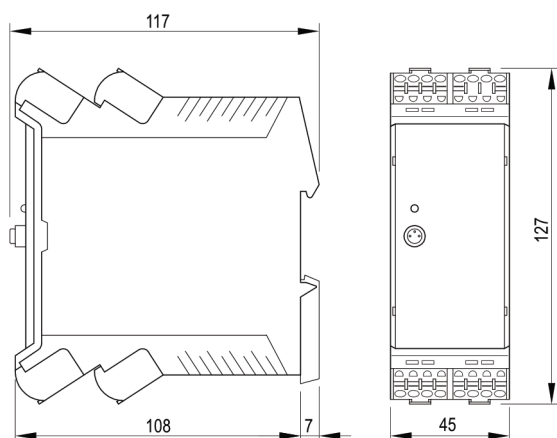


INT69® YF Diagnose

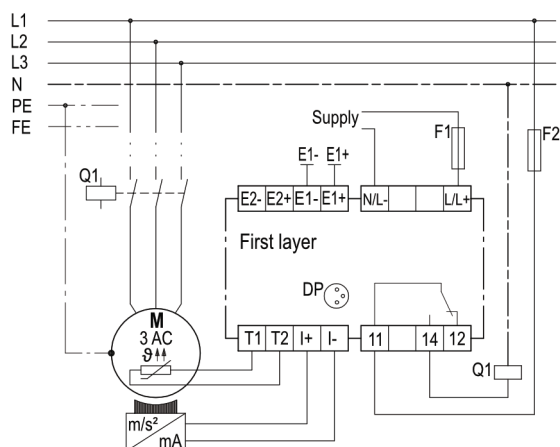


INT69 YF Diagnose

Illustration similar. Scope of delivery may deviate.



Dimensions in mm



Wiring diagram

Application

The INT69 YF Diagnose is a universal and versatile protection relay. The following inputs and outputs are available for monitoring electrical components:

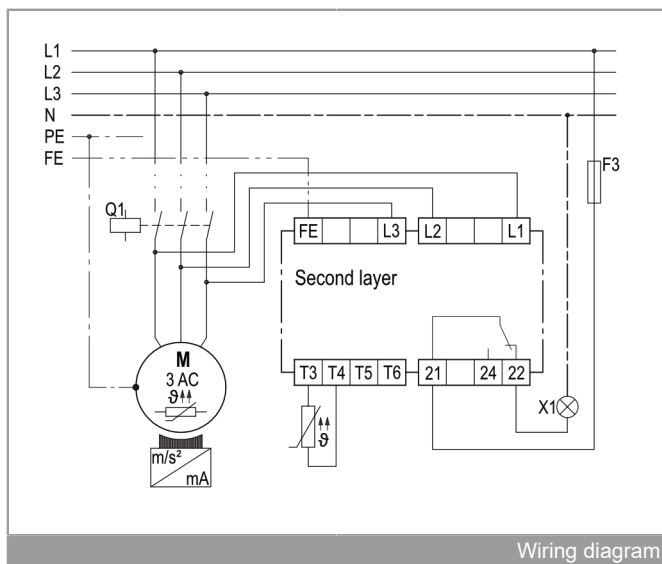
Terminals	Inputs and outputs
L/L+, N/L-	Supply voltage
T1, T2	Motor temperature (PTC, Pt100, Pt1000, bimetal)
T3, T4	Temperature 1 (PTC, Pt100, Pt1000)
T5, T6	Temperature 2 (PTC, Pt100, Pt1000)
E1+, E1-	Leakage 1 (resistance measurement, switching input)
E2+, E2-	Leakage 2 (resistance measurement, switching input)
I+, I-	Analog input 0/4-20 mA
FE	Functional ground
L1, L2, L3	Phase monitoring with phase sequence, phase failure, phase asymmetry, undervoltage and overvoltage
11, 14, 12	Alarm relay
21, 24, 22	Warning relay

Parametrization enables protection functions and response settings to be adapted flexibly to suit the application.

The INT69 YF Diagnose saves operating and fault data in a non-volatile memory. This data can be read out and evaluated for diagnostic purposes.

Parameterization and diagnostics are possible via the built-in diagnostic port (DP) using the INTspecter app and with separately available accessories.

This protection relay device is used primarily for the protection of pumps and agitators.



Functional description

All monitoring functions are configurable via simple parameterization using the INTspector app.

The following operating states of the inputs are described as active, but can be deactivated via parameterization.

Temperature monitoring is performed according to the evaluation method of a PTC, Pt100 or Pt1000. The monitoring of a PTC sensor switches off the alarm relay without delay when the nominal response temperature is reached. The monitoring of a Pt100 and Pt1000 switches off the alarm relay or warning relay when the adjustable temperature limits are reached after the adjustable tripping delay has elapsed. A short circuit or an interruption at a temperature input will cause the alarm relay to switch off. The temperature monitoring of the motor winding can additionally be carried out according to the evaluation procedure of a bimetal switch. When the bimetal switch is opened, the alarm relay is switched off without delay.

