SEC Command Format		
^TnnnXXXX,XXXX,XXXX,,<cr>		
Character	Description	Remark
^	Start bit	
T	Type	P: PC Query command, S: Set command, D: Device Response
nnn	Data length	Include CRC and ending character, except"^Tnnn"
XXXXX	Data	If the data is reserved, they will be filled nothing, so you would see double "," connected.
,	Seperator	Separate each data, please use "," to recognize the length of data. If double "," continuing, that means this data is reserved.

Query commands
^P003PI<cr>: Query protocol ID
Response: ^D00517<CRC><cr>
^P003ID<cr>: Query series number
Response: ^D023LLXXXXXXXXXXXXXXXXXXX<CRC><cr>
X: 0~9, 20 unit X totally. LL: the available number of X.
Example: ^D023140123456789012345678 9<CRC><cr>, it meas ID is 01234567890123.
^P004VFW<cr>: Query CPU version
Response: ^D017VERFW:nnnnn.nn<CRC><cr>
n: 0~9
Example: ^D017VERFW:00001.00<CRC><cr>
^P005VFW2<cr>: Query secondary CPU version
Response: ^D018VERFW2:nnnnn.nn<CRC><cr>
n: 0~9
Example: ^D018VERFW2:00001.00<CRC><cr>
^P003MD<cr>: Query device model
Response: ^D037AAA,BBBBBB,CC,D,E,FFFF,GGGG,HH,III<CRC><cr>

Data	Description	Remark
AAA	Machine number 机种	000: Infini-Solar 10KW/3P
BBBBBB	Output rated VA 额定VA值	B: 0~9, unit: VA
CC	Output power factor 输出功率因数	C: 0~9
D	AC input phase number AC输入相数	D: 1~3
E	AC output phase number AC输出相数	E: 1~3
FFFF	Norminal AC output voltage 额定输出电压	F: 0~9, unit: 0.1V
GGGG	Norminal AC input voltage 额定输入电压	G: 0~9, unit: 0.1V
HH	Battery piece number 电池节数	H: 0~9
III	Battery standard voltage per unit 每节电池标准电压	I: 0~9, unit: 0.1V

^P005PIRI<cr>: Query rated information
Response: ^D047AAAA,BBB,CCCC,DDDD,EEEE,FFFF,GGGG,H,II,J,K,L<CRC><cr>

Data	Description	Remark
AAAA	AC input rated voltage AC输入额定电压	A: 0~9, unit: 0.1V
BBB	AC input rated frequency AC输入额定频率	B: 0~9, unit: 0.1Hz
CCCC	AC input rated current AC输入额定电流	C: 0~9, unit: 0.1A
DDDD	AC output rated voltage AC输出额定电压	D: 0~9, unit: 0.1V
EEEE	AC output rated current AC输出额定电流	E: 0~9, unit: 0.1A
FFFF	MPPT rated current per string 每路MPPT额定电流	F: 0~9, unit: 0.1A
GGGG	Battery rated voltage 电池额定电压	G: 0~9, unit: 0.1V
H	MPPT track number MPPT组数	H: 0~9
II	Machine type 机型	00: Grid type, 01: Off-grid type, 10: Hybrid type
J	Topology 拓扑	0: transformerless, 1: transformer
K	Enable/Disable parallel for output	0: disable, 1: enable
L	Enable/Disable for real-time control	0: disable, 1: enable

^P003GS<cr>: Query general status
Response: ^D110AAAA,BBBB,CCCC,DDDD,EEEE,FFF,±GGGGG,HHHH,IIII,JJJJ,KKKK,LLLL, MMMM,OOOO,PPPP,QQQQ,RRRR,,,,VVV,WWW,XXX,Y<CRC><cr>

Data	Description	Remark

AAAA0	Solar input voltage 1 Solar1输入电压	A: 0~9, unit: 0.1V
BBBB1	Solar input voltage 2 Solar2输入电压	B: 0~9, unit: 0.1V
CCCC2	Solar input current 1 Solar1输入电流	C: 0~9, unit: 0.1A
DDDD3	Solar input current 2 Solar2输入电流	D: 0~9, unit: 0.1A
EEEE4	Battery voltage 电池电压	E: 0~9, unit: 0.1V
FFF5	Battery capacity 电池容量	F: 0~9, unit: %
±GGGGG6	Battery current 电池电流	G: 0~9, unit: 0.1A, +: charge, -: discharge
HHHH7	AC input voltage R AC输入R相电压	H: 0~9, unit: 0.1V
IIII8	AC input voltage S AC输入S相电压	I: 0~9, unit: 0.1V
JJJJ9	AC input voltage T AC输入T相电压	J: 0~9, unit: 0.1V
KKKK10	AC input frequency AC输入频率	K: 0~9, unit: 0.01Hz
LLLL11	~~AC input current R~~ ~~AC输入R相电流~~ Reserved	L: 0~9, unit: 0.1A
MMMM12	~~AC input current S~~ ~~AC输入S相电流~~ Reserved	M: 0~9, unit: 0.1A
NNNN13	~~AC input current T~~ ~~AC输入T相电流~~ Reserved	N: 0~9, unit: 0.1A
OOOO14	AC output voltage R AC输出R相电压	O: 0~9, unit: 0.1V
PPPP15	AC output voltage S AC输出S相电压	P: 0~9, unit: 0.1V
QQQQ16	AC output voltage T AC输出T相电压	Q: 0~9, unit: 0.1V
RRRR17	AC output frequency AC输出频率	R: 0~9, unit: 0.01Hz
VVV18	Inner temperature 内部环温	V: 0~9, unit: degree centigrade
WWW19	Component max temperature 内部机件最高温度	W: 0~9, unit: degree centigrade
XXX20	External battery temperature 外部电池温度	X: 0~9, unit: degree centigrade
Y21	Setting change bit 设置有变化标识位	0: No setting change 1: Setting charge, you have to inquire all of command.

^P003PS<cr>: Query power status

Response: ^D101AAAAA,BBBBB,,±DDDDD,±EEEEE,±FFFFF,±GGGGG,HHHH,IIII,JJJJ,KKKKK,LLLL,MMMM,NNNN,OOOOO,PPP,Q,R,S,T,U,V<CRC><cr>

Data	Description	Remark
AAAAA0	Solar input power 1 Solar1输入功率	A: 0~9, unit: W
BBBBB1	Solar input power 2 Solar2输入功率	B: 0~9, unit: W
±DDDDD2	AC input active power R AC输入R相有功功率 Reserved	D: 0~9, unit: W, +: input, -: output
±EEEEE3	AC input active power S AC输入S相有功功率 Reserved	E: 0~9, unit: W, +: input, -: output
±FFFFF4	AC input active power T AC输入T相有功功率 Reserved	F: 0~9, unit: W, +: input, -: output
±GGGGG5	AC input total active power AC输入有功总功率 Reserved	G: 0~9, unit: W, +: input, -: output
HHHH6	AC output active power R AC输出R相有功功率	H: 0~9, unit: W
IIII7	AC output active power S AC输出S相有功功率	I: 0~9, unit: W
JJJJ8	AC output active power T AC输出T相有功功率	J: 0~9, unit: W
KKKKK9	AC output total active power AC输出有功总功率	K: 0~9, unit: W
LLLL10	AC output apperent power R AC输出R相视在功率	L: 0~9, unit: VA
MMMM11	AC output apperent power S AC输出S相视在功率	M: 0~9, unit: VA
NNNN12	AC output apperent power T AC输出T相视在功率	N: 0~9, unit: VA
OOOOO13	AC output total apperent power AC输出视在总功率	O: 0~9, unit: VA
PPP14	AC output power percentage AC输出功率百分比	P: 0~9, unit: %
Q15	AC output connect status AC输出连接状态	0: disconnect, 1: connect

R16	Solar input 1 work status Solar1工作状态	0: idle, 1: work
S17	Solar input 2 work status Solar2工作状态	0: idle, 1: work
T18	Battery power direction 电池能量流动方向	0: donothing, 1: charge, 2: discharge
U19	DC/AC power direction DC/AC能量流动方向	0: donothing, 1: AC-DC, 2: DC-AC
V20	Line power direction 市电能量流动方向	0: donothing, 1: input, 2: output

