

# KRIWAN PROTECTION RELAYS **FOR PUMPS**

Smart solutions for water and wastewater management





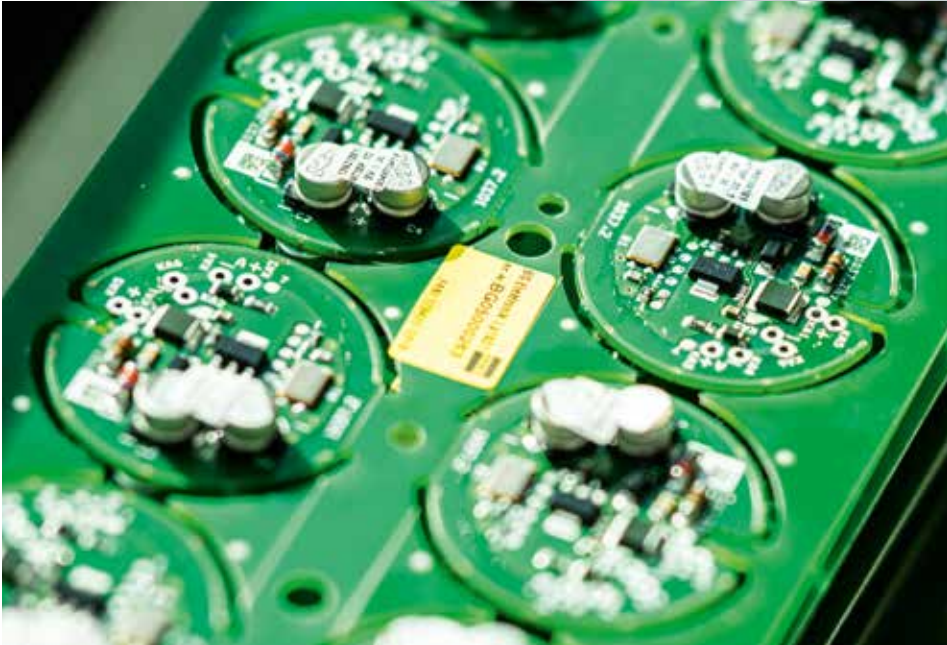
# SOLUTIONS FOR MACHINE PROTECTION

For more than 50 years, KRIWAN has been providing protection systems for a wide variety of machinery and equipment, especially for fluid machinery such as pumps and compressors.

Our products protect machines from operational failures and overload. At the same time, the innovative systems provide insight into operating data. The app developed by KRIWAN allows fast and targeted fault and condition diagnostics on site. Through integration into the system controller, continuous monitoring of the state of the system is possible.

With our deep understanding of technology and excellent quality standards, we ensure our customers can operate their machines and systems safely and reliably.

That's why we are a global leader in the manufacturing of electronics and sensor technology for refrigerant compressors, electric motors and industrial weather measurement technology, and other sectors.



## KRIWAN PRODUCT ASSORTMENT

Whether it's motor protection or wind sensors, voltage monitors or oil level regulators, at KRIWAN, you will find the ideal solution to virtually any problem.

### MADE IN GERMANY

All products, from sensors to protection and monitoring electronics, are developed, tested and produced entirely at the site in Forchtenberg.

### EMPLOYEES WORLDWIDE

Approx. 200

### LOCATIONS

Germany	// 1968
France	// 1999
Austria	// 2001
China	// 2005
America	// 2006
Italy	// 2012
Brazil	// 2016

### TEST CENTER

The KRIWAN Test Center is part of the company group. Testing, certification and qualification in the field of electromagnetic compatibility and environmental simulation are important components of the service portfolio.



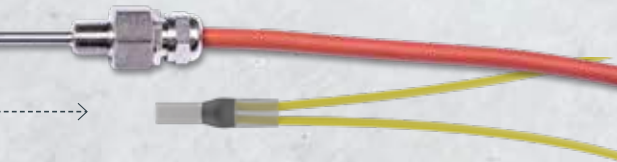
### PROTECTIVE RELAY



### GATEWAYS



### TEMPERATURE SENSORS



### LEVEL SENSORS



### OIL LEVEL REGULATORS



### DIFFERENTIAL PRESSURE SENSORS



### WIND SENSORS



### AIR FLOW SENSORS





# PROTECTION RELAY FOR PUMPS

The KRIWAN pump protection portfolio covers the full spectrum of protection and monitoring requirements for all pumps and pump systems in various applications: From the simple basic solution to the multifunctional premium solution.

