Easy UPS SRV/SRVL Modbus Register Map

TME35179-001

1. 16-bit registers are transmitted MSB first (i.e. big-endian).
2. INT32 and UINT32 are most-significant word in n+0, least significant word in n+1 (i.e. big-endian).
3. Function codes 3 only supported.
4. Modbus over TCP is supported on slave ID 2.
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.
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.

Modbus Function Code	Modicon Register Address	Absolute Starting Register Address (Hexa-decimal)	Absolute Starting Register Address, (Decimal)	Length # registers	Bit/Enum	Command	Command Description	Modbus Data Type	Units
0x03	40001	0x0000	0	1		UPS State	UPS returns hex representation of its state.	UINT16	NA
					7		1 = Replace battery condition.	Boolean	NA
					6		1 = UPS is in Low Battery.	Boolean	NA
					5		1 = UPS is Overloaded.	Boolean	NA
					4		1 = UPS is On-Battery.	Boolean	NA
					3		1 = UPS is On-Line.	Boolean	NA
					2		1 = UPS is in SmartBoost.	Boolean	NA
					1		1 = UPS UPS is in SmartTrim.	Boolean	NA
					0		1 = UPS is performing a run time calibration discharge.	Boolean	NA
0x03	40002	0x0001	1	1		State Register	UPS returns hex representation of its state register.	UINT16	NA
					7		1 = UPS ready to power load upon return of normal line or upon user command.	Boolean	NA
					6		1 = UPS ready to power load upon user command.	Boolean	NA
					5		1 = UPS in bypass mode as a result of manual bypass control.	Boolean	NA
					4		1 = UPS is returning from bypass mode.	Boolean	NA
					3		1 = UPS in bypass mode as a result of UPS-Link or key command.	Boolean	NA
					2		1 = UPS going to bypass as a result of UPS-Link or key command.	Boolean	NA
					1		1 = UPS in bypass due to internal fault (indicated through TRIP or TRIP1 registers).	Boolean	NA
					0		1 = UPS in wake up mode - startup test lasting < 2s.	Boolean	NA
0x03	40003	0x0002	2	1		Trip1 Register	UPS returns hex representation of its trip1 register.	UINT16	NA
					7		1= Bad output voltage	Boolean	NA
					6		1 = UPS fault - SmartBoost or SmartTrim relay fault	Boolean	NA
					5		1 = UPS fault - UPS commanded to come out of bypass (Matrix only), no batteries attached.	Boolean	NA
					4		1 = UPS fault - UPS in bypass (Matrix only), DC imbalance in inverter (v/s, Pro 1000/1400 VA only).	Boolean	NA
					3		1 = UPS fault - output voltage select failure, UPS in bypass.	Boolean	NA
					2		1 = UPS fault - bypass supply failure.	Boolean	NA
					1		1 = UPS fault - Isolation Unit fan failure.	Boolean	NA
					0		1 = UPS fault - Electronics Unit fan failure, UPS in bypass.	Boolean	NA
0x03	40004	0x0003	3	1		Trip Register	UPS returns hex representation of its trip register.	UINT16	NA
					7		1 = UPS fault - internal temperature has exceeded nominal limits.	Boolean	NA
					6		1 = UPS fault - bypass relay malfunction.	Boolean	NA
					5		1 = UPS fault - battery charger failure (battery overvoltage).	Boolean	NA
					4		1 = UPS in shut down mode via "Shut Down UPS on Battery " command.	Boolean	NA
					3		1 = UPS in sleep mode via "Shut Down with Delayed Wake Up" command.	Boolean	NA
					2		1 = UPS fault - transfer relay fault.	Boolean	NA
					1		1 = UPS shut down or unable to transfer to battery due to overload.	Boolean	NA
					0		1 = UPS in low battery shut down.	Boolean	NA
0x03	40005	0x0004	4	1		Dip Switch Position	UPS returns hex representation of its dip switch position [3G, Matrix: 00 (fixed)]. Response = 1 when switch = 0.	(Hex)	NA
					7		Reserved for future use.	Boolean	NA
					6		Reserved for future use.	Boolean	NA
					5		Reserved for future use.	Boolean	NA
					4		Reserved for future use.	Boolean	NA
					3		1 = UPS desensitized and input voltage range widened.	Boolean	NA

