

TEST REPORT

Induction Motor 1-Hour No-Load Test

One-hour no-load run of the TECO MAX-IE3 induction motor at 120 VDC to establish a gate-driver and system thermal baseline.

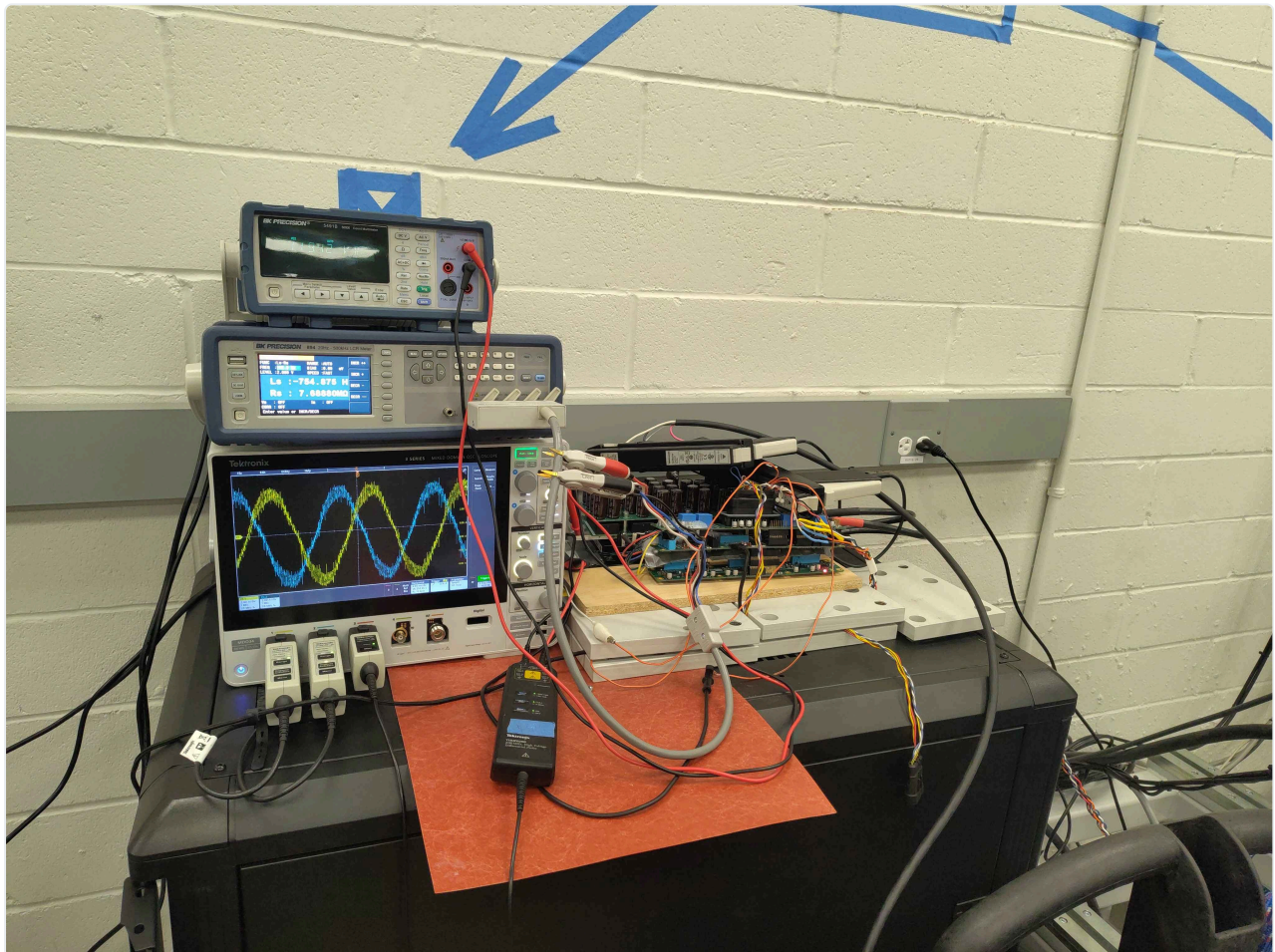
Document ID	OV-TEST-HW-INDUCTION-NOLOAD-1H
Test ID	7
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Date	2026-08-09
Status	draft
Applies to	openvvvf-control-module, chassis-size-2
Product line	openvvvf
Normative references	OV-TEST-HW-INDUCTION-CAL-INDEX, OV-TEST-HW-INDEX

1. Induction Motor 1-Hour No-Load Test

This report records a one-hour no-load run of the TECO MAX-IE3 7.5 kW induction motor powered by the C2 chassis inverter at 120 VDC. The objective is to validate gate-driver switching, confirm stable V/Hz operation, and capture a thermal baseline for the power stage and motor under light load.

