

Modbus Register Map: Easy Rack PDU 3P Metered

Notes:

1. 16-bit registers (INT16, UINT16, ENUM) 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. Reads can be performed with function codes 3, or 4. Writes can be performed with function code 16, or with function code 6 to registers with length 1.
4. Modbus over TCP is supported.
5. Signed numbers (INT16, INT32, ENUM) are two's-complement
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. Strings are two characters per register, first character in high-order byte, second character in low-order byte. Printable ASCII only.
8. When writing an ASCII string the null terminator must be included.
9. 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.
10. Data Type column:
 - "INT16" = signed 16-bit integer,
 - "UINT16" = unsigned 16-bit integer,
 - "INT32" = signed 32-bit integer,
 - "UINT32" = unsigned 32-bit integer,
 - "ENUM" = signed 16-bit integer which maps to a defined list of states,
 - "ASCII" = the printable ASCII subset from 0x20 - 0x7E,
 - "STREAM" = raw data ranging from 0x00 - 0xFF.
11. "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.

Modicon Standard Register Number	Absolute Starting Register Number (Hexadecimal)	Absolute Starting Register Number (Decimal)	Data Point	R/W	Length	Data Type	Valid Response
Input Registers							
30001	0000	0	Version	R	1	UINT16	Version: High 1 byte for FW version, low 1 byte for HW version
30002	0001	1	Phase A Voltage	R	1	UINT16	(Tenths) V
30003	0002	2	Phase A Current	R	1	UINT16	(Hundredths) A
30004	0003	3	Phase A Active Power	R	1	UINT16	W
30005	0004	4	Phase A Reactive Power	R	1	UINT16	Var
30006	0005	5	Phase A Apparent Power	R	1	UINT16	Va
30007	0006	6	Phase A Power Factor	R	1	UINT16	(Thousandths) %
30008	0007	7	Phase A Energy	R	2	UINT32	(Thousandths) kWh
30010	0009	9	Phase B Voltage	R	1	UINT16	(Tenths) V
30011	000A	10	Phase B Current	R	1	UINT16	(Hundredths) A
30012	000B	11	Phase B Active Power	R	1	UINT16	W
30013	000C	12	Phase B Reactive Power	R	1	UINT16	Var
30014	000D	13	Phase B Apparent Power	R	1	UINT16	Va
30015	000E	14	Phase B Power Factor	R	1	UINT16	(Thousandths) %
30016	000F	15	Phase B Energy	R	2	UINT32	(Thousandths) kWh
30018	0011	17	Phase C Voltage	R	1	UINT16	(Tenths) V
30019	0012	18	Phase C Current	R	1	UINT16	(Hundredths) A
30020	0013	19	Phase C Active Power	R	1	UINT16	W
30021	0014	20	Phase C Reactive Power	R	1	UINT16	Var
30022	0015	21	Phase C Apparent Power	R	1	UINT16	Va
30023	0016	22	Phase C Power Factor	R	1	UINT16	(Thousandths) %
30024	0017	23	Phase C Energy	R	2	UINT32	(Thousandths) kWh
30026	0019	25	Phase All Active Power	R	1	UINT16	W
30027	001A	26	Phase All Reactive Power	R	1	UINT16	Var
30028	001B	27	Phase All Apparent Power	R	1	UINT16	Va
30029	001C	28	Phase All Power Factor	R	1	UINT16	(Thousandths) %
30030	001D	29	Phase All Energy	R	2	UINT32	(Thousandths) kWh
30032	001F	31	Frequency	R	1	UINT16	(Thousandths) %
30033	0020	32	Temperature	R	1	UINT16	(Tenths) C
30034	0021	33	Humidity	R	1	UINT16	(Tenths) %RH
30035	0022	34	Phase A Voltage Alarm Status	R	1	ENUM	0 = Normal; 1 = Higher than high threshold; 2 = Lower than low threshold

