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E-328-2 Series AC Low Voltage Warning Relay, 10 Amps, 28 Vdc Contacts

Product Facts
- DPDT
- Gasket sealed

Performance Data

Electrical Characteristics
- Relay/Relay Driver
  - Contact Arrangement — DPDT
  - Rated Operating Voltage — 28 Vdc
  - Resistive Rating — 10 Amps
  - Inductive Rating — 5 Amps
  - Lamp Rating — 1.5 Amps

Coil Characteristics
- Duty Cycle — Continuous

Voltage Sensor
- Operating Voltage, Nom. — 115 V, 380-420 Hz
- Pickup Voltage — 107 ± 3 Vrms
- Dropout Voltage — 100 ± 2 Vrms
- Dropout Time, Min. — 40 ms

General Characteristics
- Temperature Range — -55°C to +85°C
- Operating Cycles (Life)
  - Mechanical, Min. — 100,000 cycles
  - Weight, Max. — 6 oz.

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tbody>
<tr>
<td>E-328-2</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
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<td>1-1616126-8</td>
</tr>
</tbody>
</table>
A-772 Series Battery Contactor — Discharge Overload, Rated up to 200 Amps, 28 Vdc

Product Facts
- SPST NO
- Gasket sealed
- Auxiliary contacts available
- Limits overload current duration

Performance Data
Electrical Characteristics
Main Contacts —
Contact Arrangement — SPST NO
Rated Operating Voltage — 28 Vdc
Resistive Rating — 200 Amps
Auxiliary Contacts —
Aux. Contact Arrangement — SPST NC
Rated Operating Voltage — 28 Vdc
Resistive Rating — 5 Amps

General Characteristics
Temperature Range — -55°C to +71°C
Operating Cycles (Life) at Rated
Resistive Load — 50,000 cycles
Operating Cycles (Life)
Mechanical — 100,000 cycles
Electrical — 50,000 min.
Weight, Max. — 2 lbs. 13 oz.

Coil Characteristics
Duty Cycle — Continuous
Operating Voltage, Max. — 30 V
Operating Voltage, Min. — 24 V
Pickup Voltage @ 25°C, Max. — 16 V
Dropout Voltage — 1 to 7 V

Overload Sensor
Type — Latching
Polarized — Discharge
Trip — 300 Amps ± 10%
Time Delay — 900 to 1,100 msec

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<td>A-772XTB</td>
<td>Gasket/Vented</td>
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<td>Continuous</td>
<td>1</td>
<td>1616545-1</td>
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</table>
E-387 Series Current Sensor, Rated up to 25 Amps, 28 Vdc

Product Facts
- SPDT
- Gasket sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
Indicator Contact Arrangement — SPDT
Rated Operating Voltage — 28 Vdc
Resistive Rating — 1 Amp

General Characteristics
Dielectric Strength — 1,000 Vrms, 60 Hz
Insulation Resistance @ 500 Vdc & 20°C & 50% R.H. (Max.) — 1,000 megohm min.
Weight, Max. — 8 oz

Coil Characteristics
Duty Cycle — Continuous
Control Power — 28 Vdc
Sensor Input — 400 Hz ± 100 Hz
Pickup Current — 14 ± 2 Amps
Dropout Current — 7 ± 1 Amp
Continuous Sensor Current — 25 Amp, max.

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tbody>
<tr>
<td>E-387C-1</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
<td>2-1616128-3</td>
</tr>
</tbody>
</table>
A-700 Series Cutout — Reverse Current, Rated up to 100 Amps, 28 Vdc

Product Facts
- SPST NO
- Gasket sealed
- Auxiliary contacts available

Performance Data

Electrical Characteristics
- Main Contacts — SPST NO
- Contact Arrangement — Continuous
- Rated Operating Voltage — 28 Vdc
- Resistive Rating — 100 Amps
- Resistive Rating at 1 min. — 200 Amps
- Interrupting Capacity — 4,500 Amps
- Reverse Current Setting* — 2 to 6 Amps
- Differential Voltage for Pickup — 0.85 ± 0.15 V
- Auxiliary Contacts — SPST NC, SPST NO
- Resistive Rating — 5 Amps
- Inductive Rating — 2 Amps
- Lamp Rating — 1 Amps

General Characteristics
- Weight, Max. — 3 lbs 1 oz
- Coil Characteristics
- Duty Cycle — Continuous

*Over a Voltage Range of 27.5 ± 2.5 Vdc

Circuit Configurations (Consult factory for other available circuit configurations)

Mounting Style A

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tr>
<td>A-700BU</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
<td>1616109-0</td>
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</table>

Dimensions are shown for reference purposes only. Specifications subject to change.

