

Appendix B

Modbus Memory Map

Date and Time Registers

The current time of the unit available in the Modbus registers below for the BMS to use Modbus data from these registers is transmitted as shown below in Table 1 (available through function codes 03h and 10h).

Table 1 (Modbus Registers-Time of Day)

Register	Data Type	Description
1411	int16	Month (1-12)
1412	int16	Day (1-31)
1413	int16	Year (1970-2030)
1414	int16	Hours (0-23)
1415	int16	Minutes (0-59)
1416 int16		Seconds (0-59)
1417	int16	Milliseconds (0-999)

System Status Registers

The current status of the unit available in the Modbus registers are below. Modbus data from these registers is transmitted as shown below in Table 2 (available through function codes 03h).

Table 2 (Modbus Registers-System Status)

Register	Data Type	Description		
1001 in	int16	Summary Alarm	Bit 0: (Set = Summary Alarm)	
	intio		Bit 2: (Set = Unacknowledged	
1002	int16	Outputs at UIB Port		
1003	int16	Input on UIB Port		
1004	int16	Board Temperature		
1005	int16	Transformer 190degree status		
1006	int16	Transformer 220degree status		



PDM Monitoring Registers

This Map includes all metering, alarm, and warning registers for the PDM system. All the registers have been defined as type int16.

Table 3 Modbus Registers (PDM Monitoring)

	Function Code	Parameter Name	Register Address	Scale	Notes
Monitoring	Holding				
Registers	Registers Registers	Output Voltage LL (A-B)	1	1	NA
		Output Voltage LL (B-C)	2	1	NA
	The second secon	Output Voltage LL (C-A)	3	1	NA
		Output Voltage Phase A	4	10	
		Output Voltage Phase B	5	10	
	o o o o o o o o o o o o o o o o o o o	Output Voltage Phase C	6	10	
		Output Current Phase A	8	10	
		Output Current Phase B	9	10	
		Output Current Phase C	10	10	
		Ground Current	11	10	
		Neutral Current	12	10	
		Input Voltage LL (A-B)	13	10	
	Anna anna anna anna anna anna anna anna	Input Voltage LL (B-C)	14	10	
		Input Voltage LL (C-A)	15	10	
		Phase Sequence	16	1	ABC/BCA
		Freqency	17	10	
	Avenue de la companya	Total KVA	18	10	
		Phase A KVA	19	10	
		Phase B KVA	20	10	
		Phase C KVA	21	10	
		Load Phase A	22	10	
		Load Phase B	23	10	
		Load Phase C	24	10	
		Total KW	25	10	



Function Code	Parameter Name	Register Address	Scale	Notes
	Phase A KW	26	10	
	Phase B KW	27	10	
THE STATE OF THE S	Phase C KW	28	10	
	Phase A PF	29	100	
	Phase B PF	30	10	
	Phase C PF	31	10	
THE PROPERTY OF THE PROPERTY O	Total kWh	32	1	
	Phase A kWh	33	10	
	Phase B kWh	34	10	
	Phase C kWh	35	10	
	Total kVAh	36	10	
	Phase A kVAh	37	10	
	Phase B kVAh	38	10	
	Phase C kVAh	39	10	
	Peak Demand KW	40	1	
	Phase A Voltage THD	44	40	
	Phase B Voltage	41	10	
	THD	42	10	
	Phase C Voltage			
	THD	43	10	A
	Phase A Crest Factor	44	10	
	Phase B Crest Factor	45	10	
	Phase C Crest			
	Factor	46	10	
	Phase A Current THD	47	10	,
PL STATE OF THE ST	Phase B Current			
	THD	48	10	
	Phase C Current THD	49	10	
	1 ¢ 1 ho	T U	IV	
The state of the s	Alarm Register 1	50	1	Soo Alorm
a service	Alarm Register 2	51	1	See Alarm
	Alarm Register 3	52	1	Registers Table
	Alarm Register 4	53	1	i able
	Phase A Voltage Fundamental Voltage	60	100	
	Phase A Voltage First Harmonic			
	Component	61	100	



