

Technical FAQ

Agenda

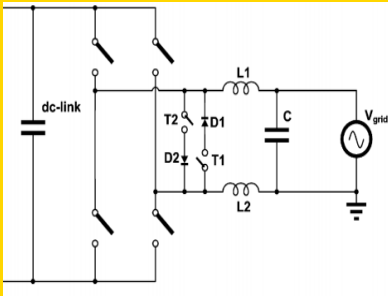
1. Inverter technology
2. Monitor system
3. System application
4. Error Codes and trouble-shooting

01 Inverter technology

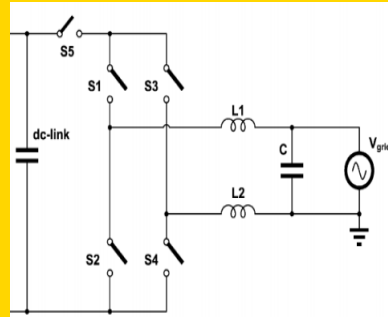
1.1 What's the topology of zeversolar inverters?

Single phase inverter

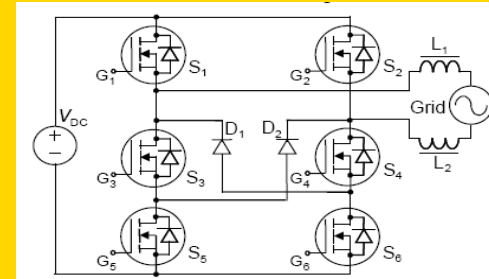
▪ Heric



▪ H5

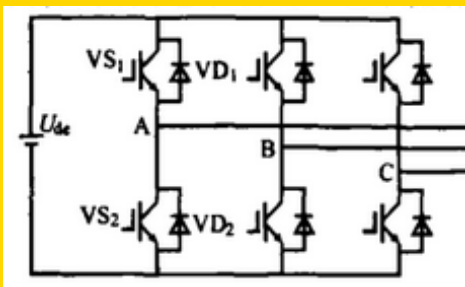


▪ H6

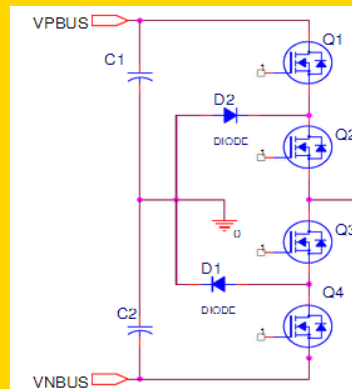


Three phase inverter

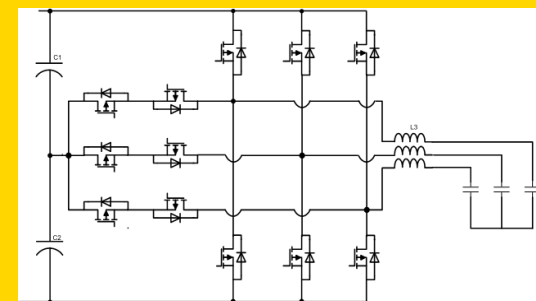
▪ 2level



▪ I style 3 level

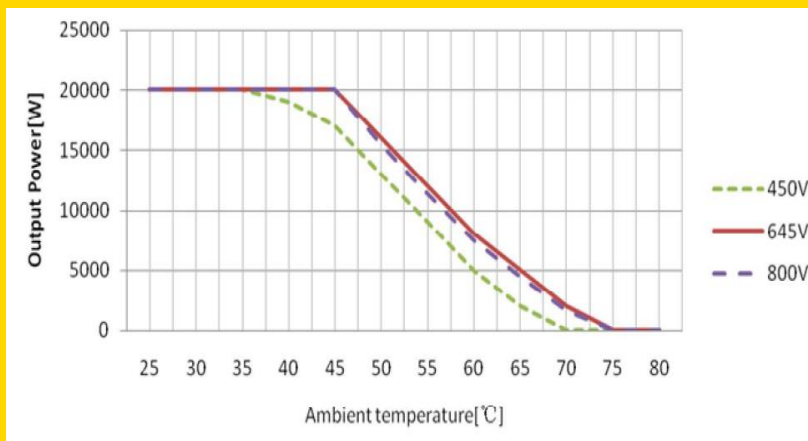


▪ T style 3 level



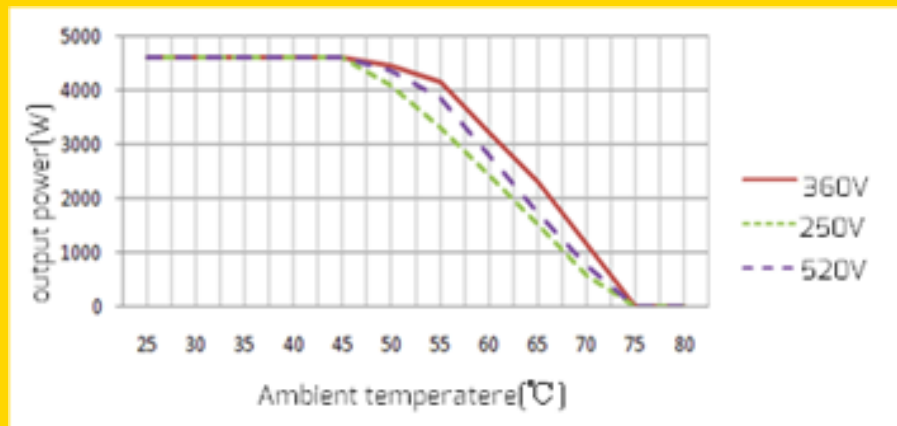
1.2 What would inverter do under high ambient temperature?

In order to ensure inverter operation under safe conditions, the device may automatically decrease power output due to increased ambient temperature. You can find inverter's power reduction curve in the installation and operating instructions



▪ TLC 20K

▪ TL 5000



1.3 Why does inverter equipped with DC switch?

Normally, according the PV installation standard, DC Switch is necessary for safety consideration. It can be installed either inside of inverter or outside. If there is AJB (Array Junction Box), the DC switch can be installed in AJB.

However, we recommend inverter integrated with DC Switch, because of cost saving by removing AJB and easy consideration.

1.4 Which EMC standard does zeversolar inverter conform?

Zeversolar inverters are designed according to IEC61000-1-2 and IEC61000-1-3 for commercial use. The EMI level is similar with a TV.

1.5 What's the deviation between displayed energy and actual energy?

1%

1.6 Which kind of capacitor is used inside inverter?

Electrolytic capacitor

Smaller size, lower cost, higher capacity, smaller ripple, more reliable.

1.7 which kind of inverter does zeversolar produce? Isolated or non-isolated?

Zeversolar only produce non-isolated(transformerless) inverters.

Transformless inverter is the most common inverter in the market. It has a higher efficiency, lower cost, smaller volume.

1.8 what kind of protections does zeversoalr inverter have on both DC and AC side?