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.
A-700 Series Cutout — Reverse Current, Rated up to 200 Amps, 28 Vdc

Product Facts
- SPST NO
- Gasket sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — SPST NO
- Rated Operating Voltage — 28 Vdc
- Current Rating, Continuous — 200 Amps
- Current Rating at 15 sec. — 1,000 Amps
- Current Rating at 1 min. — 500 Amps
- Current Rating at 5 min. — 300 Amps
- Interrupting Capacity — 4,500 Amps
- Reverse Current Setting* — 6 to 17 Amps
- Differential Voltage for Pickup — .85 ± .15 V

General Characteristics
- Temperature Range — -55°C to +71°C
- Operating Cycles (Life) at Rated Resistive Load, Min. — 50,000 cycles
- Operating Cycles (Life) Mechanical, Min. — 100,000 cycles
- Electrical — 50,000 min.
- Weight, Max. — 2 lbs 15 oz

Coil Characteristics
- Duty Cycle — Continuous

*Over a Voltage Range of 27.5 ± 2.5 Vdc and Calibrated at 12 ± 1 Amp RC at 28 Vdc & 25°C ± 5°C

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tr>
<td>A-700AQ-4</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
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<td>1616109-4</td>
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</tbody>
</table>
A-700 Series Cutout — Reverse Current, Rated up to 300 Amps, 28 Vdc

Product Facts
- SPST NO, Double break
- Gasket sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

<table>
<thead>
<tr>
<th>Electrical Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Arrangement — SPST NO, Double Break</td>
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<tr>
<td>Rated Operating Voltage — 28 Vdc</td>
</tr>
<tr>
<td>Resistive Rating — 300 Amps</td>
</tr>
<tr>
<td>Reverse Current Dropout — 9 to 25 Amps</td>
</tr>
<tr>
<td>Differential Pickup — .5 ± .15</td>
</tr>
</tbody>
</table>

General Characteristics

| Temperature Range — -55°C to +71°C |
| Operating Cycles (Life) at Rated Resistive Load, Min. — 50,000 cycles |
| Operating Cycles (Life) Mechanical, Min. — 100,000 cycles |
| Dielectric Strength — All Circuits to Ground — 1,250 Vrms |
| Circuit to Circuit — 1,250 Vrms |
| Coil to Ground and Aux. Contacts — 500 Vrms |

Weight, Max. —
- A-700AAP — 2.9 lbs
- A-700ZC-7, A-700ZG — 2.5 lbs

Coil Characteristics

| Duty Cycle — Continuous |
| Duty Cycle when using “APP” — Intermittent |
| Nom. Coil Voltage — 24 to 30 Vdc |
| Pickup Voltage, Max. — 18 Vdc |
| Dropout Voltage — 0.5 to 7.0 Vdc |

Catalog 5-1773450-5 Dimensions are shown for reference purposes only. Specifications subject to change. Dimensions are in millimeters unless otherwise specified. USA: +1 800 522 6752 Asia Pacific: +66 0 400 820 6015 UK: +44 800 267 666 For additional support numbers please visit www.te.com
HARTMAN Sensors and Protective Devices

A-700 Series Cutout — Reverse Current, Rated up to 300 Amps, 28 Vdc (Continued)

Circuit Configurations (Consult factory for other available circuit configurations)

![Circuit Configuration 1](image1.png)

![Circuit Configuration 2](image2.png)

![Circuit Configuration 3](image3.png)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tr>
<td>A-700AAP</td>
<td>Gasket/Vented</td>
<td>A</td>
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<td>A-700ZC-7</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
<td>2</td>
<td>1616109-7</td>
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<tr>
<td>A-700ZG</td>
<td>Gasket/Vented</td>
<td>B</td>
<td>Continuous</td>
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<td>1616109-9</td>
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</table>

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.

Dimensions are shown for reference purposes only. Specifications subject to change.
HARTMAN Sensors and Protective Devices

A-701 Series Cutout — Reverse Current, Rated up to 400 Amps, 28 Vdc

Product Facts
- SPST NO, Double break
- Gasket sealed
- Meets many requirements of MIL-C-5026 and MIL-PRF-6106

Performance Data

Electrical Characteristics
Contact Arrangement — SPST NO, Double Break
Rated Operating Voltage — 28 Vdc
Resistive Rating — 400 Amps
Resistive for 30 sec. — 1,000 Amps
Inrush Rating — 1,500 Amps
Reverse Current Dropout — A-701D — 25 to 50 Amps
A-701C — 18 to 35 Amps

General Characteristics
Temperature Range — -55°C to +71°C
Operating Cycles (Life) at Rated Resistive Load, Min. — 50,000 cycles
Operating Cycles (Life) Mechanical, Min. — 100,000 cycles
Electrical — 50,000 min.
Dielectric Strength —
  All Circuits to Ground — 1,250 Vrms
  Circuit to Circuit — 1,250 Vrms
  Coil to Ground and Aux. Contacts — 500 Vrms
Differential Pickup — 0.5 ± 0.15 Vdc

Weight, Max. —
A-701D — 3 lbs 10 oz
A-701C — 4 lbs

Coil Characteristics
Duty Cycle — Continuous, economizing
Duty Cycle when using “APP” on A-701D or “GMG” on A-701C — Intermittent
Nom. Coil Voltage — 24 to 30 Vdc
Pickup Voltage, Max. —
A-701D — 15 Vdc
A-701C — 12 Vdc
Dropout Voltage — 0.5 to 7.0 Vdc

Dimensions are shown for reference purposes only. Specifications subject to change.

