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Aerospace | Defence | Energy | Commercial | Marine | Motorsport

Relays Contactors

High Performance Military and Aerospace

High-Performance
Power Management
Designed for reliable
operation in extremes
Hermetically sealed

Introduction

High-Performance Power Management Designed for Reliable Operation in Extremes of Temperature, Shock, Vibration and Altitude

MINIATURE	
T05 single and double pole	MIL-PRF-39016, MIL-PRF-28776
.100 Grid	MIL-PRF-39016/17, /18 & 19
HIGH FREQUENCY	
High frequency, low signal	HF Microwave Series
CRYSTAL CAN	
Full and Half Size	MIL-PRF-5757, MIL-PRF-39016
Fifth size	MIL-PRF-39016/13, /37 & /38
Latching versions	MIL-PRF-39016
Radio frequency	
MID RANGE	
5 to 50 amps	MIL-PRF-83536 and MIL-PRF-6106
Latching types	MIL-PRF-83536 and MIL-PRF-6106
TIME DELAY	
Mid range TD2	MIL-PRF-83726
Sensing relays	MIL-PRF83726 and others
Electro-Pneumatic	Miniature, Industrial & Nuclear qualified
HIGH VOLTAGE Contactors	
Aerospace & Electric vehicles	AS9100 and AIAG QS9000
Military Aerospace & Marine	MIL-PRF-6106
SOLID STATE	
Solid state relays/contactors	MIL-PRF-28750 and DSCC
HIGH PERFORMANCE	
Mass Transit	EN61373 and EN50155
Industrial and Motorsport	
SOCKETS	MIL-DTL-12883
CUSTOM	Obsolescence DSCC approved

This guide offers an overview of our relays and contactors product range. Products include hermetically sealed MIL Qualified, Electro-mechanical relays such as T05; Half Crystal can 1A to 10A; Mid Range relays 5A to 50A and Time Delay Relays, as well as a high current and high voltage range of relays and contactors, up to 1000 amps and 70kV voltage isolation.

Military

Specifications such as M39016; M28776; M83536; M6106; M83726; M28750 and associated DSCC drawings.

Aerospace

Specifications such as Airbus ASNE and NSA relays and relay sockets, Boeing BACC, MIL Spec, M83536, M6106, M83726, M12883.

Brands

Agastat, TE, Kilovac, Hartman, Deutsch, CII, Leach, Babcock, Teledyne, Kissling, Finder and many others.

Low Signal Relays

Miniature and High Frequency (Microwave)

Miniature Relays

Designed to perform under the most demanding environmental conditions in military, aerospace and commercial applications. Stocked signal relays are rated at 1 Amp, all ratings available in a variety of packaging sizes, mounting configurations and termination options. Standard and sensitive coils are available with optional diode suppression.

Features & Benefits

- Miniature hermetically sealed relays
- Non latching
- Through-hole and gull-wing surface mount terminals
- High frequency models capable of switching up through 6 GHz
- Excellent isolation, insertion loss
- Shock and vibration resistant
- MIL-PRF-39016 and MII-PRF-28776 qualification products available
- Low level, to 1 Amp switching

T05 CAN MINIATURE – SPDT and DPDT
A series of ultra miniature relays constructed in a transistor style case, providing superior performance and established reliability patterns. This series is available in a variety of sensitivities, contact configurations and hybrid versions to provide a most versatile element to the circuit designer.

MINI GRID (.100) – DPDT
Ideally suited to the needs of Instrumentation, data acquisition, process control, telecommunications and general purpose requirements. These models are specifically designed for high quality and reliability with versatile switching capabilities and contact forms.

Microwave Relays

The MW Series relays are noted for their improved signal repeatability and RF switching capabilities up to the 6 GHz microwave range in a hermetically sealed, sub-miniature package. Excellent signal isolation, stable insertion loss and low VSWR are provided.

Standard versions are available for applications ranging from wireless communications to precision high-speed test equipment. High performance versions are available for even more demanding environments and conditions.

These relays provide microwave frequency switching in a hermetically sealed, sub-miniature package. Both standard and high performance models are offered in 3GHz, 4GHz and 6GHz types. Nominal standard coil power is 367-500mW (model dependent) and 169-250mW for sensitive coils.

