

## 4. Appendix

### Appendix 1.1 System state

Stop	0x0002
Standby	0x0008
Initial standby	0x0010
Startup	0x0020
Running	0x0040
Fault	0x0100
Running in maintain mode	0x0400
Running in forced mode	0x0800
Running in off-grid mode	0x1000
Restarting	0x2501
Running in External EMS mode	0x4000

### Appendix 1.2 Running state

Running state ( Power flow )			
Bit0	PV power	Bit0 == 0	No power generated from PV
		Bit0 == 1	Power generated from PV
Bit1	Battery	Bit1 == 0	Not charging
	charging	Bit1 == 1	Charging
Bit2	Battery	Bit2 == 0	Not discharging

	discharging	Bit2 == 1	Discharging
Bit3	Positive load power	Bit3 == 0	Load is reactive
		Bit3 == 1	Load is active
Bit4	Feed-in power	Bit4 == 0	No power feed-in the grid
		Bit4 == 1	Power feed-in the grid
Bit5	Import Power from grid	Bit5 == 0	No power imported from the grid
		Bit5 == 1	Importing power from grid
Bit6	Reserved	Bit6	
Bit7 (Refitting System)	Negative load power	Bit7 == 0	No power generated from "Load"
		Bit7 == 1	Power generated from "Load"

### Appendix 1.3 Fault code instructions

Inverter fault analysis by bit :

For example :

Inverter alarm : 0x00102000 (0001 0000 0010 0000 0000 0000b)

bit13 & bit20 is set.

According the following table, the low word base code of the inverter alarm is 70 and the high word base code is 500. So the bit13 represents a fault code of 083 (i.e. 70+13), and the bit 20

represents a fault code of 504 [i.e. 500+(20-16)].

<b>Inverter alarm</b> 13050 - 13051	Low word base code : 70	<b>DC-side fault</b> 13058 - 13059	Low byte base code : 19	<b>Battery fault</b> 13066 - 13067	Low byte base code : 700	<b>BMS fault 1</b> 13074 - 13075	Low byte base code : 832
	High word base code :500		High word base code : 200		High word base code : 716		High word base code : 848
<b>Grid-side fault</b> 13052 - 13053	Low word base code : 2	<b>Permanent fault</b> 13060 - 13061	Low word base code : 401	<b>Battery alarm</b> 13068 - 13069	Low word base code : 900	<b>BMS fault 2</b> 13076 - 13077	Low word base code : 864
	High word base code :100		High word base code : 417		High word base code : 916		High word base code : 880
<b>System fault 1</b> 13054 - 13055	Low word base code :300	<b>BDC-side fault</b> 13062 - 13063	Low word base code : 600	<b>BMS alarm</b> 13070 - 13071	Low word base code : 932	<b>BMS alarm 2</b> 13078 - 13079	Low word base code : 964
	High		High word		High word		High word

	word base code : 316		base code : 616		base code : 948		base code : 980
<b>System fault 2</b> 13056 - 13057	Low word base code : 36	<b>BDC-side permanent fault</b> 13064 - 13065	Low word base code : 800	<b>BMS protection</b> 13072 - 13073	Low word base code : 732		
	High word base code : 52		High word base code : 816		High word base code : 748		

### Appendix 1.4 Examples

Take ComTest for example.

#### 1.1 Acquire one piece of running information

Supposed that the inverter address is 1, it needs to acquire data from address 5000 of 3x address type.

The PC sends (HEX):

01 04 13 87 00 01 85 67

The inverter replies (HEX):

01 04 02 00 22 39 29

Note: The type code of inverter SG4KTL is 0x0022.

## 1.2 Acquire multiple running information

Supposed that the inverter address is 1, it needs to acquire 10 data from address starting from 5000 of 3x address type

The PC sends (HEX):

01 04 13 87 00 0A C4 A0

The inverter replies (HEX):

01 04 14 00 22 00 28 00 00 00 00 00 05 00 00 00 26 00 00 00 00 00 00 AF F8

Note: The type code of inverter SG4KTL is 0x0022. The nominal output power is 4.0 kW, two-phase. Daily power generation is 0. The total power generation is 5 kWh. The total running time is 38 h. The internal temperature is 0°C. The internal transformer temperature is 0°C.

## 1.3 Acquire SN

Supposed that the inverter address is 1, it needs to acquire 10 data from address starting from 4990 of 3x address type

The PC sends (HEX):

01 04 13 7D 00 0A E4 91

The inverter replies (HEX):

01 04 14 31 32 31 32 31 32 30 30 31 00 00 00 00 00 00 00 00 00 00 00 00 9B 56

Note:

1. SN data type is UTF-8;
2. Serial number is: 121212001

## 1.4 Read one setting datum

Supposed that the inverter address is 1, it needs to read data from address 5000 of 4x address type.

The PC sends (HEX):

01 03 13 87 00 01 30 A7

The inverter replies (HEX):

01 03 02 07 D8 BA 2E

Note: the data read out is year 2008.

### 1.5 Read multiple setting data

Supposed that the inverter address is 1, it needs to read 10 data from address starting from 5000 of 4x address type.

The PC sends (HEX):

01 03 13 87 00 0A 71 60

The inverter replies (HEX):

01 03 14 07 DA 00 0A 00 1E 00 09 00 28 00 25 00 CE 00 AA 01 F4 00 00 80 53

Note: The data are October 30th, 2010, 09:40:37; Stop; power limitation enabled, power limitation value is 50%.

### 1.6 Set one datum

Supposed that the inverter address is 1, it needs to set data from address 5000 of 4x address type.

The PC sends (HEX):

01 10 13 87 00 01 02 07 DA 19 4D

The inverter replies (HEX):

01 10 13 87 00 01 B5 64

Or

The PC sends (HEX):

01 06 13 87 07 DA BE CC

The inverter replies (HEX):

01 06 13 87 07 DA BE CC

Note: The setting data is year 2010

### 1.7 Set multiple data

Supposed that the inverter address is 1, it needs to set 10 data to address starting from 5000 of 4x address type.

The PC sends (HEX):

01 10 13 87 00 0A 14 07 D9 00 0A 00 1E 00 09 00 10 00 00 00 CE 00 AA 01 F4 00 00 3E 65

The inverter replies (HEX):

01 10 13 87 00 0A F4 A3

Note: The data are October 30th, 2009, 09:16:00, stop, power limitation enabled, power limitation value is 50%.