



SHORT FORM CATALOG

Solutions for Power Switching and Control

LEACH CORF







OP AIRCRAFT LOA UP TO 10 AMPERE

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Leach conceived the idea for a break-in relay to eliminate many of the frustrations he experienced with the erratic nature of early two-way radio communications. His automatic antenna switch and power relay became the company's first product. Operations were moved to Los Angeles, CA in 1929, and, during the next ten years, the product family was broadened to include other types of relays including time delay relays, aircraft switches, power monitor, power distribution, and aircraft relays for the communications and electrical industries. It was not long before Leach relays became known to aircraft manufacturers and products were developed specifically for aircraft power switching as well as for aircraft communications.











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BIFILAR THE NEW TWIST IN RELAYS!



LEACH



back to 1919 with the development of a single product in a small laboratory in San Francisco. As a radio

operator in the U.S. Navy during World War I, Val

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2-10 Amps	
Solid State Power Controllers	
7.5-150 Amps	

Additional Capabilities

270 VDC	16
	10

POWER DISTRIBUTION SYSTEMS

Leach International Corporation offers a variety of power distribution configurations from electromechanical power management to fully integrated SSPC power management, including control logic and protection. Designed with LEACH[®] components, these assemblies satisfy all specific customer program conditions and requirements for both primary and secondary distribution systems.

Key Features and Concepts Include:

- Modular concept
- Reconfigurable design
- Options for simple or complex packaging
- Distributed or integrated architecture
- Ventilated or environmentally sealed assemblies
- Line replaceable
- Advanced electronic control logic that includes:
 - Built in Test (BIT)
 - Fully re-programmable control logic
 - Current sensing
 - Circuit protection
 - Logic and protection control







Key Features:

- Programmable channels, operating modes, and I²T trip curves
- Optimized packaging, weight, and footprint
- Communication data buses for control and reporting(ARINC 429, CAN, RS422/485, MIL-STD-1553, Ethernet, etc.)
- Built in test (BIT) reporting
- Architectures to achieve safety and environmental requirements
- Full GUI for development
- 270 Vdc Capability





LEACH PRODUCT TYPES AND SPECIFICATIONS

Product Types:

Subminiature Relays (Low level to 75 Amps)

For decades, LEACH® subminiature relays have set the industry standard for technology and reliability. With their proven high performance in the most demanding applications, they are ideal for critical subsea, shipboard, ground-based, space, and aerospace applications.

Balanced Armature Relays (10 Amps to 25 Amps)

LEACH[®] balanced armature relays have been used in commercial and military aircraft, trucks, buses, ships, and tanks – applications that call for proven durability, high performance and long life. Several terminal mounting styles, dust-resistant, moisture-resistant and hermetically-sealed enclosures. A variety of operating ratings and characteristics are available.

Power Contactors (25 Amps to 700 Amps)

LEACH® power contactors are available with optional auxiliary contacts in sealed and unsealed models."Smart" programmable contactors and special mounting styles are also available.

Time Delay Relays (150 mAmps to 25 Amps)

LEACH[®] time delay devices combine the proven capability of industry standard relays with highly reliable hybrid microelectronics timing circuits.

Power Monitors and Sensors (up to 10 Amps)

Designed to meet the requirements of MIL-R-28894, LEACH[®] power monitors and sensors constantly monitor and protect critical AC or DC circuits.

Solid-state Power Controllers (1 Amp to 220 Amps)

Ideal for applications where reliability is key and size and weight are major concerns; LEACH® SSPCs employ a FET output stage and are constructed using thick-film technology, they are hermetically sealed, and mainly metal enclosures.

Product Specifications:

MIL-PRF-39016

This specification covers relays rated from low level to 2 Amps used primarily in electronic and communication equipment. All relays are Established Reliability (ER), and hermetically-sealed types.

MIL-PRF-6106

This specification establishes general requirements for electromechanical relays with contact ratings from 25 amperes resistive (unless otherwise specified) and upward for use in electrical applications. Auxiliary contacts may be rated at lower currents. Relays covered by this specification are capable of meeting the electrical and environmental requirements when mounted directly to the structure of aircraft, missile, spacecraft, ship, and other primary vehicles or in ground support and shipboard equipment. Other ratings may be as specified.

MIL-PRF-83536

This specification covers the general requirements for electromagnetic, hermetically sealed relays for use in aircraft, missile, spacecraft, ship, and other primary vehicles or in ground support equipment. These relays are designed to operate over the full range from low level to power switching with contact ratings up to 25 amperes alternating current (AC) or direct current (DC).

