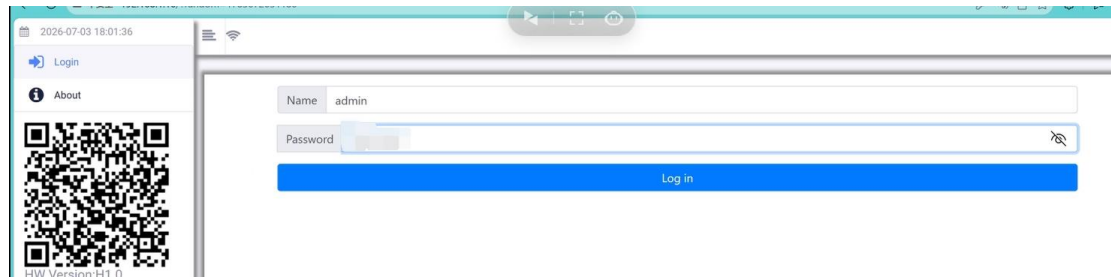


## Supplementary Operating Instructions

This supplementary document addresses the relevant questions referenced in the CEC listing. This document applies to both Sinexcel 135M-series and 160M-series.

### 1. How to login the webpage control platform so that we can do the configuration?



(Please contact Sinexcel for the password)

There is also an account for general user without control permission

NAME: admin, Password: 080808

### 2. How to select the Australia Region A/B/C/NZ for certification standard?

After logging into the control page, click the “setting”, then choose the “cabinet type”, we can see the standard type relevant setting, then choose the AUS standard and corresponding A/B/C/NZ.



Setting

Cabinet Type

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AC

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oscilloscope

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About

Cabinet module number: 2

AS4777(AusA)

AS4777(NZ)

AS4777(AusB)

AS4777(AusC)

Reserved

Reserved

Reserved

Reserved

Reserved

Reserved

Reserved

Reserved

Reserved

Reserved

Standard reference: AS4777(AusA)

Customization cabinet type: Huaneng

### 3. Regarding the power quality, how to modify the Volt-Var and Vlot-Watt and the relevant settings?

For the Volt-Var and Vlot-Watt setting, same in AC setting page.

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General settings

L/HVRT/HFRT

Volt-Var

Volt-Var V1: 0.9

Volt-Var V2: 0.956

Volt-Var V3: 1.043

Volt-Var V4: 1.122

Maximum capacitive reactive Q1: -0.44

Initial capacitive reactive Q2: 0

Initial inductive reactive Q3: 0

Maximum inductive reactive Q4: 0.6

Volt/Freq-Watt

PF Curve

Watt-Var

General settings

L/HVRT/HFRT

Volt-Var

Volt/Freq-Watt

Volt-Watt

Volt-Watt start V1(high volt): 1.1

Volt-Watt end V2(high volt): 1.13

Volt-Watt start P1(high volt): 1

Volt-Watt end P2(high volt): 0.2

Volt-Watt start V1(low volt): 0.935

Volt-Watt end V2(low volt): 0.9

Volt-Watt end Power(low volt): 0.2

Freq-Watt

Freq-Watt start freq point(high freq): 0.25

Freq-Watt end freq point(high freq): 0.75

Freq-Watt Pmin freq point(high freq): 2

Freq-Watt start freq point(low freq): -0.25

Freq-Watt end freq point(low freq): -1

Freq-Watt Pmax freq point(low freq): -2

Over/under voltage and frequency settings, during configuration, the environment for Region 2 is more severe than that for Region 1. It represents protection under more extreme conditions, featuring a wider protection range and shorter trip time.

