

Qoltec[®]



OPERATING INSTRUCTIONS

ON-LINE UPS Emergency Power Supply

Model: 52280, 52281, 52282, 52283, 52284

1. Introduction

1. Product Information

The UPS series includes an online sine wave uninterruptible power supply system with a bypass function, which can provide reliable and high-quality AC power for precision equipment. It can be used in a wide range of applications, from computer equipment and communication systems to industrial automatic control equipment. Due to its online design, it differs from uninterruptible power supplies.

It continuously adjusts and filters the input voltage. When a power failure occurs, the UPS will provide emergency power from the backup battery without any time delay. In the event of an overload or inverter failure, the UPS will switch to bypass mode and be powered from the mains. If the overload condition is eliminated, the UPS will automatically switch back to bypass mode.

Symbols and meanings	
Symbols (description in the appendix)	Meaning
1.	Note
2.	Danger
3.	AC (alternating current)
4.	DC (direct current)
5.	Protective earth conductor
6.	Protective connecting conductor
7.	Loop
8.	Do not place together with other objects
9.	Overload
10.	Battery
11.	ON/OFF switch

Precautions

Safety

1. Before using this product, please read the "Precautions" carefully to ensure correct and safe use.
2. During operation, pay attention to all warning signs and take appropriate action.
3. Avoid using the device in direct sunlight, rain, or humid environments.
4. The device must not be installed near a heat source or similar device.
5. such as an electric heater or hot stove.
6. Ensure a safe distance and ventilation around the UPS. Refer to the installation manual.
7. Use dry cleaning tools to wipe or clean the UPS.
8. In case of fire, use a powder fire extinguisher correctly. Using a liquid fire extinguisher may result in electric shock.

Electrical safety

1. Battery life decreases as the ambient temperature increases. Regular battery replacement can ensure normal UPS operation and sufficient backup time.
2. Battery maintenance may only be performed by personnel with specialist knowledge of batteries.
3. There is a risk of electric shock and short circuit in the battery. To avoid injury from electric shock, observe the following warnings when replacing the battery:
 - Do not wear watches, rings or similar metal objects.
 - Use insulated tools.
 - Do not place metal tools or similar metal parts on the battery.
 - Disconnect the load connected to the battery before disconnecting the battery connection terminal.
4. Do not expose the battery to fire to avoid explosion and personal safety.
5. Non-professionals should not open or damage the battery, as the electrolyte in the battery contains hazardous substances such as strong acid that can damage the skin and eyes. If you accidentally touch the electrolyte, immediately wash it off with plenty of water and go to the hospital for examination.
6. Do not short-circuit the positive and negative terminals of the battery, as

this may cause electric shock or fire.

Use and maintenance

1. The environment of use and maintenance method affect the service life and reliability of this product. Do not use it in the following operating environments:
 - A. High or low temperatures and humid locations exceeding the technical specifications
(temperature 0 °C - 40 °C, relative humidity 20% - 90%).
 - B. Vibrating and sensitive locations.
 - C. Places with metal dust, corrosive substances, salt and flammable gas.
2. If the UPS is not used for a long period of time, it (without batteries) must be stored in a dry environment with a storage temperature range of -15 °C to + 60 °C. Before starting the UPS, the ambient temperature must be warmed to above 0 °C and maintained for more than 2 hours.

Illustrations 12, 13, 14, 15 in the appendix

1. Computer interface
2. Smart socket
3. External battery connection
4. USB
5. Input circuit breaker
6. AC input
7. Output receivers
8. Output terminal
9. EPO
10. Battery

2. Specification

MODEL	52280	52281	52282
Rate Capacity	1KVA/1KW	2KV A/ 2KW	3KVA/3KW
INPUT			

Input formats	L+N+PE
Rated input voltage	208/220/230/240VAC
Voltage range	110~300VAC, 110~176VAC, 280~300VAC (limited power)
Frequency range Frequency range	50/60±6Hz (adjustable)
Input power factor input	≥0.99
Input distortion	≤3% THD (linear load), ≤5% THD (non-linear load) (PF=0.8)
OUTPUT	
Output formats	L+N+PE
Output voltage	208/220/230/240 VAC
Output accuracy	±1%
Output frequency Output	Online mode: according to AC frequency, Battery mode: 50/60Hz±0.1%
Output distortion	≤1% THD (linear load), ≤3% THD (non-linear load),

Power factor of output	1	
Swinging time	AC mode to battery mode 0 ms, Inverter to bypass 4 ms (typical)	
Load capacity	AC mode: 30 min @ 102%~110% load 10 min at 110%~130% load 30 seconds at 130%~150% load 200ms@>150% Load	Battery mode 1 min @ 102%~110% load 10 seconds at 110%~130% load 3 seconds at 130% ~ 150% load 200 ms @ >150% load
Machine performance		
AC mode	Full load efficiency 94.5% @220VDC Full load efficiency 95.5% @220VDC Full load efficiency 95.5% @220VDC	

Battery mode	Full load efficiency 89.5% @36VDC Full load efficiency 91.5% @36VDC Full load efficiency 91.5% @36VDC		
Battery mode	Full load efficiency 85.9% @24VDC Full load efficiency 91.5% @36VDC Full load efficiency 91.5% @36VDC		
Charger			
Battery type	Lead-acid battery		
Number of batteries	2 x 9Ah	4 x 9Ah	6 x 7Ah
Charging current	1K, 2K, 3K: 1.0 (default), 1~12A (adjustable) External battery pack; 1KL, 2KL, 3KL, 5.0A		
Charging mode	Two/three charging periods		
Ambient parameters			
Operating temperature 0~40°C	0~40°C		
Operating humidity of the environment	20%~95% (non-condensing)		
Storage -15~60°C (battery: 0~40°C)	-15~60°C (battery: 0~40°C)		
Altitude	<1000 m, derating above 1000 m, maximum 4000 m, see IEC 62040		
Noise level	<50 dB		

Communication interface	
Interface	One USB, one RS232, one EPO
Standards and approvals	EN/IEC 61000, EN/IEC 62040, GB/T7260, GB/T4943, YD/T1095, TLC, etc.