DC Side:

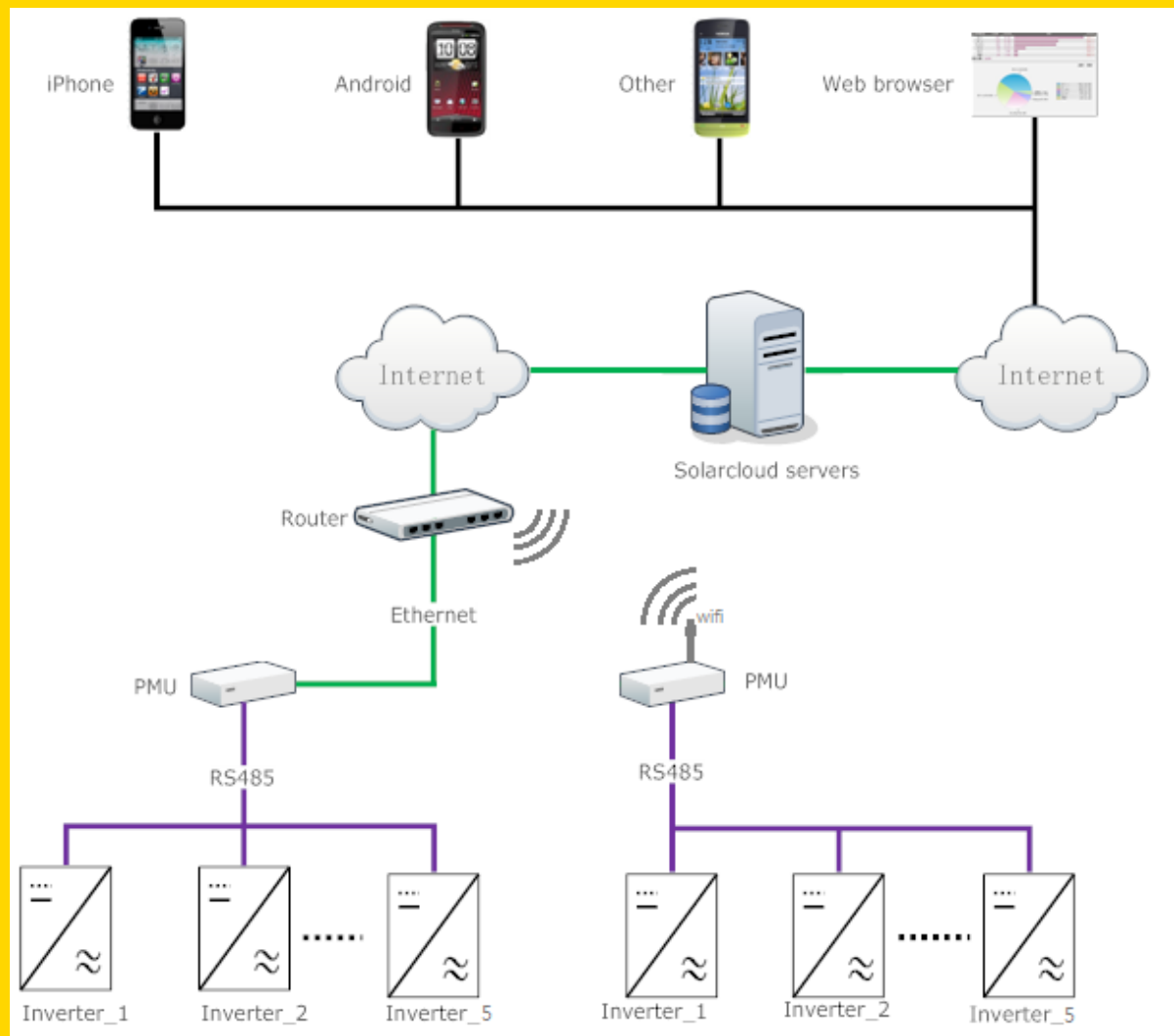
- PV Overvoltage Protection
- PV Overcurrent Protection and Control
- PV Reverse Polarity Protection
- PV Insulation Resistance Low Protection/ISO Protection/PV Ground Protection
- DC Bus Voltage Over Protection

AC side:

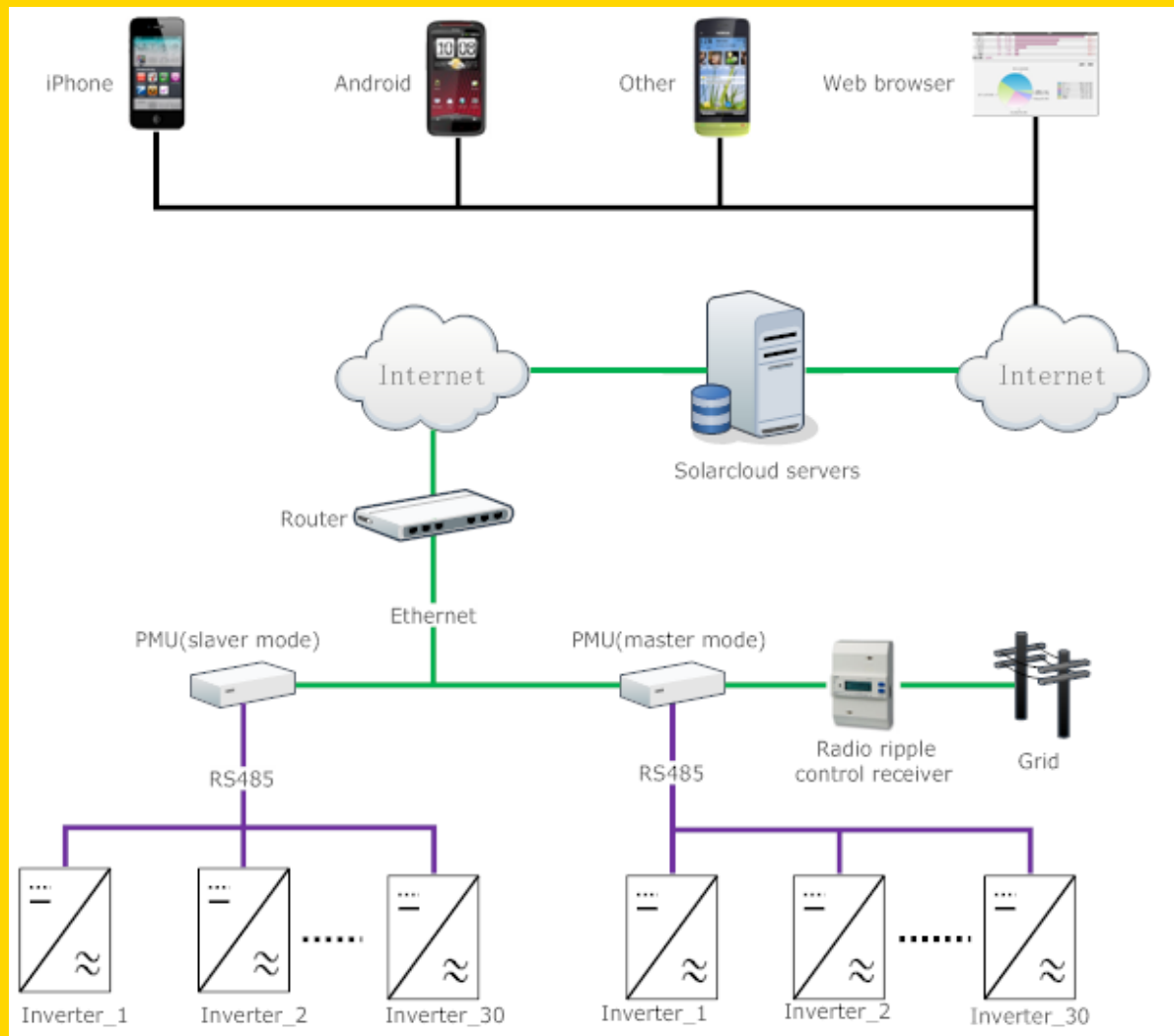
- AC Overvoltage Protection
- AC Undervoltage Protection
- AC Overcurrent Protection
- AC Overfrequency Protection
- AC Underfrequency Protection
- AC Short Protection
- AC Grid loss Protection / Island Protection
- Output Inject DC Current Over Protection/ DC INJ. High Protection
- Output Leakage Current Over Protection/ GFCI Protection