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L/HVRT

Over-volt region 1 boundary: 1.152

Over-volt region 1 trip time: 1

Over-volt region 2 boundary: 1.195

Over-volt region 2 trip time: 0.1

Under-volt region 1 boundary: 0.782

Under-volt region 1 trip time: 10

Under-volt region 2 boundary: 0.304

Under-volt region 2 trip time: 1

Over-volt for 10 minutes: 1.121

Grid reconnection upper limit volt: 1.1

Grid reconnection lower limit volt: 0.891

L/HFRT

Over-freq region 1 boundary: 2

Over-freq region 1 trip time: 0.1

Under-freq region 1 boundary: -3

Under-freq region 1 trip time: 1

Grid reconnection upper limit freq: 0.15

Grid reconnection lower limit freq: -2.5

ROCOF function: Disable

ROCOF protection threshold: 4

ROCOF protection time: 0.25

PF Setpoint and reactive power control mode activation.

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Grid

Drop

Energy dispatching mode: AC dispatching

Active power control mode: Fixed power

Reactive power control mode: disable

Active power setpoint(kW): 0.0

Reactive power setpoint(kVar): 0.0

PF setpoint: 1.00

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L/HVRT/HFRT

Volt-VAr

Volt/Freq-Watt

PF Curve

PF curve mode P1: 0.25

PF curve mode P2: 0.5

PF curve mode P3: 0.75

PF curve mode P4: 1

PF curve mode PF1: 1

PF curve mode PF2: 1

PF curve mode PF3: 0.95

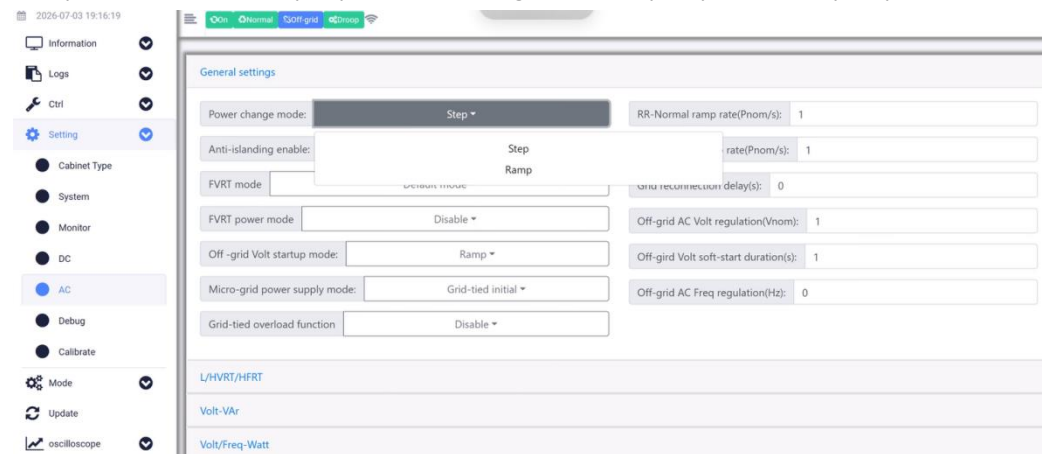
PF curve mode PF4: 0.9

Watt-Var

Regarding response mode, there are 2 modes can be chosen, namely step and ramp.

