Modbus Register Map - MGE Galaxy 3500, Smart-UPS VT, and Smart-UPS
Excluding UPS models with prefix SMT, SMX, SURTD, and SRT

Notes:

1. 16-bit registers are transmitted MSB first (i.e. big-endian).

2. Modbus Serial RTU is supported on NMC model AP9635, and Modbus TCP is supported on NMC models AP9635, AP9630, AP9631 and AP9537SUM.

3. Status bits are atomic within a single Modbus register. User should not look for consistency across multiple registers, only within a single register.

4. Single register reads of reserved or undefined registers will return an error. Block reads that begin with a valid register will not return an error but will return zeros for undefined registers.

5. Registers are one word in size.

6. Signed numbers are two's complement.

7. Strings are one character per register.

8. Bit number 0 is least significant bit.

9. 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 that maps to a defined list of states, "ASCII" = the printable ASCII subset from 0x20 - 0x7E, "BOOLEAN" = a single bit, 0 or 1.

10. "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.

11. This Modbus Register Map also supports the three-phase Smart-UPS VT and MGE Galaxy 3500 UPS models.

Note: Most UPS models with the prefix SRC are supported by this Modbus Register Map. For SRC models **SRC2KUXI**, **SRC3KUXI**, and **SRC3KUXIX709**, use the Modbus Register Map entitled "*Modbus Register Map for Smart-UPS Models with prefix SMT, SMX, SURTD, and SRT*", available on **www.apc.com**.

Note: Temperature and Humidity sensors attached to the UIO port(s) of the AP9631 and AP9635 NMC models are not supported via Modbus**.**

For more information on the Modbus protocol, Modbus data formats, and Modbus troubleshooting, see **Application Note #168** "*Modbus Installation and Troubleshooting for AP9635 Network Management Card*", available on **www.apc.com**.

For detailed Modbus configuration settings, see the *AP9635 User Guide*, and the *Modbus Documentation Addendum* on the APC website, **www.apc.com**.

Modicon Standard Register Number	Absolute Starting Register Address, (Hexadecimal)	Absolute Starting Register Address, (Decimal)	Bit	Data Point	Length # registers	Data Type	Scale (Divide Reading By)	Description	Permission	Unit
40001	0000	0		Status Word 0	1				ReadOnly	None
			0			BOOLEAN		UPS turning on*		
			1			BOOLEAN		UPS in bypass due to an internal fault (indicated through register 0002 or 0003) *		
			2			BOOLEAN		UPS going to bypass due to command*		
			3			BOOLEAN		UPS in bypass due to command*		
			4			BOOLEAN		UPS returning from bypass*		
			5			BOOLEAN		UPS in bypass mode as a result of manual bypass control*		
			6			BOOLEAN		UPS ready to power load upon user command		
			7			BOOLEAN		UPS ready to power load upon return of normal line or upon user command		
			8			BOOLEAN		Reserved		
			9			BOOLEAN		Reserved		
			10			BOOLEAN		Reserved		
			11			BOOLEAN		Reserved		
			12			BOOLEAN		Reserved		
			13			BOOLEAN		Reserved		
			14			BOOLEAN		Reserved		
			15			BOOLEAN		Reserved		

