

MB5-3121 Modbus protocol

Note: MODBUS system reads data up to 68*16bit Baud Rate: 1200 ~ 115200bps 。
Modbus ID Form (03 & 16th order):

Modbus ID	Data	Date typy (U/S: no symbol/yes) Limited (R/W:Read/Wright)
Basic ID of data testing	The monitoring date of the voltage , current and so on offered by this ID area is the real time value by weekly wave liquidation (refresh rate a measurement frequency of the system testing)	U, R
0x0000	Frequency	U, R
0x0001	Res	
0x0002	Res	
0x0003	Phase 1 amps	U, R
0x0004	Phase 2 amps	U, R
0x0005	Phase 3 amps	U, R
0x0006	Phase 1 volts	U, R
0x0007	Phase 2 volts	U, R
0x0008	Phase 3 volts	U, R
0x0009	Phase1-2 line volts	U, R
0x000a	Phase2-3 line volts	U, R
0x000b	Phase3-1 line volts	U, R
0x000c	System active power	S, R
0x000d	System reactive power	S, R
0x000e	System apparent power	U, R
0x000f	Phase 1 watts	S, R
0x0010	Phase 2 watts	S, R
0x0011	Phase 3 watts	S, R
0x0012	Phase 1 var	S, R
0x0013	Phase 2 var	S, R
0x0014	Phase 3 var	S, R
0x0015	Phase 1 VA	U, R
0x0016	Phase 2 VA	U, R
0x0017	Phase 3 VA	U, R
0x0018	System power factor	S, R
0x0019	Phase 1 power factor	S, R
0x001a	Phase 2 power factor	S, R
0x001b	Phase 3 power factor	S, R
0x001c	Load properties ('R'、'L'、'C')	U, R
0x001d	Reserve	
0x001e	Real energy import low word	U, R/W
0x001f	Real energy import high word	U, R/W
0x0020	Reactive energy import low word	U, R/W
0x0021	Reactive energy import high word	U, R/W
0x0022	Real energy export low word	U, R/W
0x0023	Real energy export high word	U, R/W

0x0024	Reactive energy export low word	U, R/W
0x0025	Reactive energy export high word	U, R/W
0x0026---0x0045	Reserve	
0x0046	Net real energy low word	U, R/W
0x0047	Net real energy high word	U, R/W
0x0048	Net reactive energy low word	U, R/W
0x0049	Net reactive energy high word	U, R/W
0x004a	Abs real energy low word	U, R/W
0x004b	Abs real energy high word	U, R/W
0x004c	Abs reactive energy low word	U, R/W
0x004d	Abs reactive energy high word	U, R/W
0x004e	Abs apparent energy low word	U, R/W
0x004f	Abs apparent energy high word	U, R/W
ID area of system parameter	(Default Data: Data range)	
0x0101	Password (1000: 0~9999)	U, R/W
0x0102	Modbus id (17: 1~254)	U, R/W
0x0103	Bandrate (3: 0~6)(1200, 2400, 4800, 9600, 19.2k, 38.4k, 115.2kpbs)	U, R/W
0x0104	Pt 1 low word (400: 100 ~ 500000)	U, R/W
0x0105	Pt 1 high word	U, R/W
0x0106	Pt 2 (400: 100 ~ 400)	U, R/W
0x0107	Ct 1 (5: 1~9999)	U, R/W
0x0108	Ct 2 (5: 1~ 10)	U, R/W
0x0109	DO1 mode (1: 0,1)(0: hold, 1: pulse)	U, R/W
0x010a	DO1 width (1000ms: 50 ~ 3000)	U, R/W
0x010b	DO2 mode (1: 0,1)(0: hold, 1: pulse)	U, R/W
0x010c	DO2 width (1000ms: 50 ~ 3000)	U, R/W
0x010d	DI filter time (0ms: 0~255)	U, R/W
0x010e	Backlight time (5S: 0, 5 ~ 65535)(0: ever light)	U, R/W
0x010f	Auto display interval time (1500ms: 500 ~ 9999)	U, R/W
0x0110	Power Demand time (1minute: 1 ~ 60)	U, R/W
0x0111	DO3 mode (1: 0,1)(0: hold, 1: pulse)	U, R/W
0x0112	DO3 width	U, R/W
0x0113	DO4 mode (1: 0,1)(0: hold, 1: pulse)	U, R/W
0x0114	DO4 width	U, R/W
0x0115	Absolute Active power energy pulse output rate (0 imp/kwh: 1 ~ 65535)(0: no pulse output)	U, R/W
0x0116	Absolute Reactive power energy pulse output rate (0 imp/kvarh: 1 ~ 65535)(0: no pulse output)	U, R/W
0x0117	Res	
0x0118	Hours run low word (0: 0 ~ 99999999.9)	U, R/W
0x0119	Hours run high word	U, R/W
0x011a	Hours run limit power (0: 0 ~ 12000)	U, R/W
0x011b	Current demand (1/10S: 1 ~ 180)	U, R/W