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					2		1 = Output/transfer voltage range set to 115 or 240 VAC from 120 or 230 VAC (version dependent).	Boolean	NA
					1		1 = Audible alarm is delayed until utility failure has lasted > 30s.	Boolean	NA
					0		1 = Low battery alarm interval extended from 2 to 5 minutes, automatic startup defeated (250, 400 VA only).	Boolean	NA
0x03	40006	0x0005	5	1		Battery Test Result	Battery test result	UINT16	NA
							0=Good battery.	ENUM	NA
							1=Battery test failed due to insufficient capacity	ENUM	NA
							2=No Test results are available	ENUM	NA
							3=Invalid test due to overload	ENUM	NA
Static Data									
0x03	40097	0x1000	4096	9		NMC Model Number	NMC Model Number	ASCII	NA
0x03	44106	0x1009	4105	8		NMC Serial Number	NMC Serial Number	ASCII	NA
0x03	44114	0x1011	4113	9		NMC Firmware Revision APP	NMC Firmware Revision APP	ASCII	NA
0x03	44123	0x101A	4122	9		NMC Hardware Revision	NMC Hardware Revision	ASCII	NA
0x03	44132	0x1023	4131	6		NMC Date of Manufacture	NMC Date of Manufacture	ASCII	NA
0x03	44167	0x1046	4166	17		UPS model	UPS returns string indicating the model including RM, XL information. Example: "SMART-UPS 2200 XL".	ASCII	NA
0x03	44184	0x1057	4183	10		UPS serial number (factory set)	UPS's serial number is factory set and cannot be changed by the user.	ASCII	NA
0x03	44194	0x1061	4193	5		Firmware version of UPS (New)	UPS returns string containing product identification, firmware revision and utility voltage version information.	ASCII	NA
0x03	44199	0x1066	4198	5		UPS manufacture date (factory set)	UPS's date of manufacture is factory set and cannot be changed by the user.	ASCII	NA
0x03	44204	0x106B	4203	5		Date of last battery replacement	Date of last battery replacement in mm/dd/yy format may be set, via web, SNMP or CLI, it is RO in Modbus.	ASCII	NA
0x03	44209	0x1070	4208	1		Nominal battery voltage rating	UPS returns battery voltage rating. Example: 024 = 24 VDC.	UINT16	V
Dynamic Data									
0x03	44210	0x1071	4209	1		Battery capacity	UPS returns remaining battery capacity as a percent of full capacity.	UINT16	%
0x03	44211	0x1072	4210	1		Load current	UPS returns load current within +/- 7.5%; maximum is load rating of UPS.	UINT16	A
0x03	44212	0x1073	4211	1		Apparent load power in percentage	UPS returns apparent load power (in Volt-Amps) within +/- 5%; maximum is 105%.	UINT16	%VA
0x03	44213	0x1074	4212	1		Battery voltage	UPS returns battery voltage within +/- 5%.	UINT16	V
0x03	44214	0x1075	4213	1		UPS internal temperature	UPS returns internal operating temperature within +/-5%.	UINT16	°C
0x03	44215	0x1076	4214	1		UPS/utility operating frequency	UPS returns operating frequency (synchronized to utility when On-Line, 50 or 60 Hz when On-Battery) .	UINT16	Hz
0x03	44216	0x1077	4215	1		Line voltage	UPS returns the utility line voltage within +/- 4%.	UINT16	V
0x03	44217	0x1078	4216	1		Maximum line voltage	UPS returns the maximum line voltage since last queried.	UINT16	V
0x03	44218	0x1079	4217	1		Minimum line voltage	UPS returns the minimum line voltage since last queried.	UINT16	V
0x03	44219	0x107A	4218	1		Output voltage	UPS returns the output voltage within +/-4%.	UINT16	V
0x03	44220	0x107B	4219	1		Load power	UPS returns the power consumed by the load as a % of full rated load within +/- 3%.	UINT16	% Watts
0x03	44221	0x107C	4220	1		Run time remaining	UPS returns the estimated run time in minutes if/when UPS is on battery.	UINT16	Minutes
Battery Pack Information									
		4230+(25 * X), Here X is value corresponding to (0x9FBX) (X = 0 to 9)					Battery pack 1 to Battery pack 10		
0x03	44231+(25 * X)	0x1086 + (0x19 * X)	4230+(25 * X)	1		Battery pack x data	**Battery ID**	UINT16	NA