MIL-PRF-83726

This specification establishes the general requirements for time delay relays that are a combination of hybrid microcircuits, solid state electronics with an integral electromagnetic relay, or solid state output. Relays covered by this specification are intended for use in aerospace and associated ground support electrical and electronic systems and equipment

SUBMINIATURE RELAYS 1 - 2 Amps

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Leach Series:	E, D	GP2, GP2	2A, GP250	W260, WE	3260, F250	G	SP5
Rating:	1 Amp	2 A	mps	2 A	mps	24	Amps
Contact configuration:	2 PDT	2 1	PDT	2 F	PDT	2	PDT
Style:	Non-latch or Latch	La	itch	Non	-latch	Nor	n-latch
Designed to:	MIL-PRF-39016	MIL-PR	F-39016	MIL-PR	F-39016	MIL-PF	RF-39016
Qualified or in accordance to:	M39016/34 ESCC3601/012 ESCC3602/019 CECC16101/023	M39016/45 ESCC3602/003 ESCC3602/010		M3 M3 CECC CECC	9016/6 9016/22 16101/014 16101/021	M CECC ESC	39016/6 C16101/014 C3601/003
Electrical Data	E, D	GP2, GP2	2A, GP250	W260, WE	3260, F250	G	P5
Contact load rating (voltage):	28 VDC	28 VDC	115 VAC, 400 Hz	28 VDC	115 VAC, 400 Hz	28 VDC	115 VAC, 400 Hz
Resistive:	1	2	0.3	2	0.3	2	0.3
Inductive:	0.2	0.75		0.75		0.75	
Motor:							
Lamp:	0.1	0.16				0.16	
Nominal coil voltage(s):	6 to 48 VDC	6 to 2	6 VDC	5 to 6	0 VDC	6 to 2	26 VDC
Coil Power @ Nominal:	0.5 W / 0.25 W	1	W	1	W	1.	4 W
Coil Power @ Pick Up:	0.13 W / 0.06 W	0.2	8 W	0.2	8 W	0.2	28 W
Operate time, max. (ms):	4		4		4		4
Environmental Data	E, D	GP2, GP2	2A, GP250	W260, WE	3260, F250	G	P5
Sinusoidal vibration (g):	30 @ 70-3000 Hz 70 @ 70-2000 Hz	30 @ 70 20 @ 70	-3000 Hz -3000 Hz	30 @ 70 20 @ 70	-3000 Hz -3000 Hz	30 @ 70	0-2000 Hz
Shock (g):	75 - 100	1	00	50 -	100	1	100
Temperature range	-65°C to +125°C	-65°C to	o +125°C	-65°C to	o +125°C	-65°C t	o +125°C
Mechanical Data	E, D	GP2, GP2	2A, GP250	W260, WE	3260, F250	G	P5
Weight, max:	<0.129 oz. (4 g.)	<0.3 (10	53 oz.) g.)	<0.3 (10	2 oz.) g.)	<0.3 (1	54 oz. 1 g.)
Dimensions, max. (in.):	0.504 x 0.236 x 0.409	0.810 x 0.4	410 x 0.410	1.32 x 0.	90 x 0.41	0.803 x	0.409 x 40
Sockets available				S250, SF2500	CE32E, HRCW	S250, SF250	CE32E, HRCW
Mounting styles:	4		4		5		4
Terminal types:	4		3		3		3