1.1. Test setup

- **Motor:** TECO Westinghouse MAX-IE3 3-phase induction motor, 10 HP / 7.5 kW, 208 V, 60 Hz
- **Inverter:** OpenVVF C2 chassis, 120 VDC bus
- **Control:** V/Hz open-loop excitation, ~60 Hz, no mechanical load
- **Instrumentation:** Tektronix 5 Series MSO oscilloscope, BK Precision 894 LCR meter, Klein Tools TI250 thermal imager





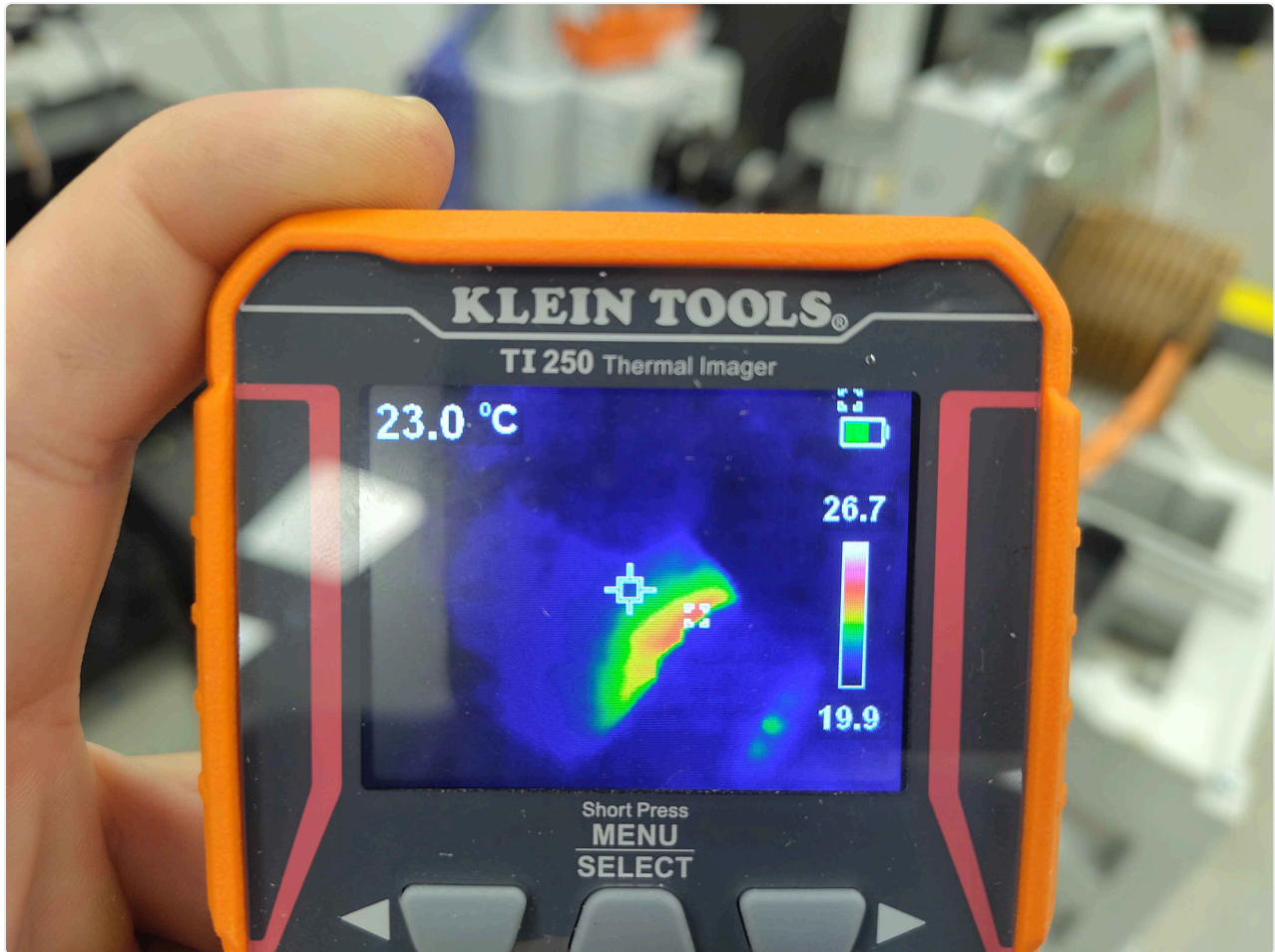
1.2. Test conditions

Parameter	Value
DC bus voltage	120 VDC
Commanded frequency	~60 Hz
Mechanical load	None (free spinning shaft)
Duration	1 hour
Ambient temperature	~23 °C

1.3. Thermal results

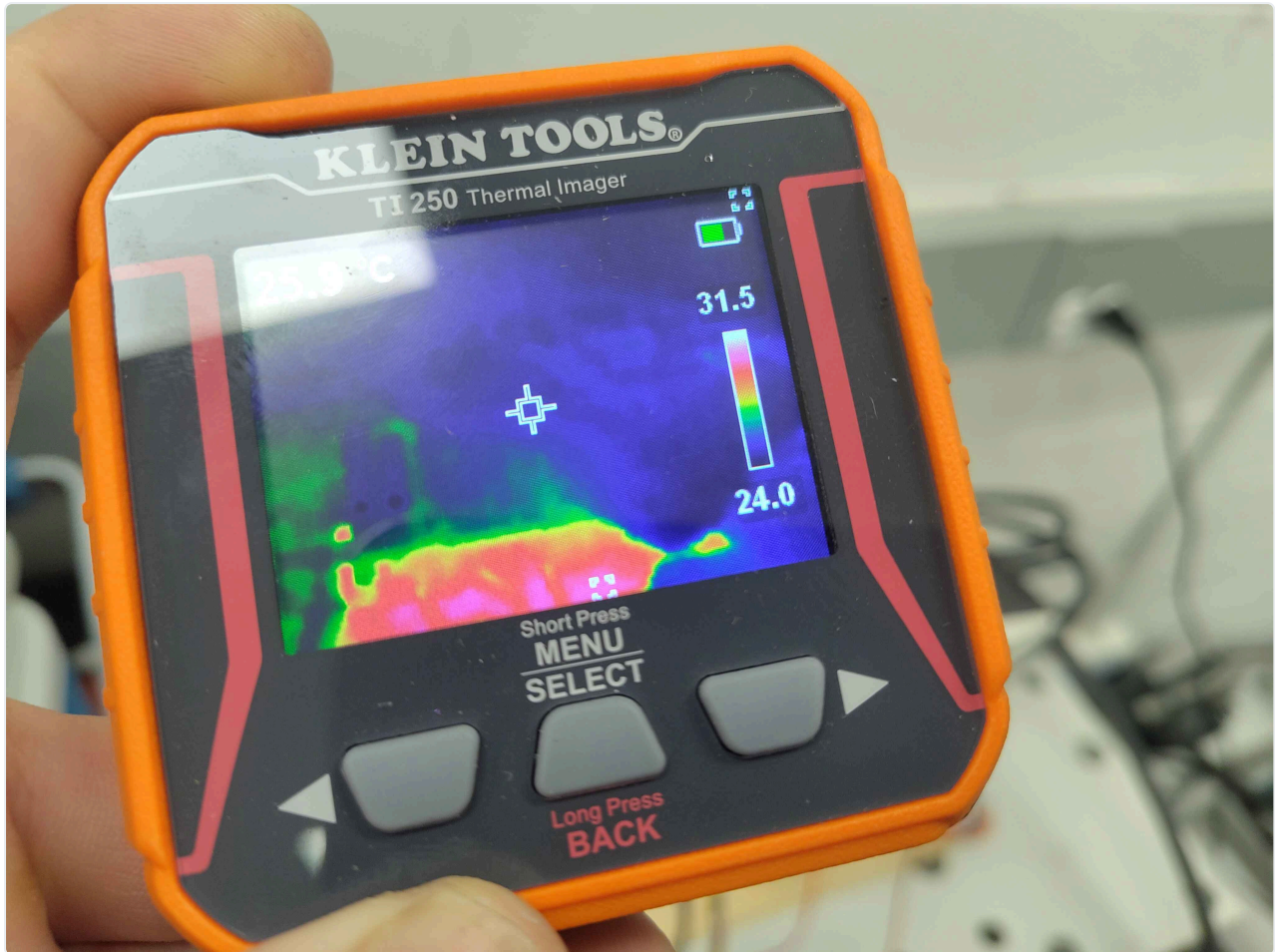
Thermal images were taken at several points during the run.

