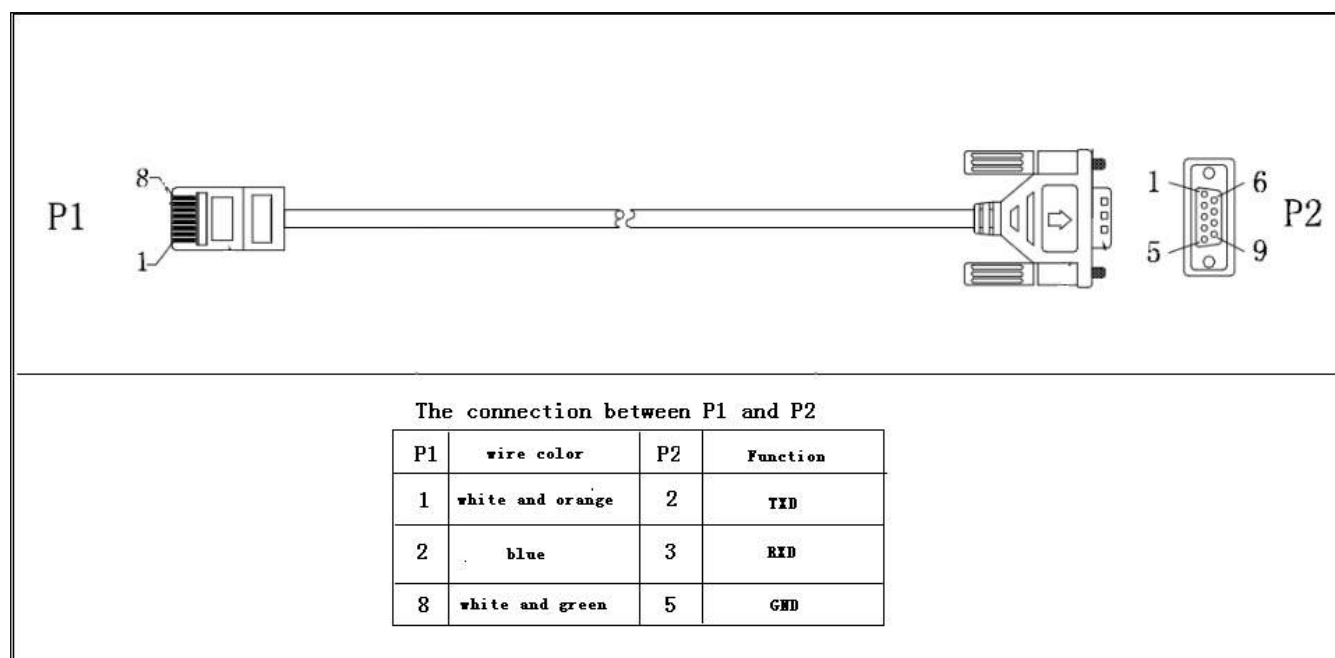


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RJ45 to RS232 cable between computer and device



1 Communication format

| Baud rate | Start bit | Data bit | Parity bit | Stop bit |
|-----------|-----------|----------|------------|----------|
| 2400 | 1 | 8 | N | 1 |

2 Inquiry Command

2.1 QPI<cr>: Device Protocol ID Inquiry

Computer: QPI<CRC><cr>

Device: (PI<NN> <CRC><cr>

N is an integer number ranging from 0 to 9.

Function: To request the device Protocol ID.

Protocol ID distribution: 30 for PIP series

2.2 QID<cr>: The device serial number inquiry

Computer: QID <CRC><cr>

Device: (XXXXXXXXXXXXXXXXXXXX <CRC><cr>

2.3 QSID<cr>: The device serial number inquiry (the length is more than 14)

Computer: QSID<CRC><cr>

Device: (NNXXXXXXXXXXXXXXXXXXXX <CRC><cr>

NN: Serial number valid length, X: Serial number, invalid part is filled as '0', total X is 20.

2.4 QVFW<cr>: Main CPU Firmware version inquiry

Computer: QVFW<CRC><cr>

Device: (VERFW:<NNNNN.NN><CRC><cr>

<N> is a HEX number from 0...9 or A...F.

