INT79 CYL® Diagnose

KRIWAN

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Application

The compressor protection INT79 CYL Diagnose is a further development of the reliable KRIWAN motor protectors. Additional inputs for phase monitoring, oil temperature, oil flow, oil level and oil filter soiling as well as supplementary flexible-response protective functions help to improve the availability and extend the service life of a refrigeration system.

The INT79 CYL Diagnosis saves operating and error data in a non-volatile memory. This data can be read and evaluated for diagnosis.

This motor protector is mainly employed on compressors of which, in addition to the motor's direction of rotation, the oil management is also essential for the function.

Functional description

The temperature monitoring in the motor coil takes place after the static evaluation process, when the temperature limit is reached it is immediately switched off.

The oil temperature is evaluated statically.

A short circuit at a temperature input also causes a switch-off.

If the contact of the oil level sensor (e.g. INT276) is open for more than 3s, the motor protector will lock switch off.

If the contact of the oil filter sensor is open for more than 15s while the motor is running, the motor protector will lock switch off.

The start-up time of 15s begins when the motor starts. If after this start-up time has elapsed, the contact of the oil flow sensor for 3s is open while the motor is running, the motor protector switches off. The motor protector also switches off if the contact of the oil flow sensor is open on expiry of the start-up time.

Following cooling off and/or error rectification and subsequent restart delay, the compressor may be restarted. Restart after a lock-out is only possible after a reset.

If an oil level, oil flow or oil filter sensor is not needed, a jumper needs to be connected at the respective input.

The phase monitoring of the motor voltage is active 1s after the start of the motor. The correct phase sequence is monitored for 5s; the phase asymmetry is monitored for the total motor running time. If a wrong phase sequence is detected or there is a phase failure, the motor protector will lock switch off.

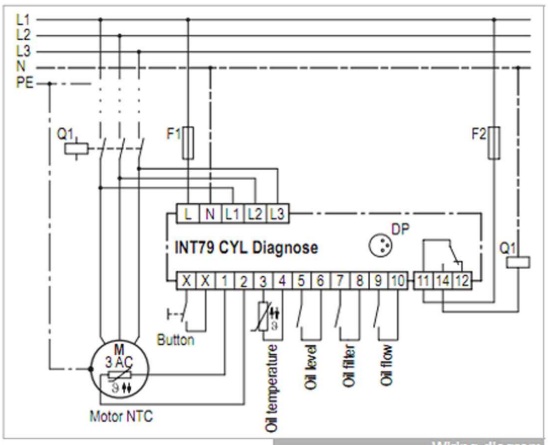
After motor stop, the phase monitoring and the operating recognition is deactivated for approx. 10s, to prevent unintended locking due to brief reverse running of the compressor.

For operation in the specified manner, the supply voltage has to be on permanently on the INT79 CYL Diagnose.

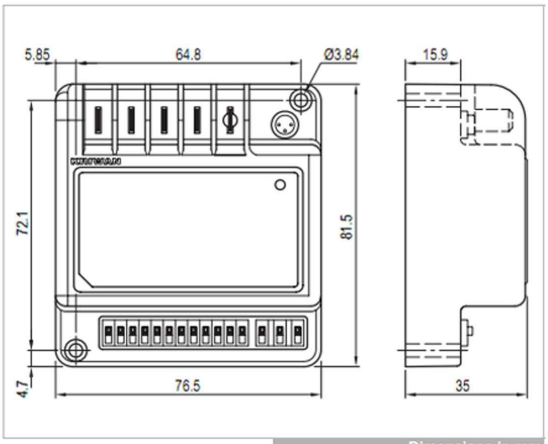
The built-in LED signals the current status of the motor protector (see flash code).

⚠ 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.

See back side for further specifications



Wiring diagram



Dimensions in mm

Technical changes reserved

Product group A
Edition: 710.00478.0

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Flash code

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

The flash code consists of a cyclical red and orange flash sequence. The current status can be determined from the number of pulsing flashes.

Flash code

Overview flash code

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

1st flashing sequence (LED red)	2nd flashing sequence (LED orange)	Description
1	1	Motor temperature: Static switch-off, Permissible winding temperature exceeded
	3	Motor temperature: Reset delay after static switch-off
	4	Motor temperature: Sensor input detected open circuit or short circuit
2	1	Motor voltage: Incorrect phase sequence
	2	Motor voltage: Phase failure/asymmetry
	4	Motor voltage: Reset delay after "Motor voltage" error
4	2	Oil: level too low
	3	Oil: Reset delay after "Oil" error
5	1	Permissible oil temperature exceeded
	3	Oil temperature sensor input detected open circuit or short circuit
	4	Oil flow to low
	5	Oil filter soiled

Order data

INT79 CYL Diagnose	**25 A 499 S21**
Accessories and application information	see www.kriwan.com

Technical specifications

Supply voltage	AC/DC 50/60Hz 24-240V (UL: 24-230V) ±10% 3VA
Permitted ambient temperature	-30...+70°C
Temperature measuring circuits	
- Type	NTC Sensor, R_{25} = 5kΩ, $B_{25/85}$ = 3992K
- Measuring range	0...135°C
- Accuracy	±3% of the measuring range
- Motor temperature $\vartheta_{activate}$	121°C
- Motor temperature ϑ_{reset}	109°C
- Oil temperature $\vartheta_{activate}$	96°C
- Oil temperature ϑ_{reset}	85°C
- Max. length connection line	10m
Short circuit monitoring system NTC	Typically <55Ω
Input oil flow, oil level and oil filter soiling	
- Designed for	Potential-free normally open contact (typ. 3.3V, 1mA)
- Max. length connection line	10m
Motor voltage	3 AC 20-100Hz 80-690V ±10%
Phase monitoring	
- Phase sequence	Active about 1s after motor start for about 5s
- Phase asymmetry	Active about 1s after the motor start until the motor stop
- Inactive	After motor stop for approx. 10s
Operation with frequency converters	Suitable
Reset delay	
- Motor temperature static	
1./24h	10min ±2min
2./24h	60min ±12min
3./24h	Locked
- Oil temperature	Undelayed
- Incorrect phase sequence	Locked
- Phase asymmetry	
1. - 3./20min	5min ±1min
4./20min	Locked
1.-9./24h	5min ±1min
10./24h	Locked
- Oil flow	
1.-2./24h	5min ±1min
3./24h	Locked
- Oil filter	Locked
- Oil level	Locked
Resetting the lock or the reset delay	Main reset >5s or reset by keyboard only possible if there is no error current
External button	
- Designed for	Potential-free normally open contact (typ. 3.3V, 1mA)
- Max. length connection line	1m
Relay	
- Contact	AC 240V 2.5A C300 at least AC/DC 24V 20mA
- Mechanical service life	Approx. 1 million switching cycles
Interface	Diagnose port (DP)
Protection class acc. to EN 60529	IP00
Connection type	6.3mm flat plugs (L1-L3, L and N), push-in spring terminals, 0.25-0.75mm²
Housing material	PA glass-fibre-reinforced
Mounting	Screw mounted
Dimensions	Refer to dimensions in mm
Weight	Approx. 150g
Check base	EN 61000-6-2, EN 61000-6-3 EN 61010-1 Overvoltage category II Pollution level 2
Approval	UL File No. E75899 cURus

Technical changes reserved

Product group A

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