

LIKITECH, S.L.U. Roc Gros 19 Pol. Ind. Roc Gros 08550 Hostalets de Balenyà Barcelona (España) T. +34 93 886 08 56 F. +34 93 889 08 73 likitech@likitech.com www.likitech.com





DRIVE-TECH / DRIVE-TECH MINI QUICK INSTALLATION GUIDE FOR SYNCHRONOUS PERMANENT MAGNET MOTORS OPERATION

Thank you for choosing DrivE-Tech / DrivE-Tech MINI.

In order to grant the best functioning performances with synchronous Franklin Electric permanent magnet motors, it is required to complete the following steps to set up the frequency drive DrivE-Tech and DrivE-Tech MINI.

Please download App **FE Connect Drive-Tech** from your Apple Store or Google Play. The App is available for iOS and Android devices. Once installed in your device please follow the instruction below.



Important: only one device can be connected to DrivE-tech at a time, no simultaneous connections are allowed.



1. Open settings on your device and allow BLUETOOTH connection.

2. Open App FE Connect DrivE-tech and create an account clicking on "REGISTER". You will receive an email to confirm the registration.



3. Connect DrivE-Tech / DrivE-Tech MINI to the Franklin Electric synchronous permanent magnet motor. For more details, please refer to the operating manual.



4. Connect DrivE-Tech / DrivE-Tech MINI to main supply. For more details, please refer to the operating manual.



5. Open FE DrivE-Tech Connect App and click "MONITOR".



6. Click "SEARCH" to enable the device to detect a DrivE-Tech / DrivE-Tech MINI.



7. Select your DrivE-Tech / MINI clicking on the active device.



 Store the User Password and click on "CONNECT". Passwords are available below or inside the operating manual. Standard: Password 1: 001 Password 2: 002

		•
🖬 WINDTRE 奈	14:49	58% 🗖
Connectio		×
Insert passwe	ord 1	
•••		
Insert passwe	ord 2.	
•••		
	\bigcirc	

9. Open the menu, clicking on the upper right corner of main panel, then click on "PROGRAM".



10. Select "MOTOR" parameter and then click "Motor Type" and select "Synchronous PM".



11. Store motor data power according to the pump installed (*), clicking on each parameter. Rated motor voltage [V] : see motor label data Rated motor current [A] : see motor label data and increase it of + 10% (*). Rated motor frequency [Hz] 100 Max motor frequency [Hz] : 100 Min motor frequency [Hz] : 60

II WINDTRE 🗢 14:56		57% 🗖
C Progra	am And-Alone	:
CONTROL MOTOR	IN/OUT	CONNECT
Motor type	Synchro	nous PM
		230
		1.0
Rated motor current [A]		
Rated motor frequency [Hz]		
Max motor frequency [Hz]		
Min motor frequency [Hz]		
		3.0
		3.0
		1.0
PWM [KHz]		
WRITE	СОРУ	





- 12. In the presence of a filter between VFD and motor, store the following parameters: **dV/dT filter:**
 - Set "FOC Dynamics" at 150 if the motor cable is shorter than 100 mt.
 - Set "FOC Dynamics" at 100 if the motor cable is longer than 100 mt.
 - Set PWM (KHz) at 4 kHz.

Sinusoidal filter:

- Set "FOC Dynamics" at 50 or 40.
- Set PWM (KHz) at 4 kHz.

Save settings clicking on "WRITE".

