

Product Details and Certifications

Cross Reference RA Part Number: 700-HLS2Z24 A

➔ **Product: 700-HLS2Z24**

Description: 700-HL Solid State Relay Output, w/ Spring Clamp Connections,
24V DC, Touch Safe Terminal Construction



Representative Photo Only (actual product may vary based on configuration sections)

CONTROL RELAY DATA

| | |
|--|-----------------------------------|
| Bulletin Number | 700-HL General Purpose Relay |
| Output Relay Type | Solid State Relay Output |
| Connections | Spring Clamp |
| Build in 2.2mA Leakage Current Suppression Circuit | No |
| Coil Voltage | 24V DC |
| Contact Type | Standard Silver Contacts |
| NOTE | The Standard package is 10 pc/box |

CERTIFICATIONS AND APPROVALS

UL
CSA
CE
ABS
EN
IEE

For UL Certifications Directory:

<http://database.ul.com/cgi-bin/XYV/template/LISEXT/IFRAME/index.htm>



| Bulletin No. | 700-HC | 700-HK | 700-HL | 700-HP |
|--|---|---|---|---|
| Type | Interposing/Isolation Relay | Interposing/Isolation Relay | Interposing/Isolation Relay | Interposing/Isolation Relay |
| Features | <ul style="list-style-type: none"> Blade-style terminals Standard ON/OFF flag indicator Electrical schematic on face Clear cover for visual inspection Optional push-to-test and manual override Optional LED | <ul style="list-style-type: none"> Optional pilot light Retainer clip (comes with socket) Low switching capacity Push-to-test & manual override | <ul style="list-style-type: none"> Ideal for PLC Interfaces Built-in Coil Surge Protection Fully Assembled Relay/Socket Standard LED Relay or Solid-state Output Optional: Leakage Current Suppression Solution | <ul style="list-style-type: none"> PCB "Pin Style" mounting 5 mm pin spacing |
| Contact Ratings | | | | |
| Contact Form | DPDT, 4PDT | SPDT, DPDT | SPDT 1 N.O. (SSR) | DPDT |
| Contact Type | Single | Single | Single | Single |
| Contact Material | AgNi, AgNi + Gold | AgNi, AgNi + Gold | AgSnO | AgNi, AgNi + Gold |
| Max. operating current under resistive load | 10 A (DPDT) 7 A (4PDT) | 8 A (DPDT), 16 A (SPDT) | 6 A (SPDT), 2 A (SSR DC output), 1 A (SSR AC output) | 8 A |
| Min. permissible load | 10V, 10 mA (Gold), 5V, 10 mA or 25V, 2 mA (Silver) | 5V 60 mA (Silver), 5V 10 mA (Gold) | 12V 6 mA (72 mW) Silver 8V, 2.5 mA (20 mW) Gold | 5V 5 mA (50 mW) Gold, 5V 5 mA (300 mW) Silver |
| Coil Ratings | | | | |
| Coil Voltage | AC: 6, 12, 24, 120, 240V DC: 6, 12, 24, 48, 110V | AC: 6, 12, 24, 120, 240V DC: 6, 12, 24, 48, 110V | AC: 12, 24, 48, 110, 120, 230, 240V DC: 12, 24, 48, 125, 230, 240V | AC: 6, 12, 24, 120, 240V DC: 6, 12, 24, 48, 110V |
| Permissible Coil Voltage Variation | 80...110% of Nominal Voltage at 50 Hz 80...110% of Nominal Voltage at 60 Hz 80...110% of Nominal Voltage at DC | 80...110% of Nominal Voltage at 50 Hz 80...110% of Nominal Voltage at 60 Hz 73...110% of Nominal Voltage at DC | 85...110% of Nominal Voltage at 50 Hz 85...110% of Nominal Voltage at 60 Hz 80...110% of Nominal Voltage at DC | 80...110% of Nominal Voltage at 50 Hz 80...110% of Nominal Voltage at 60 Hz 73...150% of Nominal Voltage at DC |
| Electrical Ratings | | | | |
| Dielectric Withstand Voltage | Pole-to-pole: 1000V Contact-to-coil: 2000V Contact-to-frame: 2000V | Pole-to-pole: 1500V AC Contact-to-coil: 1500V AC Contact-to-frame: 1500V AC | Pole-to-pole: 1000V AC Contact-to-coil: 4000V Contact-to-frame: 1500V | Pole-to-pole: 2000V Contact-to-coil: 5000V |
| Electric Service Life (cycles) | 100 000 minimum | 100 000 minimum | 100 000 minimum | 100 000 minimum |
| Reference | | | | |
| Certifications | CE, cULus, cURus, CSA, Lloyds | CE, UL, UR, CSA | CE, cURus, cULus, ABS | CE, cULus, cURus, CSA, Lloyds |
| Socket Type | 700-HN103, 700-HN128, 700- HN104 | 700-HN121, -HN221 700-HN122, -HN222 700-HN223, -HN224 | — | 700-HN123, -HN230 |
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Bulletin 700-HL — "Terminal Block Relay"