^P004MOD<cr>: Query working mode

Response: ^D005XX<CRC><cr>

Data	Description	Remark
XX	0	Power on mode
	1	Standby mode
	2	Bypass mode
	3	Battery mode
	4	Fault mode
	5	Hybrid mode(Line mode, Grid mode)
	6	Charge mode

^P003WS<cr>: Query warning status

^D047A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,<CRC><cr>

Data	Description	Remark
A	Solar input 1 loss Solar1输入电压超出可用范围	Solar input 1 voltage exceed the acceptable range
B	Solar input 2 loss Solar2输入电压超出可用范围	Solar input 2 voltage exceed the acceptable range
C	Solar input 1 voltage too higher Solar1输入电压过高	Solar input 1 voltage exceed the highest level
D	Solar input 2 voltage too higher Solar2输入电压过高	Solar input 2 voltage exceed the highest level
E	Battery under 电池电压过低	Battery voltage drop to unacceptable level
F	Battery low 电池电压偏低	Battery voltage near to unacceptable level
G	Battery open 电池未接	Battery disconnected
H	Battery voltage too higher 电池电压过高	Battery voltage exceed the highest level
I	Battery low in hybrid mode 在hybrid工作模式下，电池已低于其允许的放电电压	Battery voltage drop to unacceptable level of hybrid mode
J	Grid voltage high loss AC输入电压超过可并网最高电压	AC input voltage higher than the highest level of AC feeding voltage
K	Grid voltage low loss AC输入电压低于可并网最低电压	AC input voltage lower than the lowest level of AC feeding voltage
L	Grid frequency high loss AC输入电压超过可并网最高频率	AC input frequency higher than the highest level of AC feeding frequency
M	Grid frequency low loss AC输入电压低于可并网最低频率	AC input voltage lower than the lowest level of AC feeding frequency
N	AC input long-time average voltage over AC输入电压平均值长时间超过其允许的电压	AC input long-time average voltage exceed the highest level
O	AC input voltage loss AC输入电压超出可使用范围	AC input voltage out of acceptable range
P	AC input frequency loss AC输入频率超出可使用范围	AC input frequency out of acceptable range
Q	AC input island AC输入孤岛	AC input has been detected for the island
R	AC input phase dislocation AC输入相序错误	AC input three phase dislocation
S	Over temperature 过温	Machine temperature near to unacceptable level
T	Over load 过载	The loads connect to machine exceed abnormal level
U	EPO active EPO激活	Emergent power off active
V	AC input wave loss AC输入波形异常	AC input wave terrible

^P005FLAG<cr>: Query enable/disable flag status

Response: ^D020A,B,C,D,E,F,G,H,I<CRC><cr>

Data	Description	Remark
A	Mute buzzer beep 静音蜂鸣器	A: 0/1, 0: disable, 1: enable
B	Mute buzzer beep in standby mode 在Standby mode下，静音蜂鸣器	B: 0/1, 0: disable, 1: enable
C	Mute buzzer beep only on battery discharged status 在电池放电状态下，静音蜂鸣器	C: 0/1, 0: disable, 1: enable

D	Generator as AC input 发电机作为AC输入	C: 0/1, 0: disable, 1: enable
E	Wide AC input range 宽的AC输入范围	C: 0/1, 0: disable, 1: enable
F	N/G relay close in battery mode N/G继电器在电池模式下闭合	F: 0/1, 0: disable, 1: enable
G	De-rating power for Grid voltage 根据市电电压降额	G: 0/1, 0: disable, 1: enable
H	De-rating power for Grid frequency 根据市电频率降额	H: 0/1, 0: disable, 1: enable
I	BMS Battery Connect BMS锂电池控制	J: 0/1, 0: disable, 1: enable

^P002T<cr>: Query current time

Response: ^D017YYYYMMDDHHFFSS<CRC><cr>

Data	Description	Remark
YYYY	Year	Y: 0~9
MM	Month	M: 0~9
DD	Day	D: 0~9
HH	Hour	H: 0~9
FF	Minute	F: 0~9
SS	Second	S: 0~9

For example:
^D01720140214201314 means the time of 2014-02-14, 20: 13: 14.

^P003ET<cr>: Query total generated energy
查询总发电量

Response: ^D011NNNNNNNN<CRC><cr>

Data	Description	Remark
NNNNNNNN	Generated energy	N: 0~9, unit: KWh

^P010EYyyyynnn<cr>: Query generated energy of year
查询年发电量

Response: ^D011NNNNNNNN<CRC><cr>

Data	Description	Remark
yyyy	Year	y: 0~9
nnn	the sum of character string "^P010EYyyyy"	n: 0~9, nnn is a decimal number, and it is low 8 bits of its hexadecimal type.
NNNNNNNN	Generated energy	N: 0~9, unit: Wh

^P012EMyyyymmnnn<cr>: Query generated energy of month
查询月发电量

Response: ^D010NNNNNNN<CRC><cr>

Data	Description	Remark
yyyy	Year	y: 0~9
mm	Month	m: 0~9
nnn	the sum of character string "^P010EMyyyymm"	n: 0~9, nnn is a decimal number, and it is low 8 bits of its hexadecimal type.
NNNNNNN	Generated energy	N: 0~9, unit: Wh

^P014EDyyyymmddnnn<cr>: Query generated energy of day
查询天发电量

Response: ^D009NNNNNN<CRC><cr>

Data	Description	Remark
yyyy	Year	y: 0~9
mm	Month	m: 0~9
dd	Day	d: 0~9
nnn	the sum of character string "^P010EDyyyymmdd"	n: 0~9, nnn is a decimal number, and it is low 8 bits of its hexadecimal type.
NNNNNN	Generated energy	N: 0~9, unit: Wh

^P016EHyyyymmddhhnnn<cr>: Query generated energy of hour
查询小时发电量

Response: ^D008NNNNN<CRC><cr>

Data	Description	Remark
yyyy	Year	y: 0~9
mm	Month	m: 0~9
dd	Day	d: 0~9
hh	Hour	h: 0~9
nnn	the sum of character string "^P010EHyyyymmddhh"	n: 0~9, nnn is a decimal number, and it is low 8 bits of its hexadecimal type.
NNNNN	Generated energy	N: 0~9, unit: Wh

^P004GOV<cr>: Query AC input voltage acceptable range for feed power 查询并网电压范围		
Response: ^D022AAAA,BBBB,CCCC,DDDD<CRC><cr>		
Data	Description	Remark
AAAA	The highest voltage	A: 0~9, unit: 0.1V
BBBB	The lowest voltage	B: 0~9, unit: 0.1V
CCCC	The highest back voltage	A: 0~9, unit: 0.1V
DDDD	The lowest back voltage	B: 0~9, unit: 0.1V
^P004GOF<cr>: Query AC input frequency acceptable range of feed power 查询并网频率范围		
Response: ^D022AAAA,BBBB,CCCC,DDDD<CRC><cr>		
Data	Description	Remark
AAAA	The highest frequency	A: 0~9, unit: 0.01Hz
BBBB	The lowest frequency	B: 0~9, unit: 0.01Hz
CCCC	The highest back frequency	A: 0~9, unit: 0.01Hz
DDDD	The lowest back frequency	B: 0~9, unit: 0.01Hz
~~^P005OPMP<cr>: Query the maximum output power~~		
~~Response: ^D012AAAAAA<CRC><cr>~~		
~~Data~~	~~Description~~	~~Remark~~
~~AAAAAA~~	~~The maximum power~~	~~A: 0~9, unit: W~~
^P005GPMP<cr>: Query the maximum output power for feeding grid 查询最大并网功率		
Response: ^D008AAAAA<CRC><cr>		
Data	Description	Remark
AAAAA	The maximum power	A: 0~9, unit: W
^P006MPPTV<cr>: Query Solar input MPPT acceptable range 查询MPPT范围		
Response: ^D012AAAA,BBBB<CRC><cr>		
Data	Description	Remark
AAAA	The highest voltage	A: 0~9, unit: 0.1V
BBBB	The lowest voltage	B: 0~9, unit: 0.1V
^P003SV<cr>: Query Solar input voltage acceptable range 查询Solar输入电压范围		
Response: ^D012AAAA,BBBB<CRC><cr>		
Data	Description	Remark
AAAA	The highest voltage	A: 0~9, unit: 0.1V
BBBB	The lowest voltage	B: 0~9, unit: 0.1V
^P004LST<cr>: Query LCD sleep wait time 查询LCD休眠等待时间		
Response: ^D005AA<CRC><cr>		
Data	Description	Remark
AA	Wait time	AA: 00, 01, 02, 10, 20 for selection, unit : 30second. 00 means LCD always light
^P003DI<cr>: Query default value of changeable parameter 查询可设置参数的默认值		
Response: ^D123AAAA,BBBB,CCCC,DDDD,EEEE,FFFF,GGGG,HHHH,IIII,JJ,KKKK,LLLL,MMMM,NNN,OOOO,PPPP,QQQQ,RRRR,SSSS,TTTT,UUUU,VVVV,WWWW,XXX,YYYY<CRC><cr>		
Data	Description	Remark
AAAA0	AC input highest voltage for feed power AC输入可并网最高电压	A: 0~9, unit: 0.1V
BBBB1	AC input lowest voltage for feed power AC输入可并网最低电压	B: 0~9, unit: 0.1V
CCCC2	AC input highest frequency for feed power AC输入可并网最高频率	C: 0~9, unit: 0.01Hz
DDDD3	AC input lowest frequency for feed power AC输入可并网最低频率	D: 0~9, unit: 0.01Hz
EEEE4	Solar input highest MPPT voltage Solar输入允许最高MPPT电压	E: 0~9, unit: 0.1V
FFFF5	Solar input lowest MPPT voltage Solar输入允许最低MPPT电压	F: 0~9, unit: 0.1V
GGGG6	Solar input highest voltage Solar输入允许最高电压	G: 0~9, unit: 0.1V
HHHH7	Solar input lowest voltage Solar输入允许最低电压	H: 0~9, unit: 0.1V
IIII8	AC input long-time highest average voltage AC输入长时间平均值允许的最高电压	I: 0~9, unit: 0.1V
JJ9	LCD sleep wait time LCD休眠等待时间	JJ: 00, 01, 02, 10, 20, unit: 30second
KKKK	Battery maximum charge current 电池允许最大充电电流	K: 0~9, unit: 0.1A
LLLL	Battery constant charge voltage(C.V.) 电池C.V.点充电电压	L: 0~9, unit: 0.1V