Example:

Computer: QVFW<CRC><cr>

Device: (VERFW:00123.01<CRC><cr>

00123: firmware series number; 01: version

2.5 QVFW2<cr>: Another CPU Firmware version inquiry

Computer: QVFW2<CRC><cr>

Inverter: (VERFW2: <NNNNN.NN><CRC><cr>

<N> is a HEX number from 0...9 or A...F.

2.6 QVFW3<cr>: Remote Panel CPU Firmware version inquiry

Computer: QVFW3<CRC><cr>

Inverter: (VERFW: <NNNNN.NN><CRC><cr>

<N> is a HEX number from 0...9 or A...F.

2.7 VERFW:<cr>: BLE CPU Firmware version inquiry

Computer: VERFW:<CRC><cr>

Inverter: (VERFW: <NNNNN.NN><CRC><cr>

<N> is a HEX number from 0...9 or A...F.

2.8 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 PP QQO
O P Q R SS T U VV.V W X<CRC><cr>

| | Date | Description | Notes |
|---|-------|----------------------------|--|
| A | (| Start byte | |
| B | BBB.B | Grid rating voltage | B is an integer ranging from 0 to 9. The units is V. |
| C | CC.C | Grid rating current | C is an Integer ranging from 0 to 9. The units is A. |
| D | DDD.D | AC output rating voltage | D is an Integer ranging from 0 to 9. The units is V. |
| E | EE.E | AC output rating frequency | E is an Integer ranging from 0 to 9. The units is Hz. |

| | | | |
|---|------|---------------------------------|---|
| F | FF.F | AC output rating current | F is an Integer ranging from 0 to 9. The unit is A. |
| H | HHHH | AC output rating apparent power | H is an Integer ranging from 0 to 9. The unit is VA. |
| I | III | AC output rating active power | I is an Integer ranging from 0 to 9. The unit is W. |
| J | JJ.J | Battery rating voltage | J is an Integer ranging from 0 to 9. The units is V. |
| K | KK.K | Battery re-charge voltage | K is an Integer ranging from 0 to 9. The units is V. |
| l | JJ.J | Battery under voltage | J is an Integer ranging from 0 to 9. The units is V. |
| M | KK.K | Battery bulk voltage | K is an Integer ranging from 0 to 9. The units is V. |
| N | LL.L | Battery float voltage | L is an Integer ranging from 0 to 9. The units is V. |
| O | O | Battery type | 0: AGM 1: Flooded 2: User |
| P | PP | Current max AC charging current | P is an Integer ranging from 0 to 9 The units is A. |
| Q | QQ0 | Current max charging current | Q is an Integer ranging from 0 to 9. The units is A. |
| O | O | Input voltage range | 0: Appliance 1: UPS |
| P | P | Output source priority | 0: Utility first 1: Solar first 2: SBU first |
| Q | Q | Charger source priority | 0: Utility first 1: Solar first 2: Solar + Utility 3: Only solar charging permitted |
| R | R | Parallel max number | R is an Integer ranging from 0 to 9. |
| S | SS | Machine type | 00: Grid tie; 01: Off Grid; 10: Hybrid. |
| T | T | Topology | 0: transformerless 1: transformer |
| U | U | Output mode | 00: single machine output 01: parallel output 02: Phase 1 of 3 Phase output 03: Phase 2 of 3 Phase output 04: Phase 3 of 3 Phase output |

| | | | |
|---|------|---------------------------------|---|
| V | VV.V | Battery re-discharge voltage | V is an Integer ranging from 0 to 9. The unit is V. |
| W | W | PV OK condition for parallel | 0: As long as one unit of inverters has connect PV, parallel system will consider PV OK; 1: Only All of inverters have connect PV, parallel system will consider PV OK |
| X | X | PV power balance | 0: PV input max current will be the max charged current; 1: PV input max power will be the sum of the max charged power and loads power. |
| Y | YYY | Max. charging time at C.V stage | Y is an Integer ranging from 0 to 9. The unit is minute. (Only for PIP-MK) |
| Z | Z | Operation Logic(For PIP-MK | 0: Automatically 1: On-line mode 2: ECO mode (Only for PIP-MK) |

