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

The following pages provides an overview of our relays and contactors 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.

Many of our relays are specifically designed for operation in extremes of temperature, shock, vibration and altitude being qualified to numerous standards:

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.

This section of the catalogue is a brief overview of what is available, for more information please contact us.

Military / Aerospace Relays

High Performance Relays

Contactors

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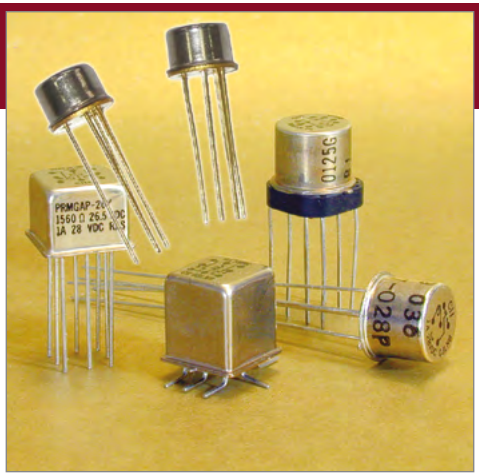
CONTENTS

Miniature
Low Signal Relays



Miniature low signal relays are 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.

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

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High Frequency

Low Signal Relays
Microwave

HF Microwave Series - DPDT

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

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.

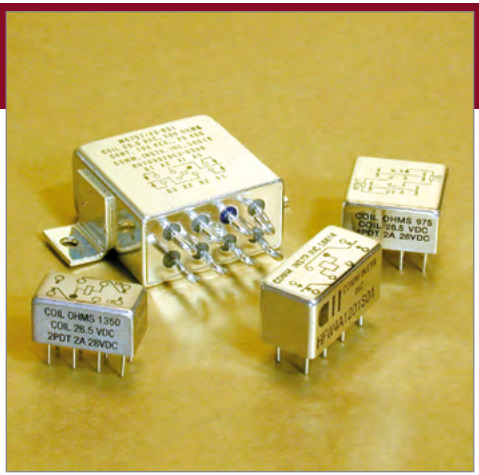
Standard versions are available for applications ranging from wireless communications to precision high-speed test equipment. High performance versions are available for even more demanding environments and conditions.

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 -55°C to +85°C plus withstand 10G vibration and 30G shock.
- High performance models (MW3HP, MW4HP and MW6HP) offer extended temperature ratings of -65°C to +125°C 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

Crystal Can
Low Signal Relays



Stocked signal relays are rated at 2 Amp, up to 10 Amp versions, all available in a variety of packaging sizes, mounting configurations and termination options. Available in 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.
- Straight pins or solder hooks.
- Excellent isolation, insertion loss and VSWR.
- Shock and vibration resistant.
- Qualified to M5757, M39016, M27245, M27247.
- 2 to 10 Amp ratings.
- 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.

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

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Mid Range

Low Signal Relays
Aerospace and Military Applications

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.

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

M83726 and other

M83726 series time delay relays are available for delay on operate, or delay on release operation and can be supplied as fixed or resistor adjustable types. These products consist 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 to operate the relay. Timing is independent of whether the controlling voltage is a ramp or step function. For adjustable models the user specifies a one decade range in seconds, this range is programmed internally 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, with MIL qualification on 10A versions. Also available are MIL approved sub-miniature digital timing modules.

Sensing Relays

Our range also includes AC & DC voltage sensors and AC frequency and phase sensors. All are hermetically sealed, with a variety of mounting options and relay contact outputs.

Electro-Pneumatic Timing Relays

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

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High Voltage
AC and DC Contactors

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

Up to 500 Amps
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.

Solid State Relays

M28750

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

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High Performance Relays

Mass Transit, Motorsport and Industrial

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

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 are subject to increasingly 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 above all, the fire resistance properties of the relay's constituent parts.

The relays and their 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).

The resistance against random vibrations and shock of the relays, their sockets and accessories is in compliance with EN61373 standard for Category 1, Class B products. Their resistance to temperature and humidity is in compliance with the prescription of EN 50155 standard, TX class.

Industrial and Motorsport

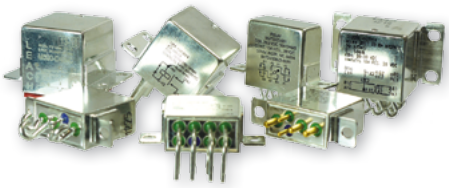
Includes an overview of Plug-in / PCB relays and relay interface modules, plus coil indication and EMC suppression modules.

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-DTL-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.

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Custom Relays

Obsolescence Service

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