MODBUS RTU REGISTER MAP FOR DRIVES

Register Address (Dec)	Register Address (Hex)	Name	Data Type	R/W	Description
4097	**1001h**	**Output Frequency (High)**	UINT16	R	d001 (High). Monitoring. Resolution: 0.01 Hz.
4098	**1002h**	**Output Frequency (Low)**	UINT16	R	d001 (Low). Combined with 1001h for 32-bit value.
4099	**1003h**	**Output Current**	UINT16	R	d002. Monitoring. Resolution: 0.1 A.
4100	**1004h**	**Rotation Direction**	UINT16	R	d003. 0: Stopping, 1: Fwd, 2: Rev.
4101	**1005h**	**PID Feedback (High)**	UINT16	R/W	d004 (High). Monitoring/Setting. Resolution: 0.1.
4102	**1006h**	**PID Feedback (Low)**	UINT16	R/W	d004 (Low). Combined with 1005h for 32-bit value.
4103	**1007h**	**Intelligent Input Status**	UINT16	R	d005. Bits represent terminals [1] to [8].
4104	**1008h**	**Intelligent Output Status**	UINT16	R	d006. Bits represent terminals [11] to [15] & alarm relay.
4105	**1009h**	**Scaled Output Freq (High)**	UINT16	R	d007 (High). Monitoring. Resolution: 0.01.
4106	**100Ah**	**Scaled Output Freq (Low)**	UINT16	R	d007 (Low). Combined with 1009h for 32-bit value.
4107	**100Bh**	**Actual Frequency (High)**	UINT16	R	d008 (High). Monitoring. Resolution: 0.01 Hz. Range: -40000 to +40000.
4108	**100Ch**	**Actual Frequency (Low)**	UINT16	R	d008 (Low). Combined with 100Bh for 32-bit value.
4109	**100Dh**	**Torque Command**	UINT16	R	d009. Monitoring. Resolution: 1%. Range: -200 to +200.
4110	**100Eh**	**Torque Bias**	UINT16	R	d010. Monitoring. Resolution: 1%. Range: -200 to +200.
4112	**1010h**	**Torque Monitoring**	UINT16	R	d012. Monitoring. Resolution: 1%. Range: -200 to +200.
4113	**1011h**	**Output Voltage**	UINT16	R	d013. Monitoring. Resolution: 0.1 V.
4114	**1012h**	**Power Monitoring**	UINT16	R	d014. Monitoring. Resolution: 0.1 kW.
4115	**1013h**	**Cumulative Power (High)**	UINT16	R	d015 (High). Monitoring. Resolution: 0.1.
4116	**1014h**	**Cumulative Power (Low)**	UINT16	R	d015 (Low). Combined with 1013h for 32-bit value.
4117	**1015h**	**Heat Sink Temp**	UINT16	R	d018. Monitoring. Resolution: 0.1 °C. Range: -200 to 2000.
4118	**1016h**	**Motor Temperature**	UINT16	R	d019. Monitoring. Resolution: 0.1 °C. Range: -200 to 2000.
4129	**1021h**	**DC Bus Voltage**	UINT16	R	d102. Monitoring. Resolution: 0.1 V.
4130	**1022h**	**BRD Load Factor**	UINT16	R	d103. Monitoring. Resolution: 0.1%.