For additional support numbers please visit www.te.com

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.

www.te.com
A-701 Series Cutout — Reverse Current, Rated up to 400 Amps, 28 Vdc (Continued)

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<td>A-701D</td>
<td>Gasket/Vented</td>
<td>A</td>
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<tr>
<td>A-701C</td>
<td>Gasket/Vented</td>
<td>B</td>
<td>Continuous, Economizing</td>
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<td>1-1616109-0</td>
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</table>
HARTMAN Sensors and Protective Devices

A-702 Series Cutout — Reverse Current, Rated up to 600 Amps, 28 Vdc

Product Facts
- SPST NO
- Gasket sealed

Performance Data

Electrical Characteristics
Contact Arrangement — SPST NO, Double Break
Rated Operating Voltage — 28 Vdc
Resistive Rating — 600 Amps
Reverse Current Dropout — 18 to 35 Amps
Differential Pickup — .5 ± .15

General Characteristics
Temperature Range — -55°C to +71°C
Operating Cycles (Life) at Rated Resistive Load, Min. — 50,000 cycles
Operating Cycles (Life) Mechanical, Min. — 100,000 cycles
Electrical — 50,000 min.
Dielectric Strength — All Circuits to Ground — 1,250 Vrms
Circuit to Circuit — 1,250 Vrms

Circuit Configurations (Consult factory for other available circuit configurations)

Mounting Style A

Circuit Configuration 1

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tr>
<td>A-702AAP</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
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For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.

Dimensions are shown for reference purposes only. Specifications subject to change.

USA: +1 800 522 6752
Asia Pacific: +66 0 400 820 6015
UK: +44 800 267 666
For additional support numbers please visit www.te.com
B-188 Series External Power Monitor, 115 VAC, 400 Hz

Product Facts
- SPST
- Gasket Sealed
- Over/under frequency protection
- Over/under voltage protection
- Dust tight

Performance Data

Electrical Characteristics
Contact Arrangement — SPST
Rated Operating Voltage — 115 VAC/28 Vdc; 3 phase, 400 Hz
Resistive Rating — 3 Amps

General Characteristics
Operating Temperature Range — -54°C to +71°C
Dielectric Strength — Leakage current will not exceed 0.01 Amps when unit is subjected to test of Para. 4.6.2 of MIL-E-24021A
Altitude — 0-40,000 ft
Weight, Max. — .75 lb
Sinusoidal Vibration — 5-15.5 CPS ±0.13 G, 15.5-50 CPS 0.01 inch DA, 54-500 CPS ±1.5 G
Shock, Max. — 10 G 30 ± 1 ms

Operation — Contacts will remain as shown (off condition) until input power is anywhere within the “on” zone. Contacts will revert to off condition whenever input voltage and/or frequency is above the high side or below the low side “off”. Limits for time intervals exceeding the transient period.

Limits —
- “On” zone —
  - “On” zone voltage limits 100 to 120 volts rms all phases
  - “On” zone frequency limits 380 to 420 CPS
- “Off” limits —
  - High side voltage “off” limits — 131 ± 5 volts 3 Ø (highest of 3 Ø)
  - High side frequency “off” limits — 425 ± 5 CPS
  - Low side frequency “off” limits — 375 ± 5 CPS
- Voltage Transient Limits —
  - High Side — above limit 2 but below limit 1 of Fig. 2 MIL-STD-704, 3 Ø (highest of 3 Ø)
  - Low Side — below limit 3 Fig. 2 MIL-STD-704
- Over and Under frequency time delay 3 ± 1 sec.
- Output rating SPST 3 AMP Ind. 28 V DC/115 V 400 CPS

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tbody>
<tr>
<td>B-188MA-1</td>
<td>Gasket/Vented</td>
<td>A</td>
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For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.

Dimensions are shown for reference purposes only. Specifications subject to change.

For additional support numbers please visit www.te.com

Catalog 5-1773450-5
Revised 3-13

www.te.com
A-711 Series Relay, Automatic Dropout, Rated up to 600 Amps, 29 Vdc

Product Facts
- SPST NO, Double break
- Gasket sealed
- Auxiliary contacts available
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — SPST NO, Double Break
- Operating Voltage, Max. — 29 Vdc
- Resistive Rating — 600 Amps
- Pickup Voltage, Max. — 17 Vdc
- Dropout Voltage, Max. — 14 Vdc; except for A-711 which is 1 to 5 Vdc
- Pickup Current, Max. — 490 Amps
- Dropout Current at any Contactor Voltage — 150 ± 15 Amps, except for A-711R which is S1 — 135 ± 15 Amps and S2 — 235 ± 20 Amps

General Characteristics
- Temperature Range — -55°C to +71°C
- Operating Cycles (Life) at Rated Resistive Load, Min. — 25,000 cycles
- Operating Period, Max. — 3 min.
- Weight, Max. — A-711JF, A-711JM — 3 lbs 13 oz
  A-711Z — 3 lbs 6 oz
  A-711R — 3 lbs 5 oz

Coil Characteristics
- Duty Cycle — Intermittent
- Coil Current, Max. — A-711AI, A-711JM — 2 Amps
  A-711Z — 0.6 Amp
  A-711R — 1.0 Amp
- Coil Voltage, Nom. — 28 Vdc
- Signal Resistor — 20 Ohm ± 10%, 20 W
- Coil Res., “C” Term. to “GND” — 36 Ohm ± 10%

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.
### Circuit Configurations

(Consult factory for other available circuit configurations)