02 **Monitor system**

2.1 Monitoring solution(residential)



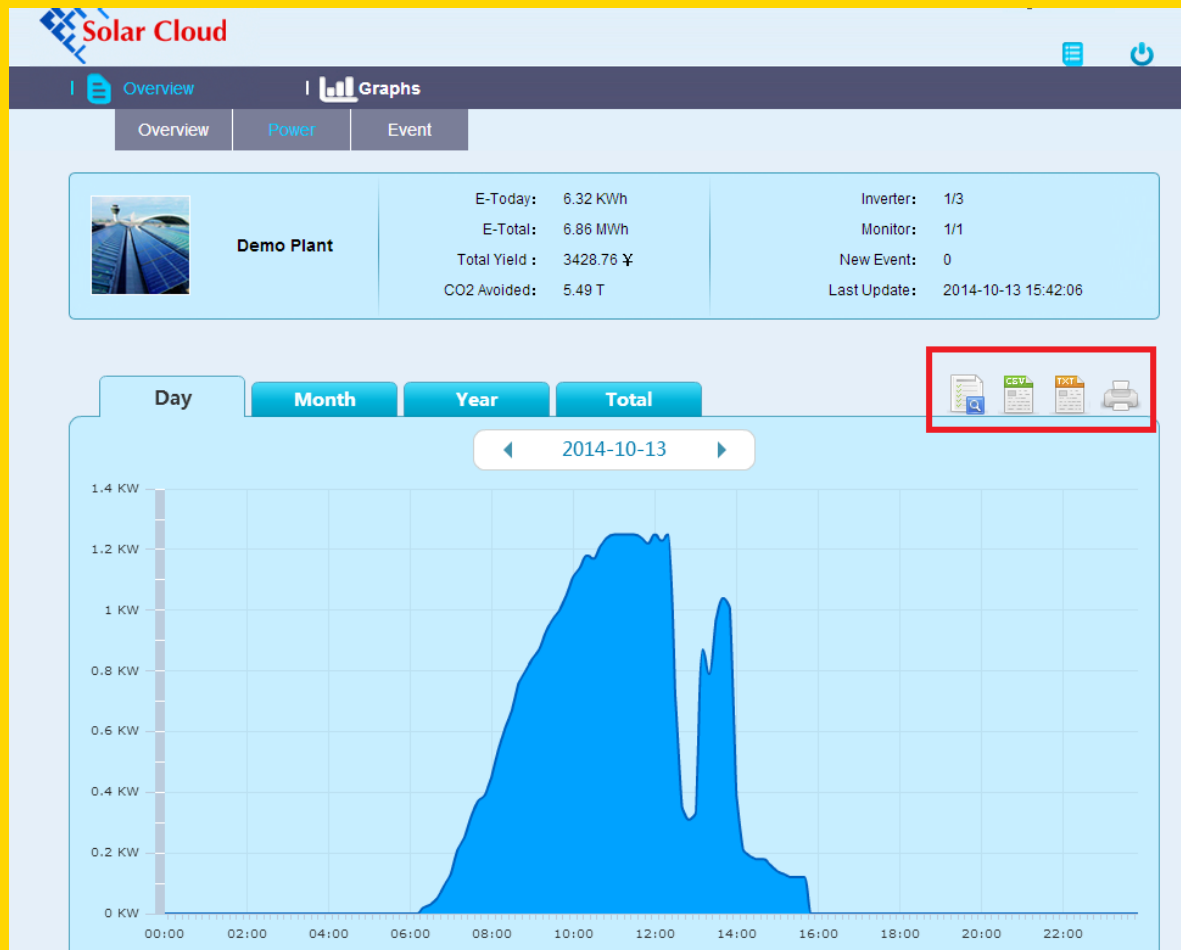
2.2 Monitoring solution(commercial)



2.3 How to download inverter's history running data

History running data cannot be download from inverters directly. It can only be downloaded from solar cloud.

Besides, for three phase inverters (TLC series), you can check some history data on the screen.



2.4 Can I just use a computer to monitor zeversolar inverters without internet connection?

Zeversolar monitor solution is PMU +Solarcloud, which requires internet connection. But we can provide communication protocol for customers to develop their own monitor system. Otherwise, you can use 3rd party monitoring device and software, e.g. Solarlog, etc.

2.5 How to use 3G GPRS to access the internet?

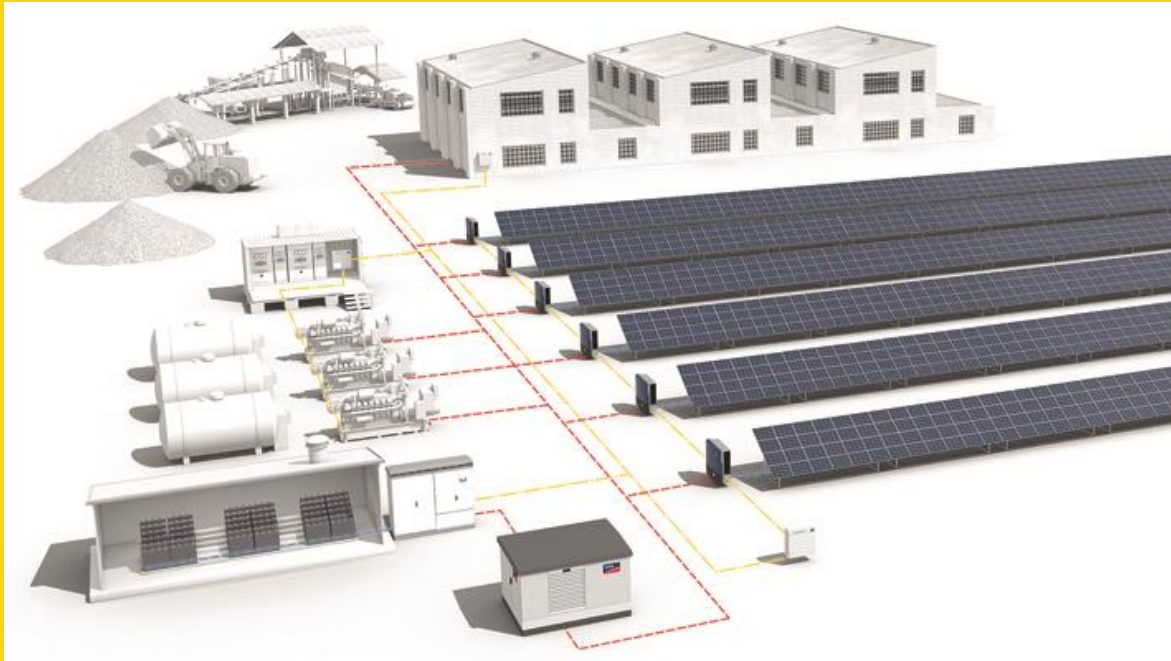
Buy a 3G/3.5G GPRS wireless router, connect the NET port of PMU to this router, then you can access the internet through 3G net.

