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NOTE: This section of the databook provides only a brief overview of our CII, HARTMAN and KILOVAC high performance relay products. For more detailed specifications on these products, visit our website at www.tycoelectronics.com.

High Performance Signal Level Relays

T0-5 Relays

- Hermetically Sealed
- Standard or Sensitive Coils
- Optional Diodes/Transistors



Sensitive Version



Standard Version



Standard Version

Standard Coil
Sensitive Coil
Diode Version
Dual Diode Version
Transistor Version
Long Life Version
Spreader Pads
RF Performance (GHz)

P/N Series	Contact Form	Contact Rating	Coil Voltage	Temperature Rating	Vibration	Shock	Mil-Spec	Features/Options										
HM	2 Form C	Up to 1A	5 to 30 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●									●	1
HMD	2 Form C	Up to 1A	5 to 30 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●	●								●	1
HS	2 Form C	Up to 1A	5 to 48 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●								●	1
HSD	2 Form C	Up to 1A	5 to 48 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●	●							●	1
MA	2 Form C	Up to 1A	5 to 30 Vdc	-65° to +125°C	30 G's	75 G's	M39016/9	●									●	1.5
1MA	1 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/7	●									●	1.5
MAD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/15	●	●								●	1.5
1MAD	1 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/23	●		●							●	1.5
MADD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/20	●			●						●	1.5
1MADD	1 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/24	●			●						●	1.5
MAT	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M28776/1	●					●				●	1.5
1MAT	1 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M28776/5	●					●				●	1.5
MAV	2 Form C	Up to 1A	5 to 30 Vdc	-65° to +125°C	380 G's	150 G's	M39016/9 Design	●									●	
MAVD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	380 G's	150 G's	M39016/15 Design	●		●							●	
MAVDD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	380 G's	150 G's	M39016/20 Design	●			●						●	
MS	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/11		●								●	1.5
1MS	1 Form C	Up to 1A	5 to 40 Vdc	-65° to +125°C	30 G's	75 G's	M39016/10		●								●	1.5
MSD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/16		●	●							●	1.5
1MSD	1 Form C	Up to 1A	5 to 40 Vdc	-65° to +125°C	30 G's	75 G's	M39016/25		●	●							●	1.5
MSDD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/21		●		●						●	1.5
1MSDD	1 Form C	Up to 1A	5 to 40 Vdc	-65° to +125°C	30 G's	75 G's	M39016/26		●		●						●	1.5
MST	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M28776/3		●				●				●	1.5
1MST	1 Form C	Up to 1A	5 to 40 Vdc	-65° to +125°C	30 G's	75 G's	M28776/4		●				●				●	1.5
MSV	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	380 G's	150 G's	M39016/11 Design		●								●	
MSVD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	380 G's	150 G's	M39016/16 Design		●	●							●	
MSVDD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	380 G's	150 G's	M39016/21 Design		●		●						●	
PRMA	2 Form C	Up to 1A	5 to 30 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●									●	1.5
PR1MA	1 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●									●	1.5
PRMAD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●	●								●	1.5
PR1MAD	1 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●	●								●	1.5
PRMADD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●			●						●	1.5
PR1MADD	1 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●			●						●	1.5
PRMAT	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●					●				●	1.5
PR1MAT	1 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●					●				●	1.5
PRMS	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●								●	1.5
PR1MS	1 Form C	Up to 1A	5 to 40 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●								●	1.5
PRMSD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●	●							●	1.5
PR1MSD	1 Form C	Up to 1A	5 to 40 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●	●							●	1.5
PRMSDD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●		●						●	1.5
PR1MSDD	1 Form C	Up to 1A	5 to 40 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●		●						●	1.5
PRMST	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●				●				●	1.5
PR1MST	1 Form C	Up to 1A	5 to 40 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●				●				●	1.5

* Commercial-Off-The-Shelf

High Performance Signal Level Relays

.100 Grid Relays

- Hermetically Sealed
- Standard or Sensitive Coils
- Optional Diodes/MOSFETs



Sensitive Version



MOSFET Version



Surface Mount Version

- Standard Coil
- Sensitive Coil
- Diode Version
- Dual Diode Version
- MOSFET Version
- Surface Mount Version
- Mounting Pads
- RF Performance (GHz)

P/N Series	Contact Form	Contact Rating	Coil Voltage	Temperature Rating	Vibration	Shock	Mil-Spec	Features/Options						
HC	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●				●	1	
HCD	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●	●				●	1
HCS	2 Form C	Up to 1A	5 to 48 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●				●	1
HCS D	2 Form C	Up to 1A	5 to 48 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●	●			●	1
SHC	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●					●	1
SHCD	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●		●			●	1
SHCS	2 Form C	Up to 1A	5 to 48 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●				●	1
SHCS D	2 Form C	Up to 1A	5 to 48 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●	●			●	1
MGA	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/17	●					●	1.5
MGAD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/18	●		●			●	1.5
MGADD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/19	●			●		●	1.5
MGAT	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M28776/6	●				●	●	1.5
SMGA	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/17 Design	●					●	1.5
SMGAD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/18 Design	●		●			●	1.5
SMGADD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M39016/19 Design	●			●		●	1.5
MGS	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/41		●				●	1.5
MGSD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/42		●	●			●	1.5
MGSD D	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/43		●		●		●	1.5
MGST	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	M28776/7		●			●	●	1.5
SMGS	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/41 Design		●				●	1.5
SMGSD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/42 Design		●	●			●	1.5
SMGSD D	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	M39016/43 Design		●		●		●	1.5
PRMGA	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●					●	1.5
PRMGAD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●		●			●	1.5
PRMGADD	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●			●		●	1.5
PRMGAT	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*	●				●	●	1.5
PRMGS	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●				●	1.5
PRMGSD	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●	●			●	1.5
PRMGSD D	2 Form C	Up to 1A	5 to 48 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●		●		●	1.5
PRMGST	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	75 G's	COTS Version*		●			●	●	1.5