- Relay and socket assembled interface modules for high density interposing or isolation applications
- Screw terminal and spring-clamp bases
- 6 A relay, choice of silver or gold contacts
- 2 A solid-state relay — DC output
- 1 A solid-state relay — AC output
- SPDT (relay), 1 N.O. (solid-state)
- Built-in retainer clip and snap-in marker lever
- Standard LED, reverse polarity protection, and surge protection *
- Externally replaceable relay modules
- Unique leakage current suppression version to address industry concerns of nuisance coil turn-on or contact non-drop out when connecting to PLCs with leakage current
- Available with hazardous location certification

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Product Selection

| | | | | |
|--|--|-----------------------------|---|------------------------------|
| Standard built-in Features: <ul style="list-style-type: none"> • LED • Reverse Polarity Protection for DC Inputs • Coil Surge Protection * | | | | |
| | Cat. No. 700-HLT1Z24 | Cat. No. 700-HLT2Z24 | Cat. No. 700-HLS1Z24 | Cat. No. 700-HLS11Z24 |
| Specifications | | | | |
| Output Type | SPDT (1 C/O); $I_{th} = 6A\ddagger$ | | 1 N.O. solid-state; $I_{th} = 2 A, 24V DC$ or $I_{th} = 1 A, 240V AC$ | |
| Recommended Tightening Torque | 0.5 N•m max. (4.4 lb•in) | | | |
| Wire Range | Screw Terminal: 0.14 mm ² ...2.5 mm ² (#26...#14 AWG), Spring Terminal: 0.2 mm ² ...2.5 mm ² (#24...#14 AWG) | | | |
| Approvals | UL, cULus, cURus, ABS, CE | | | |

| Assembled Devices | Pkg. Quantity | Cat. No. (Screw Terminals) | Cat. No. (Spring Clamp Terminals) | Pkg. Quantity | Cat. No. (Screw Terminals) (DC Output) | Cat. No. (Spring Clamp Terminals) (DC Output) | Cat. No. (Screw Terminals) (AC Output) |
|--|---------------|----------------------------|-----------------------------------|---------------|--|---|--|
| Input Voltage | | | | | | | |
| 12V DC | 10 | * 700-HLT1Z12 | 700-HLT2Z12 | — | — | — | — |
| 24V DC | 10 | * 700-HLT1Z24 | 700-HLT2Z24 | 10 | * 700-HLS1Z24 | 700-HLS2Z24 | 700-HLS11Z24 |
| 48V DC | 10 | * 700-HLT1Z48 | 700-HLT2Z48 | 10 | * 700-HLS1Z48 | 700-HLS2Z48 | 700-HLS11Z48 |
| 12V AC/DC | 10 | 700-HLT1U12 | 700-HLT2U12 | — | — | — | — |
| 24V AC/DC | 10 | 700-HLT1U24 | 700-HLT2U24 | — | — | — | — |
| 48V AC/DC | 10 | 700-HLT1U48 | 700-HLT2U48 | — | — | — | — |
| 110/125V AC/DC | 10 | 700-HLT1U1 | 700-HLT2U1 | 10 | * 700-HLS1U1 | 700-HLS2U1 | 700-HLS11U1 |
| 220...240V AC/DC | 10 | 700-HLT1U2 | 700-HLT2U2 | 10 | * 700-HLS1U2 | 700-HLS2U2 | 700-HLS11U2 |
| 240V AC | 10 | 700-HLT1A2 | — | — | — | — | — |
| Built-in LCSC (leakage current suppression circuit) 120V AC and 125V DC§ | 10 | * 700-HLT1L1 | — | 10 | * 700-HLS1L1 | — | 700-HLS11L1 |
| Built-in LCSC (leakage current suppression circuit) 240V AC§ | 10 | * 700-HLT1L2 | — | 10 | * 700-HLS1L2 | — | 700-HLS11L2 |
| Hazardous Location Certification 24V DC | 10 | 700-HLT1Z24-EX | — | 10 | 700-HLS1Z24-EX | — | — |
| Hazardous Location Certification 12V DC | 10 | 700-HLT1Z12-EX | — | 10 | — | — | — |
| Hazardous Location Certification 110/125V AC/DC | 10 | 700-HLT1U1-EX | — | 10 | 700-HLS1U1-EX | — | — |

* Reverse polarity on the output terminals of the solid-state relay will result in the output being "On" regardless of the state of the input voltage.
 * Electromechanical relay to solid-state relay interchangeability is possible.
 ‡ For Gold-plated contacts: Add the letter "X" at the end of the catalog number. For example: if Cat. No. 700-HLT1Z24 is required with gold plating, the new cat. no. is 700-HLT1Z24X.
 § Leakage current suppression up to 2.2 mA off state current.
 * Diode surge protection provided.