1.3.1. Motor temperature at start



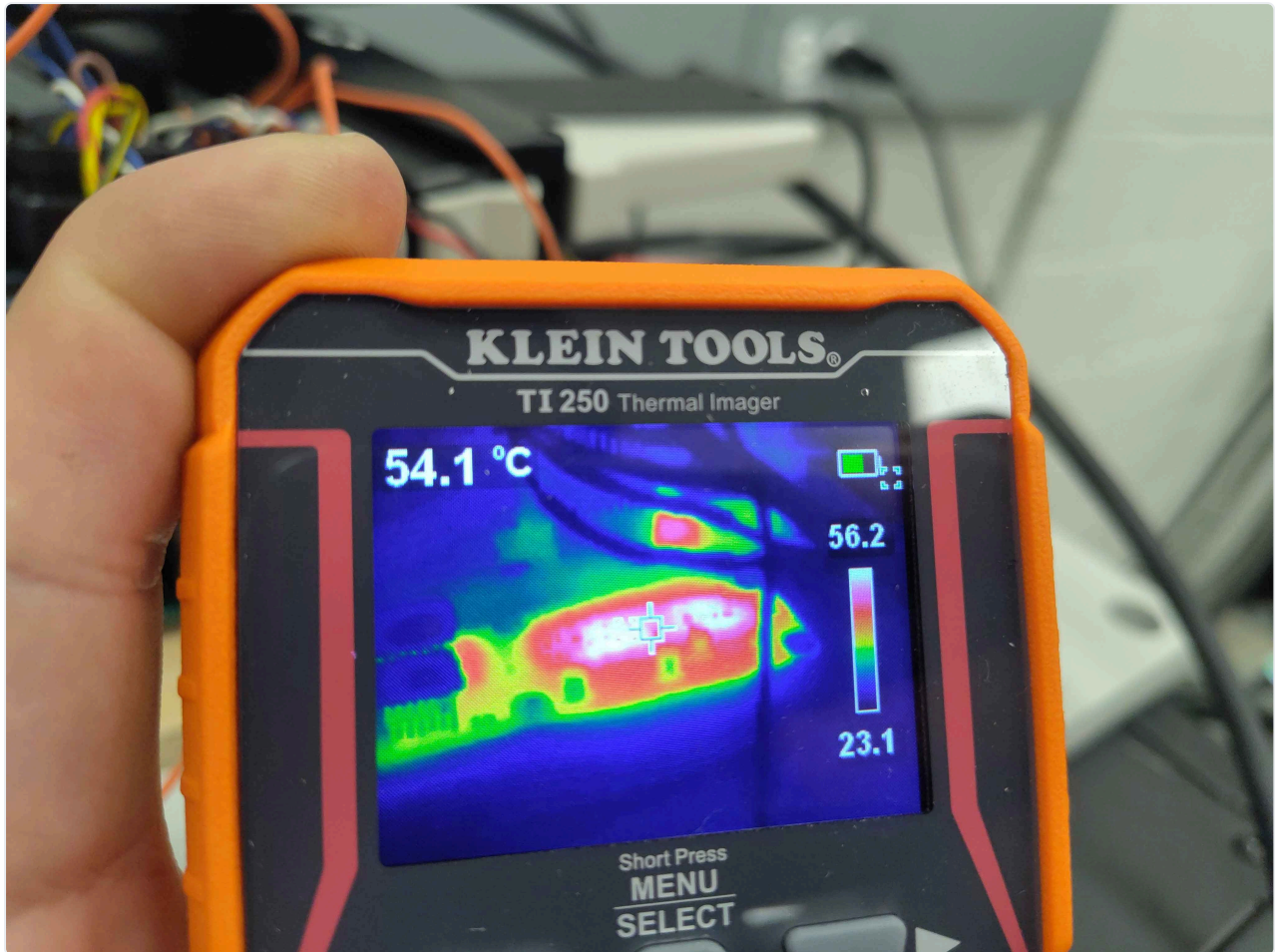
- **Elapsed:** ~7 min
- **Approximate hotspot:** ~27 °C
- **Notes:** Frame barely above ambient.