* Commercial-Off-The-Shelf

High Frequency Relays

- Hermetically Sealed
- Standard or Sensitive Coils
- Standard or High Performance Versions
- Excellent RF Performance



Standard T0-5 Package



Sensitive Grid Package

- Standard Coil
- Sensitive Coil
- Ground Pins
- T0-5 Package
- Grid Package
- RF Performance (GHz)

P/N Series	Contact Form	Contact Rating	Coil Voltage	Temperature Rating	Vibration	Shock	Mil-Spec	Features/Options					
MW3	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●	●	●			3
MW3S	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●	●	●		3
MW4	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●					4
MW4S	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●				4
MW6	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	●					6
MW6S	2 Form C	Up to 1A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial		●				6
MW3HP	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	100 G's	Commercial	●		●	●		3
MW3HPS	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	100 G's	Commercial		●	●	●		3
MW4HP	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	100 G's	Commercial	●					4
MW4HPS	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	100 G's	Commercial		●				4
MW6	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	100 G's	Commercial	●					6
MW6HPS	2 Form C	Up to 1A	5 to 26.5 Vdc	-65° to +125°C	30 G's	100 G's	Commercial		●				6

RF Performance Excellence - MW series high frequency relays are designed to provide excellent insertion loss repeatability over the frequency range from DC to 6 GHz. Exceptional isolation performance makes the MW series relays the logical choices for high performance RF applications.

High Performance Subminiature Relays

1/5 Size Relays

- Hermetically Sealed
- Optional Terminals
- Optional Mounting Styles



4 Pole
Grid



2 Pole
Standard



4 Pole
Grid

- Standard Coil
- Grid Version
- Latching Design
- Low Profile
- Optional Diode
- Optional Dual Diode
- Long Life Version
- Excellent RF Switching

P/N Series	Contact Form	Contact Rating	Coil Voltage	Temperature Rating	Vibration	Shock	Mil-Spec	Features/Options
3SBC	2 Form C	Up to 2A	5 to 36 Vdc	-65° to +125°C	30 G's	100 G's	M39016/13, 37, 38	● ● ● ● ● ● ● ●
3SBH	4 Form C	Up to 2A	6 to 36 Vdc	-65° to +125°C	30 G's	100 G's	M39016/14, 53, 54	● ● ● ● ● ● ● ●
3SBM	4 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +125°C	30 G's	150 G's	M39016/31, 35, 36	● ● ● ● ● ● ● ●
3SCC	2 Form C	Up to 2A	5 to 36 Vdc	-40° to +125°C	30 G's	100 G's	Commercial	● ● ● ● ● ● ● ●
3SDH	4 Form C	Up to 2A	6 to 36 Vdc	-40° to +125°C	30 G's	100 G's	Commercial	● ● ● ● ● ● ● ●

Half Size Relays

- Hermetically Sealed
- Optional Terminals
- Optional Mounting Styles



2 Pole
Version



1 Pole
Version



Coaxial
Cables
Version

- Standard Coil
- Bifilar Coil
- Sensitive Coil
- Latching Design
- Optional Diode
- Long Life Version
- Coaxial Cables
- Excellent RF Switching

P/N Series	Contact Form	Contact Rating	Coil Voltage	Temperature Rating	Vibration	Shock	Mil-Spec	Features/Options
C	1 Form C	Up to 10A	6 to 26.5 Vdc	-65° to +125°C	20 G's	100 G's	M39016 Design	● ● ● ● ● ● ● ●
HFC	2 Form C	Up to 2A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	● ● ● ● ● ● ● ●
HFC4A	2 Form C	Up to 4A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	● ● ● ● ● ● ● ●
HFC5A	2 Form C	Up to 5A	5 to 26.5 Vdc	-55° to +85°C	10 G's	30 G's	Commercial	● ● ● ● ● ● ● ●
HFV	2 Form C	Up to 2A	5 to 48 Vdc	-65° to +125°C	30 G's	100 G's	M39016/6	● ● ● ● ● ● ● ●
HFV4A	2 Form C	Up to 4A	5 to 48 Vdc	-65° to +125°C	30 G's	100 G's	M39016/6 Design	● ● ● ● ● ● ● ●
HFV5A	2 Form C	Up to 5A	5 to 26.5 Vdc	-65° to +125°C	30 G's	100 G's	M39016/6 Design	● ● ● ● ● ● ● ●
HMB	2 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +125°C	30 G's	100 G's	M39016/22	● ● ● ● ● ● ● ●
HMS	2 Form C	Up to 2A	5 to 36 Vdc	-65° to +125°C	20 G's	100 G's	M39016/44	● ● ● ● ● ● ● ●
LR	4 Form C	Up to 2A	5 to 48 Vdc	-65° to +125°C	30 G's	100 G's	M39016 Design	● ● ● ● ● ● ● ●
LS	2 Form C	Up to 2A	5 to 48 Vdc	-65° to +125°C	30 G's	100 G's	Commercial	● ● ● ● ● ● ● ●
RFK	1 or 2 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +85°C	20 G's	100 G's	Commercial	● ● ● ● ● ● ● ●
SR	4 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +125°C	20 G's	100 G's	M39016/40	● ● ● ● ● ● ● ●
SS	6 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +125°C	20 G's	100 G's	M39016 Design	● ● ● ● ● ● ● ●

Full Size Relays

- Hermetically Sealed
- Optional Terminals
- Optional Mounting Styles



Standard
Full Size



Tall
Full Size






10 Amp
Full Size

- Standard Coil
- Bifilar Coil
- Special Wiring Available
- Latching Design
- Optional Diode
- Multi-pole Configurations
- Coaxial Cables
- Excellent RF Switching