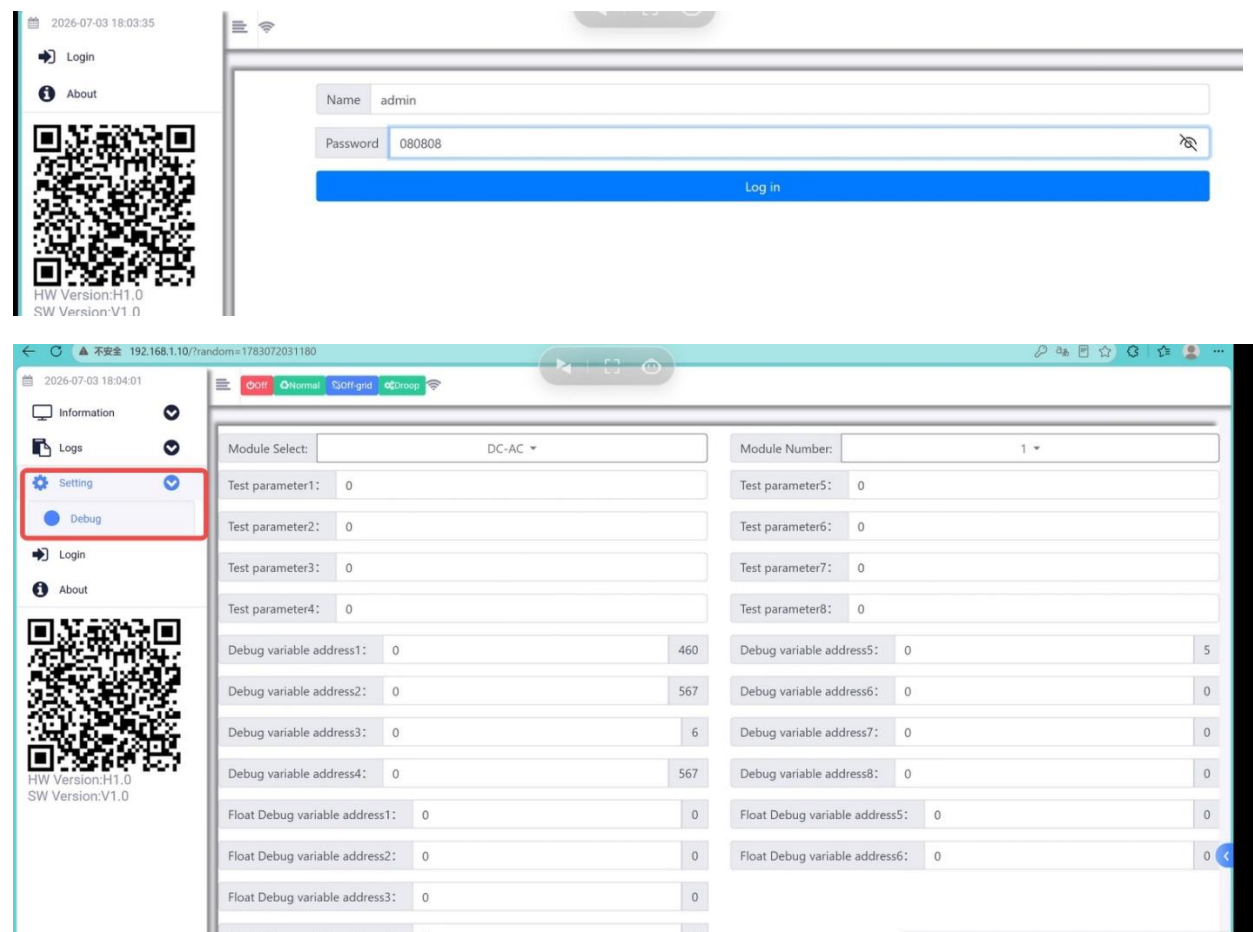
Step means the PCS output power at maximum speed

Ramp means the PCS output power according to the ramp slope, this ramp slope can be set by user.



#### 4. How to view inverter settings after commissioning ? And how to prevent users from changing these settings meanwhile?

We have two login passwords with different access permissions. Password 080808 is only for viewing basic information and debugging with no access to configuration pages.



After finishing the setting, to prevent users from changing parameters, they shall log in only with password 080808. If parameter verification is required under this login account, configuration pages will be inaccessible. The corresponding function point data can only be read via addresses based on the Modbus protocol.

Country grid code and region setting:

| Model → |      | PWS1-160K | Dc:Battery | ////               | AUS   | Model demonstration example:<br>[80K-OneHV250K-One/30K-One][Dc:Battery][////][CHN]<br>[DcOne-BusOne][Dc:Battery][Bus:DcBus][////]<br>[PWD-ATSI][////][////][////] |                                                          |
|---------|------|-----------|------------|--------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Address | Size | Access    | Type       | Register Name      | 寄存器名称 | Range & default & unit                                                                                                                                            | 范围 & 默认值 & 单位<br>EMS可以频繁下设(RAM)寄存器，EMS下设非(RAM)寄存器应该间隔>5s |
| 2815    | 1    | R         | uint16     | Certification area | 认证地区  | certification-default                                                                                                                                             | certification-default                                    |
| 2816    | 1    | R         | uint16     | Standard reference | 标准参考  | certification-default                                                                                                                                             | certification-default                                    |