MMMM	Battery float charge voltage 电池浮充点电压	M: 0~9, unit: 0.1V
NNN	The wait time for feed power 并网等待时间	N: 0~9, unit: Second
OOOO	Start time for support loads 允许AC带载起始时间	O: 0~9, Format: HHMM, example: 1230 meas 12:30
PPPP	Ending time for support loads 允许AC带载结束时间	P: 0~9, Format: HHMM, example: 1230 meas 12:30
QQQQ	Start time for AC charger 允许AC充电起始时间	Q: 0~9, Format: HHMM, example: 1230 meas 12:30
RRRR	Ending time for AC charger 允许AC充电结束时间	R: 0~9, Format: HHMM, example: 1230 meas 12:30
SSSS	Battery under voltage 电池最低放电电压点	S: 0~9, unit: 0.1V
TTTT	Battery under back voltage 电池恢复放电电压点	T: 0~9, unit: 0.1V
UUUU	Battery weak voltage in hybrid mode Hybrid mode工作状态下，电池最低放电电压点	U: 0~9, unit: 0.1V
VVVV	Battery weak back voltage in hybrid mode Hybrid mode工作状态下，电池恢复放电电压点	V: 0~9, unit: 0.1V
WWWW	Battery stop charger current level in floating charging 浮充状态下，允许关闭充电器的充电电流点	W: 0~9, unit: 0.1A
XXX	Keep charged time of battery catch stop charger current level 浮充状态下，电池到达允许关闭充电器的充电电流点后关闭充电器的等待时间	X: 0~9, unit: Minute
YYYY	Battery voltage of recover to charge when battery stop charger in floating charging 浮充状态下，电池恢复充电的电压点	Y: 0~9, unit: 0.1V

^P005BATS<cr>: Query battery setting

Response:
^D076AAAA,BBBB,CCCC,DDDD,EEE,FFFF,GGGG,HHHH,IIII,JJJJ,K,,,S,TTTT,UUU,VVVV,WWWW<CRC><cr>

Data	Description	Remark
AAAA	Battery maximum charge current 电池允许的最大充电电流	A: 0~9, unit: 0.1A
BBBB	Battery constant charge voltage(C.V.) 电池C.V.充电电压	B: 0~9, unit: 0.1V
CCCC	Battery floating charge voltage 电池浮充电压	C: 0~9, unit: 0.1V
DDDD	Battery stop charger current level in floating charging 浮充状态下，允许关闭充电器的充电电流点	D: 0~9, unit: 0.1A
EEE	Keep charged time of battery catch stopped charging current level 浮充状态下，电池到达允许关闭充电器的充电电流点后关闭充电器的等待时间	E: 0~9, unit: Minute
FFFF	Battery voltage of recover to charge when battery stop charger in floating charging 浮充状态下，电池恢复充电的电压点	F: 0~9, unit: 0.1V
GGGG	Battery under voltage 电池最低放电电压点	G: 0~9, unit: 0.1V
HHHH	Battery under back voltage 电池恢复放电电压点	H: 0~9, unit: 0.1V
IIII	Battery weak voltage in hybrid mode Hybrid mode工作状态下，电池最低放电电压点	I: 0~9, unit: 0.1V
JJJJ	Battery weak back voltage in hybrid mode Hybrid mode工作状态下，电池恢复放电电压点	J: 0~9, unit: 0.1V
K	Battery type 电池类型	0: Ordinary, 1: Li-Fe
S	AC charger keep battery voltage function enable/diable	0: disable, 1: enable
TTTT	AC charger keep battery voltage	T: 0~9, unit: 0.1V
UUU	Battery temperature sensor compensation	U: 0~9, unit: 0.1mV
VVVV	Max. AC charging current	V: 0~9, unit: 0.1A
WWWW	Battery discharge max current in hybrid mode	W: 0~9, unit: A

^P003DM<cr>: Query machine model

Response: ^D006AAA<CRC><cr>

Data	Description	Remark
	050	Hybrid type VDE certification
	051	Hybrid type AS4777 certification
	052	Hybrid type DK certification
	053	Hybrid type RD1663 certification
	054	Hybrid type G83 certification
	055	Hybrid type Taiwan certification
	056	Hybrid type USH certification
	057	Hybrid type USL certification
	058	Hybrid type VDE4105 certification
	059	Hybrid type Korea certification
	060	Hybrid type HongSun certification
	061	Hybrid type Sweden certification
	062	Hybrid type NRS097 certification
	063	Hybrid type Indian certification

AAA	064	Hybrid type EN50438 certification
	065	Hybrid type EN50438(Czech) certification
	066	Hybrid type EN50438(DanMark) certification
	067	Hybrid type EN50438(Finland) certification
	068	Hybrid type EN50438(Ireland) certification
	069	Hybrid type EN50438(Norway) certification
	100	Grid type VDE certification
	101	Grid type AS4777 certification
	102	Grid type DK certification
	103	Grid type RD1663 certification
	104	Grid type G83 certification
	105	Grid type Taiwan certification
	106	Grid type USH certification
	107	Grid type USL certification
	108	Grid type VDE4105 certification
	109	Grid type Korea certification
	110	Grid type HongSun certification
	111	Grid type Sweden certification
	112	Grid type NRS097 certification
	113	Grid type Indian certification
	114	Grid type EN50438 certification
	115	Grid type EN50438(Czech) certification
	116	Grid type EN50438(DanMark) certification
	117	Grid type EN50438(Finland) certification
	118	Grid type EN50438(Ireland) certification
	119	Grid type EN50438(Norway) certification
	150	Off Grid type
	151	Off Grid 3 type

^P004MAR<cr>: Query machine adjustable range

Response:
^D122AAAA,BBBB,CCCC,DDDD,EEEE,FFFF,GGGG,HHHH,III,JJJ,KKKK,LLLL,MMMM,NNNN,OOOO,PPPP,QQQQ,RRRR,SSSS,TTTT,UUUU,VVVV,WWWWW,XXXXX<CRC><cr>