Leakage monitoring is based on the evaluation method of an ohmic resistor. The monitoring switches off the alarm relay or warning relay when the adjustable limits are reached after the adjustable tripping delay has elapsed. Leakage monitoring can additionally be carried out according to the evaluation method of a switch. When the switch is opened or closed, the alarm relay is switched off without delay.

Analog signal monitoring is carried out according to the evaluation method of a current. When the adjustable limits are reached, the alarm relay or the warning relay is switched off after the adjustable tripping delay has elapsed. The closed current of the analog signal is adjustable and is additionally monitored.

Phase monitoring of the motor voltage is active from 6 s after motor start. The correct phase sequencing is monitored for 5 s. Phase failure, phase asymmetry, undervoltage and overvoltage during the entire motor running time. If the phase sequence is incorrect, the protection relay locks. The alarm relay or warning relay is also switched off in the event of phase asymmetry, failure, undervoltage or overvoltage after the adjustable limits have been reached and after the adjustable tripping delay has elapsed. After the motor has stopped, the phase monitoring is deactivated for approx. 2 s to prevent unintentional locking due to brief reverse running of the machine.

The **switching frequency monitoring** records switching operations per time period. When the adjustable switching is exceeded within the settable time period, the alarm relay or the warning relay is switched off.

The INT69 YF diagnostics has a service interval function. Restarting the **service interval** loads the adjustable interval time. After the time has expired, the service is indicated by the built-in LED or additionally by switching off the warning relay (parameterizable).

Adjustable parameters (see parameter table) can be set via the diagnostic port using INTspector app with separately available accessories. The **LED** indicates the current status of the protection relay (see flashing code). In fault-free operation, the installed LED shows a steady green light. The **alarm relay** and **warning relay** are energized. If a fault or warning is detected, the alarm or warning relay drops out. Both relays operate according to the closed-circuit current principle. Reconnection after a lockout is only possible after a network reset >5 s

All detected events such as warnings, errors or messages are stored in a non-volatile internal memory and can be read out via the diagnostic port (DP) and the INTspector app. The event memory contains the last 20 events.

The **INTpection memory** records all measured values for the adjustable time range. If an error occurs, the measured values for the time range are provided during, before and after the time of the error.

For proper operation, the functional ground (FG) must be connected and the supply voltage must be permanently present.

Safety notices



Installation, maintenance and operation must be carried out by a qualified electrician.

The applicable European and country-specific standards for the connection of electrical equipment must be observed.

Outgoing connected sensors and connecting cables from the terminal box must have at least basic insulation.

Fittings

INTspector app

The INTspector app is required for parameterisation and diagnostics with the protective relay.



INT600 DU gateway

02 S 365 S21

USB gateway, direct connection between INT69 YF Diagnose and the PC, smartphone or tablet

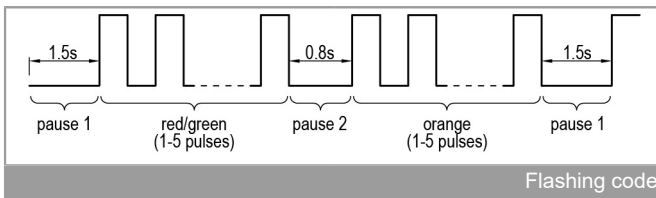
Ordering information

INT69 YF Diagnose (100-240 V ~ 50/60 Hz)	22 A 701 P081
INT69 YF Diagnose (24 V ~/- 50/60 Hz)	20 A 701 P081
Further product information	see www.kriwan.com

Flashing code

The KRIWAN flashing code is used for quick and easy status indication and troubleshooting.

The flashing code consists of a cyclic flashing sequence. In the event of a fault, the flashing sequence consists of red and orange pulses. If warnings are pending, the sequence consists of green and orange pulses. The current status can be determined from the number of flashing pulses.



Overview of flashing code

Status	Description
Steady green	Machine ready for operation
Flashing green	Machine in operation
Steady orange	Machine ready for operation, service due
Orange flashing	Machine in operation, service due
Green / orange flashing	Warning, see the description below
Red / orange flashing	Fault, machine is shut down, see the description below

LED	1. Flashing sequence	2. Flashing sequence	Description
Warning	1x green	1x orange	Motor temperature:
Fault	1x red	1x orange	switch-off, permissible winding temperature exceeded
Fault	1x red	4x orange	Motor temperature: sensor input detected an open or short circuit
Fault	2x red	1x orange	Phase monitoring: incorrect phase sequence
Warning	2x green	2x orange	Phase monitoring:
Fault	2x red	2x orange	Phase failure/asymmetry
Warning	2x green	3x orange	Phase monitoring:
Fault	2x red	3x orange	undervoltage/overvoltage
Fault	2x red	4x orange	Phase monitoring: Restart delay after "Phase monitoring" error
Warning	3x green	1x orange	Temperature input 1:
Fault	3x red	1x orange	switch-off/warning, permissible temperature exceeded
Warning	3x green	2x orange	Temperature input 2:
Fault	3x red	2x orange	switch-off/warning, permissible temperature exceeded
Fault	3x red	4x orange	Temperature input 1: sensor input detected an open or short circuit
Fault	3x red	5x orange	Temperature input 2: sensor input detected an open or short circuit
Warning	4x green	1x orange	Leakage 1:
Fault	4x red	1x orange	Switch-off/warning, permissible limit exceeded/undershot