Modicon Standard Register Number	Absolute Starting Register Address, (Hexadecimal)	Absolute Starting Register Address, (Decimal)	Bit	Data Point	Length # registers	Data Type	Scale (Divide Reading By)	Description	Permission	Unit
40002	0001	1		Status Word 1	1				ReadOnly	None
			0			BOOLEAN		UPS output not powered due to low battery shutdown		
			1			BOOLEAN		UPS unable to transfer to on-battery operation due to overload		
			2			BOOLEAN		UPS fault - main relay malfunction*		
			3			BOOLEAN		UPS in sleep mode		
			4			BOOLEAN		UPS in shutdown mode		
			5			BOOLEAN		UPS fault - battery charger failure		
			6			BOOLEAN		Reserved		
			7			BOOLEAN		UPS fault - internal temperature has exceeded nominal limits*		
			8			BOOLEAN		Reserved		
			9			BOOLEAN		Reserved		
			10			BOOLEAN		Reserved		
			11			BOOLEAN		Reserved		
			12			BOOLEAN		Reserved		
			13			BOOLEAN		Reserved		
			14			BOOLEAN		Reserved		
			15			BOOLEAN		Reserved		
40003	0002	2		Status Word 2	1				ReadOnly	None
			0			BOOLEAN		Reserved		
			1			BOOLEAN		Reserved		
			2			BOOLEAN		Reserved		
			3			BOOLEAN		Reserved		
			4			BOOLEAN		UPS fault - UPS in bypass; or DC imbalance in inverter*		
			5			BOOLEAN		UPS commanded out of bypass with no batteries attached; or No batteries attached*		
			6			BOOLEAN		Boost or trim relay fault*		
			7			BOOLEAN		Inverter fault; or Output overvoltage*		
			8			BOOLEAN		Reserved		
			9			BOOLEAN		Reserved		
			10			BOOLEAN		Reserved		
			11			BOOLEAN		Reserved		
			12			BOOLEAN		Reserved		
			13			BOOLEAN		Reserved		
			14			BOOLEAN		Reserved		
			15			BOOLEAN		Reserved		
40004	0003	3		Status Word 3	1				ReadOnly	None
			0			BOOLEAN		Performing battery calibration discharge		
			1			BOOLEAN		Smart trim*		
			2			BOOLEAN		Smart boost*		
			3			BOOLEAN		On line		
			4			BOOLEAN		On battery		
			5			BOOLEAN		Overload		
			6			BOOLEAN		Low battery (runtime remaining <= low battery duraton)		
			7			BOOLEAN		Replace battery		
			8			BOOLEAN		Reserved		
			9			BOOLEAN		Reserved		
			10			BOOLEAN		Reserved		
			11			BOOLEAN		Reserved		
			12			BOOLEAN		Reserved		
			13			BOOLEAN		Reserved		
			14			BOOLEAN		Reserved		
			15			BOOLEAN		Reserved		

Modicon Standard Register Number	Absolute Starting Register Address, (Hexadecimal)	Absolute Starting Register Address, (Decimal)	Bit	Data Point	Length # registers	Data Type	Scale (Divide Reading By)	Description	Permission	Unit
40005	0004	4		Line Quality	1	ENUM		00FF = acceptable utility line quality 0000 = unacceptable utility line quality	ReadOnly	None
40006	0005	5		% Battery State of Charge (0-100)	1	UINT16	1		ReadOnly	%
40007	0006	6		Runtime Remaining	1	UINT16	1		ReadOnly	Minutes
40008	0007	7		Battery Voltage	1	UINT16	1		ReadOnly	V
40009	0008	8		UPS Internal Temperature	1	UINT16	1	Internal operating temperature or battery temperature	ReadOnly	°C
40010	0009	9		Amps Drawn by Load*	1	UINT16	1		ReadOnly	A
40011	000A	10		Quantity of battery packs with bad batteries*	1	UINT16	1		ReadOnly	Each
40012	000B	11		Quantity of battery packs	1	UINT16	1		ReadOnly	Each
40013	000C	12		% Power drawn by load	1	UINT16	1		ReadOnly	%
40014	000D	13		Nominal Output Voltage	1	UINT16	1		ReadOnly	V
40015	000E	14		Actual Output Voltage	1	UINT16	1		ReadOnly	V
40016	000F	15		Maximum Input Voltage Since Last Reading	1	UINT16	1		ReadOnly	V
40017	0010	16		Minimum Input Voltage Since Last Reading	1	UINT16	1		ReadOnly	V
40018	0011	17		Input Voltage	1	UINT16	1		ReadOnly	V
40019	0012	18		Input Frequency	1	UINT16	1		ReadOnly	Hz
40020	0013	19		Measure-UPS Temperature Reading (Probe 1)	1	UINT16	1	Measure-UPS refers to the discontinued Environmental Monitoring Card AP9612TH	ReadOnly	°C
40021	0014	20		Measure-UPS Humidity Reading (Probe 1)	1	UINT16	1	Measure-UPS refers to the discontinued Environmental Monitoring Card AP9612TH	ReadOnly	%
40022	0015	21		Measure-UPS Temperature Reading (Probe 2)	1	UINT16	1	Measure-UPS refers to the discontinued Environmental Monitoring Card AP9612TH	ReadOnly	°C
40023	0016	22		Measure-UPS Humidity Reading (Probe 2)	1	UINT16	1	Measure-UPS refers to the discontinued Environmental Monitoring Card AP9612TH	ReadOnly	%
40024	0017	23		Measure-UPS Contact Position	1	UINT16	1	Measure-UPS refers to the discontinued Environmental Monitoring Card AP9612TH	ReadOnly	None
40025	0018	24		Reserved	1				ReadOnly	
40026	0019	25		Reserved	1				ReadOnly	
40027	001A	26		Minimum Return Battery Capacity	1	UINT16	1		ReadOnly	%
40028	001B	27		Lower Transfer Point	1	UINT16	1		ReadOnly	V
40029	001C	28		Upper Transfer Point	1	UINT16	1		ReadOnly	V
40030	001D	29		Nominal Output Voltage	1	UINT16	1		ReadOnly	V
40031	001E	30		Shutdown Delay	1	UINT16	1		ReadOnly	Seconds
40032	001F	31		Low Battery Duration	1	UINT16	1		ReadOnly	Minutes
40033	0020	32		Turn On Delay	1	UINT16	1		ReadOnly	Seconds
40034	0021	33		Sensitivity*	1	ENUM		'H' = highest (normal) sensitivity to utility voltage fluctuations 'M' = medium (reduced) sensitivity to utility voltage fluctuations 'L' = lowest sensitivity to utility voltage fluctuations 0 = not supported by this UPS	ReadOnly	None
40035	0022	34		UPS ID Character #1	1	ASCII			ReadOnly	None
40036	0023	35		UPS ID Character #2	1	ASCII			ReadOnly	None
40037	0024	36		UPS ID Character #3	1	ASCII			ReadOnly	None
40038	0025	37		UPS ID Character #4	1	ASCII			ReadOnly	None
40039	0026	38		UPS ID Character #5	1	ASCII			ReadOnly	None
40040	0027	39		UPS ID Character #6	1	ASCII			ReadOnly	None
40041	0028	40		UPS ID Character #7	1	ASCII			ReadOnly	None
40042	0029	41		UPS ID Character #8	1	ASCII			ReadOnly	None
40043	002A	42		Status Word 4*	1				ReadOnly	None
			0			BOOLEAN		Reserved		
			1			BOOLEAN		Reserved		
			2			BOOLEAN		Reserved		
			3			BOOLEAN		Run time below alarm threshold		
			4			BOOLEAN		XR frame fault		
			5			BOOLEAN		Output voltage out of range		
			6			BOOLEAN		System not synchronized		
			7			BOOLEAN		No batteries		
			8			BOOLEAN		Battery voltage high		
			9			BOOLEAN		Fault found in register 0049, 004A, 004B or 004C		
			10			BOOLEAN		Site wiring fault		
			11			BOOLEAN		Reserved		
			12			BOOLEAN		Reserved		
			13			BOOLEAN		Reserved		
			14			BOOLEAN		Reserved		
			15			BOOLEAN		Reserved		