Power quality and response modes setting:

| Model → |      | PWS1-160K | Dc:Battery | Bus:Battery             | AUS    | Model demonstration example:<br>[80K-OneHV250K-One/30K-One][Dc:Battery][////][CHN]<br>[DcOne-BusOne][Dc:Battery][Bus:DcBus][////]<br>[PWD-ATSI][////][////][////] |                                                          |
|---------|------|-----------|------------|-------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Address | Size | Access    | Type       | Register Name           | 寄存器名称  | Range & default & unit                                                                                                                                            | 范围 & 默认值 & 单位<br>EMS可以频繁下设(RAM)寄存器，EMS下设非(RAM)寄存器应该间隔>5s |
| 1025    | 1    | R/W       | int16      | Reactive power setpoint | 无功功率设置 | -3200.0~3200.0, Unit: 0.1kVAr, default: 0; +: lagging, -: leading. (RAM)                                                                                          | -3200.0~3200.0, 单位: 0.1kVAr, 默认: 0; +: 滞后, -: 超前. (RAM)  |
| 1026    | 1    | R/W       | int16      | PF setpoint             | 功率因数设置 | -1~+1, Unit: 0.01, default: 1; +: lagging, -: leading. (RAM)                                                                                                      | -1~+1, 单位: 0.01, 默认: 1; +: 滞后, -: 超前. (RAM)              |

| Model → |      | PWS1-160K | Dc:Battery | Bus:Battery         | AUS      | Model demonstration example:<br>[80K-OneHV250K-One/30K-One][Dc:Battery][////][CHN]<br>[DcOne-BusOne][Dc:Battery][Bus:DcBus][////]<br>[PWD-ATSI][////][////][////] |                                                          |
|---------|------|-----------|------------|---------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Address | Size | Access    | Type       | Register Name       | 寄存器名称    | Range & default & unit                                                                                                                                            | 范围 & 默认值 & 单位<br>EMS可以频繁下设(RAM)寄存器，EMS下设非(RAM)寄存器应该间隔>5s |
| 1301    | 1    | R/W       | uint16     | Power change mode   | 功率变化模式   | 0- Step, 1- Ramp, certification-default                                                                                                                           | 0- 阶跃, 1- 斜坡, certification-default                      |
| 1302    | 1    | R/W       | uint16     | RR-Normal ramp rate | 常规功率变化速率 | 0.0001~3, Unit: 0.0001("Pnom/s), certification-default                                                                                                            | 0.0001~3, 单位: 0.0001("Pnom/s), certification-default     |

Grid protection setting

| Model → |      | PWS1-160K |        | Dc:Battery                   |           | Bus:Battery                                            | AUS | Model demonstration example:<br>[80K-OneHV250K-One30K-One][Dc:Battery][CHN]<br>[DcOne-BusOne][Dc:Battery][Bus:DcBus][<br>[PWO-ATSG][<br> |
|---------|------|-----------|--------|------------------------------|-----------|--------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------|
| Address | Size | Access    | Type   | Register Name                | 寄存器名称     | Range & default & unit                                 |     | 范围 & 默认值 & 单位<br>EMS可以频繁下设(RAM)寄存器, EMS下设非(RAM)<br>寄存器应该间隔>5s                                                                            |
| 1341    | 1    | R/W       | uint16 | Over-volt region 1 boundary  | 过压I段保护范围  | 1.000~1.350, Unit: 0.001(*Vnom), certification-default |     | 1.000~1.350, 单位: 0.001(*Vnom), certification-default                                                                                     |
| 1342    | 1    | R/W       | uint16 | Over-volt region 1 trip time | 过压I段保护时间  | 0.00~180.00, Unit: 0.01s, certification-default        |     | 0.00~180.00, 单位: 0.01s, certification-default                                                                                            |
| 1343    | 1    | R/W       | uint16 | Over-volt region 2 boundary  | 过压II段保护范围 | 1.000~1.350, Unit: 0.001(*Vnom), certification-default |     | 1.000~1.350, 单位: 0.001(*Vnom), certification-default                                                                                     |
| 1344    | 1    | R/W       | uint16 | Over-volt region 2 trip time | 过压II段保护时间 | 0.00~180.00, Unit: 0.01s, certification-default        |     | 0.00~180.00, 单位: 0.01s, certification-default                                                                                            |

