed and information about the connected inverter is shown. *NOTE*: If needed, make a note of the current Cop FW and DSP FW (firmware versions) shown on screen.

🚼 NFO Sinus Manager		_	×
File Options Help			
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P COM Ports	Inverter info		
🖉 COM3 - UNUSED	General info		
COM7-UNUSED	Name: NFO Sinus Optimal 1.0-4.9A (FW 5011) on COM5		
COMT- UNUSED	Location:		
Dened files	Type: NFO Sinus Optimal 1.0-4.9A Cop FW: 5011		
MFO Sinus Optimal 1.0-4.9A (FW 5011) on COM5	DSP FW: 5010 Status: Ext Stby		
	Connection		
	Serial settings		
	Port: COM5 V Inverter ID: 1		
	Baud rate: 19200 V Autorefresh status		
	Parity: Even ~		
	Stop bits: One V		
	Data bits: 8 ~		
	Protocol: MODBUS_RTU ~		
	Send Commands		
	Tune motor Full Tuning ~		
	Stop V		
	Start Analogue input, forward \checkmark		
	Erase e-log in order to issue start commands.		
	Extem Mode Local Mode		
NFO Sinus Optimal 1.0-4.9A (FW 5011) on COM5 on COM5 linvlE	=1]		.:

• To proceed with the firmware update, right-click on the inverter instance, and select FW Update.

NFO Sinus Manager		– 🗆 ×
File Options Help		
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E COM Ports	Inverter info	
COM3 - UNUSED	General info	
COM1-UNUSED	Name: NFO Sinus Optimal 1.0-4.9A (FW 5011) on COM5	
COM5 - DONE	Location: Tune: NEO Sinue Ontime! 1.0.4.94	
Dened files	Cop FW: 5011	
Get parameter(s)	JSP FW: 5010 Status: Ext Stby	
Monitors Send parameter(s)		
Conv All Parameters to	nnection	
Indate All Parameters from	erial settings	
	ort: COM5 V Inverter ID: 1	
Custom Command (Modbus)	laud rate: 19200 ~ 🗌 Autorefresh status	
🐨 Run lest Program	arity: Even V	
Voltage Calibration	top bits: One bit	
S Factory Reset Parameters		
Five Update	Jata bits: 8 ~	
	rotocol: MODBUS_RTU V	
Change File FW to	•	
💾 Save Ctrl+	nd Commands	
😸 Save as	Tune motor Full Tuning V	
Rename	Que Chen	
Close	Stop V	
	Start Analogue input, forward ~	
	Erase e-log Please note that PIN Run has to be enabled in order to issue start commands.	
	Extem Mode Local Mode	
NFO Sinus Optimal 1.0-4.9A (FW 5011) on COM5 on COM5 [invl	=1]	

NOTE: The product consists of three CPU's: The Co-Processor for communication and control of terminals, the DSP for motor control, and the GUI for handling of the display and keypad. When the firmware is distributed, all three CPU's firmwares are packed together into the Co-Processor firmware file. Therefore, it's essential to start the update procedure by updating the Co-Processor before any of the other two.

- Click and select the *CoProcessor* option.
- Click the *[folder symbol]* and select your location of the distributed firmware file.

(With NFO Sinus Manager 2.1.1.0 and later versions, the most recent release of NFO Sinus Optimal firmware is included and located in *installation_folder*\hex\optimal*filename_version*.hex)

🐨 Optimal Flash		_	-	×
File Select firmware file				
Cop Main Co processor Main Files (x86)\NFO Sinus Manager\hex\optimal\optimal_5101	1_2.hex		5101	2
CoProcessor				
⊖ DSP				
	< <u>B</u> ack	<u>N</u> ext >	Ca	ancel

• Click the *Next* button

NFO Sinus Optimal

• The update process will now put the CPU in DFU (Device Firmware Update) mode and proceed by itself.