MODEL	52283	52284
Rate Capacity	6KVA/6KW	10KVA/10KW

INPUT	
Formats Input	L+N+PE
Nominal input voltage input	208/220/230/240VAC
Voltage range	110~300VAC, 110~176VAC, 280~300VAC (limited power)
Frequency Frequency range	50/60±6Hz (default)
Input power factor ≥0.999	≥0.99
Input distortion	≤3% THD (linear load), ≤5% THD (non-linear load)
OUTPUT	
Output formats output	L+N+PE
Output Output	208/220/230/240VAC
Accuracy ±1%	±1%
Output of output	Online mode: in accordance with AC frequency, battery mode : 50/60Hz±0.1%
Output distortion	≤2% THD (linear load), ≤5% THD (non-linear load),
Power factor of output	1

Switching switching	AC mode to battery mode 0 ms, Inverter to bypass 4 ms (typical)	
Load capacity	AC mode: 30 min @ 102%~110% load 10 min at 110%~130% load 30 seconds at 130%~150% load	Battery mode 1 min @ 102%~110% load 10 seconds at 110%~130% load 3 seconds at 130% ~ 150%

	200 ms @ >150% load	load 200ms@>150% load
Machine performance		
AC mode	Maximum efficiency 95.5%, efficiency at full load 95%	
Battery mode	Maximum efficiency 95.3%, efficiency at full load 94.8% (20 PSC batteries)	
Charger		
Type Battery	Lead-acid battery	
Number of batteries	6KVA: 16	10KVA: 16
Charging current	1A (default), adjustable 1A-5A	
Ambient parameters		
Operating temperature 0~40°C	0~40°C	
Operating humidity of the environment	20%~95% (non-condensing)	
Storage temperature a	-15~60°C (battery: 0~40°C)	
Altitude	<1000 m, derating above 1000 m, maximum 4000 m, see IEC62040	
Noise level	<50 dB	
Communication interface		
Interface	One USB, one RS232, one EPO, SNMP	
Standards and Approvals	EN/IEC 61000, EN/IEC 62040, GB/T7260, GB/T4943, YD/T1095, TLC, etc.	

Height (m)	1000	1500	2000	2500	3000	3,500	4000	4,500	5000
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Slope slope	10 0 %	95	91	86	82	78	74	70	67%
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Load at altitude = rated power x derating factor (corresponding altitude)

Note: If the device is used at temperatures above 100°C, the rated power must be reduced; see the table above for the derating factor.

As UPS model specifications vary, product weight will differ; please refer to the physical object. If necessary, please contact the sales department.

2.Installation

Warning: For safety reasons, disconnect the AC BREAKER before installation. If it is a model with a long backup time, also disconnect the battery switch.

Note:

- 1.Installation and wiring must be performed by professional personnel in accordance with local regulations.
2. The UPS must be connected to a GROUND.

2.1.Symbol

Check the UPS for any damage that may have occurred during transport. Do not switch on the unit and immediately notify the carrier and retailer if there is any damage or if any parts are missing.

2.2.Wiring schedule

Note: The cable diameter and cross-sectional area of the three wires depend on the actual power of the UPS.

Model	AWG			
	Input	Output	Battery	Cable Grounding
52283	10(6mm ²)	10(6mm ²)	10(6mm ²)	10(6mm ²)
52284	8 (10 mm ²)	8 (10 mm ²)	8 (10 mm ²)	8 (10 mm ²)

2.3.Connecting the UPS

Warning: The rated current of the AC power switch must be greater than the maximum input current of the UPS. Otherwise,

the AC power switch will be burned out and destroyed.

1. Select the cable according to the wiring table.
2. Remove the terminal cover on the rear panel of the UPS. (1)
3. Connect the input and output cables to the appropriate input and output terminals.
4. Tie the wire tightly and feed it through the holes. (2)
5. Tie the input, output and battery cables together, position the cable correctly and secure it.

Figure 16 in the appendix

Warning: When connecting the cable, ensure that the input and output cables and the input and output terminals are securely connected.

Terminal block:

Input		Battery		Output	
N	L	+	-	L	N

Illustration 17 in the appendix

6. Reinstall the cover and secure it with a screwdriver.
7. After connecting the cable and AC power, and then setting the UPS INPUT BREAKER to the "ON" position, the UPS will be powered.

Illustration 18 in the appendix

2.4.Connecting an external battery to a Long Back Up UPS

The nominal DC voltage of the external battery pack is 192VDC. Each battery consists of 16 12V batteries connected in series. For longer backup time, it is possible to connect

multi-battery set.

The battery connection procedure is very important, and failure to follow it may result in electric shock. Therefore, strictly follow the steps below.

1. Set the battery emergency switch to the "OFF" position and connect the appropriate battery in series.
2. Select the appropriate battery cable to connect between the battery pack and the UPS. (See Table 2.2) A DC switch must be connected between the battery pack and the UPS. The power rating of the switch must not be less than that specified in the general data.

Model	52283	52284
Voltage Battery	192 VDC	192VDC
Battery current	Max. 34 A	Max. 56 A

Warning: Do not connect the device to the UPS terminals, otherwise you may receive an electric shock.

3. Connect the other end of the battery cable to the UPS, then connect it to the battery pack. The UPS first connects no load, then switches the battery switch to the "ON" position, then turns on the AC power, and the UPS begins charging.

2.5.Connection to the computer surface

RS232

Using RS232 to connect the UPS to monitoring devices

1. First, connect the RS232 communication cable to the RS232 port on the computer.

2. Then use the second RS232 connector to connect to the RS232 port of the UPS.

USB

Using USB to connect the UPS to monitoring devices

1. First, connect the USB communication cable to the USB port on your computer.
2. Then use the second USB connector to connect to the USB port on the UPS.