LED	1. Flashing sequence	2. Flashing sequence	Description
Warning	4x green	3x orange	Leakage 2:
Fault	4x red	3x orange	Switch-off/warning, permissible limit exceeded/undershot
Fault	5x red	1x orange	General: internal error
Fault	5x red	2x orange	General: Supply voltage too low
Warning	5x green	3x orange	General:
Fault	5x red	3x orange	analog input 1 switch-off/warning, permissible limit exceeded/undershot
Fault	5x red	4x orange	General: analog input 1 sensor fault detected, closed current undershot
Warning	5x green	5x orange	General:
Fault	5x red	5x orange	switching frequency switch-off/, permissible switches exceeded

Technical data

Supply voltage	100-240 V ~ 50/60 Hz 9 VA
22 A 701 P081	24 V ~ 50/60 Hz 9 VA
20 A 701 P081	
Permissible ambient temperature T_a	$-30\text{ °C} \leq T_a \leq +70\text{ °C}$
Maximum usage height	2000 m
Temperature measuring circuit, bimetal	
– Type	for an NC contact
– Contact suitable for	24 V = 20 mA
– Max. line length	30 m
PTC temperature measuring circuit	
– Type	1-9 PTC sensors according to DIN VDE V 0898-1-401 in series
– $R_{25, \text{total}}$	<1.8 kΩ
– $R_{\text{Triggering, static}}$	4.5 kΩ ±20%
– R_{Reset}	2.75 kΩ ±20%
– Short circuit monitoring	<20 Ω
– Break monitoring	>20 kΩ
– Applied voltage	
– Motor temperature	24 V =
– Temperature 1	5 V =
– Temperature 2	5 V =
– Max. line length	30 m
Pt100 temperature measuring circuit	
– Measuring range	- 50... +300 °C
– Resolution	1 K
– Accuracy	5% of measuring range final value
– Short circuit monitoring	<20 Ω
– Break monitoring	>400 Ω
– Applied voltage	
– Motor temperature	24 V =
– Temperature 1	5 V =
– Temperature 2	5 V =
– Max. line length	30 m
Pt1000 temperature measuring circuit	
– Measuring range	- 50... +300 °C
– Resolution	1 K
– Accuracy	5% of measuring range final value
– Short circuit monitoring	<20 Ω
– Break monitoring	>2.3 kΩ
– Applied voltage	
– Motor temperature	24 V =
– Temperature 1	5 V =
– Temperature 2	5 V =
– Max. line length	30 m

Leakage measuring circuit	
– Type	Resistance measurement between electrode pairs
– Measuring range	10 kΩ - 1 MΩ
– Resolution	1 kΩ
– Accuracy	±10 % of full scale in measuring range 10 k - 100 kΩ ±25% of full scale in measuring range 101 k - 1 MΩ
– Applied voltage	Approx. 24 V ~
– Max. line length	30 m
Switching input	
– Type	For a floating NC or NO contact (e.g., reset button)
– Contact suitable for	24 V = 20 mA
– Max. line length	30 m
Analog input	
– Type	0...20 mA / 4...20 mA current signal
– Applied voltage	24 V = +5 % / -25 %
– Measuring range	0...20 mA
– Resolution	0.1 mA
– Accuracy	2.5% of measuring range final value
– Current limitation	30 mA, short-circuit-proof
– Max. line length	30 m
Phase measurement	
– Measuring range, phase- phase	50/60 Hz ~, 100-690 V ~ ±10 %
– Max. line length	30 m
Interface	Diagnostic port (DP)
Reset of lock or restart delay	Network reset >5 s only possible once any errors have been rectified
Alarm/warning relay	
– Contact	240 V ~, 2.5 A C300
– Mechanical service life	Min. 24 V ~ 20 mA Approx. 1 million cycles
Degree of protection as per EN 60529	IP20
Connection type	
– General	Tension spring connection (push- in) 0.2-2.5 mm ²
Housing material	PA 66 GF 30
Fixing	Control cabinet housing (basic grid 45 mm), clippable on to 35 mm standard rail as per EN 60715
Dimensions	See dimensions in mm
Weight	
– 22 A 701 P081	Ca. 300 g
– 20 A 701 P081	Ca. 300 g
Test regulations	EN 61000-6-2 EN 61000-6-3 EN 61010-1 Overvoltage category III (pay attention to temperature sensor insulation) Degree of pollution 2

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