** 07 relay is also qualified to MS 27245 & MS27247

P/N Series	Contact Form	Contact Rating	Coil Voltage	Temperature Rating	Vibration	Shock	Mil-Spec	Features/Options
02	2 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +125°C	20 G's	100 G's	M5757/8	● ● ● ● ● ● ● ●
07	2 Form C	Up to 10A	6-120 Vdc, 115 Vac	-65° to +125°C	30 G's	100 G's	M5757/23**	● ● ● ● ● ● ● ●
3SAM	2 Form C	Up to 2A	6 to 24 Vdc	-65° to +125°C	30 G's	150 G's	M39016/32	● ● ● ● ● ● ● ●
3SDM	2 Form C	Up to 2A	6 to 24 Vdc	-65° to +125°C	30 G's	150 G's	M39016 Design	● ● ● ● ● ● ● ●
FW	2 Form C	Up to 3A	6.3 to 110 Vdc	-65° to +125°C	20 G's	100 G's	M5757/10	● ● ● ● ● ● ● ●
FW5A	2 Form C	Up to 5A	6.3 to 110 Vdc	-65° to +125°C	20 G's	100 G's	M5757/10 Design	● ● ● ● ● ● ● ●
RD4	4 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +125°C	20 G's	100 G's	M5757/7	● ● ● ● ● ● ● ●
RD6	6 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +125°C	20 G's	100 G's	M5757/1	● ● ● ● ● ● ● ●
RFB	1 or 2 Form C	Up to 2A	6 to 26.5 Vdc	-65° to +85°C	20 G's	100 G's	M5757 Design	● ● ● ● ● ● ● ●
SF	2 Form C	Up to 2A	1.8 to 40 Vdc	-65° to +125°C	15 G's	100 G's	M5757/13 Design	● ● ● ● ● ● ● ●
SF5A	2 Form C	Up to 5A	1.8 to 40 Vdc	-65° to +125°C	15 G's	100 G's	M5757/13 Design	● ● ● ● ● ● ● ●




High Reliability Space Relays

Products	Services	Features
<p>Half Size Non-Latching 1, 2, 4, 6 Form C configurations, low level to 10 amps switching</p> <p>Half Size Latching 2 and 4 Form C configurations, low level to 2 amps switching</p> <p>1/5 Size Non-Latching 2 and 4 Form C configurations, low level to 2 amps switching</p> <p>1/5 Size Latching 4 Form C, low level to 2 amps switching</p> <p>T0-5/.100 Grid 2 Form C, round and square outlines, low level to 1 amp switching</p>  	<p>CII Hi-Rel products from Tyco Electronics are extensively tested to assure that your reliability standards and requirements are met or exceeded. Our services include:</p> <ul style="list-style-type: none"> • Precision cleaning • Small particle inspection • Particle impact noise detection • Serialized test data • High shock testing • Test profiles can be tailored to individual customer requirements. 	<ul style="list-style-type: none"> • High shock ratings • High vibration ratings • Latching versions • Class 100 cleanroom • Welded assemblies <p>Applications</p> <ul style="list-style-type: none"> • Space satellites (telecommunications) • Weather tracking • Surveillance • Infrared observation instrumentation • Missile systems • Torpedo guidance circuits

High Performance Solid State Relays


DS11 Series	DS13 Series	JDS9-1Y	JPS10 Series	PS12-1Y
<p>COTS Version Available</p> 	<p>COTS Version Available</p> 	<p>COTS Version Available</p> 	<p>COTS Version Available</p> 	<p>COTS Version Available</p> 
DESC 88062 Qualified	DESC 90091 Qualified	M28750/9 Qualified	M28750/10 Qualified	DESC 86031 Qualified
60 Vdc Output Voltage	60 Vdc Output Voltage	250 Vrms Output Voltage	250 Vrms Output Voltage	250 Vrms Output Voltage
2 Adc Output Current	2 Adc Output Current	2 Arms Output Current	25 Arms Output Current	10 Arms Output Current
<ul style="list-style-type: none"> • Hermetically sealed DIP package • Thick film hybrid construction • Optically isolated • Low on-resistance (MOSFET output) • Optional switch status, short circuit protection, trip status 	<ul style="list-style-type: none"> • Hermetically sealed DIP package • Thick film hybrid construction • Optically isolated • Low on-resistance (MOSFET output) • Optional switch status, short circuit protection, trip status 	<ul style="list-style-type: none"> • Hermetically sealed DIP package • Thick film hybrid construction • Optically isolated • Zero voltage turn-on • High transient immunity • 3.8-32 Vdc current regulated input 	<ul style="list-style-type: none"> • Rugged encapsulated module • Optically isolated • Zero voltage turn-on • High transient immunity • 3.8-32 Vdc current regulated input 	<ul style="list-style-type: none"> • Rugged encapsulated module • Optically isolated • Zero voltage turn-on • High transient immunity • 3.8-32 Vdc current regulated input

High Performance Timers and Sensors

Timers - Solid State Output	Timers - Relay Output	Sensors
 <p>1800/1900 Series Delay on operate, adjustable or fixed time delay, optional mounting styles</p>	 <p>1600/1700 Series Delay on operate, adjustable or fixed, AC or DC input, optional mounting styles</p>	 <p>1300/1350 Series Voltage sensors, DC and AC input, optional mounting styles</p>
<p>4800 Series Interval timers, fixed time delay, optional mounting styles</p>	<p>4600/4700 Series Interval timers, adjustable or fixed, AC or DC input, optional mounting styles</p>	<p>1400 Series Phase sensors, 60 or 400 Hz, optional mounting styles</p>
<p>6001/6155 Series Delay on operate, fixed time delay, 14 pin metal DIP, thick film hybrid, meets Mil-R-83726/13</p>	<p>5600/5700 Series Delay on release, adjustable or fixed, optional mounting styles</p>	<p>7000 Series Frequency sensors, 50 to 440 Hz, digital logic design, optional mounting styles</p>
	<p>2400 Series Delay on operate, miniature package, fixed, optional mounting styles</p>	

High Performance DC Solid State Relay / Power Controller

NEW PRODUCT



PC2.5D10-2B

60 Vdc Output Voltage
2.5 Adc Output Current

Built-in Circuit Protection

- Combines isolated load switching and circuit protection capabilities
- Fast acting, bounce free switching
- Carries full rated current (2.5A) without heat sinking to 90°C
- Low output on-resistance and voltage drop
- Meets surge requirement of MIL-STD-1275 & MIL-STD-740A
- Nuclear tolerance tested
- Hermetically sealed package
- Thick film hybrid construction

High Performance DC Tubular Solenoids – Series 3000



Pull-Type Solenoid

Custom configurations available

DC tubular pull-type solenoids are designed to provide up to 90 lbs of force with a maximum stroke of .500 inches.

