Message structure for Writing Parameters using Modbus Protocols:

Parameter Symbolic Name	Parameter Number	Slave	Write Telegram	Response Back to Controller	Response Message Structure Explanation
MOTOR_SF_AMPS	45201	MOC	01-10-14-50-00-02-04-41-01-99-9A-A6-54	01-10-14-50-00-02-44-29	This Telegram will write the SFA to 8.10A
MOTOR_PHASE_B_CURRENT	45154	MOC	Not applicable.	Not applicable.	Not applicable.

Query Message Structure

Field Name	Explanation	Example Read Motor SFA (HEX)
Slave Address	01 (MOC) 02(AOC)	1
Function	03 (read registers) 10 (Write Register)	10
Starting Address	Register address	14-50
Number of Registers to be Written	Numbers of registers are to be read	00-02
Byte Count	Data length	4
CRC	Error Check	A6--54

Response Message Structure

Field Name	Explanation	Example Read Motor SFA (HEX)
Slave Address	01 (MOC) 02(AOC)	1
Function	03 (read registers) 10 (Write Register)	10
Starting Address	Register address	14-50
Number of Registers to be Written	Numbers of registers are to be read	00-02
CRC	Error Check	44-29

Setting	Value
Baud rate	19200
Data bits	8
Parity Bit	None
Response Timeout (ms)	1000
Interframe Timeout (ms)	20

Links for more information on CRC calculation and data minupulation

http://www.lammertbies.nl/comm/info/crc-calculation.html

http://www.h-schmidt.net/FloatConverter/IEEE754.html

Message structure for Reading Parameters using Modbus Protocols:

Parameter Symbolic Name	Parameter Number	Slave	Read Telegram (Query Message)	Response Back to Controller	Response Message Structure Explanation
MOTOR_SF_AMPS	45201	MOC	01-03-14-50-00-02-C1-EA	01-03-04-41-01-99-9A-55-F4	This is reponse we get back from drive when it is programmed as 8.10A.
MOTOR_PHASE_B_CURRENT	45154	MOC	01-03-14-21-00-02-91-F1	01-03-04-00-00-00-00-FA-33	This is the response we get back from the drive when it is drawing 0.0A.

Query Message Structure

Field Name	Explanation	Example Read Motor SFA (HEX)	Example Read Motor Phase B Current (HEX)
Slave Address	01 (MOC) 02(AOC)	1	1
Function	03 (read registers) 10 (Write Register)	3	3
Starting Address	Register address	14-50	14-21
No. of Points	Numbers of registers are to be read	00-02	00-02
CRC	Error Check	C1-EA	91-F1

Response Message Structure

Field Name	Explanation	Response Motor SFA when set as 8.10A (HEX)	Response Motor Phase B Current when drive is drawing 0.0A (HEX)
Slave Address	01 (MOC) 02(AOC)	1	1
Function	03 (read registers) 10 (Write Register)	3	3

Byte Count	Data Length	4	4
Data	Data: Single precision binary floating point format	41-01-99-9A	00-00-00-00
CRC	Error Check	55-F4	FA-33