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0x03	44232+(25 * X)	0x1087 + (0x19 * X)	4231+(25 * X)	1		Charge protect 1	**Charge protect 1**	UINT16	NA
					15		Bit 15 2nd level charge over current		NA
					14		Bit 14 Over charge		NA
					13		Bit 13 Reserved		NA
					12		Bit 12 2nd level cell over voltage		NA
					11		Bit 11 Charge over current		NA
					10		Bit 10 Cell over voltage		NA
					9		Bit 9 Charge low temperature		NA
					8		Bit 8 Charge over temperature		NA
					7		Bit 7 Safety under voltage		NA
					6		Bit 6 Mosfet over temperature		NA
					5		Bit 5 AFE detect discharge short circuit		NA
					4		Bit 4 AFE detect discharge over current		NA
					3		Bit 3 AFE detect charge over current		NA
					2		Bit 2 AFE communication fail		NA
					1		Bit 1 Reserved		NA
					0		Bit 0 "In System" signal		NA
0x03	44233+(25 * X)	0x1088 + (0x19 * X)	4232+(25*X)	1			**Reserved for future use.**	UINT16	NA
0x03	44234+(25 * X)	0x1089 + (0x19 * X)	4233+(25*X)	1		Charge protect 2	**Charge protect 2**	UINT16	NA
					15		Bit 15 Reserved		NA
					14		Bit 14 Reserved		NA
					13		Bit 13 Reserved		NA
					12		Bit 12 Reserved		NA
					11		Bit 11 Reserved		NA
					10		Bit 10 Reserved		NA
					9		Bit 9 Pack offline		NA
					8		Bit 8 Cell sum over voltage		NA
					7		Bit 7 End of life protect		NA
					6		Bit 6 Mosfet permanent fail		NA
					5		Bit 5 Mosfet damage		NA
					4		Bit 4 Fuse damage		NA
					3		Bit 3 CAN ID error		NA
					2		Bit 2 Detect charge short circuit		NA
					1		Bit 1 Low voltage shutdown		NA
					0		Bit 0 Reserved		NA
0x03	44235+(25*X)	0x108A + (0x19 * X)	4234+(25*X)	1			**Reserved for future use.**	UINT16	NA
0x03	44236+(25*X)	0x108B + (0x19 * X)	4235+(25*X)	1		Discharge protect 1	**Discharge protect 1**	UINT16	NA
					15		Bit 15 Low voltage shutdown		NA
					14		Bit 14 Discharge over termperature		NA
					13		Bit 13 Discharge low temperature		NA
					12		Bit 12 Discharge over current		NA

