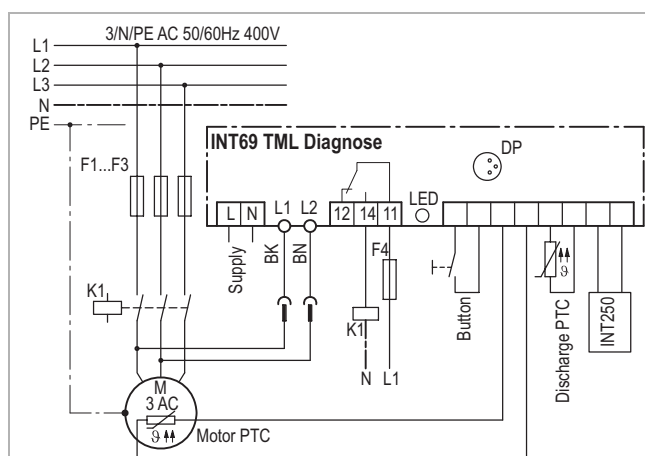


INT69 TML® Diagnose

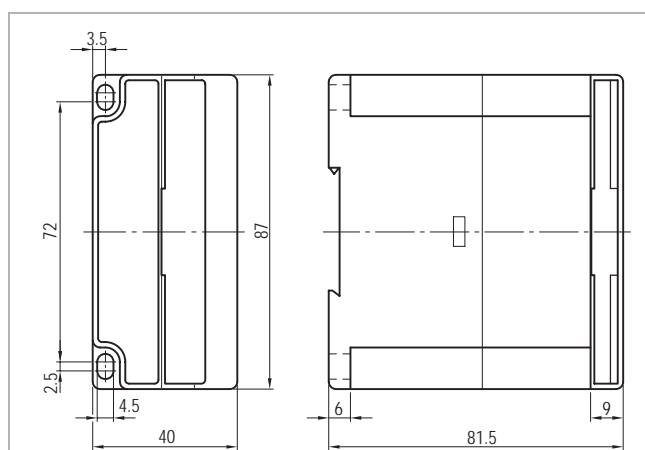
INT69 TML® Diagnose



INT69 TML Diagnose



Wiring diagram



Dimensions in mm

! The mounting, maintenance and operation are to be carried out by an electrician. The valid European and national standards for connecting electrical equipment and cooling installations have to be observed. Connected sensors and connection lines that extend from the terminal box have to feature at least a basic insulation.

The electric circuit in which the sensor is located does not feature any safe electrical isolation from electric circuits with dangerous voltages, but is only separated by a basic insulation.

Application

The INT69 TML Diagnose is a further development of the reliable KRIWAN compressor protection units with additional inputs for a discharge gas sensor and INT250 oil differential pressure switch. Its additional flexible-response protective functions help to extend the service life of a refrigeration system.

The INT69 TML Diagnose automatically saves operational and error data in a non-volatile memory. This data can be retrieved on a PC as needed and analysed for diagnosis. The full scope of the diagnosis is achieved by using a KRIWAN-specific AMS sensor. The data recorded includes the operating times in each temperature range of the motor winding.

Functional description

The temperature monitoring of the motor is done with two evaluation methods:

- **Static:** If the temperature increases slowly in the motor winding, the motor is switched off immediately when the nominal response temperature of the built-in PTC sensors is reached.
- **Dynamic:** If the temperature increases unusually quickly in the motor winding, the motor is switched off immediately even if the temperature is still far below the nominal response temperature of the built-in PTC sensors. This prevents excess temperatures from occurring.

The temperature monitoring of the discharge gas sensors uses a static evaluation process.

After cooldown/repair of the error and a subsequent reset delay time, the motor is enabled again.

There are various restart conditions for each monitoring feature. Depending on the feature, the number of past shutdowns within the last 24 hours is also taken into account.

The following errors also lead to switch-offs:

- Short circuit at the motor PTC input
- Short circuit at the discharge gas sensor input
- Short/Open circuit at input INT250

Connecting an INT250 allows the differential pressure of the oil pump to be monitored. After every power reset, the compressor is only released once a signal indicates the INT250 is screwed in properly. After the compressor has been started and the starting transition time has elapsed, the differential pressure monitoring is activated. If differential pressure is not in place, this will lead to a switch off after 90 seconds, or after a longer, appropriately adjusted delay in the case of differential pressure fluctuation (time integration). Prevailing differential pressure with compressor at a standstill will trigger a locked switch off after 5 seconds. This detection starts 10 s after compressor stop.

