

WRITE commands table in Digital Control (USB and UART):

NO#	Command Name	Address	Command Code	DATA type	DATA / Range	Description	Storage [Volatile - Memory]	Default Value
1	Set Device Address	Device address	1[0x01]	Uint32	[0-254]	Sets the Device Address	M	0
2	Command Mode selection	Device address	2[0x02]	Uint32	0 or 1 (AN. or Dig.)	Analogue / Data Packet as inputs	V	0
3	Set current Limit	Device address	3[0x03]	Sfxt(32-17)	[0.2-32A]	Set the max allowable current into the motor	M	32A
4	Torque reference (Iq)	Device address	4[0x04]	Sfxt(32-17)	[0.2-32A]	Set the Torque Reference [A]	V	0
5	Speed reference	Device address	5[0x05]	Uint32	[0-30000]	Set the Speed Reference [RPM]	V	0
6	Power reference	Device address	6[0x06]	Sfxt(32-17)	[0-100]	Set the power Reference in open-loop	V	0
7	Motor Identification. start	Device address	7[0x07]	Uint32	1 / 0 (start/stop)	Start / Stop motor Identification	V	0
8	Stop system	Device address	8[0x08]	Uint32	0	To stop the system [emergency], Power recycle is necessary after	V	1
9	Set PWM frequency	Device address	9[0x09]	Uint32	[8-80]	To set PWM freq. between 8 kHz to 80 kHz	M	20/80
10	Set Speed controller Kp	Device address	10[0x0A]	Sfxt(32-17)	[0-300]	Set the Kp gain of speed controller	M	0
11	Set Speed controller Ki	Device address	11[0x0B]	Sfxt(32-17)	[0-300]	Set the Ki gain of speed controller	M	0
12	Set Motor Direction	Device address	12[0x0C]	Uint32	0 / 1 (C.W / CCW)	Set the direction of rotation of Motor	V	0
13	Set Phase or Armature resistance value	Device address	13[0x0D]	Sfxt(32-17)	[0.001 - 50.00]	Set Motor resistance from 1mΩ to 50Ω	M	0
14	Set Phase or Armature Inductance value	Device address	14[0x0E]	Sfxt(32-17)	[10 ⁻⁵ - 0.2]	Set Motor Inductance from 10μH to 200mH	M	0
15	Set the Motors Number of Poles	Device address	15[0x0F]	Uint32	[1-254]	Set Motor number of Poles	M	8
16	Set the Encoder Lines	Device address	16[0x10]	Uint32	[1-200000]	Set Encoder Lines (PPR)	M	1000
17	Set Speed Limit	Device address	17[0x11]	Uint32	[0-30000]	Set Max allowed speed (in Position control)	M	30000
18	Rest the Device Address to zero	0xFF	18[0x12]	-	255	Rest the device address to zero	M	-
19	Set speed control mode	Device address	19[0x13]	Uint32	0 / 1 / 2	Sensor-less / using Encoders / using Hall Sensors	V	0
20	Reset to factory settings	Device address	20[0x14]	Uint32	1	Factory reset all the parameters	V	-
21	Set motor type	Device address	21[0x15]	Uint32	0/1/2/3	DC/BLDC-PMSM/ACIM/BLDC-PMSM ultraFast	M	3
22	Set control mode type	Device address	22[0x16]	Uint32	0 / 1 / 2	Speed / Torque / Position	M	1
23	Set Current controller Kp	Device address	23[0x17]	Sfxt(32-17)	[0- 16000]	Set the current controller Kp, power recycle after needed	M	0
24	Set Current controller Ki	Device address	24[0x18]	Sfxt(32-17)	[0- 16000]	Set the current controller Ki power recycle after needed	M	0
25	Enable/Disable Monitoring Mode	Device address	25[0x19]	Uint32	0 / 1	Disable / Enable (VA, VB, IA, IB, VBUS, IM, VM, Iq, Id, Speed are monitored in the mentioned order)	V	0
26	Magnetizing Current Reference (Id)	Device address	26[0x1A]	Sfxt(32-17)	[0-32A]	Id reference setting for AC induction Motors	V	0