2.9 QFLAG<cr>: Device flag status inquiry

ExxxDxxx is the flag status. E means enable, D means disable

| | |
|---|--|
| x | Control setting |
| A | Enable/disable silence buzzer or open buzzer |
| B | Enable/Disable overload bypass function |
| K | Enable/Disable LCD display escape to default page after 1min timeout |
| U | Enable/Disable overload restart |
| V | Enable/Disable over temperature restart |
| X | Enable/Disable backlight on |
| Y | Enable/Disable alarm on when primary source interrupt |
| Z | Enable/Disable fault code record |

Example:

Computer: QFLAG <CRC><cr>

Device: (ExxxDxxx <CRC><cr>




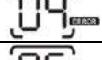



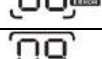
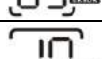
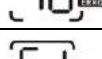
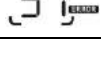
2.10 QPIGS<cr>: Device general status parameters inquiry






Computer: QPIGS <CRC><cr>

Device: (BBB.B CC.C DDD.D EE.E FFFF GGGG HHH III JJ.JJ KKK OOO TTTT EE.E
UUU.U WW.WW PPPP b7b6b5b4b3b2b1b0 QQ VV MMMMM b10b9b8<CRC><cr>

| | Data | Description | Notes | |
|---|------------------|--------------------------------|--|--|
| a | (| Start byte | | |
| b | BBB.B | Grid voltage | B is an Integer number 0 to 9. The units is V. | |
| C | CC.C | Grid frequency | C s an Integer number 0 to 9. The units is Hz. | |
| D | DDD.D | AC output voltage | D is an Integer number 0 to 9. The units is V. | |
| E | EE.E | AC output frequency | E is an Integer number from 0 to 9. The units is Hz. | |
| F | FFFF | AC output apparent power | F is an Integer number from 0 to 9. The units is VA | |
| G | GGGG | AC output active power | G is an Integer ranging from 0 to 9. The units is W. | |
| H | HHH | Output load percent | DEVICE: HHH is Maximum of W% or VA%. VA% is a percent of apparent power. W% is a percent of active power. The units is %. | |
| I | III | BUS voltage | I is an Integer ranging from 0 to 9. The units is V. | |
| j | JJ.JJ | Battery voltage | J is an Integer ranging from 0 to 9. The units is V. | |
| k | KKK | Battery charging current | K is an Integer ranging from 0 to 9. The units is A. | |
| o | OOO | Battery capacity | X is an Integer ranging from 0 to 9. The units is %. | |
| P | TTTT | Inverter heat sink temperature | T is an integer ranging from 0 to 9. The units is °C | |
| r | EE.E | PV Input current for battery. | E is an Integer ranging from 0 to 9. The units is A. | |
| t | UUU.U | PV Input voltage 1 | U is an Integer ranging from 0 to 9. The units is V. | |
| u | WW.WW | Battery voltage from SCC | W is an Integer ranging from 0 to 9. The units is V. | |
| w | PPPPP | Battery discharge current | P is an Integer ranging from 0 to 9. The units is A. | |
| x | b7b6b5b4b3b2b1b0 | Device status | b7: PV or AC feed the load, 1:yes,0:no b6: configuration status: 1: Change 0: | |

| | | | | |
|---|-----------|------------------------------------|--|--|
| | | | unchanged b5: SCC firmware version 1: Updated 0: unchanged b4: Load status: 0: Load off 1: Load on b3: reserved b2: Charging status(Charging on/off) b1: Charging status(SCC charging on/off) b0: Charging status(AC charging on/off) b2b1b0: 000: Do nothing 110: Charging on with SCC charge on 101: Charging on with AC charge on 111: Charging on with SCC and AC charge on | Keep b6~b4, b2 ~ b0, reserve other |
| y | QQ | Battery voltage offset for fans on | Q is an Integer ranging from 0 to 9. The unit is 10mV. | |
| z | VV | EEPROM version | V is an Integer ranging from 0 to 9. | |
| | MMMM M | PV Charging power | M is an Integer ranging from 0 to 9. The unit is watt. | |
| | b10b9b8 | Device status | b10: flag for charging to floating mode b9: Switch On b8: flag for dustproof installed(1-dustproof installed,0-no dustproof) | |

| Fault Code | Fault Event | Icon on |
|------------|--|---|
| 01 | Fan is locked |  |
| 02 | Over temperature |  |
| 03 | Battery voltage is too high |  |
| 04 | Battery voltage is too low |  |
| 05 | Output short circuited or Over temperature |  |
| 06 | Output voltage is too high |  |
| 07 | Over load time out |  |
| 08 | Bus voltage is too high |  |
| 09 | Bus soft start failed |  |
| 10 | PV charger current over |  |
| 51 | Over current inverter |  |

