

SPECIAL TIPS

Guide Step by Step

VPH

- Main power supply line (battery power rail)
- Feeds voltage to boost converter or LED driver
- Usually around 3.7~4.3 V depending on battery condition

ANODE

- Positive terminal of the LCD backlight LEDs
- Receives boosted voltage from LED driver (typically 15~25 V for LED strings)
- Supplies current to light up the display

KATHODE

- Negative terminal of the LED string
- Controlled by LED driver IC through PWM current regulation
- Used for dimming and brightness control

CABC/PWM

- Pulse Width Modulation signal from PMIC or display IC
- Controls brightness level by adjusting duty cycle
- Communicates brightness instructions to LED driver

Points & How to Check Each Line

1. VPH Line

What it is:

Main battery power line supplying the backlight driver.

How to check:

- Set multimeter to DC voltage.
- Place black probe on ground.
- Touch red probe on VPH test point.
- You should get 3.7V~4.3V (depending on battery).

Tips:

- If VPH is missing, the phone will not power the LED driver at all.
- Check for short: Multimeter → continuity mode → probe VPH to ground.
 - Normal = No beep
 - Beep = Short circuit → remove shorted capacitor or MOSFET

2. ANODE (LED+)

What it is:

Boosted high voltage from LED driver to power the backlight LEDs.

How to check:

- Screen must be ON (shine a torch on LCD to see image).
- Set multimeter to DC voltage 20~50V range (important).
- Probe ANODE; you should see boosted voltage ~12V~25V.

Tips:

- If voltage is 0V → LED driver not working.
- If voltage jumps then drops → shorted LED in display.
- If low voltage (1~5V) → boost coil or diode faulty.

3. CATHODE (LED-)

What it is:

Return path controlled by driver IC with PWM current regulation.

How to check:

- Phone ON, brightness set to max.
- Set multimeter to DC.
- You should see small voltage (0.5V~3V) depending on brightness.

Tips:

- If Cathode reads 0V always → driver not switching → PMIC issue.
- If Cathode reads battery voltage → LED line open (broken display backlight).

4. LCD PWM

What it is:

Signal that tells LED driver how bright to make the backlight.

How to check:

- Multimeter in DC mode.
 - You will get average voltage 0.8V~2.8V depending on brightness.
- Better check: Using oscilloscope → clean square wave PWM.

Tips:

- If PWM missing → no brightness control → backlight stays OFF.
- If PWM stuck at 0V → display connector damaged.
- If PWM stuck at high → may keep light fully bright.

General Helpful Tips

✓ Always check voltages with LCD connected.

Backlight circuit activates only when panel is detected.

✓ Use torch-light test first.

If you see image with flashlight → only backlight problem.

✓ Check coil & diode near LED driver.

Boost section failure = no anode voltage.

✓ If ANODE has voltage but no backlight

Check for open LED line in the display → may need LCD replacement.

✓ Always reflow or clean display connector

Backlight lines often break due to connector oxidation.

POCO C71 LIGHT