Actual usable force will depend on the stroke and power level.

Coils are available from 6 to 115 Vdc with a continuous duty power level of 2.2 to 54 watts and an intermittent duty power level of 12 to 585 watts.



Push-Type Solenoid

Custom configurations available

DC tubular push-type solenoids provide up to 50 lbs of force with a maximum stroke of .562 inches.

Actual usable force will depend on the stroke and power level.

Coils are available from 6 to 115 Vdc with a continuous duty power level of 3 to 36 watts and an intermittent duty power level of 9 to 240 watts.



Switch-Type Solenoid

Custom configurations available

DC tubular switch-type solenoids provide up to 120 lbs of force with a maximum stroke of 1 inch.

Actual usable force will depend on the stroke and power level.

Coils are available from 12 to 115 Vdc. Two coils are utilized, one energized at pull-in for extra force and a holding coil for continuous operation. Intermittent duty power level of 112 to 700 watts and a continuous power level of 3 to 14 watts.

High Performance Custom Solenoids – Series 7000



Tyco Electronics can provide customized solenoids with many of the following features :

Solenoid Styles

- High Temperature
- 400Hz AC
- Commercial AC
- Airframe
- Heavy Duty
- Two Coil Designs
- Pressure Sealed

Connector Styles

- Flexible Leads
- Connector Assemblies
- Right Angle AN Connectors
- Square Flange AN Connectors
- Quick-Connects
- Screw, Solder & Stud Terminals

Mounting Styles

- Round Flanges
- Square Flanges
- Threaded Flanges
- Shaped Flanges

Plunger Styles

- Internal Threads
- External Threads
- Clevice Plungers
- Extension Plungers
- Captive Plungers

High Performance AC Contactors

Side Stable Contactors
Latching Contactors
Center Off Contactors



FEATURES:

- High reliability
- Meets requirements of Mil-R-6106
- Hermetic or gasket seal available
- Repairable
- Easily tailored to customer requirements

P/N	Current Rating	Description	P/N	Current Rating	Description
DH-7YC	25 Amps	4PST N.O., 115/208 VAC, 400 Hz	D-31TFA	100 Amps	3PDT, Center Off, 115/208 VAC, 400 Hz
B-347A	25 Amps	3PDT, Double Break, 115/220 VAC, 400 Hz	B-233R	120 Amps	3PDT, 115/200 VAC, 400 Hz
DH-14B-3	25 Amps	3PDT, 115/200 VAC, 400 Hz	BH-201B	120 Amps	3PST N.O., 115/200 VAC, 400 Hz
B-252	30 Amps	3PDT, Center Off, 115/200 VAC, 400 Hz	D-100A	120 Amps	3PST N.O., 115/200 VAC, 400 Hz
B-140C	30 Amps	3PDT, Center Off, 120 VAC, 60 Hz	B-435K-3	140 Amps	3PDT, Center Off, 115/200 VAC, 400 Hz
N-415A-1	30 Amps	3PDT, Double Break, 115/200 VAC, 400 Hz	B-233T	160 Amps	3PDT, 115/200 VAC, 400 Hz
SA106E	30 Amps	3PDT, 115 VAC, 400/60 Hz	B-451	175 Amps	3PST, Magnetic Latch, 115/200 VAC, 400 Hz
DH-7ZAB	50 Amps	3PDT, 115/200 VAC, 400 Hz	B-312D-1	175 Amps	3PST N.O., 120/208 VAC, 50/60 Hz
D-7GRZ	50 Amps	3PDT, 115/200 VAC, 400 Hz	B-499	35/200A	3PDT, Double Break, 115 VAC, 400 Hz/28 VDC
NN-301	50 Amps	SPDT w/Time Delay on Pickup, 115 VAC, 400 Hz	BR-301AY	200 Amps	3PST N.O., 115/200 VAC, 400 Hz
D-7GR	50 Amps	3PDT, 115/200 VAC, 400 Hz	B-393P	200 Amps	3PDT, Center Off, 120/208 VAC, 50/60/400 Hz
N-421A	50 Amps	3PST N.C., 115/200 VAC, 400 Hz	B-345LS	225 Amps	3PDT, Center Off, 115/200 VAC, 400 Hz
D-18F	50 Amps	3PDT, Center Off, 115/200 VAC, 400 Hz	B-394	250 Amps	3PDT, 115/200 VAC, 400 Hz
DR-18E-5	50 Amps	2SPST, Center Off, 115/208 VAC, 400 Hz	BH-124AA	250 Amps	3PDT, Center Off, 115/200 VAC, 400 Hz
B-227	60 Amps	3PDT, Center Off, 115/200 VAC, 400 Hz	BH-360A	250 Amps	3PDT, 115/200 VAC, 400 Hz
B-138S	60 Amps	3PST N.O., 115/200 VAC, 300-600 Hz	B-430-1	275 Amps	3PST, Magnetic Latch, 115/200 VAC, 400 Hz
DH-7BC	60 Amps	3PDT, 115/208 VAC, 400 Hz	B-429A-1	300 Amps	3PST N.O., 115/200 VAC, 400 Hz
BR-329BC	60 Amps	2PST N.O., 115 VAC, 60 Hz	B-874L	335 Amps	3PST, 200 VAC, 400 Hz
SA120B	60 Amps	3PDT, Side Stable, 115/200 VAC, 400 Hz	B-429CA	350 Amps	3PST N.O., 120/208 VAC, 400 Hz
NH-505	90 Amps	3PDT, Center Off, 115/200 VAC, 400 Hz	B-479A-1	350 Amps	3PST, Magnetic Latch, 120/208 VAC, 400 Hz
D-25BD	100 Amps	3PDT, 115/200 VAC, 400 Hz	B-484	500 Amps	3PST, Magnetic Latch, 115/200 VAC, 400 Hz