| | | |
|----|---|---|
| 53 | Inverter soft start failed |  |
| 55 | Over DC voltage on output of inverter |  |
| 57 | Current sensor failed |  |
| 58 | Output voltage is too low |  |
| 59 | PV voltage high |  |
| 60 | Inverter negative power | (For PIP-MK) |
| 71 | Parallel version different | |
| 72 | Output circuit failed | |
| 80 | CAN communication failed | |
| 81 | Parallel host line lost | |
| 82 | Parallel synchronized signal lost | |
| 83 | Parallel battery voltage detect different | |
| 84 | Parallel Line voltage or frequency detect different | |
| 85 | Parallel Line input current unbalanced | |
| 86 | Parallel output setting different | |

2.11 QMOD<cr>: Device Mode inquiry

Computer: QMOD<CRC><cr>

Device: (M<CRC><cr>

| MODE | CODE(M) | Notes |
|-------------------|---------|-----------------------------|
| Power On Mode | P | Power on mode |
| Standby Mode | S | Standby mode |
| Line Mode | L | Line Mode |
| Battery Mode | B | Battery mode |
| Fault Mode | F | Fault mode |
| Power saving Mode | H | Power saving Mode |
| Shutdown Mode | D | Shutdown Mode |
| Charge Mode | C | Charge Mode |
| Bypass Mode | Y | Bypass mode (For PIP-MK) |
| ECO mode | E | ECO mode (For PIP-MK) |

Example:

Computer: QMOD<CRC><cr>

DEVICE: (L<CRC><cr>

Means: the current DEVICE mode is Grid mode.

2.12 QPIWS<cr>: Device Warning Status inquiry

Computer: QPIWS<CRC> <cr>

Device: (a0a1.....a34a35<CRC><cr>

a0,...,a35 is the warning status. If the warning is happened, the relevant bit will set 1, else the relevant bit will set 0. The following table is the warning code.

| bit | Warning | Description |
|-----|---------------------------|--|
| a0 | PV loss | Warning |
| a1 | Inverter fault | Fault |
| a2 | Bus Over | Fault |
| a3 | Bus Under | Fault |
| a4 | Bus Soft Fail | Fault |
| a5 | LINE_FAIL | Warning |
| a6 | OPVShort | Fault |
| a7 | Inverter voltage too low | Fault |
| a8 | Inverter voltage too high | Fault |
| a9 | Over temperature | Compile with a1, if a1=1,fault, otherwise warning |
| a10 | Fan locked | Compile with a1, if a1=1,fault, otherwise warning |
| a11 | Battery voltage high | Compile with a1, if a1=1,fault, otherwise warning |
| a12 | Battery low alarm | Warning |
| a13 | Reserved | |
| a14 | Battery under shutdown | Warning |
| a15 | Battery derating | Warning |
| a16 | Over load | Compile with a1, if a1=1,fault, otherwise warning |
| a17 | Eeprom fault | Warning |
| a18 | Inverter Over Current | Fault |
| a19 | Inverter Soft Fail | Fault |
| a20 | Self Test Fail | Fault |
| a21 | OP DC Voltage Over | Fault |
| a22 | Battery Open | Fault |
| a23 | Current Sensor Fail | Fault |
| a24 | Battery Short | Fault(For PIP-MK) |

| | | |
|-----|-------------------------------------|----------------------------|
| a25 | Power limit | Warning(For PIP-MK) |
| a26 | PV voltage high | Warning/Fault (For PIP-MK) |
| a27 | MPPT overload fault | Fault (For PIP-MK) |
| a28 | MPPT overload warning | Warning(For PIP-MK) |
| a29 | Battery too low to charge | Warning(For PIP-MK) |
| a30 | DC/DC Over Current | Fault (For PIP-MK) |
| a31 | D | Fault code |
| a32 | D | Fault code |
| a33 | Low PV energy | Warning |
| a34 | High AC input during BUS soft start | Warning |
| a35 | Battery equalization | Warning |