Figure 19 in the appendix

RS232 interface on the UPS

Illustration 20 in the appendix

3.CONTROL PANEL

3.1.Panel display

Illustration 21 in the appendix

Display	Function
Message o error	
Fault	A failure has occurred
!	Warnings
8.8	Error code
Mute	
Figure 22	Mute function
Input and output voltage, DC voltage, internal UPS temperature	
Figure 23	VAC: input and output voltage VDC: DC voltage 'c: internal UPS temperature HZ: frequency
Information about load	
Figure 24	Load level (0-25%, 26%-50%, 51%-75%, 76%-100%) and the overload icon flashes when the device is overloaded.
Information about battery	
Figure 25	The battery capacity (0-25%, 26%-50%, 51%-75%, 76%- 100%) is displayed separately, and the battery icon

	flashes when the battery is discharged or not connected.
Other information	
Figure 26	AC
Figure 27	BATTERY
Illustration 28	Bypass
Illustration 29	Inverter
Illustration 30	Working output
Figure 31	Fan status: The LED will always be lit when the fan is operating normally and will flash when the fan is faulty.

Figure 32	Settings icon: when you enter the settings menu, the icon will light up, and in other cases the icon is not displayed.
Figure 33	ECO function: The icon lights up when the ECO function is in use, otherwise the icon is not displayed.
Figure 34	Maintenance icon: When the maintenance switch is on, the icon lights up . In other cases the icon is not displayed displayed.

3.2.LED indicator

The battery indicator is YELLOW: The LED is always on when the UPS is operating in battery mode and battery self-test mode, and the LED flashes and the UPS alarm sounds when the battery charge level is low.

The inverter indicator is GREEN: The LED is always on when the UPS is operating in inverter mode (such as: AC mode, battery mode, battery self-test mode, ECO mode, frequency conversion mode).

3.3.Button function

Button	Function description
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<p>Key Combo for UPS power supply activation ← + ◀</p>	<p>AC mode: Press these two start buttons simultaneously for 1 second to start the UPS.</p> <p>Battery mode: First press the confirmation button ←, and after the screen turns on, press the two groups of start buttons simultaneously for more than 1 second to start the UPS.</p>
<p>Combo key key shutdown ◀ + ▶</p>	<p>AC mode: Press these two start buttons simultaneously for 1 second to start turning off the inverter output. After 1 minute, the system will turn off the inverter output.</p> <p>Battery mode: Press these two shutdown buttons simultaneously for 1 second to shut down the inverter output. After 1 minute, the system will shut down. and the screen will turn off.</p>

Multifunction button for

Testing: in AC mode, press these

<p>← + ►</p>	<p>at the same time for more than 2 seconds to test the battery.</p> <p>Mute: In battery/alarm/test mode, press the two groups of test/mute buttons at the same time and for more than 2 seconds to cancel the alarm, press the two groups of test/mute buttons again and for more than 2 seconds to restore the alarm.</p>
<p>Key function /confirmation ←</p>	<p>key</p> <p>Press the button for more than 2 seconds to enter the function settings page, specify the options, and press the button again for more than 2 seconds to return to the main page.</p> <p>Confirmation: on the function settings page, press the confirmation button for 1 to 2 seconds to confirm the settings options settings.</p>
<p>Page turn/question key turning/question (◀, ▶)</p>	<p>Turning pages: page</p> <p>Press the ◀ or ▶ button for 1 to 2 seconds to turn the page left or right. Query mode: press the ▶ button for more than 2 seconds to enter query mode, display the contents of each page for 2 seconds, press again for more than 2 seconds to return to the home page.</p>

3.4.

**Table
status
UPS**

**UPS
with
LED
LED
and
audible**

signal

Audible signal:

Audible signal	Description
Continuous audible signal	Error mode
Audible signal every second	Low battery voltage in DC mode
	Overload
Audible signal every two minutes	Bypass mode
Audible signal every four seconds	Other audible signals

UPS operating status table with LED indicator: Operating mode	Panel display				Audible signal
	Inverter LED	Battery display	LED Bypass	LED Error	
AC mode					
Normal operation	-				N/V
Warnings	-			*	Audible signal every second/audible signal every four seconds

Battery mode					
Warning except low voltage battery	-	-		*	Audible every four seconds
Low voltage warning voltage warning	-	*		*	Audible every second
Bypass mode					
Normal operation			-		sound every two minutes
Warnings			-	*	Audible signal every second/audible signal every four seconds
ECO mode					
Normal operation	-		-		NOT APPLICABLE
Warnings	-		-	*	Audible every second/sound every four seconds
Another mode					
Battery self-check mode/start-up process Battery self-check/start	*	*	*	*	Audible signal every four seconds

-up process					
Error mode				-	Continuous sound sound

- Indicator continuously on
- * Indicator flashing

3.5.UPS operating status table on the LCD display

AC mode	
LCD display content	Instructions
Illustration 35 in the appendix	The UPS can provide stable AC output when the AC input is within the acceptable range. In AC mode, the battery will also be charged by the UPS.
Battery mode	
LCD display content	Instruction
Figure 36 in the appendix	When the AC input is outside the limited range or is turned off, the UPS will switch to battery mode. The batteries support charging outputs and will emit an audible signal every 4 seconds.
Bypass mode	
LCD display content	Instruction
Illustration 37 in the appendix	When the AC input returns to normal, activate bypass mode and the UPS will shut down. The UPS will switch to bypass mode and emit an audible signal every 2 minutes.
Error status	
LCD display content	Instructions
Figure 38 in the appendix	When an error occurs in the UPS, the LCD display will show an error message .

3.6.Parameter query

Normally, the LCD display can show a total of 8 pages. Pressing the ◀ or ▶ query button for 0.1-2 seconds can switch to different pages that display all information such as input, battery, output, charging, software version,

temperature, etc. If an alarm condition occurs, the display will add 1 additional page to display the alarm information. If an error occurs in the UPS, the default display will automatically switch to the error code page. The default home page displays fault or alarm information. When the UPS is operating normally, the default home page displays output voltage and frequency information.

Press ► (right button) for more than 2 seconds, and the LCD display will enter query mode. The screen will change pages every 2 seconds. Press and hold the ► button to exit the LCD display from query mode.