Parameter Symbolic Name	Parameter Number	Slave	Read Telegram (Query Message)	Response Back to Controller	Explanation	
AOC_SOFTWARE_VERSION	40001	AOC	02-03-00-00-00-0A-C5-FE	02-03-14-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-39-36-2E-32-87-65	for SW 2.69	String
PID Control						
PID_PGAIN	40209	AOC	02-03-00-D0-00-01-85-C0	02-03-02-05-DC-FE-8D	For Value 1500	Unsigned 16
PID_TINTEG	40210	AOC	02-03-00-D1-00-01-D4-00	02-03-02-01-F4-FC-53	For Value 500	Unsigned 16
PID_TDERIV	40211	AOC	02-03-00-D2-00-01-24-00	02-03-02-00-3C-FC-55	For Value 60	Unsigned 16
PID_DERIV_LIM	40212	AOC	02-03-02-D3-00-01-75-C0	02-03-02-00-78-FC-66	For Value 120	Unsigned 16
SLEEP						
SLEEP_BOOST_DIFF	40253	AOC	02-03-00-FC-00-01-44-09	02-03-02-00-15-3D-8B	For value 3PSI (Modbus tool show 21), for value 10PSI(Modbus show 69), Every 1PSI increase will increase the value by 7	Unsigned 16
SLEEP_BOOST_DELAY	40252	AOC	02-03-00-FB-00-01-F5-C8	02-03-02-00-3C-FC-55	For value 1 min (Modbus will read in seconds, so modbus will show 60)	Unsigned 16
SLEEP_WAKEUP_DIFF	40250	AOC	02-03-00-F9-00-01-54-08	02-03-02-00-22-7C-5D	For value 5PSI (Modbus tool show 34), for value 15PSI(Modbus show 103), Every 1PSI increase will increase the value by 7	Unsigned 16
SLEEP_WAKEUP_DELAY	40251	AOC	02-03-00-FA-00-01-A4-08	02-03-02-00-0F-BC-40	For value 15 Sec (Modbus will read in seconds, so modbus will show 120 for 2 min setting)	Unsigned 16
Password						
PASSWORD_LOCK_TIME	40239	AOC	02-03-00-EE-00-01-3C-FC-55	02-03-02-00-3C-FC-55	For value 1 HOUR (Modbus will read in MINUTES, so modbus will show 60 for 1 HOUR setting)	Unsigned 16
APP_PASSWORD	40237	AOC	02-03-00-EC-00-01-45-CC	02-03-02-1E-61-34-0C	For value 7777	Unsigned 16
SET POINTS						
PRESSURE_REF	40219	AOC	02-03-00-DA-00-01-A5-C2	02-03-02-02-9D-3C-8D	For value 97PSI (Modbus tool show 669), for value 15PSI(Modbus show 103), Every 1PSI increase will increase the value by 7	Unsigned 16
APP_EXT_SET	40230	AOC	02-03-00-E5-00-01-95-CE	02-03-02-00-67-BD-AE	For value 5PSI (Modbus tool show 34), for value 15PSI(Modbus show 103), Every 1PSI increase will increase the value by 7	Unsigned 16
MOTOR						

MOTOR_TYPE	45203	AOC	02-03-14-52-00-01-20-18	02-03-02-00-00-FC-44	For 3 phase motor, for other motors see the Motor Type Tab	Unsigned 16
ABOVE_GROUND	45500	AOC	02-03-15-7B-00-01-F0-2C	02-03-02-00-00-FC-44	This response when motor is not above ground. (0 is for Submersible and 1 is for above ground)	Unsigned 16
MOTOR_SF_AMPS	45201	AOC	02-03-14-50-00-02-C1-D9	02-03-04-41-8C-00-00-1C-E4	This response is when motor SFA set as 17.5A	Float 32
MAX_FREQ	40234	AOC	02-03-00-E9-00-01-55-CD	02-03-02-00-3C-FC-55	When frequency is 60Hz	Unsigned 16
MIN_FREQ	40235	AOC	02-03-00-EA-00-01-A5-CD	02-03-02-00-1E-7C-4C	When frequency is 30Hz	Unsigned 16
Sensor						
PRESSURE_MAX	40221	AOC	02-03-00-DC-00-01-45-C3	02-03-02-02-B1-3D-50	When Maximum sensor value is set as 100PSI	Unsigned 16
Ex Runtime						
PIPE_BREAK_HOURS	40240	AOC	02-03-00-EF-00-01-B5-CC	02-03-02-00-18-FC-4E	When value is set as 24 Hour.	Unsigned 16
PIPE_BREAK_ENABLED	40241	AOC	02-03-00-F0-00-01-84-0A	02-03-02-00-01-3D-84	When Ecessive runtime is enabled	Unsigned 16
Dry Run						
DRY_RUN_RESET_DELAY	40226	AOC	02-03-00-E1-00-01-D4-0F	02-03-02-00-03-BC-45	when value is set as 3.	Unsigned16
DRY_RUN_NUMBER_OF_RESE	40225	AOC	02-03-00-E0-00-01-85-CF	02-03-02-00-03-BC-45	when value is set as 3.	Unsigned16
DRY_RUN_DETECTION_TIME	40224	AOC	02-03-00-DF-00-01-B5-C3	02-03-02-00-0F-BC-40	when value is set as 15 Sec.	Unsigned16
LINEFILL_FILLTIME	40229	AOC	02-03-00-E4-00-01-C4-0E	02-03-02-00-0F-BC-40	when value is set as 15 Sec.	Unsigned16
I/O						
IO_INPUT_TYPE_1	40231	AOC	02-03-00-E6-00-01-65-CE	02-03-02-00-00-FC-44	When digital input is set as"UNUSED" (0 is for Unused, 1 is for Run Enable, 2 is for Ext Fault, 3 is for Ext Setpoint.	Unsigned16
IO_INPUT_TYPE_2	40232	AOC	02-03-00-E7-00-01-34-0E	02-03-02-00-00-FC-44	When digital input is set as"UNUSED" (0 is for Unused, 1 is for Run Enable, 2 is for Ext Fault, 3 is for Ext Setpoint.	Unsigned16
IO_OUTPUT_TYPE	40255	AOC	02-03-00-FE-00-01-E5-C9	02-03-02-00-00-FC-44	When Output Relay is set as"UNUSED" (0 is for Unused, 1 is for Run, 2 is for Fault)	Unsigned16
Over Pressure						
OVER_PRESSURE	40258		02-03-01-01-00-01-D4-05	02-03-02-02-28-FD-3A	When value is set as 80PSI	Unsigned16
No Ground						