High Performance DC Contactors

Side Stable Contactors
Latching Contactors
Center Off Contactors



FEATURES:

- High reliability
- Meets requirements of Mil-R-6106
- Hermetic or gasket seal available
- Repairable
- Easily tailored to customer requirements

P/N	Current Rating	Description	P/N	Current Rating	Description
A-837D	15/3A	Latching Armature Relay, 28 VDC	A-871F	200 Amps	SPDT N.O. & N.C., 28 VDC
C-28	25 Amps	2PST N.O., Latching, 40 VDC	A-1077B	230 Amps	SPDT, 28 VDC
D-7TD	50 Amps	2SPST 1 N.O. 1 N.C., 28 VDC	AH-965H	300 Amps	SPDT N.O. & N.C., 28 VDC
D-7AC	50 Amps	2SPST 1 N.O. 1 N.C., 28 VDC	A-1019	300 Amps	2PDT, Center Off, 28 VDC
DH-7KC-1	50 Amps	4PST 2 N.O. 1 N.C., 28 VDC	A-876M	300 Amps	SPDT N.C., 28 VDC
N-208	50 Amps	SPDT, Double Break, Magnetic Latch, 28 VDC	K-300	300 Amps	SPST N.O., 28 VDC
NN-233C	60 Amps	SPDT, Double Break, 28 VDC	SD130A	400 Amps	SPST N.O., Double Break, 28 VDC
SD167A	100 Amps	SPST, Side Stable, 28 VDC	A-400B	400 Amps	SPST N.O., 28 VDC
D-32AB	100 Amps	2SPST, Center Off, Double Break, 28 VDC	K-400	400 Amps	SPST N.O., 28 VDC
N-417E	100 Amps	SPDT, Double Break, 28 VDC	A-981S	400 Amps	SPDT, 28 VDC
A-885Y	100 Amps	SPDT N.O. & N.C., 28 VDC	AH-703F	400 Amps	SPST N.O., 28 VDC
NN-307	100 Amps	SPST, Double Break, 28 VDC	A-922F	600 Amps	2PST N.O., 28 VDC
SDH128	100 Amps	SPDT, Side Stable, 28 VDC	A-712T	600 Amps	SPST N.O., 28 VDC
NN-449B	100 Amps	SPDT, Double Break, 28 VDC	A-931F	600 Amps	SPST N.O., 28 VDC
DH-16CH	131 Amps	SPST, Latching, 31 VDC	A-792ST	1000 Amps	SPST N.O., 28 VDC
A-1077F	200 Amps	SPST N.O., 28 VDC	A-882	1600 Amps	SPST N.O., 28 VDC

High Performance AC/DC Contactors

Side Stable Contactors



FEATURES:

- High reliability
- Meets requirements of Mil-R-6106
- Hermetic or gasket seal available
- Lightweight construction
- Easily tailored to customer requirements

P/N	Current Rating	Description	P/N	Current Rating	Description
C-8B	15 Amps	2PDT N.C., 28 VDC, 60 or 400 Hz	D-14D	50 Amps	2SPST 1N.O. 1N.C., 28 VDC or 115 VAC, 400 Hz
DH-7PF	50 Amps	4PST 2N.O. 2N.C., 28 VDC or 115 VAC, 400 Hz	BH-316A	50 Amps	3PST, 28 VDC or 115 VAC, 400 Hz
NN-233A	50 Amps	SPDT, Double Break, 28 VDC or 115 VAC, 400 Hz	C-21Y	60 Amps	SPST N.O., Dbl. Break, 28 VDC or 115 VAC, 400 Hz

DC Reverse Current Contactors

Specialty Contactors



FEATURES:

- High reliability
- Meets requirements of Mil-R-6106
- Gasket sealed
- Repairable
- Easily tailored to customer requirements

P/N	Current Rating	Description	P/N	Current Rating	Description
A-718AAP	100 Amps	SPST N.O., 28 VDC, Cutout Reverse Current	A-701D	400 Amps	SPST N.O., 28 VDC, Cutout Reverse Current
A-700AQ-4	200 Amps	SPST N.O., 28 VDC, Cutout Reverse Current	A-702AAP	600 Amps	SPST N.O., 28 VDC, Cutout Reverse Current
A-700ZF	300 Amps	SPST N.O., 28 VDC, Cutout Reverse Current	A-791M	1000 Amps	SPST N.O., 28 VDC, Cutout Reverse Current

Sensors & Monitors

Voltage & Current Sensors
Phase Rotation Sensors
Ground Power Monitors
Frequency Sensors



FEATURES:

- High reliability
- Meets requirements of Mil-R-6106
- Hermetic or gasket seal available
- Lightweight construction units available
- Epoxy encapsulated units available