LCD display 1: Input and UPS output voltage	Display 1: Input and output UPS
Figure 39 in the appendix	Figure 40 in the appendix
Display 2: Voltage and battery capacity	LCD display 4: Output voltage and output active power
Figure 41 in the appendix	Illustration 42 in the appendix
LCD display 5: Output voltage and composite output power	LCD display 6: Output voltage and load percentage
Figure 43 in the appendix	Figure 44 in the appendix
Display 3: Software UPS system software	LCD display 8: number of connected batteries
Figure 45 in the appendix	Illustration 46 in the appendix

3.7.Function setting

01: Output voltage

LCD display	Setting
Illustration 47 in the appendix	<ol style="list-style-type: none"> 1. Press the function setting button ← for 2 seconds, then proceed to the settings page. Voltage. Press and the page turn buttons "OPU" buttons will flash.
	<ol style="list-style-type: none"> 2. Press the confirmation button ← for 0.5~2 seconds, then go to the output voltage settings page OPU settings page. The OPU label will light up and the digits to the left of OPU will flash. Press the page scroll buttons (◀ or ▶) for 0.5-2 seconds to select a different output voltage value. The optional voltage values are 208V, 220V, 230V and 240V. Default The output voltage is 220V. Once you have made your settings, save

	<p>them.</p> <p>3. Set the desired voltage value and press the confirmation button ← 0.5-2 s, then finish setting the OPU. The number on the left side of the OPU will light up without flashing.</p> <p>4. Press the function settings button (i) for more than 2 seconds to close the settings page and return to the home page. (If you do not perform any operation and wait more than 30 seconds, the page will automatically return to the main page). Note: If the output voltage is set to 208 V, the output power must be reduced by 90%.</p>
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: Other functional settings LCO display	Setting
Figure 48 in the appendix	<p>Set expert mode to ON, then return to the functional settings page. The functional settings will show the number of batteries (PCS), EPO, charging current and other selectable items. When expert mode is OFF, only general options are displayed on the functional settings page only the general options are displayed. Note: Expert mode is disabled by default. After set to ON and then reconnecting the AC power, the EP can be reset to OFF.</p>

2. : Battery low voltage cut-off point/end-of-discharge voltage (EOD)

LCD display	Setting
Figure 49 in the appendix	<p>EOD setting options are dEF, 9.8V, 9.9V, 10V, 10.2V, 10.5V The default EOD is dEF</p>

	(The EOD value will be changed depending on load conditions. 10.5V@ Load<25%, 10.2V@ 25%< Load< 50%, 10V@Charging >50%)
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3. : Economy mode (ECO)

LCD display	Setting
Illustration 50 in the appendix	The ECO function is disabled (OFF) by default and can be set to enabled (ON) to improve system performance. Note: For models with PF<1, disabled by default and cannot be set.

4. : Emergency Power Off (EPO)

LCD display	Setting
Figure 50 in the appendix	When EP is set to ON, the EPO option appears on the function settings page, and emergency shutdowns can be set. The default setting for the emergency shutdown function means that the connected EPO terminal is valid (OFF). you can select to connect the EPO terminal as valid (ON). Note: After EPO operation, emergency shutdown, immediately close all outputs.

5. : Number of batteries (PCS)

LCD display	Setting
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Illustration 52 in the appendix	When EP is set to ON, the PCS option will appear on the function settings page. Enter the password page, enter the password (the general password is 135), and you can set the number of batteries. The battery number system is set to 16 by default, which can be set to 16/18/20.
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6. :Charger current (CHG)

LCD display	Setting
Illustration 53 in the appendix	When the EP option is set to ON, the CHG option appears on the function settings page. You can set the charger current, optionally 1-12A, default 1A; Note: If the UPS is equipped with batteries, the default charger current is 1 A and cannot be changed.

7. : Neutral wire reversal and live input alarm function

LCD display	Setting
Figure 54 in the appendix	<p>The neutral input and live wire reversal alarm mode are closed by default and can be opened to improve system safety.</p> <p>Note: The factory settings are closed by default; open them if necessary.</p>

4.Warning code/error code and solution

4.1.Warning code and solution

If the "it" symbol flashes on the UPS LCD display, it means that the UPS is in

alarm mode. Press the page change button to go to the error status page (see 3.5), observe the alarm code and take appropriate action according to the table below.

Alarm code	Indication	Possible causes	Remedy
1	No connection to the battery	<ol style="list-style-type: none"> 1. Do not connect the battery 2. Damage battery 	<ol style="list-style-type: none"> 3. Check battery connection. 4. Replacing the battery
2	Low battery voltage	<p>Voltage voltage is lower than the low voltage warning point. The battery discharge is below the alarm point.</p>	<p>After setting the battery for a specified period of time, it can be reactivated. The built-in charger can be activated to charge the battery.</p>
4	The input neutral wire and live wire are reversed.	<ol style="list-style-type: none"> 1. The input neutral wire and live wire are reversed. 2. The input ground cable is not connected. 3. The output ground cable is not connected. 	<ol style="list-style-type: none"> 1. Reverse the neutral wire and the live wire. 2. input + B3: the C14 output ground cable provides a good connection.
8	Excessive battery voltage	The UPS detects high battery voltage	Check that the number of batteries setting is compliant with the actual number of batteries.
9	Failure	Incorrect charger	Contact supplier

	charger	equipment charger	
10	Alarm Temperature exceeded	1. Fan error 2. The air duct on the rear panel of the UPS is blocked. 3. 4.NTCH overload Incorrect equipment or incorrect connection. 5. power supply unit IGBT is damaged	1. check rectifier fan 2. Remove obstruction from the rear panel of the UPS 3. Check the load 4. If the above treatment does not work
12	Fan error	1. Fan wiring is loose 2. Fan equipment is faulty	Check the fan and connection
13	AC fuse open	Blown Fuse	Contact supplier
14	EEPROM error	Damage circuit EEPROM	Contact supplier
21	Overload	Load exceeds rated power	Check the load
22	3 consecutive overload	3 subsequent overload locks	Switch-off and restarting the UPS

23	EPO operation	Press the EPO button	1. Release the EPO button 2. Check the wiring on the EPO button
24	Switch operation maintenance	Service is pressed is pressed	Release the service switch

4.2. Error code and solution

When the "FAULT" message remains lit for a long time and the "" symbol flashes on the UPS LCD display, the UPS is in a fault state. The UPS will automatically switch to the fault status page (see 3.5) to observe the error code and take appropriate action according to the table below.

