

Compressor Motor Protection with Kriwan — INT69 Diagnose Relays, Frame Matching and Diagnostics

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What the Kriwan INT69 family protects against (winding temperature, phase failure, short-cycling), matching the module to the compressor frame group, the INT69TML version for the large V/Z/W frames with the INT250 oil monitor, and reading out trip history with the Diagnose interface kit.

What the module does

Semi-hermetic motors embed PTC sensors in the windings; the Kriwan module supervises them and drops its output relay — breaking the contactor chain — when any sensor exceeds its response temperature. Around that core, the INT69 family adds phase monitoring, restart delays against short-cycling, and (in the Diagnose versions) a non-volatile event memory a technician can read out: trip type, counts, timing. The module is the difference between "the compressor died" and a dated list of exactly what it endured.

Frame matching

Modules are specified per compressor frame group, because sensing chains and lockout logic differ: the stocked INT69 Diagnose (T00ECA01DRIC) covers the A, B, D, F, Q and S frames; the large V/Z/W machines take the INT69TML Diagnose, which works together with the INT250 oil differential monitor (fits only with that oil monitor, per the kit listing). Replace like-for-like by the kit number on the terminal-box label; the module lives in the compressor junction box (frame-correct boxes: V/Z/W "e 10/2000) and its terminals are part of the compressor's wiring diagram, not a generic relay base.

Wiring principles

The output contact belongs in the safety chain: in series with HP cut-out and overload NC into the contactor coil — never as a PLC "information" input that software may ignore.

PTC circuit is measurement wiring: short, no splices in wet zones; a corroded PTC loop reads open = permanent trip, which is a hint, not a module fault.

Restart delay stays enabled: short-cycling cooks motors faster than load ever will.

Oil monitoring on V/Z/W: the INT250 pairing trips on loss of oil differential; bypassing it to "keep the plant running" converts a bearing warning into a crankshaft order.

Diagnostics with the interface kit

The Kriwan Diagnose starter kit (USB adapter + interface) reads the module's memory on a laptop: trip classes (over-temperature, phase, oil), counters and the sequence before each event. Service value: a compressor claimed "randomly tripping" resolves in minutes into, say, repeated phase-asymmetry events at the same hour — a loose supply lug, not a motor. Read the memory before any compressor exchange and attach the printout to the warranty claim; it answers the question every OEM asks first.

Field diagnosis without the kit

Module relay open, compressor cold !' measure the PTC loop resistance at the module terminals: around a kilohm-class reading cold is normal; megohms = open sensor/wiring; near zero = shorted loop.

Trips after minutes of running !' genuine winding heat: condensing pressure, voltage at the terminals under load, and compression ratio versus the envelope.

Trips at contactor energisation !' control transients: check coil suppression and that module supply matches the control voltage (see the transformer guide).

Never bridge the module to test: run diagnosis on the measurement side. A bridged protector voids more than warranties.

Companion protections complete the picture: overload relay set to FLA (pairing guide), HP/LP switches with documented settings, and the oil-management hardware for parallel plants in the oil guide.

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