| Model → |      | PWS1-160K |        | Dc:Battery                    |          | Bus:Battery                                            | AUS | Model demonstration example:<br>[80K-OneHV250K-One30K-One][Dc:Battery][CHN]<br>[DcOne-BusOne][Dc:Battery][Bus:DcBus][<br>[PWO-ATSG][<br> |
|---------|------|-----------|--------|-------------------------------|----------|--------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------|
| Address | Size | Access    | Type   | Register Name                 | 寄存器名称    | Range & default & unit                                 |     | 范围 & 默认值 & 单位<br>EMS可以频繁下设(RAM)寄存器, EMS下设非(RAM)<br>寄存器应该间隔>5s                                                                            |
| 1345    | 1    | R/W       | uint16 | Under-volt region 1 boundary  | 欠压I段保护范围 | 0.050~1.000, Unit: 0.001(*Vnom), certification-default |     | 0.050~1.000, 单位: 0.001(*Vnom), certification-default                                                                                     |
| 1346    | 1    | R/W       | uint16 | Under-volt region 1 trip time | 欠压I段保护时间 | 0.00~180.00, Unit: 0.01s, certification-default        |     | 0.00~180.00, 单位: 0.01s, certification-default                                                                                            |
| 1351    | 1    | R/W       | uint16 | Over-volt for 10 minutes      | 10分钟过压幅值 | 1.000~1.350, Unit: 0.001(*Vnom), certification-default |     | 1.000~1.350, 单位: 0.001(*Vnom), certification-default                                                                                     |
| 1361    | 1    | R/W       | uint16 | Over-freq region 1 boundary   | 过频I段保护范围 | 0.01~6.00Hz, Unit: 0.01(*Fnom), certification-default  |     | 0.01~6.00Hz, 单位: 0.01(*Fnom), certification-default                                                                                      |

| Model → |      | PWS1-160K |        | Dc:Battery                    |          | Bus:Battery                                             | AUS | Model demonstration example:<br>[80K-OneHV250K-One30K-One][Dc:Battery][CHN]<br>[DcOne-BusOne][Dc:Battery][Bus:DcBus][<br>[PWO-ATSG][<br> |
|---------|------|-----------|--------|-------------------------------|----------|---------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------|
| Address | Size | Access    | Type   | Register Name                 | 寄存器名称    | Range & default & unit                                  |     | 范围 & 默认值 & 单位<br>EMS可以频繁下设(RAM)寄存器, EMS下设非(RAM)<br>寄存器应该间隔>5s                                                                            |
| 1362    | 1    | R/W       | uint16 | Over-freq region 1 trip time  | 过频I段保护时间 | 0.00~650.00, Unit: 0.01s, certification-default         |     | 0.00~650.00, 单位: 0.01s, certification-default                                                                                            |
| 1365    | 1    | R/W       | uint16 | Under-freq region 1 boundary  | 欠频I段保护范围 | -10 ~ -0.01Hz, Unit: 0.01(*Fnom), certification-default |     | -10 ~ -0.01Hz, 单位: 0.01(*Fnom), certification-default                                                                                    |
| 1366    | 1    | R/W       | uint16 | Under-freq region 1 trip time | 欠频I段保护时间 | 0.00~650.00, Unit: 0.01s, certification-default         |     | 0.00~650.00, 单位: 0.01s, certification-default                                                                                            |