P/N	Current Rating	Description	P/N	Current Rating	Description
AVR-869C		SPDT, 28 VDC, 3Ø Sequence Relay	Q-50AC	0.3 Amp	SPDT, 28 VDC, Encapsulated Current Indicator
E-312P	5 Amps	SPDT, 28 VDC, 400 Hz, Overvoltage Sensor	CH-27	0.75 Amp	2PDT, 28 VDC, Current Sensor
E-381	5 Amps	SPDT, 130 VAC, 400 Hz, Undervoltage Sensor	CH-26	1 Amp	SPST, 28 VDC, Current Sensor
E-308AA	7.5 Amps	SPDT, 120 VDC, 60 Hz, 3Ø Undervoltage Sensor	A-848KK	75 Amps	2PST, 28 VDC, Automatic Drop Out
E-329E	10 Amps	3PDT, 115 VAC, Drop Out Time Delay	A-772XTB	200 Amps	SPST N.O., 28 VDC, Delayed Drop Out
E-308AH	10 Amps	3PDT, 115 VAC, Drop Out Time Delay	A-701P-1	400 Amps	SPST N.O., 28 VDC, Remote Reset
E-312A-1	10 Amps	2PDT, 440 VAC, 400 Hz, 3Ø Voltage Sensor	A-701P-3	500 Amps	SPST N.O., 28 VDC, Remote Reset
E-348	0.25 Amp	SPST N.O., 28 VDC, Overload Relay	A-792CA	600 Amps	2PST N.O., 28 VDC, Automatic Drop Out
E-308	3 Amps	SPDT, 28 VDC, Adjustment Pick-Up Voltage	E-326	1 Amp	115 VAC, 400 Hz, 3Ø Rotation Sensor
AVR-834	3 Amps	SPDT, 28 VDC, DC Voltage Sensor	E-326A	1 Amp	115 VAC, 60 Hz, 3Ø Rotation Sensor
E-311P	10 Amps	2PDT, 28 VDC, Drop Out Time Delay	E-341	2 Amps	SPDT, 208 VAC, 400 Hz, 3Ø Rotation Sensor
QR-50AF	0.25 Amp	SPST, 115 VAC, Encapsulated Current Indicator	E-326E	5 Amps	SPDT, 460 VAC, 60 Hz, 3Ø Rotation Sensor
QR-50DA	0.25 Amp	SPST, 115 VAC, Encapsulated Current Indicator	E-145Z	25 Amps	2PST, 120/208 VAC, 400 Hz, Phase Loss Relay
E-387	1 Amp	SPDT, 115 VAC, 400 Hz, Current Sensor	E-145Y	60 Amps	2PST, 120/208 VAC, 400 Hz, Phase Loss Relay
E-145AK-4	5 Amps	SPST, 115 VAC, 3Ø Current Sensor	E-327AD	1 Amp	2PST, 115 VAC, Ground Power Monitor
BE-500G-1	50 Amps	3PST N.O., 120 VAC, Overload Current Sensor	E-384	3 Amps	SPDT, 28 VDC, Under Frequency Sensor
Q-50B	0.25 Amps	SPDT, 28 VDC, Encapsulated Current Indicator			

Plug-In Contactors

Side Stable Contactors
Latching Contactors
Center Off Contactors



FEATURES:

- Fast installation/removal time
- Improved maintenance safety
- High reliability
- Meets requirements of Mil-R-6106
- Lightweight construction

P/N	Current Rating	Description	P/N	Current Rating	Description
BP-353	50 Amps	3PST N.O., 115/200 VAC, 400 Hz	BPE-494	175 Amps	3PST N.O., ELCU, 115/200 VAC, 400 Hz
DP-25BD	100 Amps	3PDT, 115/200 VAC, 400 Hz	BP-494	275 Amps	3PST N.O., 115/200 VAC, 400 Hz
DP-31C	100 Amps	3PDT, Center Off, 115/200 VAC, 400 Hz	BP-493-1	385 Amps	3PST, Magnetic Latch, 115/200 VAC, 400 Hz

DC Automatic Dropout Contactors

DC Automatic Drop Out

- Time Delay Relays
- Phase Imbalance Sensors
- Automatic Drop Out Contactors



FEATURES:

- High reliability
- Meets requirements of Mil-R-6106
- Hermetic or gasket seal available

P/N	Current Rating	Description	P/N	Current Rating	Description
E-55	2 Amps	4PDT, 28 VDC, Time Delay	A-757D	600 Amps	SPST, 28 VDC, Automatic Dropout @ 180 Amps
B-178	60 Amps	3PST, 120/208 VAC, 400 Hz, Phase Sensor			

AC & DC High Voltage Contactors

High Voltage

- AC Contactors
- DC Contactors
- Center Off Contactors
- Latching Contactors



FEATURES:

- High reliability
- Meets requirements of Mil-R-6106
- Hermetic or gasket seal available
- Lightweight construction units available
- Repairable

P/N	Current Rating	Description	P/N	Current Rating	Description
CR-21A	5 Amps	3PST N.O., 440 VAC, 60 Hz or 380 VAC, 50 Hz	B-459	250 Amps	3PDT, Center Off, 208 VAC, 400 Hz
B-329P	20 Amps	3PST N.O., Dbl. Break, 260/450 VAC, 400 Hz	B-460	250 Amps	6PST, 208 VAC, 400 Hz
BR-393E	20 Amps	3PDT, Center Off, Dbl. Break, 380 VAC, 50 Hz	B-461	250 Amps	3PDT, Center Off, 120/208 VAC, 400 Hz
B-138DL	50 Amps	3PST N.O., 200 VAC, 400 Hz	BH-125TH	250 Amps	3PST N.O., 208 VAC, 400 Hz
B-140AA	60 Amps	3PDT, Center Off, 200 VAC, 400 Hz	B-124GL	250 Amps	3PDT, Center Off, Dbl. Break, 208 VAC, 400 Hz
B-138XAH	60 Amps	3PDT, 200 VAC, 400 Hz	AV-875	60 Amps	SPST N.O., 270 VDC
B-312CS	100 Amps	3PST N.O., 380 VAC, 50 Hz	A-751D-1	150 Amps	SPST N.O., 110 VDC
B-125N	150 Amps	3PST N.O., 208 VAC, 400 Hz	A-754JD	150 Amps	SPST N.O., 120 VDC
B-493E	160 Amps	3PST, Magnetic Latch, 230 VAC, 400 Hz	A-751YC	650 Amps	SPST N.O., 340 VDC

Space Contactors

Space Relays

- DC Latching Contactors



FEATURES:

- High reliability
- Meets requirements of Mil-R-6106
- Hermetically sealed
- Lightweight construction
- High shock, vibration, and acceleration levels

P/N	Current Rating	Description	P/N	Current Rating	Description
N-409D	50 Amps	2PDT, Double Break, Magnetic Latch, 28 VDC	N-208H	50 Amps	SPDT, Double Break, Magnetic Latch, 40 VDC

Power Distribution Systems

Power Distribution Panels

- Modular Units
- Standard Panels

FEATURES:

- Primary and secondary power distribution
 - Main power contactors
 - Secondary power contactors/relays
 - Current and voltage sensing
 - Logic/control signals
- Contactors/circuit breaker plug-in units
- Power management capabilities
- Value added
- Space saving/weight saving designs
- Custom designs for specific applications

Modular Units

- Utilizes plug-in line replaceable modules installed on a panel mounting system, or back-plane. LRMs may be contactors, circuit breakers, sensing units, ELCUs, etc.
- Designed as a fault-free zone with no moving parts. Intended as a permanent installation on mother vehicle.