2.6 Can I get environment information from Solarcloud?

Solarcloud does not contain the information of environment information (irradiation, temperature, wind speed). We are planning to have this function in 2015. If you want to get these information, you can either buy separate environment monitor system, or you can use solar-log instead of PMU, solar-log can connect to environment sensor.

03 System application

3.1 PV diesel Hybrid Application



- The diesel generator supply grid reference signal for the inverter.
- The capacity of all the inverters should be less than the capacity of the load.
- The capacity of all the inverters should be less than 60% of the max genset capacity.

3.2 How to configure zeversolar inverters with PV modules.

Our inverter is suitable for most of monocrystalline or polycrystalline modules. When you configure the modules, please consider the following factors:

- Module parameters
- Environment conditions
- Geometric data
- Maximum DC power
- Strings number
- Number of modules in one string
- The open voltage under extreme high and low ambient temperature
- Etc.

Zeversolar has a free system configuration software –Zeverplan. Zeverplan simplifies the entire PV planning process creating the optimum solar power plant configuration is within just a few minutes. As a cloud based application, Zeverplan is available online at no extra cost and without having to install any software. Registered users have access to a monthly updated module database, worldwide meteorological data and the possibility to input own module information, profiles and unique project templates. It's easy to operate by reseller, installer, end user and PV plant designer etc.

3.3 Can I use thin-film modules for zeversolar inverter?

Zeversolar inverters are not recommended for thin film modules, they are transformerless and designed for silicon modules. We suggest user to use isolated inverters which is designed for thin-film module. It is OK to use zeversolar inverter if the thin-film module is not grounded. But if the module need to be grounded, isolation transformer is required to connect with inverter, which is not cost effective.

3.4 Can I oversize the inverter with more modules?

Our inverter can work with more modules, but we do not recommend to do so. The reliability of inverter might be decreased if too many modules are configured.

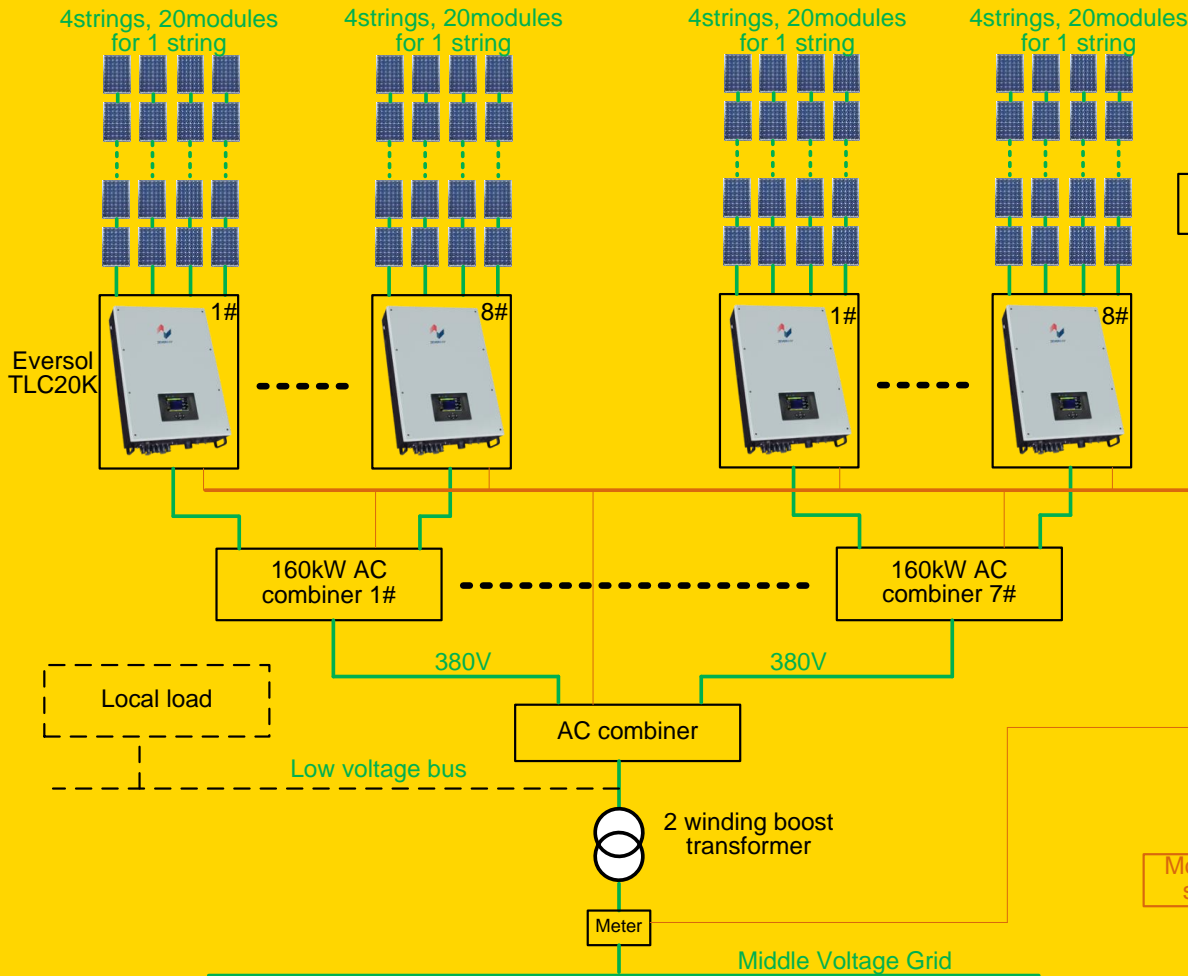
3.5 How to realize the power management?

- through RRCR (radio ripple control receiver) , you can adjust the output according to grid instruction.
- if there is no grid instruction, you can log the webserver of PMU to give a setting. Inverter will control automatically the output according to the PMU setting.

