

Sinus S

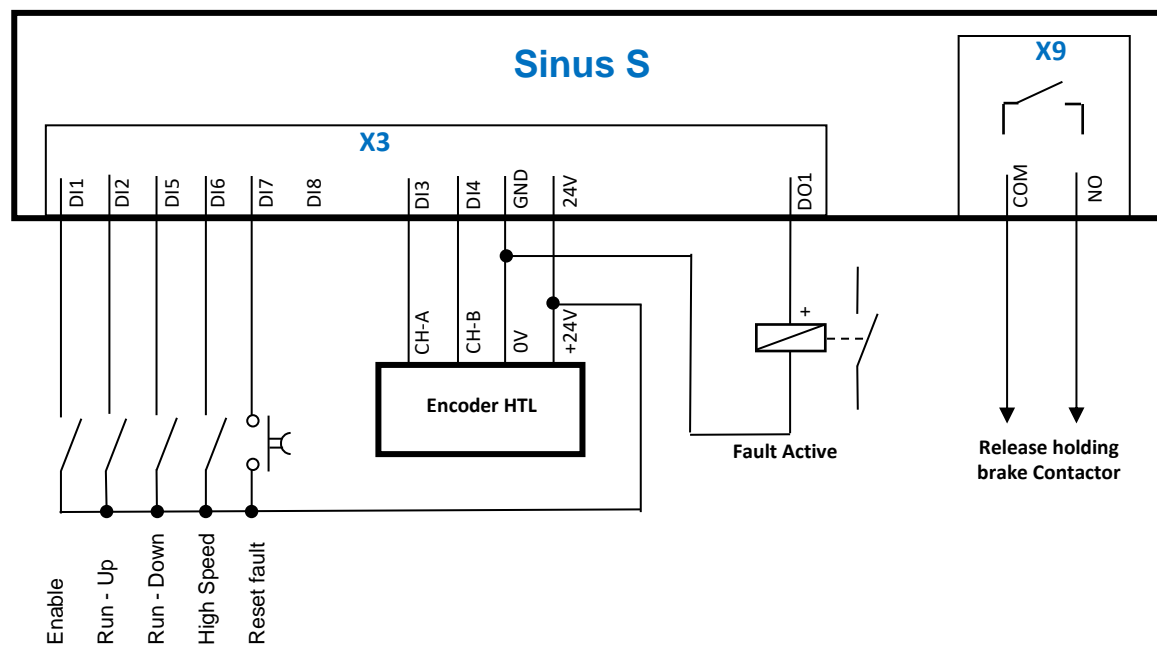
Vertical hoisting with encoder feedback

Parameter setting using the Remote Sinus application - R.00 30/03/2022

Functional example of a simple hoisting system with two fixed speeds

NOTE: A Control Unit with extended I/O is necessary to achieve this type of application.

NOTE: Use HTL 24 VDC Push-Pull encoders only.



Reference wiring diagram
control section

Parameter setting and motor self-calibration using the Remote Sinus application

To be sure to keep the control inputs and outputs disabled, it is advisable to temporarily remove the control terminal board until programming is complete.

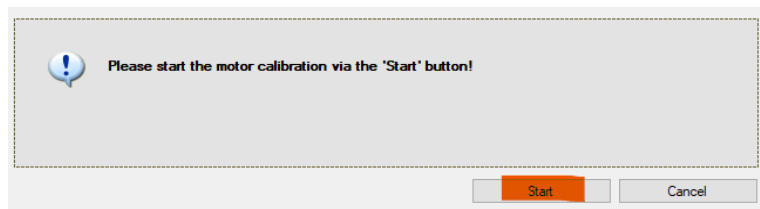
Start the **Remote Sinus** application, in the “**Settings**” > “**Overview**” page enter the Motor data in the parameters highlighted in green