0x011c	Res	
0x011d	Res	
0x011e	Res	
0x011f	Threshold current (standard is 0.2%Ib) (10: 0 ~ 9999)	U, R/W
0x0120	Analog output 1 index(1: 0 ~ 29) Where 0~29 mapping to 0x0130 ~ 0x014d modbus address data, the same below.	U, R/W
0x0121	Analog output 2 index(2: 0 ~ 29)	U, R/W
0x0122	Analog output 3 index(3: 0 ~ 29)	U, R/W
Basic measurement data read-only area		
0x0130	Frequency	U, R
0x0131	Phase 1 volts	U, R
0x0132	Phase 2 volts	U, R
0x0133	Phase 3 volts	U, R
0x0134	Phase 1、2、3 average volts	U, R
0x0135	Phase1-2 line volts	U, R
0x0136	Phase2-3 line volts	U, R
0x0137	Phase3-1 line volts	U, R
0x0138	Phase1-2、2-3、3-1line average volts	U, R
0x0139	Phase 1 amps	U, R
0x013a	Phase 2 amps	U, R
0x013b	Phase 3 amps	U, R
0x013c	Phase 1、2、3 average amps	U, R
0x013d	Neutral current	U, R
0x013e	Phase 1 watts	S, R
0x013f	Phase 2 watts	S, R
0x0140	Phase 3 watts	S, R
0x0141	System active power	S, R
0x0142	Phase 1 var	S, R
0x0143	Phase 2 var	S, R
0x0144	Phase 3 var	S, R
0x0145	System reactive power	S, R
0x0146	Phase 1 VA	U, R
0x0147	Phase 2 VA	U, R
0x0148	Phase 3 VA	U, R
0x0149	System apparent power	U, R
0x014a	Phase 1 power factor	S, R
0x014b	Phase 2 power factor	S, R
0x014c	Phase 3 power factor	S, R
0x014d	System power factor	S, R
0x014e	Voltage unbalance	U, R
0x014f	Current unbalance	U, R
0x0150	Load properties ('R'、'L'、'C')	U, R