3.6 Can zeversolar inverters applied to Anti Reverse Power systems?

If the local regulation does not allow PV power feed into grid, we can control the output power with PMU for anti-reflux.(only for German code inverter)

3.7 1MW solution with 20K inverters



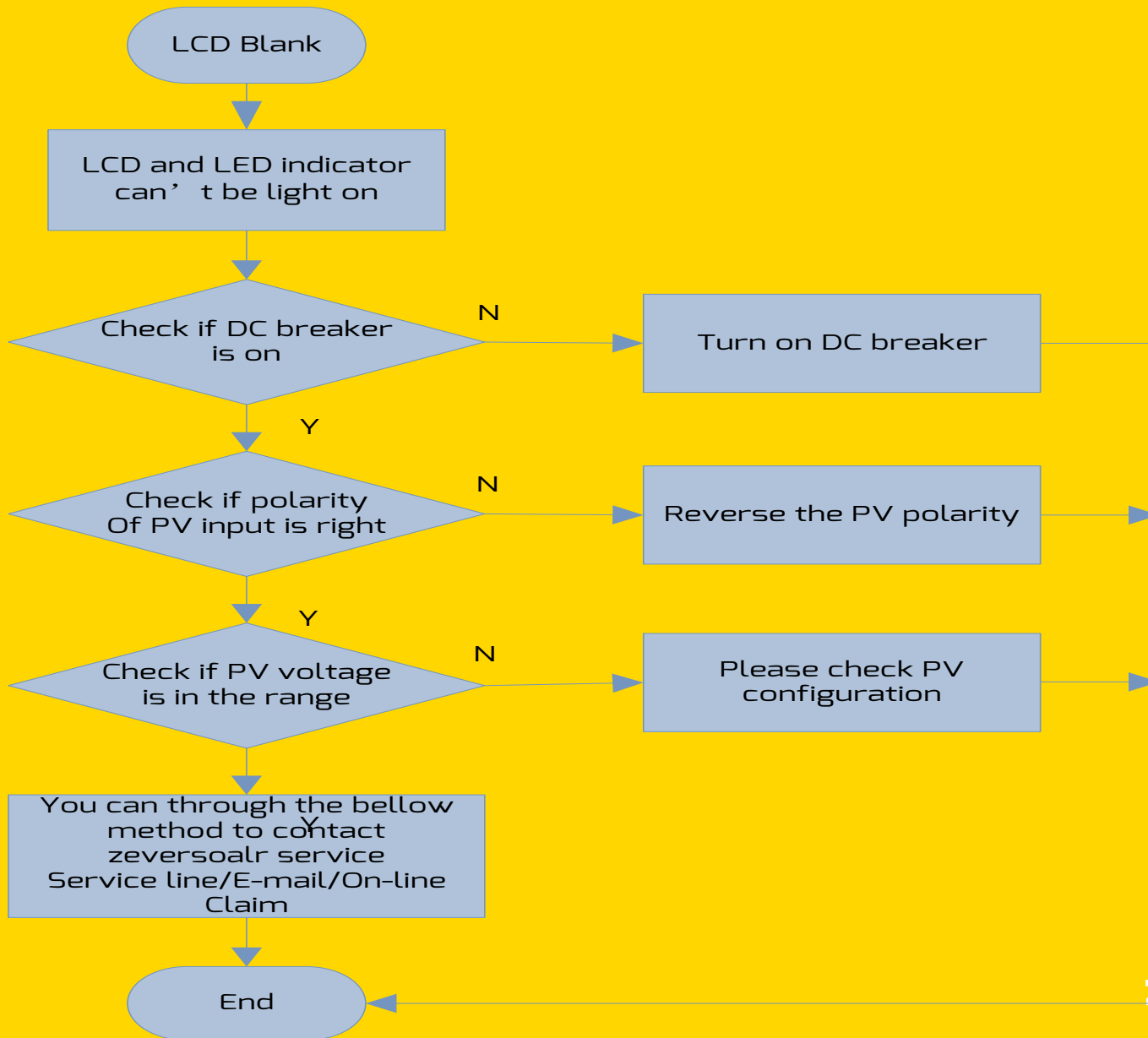
- ✓ Use 50 string inverter of 20kw combined on AC side directly
- ✓ Suitable for industry, commercial and residential rooftop
- ✓ Copy this solution to create several MW station

Features:

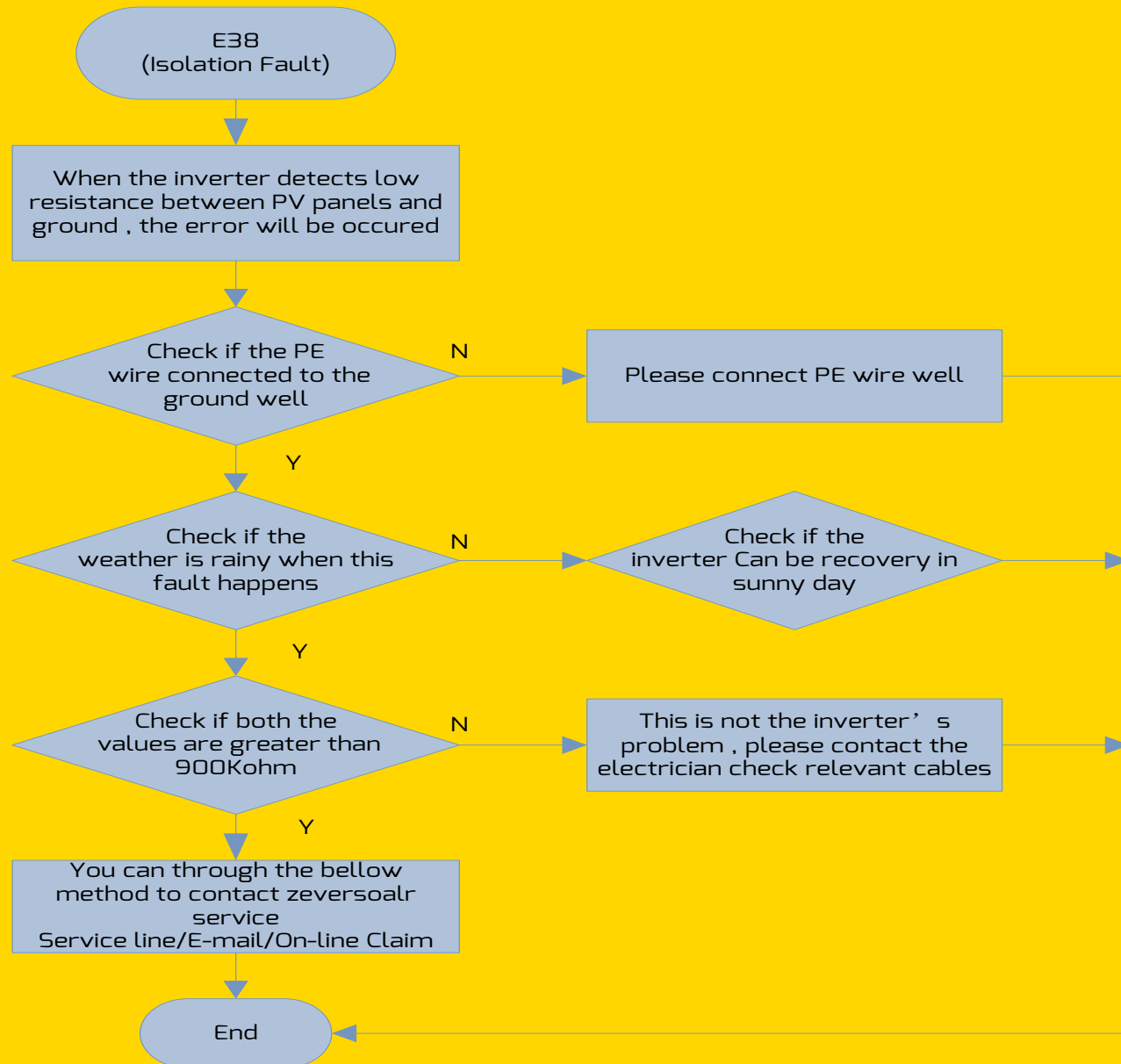
- ✓ High efficiency for each inverter
- ✓ More energy production, each inverter have its own MPPT
- ✓ Low power loss during individual inverter down time
- ✓ Easy to install, mounting on the racking structure or tracker
- ✓ Built-in DC fused combiner and disconnect, no need of DC combiner box
- ✓ Maintenance and servicing is much easier and less expensive

