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> ChongXiao WXGN301 Brushless Controller and LCD Display User Manual

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ChongXiao WXGN301 Brushless Controller and LCD Display User Manual

Model: WXGN301 | Brand: ChongXiao

PRODUCT OVERVIEW

This manual provides detailed instructions for the installation, operation, and maintenance of your ChongXiao WXGN301 Brushless Controller and accompanying LCD Display. This system is designed for electric bikes and e-scooters, supporting universal voltage ranges from 36V to 72V and power outputs from 500W to 1000W.

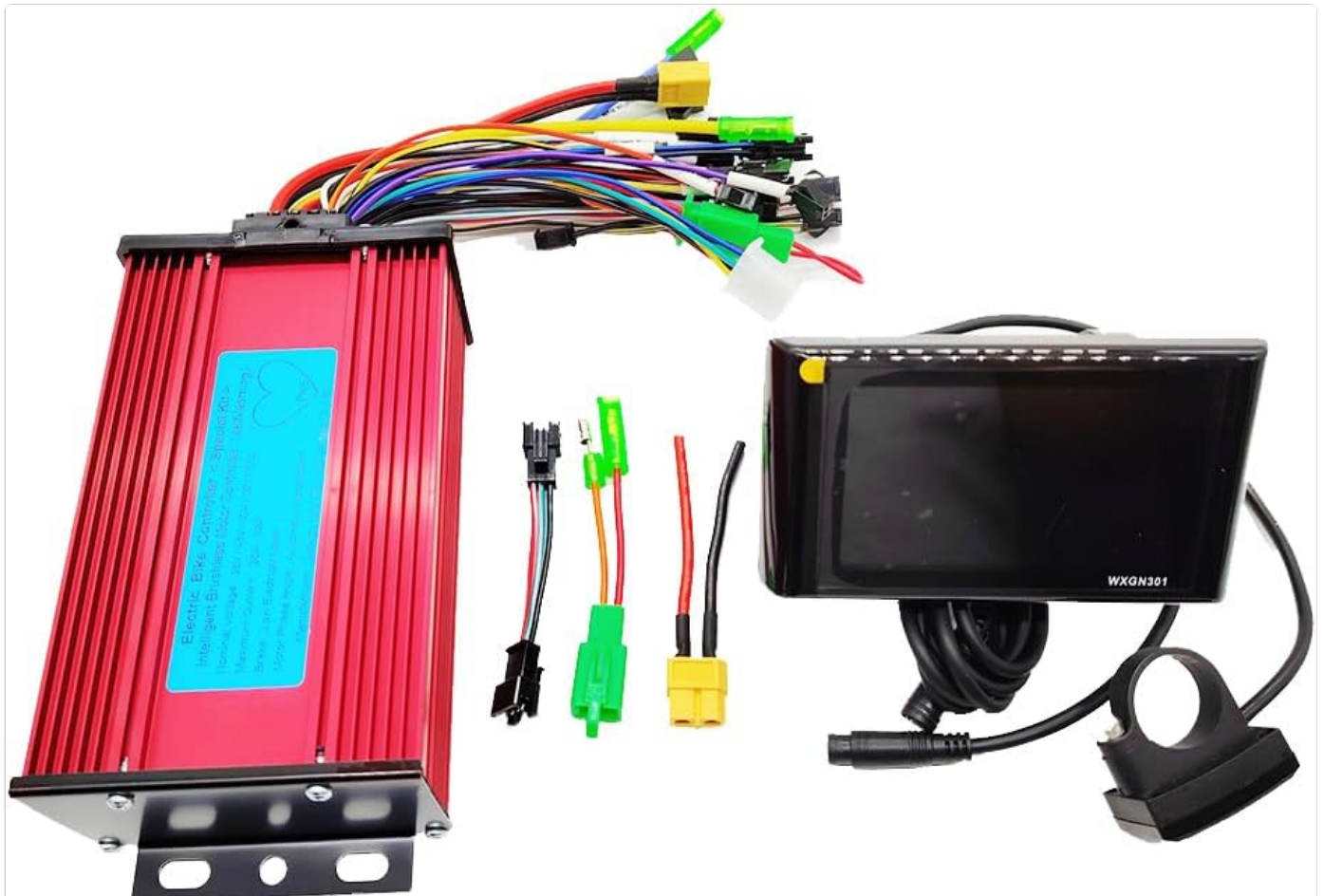


Figure 1: The ChongXiao WXGN301 Brushless Controller and LCD Display kit, including the controller unit, LCD display, and various wiring harnesses.