0x0151	Watts Demand	S, R
0x0152	Var demand	S, R
0x0153	VA demand	U, R
0x0154	Abs apparent energy high word	U, R
0x0155	Abs apparent energy low word	U, R
0x0156	Real energy import high word	U, R
0x0157	Real energy import low word	U, R
0x0158	Real energy export high word	U, R
0x0159	Real energy export low word	U, R
0x015a	Reactive energy import high word	U, R
0x015b	Reactive energy import low word	U, R
0x015c	Reactive energy export high word	U, R
0x015d	Reactive energy export low word	U, R
0x015e	Net real energy high word	U, R
0x015f	Net real energy low word	U, R
0x0160	Abs real energy high word	U, R
0x0161	Abs real energy low word	U, R
0x0162	Net reactive energy high word	U, R
0x0163	Net reactive energy low word	U, R
0x0164	Abs reactive energy high word	U, R
0x0165	Abs reactive energy low word	U, R
Clock ID area	Note: Part of the significance of read and write in this address area is not completely consistency.	
0x0700	Read: Year; Write: Year (BCD format)	U, R/W
0x0701	Read: Month (high byte), day (low byte); Write: Minute (high byte), second (low byte) (BCD format)	U, R/W
0x0702	Read: hour (high byte), minute (low byte); (BCD format) Write: day (high byte), hour (low byte)	U, R/W
0x0703	Read: second (high byte), 0:AM / 1:PM; (BCD format) Write: 0:AM / 1:PM (high byte), month(add 1 to true month) (low byte) (BCD format)	U, R/W
Multi-traffic electric degree area	24-hour BCD format Encoded	
0x0710	Time 2 hour(high byte), Time 1 hour(low byte)	U, R/W
0x0711	Time 4 hour(high byte), Time 3 hour(low byte)	U, R/W
0x0712	Time 6 hour(high byte), Time 5 hour(low byte)	U, R/W
0x0713	Time 8 hour(high byte), Time 7 hour(low byte)	U, R/W
0x0714	Time 2 minute(high byte), Time 1 minute(low byte)	U, R/W
0x0715	Time 4 minute(high byte), Time 3 minute(low byte)	U, R/W
0x0716	Time 6 minute(high byte), Time 5 minute(low byte)	U, R/W
0x0717	Time 8 minute(high byte), Time 7 minute(low byte)	U, R/W
0x0718	Time 2 fee (high byte), Time 1 fee (low byte)	U, R/W
0x0719	Time 4 fee (high byte), Time 3 fee (low byte)	U, R/W

0x071a	Time 6 fee (high byte), Time 5 fee (low byte)	U, R/W
0x071b	Time 8 fee (high byte), Time 7 fee (low byte)	U, R/W
0x071c	Current fee	U, R
Demand and peak statistics address area		
0xa928	Min phase 1 amps	U, R/W
0xa929	Min phase 2 amps	U, R/W
0xa92a	Min phase 3 amps	U, R/W
0xa92b	Min phase 1 volts	U, R/W
0xa92c	Min phase 2 volts	U, R/W
0xa92d	Min phase 3 volts	U, R/W
0xa92e	Min phase 1-2 line volts	U, R/W
0xa92f	Min phase 2-3 line volts	U, R/W
0xa930	Min phase 3-1 line volts	U, R/W
0xa931	Min system watt	S, R/W
0xa932	Min system VA	U, R/W
0xa933	Min system var	S, R/W
0xa934	Peak system watts	S, R/W
0xa935	Peak system VA	U, R/W
0xa936	Peak system var	S, R/W
0xa937	Min demand system watts	S, R/W
0xa938	Min demand system VA	U, R/W
0xa939	Min demand system var	S, R/W
0xa93a	Min frequency	U, R/W
0xa93b	Peak frequency	U, R/W
0xa93c	Min system power factor	S, R/W
0xa93d	Peak system power factor	S, R/W
0xa93e	Peak phase 1-2 line volts	U, R/W
0xa93f	Peak phase 2-3 line volts	U, R/W
0xa940	Peak phase 3-1 line volts	U, R/W
0xa941	Peak phase 1 amps	U, R/W
0xa942	Peak phase 2 amps	U, R/W
0xa943	Peak phase 3 amps	U, R/W
0xa944	Peak phase 1 volts	U, R/W
0xa945	Peak phase 2 volts	U, R/W
0xa946	Peak phase 3 volts	U, R/W
0xa947	Peak hold system watts	S, R/W
0xa948	Power demand period	U, R/W
0xa949	Watts Demand	S, R/W
0xa94a	VA demand	S, R/W
0xa94b	Peak hold system VA	U, R/W
0xa94c	Var demand	S, R/W
0xa94d	Peak hold system Var	S, R/W
0xa94e	Res	

