

Relays and Timers Specifications

Bulletin Number 700

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Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

| Resource | Description |
|---|---|
| Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1 | Provides general guidelines for installing a Rockwell Automation industrial system. |
| Product Certifications website, http://www.ab.com | Provides declarations of conformity, certificates, and other certification details. |

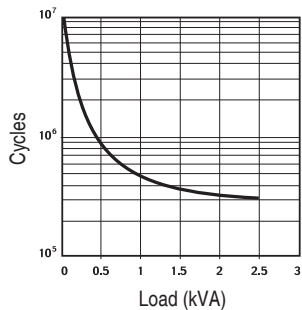
You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.



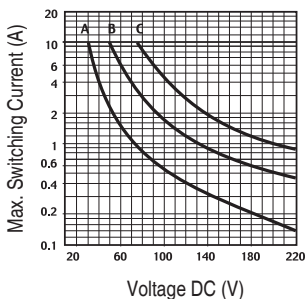
| Cat. No. 700-HA... | | | | |
|--|-----------------|--|----------------------------------|-----------|
| Electrical Ratings | | | | |
| Pilot Duty Rating‡ | | NEMA B300 | | |
| Rated Thermal Current (I_{th}) | | HA = 10 A – 120V, 240V HAX = 6 A – 120V, 240V | | |
| Rated Insulation Voltage (U_i) | | 250V IEC – 300V UL/CSA | | |
| Contacts | Inductive | Make | Break | Hp |
| | | ▶ ◀ | ◀ ▶ | |
| | 120V AC | 30 A | 3 A | 1/3 |
| | 240V AC | 15 A | 1.5 A | 1 |
| | General Purpose | 10 A, 240V AC | | |
| | Resistive | 10 A, 30V DC | | |
| Min. Low Energy Permissible Load | | HA = 10V, 5 mA HAX = 5V, 2 mA | | |
| Permissible Coil Voltage Variation | | Pickup: 80...110% of Nominal Voltage at 50 Hz 80...110% of Nominal Voltage at 60 Hz 80...110% of Nominal Voltage at DC | | |
| Coil Consumption ±10% | AC Coils | 50 Hz | 60 Hz | |
| | Inrush | 3.3 VA | 2.85 VA | |
| | Sealed | 2.2 VA | 1.9 VA | |
| | DC Coils | 1.3 W | | |
| Must Dropout Voltage | | 20% of nominal V AC 10% of nominal V DC | | |
| Max. Contact Resistance | | 50 MΩ (700-HA and 700-HAB) 30 MΩ (700-HAX) | | |
| Design Specification/Test Requirements | | | | |
| Electrical | | | | |
| Pole-to-Pole | | 2000V | | |
| Contact to Coil | | 2000V | | |
| Electrical Life (Operating) | | 100 000 min. | | |
| Mechanical | | | | |
| Degree of Protection (Open Type) IEC 529 | | IP 40 | | |
| Mechanical Life Cycles (AC/DC) | | > 20 x 10 ⁶ / 50 x 10 ⁶ | | |
| Switching Frequency Operations | | 3600/HR | | |
| Coil Voltages | | See Product Selection | | |
| Operating Time | Max. Pickup | 10 ms | | |
| | Max. Dropout | 10 ms | | |
| Maximum Operating Rate | | 4 Ops/s | | |
| Vibration | Endurance | 5 G | | |
| | Operational | 2.5 G | | |
| Shock | Endurance | 50 G | | |
| | Operational | 9 G | | |
| Environmental | | | | |
| Temperature | Operating | AC/DC | -40...+70 °C | |
| | Storage | AC/DC | -40...+100 °C | |
| Altitude | | 2000 m (6560 ft) | | |
| Construction | | | | |
| Insulating Material | | Molded High-Dielectric Material | | |
| Enclosure | | Transparent Dust Cover | | |
| Contact Material | | 700-HA: | 10 A– AgNi | |
| | | 700-HAX: | 6 A–Bifurcated/Gold Plating AgNi | |
| Terminal Markings on Socket | | In accordance with EN50 0005 | | |
| Sockets | | 8-Pin Socket — 700-HN100, -HN125, -HN204 11-Pin Socket — 700-HN101, -HN126, -HN205 | | |
| Certifications | | cURus Recognized (File No. E3125, Guide NLDX2/NLDX8), cULus Listed when used with Bulletin 700-HN sockets noted above (File No. E3125, Guide NLDX/NLDX7), CE Marked, CSA Certified, UR Certified (File 229473) | | |
| Standards | | UL508, CSA C22.2 No. 14, EN 61810-1 | | |

‡ NEMA Rating Chart is in publication 700-SG003*

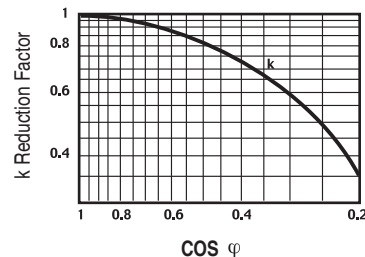
700-HA Relay Performance Graphs



Contact life vs. AC1 load at 1,800 cycles/h



Breaking capacity for DC1 load at 1,800 cycles/h.



Load reduction factor vs. $\cos \phi$

A = load applied to one contact
 B = load applied to two contacts in series
 C = load applied to three contacts in series

| Time Module Cat. No. 700-HT3 | | |
|---|--|-----------------------------------|
| Electrical Ratings | | |
| Operating Voltage Range | 12...240V AC (50/60 Hz) 12...240V DC | |
| Power Consumption | 0.1 W (12V) 1.0 W (230V) | |
| Mechanical | | |
| Degree of Protection of Input (B1) Terminal | IP 20 (Guarded Terminal) | |
| Input Terminal Wire Range | 1.0 x 0.2 mm ² ...2.5 mm ² (24 AWG...14 AWG) 2.0 x 0.2 mm ² ...1.5 mm ² (24 AWG...16 AWG) | |
| Input Terminal Torque Range | 0.45...0.8 Nm (4...7 lb-in.) | |
| LED Indicator | Red | |
| Repeat Accuracy ‡ | ±1% | |
| Recovery Time | <50 ms | |
| Selectable Timing Ranges | Three DIP switches, seven ranges (set from 5...100% of range): 1 s, 10 s, 100 s, 10 min, 100 min, 10 h, 100 h | |
| Selectable Timing Modes | Three DIP switches, eight modes: 1. Power On-Delay 2. Power On One-Shot 3. Power On Repeat Cycle, On Start 4. Signal On-Delay and Signal Off-Delay 5. Signal Off-Delay 6. Signal On-One-Shot 7. Signal Off-One-Shot 8. Signal On and Signal Off Watchdog Monitor | |
| Adjustable Trimmer Scale Accuracy | ±5% of Time Range | |
| Environmental | | |
| Temperature | Operating | -20 °C...+50 °C (-4 °F...+122 °F) |
| | Storage | -55 °C...+85 °C (-67...+185 °F) |
| Altitude | 2000 m (6560 ft) | |
| Construction | | |
| Enclosure | Gray Plastic Housing | |
| Mounting with Socket Only | 8- or 11-Pin Socket with Module Plug | |
| Sockets | 700-HN204 (8-Pin with Plug) 700-HN205 (11-Pin with Plug) | |
| Certifications | cURus Recognized (File No. E14843, Guide NRNT2/NRNT8), CE Marked | |
| Standards | UL508, CSA C22.2 No. 14, EN 61810-1 | |

‡ At constant voltage and temperature.