2.13 QDI<cr>: The default setting value information

Computer: QDI<CRC><cr>

Device: (BBB.B CC.C 00DD EE.E FF.F GG.G HH.H II J K L M N O P Q R S T U V W YY.Y X

Z aaa b<CRC><cr>

| | Data | Description | Notes | |
|---|-------|-----------------------------------|---|-------------------------------|
| A | (| Start byte | | |
| B | BBB.B | AC output voltage | B is an Integer ranging from 0 to 9. The units is V. | Default 230.0 |
| C | CC.C | AC output frequency | C is an Integer ranging from 0 to 9. The units is Hz. | Default 50.0 |
| D | 00DD | Max AC charging current | D is an Integer ranging from 0 to 9. The unit is A. | Default 30.0 |
| E | EE.E | Battery Under voltage | E is an Integer ranging from 0 to 9. The unit is V. | |
| F | FF.F | Charging float voltage | F is an Integer ranging from 0 to 9. The unit is V. | |
| G | GG.G | Charging bulk voltage | G is an Integer ranging from 0 to 9. The unit is V. | |
| H | HH.H | Battery default re-charge voltage | H is an Integer ranging from 0 to 9. The units is V. | |
| I | II | Max charging current | I is an Integer ranging from 0 to 9. The units is A. | 60A |
| J | J | AC input voltage range | J is an Integer ranging from 0 to 1. No unit | Default 0 for appliance range |

| | | | | |
|---|------|--|--|--|
| K | K | Output source priority | K is an Integer ranging from 0 to 1. No unit | Default 0 for utility first |
| L | L | Charger source priority | L is an Integer ranging from 0 to 1. No unit | Default 2 for Utility and Solar first |
| M | M | Battery type | M is an Integer ranging from 0 to 1. No unit | Default 0 for AGM |
| N | N | Enable/disable silence buzzer or open buzzer | N is an Integer ranging from 0 to 1. No unit | Default 0 for enable buzzer |
| O | O | Enable/Disable power saving | O is an Integer ranging from 0 to 1. No unit | Default 0 for disable power saving |
| P | P | Enable/Disable overload restart | P is an Integer ranging from 0 to 1. No unit | Default 0 for disable overload restart |
| Q | Q | Enable/Disable over temperature restart | Q is an Integer ranging from 0 to 1. No unit | Default 0 for disable over temperature restart |
| R | R | Enable/Disable LCD backlight on | R is an Integer ranging from 0 to 1. No unit | Default 1 for enable LCD backlight on |
| S | S | Enable/Disable alarm on when primary source interrupt | S is an Integer ranging from 0 to 1. No unit | Default 1 for enable alarm on when primary source interrupt |
| T | T | Enable/Disable fault code record | T is an Integer ranging from 0 to 1. No unit | Default 0 for disable fault code record |
| U | U | Overload bypass | U is an Integer ranging from 0 to 1. No unit | Default 0 for disable overload bypass function |
| V | V | Enable/Disable LCD display escape to default page after 1min timeout | V is an Integer ranging from 0 to 1. No unit | Default 1 for LCD display escape to default page |
| W | W | Output mode | W is an Integer ranging from 0 to 4. No unit | Default 0 for single output |
| Y | YY.Y | Battery re-discharge voltage | W is an Integer ranging from 0 to 9. The unit is V | |
| X | X | PV OK condition for parallel | X is an Integer ranging from 0 to 1 | 0: As long as one unit of inverters has connect PV, parallel system will consider PV OK; |
| Z | Z | PV power balance | X is an Integer ranging from 0 to 1 | 0: PV input max current will be the max charged current; |
| a | aaa | Max. charging time at C.V stage | a is an Integer ranging from 0 to 1 | 0: means automatically (For PIP-MK) |
| b | b | Operation logic | b is an Integer ranging from 0 to 1 | 0: automatically (For PIP-MK) |

2.14 QMCHGCR<cr>: Enquiry selectable value about max charging current

Computer: QMCHGCR<CRC><cr>

Device: (AAA BBB CCC DDD.....<CRC><cr>

More value can be added, make sure there is a space character between every value.

2.15 QMUCHGCR<cr>: Enquiry selectable value about max utility charging current

Computer: QMUCHGCR<CRC><cr>

Device: (AAA BBB CCC DDD.....<CRC><cr>

More value can be added, make sure there is a space character between every value.