Bulletin 700-HL
Interposing/Isolation Relays
 Specifications



| Cat. No. 700-HLS... (Solid State Output) | | | | | | |
|---|--|---|------------|---|-----------|-----------|
| Electrical | | | | | | |
| Rated Thermal Current (I_{th}) | 2 A (DC output) | | | 1 A (AC output) | | |
| Rated Insulation Voltage (U_i) | 250V IEC, 300V UL/CSA | | | | | |
| Control Circuit | Min. Control Voltage | 80% nominal voltage | | | | |
| | Maximum Control Voltage | 110% nominal voltage | | | | |
| | Control Current | 9 mA \pm 10% (24V) 4 mA \pm 10% (120/240V) | | | | |
| | Release Voltage | 0.4 x nominal voltage (24V), 0.35 x nominal voltage (120/240V) | | | | |
| | Min. Control Circuit Resistance | 3200 ohms (24V), 16k ohms (120V), 32k ohms (240V) | | 2500 ohms (24V), 12k ohms (120V), 24k ohms (240V) | | |
| Outputs | Load Voltage Range | 0...24V DC | | 24...240V AC | | |
| | Max. Repetitive Blocking Voltage | 33V | | 600V | | |
| | Max. Switching Current (inductive/resistive) | 2 A DC | | 1 A AC | | |
| | On State Voltage Drop @ Max. Switching Current | <120 mV DC | | <1V AC | | |
| | Leakage Current | max. 100 μ A (@U = 24V) | | | | |
| Power Consumption \pm 10% | AC | 0.6 VA (120V), 1 VA (240V) | | | | |
| | DC | 0.2 W | | 0.3 W | | |
| Design Specification/Test Requirements | | | | | | |
| Dielectric Withstand Voltage | Pole to Pole (VRMS) | 2500V | | | | |
| | Contact to Coil (VRMS) | 2500V | | | | |
| Input Voltage | 24V DC | 48V DC | 120V AC/DC | 240V AC/DC | 120V LCSC | 240V LCSC |
| Impedance (Ohms) | 2K | 9 K | 26 K | 58 K | 16 K | 35 K |
| Mechanical | | | | | | |
| Degree of Protection | IP20 | | | | | |
| Input Voltages | See Overview/Product Selection | | | | | |
| Operating Time at Nominal Voltage at 20 °C (ms) | Turn on Time | 30 μ s (DC only input voltage), 7 ms (AC/DC input voltage) | | | | |
| | Drop Out Time | 350 μ s (DC only input voltage), 10 ms (AC/DC input voltage) | | | | |
| Maximum Operating Rate | 300 Hz | | | | | |
| Environmental | | | | | | |
| Temperature | Operating | -20...+55 °C | | | | |
| | Storage | -40...70 °C | | | | |
| Altitude | 2000 m (6560 ft) | | | | | |
| Construction | | | | | | |
| Insulating Material | Molded High-Dielectric Material | | | | | |
| Enclosure | Relay IP67 | | | | | |
| Terminal Markings on Socket | In accordance with EN50 0005 | | | | | |
| Certifications | cULus Listed (File No. E14843, Guide NLDX/NLDX7), CE Marked, ABS (American Bureau of Shipping) | | | | | |
| Standards | UL 508, CSA C22.2 No. 14, EN/IEC 60947-1, -5-1 | | | | | |
| Hazardous Location Approvals | Class 1, Zn 2, Groups IIC, Ex nC IIC T5 Ta < 55 °C | | | | | |
| | UL Listed (UL 60079-15) | 700-HLT1Z24-EX, 700-HLS1Z24-EX (24V DC supply) 700-HLT1U1-EX, 700-HLS1U1-EX (110V/125V AC/DC supply) | | | | |
| | CSA Certified* (CAN/CSA 60079-15) | 700-HLT1Z24-EX, 700-HLS1Z24-EX (24V DC supply) | | | | |

* Product shall be installed in an enclosure providing at least IP54 protection. Provisions shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40%.