Function Code	Parameter Name	Register Address	Scale Notes
	Phase A Voltage		
	Third Harmonic		
	Component	62	100
	Phase A Voltage		
	Fifth Harmonic		
	Component	63	100
	Phase A Voltage		
	Seventh Harmonic	C4	400
	Component	64	100
	Phase A Voltage Ninth Harmonic		
	Component	65	100
	Component	00	100
	Phase B Voltage		
	Fundamental Voltage	70	100
	Phase B Voltage	10	100
	First Harmonic		Only 19 19 19 19 19 19 19 19 19 19 19 19 19
	Component	71	100
	PhaseB Voltage		
	Third Harmonic		
	Component	72	100
	Phase B Voltage		
	Fifth Harmonic		
	Component	73	100
	Phase B Voltage		
	Seventh Harmonic		
	Component	74	100
	Phase B Voltage		
	Ninth Harmonic	75	400
	Component	75	100
	Phase C Voltage		
	Fundamental Voltage	80	100
	Phase C Voltage	00	100
	First Harmonic		
	Component	81	100
	Phase C Voltage		100
	Third Harmonic		
	Component	82	100
	Phase C Voltage		
	Fifth Harmonic		
	Component	83	100
	Phase C Voltage		
	Seventh Harmonic	ампиначин	
	Component	84	100



Function Code	Parameter Name	Register Address	Scale Notes
	Phase C Voltage		
	Ninth Harmonic		
	Component	85	100
	Dhann A Comment		
	Phase A Current Fundamental Voltage	90	100
	Phase A Current	90	100
	First Harmonic		
	Component	91	100
	Phase A Current		
	Third Harmonic		
	Component	92	100
	Phase A Current		
	Fifth Harmonic		***
	Component	93	100
	Phase A Current		
	Seventh Harmonic		
	Component	94	100
	Phase A Current		
	Ninth Harmonic	95	100
	Component	90	100
	Phase B Current		
	Fundamental Voltage	100	100
	Phase B Current		
	First Harmonic		
	Component	101	100
	PhaseB Current		
	Third Harmonic		
	Component	102	100
	Phase B Current		
	Fifth Harmonic	400	100
	Component Phase B Current	103	100
:	Seventh Harmonic		
	Component	104	100
	Phase B Current	104	100
THE STATE OF THE S	Ninth Harmonic		and the second s
	Component	105	100
	Phase C Current		
	Fundamental Voltage	110	100
	Phase C Current		
Transition of the state of the	First Harmonic	**************************************	
	Component	111	100



	Function	Parameter Name	Register	Scale	Notes
Property of the West Control of the Control	Code		Address	Ocale	INULES
ļ	***************************************	Phase C Current			
		Third Harmonic	440	400	
		Component	112	100	
		Phase C Current Fifth Harmonic			
		Component	113	100	
		Phase C Current	113	100	***************************************
		Seventh Harmonic			
		Component	114	100	
		Phase C Current	11-4	100	
		Ninth Harmonic			
		Component	115	100	
Configuration	Holding	Uart Baud Rate	204	1	
Registers	Registers/	Maximum Power		•	
J	Preset	Demand Period	205	1	
***************************************	Single/	Input Voltage Rating	206	1	
	Preset	Output Volotage			
	Multiple	Rating	207	1	
	•	Current Rating	208	1	
		Frequency Rating	209	1	
		Line CT Type	210	1	See CT
					Types
		Neutral CT Type	211	1	Table
		Output Over Voltage			
		Alarm Threshold	212	1	
		Output Over Voltage			
		Warning Threshold	213	1	
		Output Under]	
		Voltage Alarm	044		
		Threshold	214	1	
		Output Under			
		Voltage Warning Threshold	215	1	
		Over Current Alarm	210	I I	
		Threshold	216	1	
		Over Current	210		
	ļ	Warning Threshold	217	1	
P		Input Over Voltage	£ 11		
**************************************	a de la companya de l	Alarm Threshold	218	1	
	na Maria	Input Over Voltage	- 10		
		Warning Threshold	219	1	
		Input Under Voltage			
		Alarm Threshold	220	1	
THE PROPERTY OF THE PROPERTY O	ļ	Input Under Voltage			
	ч	Warning Threshold	221	1	