4131	**1023h**	**Electronic Thermal Load**	UINT16	R	d104. Monitoring. Resolution: 0.1%.
4353	**1101h**	**Frequency Source (High)**	UINT16	R/W	F001 (High). Setting. Valid when A001=03. Resolution: 0.01 Hz.
4354	**1102h**	**Frequency Source (Low)**	UINT16	R/W	F001 (Low). Combined with 1101h for 32-bit value.
4355	**1103h**	**Acceleration Time 1 (High)**	UINT16	R/W	F002 (High). Setting. Resolution: 0.01 sec. Range: 1-360000.
4356	**1104h**	**Acceleration Time 1 (Low)**	UINT16	R/W	F002 (Low). Combined with 1103h for 32-bit value.
4357	**1105h**	**Deceleration Time 1 (High)**	UINT16	R/W	F003 (High). Setting. Resolution: 0.01 sec. Range: 1-360000.
4358	**1106h**	**Deceleration Time 1 (Low)**	UINT16	R/W	F003 (Low). Combined with 1105h for 32-bit value.
4609	**1201h**	**Frequency Source Setting**	UINT16	R/W	A001. Control. 0:Keypot, 1:Term, 2:DigOp, 3:RS485, 4:Opt1, 5:Opt2, 6:Pulse, 7:EasySeq, 10:OpResult
4610	**1202h**	**Run Command Source**	UINT16	R/W	A002. Control. 1:Term, 2:DigOp, 3:RS485, 4:Opt1, 5:Opt2
4611	**1203h**	**Base Frequency**	UINT16	R/W	A003. Setting. Resolution: 1 Hz. Range: 30 to Max Freq.
4612	**1204h**	**Maximum Frequency**	UINT16	R/W	A004. Setting. Resolution: 1 Hz. Range: 30-400.
4865	**1301h**	**Operation Command**	UINT16	R/W	Coil 0001h. 1: Run, 0: Stop (valid when A002 = 03)
4866	**1302h**	**Rotation Direction Command**	UINT16	R/W	Coil 0002h. 1: Reverse, 0: Forward (valid when A002 = 03)
4867	**1303h**	**External Trip**	UINT16	R/W	Coil 0003h. 1: Trip
4868	**1304h**	**Trip Reset**	UINT16	R/W	Coil 0004h. 1: Reset
4875	**130Bh**	**Intelligent Input Terminal [1]**	UINT16	R/W	Coil 0007h. Override terminal [1]. 1: ON, 0: OFF
...	**...**	**...**	...	...	*Coils 0008h-000Eh map to terminals [2]-[8]*
4895	**131Fh**	**Operation Status**	UINT16	R	Coil 000Fh. 1: Run, 0: Stop
4896	**1320h**	**Rotation Direction Status**	UINT16	R	Coil 0010h. 1: Reverse, 0: Forward
4897	**1321h**	**Inverter Ready**	UINT16	R	Coil 0011h. 1: Ready, 0: Not Ready
4899	**1323h**	**RUN (Tripping)**	UINT16	R	Coil 0013h. 1: Tripping, 0: Normal
4913	**1331h**	**Data Writing in Progress**	UINT16	R	Coil 0049h. 1: Writing, 0: Normal
4914	**1332h**	**CRC Error**	UINT16	R	Coil 004Ah. 1: Error, 0: No Error
4915	**1333h**	**Overrun Error**	UINT16	R	Coil 004Bh. 1: Error, 0: No Error
4916	**1334h**	**Framing Error**	UINT16	R	Coil 004Ch. 1: Error, 0: No Error
4917	**1335h**	**Parity Error**	UINT16	R	Coil 004Dh. 1: Error, 0: No Error
4918	**1336h**	**Sum Check Error**	UINT16	R	Coil 004Eh. 1: Error, 0: No Error
16	**0010h**	**Trip Counter**	UINT16	R	d080. Count of trip events.
18	**0012h**	**Trip 1 Factor**	UINT16	R	d081. See Fault Code List below.
19	**0013h**	**Trip 1 Inverter Status**	UINT16	R	d081. Status at trip.

20	**0014h**	**Trip 1 Frequency (High)**	UINT16	R	d081. Frequency at trip. Resolution: 0.01 Hz.
21	**0015h**	**Trip 1 Frequency (Low)**	UINT16	R	d081. Combined with 0014h.
22	**0016h**	**Trip 1 Current**	UINT16	R	d081. Current at trip. Resolution: 0.1 A.
23	**0017h**	**Trip 1 Voltage**	UINT16	R	d081. DC Voltage at trip. Resolution: 1 V.
...	**...**	**...**	...	...	*Registers 0018h-0039h contain more trip history data for trips 1-6*
96	**0060h**	**Enter Command / EEPROM Write**	UINT16	W	Write 0000: Recalc Motor Constants, 0001: Store Data, Other: Recalc & Store

Fault Code List
(from Manual Section 4-146)

The fault code is in the upper byte; the inverter status is in the lower byte of the Trip Factor register.

- **01h**: Overcurrent during constant-speed
- **02h**: Overcurrent during deceleration
- **03h**: Overcurrent during acceleration
- **04h**: Overcurrent during stop
- **05h**: Overload protection (OL1)
- **06h**: Braking resistor overload (OL2)
- **07h**: Overvoltage (OV)
- **08h**: EEPROM error
- **09h**: Undervoltage (UV)
- **0Ah** (10): CT error
- **0Bh** (11): CPU error
- **0Ch** (12): External trip (EXT)
- **0Dh** (13): USP error
- **0Eh** (14): Ground fault (GF)
- **0Fh** (15): Input overvoltage
- **10h** (16): Instantaneous power failure
- **14h** (20): Power module temp (fan stop)
- **15h** (21): Power module temp
- **17h** (23): Gate array comm error
- **18h** (24): Phase loss
- **19h** (25): Main circuit error
- **1Eh** (30): IGBT error
- **23h** (35): Thermistor error
- **24h** (36): Braking error
- **25h** (37): Emergency stop
- **26h** (38): Electronic thermal low speed
- **2Bh** (43): Easy sequence error (invalid instruction)
- **2Ch** (44): Easy sequence error (invalid nesting)
- **2Dh** (45): Easy sequence execution error
- **32h**-**3Bh** (50-59): Easy sequence user trip 0-9
- **3Ch**-**45h** (60-69): Option 1 error 0-9
- **46h**-**4Fh** (70-79): Option 2 error 0-9

Modbus RTU Example Frames & CRC

CRC16 is calculated using the standard Modbus polynomial (0xA001, reversed from 0x8005). All examples assume slave address 1 and show CRC in little-endian order (LSB first).