The screenshot displays the 'Overview' page of the Remote Sinus application. The interface is divided into several sections: 'Basic setting', 'Motor control', 'Encoder settings', 'Flexible I/O configuration', and 'Configuring the process controller'. The 'Motor control' section is the primary focus, containing parameters for motor control mode, rated speed, frequency, current, voltage, and cosine phi. The 'Flexible I/O configuration' section includes settings for inverter enable, run, quick stop, reset fault, and various digital inputs. The 'Basic setting' section includes device name, operation mode, rated mains voltage, and network control. The 'Encoder settings' section includes input function and increments/revolution. The 'Configuring the process controller' section includes sequencer and additional functions. The 'Motor control' section also includes a 'Motor calibration' button, which is highlighted in red and labeled 'Energized'. The 'Flexible I/O configuration' section includes a 'Reverse rotational direct.' dropdown menu. The 'Basic setting' section includes a 'Default setpoint source' dropdown menu. The 'Encoder settings' section includes a 'Digital input [0]' dropdown menu. The 'Flexible I/O configuration' section includes a 'Digital input 3 [13]' dropdown menu. The 'Basic setting' section includes a 'Rated mains voltage' dropdown menu. The 'Motor control' section includes a 'Rated speed' dropdown menu. The 'Flexible I/O configuration' section includes a 'Run' dropdown menu. The 'Basic setting' section includes a 'Start method' dropdown menu. The 'Encoder settings' section includes a 'Input function' dropdown menu. The 'Flexible I/O configuration' section includes a 'Reset fault' dropdown menu. The 'Basic setting' section includes a 'Stop method' dropdown menu. The 'Encoder settings' section includes a 'Increments/revolution' dropdown menu. The 'Flexible I/O configuration' section includes a 'Activate preset (bit 0)' dropdown menu. The 'Basic setting' section includes a 'Minimum frequency' dropdown menu. The 'Encoder settings' section includes a 'Digital input [0]' dropdown menu. The 'Flexible I/O configuration' section includes a 'Activate preset (bit 1)' dropdown menu. The 'Basic setting' section includes a 'Maximum frequency' dropdown menu. The 'Encoder settings' section includes a 'Digital input [0]' dropdown menu. The 'Flexible I/O configuration' section includes a 'Preset 1' dropdown menu. The 'Basic setting' section includes a 'Acceleration time 1' dropdown menu. The 'Encoder settings' section includes a 'Digital input [0]' dropdown menu. The 'Flexible I/O configuration' section includes a 'Preset 2' dropdown menu. The 'Basic setting' section includes a 'Deceleration time 1' dropdown menu. The 'Encoder settings' section includes a 'Digital input [0]' dropdown menu. The 'Flexible I/O configuration' section includes a 'Preset 3' dropdown menu. The 'Basic setting' section includes a 'Quick stop decel. time' dropdown menu. The 'Encoder settings' section includes a 'Digital input [0]' dropdown menu. The 'Flexible I/O configuration' section includes a 'Digital input 4 [14]' dropdown menu. The 'Basic setting' section includes a 'Rated mains voltage' dropdown menu. The 'Motor control' section includes a 'Rated speed' dropdown menu. The 'Flexible I/O configuration' section includes a 'Run' dropdown menu. The 'Basic setting' section includes a 'Start method' dropdown menu. The 'Encoder settings' section includes a 'Input function' dropdown menu. The 'Flexible I/O configuration' section includes a 'Reset fault' dropdown menu. The 'Basic setting' section includes a 'Stop method' dropdown menu. The 'Encoder settings' section includes a 'Increments/revolution' dropdown menu. 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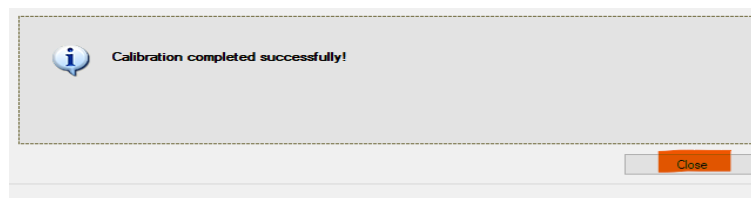
Then perform the motor self-calibration by clicking "**Energized**" (highlighted in red))

A warning window will appear, confirm with "**Yes**"

At the next request: "*Do you want to proceed further using the current settings of motor values?*" confirm with "**Yes**"



From this window, start the self-calibration by clicking "**Start**"



Attendere il termine della Calibrazione, poi cliccare "**Close**"

Cliccare "**Save**" sul programma per salvare permanentemente la programmazione nell'inverter



Selezionare la pagina "**Settings**" > "**Parameter List**" da cui inserire tutti valori nei vari parametri raggruppati nei vari gruppi: come l'elenco a seguire.