1.3.2. Power stage temperature near end



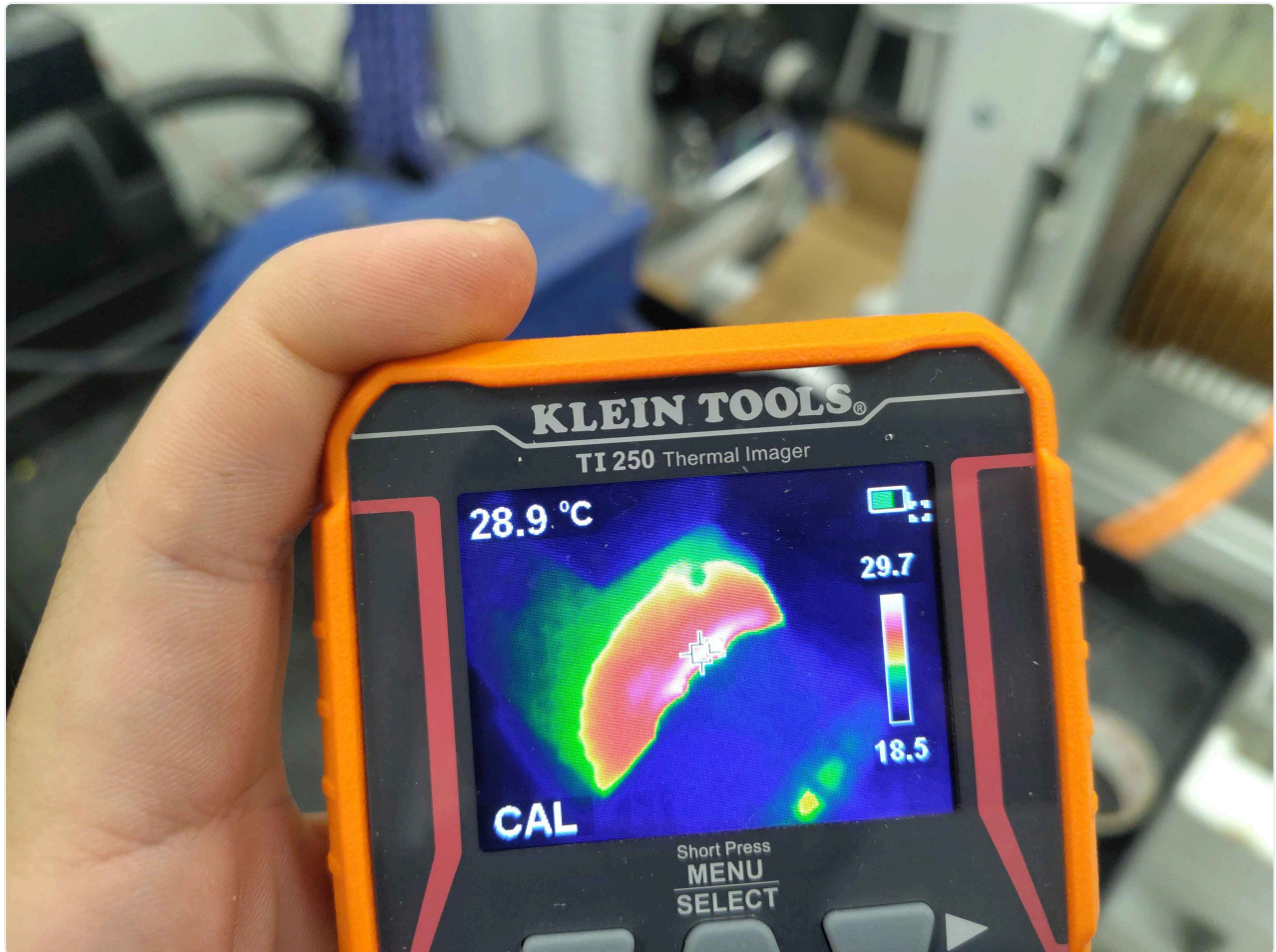
- **Elapsed:** ~21 min
- **Approximate hotspot:** ~29 °C
- **Notes:** Slow, steady rise on the power stage.

