

SOROTEC:

Revo RS232 communication Protocol

Version:V02 – Google Translated

Version description:

00----->01: Increase the protocol content of 1.4~1.6;

01---->01new:A--Add 1.1~1.3 to the agreement (the 01 agreement itself is an agreement with 00, only the document is added;)

B--the r item EEEE in the command line 1.2 is changed from "PV current" to "PV power"

01---->02: Add back to 1.7 flow chart to explain the corresponding agreement.

2020-06-08 Add debugging commands

2020-10-19 Add lithium battery information

2020-11-12 PQSE PSET adds parallel and high-voltage recovery point information

Baud rate: 2400

CHK=DATE0+....+1

CHK=The accumulated value of sent data+1, single byte.

1.1 QPIRI<cr>: Device Rating Information inquiry

Computer: QPIRI<CRC><cr>

Device: (BBB.B CC.C DDD.D EE.E FF.F HHHH IIII JJ.J KK.K JJ.J KK.K LL.L O P0 Q0

O P Q R SS T <CRC><cr>

	Date	Description	Notes
A	(Start byte	
B	BBB.B	Grid rating voltage	Mains voltage 230.0
C	CC.C	Grid rating current	Maximum input current 20.0 means 20A
D	DDD.D	AC output rating voltage	Set output voltage 230.0
E	EE.E	AC output rating frequency	Set output frequency 50.0
F	FF.F	AC output rating current	Maximum output current 20.0 means 20A
H	HHHH	AC output rating apparent power	Current machine power 5500 means 5500va
I	IIII	AC output rating active power	Current machine power 5500 means 5500W
J	JJ.J	Battery rating voltage	Default battery voltage 48.0 or 24.0
K	KK.K	Bat Low Vol	Low voltage alarm point 44.0 means 44V alarm
l	JJ.J	Bat Cut Vol	Low voltage shutdown point 40.0 means 40V shutdown
M	KK.K	Buck Vol	Battery equalization voltage 56.0 means 56V
N	LL.L	Flood Vol	Battery float voltage 54.0 means 54V
O	O	Battery type	0: AGM 1: Flooded 2: User Define
P	P0	Max charging current it can be configured	Maximum charging current 60 means 60A
Q	Q0	Current max charging current	Reserved 06
O	O	Input voltage range	Reserved 1
P	P	Output source priority	Reserved 0
Q	Q	Charger source priority	Reserved 1
R	R	Reserved	Reserved 6
S	SS	Machine type	Reserved 01
T	T	Topology	Reserved 0
	K		Reserved 0
	dd.0		Reserved 52.0
	m		Reserved 0
	n		Reserved 1

1.2 QPIGS<cr>: Device general status parameters inquiry

Computer: QPIGS <CRC><cr>

Device: (BBB.B CC.C DDD.D EE.E FFFF GGGG HHH III JJ.JJ **KKK** OOO TTTT EEEE
UUU.U WW.WW PPPP b7b6b5b4b3b2b1b0 <CRC><cr>

	Data	Description	Notes	Axpert
a	(Start byte		
b	BBB.B	Grid voltage	Mains Voltage 234.0	
C	CC.C	Grid frequency	Mains frequency 50.0	
D	DDD.D	AC output voltage	Output Voltage 230.0	
E	EE.E	AC output frequency	Output frequency 49.9	
F	FFFF	AC output apparent power	Reserved 0000	
G	GGGG	AC output active power	Load 0736 unitW	
H	HHH	Output load percent	Load percentage 013	
I	III	BUS voltage	401 V	
j	JJ.JJ	Battery voltage	50.00 V	
k	KKK	Battery charging current	Battery charging current 010 means 10A	
o	OOO	Battery capacity	Battery capacity 081 means 81%	
P	TTTT	Inverter heat sink temperature	Temperature reserved 0026	
r	EEEE	PV current	PV current generating power 0622 means 622W	
t	UUU.U	PV Input voltage 1	PV voltage 311.0 means 311V	
u	WW.WW	Battery voltage from SCC	Battery voltage 53.00 means 53V	
w	PPPPP		00000 This is changed to the amount of power generated on the day. The unit is WH	
x	b7b6b5b4b3b2b1b0	Device status	110: MPPT charging b2b1b0 101: mains charging b2b1b0 111: Mains and MPPT charging b2b1b0 000:Not charging	
	KK		Reserved 00	
	DD		Reserved 00	
	dddd		PV power unit W	
	aaa		Reserved 010	
	CRC			

