



# Modbus Register Map: GUTOR Modular DC UPS

TME10810

Notes:

1. 16-bit registers are transmitted MSB first (i.e. big-endian).
2. INT32, UINT32, and FP are most-significant word in n+0, least significant word in n+1 (i.e. big-endian).
3. Function code 4 is supported
4. Modbus serial RTU and Modbus over TCP is supported.
5. Signed numbers are twos-compliment
6. Status bits are atomic within a single Modbus register. User should not look for consistency across multiple registers, only within a single register.
7. For ASCII strings less than the maximum length, the unused characters are filled with nulls.
8. Single-register reads of reserved or undefined registers will return an error. Block reads which begin with a valid register will not return an error but will return zeros for undefined registers.
9. Strings are two characters per register, first character in high-order byte, second character in low-order byte. Printable ASCII only.
10. Bit #0 is least significant bit.
11. Data Type column: "INT16"=signed 16-bit integer, "UINT16" = unsigned 16-bit integer, "INT32" = signed 32-bit integer, "UINT32" = unsigned 32-bit integer, "ENUM" is a UINT16 value which maps to a defined list of states, "ASCII" = the printable ASCII subset from 0x20 - 0x7E, "BOOLEAN"= a single bit, 0 or 1, "FP"=floating point.
12. "Absolute Starting Register Address" = 0 (the column heading used in this table) is equivalent to "Register 40001" in Modicon terminology, which is address zero when transmitted over the wire.

For detailed Modbus configuration settings, please refer to the display.

Modicon Standard Register Number	Absolute Starting Register Address, (Hexa-decimal)	Absolute Starting Register Address, (Decimal)	Bit	Data Point	Length	Data Type	Read/Write	Scale		Units	Optional Module Required
								Multiply Reading By:	Divide Reading By:		
<b>Status Data</b>											
40002	0x1	1		NMC Model Number	9	ASCII	Read-Only				
40011	0xA	10		NMC Serial Number	8	ASCII	Read-Only				
40019	0x12	18		NMC Firmware Revision APP	9	ASCII	Read-Only				
40028	0x1B	27		NMC Hardware Revision	9	ASCII	Read-Only				
40037	0x24	36		NMC Date of Manufacture	6	ASCII	Read-Only				
40043	0x2A	42		NMC/UPS Time (hh:mm:ss format)	4	ASCII	Read-Only				
40047	0x2E	46		NMC/UPS Date (mm/dd/yyyy format)	5	ASCII	Read-Only				
40052	0x33	51		Product Name	40	ASCII	Read-Only				
40092	0x5B	91		Probe 1 Temperature	1	UINT16	Read-Only	1	1	°C	AP9643TH
40093	0x5C	92		Probe 1 Humidity	1	UINT16	Read-Only	1	1	%	AP9643TH
40109	0x6C	108		UPS Model	16	ASCII	Read-Only				
40125	0x7C	124		UPS Type	16	ASCII	Read-Only				
40141	0x8C	140		UPS Serial number	8	ASCII	Read-Only				
40149	0x94	148		UPS Manufacturing date	6	ASCII	Read-Only				
40202	0xC9	201		MCU Modbus revision	1	UINT16	Read-Only	1	1		
40203	0xCA	202		MCU Part number	2	UINT32	Read-Only	1	1		
40205	0xCC	204		Software version of MCU (Index)	1	UINT16	Read-Only	1	1		
40207	0xCE	206		MCU serial number Word 1 (LB)	1	UINT16	Read-Only	1	1		
40208	0xCF	207		MCU serial number Word 2	1	UINT16	Read-Only	1	1		
40209	0xD0	208		MCU serial number Word 3	1	UINT16	Read-Only	1	1		
40210	0xD1	209		MCU serial number Word 4 (HB)	1	UINT16	Read-Only	1	1		
<b>Alarm Register</b>											
41001	0x3E8	1000		NMC Alarm	1	UINT16					
			0	Communication lost with MCU		BOOLEAN	Read-Only				
			3	Firmware Incompatibility detected		BOOLEAN	Read-Only				