I WINDTRE 🗢 14:	56	57% 💷	🔐 WINDTRE 🗢	14:59	57% (
Prog DM2.011 67.5 1	ram Stand-Alone	:			
CONTROL MOTOR	IN/OUT	CONNECT	CONTROL		
Motor type	Synchr	onous PM	Max alarm v		
		230	Min alarm v		
		1.0	Pipe fill ram		
Rated motor current [A]		2.6	Ext		
Rated motor frequency [H		100	Do you Ser	i want to send prog device?	ram to the
Max motor frequency [Hz]		100	Co		
Min motor frequency [Hz]		60	Va	NO	
		3.0	Frequency n		
		3.0	Stop delay [:		
		1.0	Control ram		
PWM [KHz]		4	Delta start (i		
WRITE	COPY	то	WR		

13. On parameter "Motor Tuning" click on "PERFORM TUNING", to start identification test.

Program DNL2011 07.3 STAND-ALONE Program DNL2011 07.3 STAND-ALONE contribut Motor INVOUT CONTROL INVOU	WINDTRE 🗢 14:57	57% 🗖	14:57	57%
CONTROL MOTOR INVOUT CONNECT Ramp down time (sec) 3.0 Ramp freq, min motor (sec) 1.0 PWM [KH2] 4 V/f linear quadratic (%) 80 Rotation sense Care Casta Care Motor tuning ref romation Motor inductance (nH) 22.23 FOC dynamics 200	C Program DM2.011 67.5 STAND-ALONE	:	C Program	
Ramp down time [sec] 3.0 Ramp down time [sec] 3 Ramp freq, min motor [sec] 1.0 Rump freq, min motor [sec] 1 PVM [KHz] 4 PVM [KHz] PVM [KHz] Vrf linear quadratic (%) 80 PVM [KHz] PVM [KHz] Notor running reformer freq min motor [sec] 1 Motor inductance [mH] 22.23 Motor inductance [mH] 22.23 FOC dynamics 200 100 gourned 201	CONTROL MOTOR IN/OUT	CONNECT	CONTROL MOTOR IN/O	
Ramp freq. min motor [sec] 1.0 Ramp freq. min motor [sec] 1 PWML (KHz) 4 PWML (KHz) PWML (KHz) Vrf linear quadratic (%) 80 Rotation sense <=		3.0	Ramp down time [sec]	
PWM [kHz] 4 V/f linear quadratic (%) 80 Rotation sense *** Motor runing *** Motor risitance [Ω] 4.80 Motor inductance [mH] 22.23 FOC dynamics 200 PC dynamics 200		1.0	Ramp freq. min motor [sec]	
V/f linear quadratic (%) 80 Rotation sense *** Motor tuning *** Motor resistance (Ω) 4.80 Motor risiductance (mH) 22.23 FOC dynamics 200 FOC dynamics 200	PWM [KHz]	4	PWM [KHz]	
Rotation sense C= Do you want to send program to the device? Motor tuning TE FORM TUNING NO Motor resistance [Ω] 4.80 Motor inductance [mH] 22.23 FOC dynamics 200 FOC dynamics 200		80	V/I	8
Motor tuning reference (mH) 22.23 NO VES Motor inductance (mH) 22.23 Motor inductance (mH) 22.3 FOC dynamics 200 FOC dynamics 20		<==	device?	ram to the
Motor resistance [0] 4.80 Motor inductance [mH] 22.23 Motor inductance [mH] 22.23 Motor inductance [mH] 22.23 FOC dynamics 200 FOC dynamics 20	Motor tuning PERFORM		Ma	
Motor inductance (mH) 22.23 Motor inductance (mH) 22.3 FOC dynamics 200 FOC dynamics 20		4.80	Moserrenteerper	
FOC dynamics 200 FOC dynamics 20		22.23	Motor inductance [mH]	
The second		200	FOC dynamics	
FOC speed 5 FOC speed		5	FOC speed	
Autorestart C Autorestart			Autorestart	
WRITE COPY TO WRITE COPY TO	WRITE COPY	то	WRITE	

14. Choose parameter "CONTROL" and set value min frequency control at 100Hz. This is necessary when controlling the system with the constant pressure mode, to stop the pump when the delivery valve is closed and the flow is zero Save the setting clicking "WRITE"