1.3 QMOD<cr>: Device Mode inquiry

Computer: QMOD<CRC><cr>

Device: (M<CRC><cr>

MODE	CODE(M)	Notes
Power On Mode	P	Keep
Standby Mode	S	Standby mode
Line Mode	L	Mains mode
Battery Mode	B	Battery or PV inverter mode
Fault Mode	F	Failure mode
Sleep Mode	H	Sleep mode

Example:

Computer: QMOD<CRC><cr>

DEVICE: (L<CRC><cr>

Means: the current DEVICE mode is AC mode.

1.4 QALL<cr>: Read current machine data status information

Computer: QALL<CHK><cr>

Device: (BBB CC.C DDD EE.E FFFF GGG HH.H III JJJ KKK LLL MM.M NNNN OOOOOO PPPPPP Q KK SS<CHK><cr>

	Data	Description	Notes	Expert
A	(Start byte		
B	BBB	Grid voltage	Mains voltage 234V	
C	CC.C	Grid frequency	Mains frequency 50.0	
D	DDD	AC output voltage	Output voltage 230V	
E	EE.E	AC output frequency	Output frequency 49.9	
F	FFFF	AC output power	Load 0736 unit is W	
G	GGG	Output load percent	Load percentage 013	
H	HH.H	BAT voltage	Battery voltage 51.2V	
I	III	Battery SOC	Percentage of remaining battery capacity 098	
J	JJJ	Battery charging current	Battery charging current 101 means 101A	
K	KKK	Battery discharg curr	Battery discharge current 138 means 138A	
L	LLL	PV Vol	PV voltage 289 means 289V	
M	MM.M	PV curr	PV current 15.3 means 15.3A	
N	NNNN	PV POWER	PV power 1385 means 1385W	
O	OOOOO O	PV generation capacity of DAY	PV power generation on the day 016850 means 16850WH	
P	PPPPPP	PV sum generation capacity	PV total power generation 000368 means 368KWH	

Q	Q	Current Mode	The current operating mode of the machine B=Inverter mode L=Utility mode S=Standby mode F=Failure mode	
R	KK	Warning code	Warning code	
S	SS	Fault code	Error code	
	CHK			

Warning code table:

- 00 No warning
- 01 Low battery
- 02 Mains low voltage
- 03 Mains high voltage
- 04 Overload
- 05 Over temperature
- 06 Fan lock
- 07 Battery overvoltage
- 21 PV low pressure
- 22 PV overvoltage
- 23 PV overcurrent
- 24 PV over temperature
- 25 PV overload
- 26 PV boost failed

Fault code table:

- 01 BUS overvoltage
- 02 Inverter overvoltage
- 03 Inverter low voltage
- 04 BUS failure
- 05 Overload fault
- 06 output short circuit
- 07 Low battery voltage failure (The battery voltage is too low when starting up, and starting up is not allowed)
- 08 Inverter failed
- 09 BUS low voltage
- 10 Parallel failure
- 11 Over temperature fault
- 12 Battery over-voltage fault (the battery voltage is too high when starting up, it is judged that the

number of battery cells may be connected incorrectly)

