Relays, Contactors, Solenoids and PDUs for High Performance Applications

28 VDC CONTACTORS

HARTMAN Lightweight 28 Vdc Contactors
- Main contact ratings to 500 A
- Available with a variety of auxiliary contact arrangements
- 4PST and 4PST main contact forms
- Standard, reverse current and automatic dropout types
- Hermetically or gasket sealed models in conventional or bus bar mounting

KILOVAC Lightweight Contactors Designed to Switch 270 Vdc and 650 A
- Hermetically sealed in 2/5, 1/2 size, or full size crystal cans
- Terminals are arranged on .200" grid (1/2 and full size) or .150" grid (1/5 size)
- Non-position sensitive hermetically sealed models for side or bottom mounting
- Available with a variety of auxiliary contact arrangements
- Latching and non-latching types

CRYSTAL CAN RELAYS

PDUs
- Customized lightweight power distribution units
- For primary and secondary power distribution
- Modular systems consist of various plug-in and bus bar line replaceable modules (LRMs) installed on a panel mounting system or backplane
- LRMs may be contactors, circuit breakers, sensing units, ELUs, etc.
- Backplane, designed as a fault-free zone with no moving parts, serves as a permanent installation on the mother vehicle
- Optional current/voltage sensing, fuses, circuit breakers, power monitors, etc.
- Weight-saving and space-saving designs reduce OEM labor requirements and ease maintenance
- Optional integration of generator control units and logic control units

FOR MORE INFORMATION
Technical Support
- Internet: www.te.com/ADM
- E-mail: product.info@te.com
- USA: +1 (800) 522-6752
- Canada: +1 (905) 470-6405
- Mexico: +52 (55) 1516-3884
- South America: +55 (0) 111063-5008
- Australia: +61 (3) 9654-2008
- Europe: +31 (0) 73-6246-999
- China: +86 (0) 400-820-6015

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High Performance Relays, Contactors, Solenoids and Power Distribution Units
FOR MORE INFORMATION

Technical Support

Internet: www.te.com/ADM
E-mail: product.info@te.com
USA: +1 (800) 522-6752
Canada: +1 (905) 470-6405
Mexico: +1 (55) 5786-3846
Japan: +81 (0) 3-3341-1200
Europe: +44 (0) 1929-4322
China: +86 (0) 400-620-9295

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High Performance Relays, Contactors, Solenoids and Power Distribution Units
Market Segments Served:

• commercial-off-the-shelf products, look to TE to distribute units for demanding, high performance applications.

Our relays are designed and manufactured closely with our customers to design, build and qualify products into compact, cost-effective modular solutions. And they are specifically designed for operation in extremes of temperature, shock, vibration and altitude. We also work closely with our customers to design, build and qualify lightweight power distribution units that combine relays, contactors, circuit breakers, sensors, monitors and other products into compact, cost-effective modular solutions.

Relays, Contactors, Solenoids and PDUs for High Performance Applications

20 VDC CONTACTORS

HARTMAN LVDC Contactors are switchable relays rated for isolation to 500 Vdc and contactors, circuit breakers, sensing units, ELCUs, etc.

Backplanes, designed as a fault-free zone with no moving parts, are intended as a permanent installation on the mother vehicle.

Optional current/voltage sensing, fuses, circuit breakers, power monitors, etc.

Overvoltage, undervoltage and over/undervoltage sensors and monitors.

Overfrequency, underfrequency and over/underfrequency relays.

Overcurrent, undercurrent and over/undercurrent sensors and indicators.

Optional integration of generator control units and logic control units.

PDUs

Customized Lightweight Power Distribution Units

For primary and secondary power distribution.

Modular highway circuit of various plug-in bus bar (laminated modules) isolated on a panel mounting system or backplane.

LEDs may be contactors, circuit breakers, sensors units ELCUs, etc.

Backplanes, designed as a fault-free zone with no moving parts, are intended as a permanent installation on the mother vehicle.

Optional current/voltage sensing, fuses, circuit breakers, power monitors, etc.

Overvoltage, undervoltage and over/undervoltage sensors and monitors.

Overfrequency, underfrequency and over/underfrequency relays.

Overcurrent, undercurrent and over/undercurrent sensors and indicators.

Optional integration of generator control units and logic control units.

AC CONTACTORS

HARTMAN AC Contactors

May contact ratings up to 600 A to arrangements to 240 V.

Available with a variety of auxiliary contact arrangements.

Field selectable, switching up to 1000 Vac.

Field selectable, switching up to 1000 Vdc.

Dimensions and weight of series are available.

HARTMAN DC Contactors for Space Applications

Lightweight construction with hermetically sealed panel-mount enclosure.

Main contact ratings of 500 A at 28 V or 36 V.

Non-position sensitive, hermetically sealed panel mount enclosure.

Wide availability of terminations, purge options.

PDUs

Customized Lightweight Power Distribution Units

For primary and secondary power distribution.