Error code code	Display	Possible causes	Remedy
1	Soft start error of power steering bus	<ol style="list-style-type: none"> 1. Incorrect alternating current 2. Abnormal soft start circuit bus start circuit 	Check the main circuit; if everything is OK, contact with the supplier
2	Overvoltage on the bus	<ol style="list-style-type: none"> 1. Incorrect alternating current 2. Software processing error Software processing 3. Bus capacity error 	Check the main unit; if everything is OK, contact your supplier
3	Bus voltage too low	<ol style="list-style-type: none"> 1. Mains power is too low 2. Software processing errors Software processing 3. Bus capacitor failure BUS 	Check the mains power supply; if there are no irregularities, contact your your
7	Excessive temperature	<ol style="list-style-type: none"> 1. Fan failure 2. The air duct on the rear panel of the UPS is blocked 3. Overload 4. NTC hardware malfunction or incorrect wiring 5. Damaged IGBT power supply device 	<ol style="list-style-type: none"> 1. Check the fan rectifier; 2. Clear any obstructions in air duct air duct 3. Check the loads on the rear UPS power supply panel; 4. If you are unable to resolve all of the above problems, please contact your supplier.
8	Short circuit in the battery	Damaged relay equipment RL 1/RL3	Please contact your supplier
9	Soft start failure bus relay	<ol style="list-style-type: none"> 1. The municipal electricity supply is abnormal 2. Start 	Check the municipal electricity supply;

		<p>bus</p> <p>bus</p> <p>and incorrect loop</p>	<p>if there are no irregularities, contact your supplier;</p>
17	Failure of the soft function	<ol style="list-style-type: none"> 1. Some components of the inverter are damaged; 2. The control panel is damaged 	Please contact your supplier
18	Overvoltage at Inv output	<ol style="list-style-type: none"> 1. Some components of the inverter are damaged; 2. The control panel is damaged 	Please contact your supplier
19	Inv output under voltage	<ol style="list-style-type: none"> 1. Some components of the inverter are damaged; 2. The control panel is damaged 	Please contact your supplier

20	Inv short circuit	<ol style="list-style-type: none"> 1. Some components of the inverter are damaged. 2.0 Short circuit at the output 	<ol style="list-style-type: none"> 1. Check that there is no short circuit at the there is a short circuit at the UPS output. 2. Check whether the loads are short-circuited 3. If there are no irregularities, contact your supplier
26	Negative power supply protection (output with AC input failure)	<ol style="list-style-type: none"> 1. Reverse bypass to inverter 2. Incorrect overload 	Check the loads and if there are no irregularities, contact supplier;
33	Relay Inv or	Relay RL 8 is faulty	Please contact your supplier

	circuit open SCR		
34	Short circuit of the Inv relay or SCR		
35	Open circuit of the bypass relay bypass or SCR	The RL4/RL6 relay is faulty	Please contact your supplier
36	Short circuit in the bypass relay or bypass or SCR		
37	Reversed connection	Reverse wiring at input and output	Check the wiring harness of input and output wires
39	Short circuit charger	1. Short circuit at the charger output 2. Incorrect charger equipment	Please contact supplier
66	Error Overload	1. Excessive overload 2. Voltage reduction reduces the rated power of the system	1. Check that the load is within the specified range 2. Check that the pressure has been reduced
67	Charging at too high a voltage or reverse charging	1. Hardware error 2. Number of faulty batteries 3. Incorrect wiring	1. Check whether the battery wiring or battery number

			meets the requirements
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	battery connection		2. If there are no problems, contact supplier
68	Unknown device model	Software version error	1. Restart the device; 2. If there are no problems, contact your supplier;
72	Excessive charger current	1. Hardware error 2. Incorrect battery	1. Check whether the battery wiring or battery number meets requirements 2. If there are no problems, contact your supplier;
73	No bootstrap	Software version error	1. Restart the device; 2. If there are no problems, contact

			your supplier;
81	Unknown battery number of batteries	Number of faulty batteries	1. Check whether the battery number
82	Matching in the QTY battery setting	The number of battery settings is incorrect and cannot be matched to the software settings	the battery number meets requirements 2. Check whether the the battery jumper is the same as the the software.

4.3.Common faults and troubleshooting

Number	Description of the problem or errors	Reason	Solution
1	Connection to the municipal network power supply and no display on the LCD panel	No input power	Check that the UPS input cable harness is properly connected.
		Input voltage too low or overload	Use a voltage meter to check that the input voltage is normal or meets requirements.
2	Electricity in the city is normal, no AC input indicator AC power indicator, UPS still operating in battery mode	UPS power switch is still off	Press the mains power switch on the UPS
		The wiring harness	Check the input cable harness input wiring harness; if it is normal

		is loose or incorrectly connected	
3	The UPS does not display an error, but there is no output voltage	The wiring harness is loose or incorrectly connected	Ensure that the wiring harness is properly connected.
4	Press the ← button, The UPS did not start	Press the button to briefly	Press ← for 5 seconds, you will hear a "Di" sound.
		Overload	Remove all loads and restart the device
5	With mains electricity, but without Mains indicator or electricity	Voltage or frequency within the input range UPS	Use a multimeter to check the input voltage to ensure that input frequency meets the requirements.
6	The battery discharge time is shorter than the standard time	The battery power has been used up	Charging a new battery
		The battery has not fully charged	Charge the battery for more than 8 hours using a normal mains power supply, then perform the test again.
7	Unusual noises or odours are coming from inside UPS	Internal power supply of the UPS	Immediately switch off the UPS, disconnect the power supply and contact the customer service centre for

			technical assistance.
8	The battery mode indicator lights up yellow, a long buzzer sound is heard, and the battery capacity is insufficient, ready to switch off	Low battery charge means that the UPS is ready to shut down and the loads will be cut off.	<ol style="list-style-type: none"> 1. You should immediately save load data and completely shut down important loads to avoid data loss or damage. 2. Immediately connect the UPS input terminal to the backup AC power source

5. Battery maintenance and repair

The Qoltec UPS series has very low maintenance requirements. The UPS charges when connected to AC power, regardless of whether it is switched on or off, and has protection against overcharging and overloading.