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					11		Bit 11 Cell under voltage		NA
					10		Bit 10 Mosfet over temperature		NA
					9		Bit 9 Reserved		NA
					8		Bit 8 Reserved		NA
					7		Bit 7 Predischarge Protect		NA
					6		Bit 6 CAN ID error		NA
					5		Bit 5 Fuse damage		NA
					4		Bit 4 AFE detect discharge short circuit		NA
					3		Bit 3 AFE detect discharge over current		NA
					2		Bit 2 AFE detect charge over current		NA
					1		Bit 1 Reserved		NA
					0		Bit 0 "In System" signal		NA
0x03	44237+(25*X)	0x108C + (0x19 * X)	4236+(25*X)	1			**Reserved for future use.**	UINT16	NA
0x03	44238+(25*X)		4237+(25*X)	1		Discharge protect 2	**Discharge protect 2**	UINT16	NA
					15		Bit 15 Reserved		NA
					14		Bit 14 Reserved		NA
					13		Bit 13 Reserved		NA
					12		Bit 12 Reserved		NA
					11		Bit 11 Reserved		NA
					10		Bit 10 Reserved		NA
					9		Bit 9 Pack offline		NA
					8		Bit 8 Mosfet permanent fail		NA
					7		Bit 7 Mosfet damage		NA
					6		Bit 6 Reserved		NA
					5		Bit 5 Reserved		NA
					4		Bit 4 2nd level cell over voltage		NA
					3		Bit 3 Short Times Over 3		NA
					2		Bit 2 2nd level discharge over current		NA
					1		Bit 1 Detect discharge short circuit		NA
					0		Bit 0 AFE communication fail		NA
0x03	44239+(25*X)	0x108E + (0x19 * X)	4238+(25*X)	1			**Reserved for future use.**		NA
0x03	44240+(25*X)	0x108F + (0x19 * X)	4239+(25*X)	1		Charge alarm	**Charge alarm**		NA
					7		Bit 7 Reserved	UINT16	NA
					6		Bit 6 Reserved		NA
					5		Bit 5 Reserved		NA
					4		Bit 4 End of life alarm		NA
					3		Bit 3 Charge over current alarm		NA
					2		Bit 2 Charge low temperature alarm		NA
					1		Bit 1 Cell over voltage alarm		NA
					0		Bit 0 Charge over temperature alarm		NA
0x03	44241+(25*X)	0x1090 + (0x19 * X)	4240+(25*X)	1		Discharge alarm	**Discharge alarm**	UINT16	NA

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					7		Bit 7 Reserved		NA
					6		Bit 6 Reserved		NA
					5		Bit 5 Reserved		NA
					4		Bit 4 Discharge over current alarm		NA
					3		Bit 3 Cell voltage low alarm		NA
					2		Bit 2 Mosfet over temperature alarm		NA
					1		Bit 1 Discharge low temperature alarm		NA
					0		Bit 0 Discharge over temperature		NA
0x03	44242+(25*X)	0x1091 + (0x19 * X)	4241+(25*X)	2			BMS firmware version		NA
0x03	44244+(25*X)	0x1092 + (0x19 * X)	4243+(25* X)	6		Battery Model Name	**XBP model**		NA
0x03	44250+(25*X)	0x1093 + (0x19 * X)	4249+(25* X)	6		Serial number	**XBP serial number**		NA
									NA
0x03	44481	0x1180	4480	1		Rated VA	rated VA, unit is VA, 01000 means 1000VA.	UINT16	VA
0x03	44482	0x1181	4481	1			rated input voltage, the unit is volt.	UINT16	V
0x03	44483	0x1182	4482	1			rated output voltage, the unit is volt.	UINT16	V
0x03	44484	0x1183	4483	1			rated output frequency, the unit is Hz	UINT16	Hz
0x03	44485	0x1184	4484	1			rated output current, the unit is ampere.	UINT16	A
0x03	44486	0x1185	4485	1			rated battery voltage, the unit is volt.	UINT16	V
0x03	44487	0x1186	4486	1			input phases, 1 means input: 1 phase	UINT16	phases
0x03	44488	0x1187	4487	1			output phases, 1 means output: 1 phase.	UINT16	phases
0x03	44489	0x1188	4488	1		UPS mode	UPS mode ENUM	ENUM	NA
					0		0=Power on mode		NA
					1		1=Standby mode		NA
					2		2=Bypass mode		NA
					3		3=Line mode		NA
					4		4=Battery mode		NA
					5		5=Battery test mode		NA
					6		6=Fault mode		NA
					7		7=ECO mode		NA
					8		8=Converter mode		NA
					9		9=Shutdown mode		NA
0x03	44490	0x1189	4489	1		Input Line frequency	Input Line frequency: example 50.9Hz	UINT16	0.1Hz
0x03	44491	0x118A	4490	1		Battery current	Battery current: example 39.1A	UINT16	A
0x03	44492	0x118B	4491	1	0	Phase lock flag	Phase lock flag 1: True=locked, 0: False=unlocked	Boolean	NA
						Bypass frequency range query	Bypass frequency range query: example 47.0Hz, 53.0Hz	UINT16	0.1Hz
0x03	44493	0x118C	4492	1			lower limit for allowable bypass frequency	UINT16	Hz
0x03	44494	0x118D	4493	1			upper limit for allowable bypass frequency	UINT16	Hz
						Eco voltage range query	Eco voltage range query: example 189V, 245V	UINT16	V
0x03	44495	0x118E	4494	1			lower limit for allowable bypass voltage	UINT16	V
0x03	44496	0x118F	4495	1			upper limit for allowable bypass voltage	UINT16	V
0x03	44497	0x1190	4496	1		Fault code	Fault Code ENUM	ENUM	NA

