Diagnostic Guide: Contrel Earth Leakage Relay

Diagnostic Resources for Maintenance Teams

SUNDRIVE

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Diagnostic Guide:
Contrel Earth Leakage Relay

MANAGER'S OVERVIEW

When our technicians provide support for ELR faults, the most common issue isn't component failure—it's configuration errors and wiring errors. This guide addresses the four most frequent misdiagnoses we see, helping maintenance teams eliminate configuration issues before ordering replacement relays.

Impact

Most nuisance trips are resolved by verifying pre-alarm wiring, checking CT multiplier settings, or confirming reset mode configuration—tasks that take minutes with the right diagnostic checklist.

When to Escalate

If diagnostic steps in this guide don't resolve the fault, contact Sundrive technical support:

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Our Malaga team can walk your maintenance crew through advanced diagnostics or arrange same-day dispatch of replacement components nationwide.

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TECHNICIAN GUIDE

LED Diagnostics & Basic Checks

- When an ELR trips, start with the basics - certain models use a green ON LED for power status and a red TRIP LED for relay operation, with front TEST and RESET buttons for functional checking.
- These units can be configured for automatic or manual reset, so checking reset mode should be part of every first-pass diagnosis.

Protection Settings Verification

- Before replacing a relay, confirm the protection settings—multiple ELR models allow selectable tripping setpoints

Pre-Alarm Configuration

- Pre-alarm is an early warning signal.
- The ELR-D2 series goes further with a configurable pre-alarm range of 50% to 90%, giving technicians a clearer way to investigate rising leakage before a full trip occurs.

CT Selection & External Multiplier

The relay is only part of the story—CT selection should always be checked during fault finding. Contrel's manual states that the external multiplier increases the setting by ×10, which means an unexpected trip threshold can sometimes come from configuration rather than component failure.

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Diagnostic Flowchart

STEP	CHECK	ACTION
1	**LED status**	• Green ON = power • OK Red TRIP = relay tripped • No LEDs = power supply fault
2	**Reset mode**	Confirm auto/manual reset configuration Manual reset requires physical button press
3	**Trip settings**	Verify setpoint (0.025–250A range) Verify delay time (0.02–5s range)
4	**Pre-alarm wiring**	Check pre-alarm is not wired as main trip output Fixed at 70% on ELR-2/ELR-92 Configurable 50–90% on ELR-D2
5	**CT configuration**	Check for external multiplier (×10 factor) Verify CT rating matches relay setting

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Common Fault Scenarios

SYMPTOM	LIKELY CAUSE	DIAGNOSTIC APPROACH
Nuisance trips at 70% load	Pre-alarm wired as main trip Fixed 70% threshold on ELR-2/92	Check terminal wiring Verify pre-alarm routing
Trip threshold inconsistent	External CT multiplier installed ×10 factor shifts entire curve	Remove multiplier temporarily Retest at known load
No trip at expected setpoint	Wrong stepped setting selected Delay time too long	Verify ELR-3E dial positions Check 0.03–1A and 0.02–5s ranges
LED shows power but no trip	Manual reset mode enabled Reset button not pressed	Check auto/manual reset config Press RESET button physically

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