## Inverter firmware setting

| Model → | PWS1-160K |        |          |                     |        |                                                                                                                                      |                                                                       |
|---------|-----------|--------|----------|---------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Address | Size      | Access | Type     | Register Name       | 寄存器名称  | Define & Unit<br>Fault: pcs shutdown<br>Failed: pcs shutdown and need check<br>Alarm: pcs still work<br>Switch: pcs turn to off-grid | 定义 & 单位<br>故障: pcs 关机<br>失效: pcs 关机且需排查<br>告警: pcs 仍运行<br>切换: pcs 转离网 |
| 0       | 11 word   | RO     | string   | Serial Number       | 序列号    | String                                                                                                                               | 字符串                                                                   |
| 11      | 21 word   | RO     | string   | Version model       | 版本型号   | String                                                                                                                               | 字符串                                                                   |
| 32      | bit0      | RO     | bitfield | System Fault status | 系统故障状态 | 1- fault, 0- normal                                                                                                                  | 1- 故障, 0- 正常                                                          |
| 32      | bit1      | RO     | bitfield | System Alarm status | 系统告警状态 | 1- alarm, 0- normal                                                                                                                  | 1- 告警, 0- 正常                                                          |

(If this register protocol is needed, please contact Sinexcel to get it.)

## 5. How to adjust generation limit and export limit control settings?

These are limitation configurations, their priority are higher than the power command, that means if 100KW is set, but the maximum discharge current is 0, there is no power can be output.

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DC String

DC low voltage threshold(V) 600

End of discharge voltage(V) 600

Topping charge voltage(V) 900

Maximum charge current(A) 100

Maximum discharge current(A) 100

Maximum charge power(kW) 0

Maximum discharge power(kW) 0

End-of-charge current(A) 0

The below part is specific for limit export to grid.

It basically means:

When software enable is selected and Mode 1 is set, the current flowing to the power grid (PCS discharging) is controlled to the PCS grid-feeding setpoint, the minimum discharge reduction is 0, charge-discharge switching is not supported, and there is no impact on charging.

Select Mode 3: First, use software enable to reduce the power. If the software enable is insufficient to reduce the current flowing to the power grid to the PCS grid feed setpoint, then perform a fault shutdown.

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Power change mode: Ramp

Anti-islanding enable: Enable

FVRT mode: Mode 1

FVRT power mode: Disable

Off-grid Volt startup mode: Step

Micro-grid power supply mode: Grid-tied initial

Grid-tied overload function: Disable

Limit export function: Disable

Export power limit ratio: 0.25

RR-Normal ramp rate(Pnom/s): 0.0027

SS-Soft-start ramp rate(Pnom/s): 0.0027

Grid reconnection delay(s): 60

Off-grid AC Volt regulation(Vnom): 1

Off-grid Volt soft-start duration(s): 1

Off-grid AC Freq regulation(Hz): 0

FRT deactivation time: 0

| Model → |      | PWS1-160K |        | Dc:Battery                      | Bus:Battery | AUS                                                                                                   | Model demonstration example:<br>[80K-OnePv250K-One30K-One][Dc:Battery][uint16][CHN]<br>[DcOne-BusOne][Dc:HVDcBattery][Bus:DcBus][uint16]<br>[PWO-ATS][uint16][uint16] |
|---------|------|-----------|--------|---------------------------------|-------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Address | Size | Access    | Type   | Register Name                   | 寄存器名称       | Range & default & unit                                                                                | 范围 & 默认值 & 单位<br>EMS可以频繁下写(RAM)寄存器，EMS下写非(RAM)寄存器应该间隔>5s                                                                                                              |
| 1327    | 1    | R/W       | uint16 | Limit export function           | 限制馈网功能      | 0- disable, 1- Mode1 enable, 2- Mode2 enable, 3- Mode3 enable, 4- Mode4 enable, certification-default | 0- 禁用, 1- 模式1使能, 2- 模式2使能, 3- 模式3使能, 4- 模式4使能, certification-default                                                                                                  |
| 1328    | 1    | R/W       | uint16 | Export active power limit ratio | 馈网功率限值比率    | 0.000~1.100, Unit: 0.001("Pnom), certification-default                                                | 0.000~1.100, 单位: 0.001("Pnom), certification-default                                                                                                                  |