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					0x00		OK: No Fault Occurs	ENUM	NA
					0xFF		NO: Unknown Error	ENUM	NA
					0x01	Bus fault	Bus start fail	ENUM	NA
					0x02	Bus fault	Bus volt over	ENUM	NA
					0x03	Bus fault	Bus volt under	ENUM	NA
					0x04	Bus fault	Bus volt unbalance	ENUM	NA
					0x05	Bus fault	Bus short	ENUM	NA
					0x06	Bus fault	Converter over current	ENUM	NA
					0x11	Inverter fault	Inverter soft fail	ENUM	NA
					0x12	Inverter fault	Inverter volt high	ENUM	NA
					0x13	Inverter fault	Inverter volt low	ENUM	NA
					0x14	Inverter fault	Inverter A output(line to neutral) short circuited	ENUM	NA
					0x15	Inverter fault	Inverter B output(line to neutral) short circuited	ENUM	NA
					0x16	Inverter fault	Inverter C output(line to neutral) short circuited	ENUM	NA
					0x17	Inverter fault	Inverter A-B output (line to line) short circuited	ENUM	NA
					0x18	Inverter fault	Inverter B-C output (line to line) short circuited	ENUM	NA
					0x19	Inverter fault	Inverter C-A output (line to line) short circuited	ENUM	NA
					0x1A	Inverter fault	Inverter A negative power	ENUM	NA
					0x1B	Inverter fault	Inverter B negative power	ENUM	NA
					0x1C	Inverter fault	Inverter C negative power	ENUM	NA
					0x21	Electric link fault	Bat SCR fault	ENUM	NA
					0x24	Electric link fault	Inverter relay short fault	ENUM	NA
					0x27	Electric link fault	Battery too high	ENUM	NA
					0x28	Electric link fault	Battery too low	ENUM	NA
					0x29	Electric link fault	Battery fuse broken in Battery mode	ENUM	NA
					0x2A	Electric link fault	Charger output short	ENUM	NA
					0x31	Parallel system fault	Parallel communication failure	ENUM	NA
					0x36	Parallel system fault	Parallel output current unbalance	ENUM	NA
					0x41	Others	Over temperature	ENUM	NA
					0x42	Others	CPU communication fault	ENUM	NA
					0x43	Others	Overload fault	ENUM	NA
					0x46	Others	UPS model abnormal	ENUM	NA
					0x47	Others	MCU communication failure	ENUM	NA
					0x48	Others	Two DSP firmware versions are incompatible	ENUM	NA
					0x49	Others	Input and output phases are incompatible	ENUM	NA
0x03	44498	0x1191	4497	1		Warning status query	Warning status query	Boolean	NA
					15	Byte 1	Battery open	Boolean	NA
					14	Byte 1	IP Neutral loss or IP L2/L3 fuse broken	Boolean	NA
					13	Byte 1	Communication between UPS and battery pack is lost	Boolean	NA
					12	Byte 1	IP phase abnormal	Boolean	NA