SUBMINIATURE RELAYS Low level - 10 Amps

		NATED HANDOOR		Electronic and a second and as second and a					
Leach Series:	X, XL,	XA	Y, YL	L, YA	YC, YCL,	YCA	XC,	XCL	F600, F601
Rating:	Low level to	5 Amps	Low level	to 5 Amps	Low level to	10 Amps	Low level t	to 10 Amps	Low level to 10 Amps
Contact configuration:	2 PD	Т	4 P	PDT	3 PD	Т	1 F	PDT	6 PDT
Style:	Non-latch ar	nd Latch	Non-latch	and Latch	Non-latch ar	nd Latch	Non-latch	and Latch	Non-latch
Designed to:	XA, XL: MIL X: MIL-PF	-PRF-6106 RF-83536	YA, YL: N Y: MIL-	/IL-PRF-6106 PRF-83536	YCL, YCA: MIL YC: MIL-PR	-PRF-6106 F-83536	MIL-PF	RF-6106	M83536/25, 26
Qualified to:	X: M835 XL: M6	536/1, 2 106/38	Y: M8 YL: N	33536/5, 6 M6106/39	YC: M8353 YCL: M61	6/21, 22 06/40			CECC16101/020 CECC16303/806
Electrical Data	X, XL,	XA	Y, YI	L, YA	YC, YCL,	YCA	XC,	XCL	F600, F601
Contact rating (Amps)	28 VDC	115 VAC 400 Hz	28 VDC	115 VAC 400 Hz	28 VDC	115 VAC 400 Hz	28 VDC	115 VAC 400 Hz	28 VDC
Resistive:	5	5	5	5	10	10	10	10	10
Inductive:	3	5	3	5	6	8	6	8	8
Motor:	2	3	2	3	4	4	4	4	4
Lamp:	1	1	1	1	2	2	2	2	2
Nominal coil voltage(s)									
Coil Power @ Nominal:									
Coil Power @ Pick Up:									
DC Non-latch::	6/12/28/48	3 VDC	6/12/28/	/48 VDC	6/12/28/48	3 VDC	6/12/28/	/48 VDC	12/28/48/110/ VDC
DC Latch:	6/12/28	VDC	6/12/2	8 VDC	6/12/28	VDC	6/12/2	8 VDC	
AC Coil:	28, 115/20 50-400	0 VAC Hz	28, 115/2 50-40	200 VAC 00 Hz	28, 115/20 50-400	0 VAC Hz			28, 115 VAC 60-400 Hz
Coil resistance(s) (Ohms)	X, XL,	XA	Y, YL	l, YA	YC. YCL	YCA	XC	XCL	F600, F601
							, , ,		
DC Non-latch::	30/125/500	0/1600	25/100/4	400/1275	25/100/40	0/1275	25/125/5	500/1600	
DC Non-latch:: DC Latch:	30/125/500 43/182/	D/1600 730	25/100/4 37/14	400/1275 18/600	25/100/40 600	0/1275	25/125/5 73	500/1600 30	
DC Non-latch:: DC Latch: AC Coil, Current, I max.	30/125/500 43/182/ .100/.040	0/1600 730 /.024	25/100/4 37/14 .120/.04	400/1275 18/600 40/.028	25/100/40 600 .120/.040	0/1275 //.028	25/125/5 73	500/1600 30	0.06
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms)	30/125/500 43/182/ .100/.040	0/1600 730 /.024	25/100/4 37/14 .120/.04	400/1275 18/600 40/.028	25/100/40 600 .120/.040	0/1275 //.028	25/125/E 7:	500/1600 30	0.06
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch::	30/125/500 43/182/ .100/.040	0/1600 730 /.024	25/100/4 37/14 .120/.0-	400/1275 18/600 40/.028 6	25/100/40 600 .120/.040 6	0/1275 //.028	25/125/5	500/1600 30 6	0.06
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch:	30/125/500 43/182/ .100/.040 4 4 4	0/1600 730 /.024	25/100/4 37/14 .120/.0- 6 6	400/1275 18/600 40/.028 6 6	25/100/40 600 .120/.040 6 15	0/1275 //.028	25/125/5 7; (500/1600 30 6 6	0.06
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DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms)	30/125/500 43/182/ .100/.040 4 4 4 12	0/1600 730 /.024	25/100/4 37/14 .120/.0- 6 6 1	400/1275 18/600 40/.028 6 6 5 5	25/100/40 600 .120/.040 6 15 6	0/1275	25/125/5	500/1600 30 6 6	0.06
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch::	30/125/500 43/182/ .100/.040 4 4 4 12 4 4	0/1600 730 /.024	25/100/4 37/14 .120/.0- 6 6 1 1	400/1275 18/600 40/.028 6 6 5 5 5 6 6	25/100/40 600 .120/.040 6 15 6 25	0/1275	25/125/5	500/1600 30 6 6 6	0.06 15 20 10
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms)	30/125/500 43/182/ .100/.040 4 4 4 12 4 4 4 10	0/1600 730 /.024	25/100/4 37/14 .120/.0 6 6 7 1 1 6 6 2 1	400/1275 18/600 40/.028 6 6 5 5 6 6 25 0	25/100/40 600 .120/.040 6 15 6 6 25 1.0	0/1275	25/125/5	500/1600 30 6 6 6	0.06 15 20 10 50