Data	Description	Remark
AAAA	The upper limit of AC input highest voltage for feed power AC输入可并网最高电压可设值上限	A: 0~9, unit: 0.1V
BBBB	The lower limit of AC input highest voltage for feed power AC输入可并网最高电压可设值下限	B: 0~9, unit: 0.1V
CCCC	The upper limit of AC input lowest voltage for feed power AC输入可并网最低电压可设值上限	C: 0~9, unit: 0.1V
DDDD	The lower limit of AC input lowest voltage for feed power AC输入可并网最低电压可设值下限	D: 0~9, unit: 0.1V
EEEE	The upper limit of AC input highest frequency for feed power AC输入可并网最高频率可设值上限	E: 0~9, unit: 0.01Hz
FFFF	The lower limit of AC input highest frequency for feed power AC输入可并网最高频率可设值下限	F: 0~9, unit: 0.01Hz
GGGG	The upper limit of AC input lowest frequency for feed power AC输入可并网最低频率可设值上限	G: 0~9, unit: 0.01Hz
HHHH	The lower limit of AC input lowest frequency for feed power AC输入可并网最低频率可设值下限	H: 0~9, unit: 0.01Hz
III	The upper limit of wait time for feed power 并网等待时间可设值上限	I: 0~9, unit: Second
JJJ	The lower limit of wait time for feed power 并网等待时间可设值下限	I: 0~9, unit: Second
KKKK	The upper limit of solar maximum input voltage Solar输入最高电压可设值上限	K: 0~9, unit: 0.1V
LLLL	The lower limit of solar maximum input voltage Solar输入最高电压可设值下限	L: 0~9, unit: 0.1V
MMMM	The upper limit of solar minimum input voltage Solar输入最低电压可设值上限	M: 0~9, unit: 0.1V
NNNN	The lower limit of solar minimum input voltage Solar输入最低电压可设值下限	N: 0~9, unit: 0.1V
OOOO	The upper limit of solar maximum MPPT voltage 最高MPPT电压可设值上限	O: 0~9, unit: 0.1V
PPPP	The lower limit of solar maximum MPPT voltage 最高MPPT电压可设值下限	P: 0~9, unit: 0.1V
QQQQ	The upper limit of solar minimum MPPT voltage 最低MPPT电压可设值上限	Q: 0~9, unit: 0.1V
RRRR	The lower limit of solar minimum MPPT voltage 最低MPPT电压可设值下限	R: 0~9, unit: 0.1V
SSSS	The upper limit of battery charged voltage 充电电压可设值上限	S: 0~9, unit: 0.1V
TTTT	The lower limit of battery charged voltage 充电电压可设值下限	T: 0~9, unit: 0.1V
UUUU	The upper limit of battery Max. charged current 最大充电电流可设值上限	U: 0~9, unit: 0.1A
VVVV	The lower limit of battery Max. charged current 最大充电电流可设值下限	V: 0~9, unit: 0.1A

WWWWW	The upper limit of maximum feeding power 最大并网功率可设值上限	W: 0~9, unit: W
XXXXX	The lower limit of maximum feeding power 最大并网功率可设值下限	X: 0~9, unit: W
^P004CFS<cr>: Query current fault status		
Response: ^D008AA,BB<CRC><cr>		
Data	Description	Remark
AA	The latest fault code 最新故障代码	A: 0~9
BB	The latest fault code ID stored in flash 在Flash最新存储故障代码的ID	BB: 0~8
Fault code list		
01	BUS exceed the upper limit BUS高压	
02	BUS dropp to the lower limit BUS低压	
03	BUS soft start circuit timeout BUS软启动超时	
04	Inverter voltage soft start timeout 逆变软启动超时	
05	Inverter current exceed the upper limit 逆变过流	
06	Temperature over 过温	
07	Inverter relay work abnormal 继电器故障	
08	Current sample abnormal when inverter doesn't work 机器并工作时，电流采样异常	
09	Solar input voltage exceed upper limit Solar输入电压过高	
10	SPS power voltage abnormal 辅助电源电压异常	
11	Solar input current exceed upper limit Solar输入电流过高	
12	Leakage current exceed permit range 漏电流超过允许范围	
13	Solar insulation resistance too low Solar对地绝缘阻抗过低	
14	Inverter DC current exceed permit range when feed power 并网时，逆变电流直流分量超过允许范围	
15	The AC input voltage or frequency has been detected different between master CPU and slave CPU 主从CPU对AC输入电压或频率侦测值相差较大	
16	Leakage current detect circuit abnormal when inverter doesn't work 机器未工作时，漏电流检测电路异常	
17	Comminication loss between master CPU and slave CPU 主从CPU通信丢失	
18	Comminicate data discordant between master CPU and slave CPU 主从CPU通信协议不匹配	
19	AC input ground wire loss 地线未接	
22	Battery voltage exceed upper limit 电池电压过高	
23	Over load 过载	
24	Battery disconnected 电池未接	
26	AC output short 输出短接	
27	Fan lock 风扇堵转	
32	Battery DC-DC current over 电池DC-DC电流过高	
33	AC output voltage too low 输出电压过低	
34	AC output voltage too high 输出电压过高	
35	Control board wiring error 控制板接线异常	
36	AC circuit voltage sample error AC电路电压采样差异较大	
37	AC N wire current over 市电N线过流	
60	Negative power detected 负功保护	
61	Driver signal lost from relay board Relay board的驱动信号丢失	
62	Communication lost between main board and relay board 主板与relay board通讯丢失	

63	Versions are different between main board and relay board 主板与relay board版本不匹配	
71	parellel version is incompatible 并联版本不兼容	
72	O/P current detection abnormal 输出电流侦测异常	
80	CAN lost CAN丢失	
81	HOST lost 主机线丢失	
82	SYN lost 同步信号丢失	

^P006HFSnn<cr>: Query history fault parameter

Response: ^D128nn,AA,BBCCDDEEFFGG,HH,IIII,JJJJ,KKKKK,LLLLL,MMMM,NNNN,OOOO,PPPP,QQQQ,±RRRR,SSSS,TTTT,UUUU,VVVV,WWWW,XXXX,YYYY,ZZZ,aaa,bbb,ccc<CRC><cr>

Data	Description	Remark
nn	The fault code ID stored in flash 在Flash最新存储故障代码的ID	nn: 0~8
AA	Fault code 故障代码	
BBCCDD EEFFGG	Time 故障时间	Format: YY-MM-DD, HH:MM:SS
HH	Work mode 工作模式	
IIII	Solar input voltage 1 Solar1输入电压	I: 0~9, unit: 0.1V
JJJJ	Solar input voltage 2 Solar2输入电压	J: 0~9, unit: 0.1V
KKKKK	Solar input power 1 Solar1输入功率	K: 0~9, unit: W
LLLLL	Solar input power 2 Solar2输入功率	L: 0~9, unit: W
MMMM	AC input voltage R R相AC输入电压	M: 0~9, unit: 0.1V
NNNN	AC input voltage S S相AC输入电压	N: 0~9, unit: 0.1V
OOOO	AC input voltage T T相AC输入电压	O: 0~9, unit: 0.1V
PPPP	AC input frequency AC输入频率	P: 0~9, unit: 0.01Hz
QQQQ	Battery voltage 电池电压	Q: 0~9, unit: 0.1V
±RRRRR	Battery current 电池电流	R: 0~9, unit: 0.1V, +: charge, -: discharge
SSSS	AC output voltage R R相AC输出电压	S: 0~9, unit: 0.1V
TTTT	AC output voltage S S相AC输出电压	T: 0~9, unit: 0.1V
UUUU	AC output voltage T T相AC输出电压	U: 0~9, unit: 0.1V
VVVV	AC output frequency AC输出频率	V: 0~9, unit: 0.01Hz
WWWW	AC output apperent power R R相AC输出视在功率	W: 0~9, unit: VA
XXXX	AC output apperent power S S相AC输出视在功率	X: 0~9, unit: VA
YYYY	AC output apperent power T T相AC输出视在功率	Y: 0~9, unit: VA
ZZZ	AC output percentage AC输出功率百分比	Z: 0~9, unit: %
aaa	Inner temperature 内部环温	a: 0~9, unit: degree centigrade
bbb	Component Max. temperature 机器内部器件最高温度	b: 0~9, unit: degree centigrade
ccc	External battery temperature 外部电池温度	c: 0~9, unit: degree centigrade