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Settings

Parameter list

Trend

Search parameters in current list

All parameters

Parameter list

Group 0 - Favorites

Group 1 - Diagnostics

Group 2 - Basic setting

Group 3 - Motor control

Group 4 - I/O setting

Group 5 - Network setting

Group 6 - Process controller

Group 7 - Additional functions

Group 8 - Sequencer

Address	Display parameter	Name	Value	Unit
0x2631:047	P400:047	Function list: Inhibit PID I-component	Not connected [0]	
0x2631:048	P400:048	Function list: Activate PID influence ra...	Constant TRUE [1]	
0x2631:049	P400:049	Function list: Open holding brake	Not connected [0]	
0x2631:050	P400:050	Function list: Select sequence (bit 0)	Not connected [0]	
0x2631:051	P400:051	Function list: Select sequence (bit 1)	Not connected [0]	
0x2631:052	P400:052	Function list: Select sequence (bit 2)	Not connected [0]	
0x2631:053	P400:053	Function list: Select sequence (bit 3)	Not connected [0]	
0x2631:054	P400:054	Function list: Position counter reset	Not connected [0]	
0x2631:055	P400:055	Function list: Activate UPS operation	Not connected [0]	
0x2631:056	P400:056	Function list: Assist pump 1	Not connected [0]	
0x2631:057	P400:057	Function list: Assist pump 2	Not connected [0]	
0x2631:058	P400:058	Function list: Reset operating time	Not connected [0]	
0x2630:001	P410:001	Digital input settings: Assertion level	HIGH active [1]	
0x2630:002	P410:002	Digital input settings: Input function	High res. HTL encoder [1]	
0x2632:001	P411:001	Inversion of digital inputs: Digital input 1	Not inverted [0]	
0x2632:002	P411:002	Inversion of digital inputs: Digital input 2	Not inverted [0]	
0x2632:003	P411:003	Inversion of digital inputs: Digital input 3	Not inverted [0]	
0x2632:004	P411:004	Inversion of digital inputs: Digital input 4	Not inverted [0]	
0x2632:005	P411:005	Inversion of digital inputs: Digital input 5	Not inverted [0]	
0x4005:000	P412:000	Frequency threshold	0,0	Hz
0x4003:000	P413:000	MOP starting mode	Last value [0]	
0x4004:001	P414:001	MOP starting values: Frequency	0,0	Hz
0x4004:002	P414:002	MOP starting values: PID value	0,00	PID unit

In this example parameter (group 4) P410.002 = High Res HTL encoder [1]

Parameter List

Dati Motore (Group 3)

P300:000	Motor control mode Servo control	= Servo Control (SC ASM) [2]	(Enables vector Servo Control)
P320:004	Motor parameters: Rated Speed	= RPM	(from motor nameplate)
P320:005	Motor parameters: Rated Freq	= Hz	(from motor nameplate)
P320:006	Motor parameters: Rated Power	= kW	(from motor nameplate)
P320:007	Motor parameters: Rated Voltage	= V	(from motor nameplate)
P320:008	Motor parameters: Cosine phi	=	(from motor nameplate)
P323:000	Rated motor current	= A	(from motor nameplate)

Ramps setting (Group 2)

P220:000	Acceleration time 1	= 1,5 s	(Acceleration time up to maximum speed)
P221:000	Deceleration time 1	= 1,0 s	(Deceleration time from maximum speed to stop)

Speed setting (Group 2 and Group 4)

P210:000	Minimum frequency	= 12,0 Hz	(Low speed for Up and Down)
P450:001	Frequency setpoint presets: Preset 1	= 50,0 Hz	(High speed for Up and Down))

Encoder enable (Group 4 and Group 3)

P410:002	Digital Input setting: input function	= High res. HTL encoder [1]	(Enables inputs DI3 and DI4 for encoder inputs Ch A and B with common GND)
P341:001	Encoder settings: Increments/revolution	= 1024	(Number of encoder pulses per revolution)

Digital inputs programming (Group 4)

P400:004	Function List. Reset Fault	= Digital Input 7 [17]	(Enable Reset Alarms on input DI7)
P400:008	Function List. Run Forward (CW)	= Digital input 2 [12]	(Enables Run Up on input DI2)
P400:009	Function list: Run Reverse (CCW)	= Digital input 5 [15]	(Enables Run Down on input DI5)
P400:013	Function list: Reverse rotational direct.	= Not connected [0]	
P400:018	Function list: Activate preset (bit 0)	= Digital input 6 [16]	(Enables High Speed on input DI6)
P400:019	Function list: Activate preset (bit 1)	= Not connected [0]	
P400:048	Function list: Activate PID influence ramp	= Not connected [0]	