41002	0x3E9	1001		NMC Alarm	1	UINT16					AP9643TH
			0	Low temperature threshold violation at remote sensor		BOOLEAN	Read-Only				AP9643TH
			1	Minimum temperature threshold violation at remote sensor		BOOLEAN	Read-Only				AP9643TH
			2	High temperature threshold violation at remote sensor		BOOLEAN	Read-Only				AP9643TH
			3	Maximum temperature threshold violation at remote sensor		BOOLEAN	Read-Only				AP9643TH
			4	Low humidity threshold violation at remote		BOOLEAN	Read-Only				AP9643TH
			5	Minimum humidity threshold violation at remote sensor		BOOLEAN	Read-Only				AP9643TH
			6	High humidity threshold violation at remote sensor		BOOLEAN	Read-Only				AP9643TH
			7	Maximum humidity threshold violation at remote sensor		BOOLEAN	Read-Only				AP9643TH
			8	Lost communication to-NMC integrated Environmental Sensor		BOOLEAN	Read-Only				AP9643TH
41003	0x3EA	1002		System main alarm	1	UINT16					
			0	Common alarm		BOOLEAN	Read-Only				
			1	Urgent event		BOOLEAN	Read-Only				
			2	Non urgent alarm		BOOLEAN	Read-Only				
			3	HMI to MCU communication fault		BOOLEAN	Read-Only				
			4	ADBUS communication is lost		BOOLEAN	Read-Only				
			5	Battery symmetry error		BOOLEAN	Read-Only				
			6	Battery current-limiting is active		BOOLEAN	Read-Only				
			7	High DC warning alarm		BOOLEAN	Read-Only				
			8	High DC shutdown alarm		BOOLEAN	Read-Only				
			9	Low DC warning alarm		BOOLEAN	Read-Only				
			10	Low DC shutdown alarm		BOOLEAN	Read-Only				
			11	Number of rectifier modules is below warning limit		BOOLEAN	Read-Only				
			12	Number of rectifier modules is below critical limit		BOOLEAN	Read-Only				
			13	Power module current reserve is lost		BOOLEAN	Read-Only				
			14	One or more modules are inoperable		BOOLEAN	Read-Only				
			15	One or more modules in overtemperature warning		BOOLEAN	Read-Only				
41008	0x3EF	1007		Main controller (MCU) main alarm	1	UINT16					
			1	MCU system errors summary alarm		BOOLEAN	Read-Only				
			2	MCU memory errors summary alarm		BOOLEAN	Read-Only				
			3	MCU Modbus errors summary alarm		BOOLEAN	Read-Only				
			4	MCU Initialization is in progress		BOOLEAN	Read-Only				
			5	MCU soft reset is active		BOOLEAN	Read-Only				
			6	MCU watchdog reset summary alarm		BOOLEAN	Read-Only				
			7	MCU temperature is too high		BOOLEAN	Read-Only				
41010	0x3F1	1009		System main configuration	1	UINT16					
			0	All power modules are set in SINGLE phase configuration		BOOLEAN	Read-Only				
			1	All power modules are set in THREE phase configuration		BOOLEAN	Read-Only				
			2	Neutral wire is required		BOOLEAN	Read-Only				
			3	One of the power modules is in DC-DC mode		BOOLEAN	Read-Only				
41013	0x3F4	1012		System main operation modes	1	UINT16					
			0	Charger mode is boost-charge		BOOLEAN	Read-Only				
			1	Boost charge is blocked		BOOLEAN	Read-Only				
			2	Charger mode is float-charge		BOOLEAN	Read-Only				
			3	Charger mode is direct feed, no batt		BOOLEAN	Read-Only				
			5	Charger turned off by software command		BOOLEAN	Read-Only				
			6	On battery		BOOLEAN	Read-Only				
			7	Battery equalizing charging		BOOLEAN	Read-Only				
			8	Battery equalizing charging is blocked		BOOLEAN	Read-Only				