INSTALLATION AND WIRING

Careful wiring is essential for proper function and safety. Follow these steps for connecting the controller and LCD display.

Controller Wiring Connections

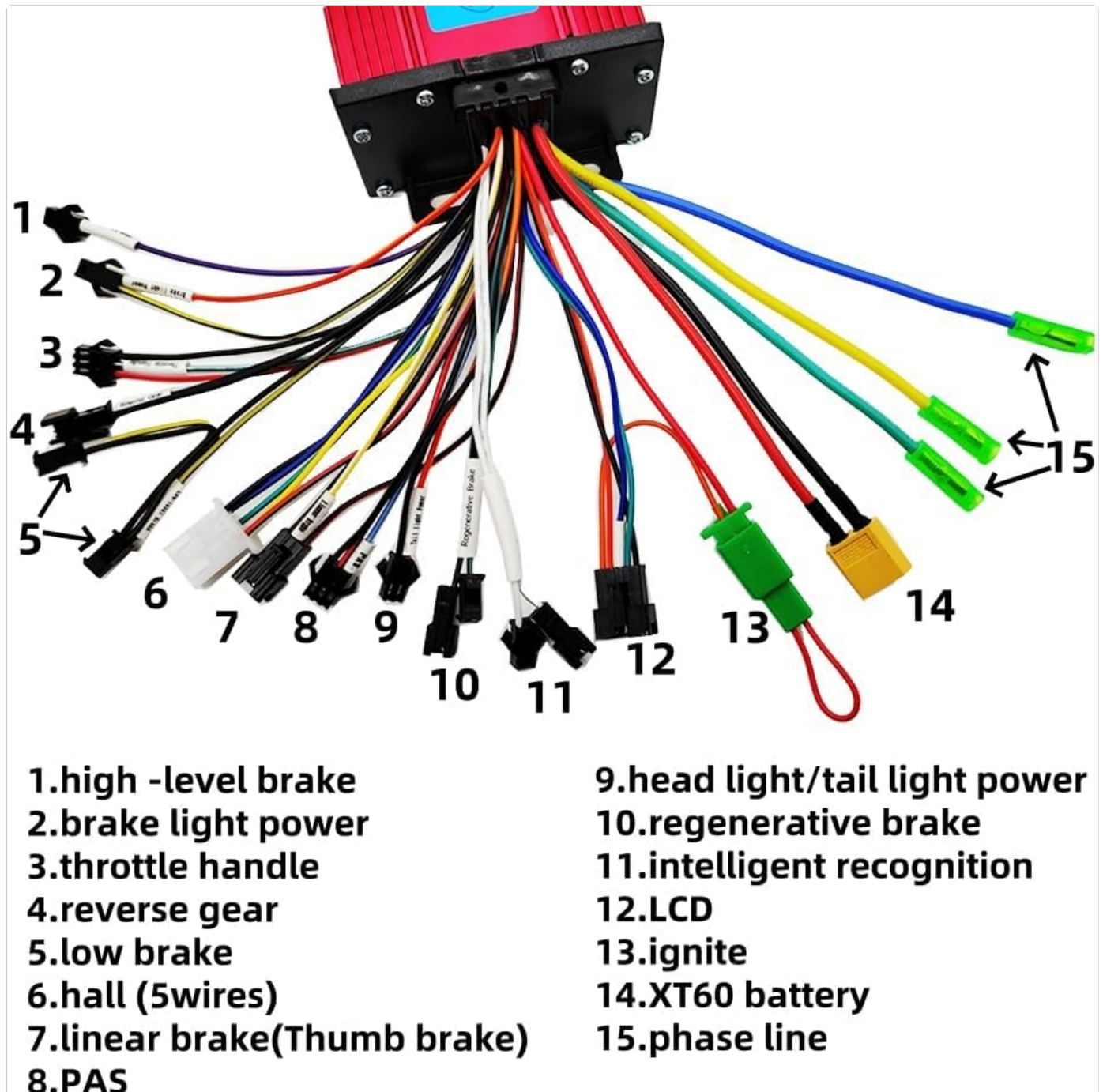


Figure 2: Detailed view of the controller's wiring harness with numbered labels indicating each connection point.