Inv over current时Inv current实时值的读取方式

^P005HECS<cr>: Query energy control status

Response: ^D021AA,B,C,D,E,F,G,H,I<CRC><cr>

Data	Description	Remark
AA	Solar energy distribution of priority Solar能量分配优先级	00: Battery-Load-Grid 01: Load-Battery-Grid 02: Load-Grid-Battery
B	Enable/disable ~~solar~~ charge battery 充电使能	1: enable, 0: disable
C	Enable/disable AC charge battery AC充电使能	1: enable, 0: disable
D	Enable/disable feed power to utility 并网使能	1: enable, 0: disable

E	Enable/disable battery discharge to loads when solar input normal 当Solar正常的时候，电池放电带载使能	1: enable, 0: disable
F	Enable/disable battery discharge to loads when solar input loss 当Solar异常的时候，电池放电带载使能	1: enable, 0: disable
G	Enable/disable battery discharge to feed power to utility when solar input normal 当Solar正常的时候，电池放电并网使能	1: enable, 0: disable
H	Enable/disable battery discharge to feed power to utility when solar input loss 当Solar异常的时候，电池放电并网使能	1: enable, 0: disable
I	H	Enable/disable Q(U) derating funcation

^P006GLTHV<cr>: Query AC input long-lime highest average voltage

Response: ^D007AAAA<CRC><cr>

Data	Description	Remark
AAAA	AC input long-lime highest average voltage AC输入平均值长时间过压点	A: 0~9, unit: 0.1V

^P004FET<cr>: Query first generated energy saved time

Response: ^D013YYYYMMDDHH<CRC><cr>

Data	Description	Remark
YYYY	Year	Y: 0~9
MM	Month	M: 0~9
DD	Day	D: 0~9
HH	Hour	H: 0~9

^P003FT<cr>: Query wait time for feed power

Response: ^D006AAA<CRC><cr>

Data	Description	Remark
AAA	Wait time	A: 0~9, unit: second

^P005ACCT<cr>: Query AC charge time bucket
查询允许AC充电时间段

Response: ^D022AAAA,BBBB,CCCC,DDDD<CRC><cr>

Data	Description	Remark
AAAA	Start time for enable AC charger working	AAAA: HH:MM(hour : minute)
BBBB	Ending time for enable AC charger working	BBBB: HH:MM(hour : minute)
AAAA	Secondary Start time for enable AC charger working	CCCC: HH:MM(hour : minute)
BBBB	Secondary Ending time for enable AC charger working	DDDD: HH:MM(hour : minute)

^P005ACLT<cr>: Query AC supply load time bucket
查询允许AC带载时间段

Response: ^D012AAAA,BBBB<CRC><cr>

Data	Description	Remark
AAAA	Start time for enable AC supply the load	AAAA: HH:MM(hour : minute)
BBBB	Ending time for enable AC supply the load	BBBB: HH:MM(hour : minute)

^P006FPADJ<cr>: Query feeding grid power calibration
查询并网校正功率

Response: ^D030A,BBBB,C,DDDD,E,FFFF,G,HHHH<CRC><cr>

Data	Description	Remark
A	Feeding grid derection	0: -, 1: +
BBBB	Feeding grid calibration power	n: 0~9, unit: 1W
C	R phase Feeding grid derection	0: -, 1: +
DDDD	R pahse Feeding grid calibration power	n: 0~9, unit: 1W
E	S pahse Feeding grid derection	0: -, 1: +
FFFF	S pahse Feeding grid calibration power	n: 0~9, unit: 1W
G	T phase Feeding grid derection	0: -, 1: +
HHHH	T phase Feeding grid calibration power	n: 0~9, unit: 1W

^P006FPPF<cr>: Query feed in power factor
查询并网功率因素

Response: ^D006nnn<CRC><cr>

Data	Description	Remark
nnn	Feed in power factor	n: 0~9, 090~100 meas +0.90~+1.00, 190~199 means -0.90~-0.99

^P005AAPF<cr>: Query auto-adjust PF with power information（Only valid for VDE4105）
查询自动根据功率调整PF参数(仅用于VDE4105)

Response: ^D012a,bbb,ccc<CRC><cr>

Data	Description	Remark
a	Enable/Disable function	0: disable 1: enable
bbb	Start power percentage of auto-adjusting	b: 0~9, unit: %， range: 010~090
ccc	Minmum PF value when power percentage reach 100%	c: 0~9, unit: 0.01, range: 190~199, means -0.90~-0.99

^P005FPRA<cr>: Query feed-in grid reactive power
查询并网无功功率设置

Response: ^D008±nnnn<CRC><cr>

Data	Description	Remark
nnnn	feed-in reactive power	n: 0~9, unit: 1Var， range: -5000~5000

^P005MAR1<cr>: Query machine adjustable range1

Response:
^D114AAAA,BBBB,CCCC,DDDD,EEEE,FFFF,GGGG,HHHH,IIII,JJJJ,KKKK,LLLL,MMMM,NNNN,OOOO,PPPP,QQQQ,RRRR,SSS,TTT,U,V,WWWW,XXXX<CRC><cr>

Data	Description	Remark
AAAA	The upper limit of AC input highest recover voltage for feed power AC输入可并网最高恢复电压可设值上限	A: 0~9, unit: 0.1V 2622
BBBB	The lower limit of AC input highest recover voltage for feed power AC输入可并网最高恢复电压可设值下限	B: 0~9, unit: 0.1V 2350
CCCC	The upper limit of AC input lowest recover voltage for feed power AC输入可并网最低恢复电压可设值上限	C: 0~9, unit: 0.1V 2250
DDDD	The lower limit of AC input lowest recover voltage for feed power AC输入可并网最低恢复电压可设值下限	D: 0~9, unit: 0.1V 1840
EEEE	The Second order upper limit of AC input highest voltage for feed power AC输入可并网最高二阶电压可设值上限	E: 0~9, unit: 0.1V 2900
FFFF	The Second order lower limit of AC input highest voltage for feed power AC输入可并网最高二阶电压可设值下限	F: 0~9, unit: 0.1V 2622
GGGG	The Second order upper limit of AC input lowest voltage for feed power AC输入可并网最低二阶电压可设值上限	G: 0~9, unit: 0.1V 1840
HHHH	The Second order lower limit of AC input lowest voltage for feed power AC输入可并网最低二阶电压可设值下限	H: 0~9, unit: 0.1V 0460
IIII	The Second order upper limit of AC input highest voltage protection time AC输入最高二阶电压保护时间可设值上限	I: 0~9, unit: 0.05S 0250
JJJJ	The Second order lower limit of AC input highest voltage protection time AC输入最高二阶电压保护时间可设值下限	I: 0~9, unit: 0.05S 0003
KKKK	The Second order upper limit of AC input lowest voltage protection time AC输入最低二阶电压保护时间可设值上限	K: 0~9, unit: 0.05S 0250
LLLL	The Second order lower limit of AC input lowest voltage protection time AC输入最低二阶电压保护时间可设值下限	L: 0~9, unit:0.05S 0003
MMMM	The upper limit of AC input highest voltage protection time AC输入最高电压保护时间可设值上限	M: 0~9, unit: 0.1S 5000
NNNN	The lower limit of AC input highest voltage protection time AC输入最高电压保护时间可设值下限	N: 0~9, unit: 0.1S 0003
OOOO	The upper limit of AC input lowest voltage protection time AC输入最低电压保护时间可设值上限	O: 0~9, unit: 0.1S 5000
PPPP	The lower limit of AC input lowest voltage protection time AC输入最低电压保护时间可设值下限	P: 0~9, unit: 0.1S 0003
QQQQ	The upper limit of AC input frequency derate point AC输入频率降额可设值上限	Q: 0~9, unit: 0.01Hz 5200
RRRR	The lower limit of AC input frequency derate point AC输入频率降额可设值下限	R: 0~9, unit: 0.01Hz 5010
SSS	The upper limit of AC input frequency derate gradient AC输入频率降额斜率可设值上限	S: 0~9, unit: %/Hz 100
TTT	The lower limit of AC input frequency derate gradient AC输入频率降额斜率可设值上限	T: 0~9, unit: %/Hz 010
U	The upper limit of AC input frequency delay trigger time AC输入频率延时触发可设值上限	U: 0~2, unit: 1S 2
V	The lower limit of AC input frequency delay trigger time AC输入频率延时触发可设值下限	V: 0~2, unit: 1S 0
WWWW	The upper limit of AC input voltage 10 Min mean protection AC输入电压10分钟保护可设值下限	W: 0~9, unit: 0.1V 2760
XXXX	The lower limit of AC input voltage 10 Min mean protection AC输入电压10分钟保护可设值下限	X: 0~9, unit: 0.1V 2300