Digital Outputs and Brake Control (Group 4)

P420:002	Digital outputs function:	= Fault active [56]	(Enables the DO1 output to the "Fault active" function)
P420:001	Digital outputs function:	= Relay Release holding brake [115]	(Enables the "Release holding brake" function at the output relay)

Mechanical brake management (Group 7)

P712:001	Holding brake control:	= Brake mode Automatically [0]	(Enables automatic management of the holding brake)
P712:008	Holding brake control:	= Brake holding load 20,0 %	(Preloaded holding torque before the brake is released at the start)

Brake resistor (Group 7)

P706:001	Brake energy management: Operating mode = Brake resistor [0]	(Enables the braking control on resistor)
P707:002	Brake resistor: Resistance value = Ω	(Rated resistive value of the braking resistor used)
P707:003	Brake resistor: Rated power = W	(Rated power value of the braking resistor used)
P707:004	Brake resistor: Maximum thermal load = kW	(Rated energy value of the braking resistor used)

Permanently save the parameter setting by pressing the "Enter" key until "Saved" appears

Click **"Save"** on the program to permanently save the programming in the inverter



Snap the terminal board back into position and carry out the normal motor control operations

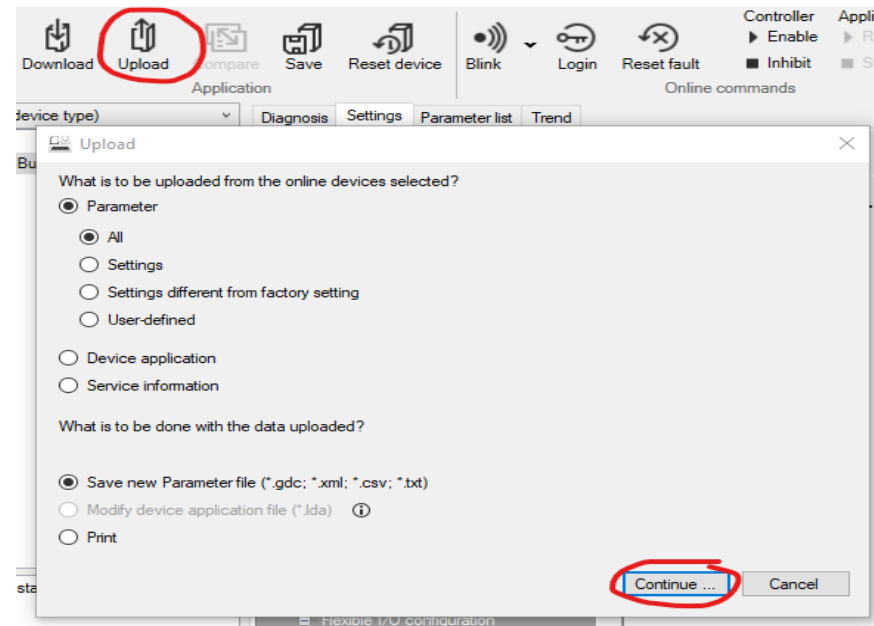
Backup and Restore of a project on an inverter

Save the project to File

It is possible to save a file with the integral programming, useful as a backup or to be able to transfer it later to other inverters with the same characteristics.

Click "**Upload**"

on the program, confirm with "**Continue**",



wait for the data to be uploaded from the inverter, click "**Continue**" and assign a name to the file "*.gdc"

Restore a Project File on the inverter

If you wish to restore a file previously saved on an inverter, click "**Download**" on the program, confirm with "**Next**"

Set the options like the window below and confirm with "**Start**"

Write parameter set to device

Parameter set details:

File:	Sinus S Prova salvataggio progetto.gdc
PDBId:	PDB04122020133902
Name:	Sinus S No Bus standard IO 50 Hz
Number of parameters:	1490
Encoded type:	Unknown

Before transfer:

☒ Inhibit controller

After transfer:

☒ Save parameter set in device

☒ Enable controller

Start **Abort**