- 1. Phase Line Connection:** Connect the motor's phase lines to the controller's phase lines, matching colors (e.g., green to green, blue to blue, yellow to yellow).
- 2. Hall Line Connection:** Connect the motor's Hall sensor lines to the controller's Hall lines, matching colors. Ensure your motor has 5 Hall wires.
- 3. Battery Connection:** Connect the battery lines. The red wire is for battery positive (+), and the black wire is for battery negative (-). Ensure correct polarity.

4. **LCD Line and Ignition Switch:** Connect the controller's LCD line. If your throttle does not have an ignition switch, the two ignition wires on the controller must be shorted together to power on the system.

5. **Intelligent Recognition (Self-Learning):**

- Turn off the power.
- Connect the two intelligent recognition lines together.
- Turn on the power. The wheel will rotate forward or reverse.
- If the wheel rotates forward, separate the intelligent recognition lines.
- If the wheel rotates in reverse, separate the intelligent recognition lines, then connect them together again. If the wheel now rotates forward, separate the intelligent recognition lines.
- This function allows the controller to automatically identify the battery voltage and motor rotation direction.
- **Note:** When using the throttle, the intelligent recognition lines must be separated.

6. **Other Connections:** Connect other functions as needed, such as high-level brake, brake light power, throttle handle, reverse gear, low brake, linear brake (thumb brake), PAS, headlight/taillight power, and regenerative brake. Refer to Figure 2 for connection points.