FEATURES:

- Weight savings over standard discrete components
- Value added
- Ease of maintenance
- Reduced OEM labor

Standard Panels

- Utilizes actuator and contact assemblies from discrete contactors, bussed together and packaged in one or more enclosures with external power and control connections.
- Optional current/voltage sensing, fuses, circuit breakers, power monitors, etc.

FEATURES:

- Lightest power distribution approach
- Value added
- Ease of maintenance
- Reduced OEM labor

These are just some of the HARTMAN products capabilities from Tyco Electronics:

- Voltage, Current & Power Sensing
- Over & Reverse Current
- Over & Under Voltage
- Over & Under Frequency
- Ground Fault & Detection
- Time Delay
- Phase Sequence, Unbalance & Failure
- Impedance Relays
- Ripple Detection
- Positive, Negative & Zero Sequence Voltage
- Signal Amplification
- Turbine Starting
- Trip-Free, Electrical & Mechanical Interlocking
- Electrical & Magnetic Latching
- Polarization
- Power Switching

High Voltage DC Relays & Contactors

28 Vdc

Aerospace Power Relays
Hi-Rel Satellite Relays
Power Controllers



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
AL50	50 amps	Yes	No	SPST-NO
AL90	90 amps	Yes	No	SPST-NO
AL150	150 amps	Yes	No	SPST-NO
AL350	350 amps	Yes	No	SPST-NO
AL500	500 amps	Yes	No	SPST-NO

270 Vdc

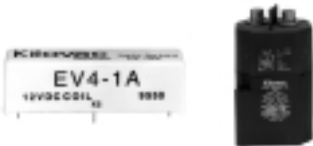
Aerospace Power Relays
Hi-Rel Satellite Relays
Power Controllers



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
AP5A	5 amps	Yes	No	SPST-NO
AP5B	5 amps	Yes	No	SPST-NC
AP5C	5 amps	Yes	No	SPDT
AP5P	5 amps	Yes	No	SPST-Latch
AP5R	5 amps	Yes	No	SPDT-Latch
AP10A	10 amps	Yes	No	SPST-NO
AP10B	10 amps	Yes	No	SPST-NC
AP10P	10 amps	Yes	No	SPST-Latch
AP11A	10 amps	Yes	No	SPST-NO
AP44P	15 amps	Yes	No	SPST-Latch
AP50X	50 amps	Yes	No	SPST-NO
AP90X	90 amps	Yes	No	SPST-NO
AP150X	150 amps	Yes	No	SPST-NO
AP265X	265 amps	Yes	No	SPST-NO
AP265P	265 amps	Yes	No	SPST-NO
AP350X	500 amps	Special	No	SPST-NO
PD5A	5 amps	Yes	No	SPST-NO
PD5B	5 amps	Yes	No	SPST-NC
PD10A	10 amps	Yes	No	SPST-NO
PD10B	10 amps	Yes	No	SPST-NC
PD10P	10 amps	Yes	No	SPST-Latch
PD90X	90 amps	Yes	No	SPST-NO
PD150X	150 amps	Yes	No	SPST-NO

12-1800 Vdc

Electric Vehicle Relays
Specialty DC Power Relays
and Contactors
Integrated Sensing



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
EV4	4 amps	Make Only	No	SPST-NO
EV200	200 amps	Yes	No	SPST-NO
EV250A	400 amps	Yes	No	SPST-NO
EV250B	400 amps	Yes	No	SPST-NC
EV500	600 amps	Yes	No	SPST-NO

2.0 kV

High Voltage Reed Relay
Vacuum Relay



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
S06CBA	6 amps	Carry Only	Yes	SPST-NO
K45C	15 amps	Carry Only	Yes	SPDT

3.0 kV

High Voltage Reed Relay



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
S02DNA	2 amps	Carry Only	No	SPST-NO

3.5 kV

Vacuum Relays
Gas Filled Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
HC-5	8 amps	Make Only	No	SPDT
HC-3	15 amps	Yes	Yes	SPDT
HC-1	25 amps	Carry Only	Yes	SPDT

5.0 kV

High Voltage Reed Relays
Vacuum Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
S06FNA	6 amps	Carry Only	Yes	SPST-NO
K41A	30 amps	Yes	Yes	SPST-NO
K41B	30 amps	Yes	Yes	SPST-NC
K41C	30 amps	Yes	Yes	SPDT
K41P	25 amps	Carry Only	Yes	SPST-Latch
K41R	25 amps	Carry Only	Yes	SPDT-Latch
K40P	35 amps	Carry Only	Yes	SPST-Latch

7.5 kV

Medical Relays
Gas Filled Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
KM-13	10 amps	Make Only	No	DPDT
KM-17	10 amps	Make Only	No	DPDT

9 kV

High Voltage Reed Relay



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
S06HBA	6 amps	Carry Only	Yes	SPST-NO

* Consult Factory for Power Switching Level

High Voltage DC Relays & Contactors

8 kV

High Voltage Reed Relays
Vacuum Relays
Gas Filled Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
S06JNB	6 amps	Carry Only	Yes	SPST-NC
HC-6	8 amps	Make Only	No	SPDT
H-18	10 amps	Yes	Yes	SPDT
K47A	12 amps	Yes	Yes	SPST-NO
K47B	12 amps	Yes	Yes	SPST-NC
HC-4	15 amps	Yes	No	SPDT
HC-2	25 amps	No	No	SPDT
K44P	50 amps	Yes	Yes	SPST-Latch