Features & Benefits

- Mechanical life expectancy of 10m cycles.
- Standard high performance models are available in 3 GHz, 4 GHz & 6 GHz Types.
- Standard models (MW3, MW4 and MW6) perform in temperature range from -55ºC to +85ºC plus withstand 10G vibration and 30G shock.
- High performance models (MW3HP, MW4HP and MW6HP) offer extended temperature ratings of -65ºC to +125ºC whilst providing 30G vibration and up to 100G shock environmental ratings.
- All are available with either standard or sensitive DC coils. Nominal coil power is 367-500mW (model dependent) for standard coils and 169-250mW for sensitive coils
- Signal isolation is 18dB @ 6 GHz (MW6/MW6HP, 18dB @ 4 GHz (MW4/MW4HP) and 22dB @ 3GHz (MW3/MW3HP).
- Insertion loss is 0.38dB for MW6/MW6HP; 0.27dB for MW4/MW4HP and 0.36dB for MW3/MW3HP

T05 - SPDT and DPDT

Qualification
MIL-PRF-39016/7, /23 & /24
MIL-PRF-39016/10, /25 & /26
MIL-PRF-3901616/9, /15 & /20
MIL-PRF-39016/16 & /21
MIL-PRF-28776/5
MIL-PRF-28776/4

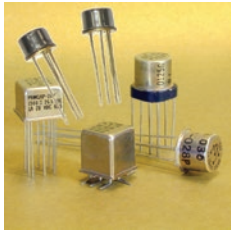
0.100 GRID - DPDT

Qualification
Mil-PRF-39016/17, /18 & /19
Mil-PRF-39016/41, /42 & /43

Includes surface mount versions

HF Microwave Series - DPDT

Qualification
3 GHz, 1 Amp or less
4 GHz, 1 Amp or less
6 GHz, 1 Amp or less



Low Signal Relays

Crystal Can and Mid Range

Crystal Can Relays

Signal relays are rated at 2 Amp, up to 10 Amp versions, available in a variety of packaging sizes, mounting configurations and termination options and both latching and non-latching designs. Standard bifilar and sensitive coils are available with optional diode suppression.

Key Features & Benefits

- Hermetically sealed relays
- Latching, non-latching designs and coaxial types.
- Plain case, mounting brackets or studs.
- Excellent isolation, insertion loss and VSWR.
- Shock and vibration resistant.
- 1, 2 and 4 pole versions .

Full and Half Size: Available in a variety of packaging sizes, mounting configurations and termination options. There are both latching and non-latching designs. Standard, bifilar and sensitive coils are available with optional diode suppression.

Fifth Size: The .150 Grid-space relay, saves space in electronic packaging, with low profile designs at only 8.12mm high. The pin spacing allows you to insert the relay with no intermediate pin spreaders as well as meeting applicable military specifications. Fifth size relays offer internal diode for coil transient suppression and transistor driven models are available.

Magnetic Latching: Versions of crystal can relays.

Radio Frequency: Available as half and full size crystal can relays, supplied with coaxial leads.

Mid Range Relays

Offer critical size and weight savings in aircraft applications by providing efficient power switching in a compact package. Relays vary in size from the compact 5 amp package up to a 50 amp version in a 25mm^3 enclosure.

The balanced force design with permanent magnet drive, provides the benefit of consistently high contact pressure, reduced bounce and less arcing leading to extended contact life. A variety of coil options are available which allow for AC or DC control.

Terminal styles include socket pins, solder pins and solder hooks. Each series comes with a variety of mounting options.

Key Features & Benefits

- Balanced force design with permanent magnet drive.
- 5 to 50 Amp ratings, within 25mm^3 package.
- 1 to 6 pole versions.
- Terminal styles include socket pins, solder pins and solder hooks.
- Hermetically sealed and welded construction.
- Shock and vibration resistant.
- M83536 and M6106 qualified products.

Full Size and Half Size

Qualification
MIL-R-5757/10 an /23
MIL-PRF-39016/6 and /22
MIL-PRF-39016/6
MIL-PRF-39016/45
MIL-PRF-39016/40

Fifth Size

Qualification
MIL-R-39016/13, /37 & /38

Latching

Qualification
MIL-PRF-39016/45
MIL-PRF-39016
MIL-PRF-39016/32

Radio Frequency

Description
80 watts full size
80 watts half size

Mid range 5 to 50 Amps

Qualification
MIL-PRF-83536/1 and /2
MIL-PRF-83536/5 and /6
MIL-PRF-83536/9 and /10
MIL-PRF-83536/15 and /16
MIL-PRF-83536/32 and /33
MIL-PRF-83536/36 and /37
MIL-PRF-6106/19
other MIL-PRF-6106