^P005MAR2<cr>: Query machine adjustable range2

Response:
^D132AAAA,BBBB,CCCC,DDDD,EEEE,FFFF,GGGG,HHHH,IIII,JJJJ,KKKK,LLLL,MMMM,NNNN,OOOO,PPPP,QQQQ,RRRR,SSSS,TTTT,UUUU,VVVV,WWWW,XXXX,YYYY,ZZZZ<CRC><cr>

Data	Description	Remark
0AAAA	The upper limit of AC input highest recover frequency for feed power AC输入可并网最高恢复频率可设值上限	A: 0~9, unit: 0.01Hz 5200
1BBBB	The lower limit of AC input highest recover frequency for feed power AC输入可并网最高恢复频率可设值下限	B: 0~9, unit: 0.01Hz 5010
2CCCC	The upper limit of AC input lowest recover frequency for feed power AC输入可并网最低恢复频率可设值上限	C: 0~9, unit: 0.01Hz 4990
3DDDD	The lower limit of AC input lowest recover frequency for feed power AC输入可并网最低恢复频率可设值下限	D: 0~9, unit: 0.01Hz 4750
4EEEE	The Second order upper limit of AC input highest frequency for feed power AC输入可并网最高二阶频率可设值上限	E: 0~9, unit: 0.01Hz 5500

5FFFF	The Second order lower limit of AC input highest frequencyfor feed power AC输入可并网最高二阶频率可设值下限	F: 0~9, unit: 0.01Hz 5200
6GGGG	The Second order upper limit of AC input lowest frequency for feed power AC输入可并网最低二阶频率可设值上限	G: 0~9, unit: 0.01Hz 4750
7HHHH	The Second order lower limit of AC input lowest frequency for feed power AC输入可并网最低二阶频率可设值下限	H: 0~9, unit: 0.01Hz 4500
8IIII	The Second order upper limit of ACinput highest frequency protection time AC输入最高二阶电压保护时间可设值上限	I: 0~9, unit: 0.05S 0250
9JJJJ	The Second order lower limit of ACinput highest frequency protection time AC输入最高二阶电压保护时间可设值下限	I: 0~9, unit: 0.05S 0003
10KKKK	The Second order upper limit of ACinput lowest frequency protection time AC输入最低二阶电压保护时间可设值上限	K: 0~9, unit: 0.05S 0250
11LLLL	The Second order lower limit of ACinput lowest frequency protection time AC输入最低二阶电压保护时间可设值下限	L: 0~9, unit:0.05S 0003
12MMMM	The upper limit of AC input highest frequency protection time AC输入最高电压保护时间可设值上限	M: 0~9, unit: 0.1S 5000
13NNNN	The lower limit of AC input highest frequency protection time AC输入最高电压保护时间可设值下限	N: 0~9, unit: 0.1S 0003
14OOOO	The upper limit of AC input lowest frequency protection time AC输入最低电压保护时间可设值上限	O: 0~9, unit: 0.1S 5000
15PPPP	The lower limit of AC input lowest frequency protection time AC输入最低电压保护时间可设值下限	P: 0~9, unit: 0.1S 0003
16QQQQ	The upper limit of AC input highest Max reactive power AC输入最高无功可设值上限	Q: 0~9, unit: 1Var 5000
17RRRR	The AC input lowest Max reactive power AC输入最高无功可设值下限	R: 0~9, unit: 1Var 3000
18SSSS	The upper limit of AC input volt1 derate point AC输入最高电压1降额点可设值上限	S: 0~9, unit: 0.1V 2300
19TTTT	The lower limit of AC input volt1 derate point AC输入最高电压1降额点可设值下限	T: 0~9, unit: 0.1V 2000
20UUUU	The upper limit of AC input volt2 derate point AC输入最高电压2降额点可设值上限	U: 0~9, unit: 0.1V 2300
21VVVV	The lower limit of AC input volt2 derate point AC输入最高电压2降额点可设值下限	V: 0~9, unit: 0.1V 2000
22WWWW	The upper limit of AC input volt3 derate point AC输入最高电压3降额点可设值上限	W: 0~9, unit: 0.1V 2622
23XXXX	The lower limit of AC input volt3 derate point AC输入最高电压3降额点可设值下限	X: 0~9, unit: 0.1V 2300
24YYYY	The upper limit of AC input volt4 derate point AC输入最高电压4降额点可设值上限	Y: 0~9, unit: 0.1V 2622
25ZZZZ	The lower limit of AC input volt4 derate point AC输入最高电压4降额点可设值下限	Z: 0~9, unit: 0.1V 2300

^P005MAR3<cr>: Query machine adjustable range3

Response: ^D42AAAA,BBBB,CCCC,DDDD,EEEE,FFFF,GGGG,HHHH<CRC><cr>

Data	Description	Remark
AAAA0	AC input highest second order voltage for feed power AC输入可并网二阶最高电压	A: 0~9, unit: 0.1V 2697
BBBB1	AC input lowest second order voltage for feed power AC输入可并网二阶最低电压	B: 0~9, unit: 0.1V 1840
CCCC2	AC input highest second order frequency for feed power AC输入可并网二阶最高频率	C: 0~9, unit: 0.1V 5200
DDDD3	AC input lowest second order frequency for feed power AC输入可并网二阶最低频率	D: 0~9, unit: 0.1V 4700
EEEE4	AC input highest back voltage for feed power AC输入可并网最高恢复电压	E: 0~9, unit: 0.01Hz 2620
FFFF5	AC input lowest back voltage for feed power AC输入可并网最低恢复电压	F: 0~9, unit: 0.01Hz 1842
GGGG6	AC input highest back frequency for feed power AC输入可并网最高恢复频率	G: 0~9, unit: 0.01Hz 5198
HHHH7	AC input lowest back frequency for feed power AC输入可并网最低恢复频率	H: 0~9, unit: 0.01Hz 4752

^P003VP<cr>Query grid volt protect查询市电电压保护（查询二阶过压点和一阶二阶过欠压保护时间）

Response: ^D032aaaa,bbbb,cccc,dddd,eeee,ffff<CRC><cr>

Data	Description	
aaaa	Second order overvoltage point	a: 0~9, unit: 0.1V
bbbb	Second order underoltage point	b: 0~9, unit: 0.1V
cccc	Second order overvoltage protection time	c: 0~9, unit: 0.02S
dddd	Second order undervoltage protection time	d: 0~9, unit: 0.02S
eeee	Frist order overvoltage protection time	e: 0~9, unit: 0.02S
ffff	Frist order undervoltage protection time	f: 0~9, unit: 0.02S