27	Set Desired Position	Device address	27[0x1B]	Int32	[+/- 2147483647]	Desired Position Reference to reach, Quadrature counts of pulses	V	0
28	Position Controller Kp Gain	Device address	28[0x1C]	Sfxt(32-17)	[0-16000]	Set the position controller Kp gain	M	0
29	Position Controller Ki Gain	Device address	29[0x1D]	Sfxt(32-17)	[0-16000]	Set the position controller Ki gain	M	0
30	Reset Position to Zero (Home)	Device address	31[0x1F]	Uint32	1	Rest the counted Position to Zero (Homing)	V	-
31	Overwrite the Errors	Device address	32[0x20]	Uint32	0	Overwrite the Errors occurred in Error Register	V	0
32	Set Sensorless Observer Gain for Normal Brushless Motor	Device address	33[0x21]	Sfxt(32-17)	[0.01 - 1000]	Set the Non-linear observer Gain for Normal Brushless motor in Sensorless mode	M	0.9
33	Set Sensorless Observer Gain for Ultra-Fast Brushless Motor	Device address	34[0x22]	Sfxt(32-17)	[0.01 - 1000]	Set the Non-linear observer Gain for Ultra-fast Brushless motor in Sensorless mode	M	0.99
34	Set Sensorless Observer Gain for DC Motor	Device address	35[0x23]	Sfxt(32-17)	[0.01 - 1000]	Set the Non-linear observer Gain for DC motor in Sensorless mode	M	50
35	Set Sensorless Observer Filter Gain for Normal Brushless Motor	Device address	36[0x24]	Sfxt(32-17)	[0.01 - 16000]	Set the Non-linear observer Filter Gain for Normal Brushless motor in Sensorless mode	M	50
36	Set Sensorless Observer Filter Gain for ultra-fast Brushless Motor	Device address	37[0x25]	Sfxt(32-17)	[0.01 - 16000]	Set the Non-linear Filter Gain for Ultra-fast Brushless motor in Sensorless mode	M	10
37	Set UART line baud-rate	Device address	38[0x26]	Uint32	0 / 1	937500 / 115200 [bits/s]	M	937500

READ commands table in Digital Control (USB and UART):

NO#	Command Name	Address	Command Code	DATA	DATA type	Description
1	Read Device Address	Device address	129[0x81]	0x00000000	Uint32	Read the current Device address
2	Read VA	Device address	130[0x82]	0x00000000	Sfxt(32-17)	Read Phase A voltage (3 phase)
3	Read VB	Device address	131[0x83]	0x00000000	Sfxt(32-17)	Read Phase B voltage (3 phase)
4	Read IA	Device address	132[0x84]	0x00000000	Sfxt(32-17)	Read Phase A current (3 phase)
5	Read IB	Device address	133[0x85]	0x00000000	Sfxt(32-17)	Read Phase B current (3 phase)
6	Read VBUS (Battery Voltage)	Device address	134[0x86]	0x00000000	Sfxt(32-17)	Read BUS/Battery Voltage
7	Read IM (DC motor current)	Device address	135[0x87]	0x00000000	Sfxt(32-17)	Read DC motor Current
8	Read VM (DC motor voltage)	Device address	136[0x88]	0x00000000	Sfxt(32-17)	Read DC motor Voltage
9	Read Speed controller Kp	Device address	137[0x89]	0x00000000	Sfxt(32-17)	
10	Read Speed controller Ki	Device address	138[0x8A]	0x00000000	Sfxt(32-17)	
11	Read PWM frequency [Hz]	Device address	139[0x8B]	0x00000000	Uint32	Read in Hz, the Output Switching Frequency
12	Read current Limit value	Device address	140[0x8C]	0x00000000	Sfxt(32-17)	
13	Read Iq (quadrature)	Device address	141[0x8D]	0x00000000	Sfxt(32-17)	Read Quadrature Current (3 phase)
14	Read Id (direct / magnetizing)	Device address	142[0x8E]	0x00000000	Sfxt(32-17)	Read Direct Current (3 phase)
15	Read Motors' Number of Poles	Device address	143[0x8F]	0x00000000	Uint32	