Under normal conditions (in a UPS environment with a small emergency power supply), the battery should be charged and discharged every 4-6 months. Discharge before turning off the UPS, then continue charging. The standard charging time should not be less than 12 hours.

If the UPS is not used for a long time, it should be charged every 4-6 months. In high-temperature areas, the battery should be charged and discharged every two months, and the charging time should not be less than 12 hours.

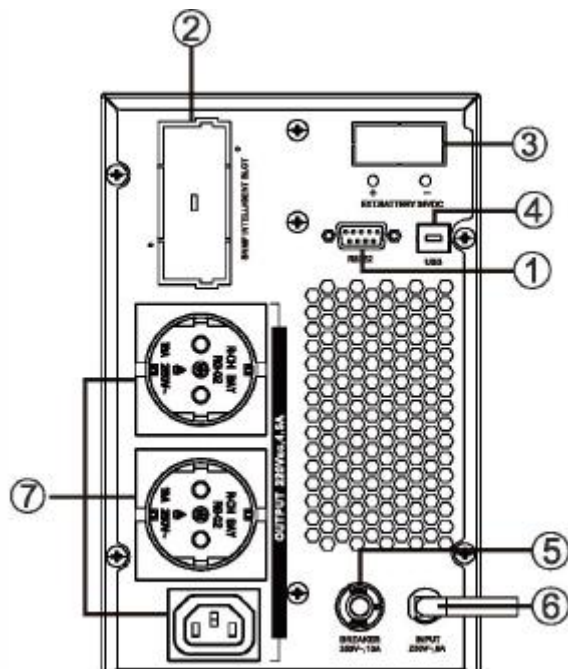
Under normal conditions, the battery life is 3-5 years. If the battery is in poor condition, it should be replaced in advance, and the battery replacement must be performed by a professional.

- When replacing the battery, follow the principle of "model to quantity" and "model to model".

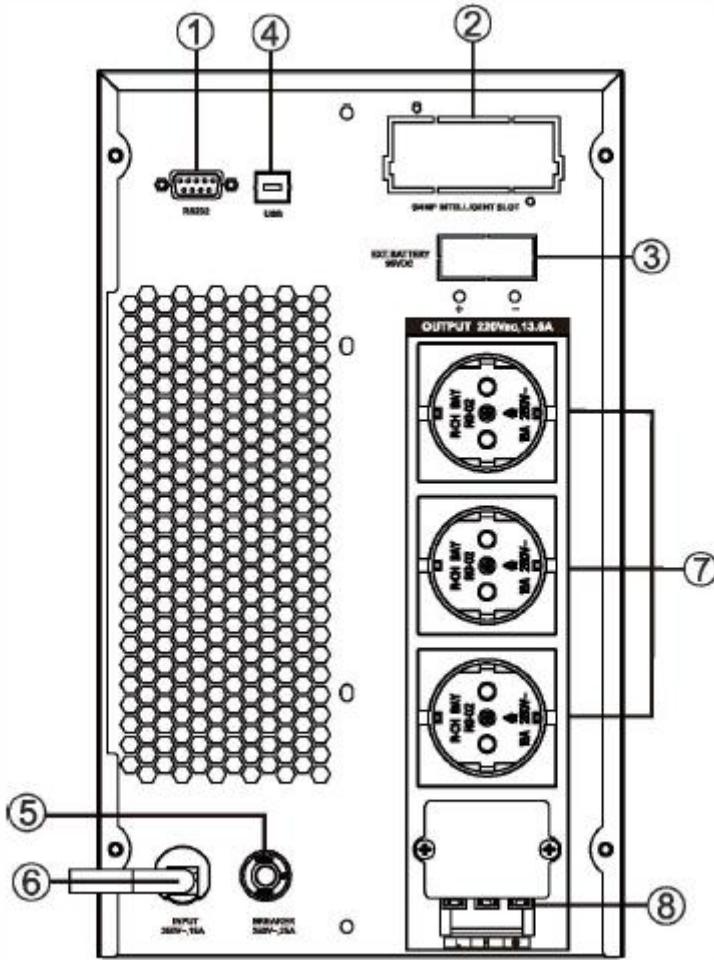
- Batteries should not be replaced individually, and when replacing the entire battery, follow the instructions of the battery supplier.

