MODBUS RTU

MBD servo drive implements Modbus RTU protocol on a RS232 serial point to point communication interface.

Available functions

Function name	Function code
Read Holding Register	0x03
Write Single Register	0x06
Write Multiple Registers	0x10

Modbus register areas

Parameter type	MODBUS address
Servo parameter	0x00 to 0x3FF
Input variables	0x1000 to 0x103F
Output variables	0x1200 to 0x123F

Basic command

Enabling, disable and set the speed

Command	Address	Data Write	Unit	NOTE
Opmode	0x0010	2	-	2 = digital speed
Enabling	0x1000	bit 0 = 1	-	
Disabling	0x1000	bit 0 = 0	-	
Speed setpoint	0x1026	xxxx	RPM	

Reading the status and the current

Command	Address	Data Write	Unit	NOTE
Enabling OK	0x1200	Bit 0 = 1	-	if enabled bit 0 is set to 1 otherwise is set to 0
Read speed	0x1218	xxxx	-	
Read Q current	0x1210	xxxx	Amper x 10	

Input Variable table

Modbus Address	Tag	Param	Value	Unit	Modbus Address	Tag	Param	Value	Unit
1000	0	CMD0	0000	hex	1020	32	Q Current Setpoint	0,0	A
1001	1	CMD1	0000	hex	1021	33	D Current Setpoint	0,0	A
1002	2	CMD2	0000	hex	1022	34	Current Saturation	0,0	%
1003	3	CMD3	0000	hex	1023	35	I35	0,000	
1004	4	IN_DIG_OUT_P2P	0		1024	36	Speed Limit	0	RPM
1005	5	IN_STORE_TUNING_PAR	0		1025	37	I37	0	
1006	6	IN_LATCH_MODE	0		1026	38	Speed Setpoint	0	RPM
1007	7	IN_START_P2P_ASSIGN	0		1027	39	I39	0	
1008	8	IN_PLL_SELECT	0		1028	40	I40	0	
1009	9	I9	0		1029	41	I41	0,00	
100A	10	INP_CAN_FREE_MAPPING_L	0000		102A	42	DBG_CMD_POSI	0	
100B	11	INP_CAN_FREE_MAPPING_H	0000		102B	43	DBG_OPERATION_MODE	0	
100C	12	I12	0		102C	44	Position Setpoint	0	
100D	13	I13	0		102D	45	I45	---	
100E	14	Brake Select	0000	hex	102E	46	Frequency Setpoint	0,0	Hz
100F	15	Brake Control	0000	hex	102F	47	General Purpose Input 0	0000	Hex
1010	16	Backup	0		1030	48	General Purpose Input 1	0	
1011	17	I17	0		1031	49	I49	0	
1012	18	Analog In CMD	0000	hex	1032	50	I50	0	
1013	19	I19	0		1033	51	I51	0	
1014	20	I20	0		1034	52	I52	0	
1015	21	Autotest	0000	hex	1035	53	I53	0	
1016	22	Autotest Type	0		1036	54	I54	0	
1017	23	I23	0,0		1037	55	I55	0	
1018	24	I24	0		1038	56	I56	0	
1019	25	I25	0		1039	57	I57	0	
101A	26	Preset Feedback Turns	0		103A	58	IN_CMD0_ATC	0000	
101B	27	Preset Feedback Angle	0		103B	59	I59	0	
101C	28	Analog Input 1	0	mV	103C	60	I60	0	
101D	29	Analog Input 2	0	mV	103D	61	I61	0	
101E	30	Analog Input 3	0	mV	103E	62	I62	0	
101F	31	Analog Input 4	0	mV	103F	63	PW	0	

Output Variable Table

Modbus Address	Tag	Param	Value	Unit	Modbus Address	Tag	Param	Value	Unit
1200	0	Status 0	0000	hex	1220	32	I2t Regen Resistor	0	%
1201	1	Status 1	0000	hex	1221	33	Motor PTC	0	
1202	2	Status 2	0000	hex	1222	34	Power On Time	0	s
1203	3	Status 3	0000	hex	1223	35	Q35	---	
1204	4	Alarm 0	0000	hex	1224	36	STOA	0,0	V
1205	5	Alarm 1	0000	hex	1225	37	STOB	0,0	V
1206	6	Alarm 2	0000	hex	1226	38	Regen Power	0,0	W
1207	7	Alarm 3	0000	hex	1227	39	Q39	0,0	
1208	8	Warning 0	0000	hex	1228	40	Brake Status	0000	hex
1209	9	Warning 1	0000	hex	1229	41	Feedback Status	0	
120A	10	Warning 2	0000	hex	122A	42	Feedback Monitor	0	hex
120B	11	Warning 3	0000	hex	122B	43	Feedback Supply	0,0	V
120C	12	Digital Input	0000	hex	122C	44	Q44	0	
120D	13	Digital Output	0000	hex	122D	45	Analog Input 1	0	mV
120E	14	Iu Offset	0		122E	46	Analog Input 2	0	mV
120F	15	Iw Offset	0		122F	47	Sync Time	0	us
1210	16	Q Current	0,0	A	1230	48	Actual Node ID	0	
1211	17	D Current	0,0	A	1231	49	CAN State-machine	0	
1212	18	Aux Supply	0,0	V	1232	50	CAN Port Status	0000	
1213	19	Q19	0		1233	51	P2P Num. of nodes	0	
1214	20	DC Current	0,0	A	1234	52	DSP402 State-machine	0	
1215	21	DC Current_Offset	0		1235	53	CAN_FREE_DATA_16	0	
1216	22	I2t Drive	0	%	1236	54	CAN_FREE_DATA_32_L	0	
1217	23	DC Link Voltage	0,0	V	1237	55	CAN_FREE_DATA_32_H	---	
1218	24	Speed	0	RPM	1238	56	Abs Feedback Position	0	counts
1219	25	Mechanical Angle	0		---	---	---		---
121A	26	Position	0	counts	123A	58	Q58	0	
---	---	---		---	123B	59	Bootloader version	0000	
121C	28	OUT_POS_LATCH_VAL	0	UDM	123C	60	Firmware version	0000	
---	---	---		---	123D	61	LIB_VERSION	0000	
121E	30	Heatsink Temp	0,0	♦C	123E	62	RAM_Aux1	0000	
121F	31	Internal Temp	0,0	♦C	123F	63	RAM_Aux2	0000	

From:
https://www.nilab.at/dokuwiki/ - **NiLAB GmbH Knowledgebase**

Permanent link:
https://www.nilab.at/dokuwiki/doku.php?id=en:mbd_servo_drive:modbus_rtu

Last update: **2026/09/11 07:57**