

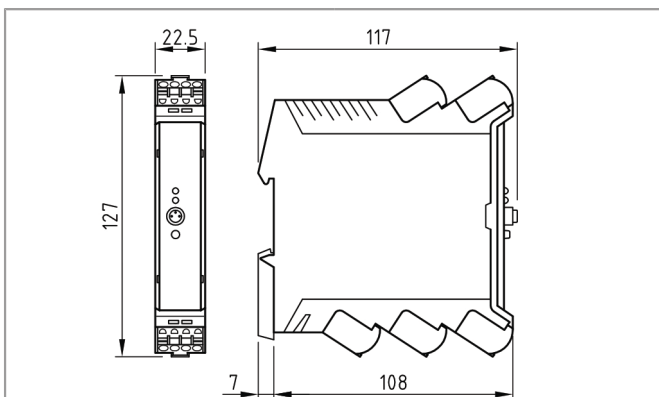
INT69® EXF2 Diagnose

Data sheet – Operating instructions

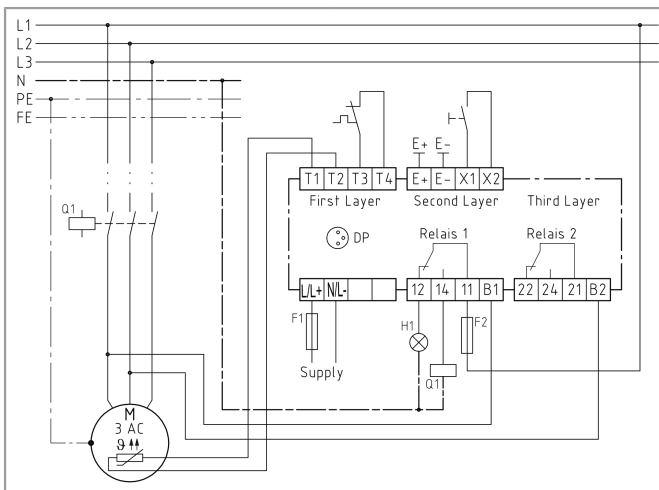


INT69 EXF2 Diagnose

Illustration similar. Scope of delivery may deviate.



Dimensions in mm



Wiring diagram

Application

The INT69 EXF2 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	Temperature 1 (PTC)
T3, T4	Temperature 2 (bimetal)
E+, E-	Leakage (resistance measurement*)
B1, B2	Run detection motor
X1, X2	External reset
12, 14, 11	Relay 1 (temperature*)
22, 24, 21	Relay 2 (leakage*)

* Setting ex works

The INT69 EXF2 Diagnose protection relay represents one of the most effective and reliable protective measures for electrical machines against impermissible heating and thermal overload. It is suitable for temperature monitoring for both electrical and mechanical equipment that is also operated in potentially explosive atmospheres, such as pumps and agitators.

Parametrization enables protection functions and response settings to be adapted flexibly to suit the application. The INT69 EXF2 Diagnose saves operating and fault data in a non-volatile memory. This data can be read out and evaluated for diagnostic purposes.

The INT69 EXF2 protection relay is installed in a control cabinet outside the EX zone.

Functional description

The protection relay is configurable via simple parameterization using the INTspector app. Both temperature inputs are implemented in compliance with the principle of functional safety for increased reliability. These inputs are always active. When not in use, they can be shunted by inserting a resistor (enclosed in product packaging). The limit values of the two temperature inputs are permanently programmed for safety reasons.

Temperature 1 is monitored according to the evaluation procedure of a PTC or a PTC chain connected in series. The monitoring of a PTC sensor switches off Relay 1 without delay when the nominal response temperature is reached. A short circuit or an interruption at a temperature input will also cause Relay 1 to switch off. The relay disconnection is interlocked. The error message is retained even if the supply voltage fails in the meantime (zero-voltage safety).

Temperature 2 is monitored according to the evaluation procedure of a bimetal switch. When the bimetal switch is opened, relay 1 switches off without delay. The relay disconnection is interlocked. The error message is retained even if the supply voltage fails in the meantime (zero-voltage safety).

Restarting after a lockout is only possible after **resetting** by pressing the built-in pushbutton or a pushbutton connected to X1/X2.

Leakage monitoring is based on the evaluation method of an ohmic resistor. The monitoring switches off when the adjustable limits are reached after the adjustable tripping delay of Relay 2 has elapsed. Relay 2 is switched on again automatically. An interlocked shutdown can be parameterized.

By connecting the **run detection** to the protection relay, operating times and switching operations of the motor are recorded and stored in the internal memory. One possibility is a connection according to the circuit diagram: connect terminals B1 and B2 between phases L1 and L2. For single-phase motors, the run detection can also be connected between phase L1 and neutral N (see the technical data). This also makes the **Service Interval** function available. Restarting the service interval loads the adjustable interval time. After the time has expired, the service is indicated by the LED or additionally by switching off a relay (parameterizable).

The **LEDs** indicate the current status of the protection relay (see the flashing code). In fault-free operation, the installed LEDs light up. Both **relays** are energized. If a fault or warning is detected, the respective relay drops out. By parameterization, the relays can be flexibly adjusted to all detectable errors or warnings. Both relays operate according to the closed-circuit current principle.

Alarms can be parameterized individually for **relay 1**. Temperature 1 and temperature 2 cannot be selected for relay 1 since relay 1 is always active during temperature monitoring and cannot be deactivated. If leakage is selected, relay 1 switches off as soon as an error occurs.

Alarms can be parameterized individually for **relay 2**. If temperature 1, temperature 2 or leakage is selected, the relay switches off as soon as an error occurs. Alternatively, relay 2 can be parameterized to warning.


