Emsiso Parameter

Par ID	Parameter Name	Parameter description	Default Value	Min Value	Max Value	Data Type	Level
0	Module ID	0..master module 1..slave module	0	0	1	Int	S
1	Number of modules	Number of modules which Are connected to CAN bus	1	1	2	Int	S
2	Control mode	1...current(torque) mode 2...speed mode,	2	0	2	Int	S
3	Position sensor	0...trapeze mode(only for test) 1..observer 2..digital hall sensor 3..sinus encoder 4..SSI	1	0	4	Int	S
4	Max. forward speed[Km/h]	Max. forward speed (used Only in speed mode)	90	0	100	Float	S
5	Max. reverse speed[Km/h]	Max. reverse speed (used Only in speed mode)	0	0	100	Float	S
6	Convert RPM to km/h	wheels diameter[m] * 3.14 * 3.6 * transmission / 60	9.04E-2	0	100	Float	S
7	Acceleration [%/0.01s]	Max. allowed acceleration	10	0	100	Float	UL
8	Deceleration [%/0.01s]	Max. allowed deceleration	10	0	100	Float	UL
9	Sample time[s]	Sampling time. If it zero, then is sampling disabled	0	0	10	Float	UL
10	Poten. null[V]	Null position of Potentiometer	0	0	5	Float	S
11	Poten.dead zone[V]	Dead zone of Potentiometer.	1.0	0	5	Float	S
12	Poten. max[V]	Max. value of Potentiometer = 100%	3.3	0	5	Float	S
13	Poten. min[V]	Min. value of potentiometer	0	0	5	Float	S
14	Max.positive phase current[A(rms)]	Max. phase current in motor mode.	250	0	250	Int	UH
15	Max.negative phase current[A(rms)]	Max. phase current in regeneration mode.Used only in speed mode.	30	0	250	Int	UH
16	Brake switch Invert	0..brake not inverted 1..brake inverted	1.0	0	1	Int	S
17	Max.brake regen.current [A(rms)]	Regeneration current when brake is pressed	80	0	250	Int	UH
18	Regeneration mode	0..constant regeneration current 1..regeneration current depends of speed(higher speed -> bigger current)	1.0	0	1	Int	S
19	PID P part	PID P part	0.8	0	5.0	Float	D
20	PID I part	PID I part	0.9	0	5.0	Float	D
21	PID I sum	PID I sum	0.85	0	5.0	Float	D
22	PID D part	PID D part	0.04	0	5.0	Float	D

23	Speed mode	Possibility to get speed for speed regulation(have to zero if you use only one controller in string): 0..speed only from master 1..average speed from both motors 2..minimum speed of both motors 3..maximum speed of both Motors	0.04	0	4	Int	D
24	End of application Parameters						
25	AD quant to current[A(rms)]	Depends of type of current sensor and sensor Sensitivity.	1.22E-2	1.22E-2	1.22E-2	Float	D
26	Current measure offset[quants]	Maximum allowed offset of current sensor.	1000	0	5000	Int	D
27	Motor current limit[Arms]	Maximum motor phase Current.	250	0	250	Int	D
28	Max.DC current per motor[A(rms)]	If battery current is higher as this value then controller decrease motor current.	70	0	200	Int	D
29	Max.DC current per motor[A(rms)]	Decreasing constant when motor current is higher as Par. 28.	0.1	0	0.2	Float	D
30	Motor temp.sensor	Type of temperature sensor inside motor: 0..I2t 1..kty84 2..NTC 10k	0	0	2	Int	S
31	Hall degrees	Hall displacement for digital sensors: 0..120 degrees 1..60 degrees	0	0	1	Int	S
32	Motor rotation	0..non invert rotation 1..invert rotation	1	0	1	Int	S
33	Motor angle Offset[180..180]	Motor 1 angle offset. Set in EMSISO Lab.	-170	-180	180	Int	S
34	Nb of motor pair Poles	Number of motor pair Poles.	28	0	48	Int	S
35	Motor temp. max[C]	Temperature protection. If motor temperature is higher as this value then controller start limit motor current. The controller never shutdown because over Temperature	90	60	130	Int	S
36	Motor temp. gain[A/C]	If motor temperature is higher as value of par.35, then controller decrease motor phase current: $I_{DEC} = (T_{MOTOR} - par35) * Par 36.$	6	0	20	Float	S
37	Motor nominal current[A]	Motor nominal current	80	0	250	Int	S
38	Motor heating Coeff	This value define how long maximum current is Allowed	200	0	10000	Int	S

39	Bridge overvoltage[V]	Disable bridge if voltage is higher as this value. The controller goes to safety Error.	90	30	100	Int	S
40	Shut down voltage[V]	If battery voltage is bellow this value, then the controller shut down. This parameter is ignored if controller is connected to BMS.	60	15	80	Float	S
41	Under voltage Umin[V]	If battery voltage is lower as this value, then controller decrease motor current. This parameter is ignored if controller is connected to BMS.	67	15	90	Float	S
42	Under voltage Ugain[A/V]	If battery voltage is lower as value of par.41, then controller decrease motor phase current: $I_{DEC} = (U_{BRIDGE} - par41) * par\ 42.$ This parameter is ignored if controller is connected to BMS.	12	0	30	Float	S
43	Bridge temp.max[C]	Temperature protection. If bridge temperature is higher as this value then controller start limit motor current.	90	60	110	Int	D
44	Bridge temp. gain[A/C]	If bridge temperature is higher as value of par.43, then controller decrease motor phase current: $I_{DEC} = (T_{BRIDGE} - par43) * Par\ 44.$	5	0	20	Float	D
45	Max.Speed current mode[Km/h]	Maximum speed in current mode. If speed is higher than controller starts limit motor current.	70	0	100	Int	S
46	Gain current mode[A/Km/h]	If speed(in current mode) is higher as value of par.45, then controller decrease motor phase current: $I_{DEC} = (v - par45) * par\ 46.$	1	0	10	Float	D
47	Analog hall A max	Maximum value on sinus hall A sensor	65520	0	65535	Int	UL
48	Analog hall A min	Minimum value on sinus hall A sensor	0	0	65535	Int	UL
49	Analog hall B max	Maximum value on sinus hall B sensor	65520	0	65535	Int	UL
50	Analog hall B min	Minimum value on sinus hall B sensor	0	0	65535	Int	UL
51	PID torque P	Values of PID regulator which is executed with 15kHz frequency. Set in EMSISO Lab	3.2E-5	0	1.0	Float	D
52	PID torque I		8.0E-3	0	1.0	Float	D
53	PID torque D		2.0E-6	0	1.0	Float	D
54	PID flux P		3.2E-5	0	1.0	Float	D

55	PID flux I	Values of PID regulator which is executed with 15kHz frequency. Set in EMSISO Lab	8.0E-3	0	1.0	Float	D
56	PID flux D		2.0E-6	0	1.0	Float	D
57	FET switching Mode	Set in EMSISO Lab	1	0	1	Int	D