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					11	Byte 1	Reserved	Boolean	NA
					10	Byte 1	Bypass frequency unstable	Boolean	NA
					9	Byte 1	Battery over charge	Boolean	NA
					8	Byte 1	Battery low	Boolean	NA
					7	Byte 2	Overload warning	Boolean	NA
					6	Byte 2	Fan lock warning	Boolean	NA
					5	Byte 2	EPO active	Boolean	NA
					4	Byte 2	Reserved	Boolean	NA
					3	Byte 2	Over temperature	Boolean	NA
					2	Byte 2	Charger fail	Boolean	NA
					1	Byte 2	Reserved	Boolean	NA
					0	Byte 2	L1 IP fuse fail	Boolean	NA
0x03	44499	0x1192	4498	1	15	Byte 3	Reserved	Boolean	NA
					14	Byte 3	Reserved	Boolean	NA
					13	Byte 3	Reserved	Boolean	NA
					12	Byte 3	Reserved	Boolean	NA
					11	Byte 3	Reserved	Boolean	NA
					10	Byte 3	Reserved	Boolean	NA
					9	Byte 3	Reserved	Boolean	NA
					8	Byte 3	Reserved	Boolean	NA
					7	Byte 4	Reserved	Boolean	NA
					6	Byte 4	Reserved	Boolean	NA
					5	Byte 4	Reserved	Boolean	NA
					4	Byte 4	Reserved	Boolean	NA
					3	Byte 4	Reserved	Boolean	NA
					2	Byte 4	Reserved	Boolean	NA
					1	Byte 4	Reserved	Boolean	NA
					0	Byte 4	Reserved	Boolean	NA
0x03	44500	0x1193	4499	1	15	Byte 5	Line situations are different in parallel system	Boolean	NA
					14	Byte 5	Bypass situations are different in parallel system	Boolean	NA
					13	Byte 5	Reserved	Boolean	NA
					12	Byte 5	Reserved	Boolean	NA
					11	Byte 5	Reserved	Boolean	NA
					10	Byte 5	Reserved	Boolean	NA
					9	Byte 5	Reserved	Boolean	NA
					8	Byte 5	Reserved	Boolean	NA
					7	Byte 6	Reserved	Boolean	NA
					6	Byte 6	Reserved	Boolean	NA
					5	Byte 6	Reserved	Boolean	NA
					4	Byte 6	Reserved	Boolean	NA
					3	Byte 6	Reserved	Boolean	NA

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					2	Byte 6	Reserved	Boolean	NA
					1	Byte 6	Reserved	Boolean	NA
					0	Byte 6	Reserved	Boolean	NA
0x03	44501	0x1194	4500	1	15	Byte 7	Reserved	Boolean	NA
					14	Byte 7	Reserved	Boolean	NA
					13	Byte 7	Locked in bypass after overload 3 times in 30min	Boolean	NA
					12	Byte 7	Converter current unbalance	Boolean	NA
					11	Byte 7	Battery fuse broken	Boolean	NA
					10	Byte 7	Inverter inter-current unbalance	Boolean	NA
					9	Byte 7	Reserved	Boolean	NA
					8	Byte 7	Warning for Battery replace	Boolean	NA
					7	Byte 8	Reserved	Boolean	NA
					6	Byte 8	Cover of maintenance switch is open	Boolean	NA
					5	Byte 8	Reserved	Boolean	NA
					4	Byte 8	Utility extremely unbalanced	Boolean	NA
					3	Byte 8	Bypass unstable	Boolean	NA
					2	Byte 8	EEPROM operation error	Boolean	NA
					1	Byte 8	Reserved	Boolean	NA
					0	Byte 8	Reserved	Boolean	NA
									NA
0x03	45635	0x1602	5634	1		Automatic battery test	Automatic battery test scheduling.	ENUM	NA
					0x0000		OFF [No automatic battery test].		NA
					336		336 [Battery test upon startup and every 14 days thereafter (default)],		NA
					168		168 [Battery test upon startup and every 7 days thereafter] ,		NA
					0xffff		ON [Battery test upon startup only],		NA
0x03	45636	0x1603	5635	4		UPS identification	UPS identification may be set, via web, SNMP or CLI, it is RO in Modbus.	ASCII	NA
0x03	45640	0x1607	5639	1		Bypass Upper Voltage	Sets the highest line voltage delivered to the load. Based on 220, 230 or 240V output: 0=+15% 1=+5% 2=+10% 3=+20%	ENUM	V
0x03	45641	0x1608	5640	1		Bypass Lower Voltage	Sets the lowest line voltage delivered to the load. Based on 220, 230 or 240V output: 0=-15% 1=-5% 2=-10% 3=-20%	ENUM	V
0x03	45642	0x1609	5641	1		Minimum battery capacity to restart after shut down	UPS will not power the load after shut down or low battery until the battery capacity is equal to this value. Values: 00 (default), 15, 50, 90	UINT16	%
0x03	45643	0x160A	5642	1		Output voltage	Sets the on-battery output voltage of the UPS (only settable on 220/230/240 VAC units). VALUES [VAC] = 220/230/240 VAC units: 220 (default)	ENUM	V
0x03	45644	0x160B	5643	1		Low battery warning	Amount of run time left before low battery shut down, at which time the UPS will signal low battery. VALUES [minutes] = 02 (default), 05, 07, 10	UINT16	Min
0x03	45645	0x160C	5644	1		Alarm delay after line fail	Sets the conditions for the audible alarm when line fails. VALUES = 0 [no delay (default)] , T [wait 30 sec after line fail], L [beep only at low battery], N [no beep at low battery or line fail].	UINT16	NA