Attachment 1

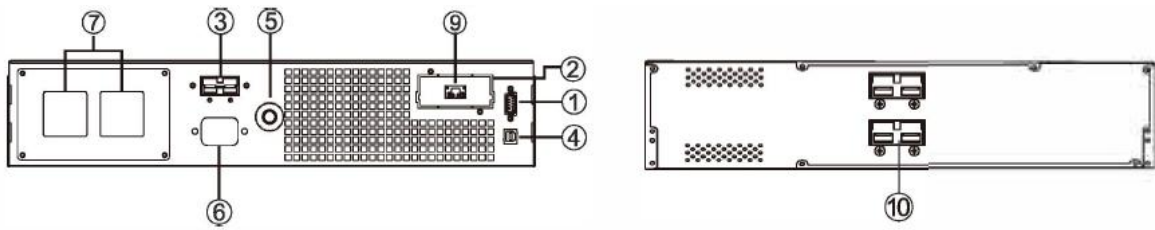
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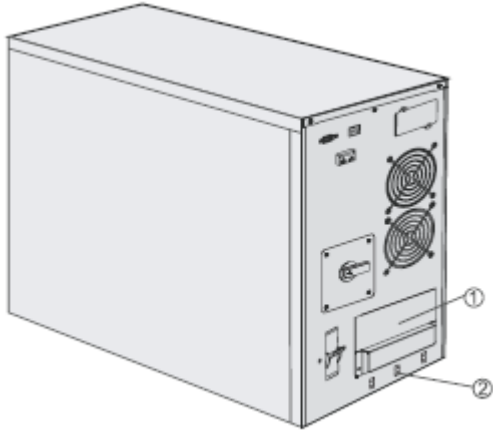
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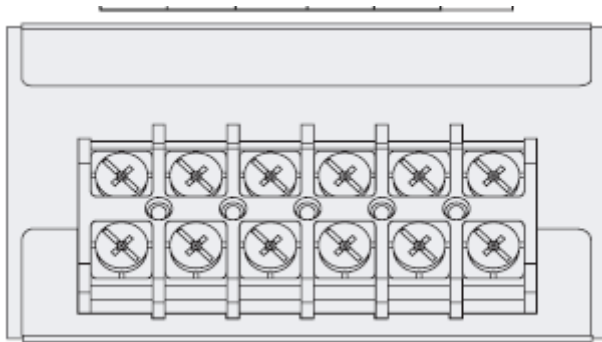
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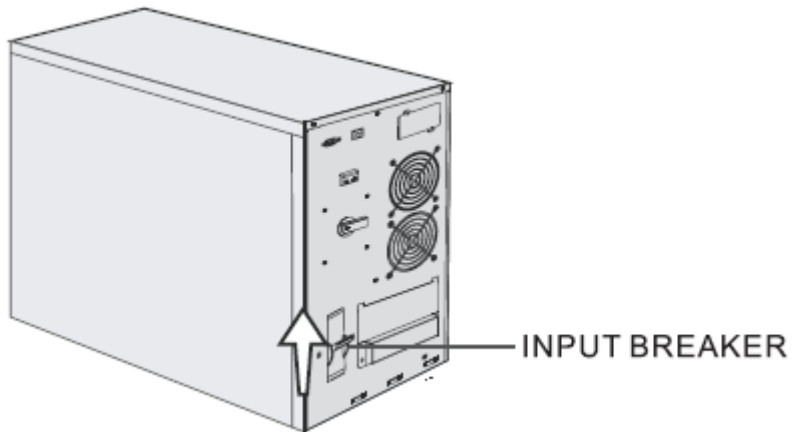
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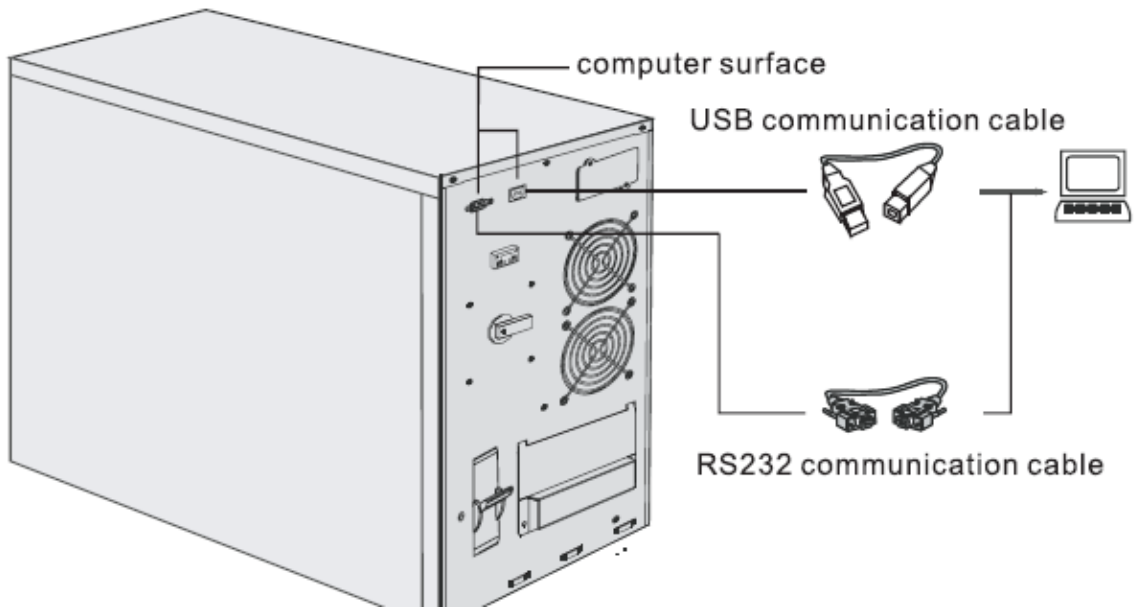


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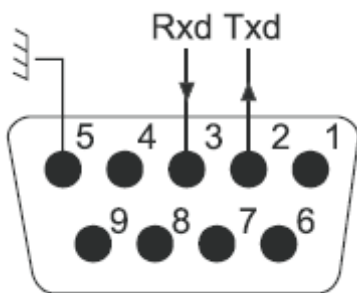