Modicon Standard Register Number	Absolute Starting Register Number (Hexadecimal)	Absolute Starting Register Number (Decimal)	Data Point	R/W	Length	Data Type	Valid Response
30036	0023	35	Phase A Current Alarm Status	R	1	ENUM	0 = Normal; 1 = Higher than high threshold; 2 = Lower than low threshold
30037	0024	36	Phase B Voltage Alarm Status	R	1	ENUM	0 = Normal; 1 = Higher than high threshold; 2 = Lower than low threshold
30038	0025	37	Phase B Current Alarm Status	R	1	ENUM	0 = Normal; 1 = Higher than high threshold; 2 = Lower than low threshold
30039	0026	38	Phase C Voltage Alarm Status	R	1	ENUM	0 = Normal; 1 = Higher than high threshold; 2 = Lower than low threshold
30040	0027	39	Phase C Current Alarm Status	R	1	ENUM	0 = Normal; 1 = Higher than high threshold; 2 = Lower than low threshold
30041	0028	40	Temperature Alarm Status	R	1	ENUM	0 = Normal; 1 = Higher than high threshold; 2 = Lower than low threshold
30042	0029	41	Humidity Alarm Status	R	1	ENUM	0 = Normal; 1 = Higher than high threshold; 2 = Lower than low threshold
30043	002A	42	Hardware Status	R	1	ENUM	0 = ERR; 1 = Normal BIT0: Eeprom status; BIT1: W25Q status; BIT2: Reserved; BIT3: Network status; BIT4: T/H sensor status; BITS: Metering module status
Holding Registers							
40001	0000	0	Beep Alarm	R/W	1	UINT16	0 = Beep OFF; 1 = Beep ON
40002	0001	1	Phase A Voltage High Threshold	R/W	1	UINT16	(Tenths) V
40003	0002	2	Phase A Voltage Low Threshold	R/W	1	UINT16	(Tenths) V
40004	0003	3	Phase A Current High Threshold	R/W	1	UINT16	(Hundredths) A
40005	0004	4	Phase A Current Low Threshold	R/W	1	UINT16	(Hundredths) A
40006	0005	5	Phase B Voltage High Threshold	R/W	1	UINT16	(Tenths) V
40007	0006	6	Phase B Voltage Low Threshold	R/W	1	UINT16	(Tenths) V
40008	0007	7	Phase B Current High Threshold	R/W	1	UINT16	(Hundredths) A
40009	0008	8	Phase B Current Low Threshold	R/W	1	UINT16	(Hundredths) A
40010	0009	9	Phase C Voltage High Threshold	R/W	1	UINT16	(Tenths) V
40011	000A	10	Phase C Voltage Low Threshold	R/W	1	UINT16	(Tenths) V
40012	000B	11	Phase C Current High Threshold	R/W	1	UINT16	(Hundredths) A
40013	000C	12	Phase C Current Low Threshold	R/W	1	UINT16	(Hundredths) A
40014	000D	13	Temperature High Threshold	R/W	1	UINT16	(Tenths) C
40015	000E	14	Temperature Low Threshold	R/W	1	UINT16	(Tenths) C
40016	000F	15	Humidity High Threshold	R/W	1	UINT16	(Tenths) %RH
40017	0010	16	Humidity Low Threshold	R/W	1	UINT16	(Tenths) %RH
40018	0011	17	Device Reboot	W	1	UINT16	Unitless
40019	0012	18	Energy Reset	W	1	UINT16	Unitless
40020	0013	19	Reserved	R	1	UINT16	N/A
40021	0014	20	Reserved	R	1	UINT16	N/A
40022	0015	21	Reserved	R	1	UINT16	N/A
40023	0016	22	Reserved	R	1	UINT16	N/A
40024	0017	23	Reserved	R	1	UINT16	N/A
40025	0018	24	Reserved	R	1	UINT16	N/A
40026	0019	25	Reserved	R	1	UINT16	N/A
40027	001A	26	Reserved	R	1	UINT16	N/A
40028	001B	27	Reserved	R	1	UINT16	N/A
40029	001C	28	Reserved	R	1	UINT16	N/A
40030	001D	29	MAC_H	R	1	UINT16	Unitless
40031	001E	30	MAC_M	R	1	UINT16	Unitless
40032	001F	31	MAC_L	R	1	UINT16	Unitless

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