16	Read the Encoder Lines	Device address	144[0x90]	0x00000000	Uint32	
17	Read current controller Kp	Device address	145[0x91]	0x00000000	Sfxt(32-17)	
18	Read current controller Ki	Device address	146[0x92]	0x00000000	Sfxt(32-17)	
19	Read Temperature value	Device address	147[0x93]	0x00000000	Sfxt(32-17)	Read current temperature of the board
20	Read Phase /Armature resistance value	Device address	148[0x94]	0x00000000	Sfxt(32-17)	
21	Read Phase /Armature Inductance value	Device address	149[0x95]	0x00000000	Sfxt(32-17)	
22	Read speed	Device address	150[0x96]	0x00000000	Uint32	
23	Read Motor Type	Device address	151[0x97]	0x00000000	Uint32	
25	Read speed control mode	Device address	153[0x99]	0x00000000	Uint32	0 / 1 / 2 (Sensorless / Encoder-based / Hall- based)
26	Read Command Mode selection	Device address	154[0x9A]	0x00000000	Uint32	0 / 1 (Analogue / Digital)
27	Read control mode type	Device address	155[0x9B]	0x00000000	Uint32	0 / 1 / 2 (Speed / Torque / Position)
28	Read Speed Limit	Device address	156[0x9C]	0x00000000	Uint32	
29	Read Position Controller Kp Gain	Device address	157[0x9D]	0x00000000	Sfxt(32-17)	
30	Read Position Controller Ki Gain	Device address	158[0x9E]	0x00000000	Sfxt(32-17)	
31	Read the Counted Encoder Position (post-Quad)	Device address	160[0xA0]	0x00000000	Int32	Read the Quadrature Count of Encoder Pulses received
32	Read Error Register	Device address	161[0xA1]	0x00000000	Uint32	Read 32 bits Error Register
33	Read Firmware Version	Device address	162[0xA2]	0x00000000	Uint32	Reads the firmware version on SOLO
34	Read Hardware Version	Device address	163[0xA3]	0x00000000	Uint32	
35	Read Torque / "Iq" Reference	Device address	164[0xA4]	0x00000000	Sfxt(32-17)	
36	Read Speed Reference	Device address	165[0xA5]	0x00000000	Uint32	
37	Read Magnetizing Current / "Id" Reference	Device address	166[0xA6]	0x00000000	Sfxt(32-17)	
38	Read Position Reference	Device address	167[0xA7]	0x00000000	Int32	
39	Read Power Reference	Device address	168[0xA8]	0x00000000	Sfxt(32-17)	
40	Read Direction of Rotation	Device address	169[0xA9]	0x00000000	Uint32	
41	Read Sensorless Observer Gain for Normal Brushless Motor	Device address	170[0xAA]	0x00000000	Sfxt(32-17)	Read the Non-linear observer Gain for Normal Brushless motor in Sensorless mode
42	Read Sensorless Observer Gain for Ultra-Fast Brushless Motor	Device address	171[0xAB]	0x00000000	Sfxt(32-17)	Read the Non-linear observer Gain for Ultra-fast Brushless motor in Sensorless mode
43	Read Sensorless Observer Gain for DC Motor	Device address	172[0xAC]	0x00000000	Sfxt(32-17)	Read the Non-linear observer Gain for DC motor in Sensorless mode
44	Read Sensorless Observer Filter Gain for Normal Brushless Motor	Device address	173[0xAD]	0x00000000	Sfxt(32-17)	Read the Non-linear observer Filter Gain for Normal Brushless motor in Sensorless mode
45	Read Sensorless Observer Filter Gain for ultra-fast Brushless Motor	Device address	174[0xAE]	0x00000000	Sfxt(32-17)	Read the Non-linear Filter Gain for Ultra-fast Brushless motor in Sensorless mode
46	Read UART line baud-rate	Device address	179[0xB3]	0x00000000	Uint32	0 / 1 (937500 / 115200 [bits/s])