Modicon Standard Register Number	Absolute Starting Register Address, (Hexadecimal)	Absolute Starting Register Address, (Decimal)	Bit	Data Point	Length # registers	Data Type	Scale (Divide Reading By)	Description	Permission	Unit
40044	002B	43		Status Word 5*	1				ReadOnly	None
			0			BOOLEAN		An installed Power Module has failed		
			1			BOOLEAN		Reserved		
			2			BOOLEAN		Reserved		
			3			BOOLEAN		An installed Battery has failed		
			4			BOOLEAN		Load is above alarm threshold		
			5			BOOLEAN		Reserved		
			6			BOOLEAN		Reserved		
			7			BOOLEAN		Bypass not in range (either freq or voltage unacceptable)		
			8			BOOLEAN		Reserved		
			9			BOOLEAN		Reserved		
			10			BOOLEAN		UPS in bypass due to internal fault		
			11			BOOLEAN		UPS in bypass due to overload		
			12			BOOLEAN		System is in maintenance bypass		
			13			BOOLEAN		Reserved		
			14			BOOLEAN		System level fan failed		
			15			BOOLEAN		Reserved		
40045	002C	44		Nominal Battery Voltage*	1	UINT16	1		ReadOnly	V
40046	002D	45		Actual Battery Voltage*	1	UINT16	1		ReadOnly	V
40047	002E	46		Utility Input Voltage Phase A*	1	UINT16	1		ReadOnly	V
40048	002F	47		Utility Input Current Phase A*	1	UINT16	1		ReadOnly	A
40049	0030	48		Bypass Input Voltage Phase A*	1	UINT16	1		ReadOnly	V
40050	0031	49		Percent of Maximum Output VA's Phase A @ n+0*	1	UINT16	1		ReadOnly	%
40051	0032	50		Percent of Maximum Output VA's Phase A @ n+x*	1	UINT16	1		ReadOnly	%
40052	0033	51		Phase A Output kVA*	1	UINT16	1		ReadOnly	kVA
40053	0034	52		Output Voltage Phase A*	1	UINT16	1		ReadOnly	V
40054	0035	53		Output Current Phase A*	1	UINT16	1		ReadOnly	V
40055	0036	54		Peak Output Current Phase A*	1	UINT16	1		ReadOnly	A
40056	0037	55		Utility Input Voltage Phase B*	1	UINT16	1		ReadOnly	V
40057	0038	56		Utility Input Current Phase B*	1	UINT16	1		ReadOnly	A
40058	0039	57		Bypass Input Voltage Phase B*	1	UINT16	1		ReadOnly	V
40059	003A	58		Percent of Maximum Output VA's Phase B @ n+0*	1	UINT16	1		ReadOnly	%
40060	003B	59		Percent of Maximum Output VA's Phase B @ n+x*	1	UINT16	1		ReadOnly	%
40061	003C	60		Phase B Output kVA*	1	UINT16	1		ReadOnly	kVA
40062	003D	61		Output Voltage Phase B*	1	UINT16	1		ReadOnly	V
40063	003E	62		Output Current Phase B*	1	UINT16	1		ReadOnly	A
40064	003F	63		Peak Output Current Phase B*	1	UINT16	1		ReadOnly	A
40065	0040	64		Utility Input Voltage Phase C*	1	UINT16	1		ReadOnly	V
40066	0041	65		Utility Input Current Phase C*	1	UINT16	1		ReadOnly	A
40067	0042	66		Bypass Input Voltage Phase C*	1	UINT16	1		ReadOnly	V
40068	0043	67		Percent of Maximum Output VA's Phase C @ n+0*	1	UINT16	1		ReadOnly	%
40069	0044	68		Percent of Maximum Output VA's Phase C @ n+x*	1	UINT16	1		ReadOnly	%
40070	0045	69		Phase C Output kVA*	1	UINT16	1		ReadOnly	kVA
40071	0046	70		Output Voltage Phase C*	1	UINT16	1		ReadOnly	V
40072	0047	71		Output Current Phase C*	1	UINT16	1		ReadOnly	A
40073	0048	72		Peak Output Current Phase C*	1	UINT16	1		ReadOnly	A
40074	0049	73		Status Word 6*	1	BOOLEAN		Bits reserved for future use.	ReadOnly	None
40075	004A	74		Status Word 7*	1	BOOLEAN		Bits reserved for future use.	ReadOnly	None