Modbus Function Code	Modicon Register Address	Absolute Starting Register Address (Hexa-decimal)	Absolute Starting Register Address, (Decimal)	Length # registers	Bit/Enum	Command	Command Description	Modbus Data Type	Units
0x03	45646	0x160D	5645	1		Shut down delay	Sets the delay before the turn off after delay ,shut down ups when on battery and shut down ups with delayed wake up commands turn off the UPS's load. VALUES [seconds] = 020 (default), 180, 300, 600	UINT16	Sec
0x03	45647	0x160E	5646	1		Synchronized turn on delay	Sets the delay before allowing the UPS to turn back on from the shut down UPS with delayed wake up or shut down UPS when on battery command. VALUES [seconds] = 000 (default), 060, 180, 300. Note: Minimum battery capacity to restart after shut down setting also effects turn on delay from shut down UPS when on battery command .	UINT16	Sec
0x03	45649	0x1610	5648	1		Alarm control	Alarm control 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45650	0x1611	5649	1		buzzer	buzzer 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45651	0x1612	5650	1		alarm at bypss mode	alarm at bypss mode 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45652	0x1613	5651	1		auto reboot; 6-10KVA not support	auto reboot 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45653	0x1614	5652	1		bypass when ups is off	bypass when ups is off 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45654	0x1615	5653	1		converter mode	converter mode 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45655	0x1616	5654	1		eco mode	eco mode 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45656	0x1617	5655	1		green power function; 6-10KVA not support	green power function 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45657	0x1618	5656	1		cold start; 6-10KVA not support	code start 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45658	0x1619	5657	1		bypass not allowed	bypass not allowed 0 = ON 1 = OFF 2 = NA	ENUM	NA
0x03	45660	0x161B	5659	1		bypass frequency range setting	bypass frequency range setting	UINT16	Hz
0x03	45661	0x161C	5660	1		eco voltage range setting	eco voltage range setting	UINT16	V
0x03	45662	0x161D	5661	1		Unit Battery Capacity(AH)	SRVxxK, SRVxx10K only supports the setting: 7, 9,10,12,17,26,40,65,100 SRVxx1K, SRVxx2K only supports the setting: 7 SRVxx3K supports the setting: 9	UINT16	AH

Modbus Function Code	Modicon Register Address	Absolute Starting Register Address (Hexa-decimal)	Absolute Starting Register Address, (Decimal)	Length # registers	Bit/Enum	Command	Command Description	Modbus Data Type	Units
0x03	45663	0x161E	5662	1		Configured Output Freq	Index Output Freq / phase lock range (1/2/3KVA) 0 AUTO 1 60/.1 2 60/3 3 50/.1 4 50/3 Index Output Freq / phase lock range (6/10KVA) 0 AUTO 1 60/.1 2 60/4 3 50/.1 4 50/4	ENUM	Hz

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