1.5 PQSE: Read current machine configuration information

Computer: PQSE<CHK><cr>

Device: (BCDEFG HH.H II.I JJ.J KK.K LLL MMM NNNN OO PP QQ KK SSTUV
WW.W<CHK><cr>

	Data	Description	Notes	Axpert
A	(Start byte		
B	B	Language	Current language 0=ENGLISH 1=Chinese	
C	C	Work Mode	The working mode of the machine currently set 0=Utility priority 1=Solar priority 2=Battery priority 3=PV+mains power + no external CT 4=PV+mains power + external CT	
D	D	Input Range	Wide and narrow range selection of mains input 0=wide 1=narrow	
E	E	Output Vol Set	Output voltage setting 0=220V 1=230V 2=240V	
F	F	Output Freq	Output frequency setting 0=50hz 1=60hz	
G	G	Bat Type Set	Battery type setting: 0=Lead-acid battery 1=Lithium battery 2=No battery 3=Custom battery	
H	HH.H	BAT Bulk voltage	It will take effect after selecting the defined battery. Equalizing charging voltage 56.0V	
I	II.I	BAT FLOAT Vol	It takes effect after selecting a defined battery. Floating voltage 54.4V	
J	JJ.J	Bat Low Alarm	Battery low voltage alarm point 44.0V	
K	KK.K	Bat Cut Off	Battery low voltage shutdown point 42.0V	
L	LLL	Sum Chg Curr	Total charging current 10-90A	
M	MMM	AC Chg curr	Mains charging current 0-60A	
N	NNNN	Date time	Time YYYY 2020	
O	OO	Date time	MM 02 month	
P	PP	Date time	DD 18 day	
Q	QQ	Date time	HH 15 hour	

R	KK	Date time	MM 37 minute	
S	S S	BeepDisable Grid Enable	0=Buzzer enabled 1=Buzzer disabled 0=not connected to the grid 1=connected to the grid	
T	T	Sig Para Enable	Single-phase parallel enable	
U	U	Three Para Enable	Three-phase parallel enable	
V	V	Three Para ID	Three-phase parallel ID	
W	WW.W	Bat Full Vol	Full battery recovery point 52.0V	
	CHK			

1.6 PSET<cr>: Set the current machine configuration

Computer: PSETBCDEFG HH.H II.I JJ.J KK.K LLL MMM NNNN OO PP QQ KK SS TUV
WW.W<CHK><cr>

Device: (ACK<CHK><cr> or (NAK<CHK><cr>

	Data	Description	Notes	Axpert
B	B	Language	Current language 0=ENGLISH 1=Chinese	
C	C	Work Mode	The working mode of the machine currently set 0=Utility priority 1=Solar priority 2=Battery priority 3=PV+mains power + no external CT 4=PV+mains power + external CT	
D	D	Input Range	Wide and narrow range selection of mains input 0=wide 1=narrow	
E	E	Output Vol Set	Output voltage setting 0=220V 1=230V 2=240V	
F	F	Output Freq	Output frequency setting 0=50hz 1=60hz	
G	G	Bat Type Set	Battery type setting: 0=Lead-acid battery 1=Lithium battery 2=No battery 3=Custom battery	
H	HH.H	BAT Bulk charging voltage	It will take effect after selecting the defined battery. Equalizing charging voltage 56.0V	
I	II.I	BAT FLOAT Vol	It takes effect after selecting a defined battery. Floating voltage 54.4V	
J	JJ.J	Bat Low Alarm	Battery low voltage alarm point 44.0V	
K	KK.K	Bat Cut Off	Battery low voltage shutdown point 42.0V	

L	LLL	Sum Chg Curr	Total charging current 10-90A	
M	MMM	AC Chg curr	Mains charging current 0-60A	
N	NNNN	Date time	Time YYYY 2020	
O	OO	Date time	MM 02 month	
P	PP	Date time	DD 18 day	
Q	QQ	Date time	HH 15 hour	
R	KK	Date time	MM 37 minute	
S	S S	Beep Disable Grid Enable	0=Buzzer enabled 1=Buzzer disabled 0=not connected to the grid 1=connected to the grid	
T U	T U	EnSig para Three Para	0=no parallel 1=single parallel 1=Three-phase parallel, 0=non-three-phase parallel	
V	V	Phase Id	1=A 2=B 3=C phase	
W	WW.W	Bat Full VOI	52.0V	
	CHK			

1.7 PQSA<cr>: Read current machine process information

Computer: PQSA<CHK><cr>

Device: (BCDEFGHI <CHK><cr>

	Data	Description	Notes	Axpert
A	(Start byte		
B	B	AC	Current AC status 0=None 1=AC to conversion 2=Conversion to AC 3=Only wireless	
C	C	PV	0=None 1=PV to conversion	
D	D	Bat	0=No battery 1=Conversion flow to battery to charge battery 2=Battery to conversion, battery discharge	
E	E	Load	0=No output line 1=Switch to output light	
F	F	Resver	0	
G	G	Resver	0	
H	H	Resver	0	
I	I	Resver	0	

	CHK			
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2 The following is the instruction for internal calibration