NO_GND_DETECTION_ENABLI	45602	02-03-15-E1-00-01-D0-03	02-03-02-00-01-3D-84	When it is set as Enable (0 for Disable, 1 for Enable)	Unsigned16

Monitoring Parameters

MOC_SOFTWARE_ADDRESS	45101	02-03-13-EC-00-0A-00-8F	02-03-14-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-33-35-2E-32-74-BD	For software 2.53 version	String
MOTOR_POWER_CONSUMPT	45150	02-03-14-1D-00-02-51-CE	02-03-04-00-00-00-00-C9-33	When drive is consuming 0 Watts	Unsigned32
MOTOR_PHASE_A_CURRENT	45152	02-03-14-1F-00-02-F0-0E	02-03-04-00-00-00-00-C9-33	When drive is drawing 0A	Float32
MOTOR_PHASE_B_CURRENT	45154	02-03-14-21-00-02-91-C2	02-03-04-00-00-00-00-C9-33	When drive is drawing 0A	Float32
MOTOR_PHASE_C_CURRENT	45156	02-03-14-23-00-02-30-02	02-03-04-00-00-00-00-C9-33	When drive is drawing 0A	Float32
MOTOR_PHASE_VOLTAGE	45158	02-03-14-25-00-02-D0-03	02-03-04-00-00-00-00-C9-33	When Voltage is 0	Float32
SUPPLY_VOLTAGE	45204	02-03-14-53-00-02-31-D9	02-03-04-00-00-00-FA-49-70	When Input Voltage is 250	Unsigned32
MOC_ACTUAL_SPEED	45143	02-03-14-16-00-02-20-0C	02-03-04-00-00-00-00-C9-33		Float32

Parameter	Value	Fault	Read Telegram (Query Message)	Response Back to Controller
40031	8192	Open transducer	02-03-00-1E-00-02-A4-3E	02-03-04-00-00-20-00-D0-F3
	16384	Short Transducer	02-03-00-1E-00-02-A4-3E	02-03-04-00-00-40-00-F8-F3
	65536	Under Voltage	02-03-00-1E-00-02-A4-3E	02-03-04-00-01-00-00-98-F3
	64	Can not Start Motor	02-03-00-1E-00-02-A4-3E	02-03-04-00-00-00-40-C8-C3
	32	Dry Run	02-03-00-1E-00-02-A4-3E	02-03-04-00-00-00-20-C8-EB
		Ground Fault	02-03-00-1E-00-02-A4-3E	
	4096	System Not Grounded	02-03-00-1E-00-02-A4-3E	
	256	Over Current	02-03-00-1E-00-02-A4-3E	02-03-04-00-00-01-00-C8-A3
		Over Voltage	02-03-00-1E-00-02-A4-3E	
	32768	Low Amps	02-03-00-1E-00-02-A4-3E	02-03-04-00-00-80-00-A8-F3
		Over Temperature	02-03-00-1E-00-02-A4-3E	
		Excessive Run Time	02-03-00-1E-00-02-A4-3E	
		External Fault	02-03-00-1E-00-02-A4-3E	

Parameter	Value	Read Telegram (Query Message)	Response Back to Controller
40042	Stop	02-03-00-29-00-01-55-F1	02-03-02-00-00-FC-44
	Pump Out	02-03-00-29-00-01-55-F1	02-03-02-00-01-3D-84
	Auto Start	02-03-00-29-00-01-55-F1	02-03-02-00-02-7D-85

Parameter	Value	Read Telegram (Query Message)	Response Back to Controller
45203	E_MOTOR_3PH	02-03-14-52-00-01-20-18	02-03-02-00-00-FC-44
	E_MOTOR_1PH3W	02-03-14-52-00-01-20-18	02-03-02-00-02-7D-85
	E_MOTOR_1PH2W	02-03-14-52-00-01-20-18	02-03-02-00-01-3D-84