

Hybrid Relay IK 3070/200

Translation
of the original instructions



0242054



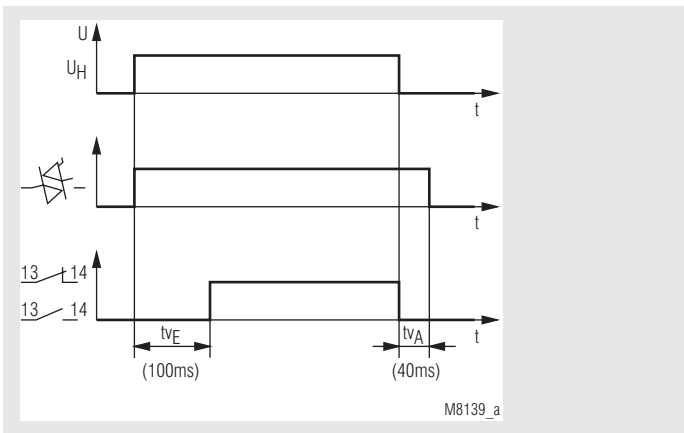
Your Advantages

- 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

Function Diagram



Approvals and Markings



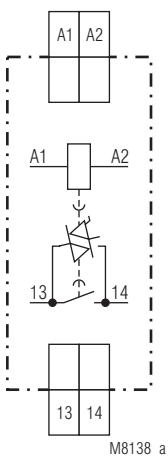
Applications

The hybrid power relay is designed to switch high inductive or capacitive loads, e.g. energy saving and LED lamps. Other applications are in heating, air conditioning and lighting systems.

Function

The hybrid switching relay contains an output relay with parallel connected triac, when switching the triac takes the load. The continuous 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.

Circuit Diagram



Indication

LED on, when power supply connected

Connection Terminals

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

| Technical Data | |
|---|--|
| Input | |
| Nominal voltage U_N: | AC/DC 24 V 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_{θ} - 60 s : 50-30 (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 30 x 58 W 2 rows, with 22 µF compensation 48 x 58 W 1 row, with 7 µF compensation |
| Parallel compensation: | 190 A 20 ms |
| Switching current: | 180 A²s 10 ms (protection for triac) |
| Semiconductor fuse: | AC 275 V |
| Varistor voltage: | |
| 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: | 2 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 mm² solid or 2 x 1.5 mm² stranded ferruled 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 | |
| | Nominal frequency |
| | Nominal voltage |
| | Contact |
| | Type |