2.1 Read PV parameters

Send hexadecimal 0x7E 0x52 0x0D

ASC code: ~R<cr>

return ~RAAA,BBB,CCC,DDD,EEE,FFF,GGG,HHH, <cr>

	Data	Description	Notes	Axpert
	~R	Start byte		
A	AAA	PV Vol +	PV voltage regulation increase	
B	BBB	PV VOL -	PV voltage regulation decrease	
C	CCC	PV Curr +	PV current adjustment increase	
D	DDD	PV Curr -	PV current adjustment decrease	
E	EEE	Pv Bus Vol +	PV BUS voltage added value	

F	FFF	PV Bus Vol-	PV BUS voltage derating	
G	GGG	Vol Slope	Voltage curve parameter value	
H	HHH	Current Pv Bus Vol	Current PVBUS voltage value	
	0D			

Set PV parameters

send ~SAAA,BBB,CCC,DDD,EEE,FFF,GGG, <cr>

Same meaning as above

3 Lithium

3.1 **QLITH0**: Read current lithium battery information

Computer: QLITH0<CHK><cr>

Device: (BBB.B CCC.C DDD.D EEE FFF GGG HHH.H III.I JJJ.J KKK.K L M <CHK><cr>

	Data	Description	Notes	Axpert
A	(Start byte		
B	BBB.B	voltage	Voltage 056.3V	
C	CCC.C	Current	Charging current 050.2A	
D	DDD.D	Current	Discharge current 050.2A	
E	EEE	Temperature	Temperature 036 degrees	
F	FFF	SOC	Percentage of remaining capacity 099%	
G	GGG	SOH	Battery Life	
H	HHH.H	Max Charge Curr	050.0 50A Maximum charging current	
I	III.I	Max Discharge Curr	100.0 100A maximum discharge current	
J	JJJ.J	Max charge vol	058.6 Maximum charging voltage 58.6V	
K	KKK.K	Min dis vol	Minimum discharge voltage 040.1 V	
L	L	Fault code	error code	

M	M	Warning code	Warning code	
	CHK			

QLITH0 reads lithium battery information, add 0 after it is for future expansion

L fault code

- 0 Normal
- 1 Battery overvoltage
- 2 Low battery
- 3 Battery over temperature
- 4 Low battery temperature
- 5 Battery overcurrent
- 6 Output short circuit

M is the same as above, except that one is a warning and the other is a fault

4 Examples

4.1 QALL

ASCII	QALL<CHK>\n 51 + 41 + 4C + 4C + 1 = 2B
Hex to send	51 41 4C 4C 2B 0D
Response (Hex)	28 30 30 30 20 30 30 2E 30 20 30 30 30 20 30 30 2E 30 20 30 30 30 30 20 30 30 30 20 30 30 2E 30 20 30 30 30 20 30 30 30 20 30 30 30 20 30 30 30 20 30 30 2E 30 20 30 30 30 30 20 30 30 30 30 30 30 20 30 30 30

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	30 30 30 20 53 20 30 30 20 30 30 04 0D
Response in ASCII	(000 00.0 000 00.0 0000 000 00.0 000 000 000 000 00.0 0000 000000 000000 S 00 00<CHK>\n

4.2 PQSE

ASCII	PQSE<CHK>\n CHK = 50+51+53+45+1=3a
Hex to send	50 51 53 45 3A 0D
Response (Hex)	28 30 30 30 31 30 30 20 35 36 2E 30 20 35 34 2E 30 20 34 34 2E 30 20 34 32 2E 30 20 30 33 30 20 30 31 30 20 32 30 31 38 20 30 36 20 30 31 20 32 30 20 30 30 20 30 30 20 30 30 3C 0D
Response in ASCII	(000100 56.0 54.0 44.0 42.0 030 010 2018 06 01 20 00 00 00<CHK>\n

4.3 PSET

ASCII	PSET120103 56.3 54.6 43.8 42.6 040 020 2020 02 18 17 06 00<CHK>\n
Hex to send	50 53 45 54 31 32 30 31 30 33 20 35 36 2E 33 20 35 34 2E 36 20 34 33 2E 38 20 34 32 2E 36 20 30 34 30 20 30 32 30 20 32 30 32 30 20 30 32 20 31 38 20 31 37 20 30 36 20 30 30 F6 0D
Response (Hex)	41 43 4B D0 0D
Response in ASCII	ACK<CHK>\n