I WINDTRE 📚 14:59	57% 🗔		9
Program DM2.011 67.5 STAND-ALON	це Е	C Progr DM2.011 67.5 ST	am FAND-ALONE
CONTROL MOTOR IN/OUT	CONNECT	CONTROL MOTOR	
	10.0	Max alarm value [bar]	
	0.0	Min alarm value [bar]	
	3.0	Pipe fill ramp [sec]	
		Ext	
	3.0	Do you want to sen	d program to the :e?
	0.0	C.	
	5	NO Val	YES
Frequency min control [Hz]	100	Frequency min control [Hz]	
	5	Stop delay [sec]	
	30.0	Control ramp [sec]	
	0.3	Delta start (bar)	
	DPY TO	WRITE	

15. Open the menu, clicking on the upper right corner of main panel, then click on "MONITOR".



16. Click "START" to run the motor.

		•					•	
🚛 WINDTRE 🗢	• 15	:00	57% 🗔	at I Wi	NDTRE 奈		00	57%
<	Mor DM2.005 32.0	hitor Stand-alone	:	<				
	STATUS: N	ORMAL OFF	:					
MOTOR H	OURS / FRE	QUENCY		мс				
0:11	0:17	0:49	0:33					
					Send S	TART com	mand to de	vice?
20.0 - 30.0	30.0 - 40.0	40.0 - 50.0	50.0 - 60.0	2				
			Hz		N	D		
DETAILS				DE				
			0.0	Acti				
			1.9	Set				
			0.0	Free				
			346	Volt				
SI/	IKI	SI						
		$\overline{)}$)	

Configuration completed. Verify the correct motor rotation checking pump performances.

17. If motor rotation is not correct, click "STOP".



18. Open the menu, clicking on the upper right corner of main panel, then click on "PROGRAM".



19. Choose "Motor" parameter and click on "Rotation Sense" to select "==>".

II WINDTRE 🗢 14:57	57% 💷	III WINDTRE 🗢 15:02	56% 🗖
< Program DM2.011.67.5 STAND-ALC	DNE E	Rotation sense	×
	T CONNECT	Choose a new value for this pa	rameter.
	3.0		
	1.0	<==	
PWM [KHz]	4	minimotor nequency (12)	
	80	Ramp up time [sec]	
	<==	Ramp down time [sec]	
Motor tuning PER	FORM TUNING	Ramp freq. min motor [sec]	
	4.80	PWM [KHz]	
	22.23	V/f linear quadratic [%]	
	200	Rotation sense	
	5	Voltage compensation	
		Autorestart	
WRITE	ОРҮ ТО	WRITE	

20. Save settings clicking "WRITE".

WINDTRE 奈 14:57	57% 💷	III WINDTRE 🗢 15:02	56%
C Program		C Program	
CONTROL MOTOR IN/OL	T CONNECT	CONTROL MOTOR IN/	
	3.0	Rated motor frequency [Hz]	
	1.0	Max motor frequency [Hz]	
PWM [KHz]	4	Min motor frequency [Hz]	
	80	Ra Do you want to sond pro	aram to the
	<==	device?	grann to the
Motor tuning	RFORM TUNING	Ra	
	4.80	PW	
	22.23	Wf linear quadratic [%]	
	200	Rotation sense	
	5	Voltage compensation	
		Autorestart	
WRITE	СОРҮ ТО	WRITE	

21. On parameter "Motor Tuning" click on "PERFORM TUNING", to start identification test.



22. Continue from point n. 15.

Filter between VFD and Motor

CT Motors / Synchronous PM Motors			
Cable length [m]	Filter		
0 - 50	NO		
50 - 120	dV/dt		
120	Sins		

PWM kHz

CT Motors / Synchronous PM Motors				
Filter	Cable length [m]	PWM [KHz]		
NO	0 - 20	8		
NO	20 - 50	2,5		
dV/dt	50 - 120	4		
Sins	120	4		

FOC Dynamics

Cable length	Filter presence	Value to set
<100 mt.	No	200
<100 mt.	dV/dt	150
>100 mt.	dV/dt	100
-	Sins	50