1.3.3. Hottest component: gate driver



- **Elapsed:** ~51 min
- **Approximate hotspot:** ~56 °C
- **Notes:** Motor shell clearly warm; this shot captures the warmest region on the gate-driver board.

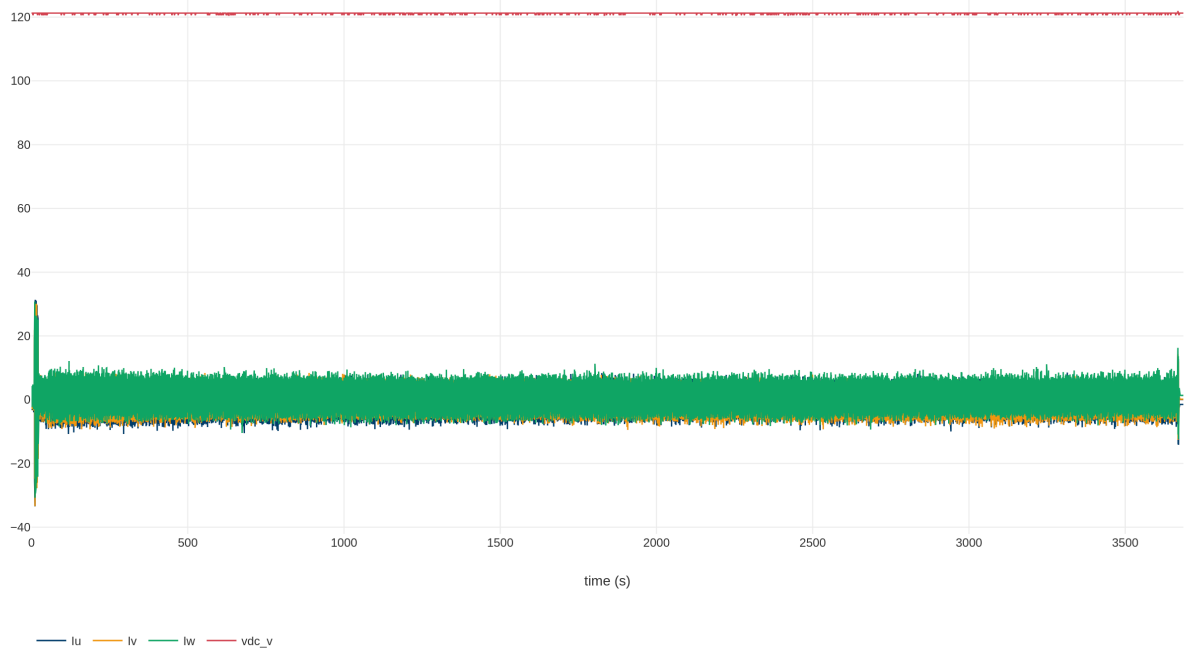
1.3.4. Motor temperature near end



- **Elapsed:** ~57 min
- **Approximate hotspot:** ~30 °C
- **Notes:** Different spot on the frame / terminal box area.

1.4. Electrical observations

The inverter maintained stable V/Hz excitation for the full hour. Telemetry shows the DC bus held at ~121 V and the phase currents remained small, consistent with a no-load magnetizing current. The plot below is a decimated view of the entire run; the full interactive log is linked underneath.

InductionMotor-1h-NoLoadTest.jsonl
2026-08-09T03:08:03.007Z**OPEN TELEMETRY LOG:**

View the 1-hour run in the Telemetry Viewer

1.5. Conclusion

The C2 inverter and gate-drive subsystem ran continuously for one hour at 120 VDC with no load without fault. The motor temperature rise was modest and consistent with no-load losses. This run establishes a baseline for future loaded thermal tests and confirms the V/Hz drive is functional on the induction machine.

1.6. Artifacts

- Decimated telemetry log (JSONL, 1 s) - open in Telemetry Viewer
- Test setup photo (JPG)
- Motor stator photo (JPG)
- Thermal images: 7 min, 21 min, 51 min, 57 min

1.7. Notes

- The full-rate telemetry log is ~164 MB; the linked file is decimated to 1 sample per second for the repository.

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- Hotspot readings are from the Klein TI250 cross-hair; exact measurement location varied slightly between shots.