![Circuit Configuration 1](image1)
![Circuit Configuration 2](image2)
![Circuit Configuration 3](image3)
![Circuit Configuration 4](image4)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tbody>
<tr>
<td>A-711UF</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Intermittent</td>
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<tr>
<td>A-711JM</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Intermittent</td>
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<td>1-1616109-7</td>
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<tr>
<td>A-711Z</td>
<td>Gasket/Vented</td>
<td>B</td>
<td>Intermittent</td>
<td>3</td>
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<td>A-711R</td>
<td>Gasket/Vented</td>
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<td>Intermittent</td>
<td>4</td>
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</tr>
</tbody>
</table>
Product Facts
- SPST NO, Double break
- Gasket sealed
- Auxiliary contacts available
- Meets many requirements of MIL-PRF-6106

A-957 Series Relay, Automatic Cutout, Rated up to 200 Amps, 28 Vdc

Performance Data

Electrical Characteristics
Main Contacts —
Contact Arrangement — SPST NO, Double break
Operating Voltage, Nom. — 28 Vdc
Resistive Rating — 200 Amps
Inrush Rating — 300 Amps
Pickup Current —
VR — 21-24 V
I — 25 Amp Max.
SR — 18 V Max.
MC — 18 V Max.
Dropout Current —
I — 5 Amp Min.
SR — 18 ± 3 V
MC — 1 to 7 V
Auxiliary Contacts —
Aux. Contact Arrangement — SPST NO, SPST NC
Rated Operating Voltage — 28 Vdc
Resistive Rating — 5 Amps

General Characteristics
Temperature Range —
-55°C to +71°C
Operating Cycles (Life) at Rated Resistive Load, Min. — 50,000 cycles
Operating Cycles (Life) Mechanical — 100,000 cycles
Altitude, Max. — 50,000 ft
Weight, Max. — 4 lbs 8 oz

Coil Characteristics
Duty Cycle — Continuous
Coil Voltage, Nom. — 24 to 30 Vdc

Circuit Configurations (Consult factory for other available circuit configurations)

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.
A-957 Series Relay, Automatic Cutout, Rated up to 300 Amps, 24/30 Vdc

Product Facts
- SPST NO, Double break
- Gasket sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — SPST NO, Double Break
- Operating Voltage, Nom. — 24/30 Vdc
- Resitive Rating — 300 Amps
- Inrush Rating — 800 Amps
- Pickup Current — Current — 25 Amp Max.
  — Main Contactor — 18 V Max.
- Dropout Current — Current — 5 Amp Min.
  — Main Contactor — 12 V Max.

General Characteristics
- Temperature Range — -55°C to +71°C
- Operating Cycles (Life) at Rated Resistive Load, Min. — 50,000 cycles
- Operating Cycles (Life) Mechanical — 100,000 cycles
- Weight, Max. — 3.5 lbs

Coil Characteristics
- Duty Cycle — Continuous
- Coil Voltage, Nom. — 24 to 30 Vdc

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-957E</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
<td>1616110-7</td>
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</tbody>
</table>
A-957 Series Relay, Automatic Cutout, Rated up to 350 Amps, 28 Vdc

Product Facts
- SPST NO, Double break
- Gasket sealed
- Auxiliary contacts available
- Meets many requirements of MIL-PRF-6106

Performance Data

**Electrical Characteristics**

**Main Contacts**
- Contact Arrangement: SPST NO, Double Break
- Operating Voltage, Nom.: 28 Vdc
- Resistive Rating: 350 Amps

**Pickup Current**
- VR: 21-24 V
- I: 25 Amp Max.
- SR: 18 V Max.
- MC: 18 V Max.

**Dropout Current**
- I: 5 Amp Min.
- SR: 18 ± 3 V
- MC: 1 to 7 V

**Auxiliary Contacts**
- Aux. Contact Arrangement: SPDT
- Rated Operating Voltage: 28 Vdc
- Resistive Rating: 5 Amps

**General Characteristics**
- Ambient Temperature Range: -30°F to +220°F
- Altitude, Max.: 50,000 ft
- Weight, Max.: 4 lbs 8 oz

**Coil Characteristics**
- Duty Cycle: Continuous
- Coil Voltage, Nom.: 24 to 30 Vdc

**Circuit Configurations** (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-957CA</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
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<td>1616110-5</td>
</tr>
</tbody>
</table>
Q-50 Series Relay, Current Indicator, Rated up to 2 Amps, 28 Vdc

Product Facts
- SPST NC
- Environmentally sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — SPST NC
- Contact Rating @ 120 Vdc — 0.1 Amp
- Rated Operating Voltage — 28 Vdc
- Sensing Current Rating — 2 Amps, continuous
- Pickup Max. — 1 Amp DC
- Dropout Min. — 0.4 Amp
- Operating Voltage, Nom. — 28 Vdc

General Characteristics
- Temperature Range — -55°C to +71°C
- Altitude, Max. — 50,000 ft
- Weight, Max. — 1.25 oz

Circuit Configurations

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q-50Y</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
<td>1-1616131-2</td>
</tr>
</tbody>
</table>

Mounting Style A

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.

Catalog 5-1773450-5
Revised 3-13

www.te.com

Dimensions are shown for reference purposes only. Specifications subject to change.

Dimensions are in millimeters unless otherwise specified.

USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

For additional support numbers please visit www.te.com
Q-50 Series Relay, Current Indicator, Rated up to 3.5 Amps, 28 Vdc

Product Facts
- SPDT
- Environmentally sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — SPDT
- Contact Rating @ 28 Vdc — 0.25 Amp
- Lamp Load @ 28 Vdc — 0.080 Amp
- Rated Operating Voltage — 28 Vdc
- Sensing Current Rating — 3.5 Amps, continuous
- Pickup Max. — 2 Amp DC
- Dropout Min. — 0.8 Amp

General Characteristics
- Temperature Range — -55°C to +71°C
- Altitude, Max. — 50,000 ft
- Weight, Max. — 1.25 oz

Mounting Style A

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q-50F</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
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</tr>
</tbody>
</table>

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.

Dimensions are shown for reference purposes only. Specifications subject to change.

USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

For additional support numbers please visit www.te.com
Q-50 Series Relay, Current Indicator, Rated up to 6.25 Amps, 28 Vdc

Product Facts
- SPDT
- Environmentally sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement: SPST NC
- Contact Rating: 0.25 Amp @ 28 Vdc
- Rated Operating Voltage: 28 Vdc
- Sensing Current Rating: 6.25 Amps, continuous
- Lamp Load: 0.080 Amp
- Pickup Max.: Q50BB - 2.5 Amps DC
  - Q50BD - 2.0 Amps DC
  - Q50E - 3.5 Amps DC
- Dropout Min.: Q50BD - 0.8 Amps DC
  - Q50BB - 1.0 Amps DC
  - Q50E - 1.4 Amps DC

General Characteristics
- Temperature Range: -55°C to +71°C
- Altitude, Max.: 50,000 ft
- Weight, Max.: 1.25 oz

General Characteristics

- Mounting Style A

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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</thead>
<tbody>
<tr>
<td>Q-50BB</td>
<td>Environmentally Sealed</td>
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<td>Continuous</td>
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<tr>
<td>Q-50E</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
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<tr>
<td>Q-50BD</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
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</table>

Circuit Configurations
(Consult factory for other available circuit configurations)
Q-50 Series Relay, Current Indicator, Rated up to 10 Amps, 28 Vdc

Product Facts
- SPST NO
- Environmentally sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
Contact Arrangement — SPST NO
Contact Rating @ 28 Vdc — 0.25 Amp
Lamp Load @ 28 Vdc — 0.08 Amp
Rated Operating Voltage — 28 Vdc
Sensing Current Rating — 20 Amps, continuous, max.
Pickup Max. — 3.5 Amps DC
Dropout Min. — 0.5 Amp

General Characteristics
Temperature Range — -55°C to +71°C
Altitude, Max. — 50,000 ft
Weight, Max. — 1.25 oz

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q-50A</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
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<td>1616131-1</td>
</tr>
</tbody>
</table>
Product Facts

- SPDT
- Environmentally sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics

- Contact Arrangement: SPDT
- Contact Rating @ 28 Vdc: 0.25 Amp
- Lamp Load @ 28 Vdc: 0.10 Amp
- Rated Operating Voltage: 28 Vdc
- Sensing Current Rating: 15 Amps DC, continuous, max.
- Pickup Max.: 3.2 Amps DC
- Dropout Min.: 1.2 Amps

General Characteristics

- Temperature Range: -55°C to +85°C
- Altitude, Max.: 50,000 ft
- Weight, Max.: 1.25 oz

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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</thead>
<tbody>
<tr>
<td>Q-50CC</td>
<td>Environmentally Sealed</td>
<td>A</td>
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</table>
Q-50 Series Relay, Current Indicator, Rated up to 16 Amps, 28 Vdc

Performance Data

Electrical Characteristics

Contact Arrangement ---
Q50S - SPST NC
Q50Z - SPDT

Contact Rating @ 28 Vdc ---
0.25 Amp

Lamp Load @ 28 Vdc ---
0.10 Amp

Rated Operating Voltage --- 28 Vdc

Sensing Current Rating --- 16 Amps
DC, continuous, max.

Pickup Max. --- 3 Amps DC

Dropout Min. --- 1.2 Amps

General Characteristics

Temperature Range ---
-55°C to +71°C

Altitude, Max. --- 50,000 ft

Weight, Max. --- 1.25 oz

Circuit Configurations

(Circuit Configuration 1)

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.
Q-50 Series Relay, Current Indicator, Rated up to 20 Amps, 28 Vdc

Product Facts
- SPST NC or SPST NO
- Environmentally sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
Contact Arrangement —
SPST NC, SPST NO or SPST
Contact Rating @ 28 Vdc —
Q-50AB-2 — 0.2 Amp
Q-50J — 0.25 Amp
Q-50AG — 1.0 Amp
Q-50AB-1 — 1 Amp switching, and
2 Amps carry
G50AC — 2 Amp
Lamp Load @ 28 Vdc —
Q-50AC, Q-50AB-2 — 0.08 Amp
Q-50J, Q-50AG — 0.20 Amp
Operating Voltage, Nom. — 28 Vdc
Sensing Current Rating —
20 Amps continuous, max. except for
Q-50AB-1 and Q-50AB-2 which are 10
Amps max. and 15 Amps max. for 3 sec.
Q50AC 2 Amps continuous 10 Amps
max. for 5 seconds
Pickup Max. —
Q-50AC — 0.3 Amp
Q-50AB-1, Q-50AB-2 — 1.5 Amp
Q-50J — 3.5 Amps DC
Q-50AG — 6 Amps DC ± 20%
Dropout Min. —
Q-50AC — 0.1 Amp
Q-50J — 0.5 Amp
Q-50AB-1, Q-50AB-2 — less than 1 Amp
Q-50AG — 2.4 Amp