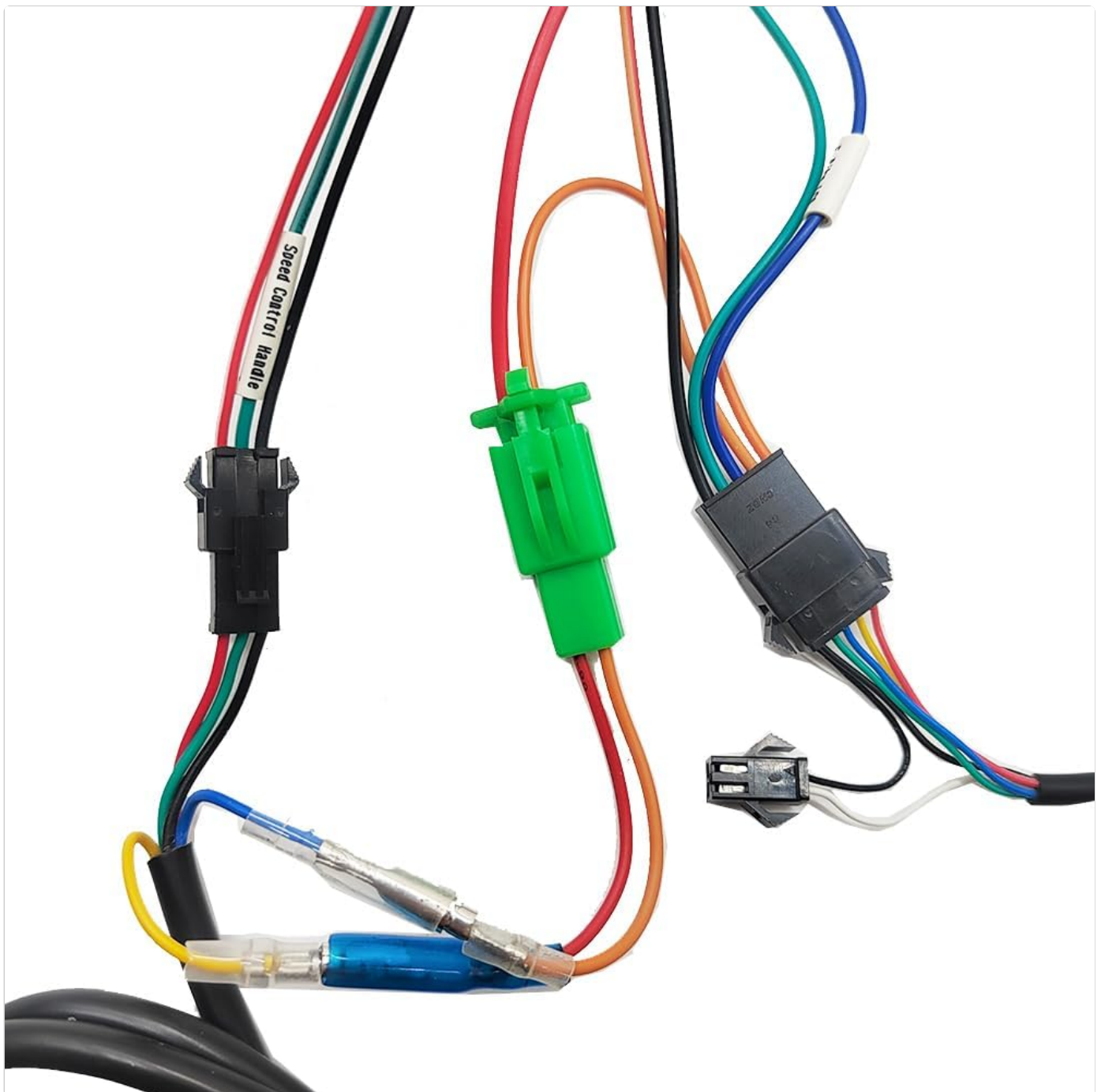


Figure 3: Examples of specific connectors for the LCD display, light power, and speed control handle.

OPERATING INSTRUCTIONS

LCD Display Overview (WXGN301)

The LCD display communicates with the controller using the UART protocol. It provides real-time riding data and allows for parameter adjustments.



Figure 4: The WXGN301 LCD Display and its integrated control buttons.

LCD 5-Wire Interface

- **Red:** Meter power cord
- **Blue:** Power control wire of the controller
- **Black:** Instrument ground wire
- **Green:** Data receiving line of the meter
- **Yellow:** Data transmission line of the meter

Button Introduction

The display features an 'M' (Mode/Power) button, an 'Up' button, and a 'Down' button. Operations are categorized into short press, long press, and combination long press.

- **Short Press:** Used for quick actions (e.g., changing assist/speed gear, switching display data).
- **Single Button Long Press:** Used for mode or state switching (e.g., turning display on/off).
- **Combination Key Long Press:** Used for parameter settings to prevent accidental changes.

Specific Operations

1. **Power On/Off:** Long press the 'M' (power) button to turn the display on or off.
2. **Switch Display Modes:** After the display is on, short press the 'M' button to cycle through different display data (e.g., ODO, Trip, Voltage).
3. **Modify Assist Ratio/Electric Gear:**
 - Short press the 'Up' button to increase the assist level.
 - Short press the 'Down' button to decrease the assist level.

4. **Switch Speed Display Mode:** Long press the 'M' and 'Up' buttons simultaneously to switch between different speed display modes (e.g., average speed, max speed).

5. **Turn On/Off Headlights:** Long press the 'Up' button to toggle the headlights on or off.

PARAMETER SETTINGS (P01-P18)

To enter the parameter setting interface, press and hold the 'Up' and 'Down' buttons simultaneously. Use the 'Up' or 'Down' buttons to adjust values. Short press the 'M' button to move to the next parameter. To exit and save, long press 'Up' and 'Down' simultaneously, or the system will auto-save and exit after 10 seconds of inactivity.