Modular high performance switchgear plug-in bus bar (laminated modules) isolated on a panel mounting system or backplane.

LEDs may be contactors, circuit breakers, sensors units ELCUs, etc.

Backplanes, designed as a fault-free zone with no moving parts, are intended as a permanent installation on the mother vehicle.

Optional current/voltage sensing, fuses, circuit breakers, power monitors, etc.

Weight saving and space-saving designs reduce OEM labor requirements and ease maintenance.

Optional integration of generator control units and logic control units.

Space-Qualified DC CONTACTORS

HARTMAN DC Contactors for Space Applications

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Weight saving and space-saving designs reduce OEM labor requirements and ease maintenance.

Optional integration of generator control units and logic control units.
TE Connectivity’s extensive capabilities in the design and manufacture of relays, contactors, sensors and power distribution units in demanding high performance applications is an example of a comprehensive approach to serving the needs of the high performance switching industry. Whether you need commercial off-the-shelf products, components that must meet stringent military specifications, or highly specialized, custom-designed products, look to TE Connectivity to provide you with the components that must meet stringent military specifications, or highly specialized, custom-designed products, look to TE to meet your requirements.

Among our brands are some of the more respected names in the high performance switching industry:

- **KILOVAC** aerospace power relays, contactors, sensors and power distribution units
- **HARTMAN** high voltage relays, contactors, protective relays and power distribution units
- **CUSTOM SOLIDOS**
- **TE CONNECTIVITY – A N I Aerospace, Defense & Marine**

Our high performance relays and contactors are designed and manufactured in a state-of-the-art facility to meet your demanding high performance switching requirements.

They are specifically designed for operation in extremes of temperature, vibration, shock and altitude. We also work closely with our customers to design, build and qualify aerospace power distribution units that meet the needs of our customers. Our custom-made relays, contactors, circuit breakers, sensors, monitors and other products from industrial to compact, cost-effective models for the aerospace market.

Our relays and contactors are also manufactured in a cost-effective manner to be compatible with a wide range of applications. We can fulfill specific requirements.

Contact your TE sales engineer to learn more about how we can help solve your specific requirements.

This brochure provides an overview of our product line. It includes products with switching capabilities from dry circuit up through 2000 A. Some relays are capable of switching up to 6 GHz signals, while others can handle voltages up to 690 V. Other types combine solid state circuits with electromechanical or solid state outputs to create timers, sensors, monitors and contacts.

We can fulfill specific requirements. Contact your TE sales engineer to learn more about how we can help solve your specific requirements.

**Space-Qualified DC Contactors**

- **HARTMAN DC Contactors for Space Applications**
  - Lightweight construction with hermetically sealed panel-mount enclosure
  - Non-contact rating of 50 A @ 28 Vdc or 56 Vdc
  - Non-contact contactors to 200 A, double break
  - Non-contact auxiliary light-duty contactor
  - Efficient magnetic latching design with self-deenergizing coil

**Custom Solidos**

- **KILOVAC** high voltage relays, contactors, protective relays and power distribution units
- **HARTMAN** high voltage relays, contactors, protective relays and power distribution units

**Space-Qualified Relays and Contactors for Space Applications**

- **High voltage relays rated for isolation to 15 kV**
- **10 and 20 A power switching relays for mission and break applications**
- **Contactors for high current power switching to 80 A**

**28 VDC Contactors**

- **HARTMAN DC Contactor 28 Vdc Contactors**
  - Max contact rating to 500 A
  - Available with a variety of auxiliary contact arrangements
  - SPDT and SPST max contact forms
  - Max reverse current and parallel disconnect types
  - Hermetically or gas filled sealed units in conventional or bus bar mounting

**270 VDC Contactors**

- **HARTMAN DC Contactor Design to Switch 270 Vdc and 650 A**
  - Internal current up to 2000 A
  - One or two pole models, with normally open or normally closed main contacts
  - Non-operation sensitive, hermetically sealed models for side or bottom mounting
  - Line and controlling types

**AC Contactors**

- **HARTMAN AC Contactors**
  - Max contact rating to 800 A arrangements to IEC/EN
  - Available with a variety of auxiliary contact arrangements
  - Side strip latching and order off models
  - Hermetically or gas filled sealed units
  - High energy designs for high-energy loss applications are available

**Relays, Contactors, Solenoids and PDU’s for High Performance Applications**

- **HWM RELAYS**
  - KILOVAC High Voltage Relays
    - Voltage rating up to 2000 Vdc
    - Current carrying capability to 1 A
    - Service life to 50 million cycles
  - KILOVAC Lightweight DC Relays and Contactors
    - For switching from 28 to 600 Vdc
    - Small lightweight, hermetically sealed units have gas or vacuum dielectric
    - Wide variety of mounting and terminal types
  - KILOVAC DC Relays and Contactors
    - Contactors for high current power switching to 80 A
  - Slim, non-latching models