^P003FP<cr>Query grid frequency protect查询市电频率保护（查询二阶过频点和一阶二阶过欠频保护时间）

Response: ^D032aaaa,bbbb,cccc,dddd,eeee,ffff<CRC><cr>

Data	Description	
aaaa	Second order overfrequency point	a: 0~9, unit: 0.01Hz

bbbb	Second order underfrequency point	b: 0~9, unit: 0.01Hz
cccc	Second order overvfrequency protection time	c: 0~9, unit: 0.02S
dddd	Second order underfrequency protection time	d: 0~9, unit: 0.02S
eeee	Frist order overfrequency protection time	e: 0~9, unit: 0.02S
ffff	Frist order underfrequency protection time	f: 0~9, unit: 0.02S
^P004OFD<cr>Query Over frequency drop rated power过频降额		
Response: ^D012aaaa,bb,c<CRC><cr>		
Data	Description	
aaaa	Drop rated power point	a: 0~9, unit: 0.01Hz
bbbb	Drop rated power slope	b: 0-9,unit 1%/Hz
c	Trigger delay time	c: 0-2,unit 1S
^P004VRR<cr>Query Voltage and reactive power response 电压无功响应		
Response: ^D027aaaa,bbbb,cccc,dddd,eeee<CRC><cr>		
Data	Description	
aaaa	Maximum reactive power response	a: 0~9, unit: 1Var
bbbb	Reduce rated power point1	b: 0-9,unit 0.1V
cccc	Reduce rated power point2	c: 0-9,unit 0.1V
dddd	Reduce rated power point3	d: 0-9,unit 0.1V
eeee	Reduce rated power point4	e: 0-9,unit 0.1V
Set commands		
^S005LONn<cr>: Set enable/disable machine supply power to the loads 机器带载使能		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
n	Enable/disable	0: disable, 1: enable
^1	Accept command	
^0	Refuse command	
^S004Pmn<cr>: Set enable/disable status		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
m	enable/disable	E: enable, D: disable
n	A	Mute buzzer beep
	B	Mute buzzer beep in standby mode
	C	Mute buzzer beep only on battery discharged status
	D	Generator as AC input
	E	Wide AC input range
	F	N/G relay close in battery mode
	G	De-rating power for Grid voltage
	H	De-rating power for Grid frequency
	I	BMS battery connect
^1	Accept command	
^0	Refuse command	
^S016DATyymmddhhffss<cr>: Set date time		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
yy	Year	y: 0~9
mm	Month	m: 0~9
dd	Day	d: 0~9
hh	Hour	h: 0~9
ff	Minute	f: 0~9
ss	Second	s: 0~9
^1	Accept command	
^0	Refuse command	
^S009GOHVnnnn<cr>: Set AC input highest voltage for feeding power 设置最高并网电压		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
nnnn	AC input highest voltage	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	
^S009GOLVnnnn<cr>: Set AC input lowest voltage for feeding power 设置最低并网电压		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
nnnn	AC input lowest voltage	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	
^S009GOHFnnnn<cr>: Set AC input highest frequency for feeding power 设置最高并网频率		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
nnnn	AC input highest frequency	n: 0~9, unit: 0.01Hz
^1	Accept command	
^0	Refuse command	

^S009GOLFnnnn<cr>: Set AC input lowest frequency for feeding power
设置最低并网频率

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnn	AC input lowest frequency	n: 0~9, unit: 0.01Hz
^1	Accept command	
^0	Refuse command	

~~^S011OPMPnnnnnn<cr>: Set output max power~~

~~Response: ^1<CRC><cr> or ^0<CRC><cr>~~

~~Data~~	~~Description~~	~~Remark~~
~~nnnnnn~~	~~output max power~~	~~n: 0~9, unit: W~~
~~^1~~	~~Accept command~~	
~~^0~~	~~Refuse command~~	

^S011GPMPnnnnnn<cr>: Set max power of feeding grid
设置最大并网功率

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnnnn	max power	n: 0~9, unit: W
^1	Accept command	
^0	Refuse command	

^S009SIHVnnnn<cr>: Set Solar input highest voltage
设置最高Solar输入电压

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnn	Solar input highest voltage	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	

^S009SILVnnnn<cr>: Set Solar input lowest voltage
设置最低Solar输入电压

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnn	Solar input lowest voltage	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	

^S011MPPTHVnnnn<cr>: Set Solar input highest MPPT voltage
设置最高MPPT电压

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnn	Solar input highest MPPT voltage	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	

^S011MPPTLVnnnn<cr>: Set Solar input lowest MPPT voltage
设置最低MPPT电压

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnn	Solar input lowest MPPT voltage	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	

^S006LSTnn<cr>: Set LCD sleep wait time
设置LCD休眠等待时间

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nn	LCD sleep wait time	nn: 00, 01, 02, 10, 20 for selection, unit : 30second. 00 means LCD always light
^1	Accept command	
^0	Refuse command	

^S010MCHGCnnnn<cr>: Set battery maximum charge current
设置电池最大充电电流

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnn	Battery maximum charge current	n: 0~9, unit: 0.1A
^1	Accept command	
^0	Refuse command	

^S015MCHGVmmmm,nnnn<cr>: Set battery maximum charge voltage
设置电池最大充电电压

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
mmmm	Battery constant charge voltage(C.V.)	m: 0~9, unit: 0.1V
nnnn	Battery float charge voltage	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	

^S010GLTHVnnnn<cr>: Set AC input long-time highest average voltage
设置AC输入长时间过压点

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnn	AC input long-time highest average voltage	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	

^S025BATDVaaaa,bbbb,cccc,dddd<cr>: Set battery discharge voltage
设置电池放电相关电压点

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
aaaa	Battery under voltage	n: 0~9, unit: 0.1V
bbbb	Battery under back voltage	n: 0~9, unit: 0.1V
cccc	Battery weak voltage in hybrid mode	n: 0~9, unit: 0.1V
dddd	Battery weak back voltage in hybrid mode	n: 0~9, unit: 0.1V
^1	Accept command	
^0	Refuse command	

^S006SEPnn<cr>: Set Solar energy distribution of priority
设置Solar能量分配优先级

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nn	Solar energy distribution of priority	00: Battery-Load-Grid 01: Load-Battery-Grid 02: Load-Grid-Battery
^1	Accept command	
^0	Refuse command	

^S005EDmn<cr>: Set energy distribution
设置能量分配

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
m	A	Enable/disable ~~solar~~ charge battery
	B	Enable/disable AC charge battery
	C	Enable/disable feed power to utility
	D	Enable/disable battery discharge to loads when solar input normal
	E	Enable/disable battery discharge to loads when solar input loss
	F	Enable/disable battery discharge to feed power to utility when solar input normal
	G	Enable/disable battery discharge to feed power to utility when solar input loss
	H	Enable/disable Q(U) derating funcation
n	Enable/disable	1: enable, 0: disable
^1	Accept command	
^0	Refuse command	

^S017BCAaaaa,bbb,cccc<cr>: Set battery charger application in floating charging
设置浮充状态下电池充电器相关应用

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
aaaa	Battery stop charger current level in floating charging 浮充状态下电池停止充电的电流点	a: 0~9, unit: 0.1A, range: 0~500
bbb	Keep charged time of battery catch stop charger current level 电池达到停充电电流点后关闭充电器的等待时间	b: 0~9, unit: Minute, range: 0~999
cccc	Battery voltage of recover to charge when battery stop charger in floating charging 浮充状态下关闭充电器后电池重复充电的电压点	c: 0~9, unit: 0.1V, range: 400~600
^1	Accept command	
^0	Refuse command	

^S006DMnnn<cr>: Set machine model

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
	050	Hybrid type VDE certification
	051	Hybrid type AS4777 certification
	052	Hybrid type DK certification
	053	Hybrid type RD1663 certification
	054	Hybrid type G83 certification
	055	Hybrid type Taiwan certification
	056	Hybrid type USH certification
	057	Hybrid type USL certification
	058	Hybrid type VDE4105 certification
	059	Hybrid type Korea certification
	060	Hybrid type HongSun certification
	061	Hybrid type Sweden certification

	062	Hybrid type NRS097 certification
	063	Hybrid type Indian certification
	064	Hybrid type EN50438 certification
	065	Hybrid type EN50438(Czech) certification
	066	Hybrid type EN50438(DanMark) certification
	067	Hybrid type EN50438(Finland) certification
	068	Hybrid type EN50438(Ireland) certification
	069	Hybrid type EN50438(Norway) certification
nnn	100	Grid type VDE certification
	101	Grid type AS4777 certification
	102	Grid type DK certification
	103	Grid type RD1663 certification
	104	Grid type G83 certification
	105	Grid type Taiwan certification
	106	Grid type USH certification
	107	Grid type USL certification
	108	Grid type VDE4105 certification
	109	Grid type Korea certification
	110	Grid type HongSun certification
	111	Grid type Sweden certification
	112	Grid type NRS097 certification
	113	Grid type Indian certification
	114	Grid type EN50438 certification
	115	Grid type EN50438(Czech) certification
	116	Grid type EN50438(DanMark) certification
	117	Grid type EN50438(Finland) certification
	118	Grid type EN50438(Ireland) certification
	119	Grid type EN50438(Norway) certification
	150	Off Grid type
	151	Off Grid 3 type
^1	Accept command	
^0	Refuse command	

^S003PF<cr>: Set changeable parameter restore to default value
恢复默认值

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
^1	Accept command	
^0	Refuse command	

^S004F50<cr>: Set AC output frequency to be 50Hz

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
^1	Accept command	
^0	Refuse command	

^S004F60<cr>: Set AC output frequency to be 60Hz

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
^1	Accept command	
^0	Refuse command	