## PERFECT-FIT SOLUTIONS

KRIWAN protection relays offer extensive functions that are tailored to the different requirements of your pump systems.

### PARAMETERIZATION

Inputs and outputs can be flexibly configured to the customer-specific systems via diagnostic port (DP) and the INTspector app.

### DIAGNOSTICS

All operating data 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.

### RELAY

An automatic restart or interlocked deactivation of the relays depending on the input can be parameterized.

### FLASHING CODE

The built-in LEDs signal the current status of the protection relay. The current status can be determined from the number of flashing pulses.

### CONTROL CABINET HOUSING

Housing with removable push-in terminals, can be snapped onto 35 mm DIN standard rail. The serial and part numbers are located on the front of the device.

### CODE ACCORDING TO DIN SPEC 91406

Connecting to all documents and unique device ID on the front panel.

### APPROVALS

UL



INT69® PYF  
Diagnose  
**PREMIUM**



INT69® YF  
Diagnose  
**EXTENDED**



INT69® YF  
Diagnose  
**STANDARD**



INT69® F  
Diagnose  
**BASIC**



INT69® EXF2  
Diagnose  
**BASIC EX**



	INT69® PYF Diagnose <b>PREMIUM</b>	INT69® YF Diagnose <b>EXTENDED</b>	INT69® YF Diagnose <b>STANDARD</b>	INT69® F Diagnose <b>BASIC</b>	INT69® EXF2 Diagnose <b>BASIC EX</b>
Motor temperature	PTC, Pt100, Pt1000, Bimetal	PTC, Pt100, Pt1000, Bimetal	PTC, Pt100, Pt1000, Bimetal	PTC, Pt100, Pt1000, Bimetal	—
Temperature 1	PTC, Pt100, Pt1000	PTC, Pt100, Pt1000	PTC, Pt100, Pt1000	PTC, Pt100, Pt1000, Bimetal	PTC
Temperature 2	PTC, Pt100, Pt1000	PTC, Pt100, Pt1000	PTC, Pt100, Pt1000	—	Bimetal
Leakage 1	Conductance measurement	Conductance measurement, switching input	Conductance measurement, switching input	Conductance measurement	Conductance measurement
Leakage 2	Switching input	Conductance measurement, switching input	Conductance measurement, switching input	—	—
Analog input	0/4–20 mA	0/4–20 mA	—	—	—
Phase monitoring	Phase sequence, phase failure, phase asymmetry, over- and undervoltage, run detection	Phase sequence, phase failure, phase asymmetry, over- and undervoltage, run detection	Phase sequence, phase failure, phase asymmetry, over- and undervoltage, run detection	Run detection	Run detection
Measuring range	Phase-phase: 3 AC 20–100 Hz, 100–690 V	Phase-phase: 3 AC 50/60 Hz, 100–690 V	Phase-phase: 3 AC 50/60 Hz, 100–690 V	Phase-neutral conductor: AC 20–100 Hz, 60–277 V Phase-phase: AC 20–100 Hz, 60–480 V	Phase-neutral conductor: AC 20–100 Hz, 60–277 V Phase-phase: AC 20–100 Hz, 60–480 V
Current monitoring	Current transformer INT185	—	—	—	—
Power measurement	Apparent, active, reactive power, cos φ	—	—	—	—
Relay 1	Alarm	Alarm	Alarm	Temperature	Temperature
Relay 2	Warning	Warning	—	Leakage	Leakage
Interfaces	Diagnostic port (DP) Modbus RTU (RS485)	Diagnostic port (DP)	Diagnostic port (DP)	Diagnostic port (DP)	Diagnostic port (DP)
Housing width	45 mm	45 mm	45 mm	22.5 mm	22.5 mm
Reset function	Mains reset / external reset	Mains reset	Mains reset	Reset button / external reset / mains reset	Reset button / external reset / mains reset
SUPPLY VOLTAGE	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER	PART NUMBER
AC 50/60 Hz 100–240V	22 A 721 P081	22 A 701 P081	22 A 700 P081	22 A 712 P081	22 A 713 P081
AC/DC 50/60 Hz 24V	20 A 721 P081	20 A 701 P081	20 A 700 P081	20 A 712 P081	20 A 713 P081



# EFFECTIVE PROTECTION AND DATA COLLECTION

KRIWAN protection relays provide a reliable and user-friendly solution for protecting and monitoring pumps, pump systems and submersible mixers in the water and wastewater industry. An internal memory records measured values and operating data of the pump. This data can be retrieved at any time on site via a digital interface using the INTspector app or worldwide by integrating them into the overall system controller. The inputs and outputs of the protection relay can be parameterized individually for each application.