**SPACE-SOLIDOS**

- **Sensors and Monitors**
  - **HARTMAN and KILOVAC Sensors, Monitors and Protective Relays**
    - Overcurrent, undercurrent and over/undercurrent sensors and indicators
    - Overvoltage, undervoltage and over/undervoltage sensors and monitors
    - Overfrequency, under frequency and over/underfrequency sensors
    - Phase loss/rotation sensors and ground power monitors
    - Overload delay versions and ground monitor positions
    - Overcurrent delay versions

**PDUs**

- **Customized Lightweight Power Distribution Units**
  - For primary and secondary power distribution
  - Modular compact circuit of various plug in bus bar (BPBS) isolated or a panel mounting system or backplane
  - Optional current/voltage sensing, fuses, circuit breakers, power monitors, etc.
  - Phase loss/rotation sensors and ground power monitors
  - Optional integration of generator control units and logic control systems

**Market Segments Served:**

- **TE**
  - Aerospace, Defense & Marine
Among our brands are some of the more respected names in high voltage relays, contactors, sensors, monitors and controllers. Our solenoids are also designed and manufactured on a custom basis to precisely meet your demanding high performance actuation requirements. Keep in mind that the items listed in this brochure represent only a sampling of our products.

Contact your TE sales engineer to learn more about how we can help solve your performance actuation requirements. This brochure provides an overview of our product line. It includes products with switching capabilities from dry circuit contacts to 10 GHz signals, while others can handle voltages up to 6000 Vdc. Among our brands are some of the more respected names in high performance applications, components that must meet stringent military specifications or highly specialized, custom-designed products, look to TE to meet your requirements. And they are specifically designed for operation in extremes of temperature, shock, vibration and altitude. We also work closely with our customers to design, build and qualify lightweight power distribution units that combine relays, contactors, circuit breakers, sensors, monitors and other products into compact, cost-effective modular solutions. Our solenoids are also designed and manufactured on a custom basis to precisely meet our demanding high performance actuation requirements. Keep in mind that the items listed in this brochure represent only a sampling of our products.

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FOR MORE INFORMATION

Technical Support

Internet: www.te.com/ADM
E-mail: product.info@te.com
USA: +1 (800) 522-6752
Canada: +1 (905) 470-6405
Mexico: +52 (55) 1-986-3844
Europe: +33 (0) 1-3420-8686
South America: +55 (0) 11-2103-6006
Australia: +61 (0) 3-9693-1000
Great Britain: +44 (0) 800-0020-008
Europe: +39 (0) 24942-8486
Netherlands: +31 (0) 73-6246-999

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SIGNAL RELAYS

CII T1-6 and 300 Grid Low Signal Relays
- Non-latching, single-coil latching and dual-coil latching designs
- Through hole and gull-wing surface mount terminals
- Excellent soldering, insertion loss and VSWR
- MIL-PRF-28750 and MIL-PRF-38534 qualified products available

MID-RANGE RELAYS

CII 24-V Relays
- Standard format or custom designs
- Balanced force design with permanent magnet drive
- Terminal styles include solder pin and two-hole terminals
- Numerous mounting options
- Interchangeable, welded, circuit protection and other functions
- Most are qualified to MIL-PRF-28750 or associated DSCC drawings

SOLE-STATE RELAYS

Solid State Relays and Power Controllers
- Various models with switch ratings ranging from 90 mA up to 25 A
- AC, DC and bi-directional output
- Available for panel or PCB mounting
- Various types incorporate circuit protection and other functions
- Most are qualified to MIL-PRF-28750 or associated DSCC drawings

TIME DELAY RELAYS

New Delay Relays and Sensors
- Solid state timing circuitry with either electromechanical or solid state output
- Sensors for voltage, frequency or phase
- Most types offer a variety of enclosures and mounting options
- Customized models available with tighter timing or sensing tolerance
- Several models qualified to MIL-PRF-43276

ROTARY RELAYS

Rotary Relays for High Shock and Vibration Naval Applications
- Contacts will not chatter when relay is subjected to 2000 ft-lb shock blows
- Panel mount relays are often used aboard combat naval vessels
- Contact arrangements from 1PDT up through 24PDT
- AC and DC coils
- Contact arrangements from 1PDT up through 24PDT
- AC and DC coils

CRYSTAL CAN RELAYS

CII 1/3, 1/2 and Full Size Crystal Can Relays
- Various models with 1/3 size, 1/2 size or full size crystals
- Terminals are arranged on 300 grid (1/2 and full size) or 362 grid (1/3 size)
- PCB, clip in, or choice of various mounting brackets or mounting tools
- Non-latching and latching designs
- Contact arrangements from 1PDT up through 24PDT
- MIL-PRF-5757 and MIL-PRF-39016 qualified products available

FOR MORE INFORMATION

High Performance Relays, Contactors, Solenoids and Power Distribution Units