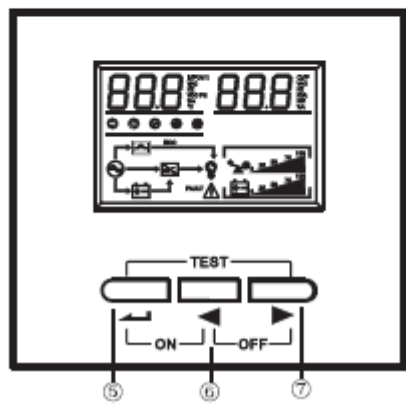
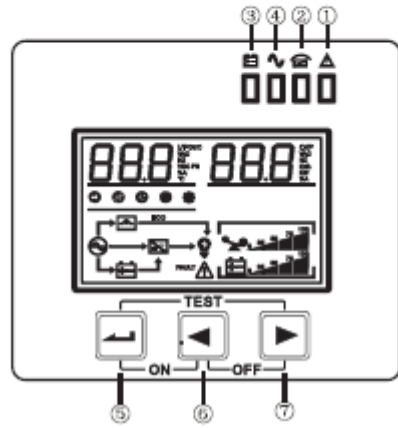
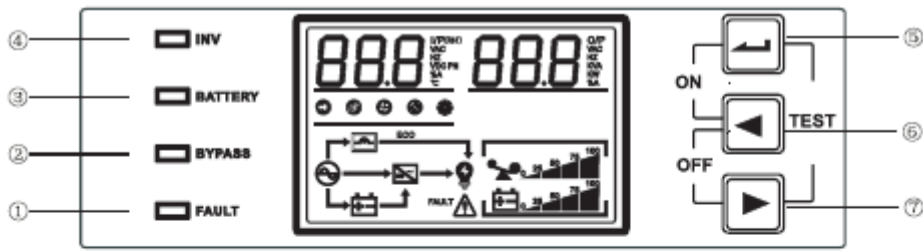
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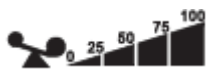
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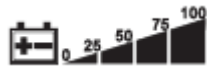
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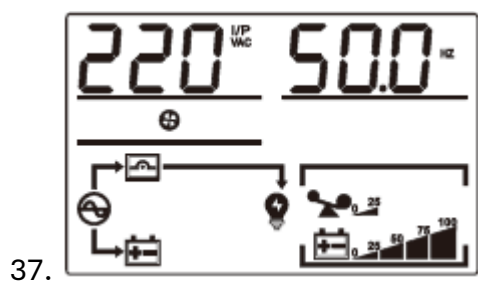
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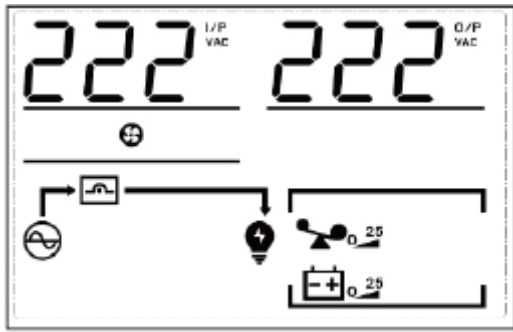
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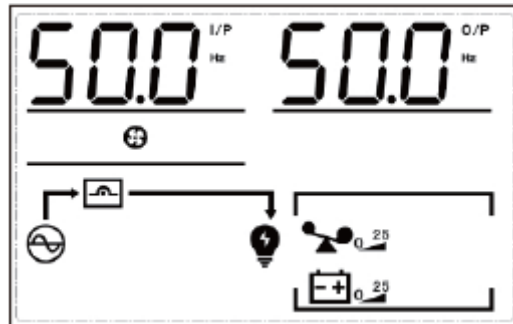
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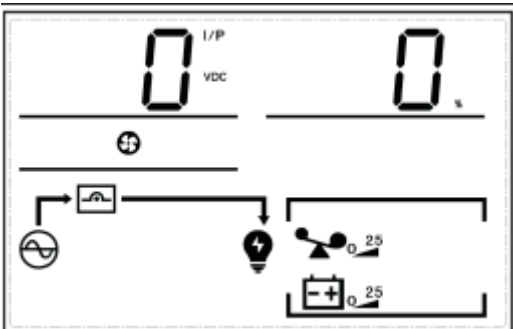
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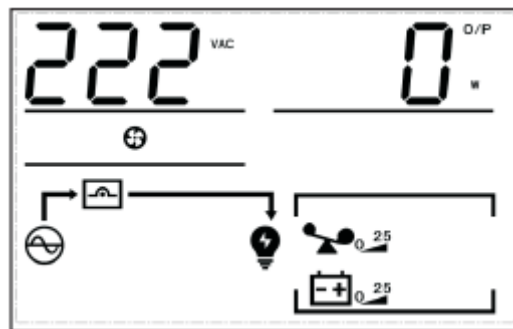
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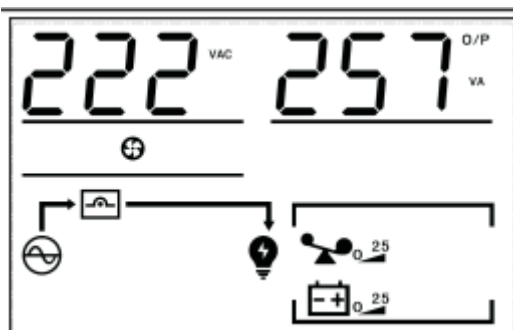
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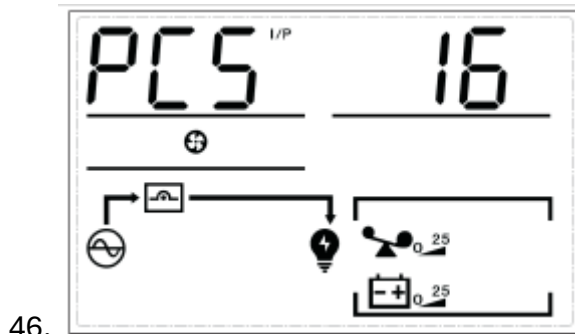
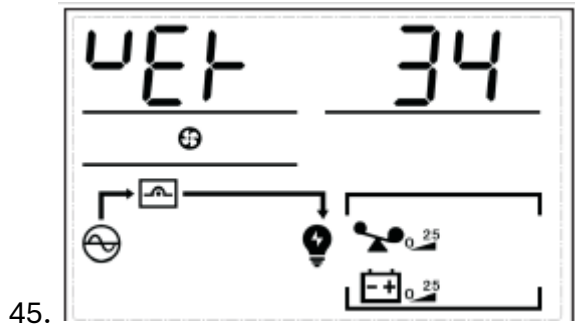
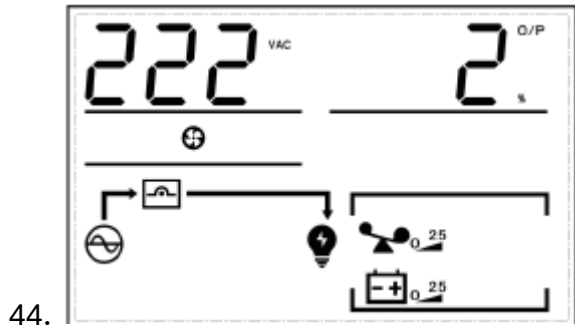


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10.5^{vac} EOD
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OFF ECO
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ON ECO
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OFF EPO ON EPO
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51.

20 PCS 16 PCS
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1. CHG 2. CHG
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53.

OFF ECO * ON ECO *

54.