General Characteristics
Temperature Range —
-55°C to +71°C
Altitude, Max. —
Q-50J, Q-50AB-1 — 50,000 ft
Q-50AC, Q-50AG, Q-50AB-2 —
60,000 ft
Weight, Max. — 1.25 oz

Mounting Style A

Mounting Style B
Q-50 Series Relay, Current Indicator, Rated up to 20 Amps, 28 Vdc (Continued)

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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</thead>
<tbody>
<tr>
<td>Q-50U</td>
<td>Environmentally Sealed</td>
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<td>Continuous</td>
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<td>1-1616131-0</td>
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<td>Q-50AC</td>
<td>Environmentally Sealed</td>
<td>B</td>
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<td>Q-50AG</td>
<td>Environmentally Sealed</td>
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<td>Continuous</td>
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<tr>
<td>Q-50AB-1</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
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<tr>
<td>Q-50AB-2</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
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</tbody>
</table>

Circuit Configuration 1

Circuit Configuration 2

Circuit Configuration 3
QR-50 Series Relay, AC Current Indicator, Rated up to 5 Amps, 115 VAC

Product Facts
- SPST NC
- Environmentally sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — SPST NC
- Resistive Rating @ 28 Vdc — 25 Amp
- Lamp Load @ 28 Vdc — 10 Amp
- Sensing Current Rating — 5 Amp, AC continuous

General Characteristics
- Temperature Range — -55°C to +85°C
- Altitude — 50,000 ft
- Weight, Max. — 25 lbs
- Operating Voltage, Nom. — 115 Vrms, 325-600 Hz
- Pickup Max. — 95 MA, AC
- Dropout Min. — 47 MA AC

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>QR-50V</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
<td>1616132-3</td>
</tr>
</tbody>
</table>

Mounting Style A
QR-50 Series Relay, AC Current Indicator, Rated up to 15 Amps, 115 VAC

Product Facts
- SPDT
- Environmentally sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — SPDT
- Resistive Rating @ 28 Vdc — .25 Amp
- Lamp Load @ 28 Vdc — .08 Amp
- Operating Voltage, Nom. — 115 VAC, 1 Phase, 400 Hz
- Pickup Max. — 6 Amp, AC
- Dropout Min. — 2.4 Amp, AC
- Sensing Current Rating — 15 Amp, AC, Continuous

General Characteristics
- Temperature Range — -55°C to +71°C
- Altitude — 50,000 ft
- Weight, Max. — .19 lbs
- Sinusoidal Vibration — 10 G to 500 Hz

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
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<tbody>
<tr>
<td>QR-50H</td>
<td>Environmentally Sealed</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
<td>1616132-1</td>
</tr>
</tbody>
</table>
E-316C Series Relay, Undervoltage AC 3 Phase, Lowest of 3

Product Facts
- DPDT
- Gasket sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — DPDT
- Resistive Rating @ 28 Vdc — 10 Amps
- Inductive Rating — 5 Amps
- Lamp Load — 1.5 Amps
- Rated Operating Voltage, Nom. — 115 V, 400 Hz

Pickup Voltage
- (All 3 Phases Up) — 85-90 Volts

Dropout Voltage (3 Phase — Lowest of 3) — 75-80 Volts

General Characteristics
- Temperature Range — -55°C to +71°C
- Operating Cycles (Life) at Rated Resistive Load, Min. — 10,000 cycles
- Weight, Max. — 10 oz.
- Operating Voltage, Max. — 124 VAC

Circuit Configurations
(Consult factory for other available circuit configurations)

Circuit Configuration 1

Mounting Style A

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
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<tbody>
<tr>
<td>E-316C</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous</td>
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<td>1-1616126-4</td>
</tr>
</tbody>
</table>

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.

Catalog 5-1773450-5
Revised 3-13

www.te.com
Product Facts
- 2PDT
- Solder sealed, hermetically sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
Main Contacts —
Contact Arrangement — 2PDT
Operating Voltage, Nom. — 28 Vdc
Resistive Rating — 10 Amps
Inductive Rating — 6 Amps
Motor Rating — 3 Amps
Lamp Rating — 1 Amps
Pickup Time, Max. — 125 msec
Contact Bounce, Max. — 3 msec
Operating Voltage, Max. — 36 Vdc
Operating Voltage, Nom. — 28 Vdc
Pickup Voltage — 24.5 ± 0.5 Vdc
Dropout Voltage — 21.5 ± 0.5 Vdc
Dropout Time Delay — 200-400 milliseconds when the relay is in the energized position and the voltage drops below 21.5 ± 0.5 Vdc and above 15 Vdc. The relay will remain energized for 200 to 400 milliseconds before de-energizing when the voltage drops below 15 Vdc. Time delay is 30 ms max.
Operating Current, Max. @ 25°C — 150 milliamp