^S006Vnnnn<cr>: Set AC output rated voltage

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnnn	voltage	unit: 0.1V, nnnn: 2020,2080, 2200, 2300, 2400
^1	Accept command	
^0	Refuse command	

^S006FTnnn<cr>: Set wait time for feed power
设置并网等待时间

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
nnn	Wait time	n: 0~9, unit: second
^1	Accept command	
^0	Refuse command	

^S014ACCTaaaa,bbbb,cccc,dddd<cr>: Set AC charge time bucket
设置允许AC充电时间段

Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
aaaa	Start time for enable AC charger working	aaaa: HH:MM(hour : minute)
bbbb	Ending time for enable AC charger working	bbbb: HH:MM(hour : minute)
aaaa	Secondary Start time for enable AC charger working	cccc: HH:MM(hour : minute)
bbbb	Secondary Ending time for enable AC charger working	dddd: HH:MM(hour : minute)
^1	Accept command	
^0	Refuse command	

^S014ACLTaaaa,bbbb<cr>: Set AC supply load time bucket 设置允许AC带载时间段		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
aaaa	Start time for enable AC supply the load	aaaa: HH:MM(hour : minute)
bbbb	Ending time for enable AC supply the load	bbbb: HH:MM(hour : minute)
^1	Accept command	
^0	Refuse command	

^S004BTn<cr>: Set battery type		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
n	Battery type	0: Ordinary, 1: Li-Fe
^1	Accept command	
^0	Refuse command	

^S016BITyymmddhhffss<cr>: Set battery install time 设置电池安装时间		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
yy	Year	y: 0~9
mm	Month	m: 0~9
dd	Day	d: 0~9
hh	Hour	h: 0~9
ff	Minute	f: 0~9
ss	Second	s: 0~9
^1	Accept command	
^0	Refuse command	

^S009BST<cr>: Li-Fe battery self-test by charged at a time 充电激活锂电池		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
^1	Accept command	
^0	Refuse command	

^S016ACCBa,bbbb<cr>: AC charger keep battery voltage setting AC充电器保持电池电压设置		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
a	AC charger keep battery voltage function enable/diable	0: disable, 1: enable
bbbb	AC charger keep battery voltage	b: 0~9, unit: 0.1V, range: 400~600
^1	Accept command	
^0	Refuse command	

^S007BTSnnn<cr>: Battery temperature sensor compensation 电池温度补偿		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
nnn	Compensation voltage	n: 0~9, unit: 0.1mV, range: 0~100
^1	Accept command	
^0	Refuse command	

^S011MUCHGCnnnn<cr>: Max. AC charging current from AC 最大市电充电电流		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
nnnn	Max. AC charging current	n: 0~9, unit: 0.1A
^1	Accept command	
^0	Refuse command	

^S012FPADJm,nnnn<cr>: Feeding grid power calibration 并网功率校正		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
m	Feeding grid derection	0: -, 1: +
nnnn	Feeding grid calibration power	n: 0~9, unit: 1W， range: 0~1000
^1	Accept command	
^0	Refuse command	

^S009BDCMnnnn<cr>: Battery discharge max current in hybrid mode 并网模式下电池最大放电电流		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
nnnn	Battery discharge max current	n: 0~9, unit: 1A， range: 10~300
^1	Accept command	
^0	Refuse command	

^S008FPPFnnn<cr>: Set feed-in power factor 设定并网功率因素

Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
nnn	Feed-in power factor	n: 0~9, 090~100 meas +0.90~+1.00, 190~199 means -0.90~-0.99
^1	Accept command	
^0	Refuse command	

^S006PALEn<cr>: Enable/Disable Parallel for output 启动或停止输出并联		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
n	Enable/Disable	0: disable, 1: enable
^1	Accept command	
^0	Refuse command	

^S013FPRADJm,nnnn<cr>: R phass Feeding grid power calibration R相并网功率校正		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
m	Feeding grid derection	0: -, 1: +
nnnn	Feeding grid calibration power	n: 0~9, unit: 1W， range: 0~1000
^1	Accept command	
^0	Refuse command	

^S013FPSADJm,nnnn<cr>: S phass Feeding grid power calibration S相并网功率校正		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
m	Feeding grid derection	0: -, 1: +
nnnn	Feeding grid calibration power	n: 0~9, unit: 1W， range: 0~1000
^1	Accept command	
^0	Refuse command	

^S013FPTADJm,nnnn<cr>: T phass Feeding grid power calibration T相并网功率校正		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
m	Feeding grid derection	0: -, 1: +
nnnn	Feeding grid calibration power	n: 0~9, unit: 1W， range: 0~1000
^1	Accept command	
^0	Refuse command	

^S014AAPFa,bbb,ccc<cr>: Auto-adjust PF with power （Only valid for VDE4105） 自动根据功率调整PF(仅用于VDE4105)		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
a	Enable/Disable function	0: disable 1: enable
bbb	Start power percentage of auto-adjusting	b: 0~9, unit: %， range: 010~090
ccc	Minmum PF value when power percentage reach 100%	c: 0~9, unit: 0.01, range: 190~199, means -0.90~-0.99
^1	Accept command	
^0	Refuse command	

^S010FPRA±nnnn<cr>: Set feed-in reactive power 设置并网无功功率		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
nnnn	feed-in reactive power	n: 0~9, unit: 1Var， range: -5000~5000
^1	Accept command	
^0	Refuse command	

^S014GVRPaaaa,bbbb<cr>: Grid Volt Recover Point 设置一阶市电电压恢复点		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
aaaa	Voltage overvoltage recovery point	a: 0~9, unit: 0.1V
bbbb	Voltage undervoltage recovery point	b: 0~9, unit: 0.1V

^S014GSVPaaaa,bbbb<cr>:Grid volt first order and second order protect Point市电电压二阶保护点		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
aaaa	Second order overvoltage point	a: 0~9, unit: 0.1V
bbbb	Second order underoltage point	b: 0~9, unit: 0.1V

^S024GVPTaaaa,bbbb,cccc,dddd<cr>:first order and second order volt protection time一阶二阶电压保护时间		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
aaaa	Second order overvoltage protection time	a: 0~9, unit: 0.02S
bbbb	Second order underoltage protection time	b: 0~9, unit: 0.02S
cccc	Frist order overvoltage protection time	c: 0~9, unit: 0.02S
dddd	Frist order underoltage protection time	d: 0~9, unit: 0.02S

^S013FRPaaaa,bbbb<cr>: Grid frequency Recover Point 设置市电频率恢复点
Response: ^1<CRC><cr> or ^0<CRC><cr>

Data	Description	Remark
aaaa	Voltage overfrequency recovery point	a: 0~9, unit: 0.01Hz
bbbb	Voltage underfrequency recovery point	b: 0~9, unit: 0.01Hz
^S013SFPaaaa,bbbb<cr>:Grid frequency first order and second order protect Point市电频率二阶保护点		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
aaaa	Second order overfrequency point	a: 0~9, unit: 0.01Hz
bbbb	Second order underfrequency point	b: 0~9, unit: 0.01Hz
^S023FPTaaaa,bbbb,cccc,dddd<cr>:first order and second order frequency protection time一阶二阶频率保护时间		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
aaaa	Second order overfrequency protection time	a: 0~9, unit: 0.02S
bbbb	Second order underfrequency protection time	b: 0~9, unit: 0.02S
cccc	Frist order overfrequency protection time	c: 0~9, unit: 0.02S
dddd	Frist order underfrequency protection time	d: 0~9, unit: 0.02S
^S014FHDaaaa,bbb,c<cr>:Over frequency drop rated power过频降额		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
aaaa	Drop rated power point	a: 0~9, unit: 0.01Hz
bbb	Drop rated power slope	b: 0~9, unit: 1%
c	Trigger delay time	c: 0~9, unit: 1S
^S028VRRaaaa,bbbb,cccc,dddd，eeee<cr>:Voltage and reactive power response 电压无功响应		
Response: ^1<CRC><cr> or ^0<CRC><cr>		
Data	Description	Remark
aaaa	Maximum reactive power response	a: 0~9, unit: 1Var
bbbb	Reduce rated power point1	b: 0~9, unit: 0.1V
cccc	Reduce rated power point2	c: 0~9, unit: 0.1V
dddd	Reduce rated power point3	d: 0~9, unit: 0.1V
eeee	Reduce rated power point4	e: 0-9,unit 0.1V