Samil Power

Packet Format

Field	Length (Bytes)	Value
Start Of Packet	2	0x55aa
Source Address	2	0x0000 for Broadcast from Inverter 0x00Nn for Address of inverter
Destination Address	2	0x0000 For initial broadcasts 0x0000 for Address of inverter
Command	1	Varies
Sub-Command	1	Varies
Length	1	
Data	Bytes indicated by Length	
Checksum	2	Sum of preceding bytes

Length

Where the length is greater than zero, this number of bytes follows in the packet payload

Checksum

The checksum is literally the sum of the previous bytes.

Data

The data is sent in Decimal Big Endian. That is, 00 01 is 1 and 80 00 is 32768.

Addresses

So far, all the addresses located have been 0x0001. The documentation on the packet format assumes this. There might be units with other addresses, and the documentation will need to be updated to allow for this.

Reading Algorithm

1. Request Serial Numbers from all Inverters. This may take a few transmissions
2. Using the serial number, 'Log In' to the inverter, where an ACK should be received

3. Request full data from the inverter.
    a. Repeat step one at each sampling period
    b. If this times out, go back to step 1 or step 2

Known Packets

Software to Inverter		
0000 0000 0000	Request Serial Number from any inverter without an address	
0000 0000 0001	Logs into the inverter when followed by the Serial Number in the Data field	
0000 0001 0100	Requests unknown data from the inverter	
0000 0001 0101	Requests more dummy data	
0000 0001 0102	Request PV data	
0000 0001 0103	Request software version and inverter specifications	
0000 0001 0104	Request Configuration Information	
0000 0001 02nn	Configure the Inverter	
0000 0001 03nn est	Reset the inverter	00 = Reset F and H totals 01 = Reset Inverter

Inverter to Software		
0000 0000 0080	Provides a serial number to the Software	
0001 0000 0081	Inverter allocates itself an address and replies	
0001 0000 0181	Responds to Dummy Data	
0001 0000 0182	PV Data	
0001 0000 0183	Supply inverter software version and inverter specifications	
0001 0000 0184	Configuration Information	
0001 0000 03nn est	Ack to Reset	Payload of 01 06

Commands and Sub Commands

Command	Sub-Command	Description
00	00	Request for Serial Number
00	01	Log In based on Serial Number
00	80	Advise Serial Number
00	81	Log In Accepted
01	02	Request Single PV Format
01	04	Request Config Information
01	82	Single PV Format
01	84	Config Information
02	0n	Configure Inverter
02	8n	Ack to Configure Inverter
03	Nn	Reset Inverter

Single PV String Output

Request

55aa 0000 0001 0102 (00) [01 03]

Response

55aa 0001 0000 0182 (28) {DATA} [Checksum]

Data Point	Description	Units	Example
01	Internal Temperature	0.1 C	1234 = 123.4 C
02	Panel 1 Voltage	0.1 V	1288 = 258.8 V
03	Panel 1 DC Current	0.1 A	44 = 4.4A
04	Working Hours High Word	6553.6 Hours	1 = 6553.6 Hours 2 = 13107.2 Hours
05	Working Hours	0.1 Hours	2765 = 276.4 Hours

	Low Word		
06	Operating Mode	Lookup Table	
07	Accumulated Energy Today	0.1 kWh	3472 = 347.2 kWh
08			
09			
10			
11			
12			
13	Grid Current	0.1 A	123 = 12.3 A
14	Grid Voltage	0.1 V	2423 = 242.3 V
15	Grid Frequency	0.01 Hz	5001 = 50.01 Hz
16	Output Power	1 W	2334 = 2334 W
17	Accumulated Energy High Word	6553.6 kWh	1 = 6553.6 kWh 2 = 13107.2 kWh
18	Accumulated Energy Low Word	0.1 kWh	3472 = 347.2 kWh
19			
20			

Operating Mode

Value	Description
0	Wait
1	Normal
2	Fault
3	Permanent

Fault Code High Word

Data	Mimic Display	Description
0x0001	Vac Slave Fail	
0x0002	Vac Master Fail	
0x0004	Zpv PE Fail	
0x0008	Offset Iac Fail	
0x0010	ENS Mess Fail	
0x0020	ENS Zac Fail	
0x0040	ENS Fac Fail	
0x0080	ENC Vac Fail	
0x0100	RLY2 Fail	

0x0200	RLY1 Fail
0x0400	Zac Slave Fail
0x0800	Zac Master Fail
0x1000	Fac Slave Fail
0x2000	Fac Master Fail
0x4000	EEPROM Fail
0x8000	Master Slave Fail

Fault Code Low Word

Data	Mimic Display	Description
0x0001	GFCI Failure	
0x0002	DC Sensor Fault	
0x0004	Ref 2.5V Failure	
0x0008	ENS DCI Fault	
0x0010	ENS GFCI Fault	
0x0020	BUS Low Fail	
0x0040	Bus High Fail	
0x0080	Device Fault	
0x0100	Delta Z Fault	
0x0200	No Utility	
0x0400	GFCI Fail	
0x0800	Bus Fail	
0x1000	Reserved	
0x2000	Temperature Fail	
0x4000	Test Fail	
0x8000	Vpv Max Fail	

Configuration

Request

55aa 0000 0001 0104 (00) [Checksum]

Response

55aa 0001 0000 0184 (0c) {DATA} [Checksum]

The {Data} is each of the values below in Item order.

Saving values to the Inverter

55aa 0000 0001 020n 02 {DATA} [Checksum]

Response from the Inverter

55aa 0001 0000 028n 02 01 06 [Checksum]

Item	Name	Protocol Value	Units
01	PV Startup Voltage	00	0.1 V
02	Time to Connect	01	1 Sec
03	Vac Min	02	0.1 V
04	Vac Max	03	0.1 V
05	Fac Min	04	0.01 Hz
06	Fac Max	05	0.01 Hz