General Characteristics
Ambient Temperature Range — -55°C to +85°C
Operating Cycles (Life) at Rated Resistive Load, Min. — 100,000 cycles
Dielectric Withstanding Voltage — 1,000 Vrms, 60 Hz, 1 milliAmp max. leakage
Insulation Resistance @ 500 Vdc — 100 megohm min.
Altitude — 80,000 ft
Weight, Max. — 25 lbs
Sinusoidal Vibration — 0.60 DA @ 5 to 80 Hz
20 G™ 80 to 2000 Hz
Shock for 11 msec, 1/2 Sine, 3 Axes — 30 G

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-311PB</td>
<td>Hermetically Sealed</td>
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<td>Continuous</td>
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<td>1-1616126-1</td>
</tr>
</tbody>
</table>

For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.
E-329 Series Relay, Voltage Sensing

Performance Data

Electrical Characteristics
- Contact Arrangement: 3PDT
- Rated Operating Voltage: 28 Vdc and 155 Vac 400 Hz
- Resistive Rating: 10 Amps
- Inductive Rating: 8 Amps
- Motor Rating: 4 Amps
- Lamp Rating: 2 Amps
- Pickup Time, Max.: 70 msec
- Contact Bounce, Max.: 3 msec
- Dropout Time Delay: 200-400 msec when the relay is in the energized position and the voltage drops below 104 ± 2 Vrms and above 88 ± 4 Vrms. The relay will remain energized for 200-400 msec before deenergizing. When the voltage drops below 88 ± 4 Vrms no time delay is required. When the voltage drops to 30 volts or less the relay will de-energize 50 msec max.

Operating Voltage, Nom.: 115 VAC, RMS L-N
- Operating Voltage, Max.: 122 VAC, RMS L-N
- Operating Frequency: 400 ± 20 Hz
- Pickup Voltage: 109 ± 2 Vrms
- Dropout Voltage: 104 ± 2 Vrms
- Operating Current, Max.: 100 milliamp

General Characteristics
- Temperature Range: -55°C to +85°C
- Operating Cycles (Life) at Rated Resistive Load, Min.: 100,000 cycles
- Operating Cycles (Life) Mechanical, Min.: 100,000 cycles
- Dielectric Withstanding Voltage: 1,000 Vrms, 60 Hz
- Insulation Resistance @ 500 Vdc: 1,000 megohm min.
- Altitude: 0-80,000 ft
- Weight, Max.: 10 oz
- Shock for 11 msec, 1/2 Sine, 3 Axis: 30 G

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Duty Cycle</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-329E</td>
<td>Hermetically Sealed</td>
<td>A</td>
<td>Continuous</td>
<td>1</td>
<td>1-1616126-9</td>
</tr>
</tbody>
</table>
RA-3100 Series Remote Power Controller, Rated up to 60 Amps, 115/208 VAC

Product Facts
- 3PST NO
- Gasket sealed

Performance Data

Electrical Characteristics
- Contact Arrangement — 3PST NO
- Rated Operating Voltage — 115/208 VAC, 400-610 Hz, 3 phase
- Resistive Rating — 50 Amp
- Motor Rating — 30 Amp
- Rupture Rating — 1000 Amp
- Closing Time, Max., Override at 28 Vdc — 35 msec
- Opening Time, Max., Override at 28 Vdc — 25 msec
- Contact Bounce, Max. — 3 msec

Coil Characteristics
- Duty Cycle — Continuous, economizing
- Operating Voltage, Max. — 32 Vdc
- Operating Voltage @ 85°C, Min. — 18 Vdc
- Trip Time @ 60 Amp Current +10% — 2.0 to 3.0 sec
- Trip Time @ 75 Amp Current +10% — 1.0 to 1.9 sec
- Trip Time @ 95 Amp Current +10% — 2 to .9 sec
- Trip Time @ 200+ Amp Current +10% — 0.01 to 0.1 sec

General Characteristics
- Temperature Range — -55°C to +85°C
- Operating Cycles (Life) Mechanical, Min. — 100,000 cycles
- Altitude — 50,000 ft
- Weight, Max. — 1.55 lbs

Circuit Configurations (Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
<th>TE Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA-3100H</td>
<td>Gasket/Vented</td>
<td>A</td>
<td>Continuous, Economizing</td>
<td>1</td>
<td>1616539-3</td>
</tr>
</tbody>
</table>
RA-3100 Series Remote Power Controller, Rated up to 70 Amps, 115/208 VAC

Product Facts
- 3PST NO
- Gasket sealed

Performance Data

Electrical Characteristics
Contact Arrangement — 3PST NO
Rated Operating Voltage — 115/208 VAC, 400-610 Hz, 3 phase
Resistive Rating — 70 Amp
Motor Rating — 70 Amp
Rupture Rating — 1,000 Amp

Coil Characteristics
Duty Cycle — Continuous, economizing
Operating Voltage, Max. — 32 Vdc
Operating Voltage @ 85°C, Min. — 18 Vdc
Trip Time @ 70 Amp Current +10% — 3.0 to 5.0 sec
Trip Time @ 87 Amp Current +10% — 2.0 to 2.9 sec
Trip Time @ 111 Amp Current +10% — 1.0 to 1.8 sec
Trip Time @ 200 Amp Current +10% — 0.25 to 0.5 sec