04 Error Code & Troubleshooting

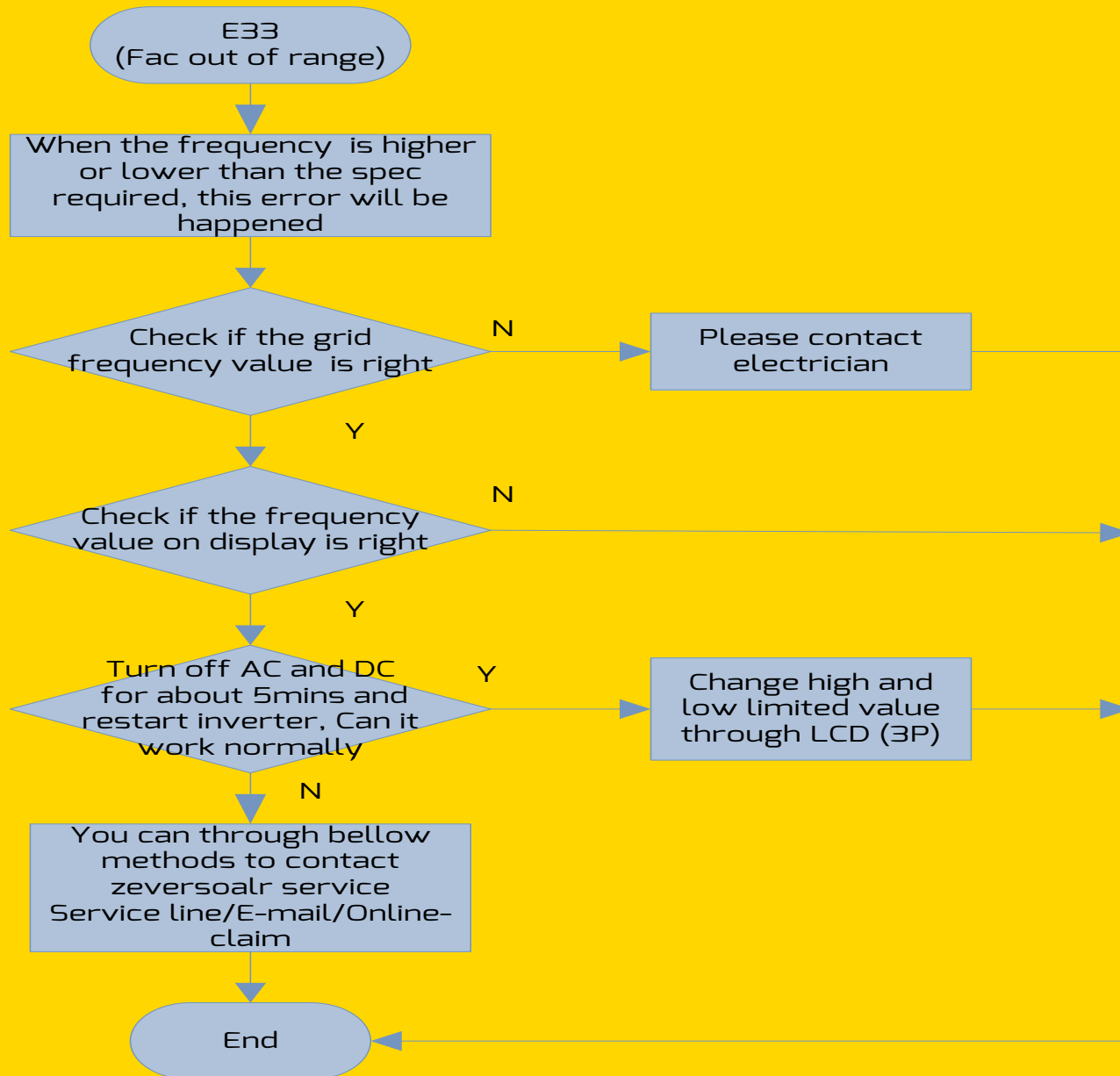
4.1 LCD Blank



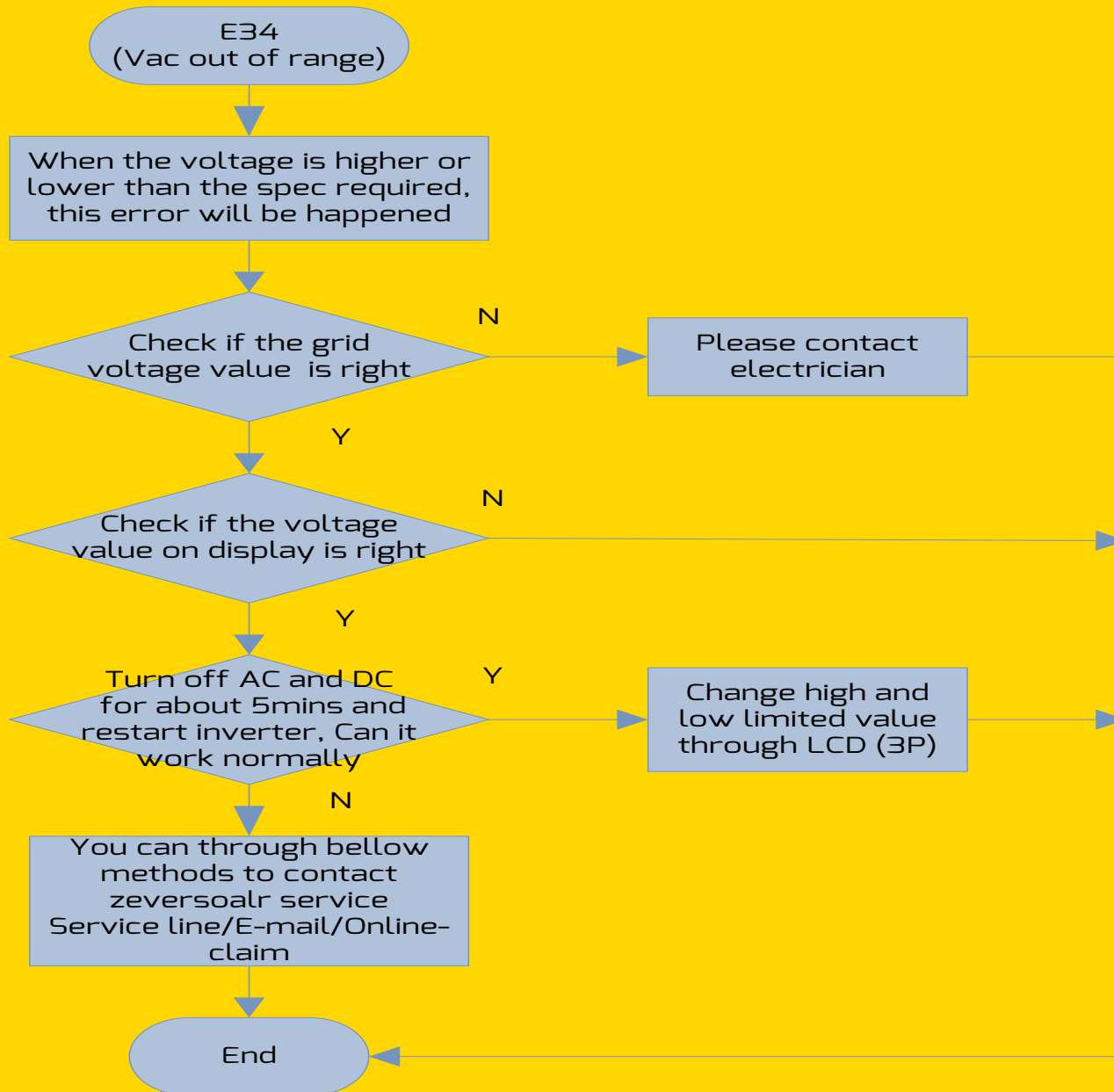
4.2 E38 Isolation Fault



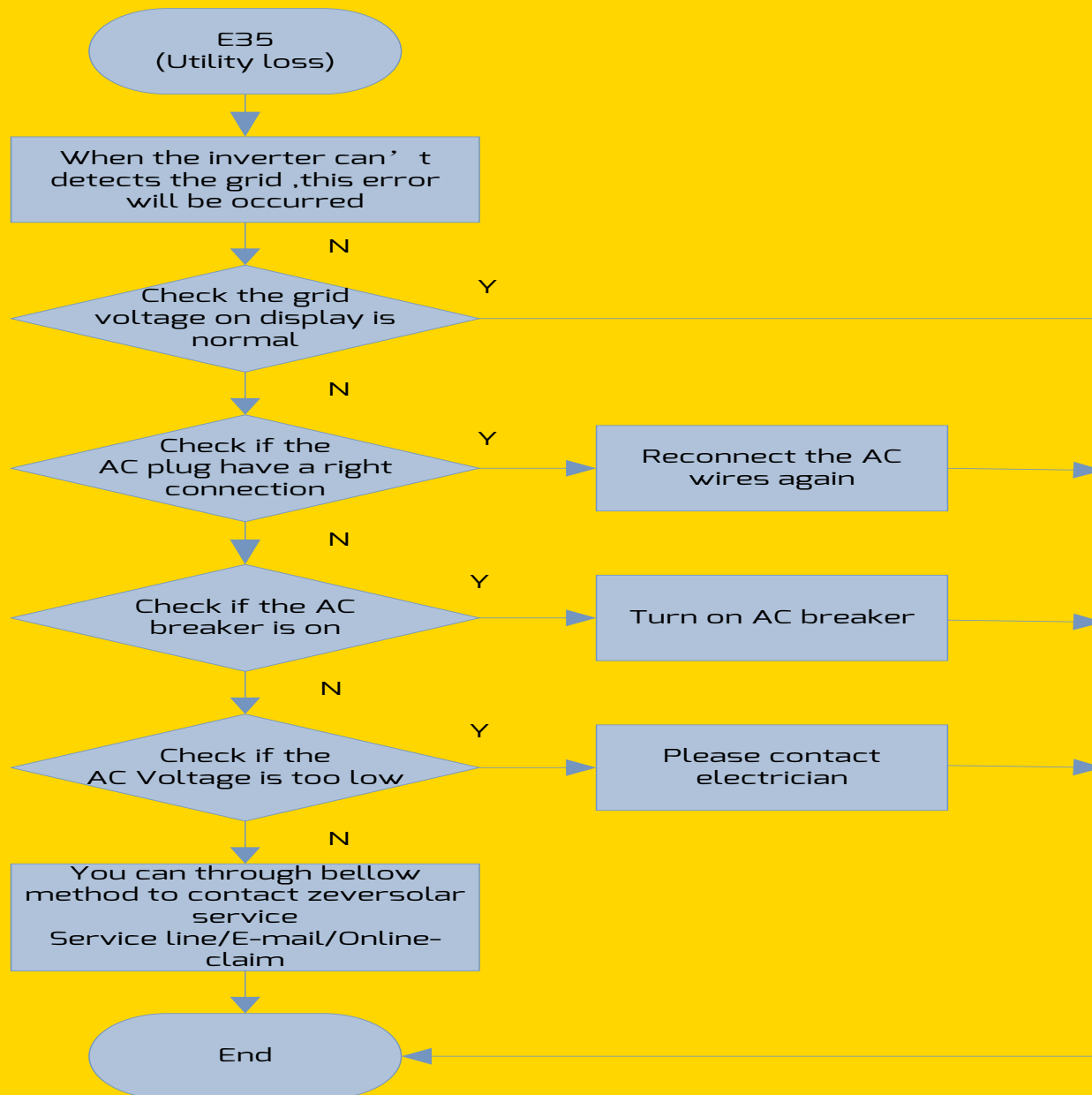
4.3 E33 Fac out of range



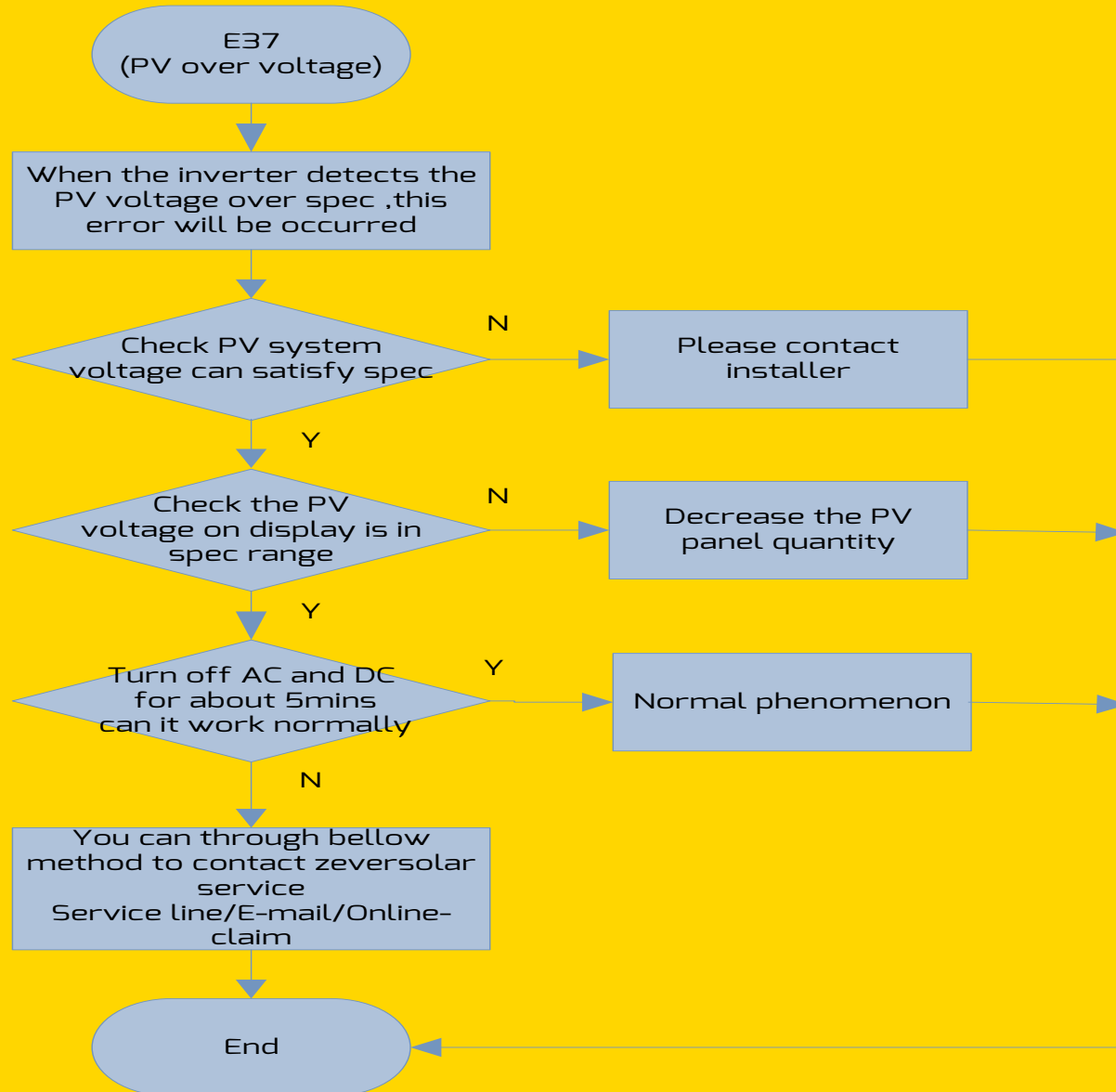
4.4 E34 Vac out of range



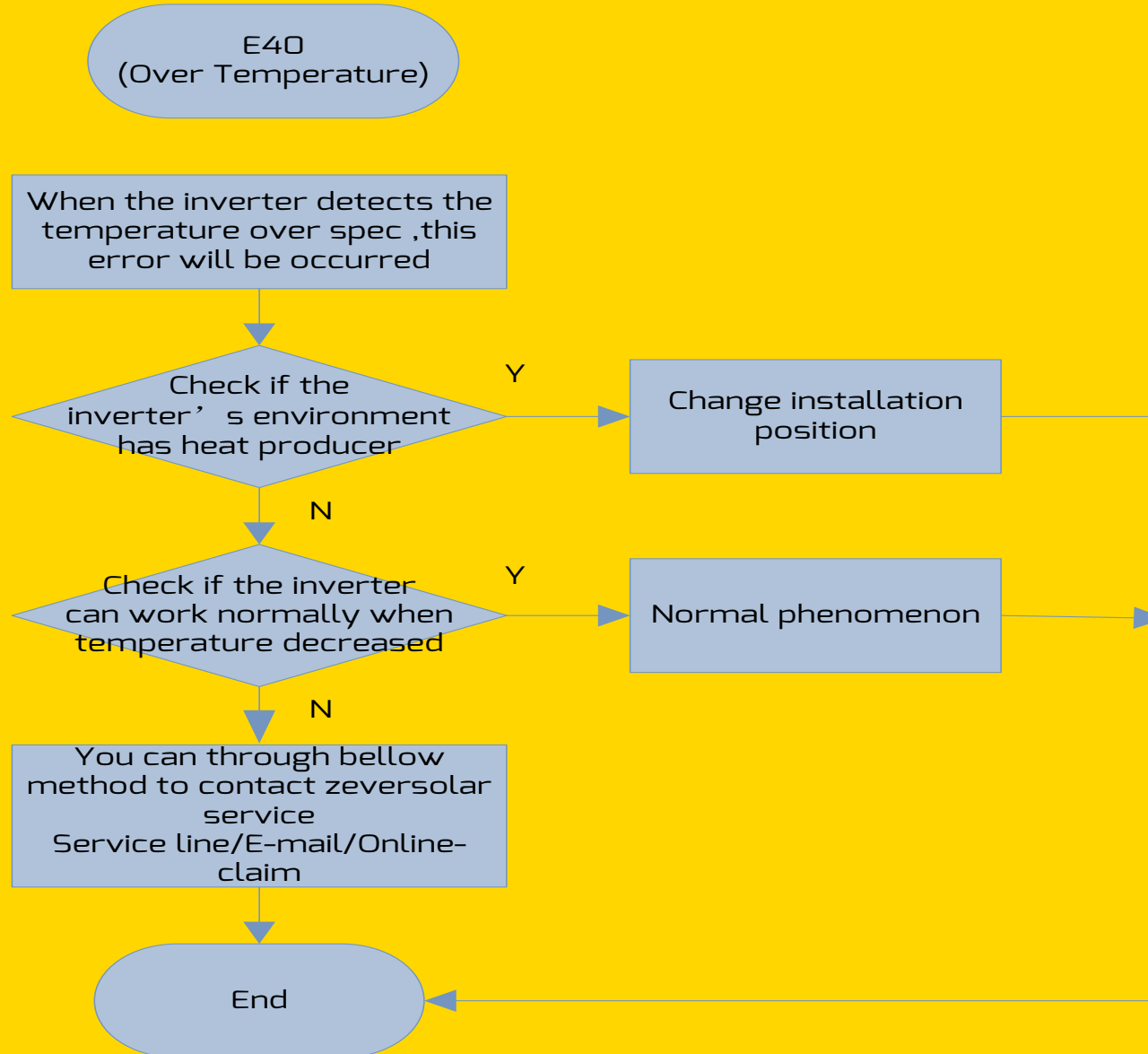
4.5 E35 Utility Loss



4.6 E37 PV over voltage



4.7 E40 Over Temperature



4.8 Error Codes

Error Code	Description	Contact Service Directly
01	Communication Fails between M-S	<p>If these error happed , please through bellow method to contact zerversolar service directly:</p> <p>Service E-mail</p> <p>China : service.china@zeversolar.com</p> <p>ROW: service.row@zeversolar.net</p> <p>AU: service.apac@zeversolar.com</p> <p>EU: service.eu@zeversolar.net</p> <p>Service Line</p> <p>Online claim</p>
02	EEPROM R/W Fail	
04	DC Injection High	
05	The result of Auto Test Function is fail	
07	The voltage reference inside is abnormal	
08	AC HCT Failure	
09	GFCI Device Failure	
10	Device fault	
11	M-S version unmatched	
41	Consistent Fault:Vac differs for M-S	
42	Consistent Fault:Fac differs for M-S	
43	Consistent Fault:Groud I differs for M-S	
44	Consistent Fault:DC inj. differs for M-S	
45	Consistent Fault: Fac,Vac differs for M-S	
47	Consistent Fault	

Three method to contact zeversolar service

Service E-mail

China : service.china@zeversolar.com

ROW: service.row@zeversolar.net

AU: service.apac@zeversolar.com

EU: service.eu@zeversolar.net

Service Line

China: +86 512 6937 0998-8866

ROW: +86 512 6937 0998-8954

EU: +49 (0)2102 420 944

AU: +61 (0)1300 101 883

Online claim

<http://www.zeversolar.com/service/online-claim/>

The background of the slide is a vibrant yellow with a large, stylized sunburst or gear-like pattern in the center. The pattern consists of concentric circles with a fine, dotted texture, creating a sense of depth and energy.

Thank you. **Energy for everybody.**

Jiangsu zerversolar New Energy Co., Ltd.

Add: Building 9, No. 198 Xiangyang Road, Suzhou, Jiangsu, China

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