2.16 QOPPT<cr>: The device output source priority time order inquiry

Computer: QOPPT<CRC><cr>

[illegible]

M: 24 hour correspond to the output source priority (0: Utility first, 1: Solar first, 2: SBU)

N: device output source priority

O: selection of output source priority order

Example:

Computer: QOPPT<CRC><cr>

```
DEVICE: (000002200000000000000000<CRC><cr>
```

Means: the device output source priority time order is SBU from 5 to 6, and remaining time is Utility first.

2.17 QCHPT<cr>: The device charger source priority time order inquiry

Computer: QCHPT<CRC><cr>

[illegible]

M: 24 hour correspond to the charger source priority (1: Solar first, 2: Solar + Utility, 3: Only solar charging permitted)

N: device charger source priority

O: selection of o charger source priority order

Example:

Computer: QCHPT<CRC><cr>

```
DEVICE: (1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 <CRC><cr>
```

Means: the device charger source priority time order is Solar + Utility from 16 to 23, and remaining time is Solar first.

2.18 QT<cr>: Time inquiry

Computer: QT<cr>

Device:(YYYYMMDDHHMMSS<cr>

Example:

Computer: QT<cr>

DEVICE: (20180101111120<cr>

Means: The time is 2018/01/01,11:11:20.

| | Data | Description | Notes |
|---|----------|-------------|--|
| a | (| Start byte | |
| b | YYYYMMDD | Date | Y, M and D are an Integer number 0 to 9. |
| c | HHMMSS | Time | H, M and S are an Integer number 0 to 9. |

2.19 QMN<cr>: Query model name

Computer: QMN<CRC><cr>

Device: (MMMMM-NNNN<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

MMMM: model name (VMIII), NNNN: Rated output VA

2.20 QGMN<cr>: Query general model name

Computer: QGMN<CRC><cr>

Inverter: (NNN<CRC><cr> if Inverter accepts this command, otherwise, responds (NAK<cr>

NNN: model name number

NNN list as below:

| | | |
|-----|------------|------------|
| 023 | PIP-5048MK | PIP-5048MK |
| 024 | PIP-3024MK | PIP-3024MK |

2.21 QBEQI<cr>: Battery equalization status parameters inquiry

Computer: QBEQI <CRC><cr>

Device: (B CCC DDD EEE FFF GG.GG HHH III J KKKK <CRC><cr>

| | Data | Description | Notes | |
|---|------|--------------------------------|---|--|
| a | (| Start byte | | |
| b | B | Enable or Disable equalization | B is an Integer number 0 to 1.. | |
| C | CCC | equalization time | C s an Integer number 0 to 9. The unit is Minute. | |

| | | | | |
|---|-------|----------------------------|--|--|
| D | DDD | equalization period | D is an Integer number 0 to 9. The unit is day. | |
| E | EEE | equalization max current | E is an Integer number from 0 to 9. The unit is A. | |
| F | FFF | reserved | reserved | |
| G | GG.GG | equalization voltage | G is an Integer ranging from 0 to 9. The units is V. | |
| H | HHH | reserved | reserved | |
| I | III | equalization over time | I is an Integer ranging from 0 to 9. The unit is Minute. | |
| j | J | equalization active status | J is an Integer ranging from 0 to 1. | |
| k | KKKK | equalization elapse time | K is an Integer ranging from 0 to 9. The units is Hour. | |

3 Setting parameters Command

3.1 PE<XXX>/PD<XXX><CRC><cr>: setting some status enable/disable

Computer: PE<XXX>/PD<XXX><CRC><cr>

Device: (ACK<CRC><cr> if DEVICE accepts this command, otherwise, responds (NAK<cr>

PExxxPDxxx set flag status. PE means enable, PD means disable

| x | Control setting |
|----------|--|
| A | Enable/disable silence buzzer or open buzzer |
| B | Enable/disable overload bypass |
| J | Enable/Disable power saving |
| K | Enable/Disable LCD display escape to default page after 1min timeout |
| U | Enable/Disable overload restart |
| V | Enable/Disable over temperature restart |
| X | Enable/Disable backlight on |
| Y | Enable/Disable alarm on when primary source interrupt |
| Z | Enable/Disable fault code record |

3.2 PF<cr>: Setting control parameter to default value

Computer: PF<CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

All Device parameters set to default value.