General Characteristics
Operating Temperature Range — -55°C to +85°C
Altitude — 50,000 ft max.
Weight, Max. — 1.55 lb
Sinusoidal Vibration — 0.088 DA from 10 to 50 Hz
10g from 55 to 2000 Hz
Shock, Max. — 9 G max for 10-12 ms
Load, Min. — 50,000 cycles
Operating Cycles (Life) — Mechanical, Min. — 100,000 cycles

Circuit Configurations
(Consult factory for other available circuit configurations)

<table>
<thead>
<tr>
<th>HARTMAN Part Number</th>
<th>Construction Type</th>
<th>Mounting Style</th>
<th>Coil Type</th>
<th>Circuit Config.</th>
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RA-3100 Series Remote Power Controller, Rated up to 100 Amps, 115/208 VAC

Performance Data

Electrical Characteristics

Contact Arrangement — 3PST NO
Rated Operating Voltage — 115/208 VAC, 400-610 Hz, 3 phase
Resistive Rating — 100 Amp
Motor Rating — 100 Amp
Rupture Rating — 1,000 Amp
Closing Time, Max., at 28 Vdc — 35 msec
Opening Time, Max., at 28 Vdc — 25 msec
Contact Bounce, Max. — 3 msec

Coil Characteristics

Duty Cycle — Continuous, economizing
Operating Voltage, Max. — 32 Vdc
Operating Voltage @ 85°C, Min. — 18 Vdc
Coil Current, Inrush Max. @ 25°C — 6.0 Amps
Coil Current, Hold Max. @ 25°C — 0.5 Amps
Trip Time @ 28 Amp Current +10% — RA-3100M - 1.0 to 1.50 sec
Trip Time @ 151 Amp Current +10% — RA-3100D - 3.0 to 5.0 Sec.
Trip Time @ 185 Amp Current +10% — RA-3100D - 2 to 2.9 Sec.
Trip Time @ 237 Amp Current +10% — RA-3100D - 1 to 2.5 Sec.

General Characteristics

Temperature Range — -55°C to +85°C
Operating Cycles (Life) at Rated Load, Min. — 50,000 cycles
Operating Cycles (Life) Mechanical, Min. — 100,000 cycles
Altitude — 50,000 ft
Weight, Max. — 1.55 lbs

Circuit Configurations

(Consult factory for other available circuit configurations)

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RA-3100 Series Remote Power Controller, Rated up to 110 Amps, 115/208 VAC

Product Facts
- 3PST NO
- Gasket sealed
- Auxiliary contacts available
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics

Contact Arrangement — 3PST NO
Rated Operating Voltage — 115/208 VAC, 400-610 Hz, 3 phase
Resistive Rating —
RA-3100J-1 - 110 Amp
RA-3100L - 50 Amp
Motor Rating —
RA-31000J - 110 Amp
RA-3100L - 50 Amp
Rupture Rating —
RA-3100J-1 - 1,100 Amp
RA-3100L 500 Amp
Shock for 10-12 msec — 50 G
Closing Time, Max., Override at 28 Vdc — 35 msec
Opening Time, Max., Override at 28 Vdc — 25 msec
Contact Bounce, Max. — 3 msec

Coil Characteristics

Duty Cycle — Continuous, economizing
Operating Voltage, Max. — 32 Vdc
Operating Voltage @ 85°C, Min. — 18 Vdc
Coil Current, Inrush Max. @ 25°C — 6.0 Amps
Coil Current, Hold Max. @ 25°C — 0.5 Amps
Trip Time @ 165 Amp Current +10% — 8.0 to 10.0 sec
Trip Time @ 330 Amp Current +10% —
RA-3100J-1 - 1.2 to 2.0 sec
Trip Time @ 550 Amp Current +10% —
RA-3100J-1 - 0.34 to 0.65 sec
Trip Time @ 1100 Amp Current +10% —
RA-3100J-1 - 0.07 to 0.20 sec

General Characteristics

Temperature Range — -55°C to +85°C
Operating Cycles (Life) at Rated Load, Min. — 50,000 cycles
Operating Cycles (Life) Mechanical, Min. — 100,000 cycles
Altitude — 60,000 ft
Weight, Max. — 1.55 lbs

Circuit Configurations (Consult factory for other available circuit configurations)

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For factory-direct application assistance, phone 419-521-9500 or fax 419-526-2749.
E-308TA Series, Undervoltage Sensor, Rated up to 10 Amps, 28 Vdc

Product Facts
- DPDT
- Gasket sealed
- Meets many requirements of MIL-PRF-6106

Performance Data

Electrical Characteristics
- Contact Arrangement — DPDT
- Operating Voltage, Nom. — 28 Vdc
- Resistive Rating — 10 Amps
- Inductive Rating — 2 Amps

General Characteristics
- Operating Ambient Temperature
  - Range: -55°F to +165°F
- Altitude: 50,000 ft
- Weight, Max.: 15.5 oz

Coil Characteristics
- Duty Cycle — Continuous
- Input to Sensor, Nom.
  - 120 V, 400 Hz

Operating Characteristic
- Contacts A1-A2, B1-B2 will close if the AC input voltage is above 106 ± 2 VAC
- Contacts A1-A2, B1-B2 will open if the AC input voltage falls below 106 ± 2 VAC.

Circuit Configuration 1

Circuit Configurations
(Consult factory for other available circuit configurations)

Mounting Style A
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<td>RA-3100F</td>
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<td>E-308TA</td>
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