41017	0x3F8	1016		System breaker status	1	UINT16					
			0	Breaker Q001 open		BOOLEAN	Read-Only				
			1	Breaker Q004 open		BOOLEAN	Read-Only				
			2	Breaker Q003 open		BOOLEAN	Read-Only				
			4	One or more distribution input breaker open		BOOLEAN	Read-Only				
			5	Surge arrester breaker open		BOOLEAN	Read-Only				
			6	Breaker 2Q001 open		BOOLEAN	Read-Only				
41019	0x3FA	1018		Battery status/alarm	1	UINT16					
			0	Battery test running		BOOLEAN	Read-Only				
			1	A weak battery exists		BOOLEAN	Read-Only				
			2	Battery test aborted		BOOLEAN	Read-Only				
			3	Battery test configuration error		BOOLEAN	Read-Only				
			4	Battery circuit test failed		BOOLEAN	Read-Only				
			5	Battery circuit test configuration error		BOOLEAN	Read-Only				
			6	Battery temperature measurement invalid		BOOLEAN	Read-Only				
41021	0x3FC	1020		Charger detailed alarm	1	UINT16					
			1	RESERVED							
			2	RESERVED							
			3	RESERVED							
			4	All rectifier modules switched off		BOOLEAN	Read-Only				
			5	Some rectifier modules switched off		BOOLEAN	Read-Only				
			6	Some rectifier modules in current limitation		BOOLEAN	Read-Only				
			7	Some rectifier modules shutdown for overvoltage		BOOLEAN	Read-Only				
			8	Rectifier output voltage out of range		BOOLEAN	Read-Only				
			9	Mains input in fault condition		BOOLEAN	Read-Only				
			10	One or more modules with input voltage out of range		BOOLEAN	Read-Only				
			11	RESERVED							
			12	One or more modules have an inoperable fan		BOOLEAN	Read-Only				
			13	RESERVED							
			14	One or more modules in overtemperature shutdown		BOOLEAN	Read-Only				
			15	One or more modules with defective temperature sensor		BOOLEAN	Read-Only				
41022	0x3FD	1021		Charger detailed alarm	1	UINT16					
			0	Load sharing error in all power modules		BOOLEAN	Read-Only				
			1	Fan warning in all power modules		BOOLEAN	Read-Only				
			2	Fan fault in all power modules		BOOLEAN	Read-Only				
			3	Input voltage out of range in all power modules		BOOLEAN	Read-Only				
			4	Output voltage out of range in all power modules		BOOLEAN	Read-Only				
			5	Power module bus error		BOOLEAN	Read-Only				
41027	0x402	1026		Charger filter logic alarm	1	UINT16					
			0	Logic Gate - Option 1 alarm		BOOLEAN	Read-Only				
			1	Logic Gate - Option 2 alarm		BOOLEAN	Read-Only				
			2	Logic Gate - Option 3 alarm		BOOLEAN	Read-Only				
41028	0x403	1027		Charger filter delay alarm	1	UINT16					
			0	Delay Gate - Option 1 alarm		BOOLEAN	Read-Only				
41029	0x404	1028		Charger filter set-reset gate alarm	1	UINT16					
			0	Filter Set-Reset Gate option 1 alarm		BOOLEAN	Read-Only				
			1	Filter Set-Reset Gate option 2 alarm		BOOLEAN	Read-Only				
			2	Filter Set-Reset Gate option 3 alarm		BOOLEAN	Read-Only				

