# Hybrid Relay
# IK 3070/200

**Translation of the original instructions**

DOLD

0242054


**Your Advantages**
- For loads with high inrush current
- Reliable switching of energysaving- and LED lamps
- High electrical life due to hybrid technology

**Features**
- According to IEC/EN 60 947-4-3
- Measured nominal current 20 A
- High electric life of >$10^6$ switching cycles at AC 15 10 A inductive
- Silent switching
- To switch resistive, inductive and capacitive loads
- Switching at zero-crossing
- 1 NO contact
- 17.5 mm width

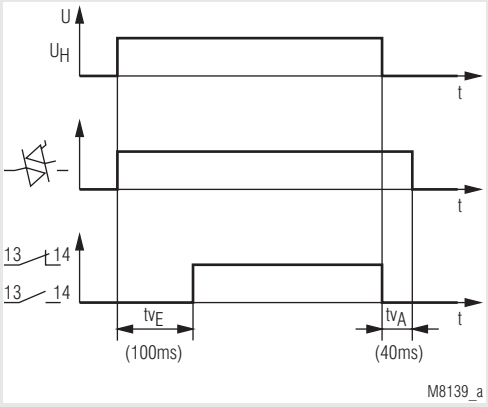
## Product Descritption

The IK 3070/200 hybrid relay is designed to switch high inductive or capacitive loads, e.g. energy saving and LED lamps.
In addition to the output relay, it has a triac connected in parallel.
This combination enables high inrush currents to be switched and high power dissipation during continuous current to be avoided.

## Approvals and Markings

CE

## Function Diagram




## Applications

Heating, air conditioning and lighting systems

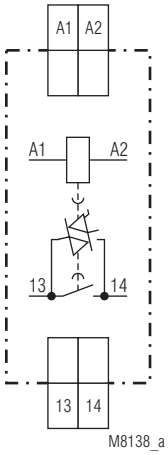
## Function

The hybrid relay contains an output relay with parallel connected triac, when switching the triac takes the load. The continous current is then lead over the relay contact due to the higher losses on the triac.
As the triac only switches off at zero-crossing, the device can only switch AC-loads.

## Indication

LED on, when power supply connected

## Circuit Diagram




## Connection Terminals

| Terminal Designation | Signal Description |
|---|---|
| A1 / A2 | Operating voltage |
| 13 / 14 | Contact |

## Technical Data

### Input

| | |
|---|---|
| **Nominal voltage $U_N$:** | AC/DC 24 V<br>AC 110 ... 127 V, 220 ... 240 V |
| **Frequency range:** | 50 / 60 Hz |
| **Voltage range** | |
| at AC: | ± 10 % |
| at DC: | - 10 %; + 25 % |
| **Nominal consumption A1 / A2** | |
| at AC 230 V: | 0.8 W 3.4 VA |
| at DC 24 V: | 0.7 W |

### Output

| | |
|---|---|
| **Type of output:** | relay with parallel connected triac |
| **Contact:** | 1 NO contact |
| **Load voltage range:** | AC 24 ... 265 V |
| **Frequency range:** | 50 / 60 Hz |
| **Leakage current in off-state:** | ≤ 0.5 mA |
| **Measured nominal current 20 A:** | AC-51 1.25 x $I_e$ - 60 s : 50-30<br>(at 45 °C ambient temperature) |
| **Thermal current $I_{th}$:** | 16 A (also at 60 °C ambient temperature) |
| **Power loss at 16 A:** | 3 W |
| **Switching capacity** | |
| to AC 15, 10 A inductive | |
| switch on: | 100 A, cos φ 0.3 |
| switch off: | 10 A, cos φ 0.3 |
| Fluorescent lamp load with electronic ballast unit (EVG): | 60 x 58 W 1 row, with 10 µF compensation<br>30 x 58 W 2 rows, with 22 µF compensation |
| Parallel compensation: | 48 x 58 W 1 row, with 7 µF compensation |
| **Switching current:** | 190 A 20 ms |
| **Semiconductor fuse:** | 180 $A^2s$ 10 ms (protection for triac) |
| **Varistor voltage:** | AC 275 V |
| **Electrical life** | |
| to AC 15 at 10 A, AC 230 V: | ≥ $10^6$ switching cycles IEC/EN 60947-5-1 |
| **Short circuit strength** | |
| max. short circuit current: | 300 A IEC/EN 60947-5-1 |
| max. automatic fuse: | B 16 A |
| **Permissible switching frequency:** | Max. 3600 switching cycles / h |
| **Mechanical life:** | ≥ 30 x $10^6$ switching cycles |

### General Data

| | |
|---|---|
| **Nominal operating mode:** | Continuous operation |
| **Temperature range** | |
| Operation: | - 20 ... + 60 °C |
| Storage: | - 20 ... + 60 °C |
| **Relative air humidity:** | 93 % at 40 °C |
| **Altitude:** | < 2000 m |
| **Clearance and creepage distances** | |
| Rated impulse voltage / pollution degree: | 4 kV / 2 IEC 60664-1 |
| **EMC** | |
| Electrostatic discharge: | 8 kV (air) IEC/EN 61000-4-2 |
| HF-irradiation | |
| 80 MHz ... 1.0 GHz: | 10 V / m IEC/EN 61000-4-3 |
| 1.0 GHz ... 2.5 GHz: | 3 V / m IEC/EN 61000-4-3 |
| 2.5 GHz ... 2.7 GHz: | 1 V / m IEC/EN 61000-4-3 |
| Fast transients: | 4 kV IEC/EN 61000-4-4 |
| Surge voltages between | |
| wires for power supply: | 1 kV IEC/EN 61 000-4-5 |
| between wire and ground: | 4 kV IEC/EN 61 000-4-5 |
| HF-wire guided: | 10 V IEC/EN 61 000-4-6 |
| Interference suppression: | Limit value class B EN 55011 |

## Technical Data

| | |
|---|---|
| **Degree of protection** | |
| Housing: | IP 40 IEC/EN 60529 |
| Terminals: | IP 20 IEC/EN 60529 |
| **Housing:** | Thermoplastic with V0-behaviour according to UL subject 94 |
| **Vibration resistance:** | Amplitude 0.35 mm frequency 10 ... 55 Hz IEC/EN 60068-2-6 |
| **Climate resistance:** | 20 / 60 / 04 IEC/EN 60068-1 |
| **Terminal designation:** | EN 50005 |
| **Wire connection:** | 2 x 2.5 $mm^2$ solid or<br>2 x 1.5 $mm^2$ stranded ferruled<br>DIN 46228-1/-2/-3 |
| Insulation of wires or sleeve length: | 10 mm |
| **Wire fixing:** | Flat terminals with self-lifting clamping piece IEC/EN 60999-1 |
| **Fixing torque:** | 0.8 Nm |
| **Mounting:** | DIN rail IEC/EN 60715 |
| **Weight:** | 70 g |

### Dimensions

| | |
|---|---|
| **Width x height x depth:** | 17.5 x 90 x 58 mm |

### Standard Type

IK 3070.01/200 AC 220 ... 240 V 50 / 60 Hz

| | |
|---|---|
| Article number: | 0054593 |
| • Output: | 1 NO contact |
| • Nominal voltage $U_N$: | AC 220 ... 240 V |
| • Width: | 17.5 mm |

### Ordering Example

IK 3070 .01 /200 AC/DC 24 V 50 / 60 Hz

- 50 / 60 Hz — Nominal frequency
- AC/DC 24 V — Nominal voltage
- /200 — Contact
- IK 3070 .01 — Type