| x | Parameter setting | |
|----|---|---|
| | Parameter | Default value |
| 1 | AC output voltage | 230.0V |
| 2 | AC output frequency | 50.0Hz |
| 3 | Max charging current | 60A |
| | Max utility charging current | 30A |
| 4 | AC input voltage range | 0: Appliance range |
| 5 | Output source priority | 0: Utility first |
| 6 | Battery re-charge voltage | 11.5/23/46 for 12/24/48V unit. |
| 7 | Charger source priority | 2: Utility and Solar first |
| 8 | Battery type | 0: AGM |
| 9 | Enable/disable buzzer alarm | 1: Enable buzzer alarm |
| 10 | Enable/Disable power saving | 0: Disable power saving |
| 11 | Enable/Disable overload restart | 0: Disable overload restart |
| 12 | Enable/Disable over temperature restart | 0: Disable over temperature restart |
| 13 | Enable/Disable LCD backlight on | 1: Enable LCD backlight on |
| 14 | Enable/Disable alarm on when primary source interrupt | 1: Enable beep on when primary source interrupt |
| 15 | Enable/Disable overload bypass when overload happened in battery mode | 0: Disable overload bypass |
| 16 | Enable/Disable LCD display escape to default page after 1min timeout | 1: Enable LCD display escape to default page |
| 17 | Output mode | 0: Reserved |
| 18 | float charging voltage | 13.5/27/54 for 12/24/48V unit. |
| 19 | Bulk charging voltage | 14.1/28.2/56.4 for 12/24/48V unit. |
| 20 | Battery cut-off voltage | 10.5/21/42 for 12/24/48V unit. |
| 21 | Battery re-discharge voltage | 13.5/27/54 for 12/24/48V unit. |

Note: The correct default value can be gain by QDI command.

3.3 MNCHGC<nnn><cr>: Setting max charging current

Computer: MNCHGC<nnn><CRC><cr>

If machine is KING, Computer: MNCHGC<mnnn><CRC><cr>

Device:(ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

Setting value can be gain by QMCHGCR command.

nnn is max charging current, m is parallel number.

3.4 MUCHGC<nnn><cr>: Setting utility max charging current

Computer: MUCHGC<nnn><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

Setting value can be gain by QMUCHGCR command.

3.5 F<nn><cr>: Setting Inverter output rating frequency

Computer: F<nn><CRC><cr>

Inverter: (ACK<CRC><cr> if Inverter accepts this command, otherwise, responds (NAK<CRC><cr>

Set UPS output rating frequency to 50Hz.or 60Hz

3.6 V<nnn><cr>: Setting device output rating voltage

Computer: V<nnn><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

Set inverter output rating voltage to 220V/230V/240V

3.7 POP<NN><cr>: Setting device output source priority

Computer: POP<NN><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

Set output source priority, 00 for utility first, 01 for solar first, 02 for SBU priority

3.8 POPM<nn><cr>: Setting output mode (Only for KING)

Computer: POPM <nn><CRC><cr>

Inverter: (ACK<CRC><cr> if Inverter accepts this command, otherwise, responds (NAK<CRC><cr>

nn:00: single machine output, 01: parallel output, 02: Phase 1 of 3 Phase output, 03: Phase 2 of 3 Phase output, 04: Phase 3 of 3 Phase output

3.9 POPLG<nn><cr>: Setting operation logic (Only for KING)

Computer: POPLG <nn.n><CRC><cr>

Inverter: (ACK<CRC><cr> if Inverter accepts this command, otherwise, responds (NAK<CRC><cr>

nn:00: automatically, 01: On-line mode, 02: ECO mode

3.10 PBCV<nn.n><cr>: Battery voltage back to utility

Computer: PBCV<nn.n><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

12V unit: 11V/11.3V/11.5V/11.8V/12V/12.3V/12.5V/12.8V

24V unit: 22V/22.5V/23V/23.5V/24V/24.5V/25V/25.5V

48V unit: 44V/45V/46V/47V/48V/49V/50V/51V

3.11 PBDV<nn.n><cr>: Battery voltage back to battery

Computer: PBDV<nn.n><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

12V unit: 00.0V/12V/12.3V/12.5V/12.8V/13V/13.3V/13.5V/13.8V/14V/14.3V/14.5

24V unit: 00.0V/24V/24.5V/25V/25.5V/26V/26.5V/27V/27.5V/28V/28.5V/29V

48V unit: 00.0V/48V/49V/50V/51V/52V/53V/54V/55V/56V/57V/58V

00.0V means battery is full(charging in float mode).

