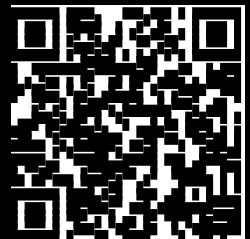


Experience Matters

9 Questions You Can Use to Vet Your

Electrical Thermographer



ViewSample Report (PDF)

1) Plant experience (preferably electrical)

- Ask: Have you worked full-time in an industrial facility? Installed, maintained, troubleshot: MCCs? Switchgear? VFDs? Motors? Transformers?
- Good: Speaks plant context; understands safety (NFPA 70E), control circuitry, plant production needs, drives, grounding, failure modes; speaks as much about electrical theory as thermography.
- Red flag: "Camera talk only; generic wire/conduit electrical contractor; no plant context
- Impact: Missed root causes, lack of understanding of electrical system as a whole, possibly create friction with ops team, weak recommendations.

2) Reports written for maintenance managers

- Ask: Show me a sample page of your report. (Not every thermographer is capable of diagnosis beyond basic identification let alone willing to recommend corrective actions.)
- Good: Includes asset ID • defect • ΔT vs like • load % • priority • recommended action • notes; explains diagnosis.
- Red flag: Looks like a photo dump with generic, vague recommendations: "monitor" or "investigate".
- Impact: Lacks actionable recommendations or next steps; nothing to close out.

3) Heat pattern + amperage explanation (I^2R in practice)

- Ask: If you're rescanning one of our panels and a single lug shows $\Delta T \sim +30$ °C. What would you do?
- Only answer: Immediately check & compare phase currents.
- Ask: Thank goodness you got that right. Ok, Lets say they're balanced. What now?
- Good: Likely termination resistance issue; references I^2R ; discusses heating pattern (localized lug vs uniform conductor heating); records amps & ΔT vs like; proposes de-energized verification (clean/torque/replace) and re-scan under comparable load.
- Red flag: Never uses a clamp-on ammeter at all (run away). States "Loose Connection" with no other causes considered. Or worse yet, misdiagnoses it as "Overloaded"
- Impact: Potential for unnecessary work, Parts-swapping, Repeat failures. Loss of confidence in IR.

4) Diagnostic toolkit (beyond the camera)

- Ask: What tools do you use to diagnose or rule out a tricky thermal anomaly?
- Good: Thermal image + loading (phase current), voltages, power monitor/oscilloscope when relevant; system knowledge and awareness (VFDs, PF correction, transformer config); energized checks as well as de-energized testing: contact resistance/mV-drop, insulation resistance, torque checks.
- Red flag: "We look at the picture. Sometimes we check amps."
- Impact: Symptoms-level fixes, misdiagnosing Power Quality or harmonics as "bad wires", repeat Defects, and reports that don't translate into solid work orders.

Experience Matters (cont'd)

5) Conductor is hot below nameplate current

- Ask: Afeederconductor runs hot below its nameplate-what top causes would you check first?
- Go od: Poor termination or damaged strands (lost circular mils), improper lug, conduit fill/derating, ambient/elevation, and continuous duty (NEC 80%). Verifies with mV-drop/contact resistance, testing, torque check, re-scans at comparable load, and considers imbalance/neutral current.
- IMPORTANT NOTE: Loose connections and corroded wires are easily the most common diagnosis given with thermography. Unfortunately, the symptoms can match the above issues. Without electrical expertise and de-energized testing, the complicated issues can throw even seasoned thermographers for a loop.
- Red flag: "It has to be loose or corroded."
- Impact: | Several attempts before finding the right fix, unnecessary cable lulls, wasted budget, failure to fix the resistive fault, recurring heat at lugs, nuisance trips.

6) Access & safety planning

- Ask: WhatPPE, permit, boundaries, do you operate within in scenario xyz?
- Go od: Demonstrates knowledge of NFPA 70E and other electrical safety considerations. Communicates their company's safety requirements and a willingness to follow yours. Also discusses coordinating with operations team to maximize equipment scanned.
- Red flag: "We'll figure it out."

7) Optics & environment (prove it's real, not reflection)

- Ask: Howdo youconfirm a hot spot isn'temissivity/reflectionor focus/distance error?
- Go od: Change angle; use IR target or tape/paint on shiny surfaces; ensure focus & spot-size; correct range; document ambient/wind/humidity; compare to like reference and ambient.
- Red flag: "The camera says it's hot."
- Impact: | False positives and wasted windows; loss of trust.

8) Resolution & acceptance plan (from photo to fix)

- Ask: Whatdo your findings include so we can go from photo to verified fix?
- Go od: WO-ready fields (asset • defect • ΔT vs like • load % • priority • action • notes), plus acceptance criteria (post-repair ΔT threshold, torque spec, mV-drop targets), retest plan (comparable load), optional repair/PM quotes.
- Red flag: "Monitor" or "replace parts" with no spec or retest.
- Impact: | Budget waste, repeat faults, no proof of fix.

9) Avoiding common misdiagnoses (show your method)

- Ask: Namethree electricalIR misreads—and how you rule them out.
- Go od: • Termination vs phase imbalance: pattern + phase amps, ΔT vs like, verify under comparable load. • Reflection/emissivity vs true heat: angle change, target/tape; focus/spot-size; environment documented. • Harmonics/VFD heating vs bad conductor: check THD%/waveform or neutral current; consider drives/PF caps/transformer c onfigu rati on.
- Red flag: "Can't think of any."
- Impact: | Misdiagnosis, wasted resources.