0xab41	Peak hold demand phase 1 amps	U, R/W
0xab42	Peak hold demand phase 2 amps	U, R/W
0xab43	Peak hold demand phase 3 amps	U, R/W
0xab44	Peak hold demand phase 1 volts	U, R/W
0xab45	Peak hold demand phase 2 volts	U, R/W
0xab46	Peak hold demand phase 3 volts	U, R/W
0xac41	demand phase 1 amps	U, R
0xac42	demand phase 2 amps	U, R
0xac43	demand phase 3 amps	U, R
0xac44	demand phase 1 volts	U, R
0xac45	demand phase 2 volts	U, R
0xac46	demand phase 3 volts	U, R
		U, R
0xae41	Demand system watt	U, R
0xae42	Demand system VA	U, R
0xae43	Demand system Var	U, R
0xae44	Peak hold Demand system watt	S, R/W
0xae45	Peak hold Demand system VA	U, R/W
0xae46	Peak hold Demand system Var	S, R/W
0xFF00	Demand and peak removed-order ID, support to write a data representing a order : 0x01, 0x02, or 0x03, Corresponding to three method removing demand and peak parameters: 1. Only remove the data of the demand and peak power-down that are not stored by the power; 2. Removed all the demand and peak value synchronously ; 3. Removed all the demand and peak asynchronously. Note: The stored data of demand and peak power after the system without power are: phase voltage and the peak of phase current and peak demand, the total active power of system , reactive and apparent power demand peaks.	U, W
Counter ID		
0xb641	DI1 counter (low word)	U, R
0xb642	DI1 counter (high word)	U, R
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0xb64b	DI6 counter (low word)	U, R
0xb64c	DI6 counter (high word)	U, R
Alarm ID:	Alarm1:DO1 Alarm2:DO2	
0xb841	Alarm1 object index: 0~29 Where 0~29 mapping to 0x0130 ~ 0x014d modbus address data	U, R/W
0xb842	Alarm1 high set	S, R/W
0xb843	Alarm1 high release	S, R/W
0xb844	Alarm1 low release	S, R/W
0xb845	Alarm1 low set	S, R/W

0xb846	Alarm1 delay cycle(1/frequency, get from phase A)	U, R/W
0xb847	Alarm1 status: 0~2 (release、high、low)	U, R/W
0xb848	Alarm1 object value	U/S, R/W
0xb849	Alarm2 object index: 0~29 Where 0~29 mapping to 0x0130 ~ 0x014d modbus address data	U, R/W
0xb84a	Alarm2 high set	S, R/W
0xb84b	Alarm2 high release	S, R/W
0xb84c	Alarm2 low release	S, R/W
0xb84d	Alarm2 low set	S, R/W
0xb84e	Alarm2 delay cycle(1/frequency, get from phase A)	U, R/W
0xb84f	Alarm2 status: 0~2 (release、high、low)	U, R/W
0xb850	Alarm2 object value	U/S, R/W
Harmonic ID :		
0xbb41	I1%THD	U, R
0xbb42	I2%THD	U, R
0xbb43	I3%THD	U, R
0xbb44	V1%THD	U, R
0xbb45	V2%THD	U, R
0xbb46	V3%THD	U, R
0xbb47	I1%THD	U, R
0xbb48	I1%THD-Odd	U, R
0xbb49-0xbb82	I1:2 nd -----60 th Harmonic	U, R
0xbb83	I2%THD	U, R
0xbb84	I2%THD-Odd	U, R
0xbb85-0xbbc0	I2:2 nd -----60 th Harmonic	U, R
0xbbc1	I3%THD	U, R
0xbbc2	I3%THD-Odd	U, R
0xbbc3-0xbbfd	I3:2 nd -----60 th Harmonic	U, R
0xbbf0	V1%THD	U, R
0xbbff	V1%THD-Odd	U, R
0xbc00-0xbc3a	V1:2 nd -----60 th Harmonic	U, R
0xbc3b	V2%THD	U, R
0xbc3c	V2%THD-Odd	U, R
0xbc3d-0xbc77	V2:2 nd -----60 th Harmonic	U, R
0xbc78	V3%THD	U, R
0xbc79	V3%THD-Odd	U, R
0xbc7a-0xbcb4	V3:2 nd -----60 th Harmonic	U, R
(SOE) ID:		
0xc000	SOE current index (latest SOE record)	U, R
0xc001	Index 0 SOE time: Unix standard timestamp (low word)	U, R
0xc002	Index 0 SOE time: Unix standard timestamp (high word)	U, R
0xc003	Index 0 SOE time millisecond	U, R
0xc004	Index 0 SOE object index: 0~3(DI flip、Power、Alarm1、Alarm2)	U, R
0xc005	Index 0 SOE property1: DI flip:(high byte is older DI status, low	U, R