10 kV

High Voltage Reed Relays
Vacuum Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
S05LTA	5 amps	Yes	No	SPST-NO
S05LTB	5 amps	Yes	No	SPST-NC
K81A	10 amps	Special	No	SPST-NO
K81B	10 amps	Special	No	SPST-NC
K81C	10 amps	Special	No	SPDT
K43A	25 amps	Special	Yes	SPST-NO
K43B	25 amps	Special	Yes	SPST-NC
K43C	25 amps	Special	Yes	SPDT
K43R	24 amps	Carry Only	Yes	SPDT-Latch
K43P	24 amps	Carry Only	Yes	SPST-Latch

12 kV

Vacuum Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
H-14	30 amps	Carry Only	Yes	DPDT
H-16	30 amps	Carry Only	Yes	DPDT

15 kV

High Voltage Reed Relays
Vacuum Relays
Gas Filled Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
S05MTA	5 amps	Carry Only	No	SPST-NO
KC-15	12 amps	Make Only	No	SPDT
KC-16	12 amps	Make Only	No	SPDT
KC-14	15 amps	Yes	No	SPDT
KC-18	15 amps	Yes	No	SPDT
H-8	15 amps	Yes	No	SPDT
KC-12	30 amps	Yes	Yes	SPDT
H-26	30 amps	Carry Only	Yes	4PDT
KC-8	30 amps	Yes	Yes	SPDT
KC-2	50 amps	Carry Only	Yes	SPDT
KC-11	50 amps	Carry Only	Yes	SPDT

* Consult Factory for Power Switching Level

20 kV

Vacuum Relay



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
H-19	30 amps	Special	Yes	DPDT

25 kV

Vacuum Relays
Gas Filled Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
KC-38	15 amps	Make Only	No	SPST-NC
K62A	18 amps	Special	No	SPST-NO
K62B	18 amps	Special	No	SPST-NC
K62C	18 amps	Special	No	SPDT
H-17	30 amps	Special	Yes	SPDT
KC-28	30 amps	Make Only	No	SPST-NO
KC-32	45 amps	Special	No	SPST-NC
KC-30	55 amps	Carry Only	Yes	SPST-NC
KC-22	65 amps	Special	No	SPST-NO
KC-20	110 amps	Carry Only	Yes	SPST-NO

30 kV

Vacuum Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
H-23	30 amps	Carry Only	Yes	SPST-NC
H-24	30 amps	Carry Only	Yes	SPST-NO

35 kV

Gas Filled Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
K61A	10 amps	Make Only	No	SPST-NO
K61B	10 amps	Make Only	No	SPST-NC
K61C	10 amps	Make Only	No	SPDT
K60C	10 amps	Make Only	No	SPDT

50 kV

Vacuum Relays
Gas Filled Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
K64C	10 amps	Make Only	No	SPDT
H-25	30 amps	Special	No	SPDT

70 kV

Gas Filled Relays



P/N Series	Carry Current	Power Switching*	RF Ratings	Contact Form
K70A	10 amps	Make Only	No	SPST-NO
K70B	10 amps	Make Only	No	SPST-NC
K70C	10 amps	Make Only	No	SPDT

Protective Relays

We offer a broad range of protective relays for use in portable generators, automatic transfer switches, irrigation pumps, industrial facilities, utilities, refineries, oil field, urban rapid transit systems, aircraft, ships and submarines. Some models are qualified by the military for use in ground support equipment, aircraft and Navy ships' high shock applications. These are managed in the DOD supply system under NSN classes 5945 and 6110. KILOVAC protective relays were previously marketed under the WILMAR brand.

Following is a just a partial listing of our protective relay offering:

Voltage Sensitive

- WUV/WOV SeriesUndervoltage & Overvoltage
- WUVT/WOVT SeriesUndervoltage & Overvoltage with Time Delay
- WUV/WOV DC SeriesUndervoltage & Overvoltage DC
- WOUV DC SeriesOver/Undervoltage DC
- WOUVT SeriesOver/Undervoltage, Time Delay
- 250 SeriesOver/Undervoltage
- D100X Series.....Close Differential, 1 Phase
- D101X Series.....Series Close Differential, 3 Phase
- WD2759 SeriesAC Over/Undervoltage Sensing Relay, DIN Rail Mounting

Reverse Power

- 700 Series1 & 3 Phase
- 700 Series1 & 3 Phase, Adjustable Time Delay
- WD32 SeriesReverse Power Relay, DIN Rail Mounting

Phase Failure

- 1000 SeriesLoss of Phase, Undervoltage

Phase Sequence

- 900 SeriesPhase Sequence
- WD47 Series Phase Sequence Relay, DIN Rail Mounting

Current Balance

- WCB SeriesCurrent Balance

Current Sensitive

- WC1 & WCT1 SeriesOvercurrent, Time Delay, 1 Phase
- WC3 & WCT3 SeriesOvercurrent, Time Delay, 3 Phase
- WD5051-3 SeriesAC Over Current Sensing Relay, DIN Rail Mounting

Current Differential

- WCD Series.....Current Differential

Paralleling

- 1800 SeriesParalleling (volt)
- WSYN SeriesVoltage Frequency, Phase Angle
- WD25 SeriesParalleling Relay, DIN Rail Mounting

Frequency Sensitive

- WOF & WUF SeriesOverfrequency & Underfrequency
- WOUF SeriesOver/Underfrequency, Time Delay Option
- 25-000 SeriesOver/Underfrequency
- 20-000 SeriesFrequency, 56-66 Hz
- 20-050-19 SeriesVoltage/Frequency
- WD81OU SeriesOver/Under Frequency Relay, DIN Rail Mounting

Ground Fault

- WGD Series.....Power Factor & Ground Fault Detector
- WC1G Series.....Power Factor & Ground Fault Detector

NOTE

WD.. Series protective relays are described in section 13 of this databook. For details on other models, please visit our website at www.tycoelectronics.com.