1. Read Output Current (Register 1003h / d002)

- **Scaling:** Register value is in 0.1 A units. 123 = 12.3 A.
- **Request:** Read 1 register starting at address 1003h (decimal 4099).
  - 01 03 10 03 00 01
  - CRC Calculation for 01 03 10 03 00 01: 0xD1 0x6B
  - **Full Frame:** 01 03 10 03 00 01 D1 6B
- **Response:** Value of 12.3 A (123 decimal = 0x007B).
  - 01 03 02 00 7B
  - CRC Calculation for 01 03 02 00 7B: 0x79 0x9A
  - **Full Frame:** 01 03 02 00 7B 79 9A

2. Read Output Frequency (Registers 1001h & 1002h / d001)

- **Scaling:** 32-bit value. Resolution 0.01 Hz. 5000 = 50.00 Hz.
- **Request:** Read 2 registers starting at address 1001h (decimal 4097).
  - 01 03 10 01 00 02
  - CRC Calculation for 01 03 10 01 00 02: 0x90 0x6C
  - **Full Frame:** 01 03 10 01 00 02 90 6C
- **Response:** Value of 50.00 Hz (5000 decimal = 0x00001388). Assume High word is 1001h, Low word is 1002h.
  - 01 03 04 00 00 13 88
  - CRC Calculation for 01 03 04 00 00 13 88: 0xCB 0xFA
  - **Full Frame:** 01 03 04 00 00 13 88 CB FA
  - **Conversion:** 0x00001388 = 5000 decimal. 5000 * 0.01 = 50.00 Hz.

3. Write Frequency Reference (Register 1101h & 1102h / F001)

- **Scaling:** 32-bit value. Resolution 0.01 Hz. To set 50.00 Hz, write 5000 (0x00001388).
- **Request:** Use Function 16 (0x10) to write 2 registers starting at address 1101h (decimal 4353). Data length is 4 bytes.
  - 01 10 11 01 00 02 04 00 00 13 88
  - CRC Calculation for 01 10 11 01 00 02 04 00 00 13 88: 0x1F 0x6F
  - **Full Frame:** 01 10 11 01 00 02 04 00 00 13 88 1F 6F
- **Response:** Echoes the request's address and quantity.
  - 01 10 11 01 00 02
  - CRC Calculation for 01 10 11 01 00 02: 0x41 0xCF
  - **Full Frame:** 01 10 11 01 00 02 41 CF

4. Read Active Fault Register (Trip 1 Factor, Register 0012h)

- **Request:** Read 1 register starting at address 0012h (decimal 18).
  - 01 03 00 12 00 01
  - CRC Calculation for 01 03 00 12 00 01: 0x25 0xCA
  - **Full Frame:** 01 03 00 12 00 01 25 CA
- **Response:** Value of 0x0703 (Overvoltage trip occurred while decelerating).
  - Upper Byte: 07h = Overvoltage (E07)
  - Lower Byte: 03h = Constant-speed operation (See manual 4-146)
  - 01 03 02 07 03
  - CRC Calculation for 01 03 02 07 03: 0x74 0x5A
  - **Full Frame:** 01 03 02 07 03 74 5A

Priority Register Checklist

Function	Register Address (Hex)	Register Name	Details
Run/Stop	0001h (Coil)	Operation Command	Write 1 to Run, 0 to Stop. A002 must be 3.
Direction	0002h (Coil)	Rotation Direction Command	Write 0 for Forward, 1 for Reverse. A002 must be 3.
Fault Reset	0004h (Coil)	Trip Reset	Write 1 to reset a tripped inverter.
Frequency Reference	1101h/1102h	Frequency Source (F001)	32-bit value. Write desired frequency / 0.01. A001 must be 3.
Output Frequency	1001h/1002h	Output Frequency (d001)	32-bit value. (Read value) * 0.01 = Hz.
Output Current	1003h	Output Current (d002)	(Read value) * 0.1 = Amps.
DC Bus Voltage	1021h	DC Voltage Monitoring (d102)	(Read value) * 0.1 = Volts.
Output Torque	1010h	Torque Monitoring (d012)	(Read value) = %. Range: -200 to +200.
Output Power	1012h	Power Monitoring (d014)	(Read value) * 0.1 = kW.
Active Fault	0012h	Trip 1 Factor	Read value. See Fault Code List for interpretation.