Latching Type

Qualification
MIL-PRF-83536: 2PDT, 5A
MIL-PRF-83536: 2PDT, 10-15A*
MIL-PRF-83536: 4PDT, 10-15A*
MIL-PRF-83536: 3PDT, 25A
MIL-PRF-83536: 4PDT, 12A
MIL-PRF-6106: 1PDT, 25A
MIL-PRF-6106: 3PDT, 25A

*Also available in track mount versions

Time Delay and Contactors

Time Delay plus AC and DC Contactors

Time Delay Relays

M83726 series time delay relays offer delay on operate, or delay on release operation supplied as fixed or resistor adjustable types. Consisting of solid state timing circuits controlling two Form C (DPDT) output contacts rated 10 amps. The internal timing circuit uses R/C controlled oscillator with a programmable digital pulse counter, gating a semiconductor switch. For fixed models the user specifies a one decade range in seconds, programmed at the time of manufacture.

Key Features & Benefits

- Welded hermetically sealed enclosure occupies about 16.4cm^3
- Meets or exceeds electrostatic discharge Mil-STD-1686 Class Non-Sensitive

M83726: Includes delay on operate, fixed and adjustable; delay-on-release, fixed, adjustable and interval timers with relay or solid state outputs. Contact ratings range from 2 to 10A.

Sensing Relays: Includes AC & DC voltage sensors plus AC frequency and phase sensors. Hermetically sealed, with a variety of mounting options and contact outputs.

Electro-Pneumatic Timing Relays: Feature high repeat accuracy over voltage and temperature extremes. Hermetically sealed designed for high shock and vibration applications, offering instant recycling with easy linear adjustment. The series features an exclusive dial head adjustment, no needle valves, with delay ranges from milliseconds to 60 minutes.

M83726

Qualification
MIL-PRF-83726/28 to /31
MIL-PRF-83726, 2A
MIL-PRF-83726, 10A
MIL-PRF-83726, SS
MIL-PRF-83726/13, SS
MIL-PRF-83726, Series interval and SS

Sensing

Qualification
Frequency sensor relays
AC Voltage sensor, relay output
MIL-PRF-83726, Phase sensor
DC Voltage sensor

Electro-Pneumatic

Qualification
Miniature, DPDT
Industrial Standard
Nuclear qualified

High Voltage Contactors

These contactors offer continuous current ratings up to 500 amps at 900 Volts DC, in a very compact package. Available hermetically or environmentally sealed, with a variety of electrical configurations, power ratings, voltage ratings and mounting styles to make your electrical system more reliable and capable.

Key Features & Benefits

- Suitable for electric drive vehicles, aerospace, military and industrial applications.
- Small lightweight, hermetically sealed units
- Variety of contact arrangements available.
- Latching and non-latching types
- Wide range of mounting and termination styles
- One or two pole, with normally open or normally closed contacts

High Performance Electric Vehicle - Designed and built in accordance with AS9100.

Electric Vehicle Contactors - Lightweight models designed and built in accordance with AIAG QS9000.

Commercial Aerospace - Designed and built in accordance with AIAG QS9000.

Military Aerospace & Marine - Designed and built in accordance with AIAG QS9000.

Please note that multiple configurations and AC versions are also available.

Lightweight Contactors up to 1750 Amps - These hermetically sealed enclosures are available for the most severe environmental conditions or altitudes above 50,000 feet. Designed to meet the applicable requirements of M6106 and/or specific customer requirements.

up to 500 Amps

Qualification
100 to 500 Amps, 12-900 Vdc
200 Amps, 480Vac or 48 Vdc
60 Amps, 600 Vac, 3 Form A
600Vdc SPST-NO Form X

Lightweight up to 1750 Amps

Qualification
MIL-PRF-6106, 200A
MIL-PRF-6106, 400A
MIL-PRF-6106, 500A
MIL-PRF-6106, 1000A

M28750 Solid State Relays

Products include both AC and DC versions, with output ratings up to 25A. AC relays rated at 2A, 10A & 25A feature zero voltage turn on for reduced EMI. DC relays are offered with ratings up to 2A in several miniature hermetically sealed package configurations, some with optional isolated status lines and/or short circuit protection.

Key Features & Benefits

- Qualified to DSCC Drawing 86031, 88062, 89116, 90091 as appropriate.
- Qualified to MIL-PRF-28750/5, /6, /7, /9 & /10
- TTL & CMOS compatible input.
- Optically coupled all solid state.
- Buffered/current limited input for direct drive from CMOS or TTL logic.
- Replacements for Teledyne M92F and M93F series.