Parameter Code	Description	Range/Notes
P01	Backlight Brightness	0001 (darkest) to 0003 (brightest)
P02	Mileage Unit	0000: KM; 0001: MILE
P03	Voltage Level	24V, 36V, 48V, 52V, 60V, 72V (Default: 36V)
P04	Sleep Time	0: No sleep; 1-60: Sleep time in minutes
P05	Power-Assist Gear	Adjustable: 3rd, 5th, or 9th gears
P06	Wheel Diameter	Unit: inches; Precision: 0.1
P07	Number of Speed Measuring Magnets	Range: 1-255
P08	Speed Limit	Range: 0-100 km/h (100 means max speed limit). Note: Displayed mile speed limit may not convert automatically from km/h setting.
P09	Start Mode	0: Zero start; 1: Non-zero start
P10	Drive Mode Setting	0000: Power-assisted drive (throttle invalid). 0001: Electric drive (throttle active, assist invalid). 0002: Power-assisted and electric drive coexist (zero start invalid).
P11	Boost Sensitivity	Range: 1-24
P12	Power-Assisted Start Strength	Range: 1-5
P13	Power-Assisted Magnetic Steel Discs	5, 8, or 12 magnets
P14	(0 gear)	Value: 1 (excluding 0 gear)
P15	Cruise Function	Value: 0 (does not cruise)
P16	Total Mileage Reset	ODO reset
P17	Factory Reset	Resets all parameters to default settings.
P18	Default Value	Cannot be changed.

Note: Due to potential production batch differences, some parameters may vary slightly from this description but will not affect general usage.

TROUBLESHOOTING

The LCD display can show error codes to indicate system issues. Refer to the table below for common error codes and their

potential solutions.

Code	Meaning	Suggested Action
6	Battery Undervoltage	Charge the battery or check battery connections.
7	Motor Failure	Check if the motor Hall sensor has 5 wires and if they are connected color-to-color. Inspect motor wiring for damage.
8	Throttle Handle Failure	Inspect throttle wiring and ensure it is properly connected. Test throttle functionality.
9	Controller Failure	Check all controller connections. If the issue persists, the controller may require replacement.
10	Communication Reception Failure	Check the green data receiving line of the meter and its connection to the controller.
11	Communication Sending Failure	Check the yellow data transmission line of the meter and its connection to the controller.
12	BMS Communication Failure	Verify the battery management system (BMS) connection and functionality.
13	Headlight Failure	Check headlight wiring and bulb/LED. Ensure the headlight power connection is secure.

PRODUCT SPECIFICATIONS

Controller Specifications

- **Voltage:** 36V / 48V / 52V / 60V / 72V (Universal)
- **Current:** 26A - 33A
- **Number of Transistors:** 12
- **Rated Power:** 500W - 1000W (Compatible)
- **Material:** Aluminum alloy casing for heat dissipation
- **Safety Features:** Built-in overvoltage/undervoltage protection, overheating protection, short circuit protection, anti-runaway function.





Figure 5: Controller label detailing voltage and current, and physical dimensions.

LCD Display Specifications (WXGN301)

- **Working Voltage:** 36V, 48V, 52V, 60V, 72V (Default: 36V, user adjustable)
- **Communication Protocol:** UART
- **Dimensions:** Approximately 110mm (length) x 60mm (width)
- **Features:** High-definition display, real-time speed, battery level, mileage, fault codes, night backlight function.



Figure 6: The WXGN301 LCD Display showing its approximate dimensions.

General Product Information

- **Included Components:** 1x Brushless Controller, 1x LCD Display
- **Color:** Red (Controller casing)
- **Item Weight:** Approximately 862 g
- **Manufacturer:** Jiangsu Wuxi Bull Technology Co. Ltd

MAINTENANCE

To ensure the longevity and optimal performance of your controller and display, follow these general maintenance guidelines:

- **Cleaning:** Regularly wipe the controller and display with a soft, dry cloth. Avoid using harsh chemicals or excessive moisture.
- **Inspection:** Periodically check all wiring connections for looseness or damage. Ensure the controller is securely mounted.
- **Environmental Protection:** Protect the components from extreme temperatures, direct sunlight, and heavy rain. While the controller has an aluminum alloy casing for heat dissipation, prolonged exposure to harsh conditions can affect performance.

WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the documentation provided at the point of purchase or contact your retailer. Keep your purchase receipt as proof of purchase.