	byte is flipped DI status)、Power:(0: power down; 1: power up)、Alarm: (Alarm object index)	
0xc006	Index 0 SOE property2: DI flip:(no means)、Power:(no means)、Alarm:(Alarm object data)	U/S, R
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0xc037	Index 9 SOE time: Unix standard timestamp	U, R
0xc038	Index 9 SOE time millisecond	U, R
0xc039	Index 9 SOE object index: 0~3(DI flip、Power、Alarm1、Alarm2)	U, R
0xc03a	Index 9 SOE property1: DI flip:(high byte is older DI status, low byte is flipped DI status)、Power:(0: power down; 1: power up)、Alarm: (Alarm object index)	U, R
0xc03b	Index 9 SOE property2: DI flip:(no means)、Power:(no means)、Alarm:(Alarm object data)	U/S, R

Modbus ID Form (02 order):

Modbus ID	Data	Date type (U/S: no symbol/yes) Limited (R/W:Read/Wright)
0x0000	DI1~DI6(bit0:DI1,bit1:DI2...), 1=ON, 0=OFF	U, R

Modbus ID Form(05 order):

Modbus ID	Data	Date type (U/S: no symbol/yes) Limited (R/W:Read/Wright)
0x0000	DO1 ,0xFF00=ON, 0x0000=OFF	U, W
0x0001	DO2 ,0xFF00=ON, 0x0000=OFF	U, W
0x0002	DO3 ,0xFF00=ON, 0x0000=OFF	U, W
0x0003	DO4 ,0xFF00=ON, 0x0000=OFF	U, W

Modbus ID form(01 order):

Modbus ID	Data	Date type (U/S: no symbol/yes) Limited (R/W:Read/Wright)
0x0000	DO1~DO4(bit0:DO1,bit1:DO2...), 1=ON, 0=OFF	U, R

Val_t: Data read, Val_s:The actual value

Parameter	RELATION	Unite
Frequency :F	$Val_s = Val_t / 1000$	(Hz)
Voltage: U	$Val_s = Val_t (PT1/PT2) / 10$	(V)
current :I	$Val_s = Val_t (CT1/CT2) / 1000$	A
Active Power:P	$Val_s = Val_t (PT1/PT2) (CT1/CT2)$	W
Reactive PowerQ	$Val_s = Val_t (PT1/PT2) (CT1/CT2)$	Var
Apparent Power:S	$Val_s = Val_t (PT1/PT2) (CT1/CT2)$	VA
Power Factor:PF	$Val_s = Val_t / 1000$	-----
Watt-hour:Kwh	$Val_s = Val_t (PT1/PT2) (CT1/CT2) / 10$	Kwh
Var-hour:kvarh	$Val_s = Val_t (PT1/PT2) (CT1/CT2) / 10$	Kvarh
Harmonic distortion	$Val_s = Val_t \times 0.01\%$	-----

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