I Optimal Flash	—		\times
Copied to: C:\Users\andersh\AppData\Local\Temp\COP_main.dfu Sending MasterRestartReq ! I/O-åtgärden har avbrutits därför att en tråd har avslutats eller för att ett program Flashing CoProcessor program Detecting device Loading the DFU file DFU file parsed 427794 bytes Opening the device Performing partial erase	har begä	irt det.	~
Progress: 0%			
< <u>B</u> ack Fi <u>n</u> i	sh	Cance	I

• After a minute or so, the update of the Co-Processor is complete, then click the *Finish* button.

🖝 Optimal Flash —		×
Writing block# 9 Address: 0x8065010 Size: 2048bytes Writing block# 10 Address: 0x8065810 Size: 2048bytes Writing block# 11 Address: 0x8066010 Size: 2048bytes Writing block# 12 Address: 0x8066810 Size: 2048bytes Writing block# 13 Address: 0x8067010 Size: 2048bytes Writing block# 14 Address: 0x8067810 Size: 2048bytes Writing block# 15 Address: 0x8068010 Size: 2048bytes Writing block# 16 Address: 0x806810 Size: 1804bytes Writing block# 0 Address: 0x807FFFC Size: 4bytes Restarting		^
Waiting for CoProcessor restart Programming CoProcessor complete		
		~
Progress: 100%		
< <u>B</u> ack Fi <u>n</u> ish	Car	ncel

Firmware update part 2 – GUI

- Again right-click on the inverter instance, and select *FW Update* (shown in previous section).
- Click and select the *GUI* option.
- Click the *Next* button.

🖤 Optimal Flash		_		×
File Select firmware file				
Cop Main				
Co processor Main Files (x86)\NFO Sinus Manager\hex\optimal\optimal_5101	_2.hex		5101	2
○ CoProcessor				
○ DSP				
● GUI				
	< <u>B</u> ack	<u>N</u> ext >	Cano	cel

• Wait for update and click *Finish* button when ready.

I Optimal Flash		_		Х
Starting Cop GUI upgrade				~
Reading FW versions0 Cop Version: 5012 Dsp Version: 5012 Reset: FFFF Sending GuiFWUpdateReq > RebootGUIviaCAN Code: 64 Time out read raw parameteraborting				
Programming GUI processor complete				
Progress: 100%				~
110gr.co. 10070				
	< <u>B</u> ack Fi	nish	Cance	el

Firmware update part 3 – DSP

- Again right-click on the inverter instance, and select *FW Update* (shown in previous section).
- Click and select the **DSP** option.
- Click the *Next* button.

🖤 Optimal Flash			_		×
File Select firmware file				1	
Cop Main					
Co processor Main Files (x86)\NFO Sinus Manager\hex\optimal\optimal_5101_2.he	2X			5101	2
O DSP					
⊖ gui					
<	: <u>B</u> ack	<u>N</u> ext >		Car	ncel

• Wait for update and click *Finish* button when ready.

🜒 Optimal Flash		_	-	1 ×
Starting DSP upgrade				~
Reading FW versions0 Cop Version: 5012 Dsp Version: 0 Reset: FFFF Sending DspAutoFwUpdateReq > RebootDSPviaCAN Code: 64 > RebootGUIviaCAN Code: 64				
Programming DSP complete				
Progress: 100%				~
	< <u>B</u> ack	Fi <u>n</u> ish		Cancel

Firmware update finish

- To complete the update process, close the Sinus Manager program. You can safely answer **[No]** when prompted for saving the inverter data.
- Unplug the USB cable from either the computer or the Optimal.
- Power cycle the inverter, i.e. turn off power, wait for it to black out, and then reconnect power.
- Start Sinus Manager
- Insert the USB cable again
- Right-click on the com port number that is connected to the Optimal and select *Identify Inverter*
- After connection is established, the new versions are shown on the screen. It's also possible to read the firmware versions in the *Version* parameter group. Verify that all processors have correct versions
- Verify that motor data and other crucial settings are as intended
- New firmware versions may contain new parameters and/or new default settings of parameters that you may want to check before operating your drive system