Solid State

Qualification
2A, DSCC Drwg 86031
2A, DSCC Drwg 88062
2A, DSCC Drwg 89116
2A, DSCC Drwg 90091
MIL-PRF- 28750

High Performance Relays

General high performance relays, for performance industrial applications such as Plug-in/PCB and high current motorsport high voltage applications.

Rail and Mass Transit
Includes relays suitable for Air conditioning; Door control systems; Train light control; Signal control; Control board; and Traffic management applications.

Relays used for rolling stock cater for higher technical demands, such as the need for wider operating ranges; higher resistance to shock and vibration; operation over a wider range of temperature and humidity and the fire resistance properties of the relay's constituent parts.

The relays, sockets and accessories are manufactured using specific insulating materials, which satisfy the requirements of fire protection prescribed by the standard UNI CEI 11170-3 for risk levels LR1 to LR4.

- Conformity to reaction fire test to ISO 11925-2
- Smoke class F2 according to NF F 16-101 (calculated from opacity according to NF X 10-702-2 + NF X 10-702-1 and from Toxicity according to NF X 70-100-1 + NF X 70-100-2).

Vibrations and shock of the relays, their sockets and accessories is in compliance with EN61373 standard for Category 1, Class B products. Resistance to temperature and humidity is in compliance with the prescription of EN 50155 standard, TX class.

Industrial and Motorsport
Includes an overview of Plug-in / PCB relays and relay interface modules, plus coil indication and EMC suppression modules.

Mass Transit

Description
'Twilight switch'
Electronic step relay
Plug-in, 2 CO & 4 CO
Monitoring relay
Forcibly guided contacts
Modular timers
Multi voltage timers
Timer modules

Industrial and Motorsport

Description
Sub-miniature DIL/PCB relays
Ultra slim PCB relays
Low profile relays
Miniature PCB relay
Safety relay (EN 50205)
Power relays

Relay Sockets MIL-DTL-12883

Relay sockets for commercial, military, airborne, ground and shipboard equipment, are manufactured to MIL-PRF-12883 specifications, plus specialised requirements. Supplied in a broad range of military standard and special configurations plus styles for 2 to 25 amp operations. Featuring state of the art ultrasonically bonded interfaces between the dielectric components, which eliminate air paths and provide protection against moisture and degradation.

The product line offers – Low Profile, Extended Height, Micro Miniature, Board Mount, Track Mount and Solder Termination relay socket options.

Low profile sockets are provided in all military configurations and are configured to minimize size and weight. These accept the MIL-C-39029/92 contact family.

Extended height sockets are configured to accept the longer MIL-C-39029/5 contact, which is standard on many cylindrical connectors and other avionic interconnect systems and allow contact standardization.

Sockets are available with either fixed or loose mounting studs. Studs and hardware supplied with standard QPL-listed sockets are cold rolled steel. Stainless steel is available as an alternative to specify stainless steel an “S” is added to both the QPL number and the catalogue number.

Relay sockets can be top or bottom mounted.

Relay-to-socket positive polarization is provided by specific contact configurations and/or polarizing pins, in accordance with MIL spec requirements.

The majority of sockets are supplied with all the required hardware.

Custom Relays DSCC

Please contact our technical support team for those relays that are no longer readily available, as we can supply bespoke DSCC approved relays or contactors to suit your requirements.

We offer a complete portfolio of electro-mechanical relays, standard time delay relays, voltage, current, phase, frequency sensors and power monitors to customer’s exact requirements, whether for a new application or a legacy system

Where a standard product does not meet your requirement, in many cases, we can offer custom, fit, form, functional units.

Many are designed to meet or exceed MIL-STD-202, MIL-STD-704 etc and/or are listed on the Qualified Products List (QPL), or have been tested to the requirements of MIL-PRF-24021, MIL-F-26301, MIL-R-5757, MIL-PRF-6106, MIL-PRF-83726 and MIL-V-81995.

Should you have a special enquiry please contact us

Working closely with suppliers and manufacturers worldwide we offer a comprehensive range of high performance components and associated products for the Aerospace, Defence, Energy, Industrial, Marine and Motorsport markets. Our experienced internal and external sales teams offer leading customer service and support.

With immediate access to in excess of 8000 product lines from an extensive ‘off the shelf’ stock profile for next day delivery as standard, along with flexible MOQ’s and pack sizes.

We are fully committed to complying with the latest quality approvals for the customers and markets we serve, including ISO9001:2008 and AS9120:2010.

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