41030	0x405	1029		Earth fault monitoring module alarm (ESU)	1	UINT16					
			0	Earth fault positive resistance warning		BOOLEAN	Read-Only				ADB-IMD
			1	Earth fault negative resistance warning		BOOLEAN	Read-Only				ADB-IMD
			2	Earth fault positive resistance alarm		BOOLEAN	Read-Only				ADB-IMD
			3	Earth fault negative resistance alarm		BOOLEAN	Read-Only				ADB-IMD
41032	0x407	1031		Battery supervision module alarm (BATT60)	1	UINT16					
			0	BATTS60C1 Battery measurement out of range on channel 1		BOOLEAN	Read-Only				ADB-BM60
			1	BATTS60C1 Battery measurement out of range on channel 2		BOOLEAN	Read-Only				ADB-BM60
			2	BATTS60C1 Battery measurement out of range on channel 3		BOOLEAN	Read-Only				ADB-BM60
			3	BATTS60C1 Battery measurement out of range on channel 4		BOOLEAN	Read-Only				ADB-BM60
			4	BATTS60C1 Battery supervision module type mismatch		BOOLEAN	Read-Only				
41034	0x409	1033		Battery supervision module alarm (BATT300)	1	UINT16					
			0	BATTS300C1 Battery measurement out of range on channel 1		BOOLEAN	Read-Only				ADB-BM300
			1	BATTS300C1 Battery measurement out of range on channel 2		BOOLEAN	Read-Only				ADB-BM300
			2	BATTS300C1 Battery supervision module type mismatch		BOOLEAN	Read-Only				ADB-BM300
Dynamic Data Register											
Charger											
45001	0x1388	5000		Rectifier module nominal voltage (output)	2	FP	Read-Only	1	1	V	
45003	0x138A	5002		Rectifier module rated current (output)	2	FP	Read-Only	1	1	A	
45005	0x138C	5004		Number of power modules	1	UINT16	Read-Only	1	1	pcs	
45006	0x138D	5005		Modules with available output power	1	UINT16	Read-Only	1	1	pcs	
45007	0x138E	5006		Number of modules in standby	1	UINT16	Read-Only	1	1	pcs	
45010	0x1391	5009		DC Rectifier output voltage	2	FP	Read-Only	1	1	V	
45012	0x1393	5011		DC Rectifier output current	2	FP	Read-Only	1	1	A	
45014	0x1395	5013		Load current	2	FP	Read-Only	1	1	A	
45016	0x1397	5015		Output power	2	FP	Read-Only	1	1	kW	
45018	0x1399	5017		Relative output power low-pass filtered	2	FP	Read-Only	1	1	%	
45020	0x139B	5019		Maximum rectifier ambient temperature	2	FP	Read-Only	1	1	°C	
45022	0x139D	5021		AC Voltage input measurement L1-N - Rectifier System 1	2	FP	Read-Only	1	1	V	ADB-ACM
45024	0x139F	5023		AC Voltage input measurement L2-N - Rectifier System 1	2	FP	Read-Only	1	1	V	ADB-ACM
45026	0x13A1	5025		AC Voltage input measurement L3-N - Rectifier System 1	2	FP	Read-Only	1	1	V	ADB-ACM
Battery											
45096	0x13E7	5095		Battery voltage 1	2	FP	Read-Only	1	1	V	
45098	0x13E9	5097		Battery current 1	2	FP	Read-Only	1	1	A	
45100	0x13EB	5099		Nominal battery capacity 1	2	FP	Read-Only	1	1	Ah	
45102	0x13ED	5101		Final discharge voltage battery 1	2	FP	Read-Only	1	1	V	
45104	0x13EF	5103		Battery capacity withdrawn 1	2	FP	Read-Only	1	1	Ah	
45116	0x13FB	5115		Battery temperature	2	FP	Read-Only	1	1	°C	
45118	0x13FD	5117		Battery test duration	2	FP	Read-Only	1	1	s	
45120	0x13FF	5119		Last battery test (time stamp)	2	UINT32	Read-Only	1	1	Timestamp	
45122	0x1401	5121		Last battery circuit test (time stamp)	2	UINT32	Read-Only	1	1	Timestamp	
Charger algebra											
45158	0x1425	5157		Input power	2	FP	Read-Only	1	1	kW	
45160	0x1427	5159		RESERVED							
45162	0x1429	5161		RESERVED							
45164	0x142B	5163		RESERVED							
45166	0x142D	5165		Mains Frequency (Max of first 30 modules)	2	FP	Read-Only	1	1	Hz	
45168	0x142F	5167		Mains Frequency (Min of first 30 modules)	2	FP	Read-Only	1	1	Hz	
45170	0x1431	5169		Module Incoming air temperature (Max of first 30 modules)	2	FP	Read-Only	1	1	°C	
45172	0x1433	5171		Module Outgoing air temperature (Max of first 30 modules)	2	FP	Read-Only	1	1	°C	
45174	0x1435	5173		Module temperature heat sink (Max of first 30 modules)	2	FP	Read-Only	1	1	°C	
45176	0x1437	5175		Module Transformer temperature (Max of first 30 modules)	2	FP	Read-Only	1	1	°C	
45178	0x1439	5177		Battery Capacity	2	FP	Read-Only	1	1	%	

45180	0x143B	5179	Algebra gate - Option 2	2	FP	Read-Only	1	1		
			Earth fault monitoring module measurement (ESU)							
45286	0x14A5	5285	DC Voltage - ground fault monitoring - ESU card 1	2	FP	Read-Only	1	1	V	ADB-DCM
45288	0x14A7	5287	Earth resitance positif pole - R+ - ESU card 1	2	FP	Read-Only	1	1	kOhm	ADB-DCM
45290	0x14A9	5289	Earth resitance negatif pole - R- - ESU card 1	2	FP	Read-Only	1	1	kOhm	ADB-DCM
			Battery supervision module measurement (BATT60)							
45350	0x14E5	5349	Measurement input L1-N - BATT60 card 1	2	FP	Read-Only	1	1	V	ADB-BM60
45352	0x14E7	5351	Measurement input L2-N - BATT60 card 1	2	FP	Read-Only	1	1	V	ADB-BM60
45354	0x14E9	5353	Measurement input L3-N - BATT60 card 1	2	FP	Read-Only	1	1	V	ADB-BM60
45356	0x14EB	5355	Measurement input L4-N - BATT60 card 1	2	FP	Read-Only	1	1	V	ADB-BM60
45358	0x14ED	5357	Measurement input L5-N - BATT60 card 1	2	FP	Read-Only	1	1	V	ADB-BM60
			Battery supervision module measurement (BATT300)							
45414	0x1525	5413	Measurement input L1-N - BATT300 card 1	2	FP	Read-Only	1	1	V	
45416	0x1527	5415	Measurement input L2-N - BATT300 card 1	2	FP	Read-Only	1	1	V	ADB-BM300
45418	0x1529	5417	Measurement input L3-N - BATT300 card 1	2	FP	Read-Only	1	1	V	

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