Modicon Standard Register Number	Absolute Starting Register Address, (Hexadecimal)	Absolute Starting Register Address, (Decimal)	Bit	Data Point	Length # registers	Data Type	Scale (Divide Reading By)	Description	Permission	Unit
40076	004B	75		Status Word 8*	1				ReadOnly	None
			0			BOOLEAN		Parallel config fault		
			1			BOOLEAN		Dust filter must be changed soon		
			2			BOOLEAN		Dust filter must be changed immediately		
			3			BOOLEAN		Reserved		
			4			BOOLEAN		Reserved		
			5			BOOLEAN		Reserved		
			6			BOOLEAN		Reserved		
			7			BOOLEAN		Reserved		
			8			BOOLEAN		Reserved		
			9			BOOLEAN		Reserved		
			10			BOOLEAN		Reserved		
			11			BOOLEAN		Reserved		
			12			BOOLEAN		Reserved		
			13			BOOLEAN		Reserved		
			14			BOOLEAN		Reserved		
			15			BOOLEAN		Reserved		
40077	004C	76		Status Word 9*	1				ReadOnly	None
			0			BOOLEAN		EPO active		
			1			BOOLEAN		SBS fault		
			2			BOOLEAN		System config fault		
			3			BOOLEAN		Emergency PSU fault		
			4			BOOLEAN		Weak battery		
			5			BOOLEAN		Battery over temp		
			6			BOOLEAN		Mechanical bypass active (not a fault		
			7			BOOLEAN		Parallel redundancy lost		
			8			BOOLEAN		Parallel bus comm lost cable 1		
			9			BOOLEAN		Parallel bus comm lost cable 2		
			10			BOOLEAN		Auxiliary bus comm lost		
			11			BOOLEAN		Parallel bus termination fault cable 1		
			12			BOOLEAN		Parallel bus termination fault cable 2		
			13			BOOLEAN		Auxiliary bus termination fault		
			14			BOOLEAN		No master in parallel system		
			15			BOOLEAN		Overload on parallel unit		
40078	004D	77		Battery Current*	1	INT16	1	Positive indicates current into the battery, negative indicates current out of the battery.	ReadOnly	A
	004E-004F	78-79		Reserved	1				ReadOnly	
	0050-FFFF	80-65535		INVALID ADDRESS					ReadOnly	

* Not supported on all UPS models

END OF MAP

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  - www.apc.com (Corporate Headquarters) Connect to localized APC Web sites for specific countries, each of which provides customer support information.
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