

# 4405-178 Motor Protector & Reset Kit



**MOTOR PROTECTOR 4405-178**

## Application

The compressor protection INT69HBY Diagnosis is a further development of the reliable motor protectors. Additional inputs for the phase monitoring as well as supplementary flexible-response protective functions help to improve the availability and extend the service life of a refrigeration system.

The INT69HBY Diagnosis automatically saves operational and error data in a non-volatile memory. The data can be retrieved on a PC and analyzed for diagnosis. The full scope of the diagnosis is achieved by using a specific AMS sensor.

This motor protector is mainly employed on compressors of which the motors direction of rotation is essential for the function.

## Functional Description

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

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

A short circuit at an AMS or PTC input also leads to a switch-off. A short cycling leads to a reset delay.

After cool down or elimination of the error and a subsequent reset delay, the compressor can be restarted; restarting after locking only after reset.

The phase monitoring of the motor voltage is active 1 second after the start of the motor. The correct phase sequence is monitored for 5 seconds; the phase failure 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 is deactivated for approx. 20 seconds 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 INT69HBY Diagnosis.

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.



**Please refer to the RC2 Maintenance Manual for directions on replacing the motor protector.**

## Motor Protector & Kit Specifications

Supply Voltage .....	AC 50/60Hz 115-240V; -15...+10% 3VA
Motor Voltage .....	3 AC 50/60Hz 200-690V ±10%
Ambient Temp .....	-22 ~ 158°F (-30 ~ +70°C)
Phase Monitoring	
Sequence .....	Active about 1 second after motor start for about 5 sec.
Failure .....	Active about 1 second after the motor start until the motor stop
Inactive .....	After motor stop for approx. 20 sec.
Reset Delay	
Motor Temp Static .....	5min ± 1min
Motor Temp Dynamic .....	1./24h 5min ± 1min
2./24h 60min ± 12min	
3./24h Locked	
Switching Frequency Overstepping .....	5min ± 1min
Incorrect phase sequence .....	Locked
Phase Failure .....	Locked
Resetting the lock or the reset delay	
.....Main reset >5 sec. only possible if there is no error current Relay	
Inactive (31 A 630) .....	AC 240V 2.5A C300 at least AC/DC 100mV 0.5mA
Mechanical service life .....	Approx. 1 million switching cycles
Interface .....	Diagnose port (DP)
Approval .....	UL File No E75899

## Reset Kit Description

The INT69HBY Reset Kit allows you to add an optional reset button when upgrading from an INT69 or INT69Y to INT69HBY.

**RC-INT69HBY-RESET KIT #1**

Reset button kit for RC2-100, RC2-140

**RC-INT69HBY-RESET KIT #2**

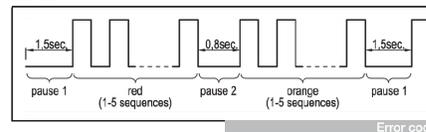
Reset button kit for RC2-170~RC2-710



**Reset Kit**

The INT69HBY 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.



### Overview flash code

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