The INT250 input can be deactivated by connecting a 10 kOhm resistor and then performing a network restart.

A bicolour LED indicates the current status. Non-locked errors can be reset during a time delay by pressing the button after the error has been eliminated. Locked errors have to be acknowledged with the button or a network reset after the fault has been rectified.

This motor protector is suitable for use in drives with frequency converters.

Technical specifications and flash code see back side

Order data

INT69 TML Diagnose	22 A 495
INT250 Oil differential pressure switch	02 S 667

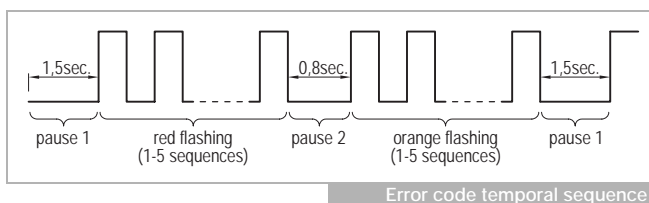
Technical changes reserved

INT69 TML® Diagnose

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Terminal block



Error code temporal sequence

Overview flash code

Green lit:	Compressor operational
Green flashing:	Compressor running
Red/Orange flashing:	Error, compressor is switched off; for error code, see table below

Error category	1st flashing sequence (red LED)	2nd flashing sequence (orange LED)	Error code
Motor temperature	1	1	Static switch-off Nominal response temperature of motor was exceeded
		2	Dynamic switch-off Switch off due to blocked rotor
		3	Time delay active after static switch-off
		4	Sensor fault, motor temperature sensor
		5	Time delay active after dynamic switch-off
General	3	5	Time delay active after switching frequency limitation
Oil	4	1	Differential oil pressure too low
		3	Time delay active after switch-off, differential pressure too low
		4	Differential oil pressure sensor not screwed in
		5	Sensor fault of the differential oil pressure sensor
Discharge gas temperature	5	1	Static switch-off Nominal response temperature for discharge gas was exceeded
		2	Time delay active after static switch-off of discharge gas
		3	Sensor fault, discharge gas temperature sensor

Flash code

The KRIWAN flash code allows for a quick and easy status display and troubleshooting.

The error code consists of a red and orange flash sequence. They are continually displayed after each other. There is a 1.5 second pause before the flash sequence. There is a 0.8 second pause between the red and orange flash sequences.

The error code can be determined from the number of pulsing flashes.

Technical specifications

Supply voltage	
- Dual voltage	AC 50/60Hz 115-230V ±10% 3VA
Permitted ambient temperature	-30...+70°C
Temperature measuring circuits	
- Type	1-2 AMS sensors in series alternative 1-9 PTC acc. to DIN 44081/44082 in series <1.8kΩ 4.5kΩ ±20% 2.75kΩ ±20%
Reset delay after	
- Static triggering	5min ±20%
- Dynamic triggering	1./24h 10min ±20% 2./24h 60min ±20% 3./24h locked
- Triggering, discharge gas sensor	1.-5./24h 10min ±20% 6./24h locked
- Switching frequency overstepping	5min ±20%
- Oil differential pressure fault	90s ±20%
Short circuit monitoring system PTC and input INT250	Typically <30Ω
Operating recognition motor	
- Lower limit	AC 20Hz/100V - 90Hz/175V
- Upper limit	AC 690V ±15%
- Connecting cable	L=300mm with flat plug sleeves 6.3-1 MS
Button	
- Version	Normally open contact
- Contact voltage/current	typ. 5V, 1mA
- max. wire length	1m
Switching frequency overstepping	>2 switch-offs in 30 seconds
Relay	Max. AC 240V 2.5A C300 At least >AC/DC 24V, >20mA
Mechanical service life	Approx. 1 million switching cycles
Interface	Diagnosis port (DP)
Protection class acc. to EN 60529	IP00
Connection type	Push-in spring terminals for 0.25 - 0.75mm²
Housing material	PA glass-fibre-reinforced
Mounting	Screw mounted
Dimensions [mm]	87x40x81.5 (LxWxH)
Weight	approx. 200g
Check base	EN 61000-6-2 EN 61000-6-3 EN 61010-1 Overvoltage category II Pollution level 2
Approval	UL File No. E75899

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