## INT69® PYF Diagnose PREMIUM

The **PREMIUM** protection relay combines pump, protection function and digital world. Simple networking is possible with the help of the integrated Modbus interface.

The protection relay monitors temperatures, leakage, vibration, voltage and current. The power measurement is suitable for operation with frequency converters. One relay each for alarm and warning provides the necessary operational safety.



**PART NUMBERS**  
Supply voltage  
AC 50/60 Hz 100–240 V  
**22 A 721 P081**  
Supply voltage  
AC/DC 50/60 Hz 24 V  
**20 A 721 P081**



**CURRENT TRANSFORMER INT®185**  
For current measurement and the determination of power and cosφ, the current transformer is also required.  
**PART NUMBERS**  
Measuring range  
AC 50/60 Hz, 3–100 A  
**02 D 186**  
Measuring range  
AC 20–100 Hz, 5–100 A  
**02 D 187**  
Measuring range  
AC 20–100 Hz, 5–250 A  
**02 D 188**

## INT69® YF Diagnose EXTENDED + STANDARD

The solid all-round protection relays with a variety of sensor inputs for monitoring temperatures, leakage, vibration and voltage.

The INT69® YF Diagnose **EXTENDED** differs from the **STANDARD** version by an additional input for vibration measurement and the warning relay. As with all KRIWAN protection relays, there is a data matrix code on the front for product documentation.



INT69® YF Diagnose  
Supply voltage  
AC 50/60 Hz 100–240 V  
Supply voltage  
AC/DC 50/60 Hz 24 V

**EXTENDED PART NUMBERS**  
**22 A 701 P081**  
**20 A 701 P081**



**STANDARD PART NUMBERS**  
**22 A 700 P081**  
**20 A 700 P081**



## INT69® F Diagnose BASIC

The slim KRIWAN protection relay **BASIC** for monitoring temperature and leakage.

A reset button and an external reset input are available in case of a locked deactivation of the two relays. The run detection function enables monitoring of operating hours and switching cycles in the internal memory. Monitoring of a service interval is also possible in this way.



**PART NUMBERS**  
Supply voltage AC 50/60 Hz 100–240 V  
**22 A 712 P081**  
Supply voltage AC/DC 50/60 Hz 24 V  
**20 A 712 P081**



## INT69® EXF2 Diagnose BASIC EX

The INT69® EXF2 Diagnose with interlocked shutdown and ATEX approval for monitoring the motor temperature by means of PTC and bimetal on explosion-proof pumps of type of protection “flameproof enclosure” Ex d.

The protection relay is approved by the PTB. Other functions such as leakage monitoring, run detection, internal memory, reset button and an external reset input are available as with the INT69® F Diagnose **BASIC**.



Available from 2022

**PART NUMBERS**  
Supply voltage AC 50/60 Hz 100–240 V  
**22 A 713 P081**  
Supply voltage AC/DC 50/60 Hz 24 V  
**20 A 713 P081**





# DIAGNOSIS ON SITE

The KRIWAN INTspector app enables fast and targeted fault and condition diagnosis on site. You connect the KRIWAN protection relay to the app via a gateway and can thus access all important operating data.



## KRIWAN PROTECTION RELAY

The KRIWAN protection relay collects and stores the operating data of your pump. You can access this data with the INTspector app on your tablet, smartphone or laptop.



DIAGNOSTICS  
ON SITE



## GATEWAY

To access the device data of the KRIWAN protection relay with the INTspector app, you need a gateway (Bluetooth or USB).



INT®600 DB  
gateway  
**BLUETOOTH**  
PART NUMBER  
02 S377 S021

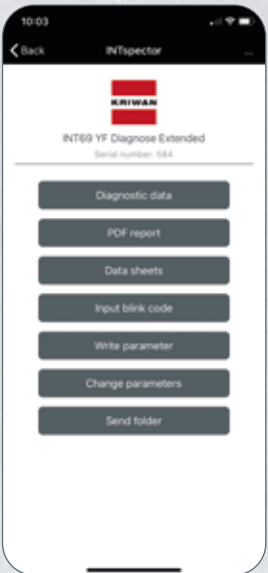


INT®600 DU gateway  
**USB**  
Not compatible with Apple devices  
PART NUMBER  
02 S365 S21



## CONNECT WITH THE INTspector® app

The INTspector app visualizes operating data and supports you during maintenance and service work. In addition, the app is used for commissioning and parameterization of the protection relay.