3.12 PCP<NN><cr>: Setting device charger priority

Computer: PCP<NN><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

Set output source priority, 01 for solar first, 02 for solar and utility, 03 for only solar charging

3.13 PGR<NN><cr>: Setting device grid working range

Computer: PGR<NN><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

Set device grid working range, 00 for appliance, 01 for UPS

3.14 PBT<NN><cr>: Setting battery type

Computer: PBT<NN><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

Set device grid working range, 00 for AGM, 01 for Flooded, 02 for user-define battery type

3.15 PSDV<nn.n><cr>: Setting battery cut-off voltage (Battery under voltage)

Computer: PSDV <nn.n><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>

nn.n: 21.0V~24.0V for 24V unit, 42.0V ~ 48.0V for 48V unit

3.16 PCVV<nn.n><cr>: Setting battery C.V. (constant voltage) charging voltage

Computer: PCVV <nn.n><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>
nn.n: 24.0V~31.5V for 24V unit, 48.0V ~ 63.0V for 48V unit

3.17 PBFT<nn.n><cr>: Setting battery float charging voltage

Computer: **PBFT** <nn.n><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<CRC><cr>
nn.n: 24.0V~31.5V for 24V unit, 48.0V ~ 63.0V for 48V unit

3.18 PPVOKC<n><cr>: Setting PV OK condition

Computer: PPVOKC <n><CRC><cr>

Inverter: (ACK<CRC><cr> if Inverter accepts this command, otherwise, responds
(NAK<CRC><cr>

0: As long as one unit of inverters has connected PV, parallel system will consider PV OK;

1: Only all of inverters have connected PV, parallel system will consider PV OK.

3.19 PSPB<n><cr>: Setting Solar power balance

Computer: PSPB<n><CRC><cr>

Inverter: (ACK<CRC><cr> if Inverter accepts this command, otherwise, responds
(NAK<CRC><cr>

0: PV input max current will be the max charged current;

1: PV input max power will be the sum of the max charged power and loads power.

3.20 RTEY<cr>: Reset PV/load energy storage

Computer: RTEY <CRC><cr>

Device: (ACK <CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

3.21 RTDL<cr>: Reset datalog

Computer: RTDL <CRC><cr>

Device: (ACK <CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

3.22 PBEQE<n><cr>: Enable or disable battery equalization

Computer: PBEQE<n><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

Enable or Disable battery equalization, n=1 means enable; n=0 means disable;

3.23 PBEQT<nnn><cr>:Set battery equalization time

Computer: PBEQT<nnn><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

Set equalization time, nnn is in the range of 5 to 900minute, every click increase or decrease 5minute.

3.24 PBEQP<nnn><cr>:Set battery equalization period

Computer: PBEQP<nnn><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

Set equalization period, nnn is in the range of 0 to 90day, every click increase or decrease 1day.

3.25 PBEQV<nn.nn><cr>:Set battery equalization voltage

Computer: PBEQV<nn.nn><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

Set equalization time, nn.nn is in the range as below.

48V model: 48.0~61.0V;

24V model: 24.0~31.5V;

3.26 PBEQOT<nnn><cr>:Set battery equalization over time

Computer: PBEQOT<nnn><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

Set equalization time, nnn is in the range of 5 to 900minute, every click increase or decrease 5minute.

3.27 PBEQA<n><cr>: Active or inactive battery equalization now

Computer: PBEQA<n><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

Active or inactive battery equalization now, n=1 means active; n=0 means inactive;

3.28 PCVT<nnn><cr>: Set max charging time at C.V stage

Computer: PCVT<nnn><CRC><cr>

Device: (ACK<CRC><cr> if device accepts this command, otherwise, responds (NAK<cr>

3.29 DAT<YYMMDDHHMMSS><cr>: Date and time

Computer: DAT<YYMMDDHHMMSS><cr>

<Y, M, D, H, S> is an integer number 0 to 9.

Device: (ACK<cr> if Device accepts this command, otherwise, responds (NAK<cr>

4 Appendix

4.1 CRC calibration method



CRC. c