Adjustable **parameters** (see parameter table) can be set via the diagnostic port (DP) using the INTspector app with separately available accessories. A password query is possible for parameterization.

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 100 events with time and date.

Line routing

The sensor lines must be routed separately from the supply lines of the motor. If extreme inductive or capacitive coupling from parallel power lines is to be expected, shielded lines must be used.

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.

The sensor circuits must be designed in a type of protection suitable for the potentially explosive atmosphere and must comply with EPL Gb, Gc, Db or Dc depending on the requirements. Alternatively, a safety barrier suitable for the potentially explosive atmosphere can be used.

Outgoing connected sensors and connection lines from the terminal box must have basic insulation as a minimum

CAUTION – This enclosure contains devices that are part of an ignition protection system according to ISO 80079-37.

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 EXF2 Diagnose and the PC, smartphone or tablet

Ordering information

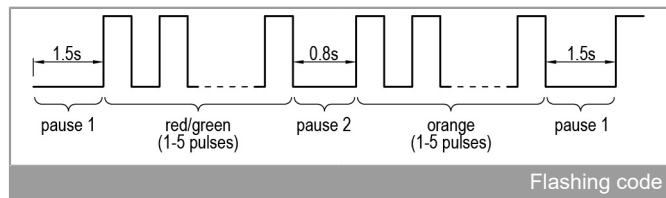
INT69 EXF2 Diagnose (100-240 V ~ 50/60 Hz)	22 A 713 P081
INT69 EXF2 Diagnose (24 V ~/= 50/60 Hz)	20 A 713 P081
Further product information	See www.kriwan.com

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.

The status of temperature and leakage is signaled on separate LEDs with "Temp." and "Leak".



Overview of flashing code

LEDs	Status	Description
Temp./ Leak.	Steady green	No error, machine is at standstill
	Flashing green	Machine in operation
	Steady orange	No error, machine stopped, service expired
	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
Temp.	Red lit	Protection relay is in parameterization mode
Temp. and Leak.	Red flashing	Internal error, protection relay defective
Temp.	Red flashing quickly	Bootloader is active/ missing firmware

LEDs	1. Flashing sequence	2. Flashing sequence	Description
Temp. fault	3x red	1x orange	Temperature input 1: Permissible winding temperature exceeded
Temp. fault	3x red	4x orange	Temperature input 1: Sensor input detected an open or short circuit


LEDs	1. Flashing sequence	2. Flashing sequence	Description
Temp. fault	3x red	2x orange	Temperature input 2: Permissible temperature exceeded
Leak Warning	4x green	1x orange	Leakage: Permissible limit value
Fault	4x red	1x orange	Undershot/exceeded

Technical data

Supply voltage 22 A 713 P081	100–240 V ~ 50/60 Hz ±10% 5 VA
20 A 713 P081	24 V ~ 50/60 Hz ±10% 5 VA
Permissible ambient temperature T _a	-20°C ≤ T _a ≤ +60°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	100 m
– Response Time	100 ms
PTC temperature measuring circuit	
– Type	1-9 PTC sensors according to DIN VDE V 0898-1-401 in series
– R ₂₅ , total	<1.8 kΩ
– R triggering, static	4.5 kΩ ±20%
– R _{reset}	2.75 kΩ ±20%
– Short circuit monitoring	<20 Ω
– Break monitoring	>20 kΩ
– Applied voltage	
– Temperature 1	5 V =
– Max. line length	100 m
– Response Time	100 ms
Leakage measuring circuit	
– Type	Resistance measurement between electrode pairs
– Measuring range	10 kΩ - 1 MΩ
– Resolution	1 kΩ
– Accuracy	±(1 kΩ + 10% of the MV)
– Applied voltage	Approx. 5 V~
– Max. line length	100 m
Input of external reset	
– Type	For one normally open contact
– Contact suitable for	5 V = 1 mA
– Max. line length	30 m
Interface	Diagnostic port (DP)
Run detection input	
– Operation with FC	Suitable
– Clock frequency range	2–16 kHz
– Operating frequency range	20–100 Hz
– Phase-phase detection range	60–480 V ~ +10%
– Phase zero detection range	60-277 V ~ +10%
– Max. line length	3 m

Reset of the interlock or the restart delay (only possible only possible once any errors have been rectified)	
– Option 1	Mains reset >5 s (not for temperature inputs)
– Option 2	Reset button >1 s leakage Reset button >5 s temperature
– Option 3	External reset >1 s leakage External reset >5 s temperature
Alarm/warning relay	
– Contact	Min. 24 V ~ 20 mA
– Rating data (UL/CSA)	Max. 240 V ~ 2,5 A C300 (NO contact)
– Nominal load (ohmic)	240 V ~ 10 A
– Mechanical service life	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 22.5 mm), clippable on to 35 mm standard rail as per EN 60715
Dimensions	See dimensions in mm
Weight	
– 22 A 713 P081	Ca. 250 g
– 20 A 713 P081	Ca. 200 g
Test regulations	EN 61000-6-2 EN 61000-6-3 EN 61010-1 UL60730 EN ISO 80079-36 EN ISO 80079-37 EN 50495 IEC TS 60079-42 RRF = 10 (22 A 713 P081) RRF = 100 (20 A 713 P081) DIN EN 61508, SIL 1 Repeat test interval: 12 years Overvoltage category II Degree of pollution 2

Approval

UL file no. E473026 c  us

 2004

 8507

EPS 23 ATEX 1 143 X

EPS 23 ATEX 1 144 X



- II (2) G [Ex h]

- II (2) D [Ex h]

- II (2) G [Ex Gb]

- II (2) D [Ex Db]

IECEX EPS 23.0034X

- [Ex h]

- [Ex Gb]

- [Ex Db]

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