### MAIN MENU

Simple menu navigation for commissioning, condition monitoring and fault analysis, as well as service work.



### PARAMETERIZATION

In parameterization mode, you can set the protection relay perfectly to your application. Functions such as motor temperature monitoring, leakage, phase monitoring, etc. are available for this purpose.



### DIAGNOSTICS

The Diagnostic Data function provides an overview of the operating behavior of your pump. Events, operating times, switching cycles and current measured values are stored in an internal memory and help with detailed analysis on site. With the help of live diagnostics, all measured sensor data can be tracked in real time and recorded over an extended period of time.



# CONTINUOUS MONITORING

It is useful for operators to integrate pump or agitator operating data into their system, for example, if the motor overheats or the mounting is damaged. It is important to obtain information early on and, at the same time, take preventative action prior to a failure occurring.

As a system supplier, we ensure not only high-quality individual solutions, but also the right connections.

With the Modbus gateway, KRIWAN protection relays can be easily and safely integrated into the system controller. Measured values from the connected sensors are therefore made available to the system controller via a digital interface and a gateway.

KRIWAN offers a complete solution from the protection relay, to the gateway for networking, to the INTspector app for parameterization: easy to implement, flexible and scalable, enabling you to perform condition monitoring for reliable and efficient system operation. This is the only way to increase the efficiency and service life of machines and systems.

UP TO  
**5**  
PROTECTION RELAY  
NETWORKABLE



**INT69° PYF PREMIUM**  
The Modbus RTU interface for direct connection to the system controller is already integrated in the INT69° PYF PREMIUM. An additional Modbus gateway is not absolutely necessary.

MODBUS



## KRIWAN PROTECTION RELAY

The KRIWAN protection relay collects and stores the operating data of your pump. You can integrate this data into the system controller via Modbus gateway.



## GATEWAY

To integrate the KRIWAN protection relays into your system controller, you need a gateway that converts the pump operating data into the Modbus protocol (Modbus RTU).



INT°600 DM  
gateway

Housing width: 108 mm

for max. 5 protection relays

Modbus RTU

UL approval

PART NUMBER

Supply voltage  
AC 50/60 Hz 115–240 V  
**22 S371**



## INTEGRATION INTO THE SYSTEM CONTROLLER / CLOUD

Continuous and long-term monitoring gives you a comprehensive insight into the function of the system and allows you to optimize processes.

24/7

CONTINUOUS  
MONITORING



**DP CABLE**  
angled-angled connector

PART NUMBERS

0.30 m  
**FK02098062**  
1.00 m  
**FK02098077**



**KRIWAN**  
Industrie-Elektronik GmbH

Allmand 11  
74670 Forchtenberg  
Germany

+49 7947 822 0

+49 7947 7122

info@kriwan.com

**KRIWAN Industrie-  
Elektronik Austria GmbH**

Leopoldstrasse 39  
6020 Innsbruck  
Austria

+43 512 273431

info@kriwan.at

**Kriwan Italia S.R.L.**

Via del maglio, 5  
23868 Valmadrera (LC)  
Italy

+39 0341 176 55 01

kriwan.italia@kriwan.com

**Kriwan France SARL**

3, avenue Karl Marx  
69120 Vaulx-en-Velin  
France

+33 4 37 45 19 19

kriwan.france@kriwan.com

**Kriwan China**

No. 67 Xi Shi Li, An Jia Lou,  
Jiang Tai Xiang, Chaoyang  
District, 4th Floor, Room 441,  
Beijing 100125  
China

+86 (10) 6590 0696

kriwan.china@kriwan.com

**Kriwan Americas Inc.**

470 Windsor Park Drive  
Dayton, OH 45459  
USA

+1 937 - 432 - 9249

kriwan.americas@kriwan.com

**Kriwan Indústria Eletrônica  
do Brasil Importação  
e Exportação Ltda.**

Rod. Dep. Antonio Heil, 1001,  
km 01 Loteamento São Pedro  
Galpão 02 M7 Sala 40,  
Itaipava

CEP 88316-001 - Itajaí - SC  
Brazil

+55 47 98824 0954

kriwan.brasil@kriwan.com.br

**kriwan.com**

**pump-protection.kriwan.com**