Specifications

Model	CF300
Input power	AC 85-265V
High range	DC 0-300V
Low range	DC 0-140V (about 138V on the panel)
Output current	1-300mA, 9 presets; 1mA and 5mA are low-current test modes
Display	Output voltage and output current
Voltage display	Actual output voltage after a valid load lights; nominal resolution 0.2V
Design	Two voltage ranges, dual isolation

Available output depends on load voltage, the selected current range, and internal protection. The tester limits output automatically when protection is triggered. The 1mA and 5mA modes are not precision constant-current sources.

Common Indications

138V / 299V with no load	Range reference only; it is not the actual open-circuit terminal voltage.
Reference remains with a load	Polarity may be reversed, the string may be open, or contact may be poor.
Display near 000V	The LED strip or an LED may be short-circuited.
Voltage between isolated items	A value well below the no-load reference may indicate leakage.
Display shows "---"	Standby after about 20 seconds without a load; briefly short the probe tips to wake.
Display shows "Err"	Power or high-current protection has operated; reduce current and inspect the load.

Diagnostic principle: Evaluate voltage and current together and compare with a known-good strip of the same type and construction. A single reading does not prove a fault.

Why does a 3V / 6V LED not always read exactly 3V / 6V?

LED forward voltage varies with test current and device characteristics. At low current the reading may be below the nominal value; as current rises it may approach or slightly exceed that value. This is normal.

Before using the tester

Read the safety instructions and confirm the expected voltage, current, polarity, and series count of the LED load. Keep this manual for future reference.

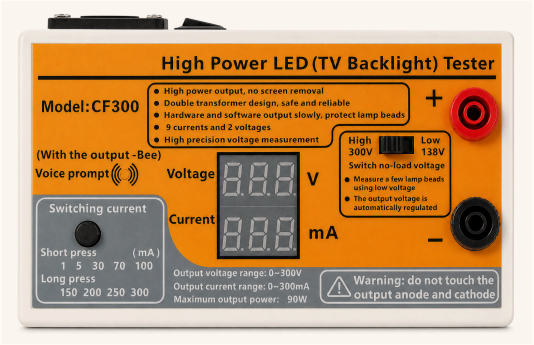
LED SERVICE EQUIPMENT

CF300

High-Power LED Boards · TV Backlights

LED Backlight Tester User Manual

Two voltage ranges · Nine current presets · Dual display



0-300V | **0-300mA** | **Soft-Start Protection**

Safety and Quick Start

Output can reach 300V DC. Never touch the positive and negative terminals with separate hands. Standby, isolation, and current limiting do not replace safe working practices. Disconnect power before changing connections.

Pre-use Checks

- Check that probes, plugs, and output terminals are undamaged, secure, and fully insulated.
- Confirm the expected LED voltage and permitted current before selecting a range.
- Disconnect the LED board from its original driver. Never connect two power sources at the same time.

Test in Four Steps

1	2	3	4
Connect power Wait for self-test	Select high or low voltage	Select a suitable output current	Red to positive Black to negative

Start low and small: Use the low-voltage range and low current for one or a few LEDs. Use the high-voltage range only as required for long strings and TV backlights.

Standby, Wake-up, and Continuous Output

After about 20 seconds without a load, the tester enters standby and displays "---". **Briefly short the probe tips for about 1 second or press the current key** to wake it. If continuous output is required, hold the current key for about **8 seconds**; a long beep confirms that automatic standby is disabled. Hold it again to restore standby. Disconnect AC power for long-term storage.

Output Current Key

The power-on default is about **30mA**. After the key is pressed, the lower display briefly shows the selected current.

Short-press cycle	Long-press cycle
1 5 30 70 100mA	150 200 250 300mA

Limits of the 1mA / 5mA modes: These modes use an extremely low PWM duty cycle. Actual current may be above or below the preset because it depends on LED quantity, forward voltage, and load characteristics. For example, one LED selected at 1mA may measure about 5mA, while a larger number of LEDs may approach 1mA. Use these modes for low-brightness observation, not as precision constant-current modes. Refer to the lower display for actual current.

The first short press displays the present setting. Continue pressing while the setting is shown to cycle through the low-current group. Long press to enter the high-current group. For settings above 30mA, output is limited for about the first 3 seconds after the LEDs light, then rises to normal. If a short LED string has a load voltage below about 50V while a setting above 200mA is selected, output is limited to about 200mA to protect the LEDs.

Controls and Range Selection

1. **Current key**
   Short/long press selects 9 current presets.
2. **Voltage display**
   Shows a range reference with no load and actual output after lighting.
3. **Current display**
   Shows load current or the selected preset.
4. **High/low switch**
   High: 300V; low: about 138V.
5. **Red/black outputs**
   Red is positive; black is negative.
6. **Audible prompts**
   Help confirm lighting, setting, and wake-up.

No-load display: With no load connected, the upper display normally shows about **138V** in the low range or **299V** in the high range. This identifies the selected range; it is not the actual open-circuit terminal voltage. No-load output is limited. Normal output builds gradually only after a valid load is detected and lights; the displayed value then represents the actual load voltage.
Controlled no-load output is not touch-safe. Never touch exposed output metal in any operating state.

Choosing the High or Low Range

Range	Typical load	Key point
Low	Single LEDs, short series strings, small boards	Reduces overvoltage risk; start with low current.
High	Long strings, TV backlights, multi-LED boards	Confirm polarity and series count. Never switch ranges under load.

Testing a TV Backlight

1 Disconnect
Unplug the TV, then disconnect the original constant-current board from the backlight.

2 Connect tester
Connect the red probe to LED positive and the black probe to negative.

3 Power and observe
Keep the original LED driver disconnected, then power the TV's other circuits and observe the image.

- Output ramps from dim to bright over about 1-2 seconds. Record data only after it stabilizes.
- If the strips, LCD panel, main board, and timing/control board are normal, an image should be visible, although brightness may be lower than in normal operation.
- A voltage difference of about 3V or more between identical strips warrants further checks for aged LEDs, open circuits, or poor contact.
- Brief reverse connection usually does not damage a normal string, but a poor-quality low-power single LED may suffer reverse breakdown. Do not intentionally reverse the probes.