	Function Code	Parameter Name	Register	Scale	Notes
		Neutral Current Threshold	222	1	
		Ground Current Threshold	223	1	
Reset	Force Single	Reset kWh/kVAh/Demand	2		0 Clears
Neset	Coil Register				



Alarm Registers

	Aları	m Registers
Alarm	T	
Register		
1	-	
		Phase AB Over Voltage
	Bit 0	Alarm
		Phase AB Under Voltage
	Bit 1	Alarm
	D:t 0	Phase BC Over Voltage
	Bit 2	Alarm Phase PC Under Veltage
	Bit 3	Phase BC Under Voltage Alarm
	DICO	Phase CA Over Voltage
	Bit 4	Alarm
		Phase CA Under Voltage
	Bit 5	Alarm
		Phase A Over Voltage
	Bit 6	Alarm
		Phase A Under Voltage
	Bit 7	Alarm
	D:/ 0	Phase B Over Voltage
	Bit 8	Alarm
	Bit 9	Phase B Under Voltage Alarm
	Dita	Phase C Over Voltage
	Bit 10	Alarm
		Phase C Under Voltage
	Bit 11	Alarm
	Bit 12	Rsvd
		Phase A Over Current
	Bit 13	Alarm
		Phase B Over Current
	Bit 14	Alarm
	D:445	Phase C Over Current
	Bit 15	Alarm
Alarm		
Register		
2		
		Phase AB Input Over
	Bit 0	Voltage Alarm
		Phase AB Input Under
	Bit 1	Voltage Alarm



	Aları	m Registers
	T T	
		Phase BC Input Over
	Bit 2	Voltage Alarm
		Phase BC Input Under
	Bit 3	Voltage Alarm
-		Phase CA Input Over
	Bit 4	Voltage Alarm
		Phase CA Input Under
	Bit 5	Voltage Alarm
	Bit 6	Neutral Over Current Alarm
	<u></u>	Ground Over Current
	Bit 7	Alarm
	Bit 8	Rsvd
	Bit 9	Over Frequency Alarm
	Bit 10	Under Frequency Alarm
	Bit 11	Phase Loss Alarm
A 1		
Alarm Register 3		
		Phase AB Over Voltage
	Bit 0	Warning
		Phase AB Under Voltage
	Bit 1	Warning
	THE CHARLES AND THE CHARLES AN	Phase BC Over Voltage
	Bit 2	Warning
	:	Phase BC Under Voltage
	Bit 3	Warning
		Phase CA Over Voltage
	Bit 4	Warning
		Phase CA Under Voltage
	Bit 5	Warning
	Dit 6	Phase A Over Voltage
	Bit 6	Warning
	D'1 7	Phase A Under Voltage
***************************************	Bit 7	Warning
	Dia 0	Phase B Over Voltage
41.	Bit 8	Warning
	Diago	Phase B Under Voltage
	Bit 9	Warning
	Dit 40	Phase C Over Voltage
	Bit 10	Warning
	Dit 44	Phase C Under Voltage
WT-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	Bit 11	Warning
	Bit 12	Rsvd
	Dit 10	Phase A Over Current
	Bit 13	Warning



	Alan	m Registers
		Phase B Over Current
	Bit 14	Warning
		Phase C Over Current
	Bit 15	Warning
Alarm		
Register		
4		_
		Phase AB Input Over
	Bit 0	Voltage Warning
]		Phase AB Input Under
	Bit 1	Voltage Warning
		Phase BC Input Over
	Bit 2	Voltage Warning
		Phase BC Input Under
	Bit 3	Voltage Warning
		Phase CA Input Over
	Bit 4	Voltage Warning
		Phase CA Input Under
	Bit 5	Voltage Warning