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms):	30/125/500 43/182/ .100/.040 4 4 4 12 4 4 4 4 1.0	0/1600 730 /.024	25/100/4 37/14 .120/.0- 6 6 2 2 1 2 2 1	400/1275 18/600 40/.028 6 6 5 5 6 5 5 6 5 .0 ×0	25/100/40 600 .120/.040 6 15 6 25 1.0 25	VCA	25/125/5 7: (((() () () () () () () ()	500/1600 30 6 6 6 6 6	0.06 15 20 10 50 1.0 E600 E601
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms): Environmental Data	30/125/500 43/182/ .100/.040 4 4 4 12 4 4 4 4 1.0 X, XL, 20 @ 70 20	0/1600 730 /.024 XA	25/100/4 37/14 .120/.0- 6 6 1 1 6 2 2 1. 7, YI 20 © 70	400/1275 18/600 40/.028 6 6 5 5 6 6 5 5 .0 L, YA 2000 Hz	25/100/40 600 .120/.040 6 15 6 6 25 1.0 YC, YCL, 20 © 70.3	0/1275 //.028 YCA	25/125/5 7: ((((((((((((((((((6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0.06 15 20 10 50 1.0 F600, F601
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g):	30/125/500 43/182/ .100/.040 4 4 4 12 4 4 4 1.0 X, XL, 30 @ 70-30	0/1600 730 /.024 XA XA	25/100/4 37/14 .120/.0- 6 6 7 1 1 7 7 7 1 30 @ 70	400/1275 48/600 40/.028 6 6 6 5 5 6 6 5 5 6 6 5 5 1 6 1 5 1 1 1 1 1 1 1 1 1 1 1 1 1	25/100/40 600 .120/.040 6 15 6 15 6 25 1.0 YC, YCL, 30 @ 70-3	V/.028 V/.028 YCA 000 Hz	25/125/5 7; (((() () () () () () () ()	500/1600 30 6 6 6 6 6 .0 XCL -3000 Hz	0.06 15 20 10 50 1.0 F600, F601 30 @ 75-3000 Hz
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DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range Mechanical Data Weight, max: Dimensions, max. (in.):	30/125/500 43/182/ .100/.040 4 4 4 4 12 4 4 4 4 1.0 X, XL, 30 @ 70-30 50 - 20 .70°C to + .70°C to + .0.56 oz (* 0.810 x 0.410	D/1600 730 /.024 XA 000 Hz 125°C 125°C 16 g.) 0 x 0.640	25/100/4 37/14 .120/.0- 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	400/1275 48/600 40/.028 6 6 6 5 5 6 6 5 5 6 6 5 5 6 6 5 5 6 6 5 5 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	25/100/40 600 .120/.040 6 15 6 6 25 1.0 YC, YCL, 30 @ 70-3 50 - 2 -70°C to + YC, YCL, 1.09 oz. (0.810 x 0.811	V.028 V.028 V.028 V.028 V.028 VCA VCA 31 g.) 0 x 0.640	25/125/5 7: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	500/1600 30 6 6 6 6 .0 XCL -3000 Hz - 200 0 +125°C XCL (16 g.) 110 x 0.640	0.06 15 20 10 50 1.0 F600, F601 30 @ 75-3000 Hz 50 -65°C to +125°C F600, F601 3.054 oz. (95 g.) 1.484 x 1.024 x 1.012
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range Mechanical Data Weight, max: Dimensions, max. (in.):	30/125/500 43/182/ .100/.040 4 4 4 4 12 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	D/1600 730 /.024 /	25/100/4 37/14 .120/.0- 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	400/1275 40/.028 40/.028 6 6 5 5 6 6 5 5 6 6 5 5 6 6 5 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	25/100/40 600 .120/.040 6 15 6 25 1.0 YC, YCL, 30 @ 70-3 50 - 2 -70°C to + YC, YCL, 1.09 oz. (0.810 x 0.811 YC, YCL,	YCA V.028 YCA 000 Hz 00 125°C YCA 31 g.) 0 x 0.640 YCA	25/125/5 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	500/1600 30 6 6 6 6 .0 XCL -3000 Hz - 200 +125°C XCL (16 g.) +10 x 0.640 XCL	0.06 15 20 10 50 1.0 F600, F601 30 @ 75-3000 Hz 50 -65°C to +125°C F600, F601 3.054 oz. (95 g.) 1.484 x 1.024 x 1.012 F600, F601
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms) Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range Mechanical Data Weight, max: Dimensions, max. (in.): Sockets available Non-latch DC Coil:	30/125/500 43/182/ .100/.040 4 4 4 4 12 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	D/1600 730 (.024 24 20 20 20 20 20 20 20 20 20 20 20 20 20	25/100/4 37/14 .120/.0- 6 6 7 7 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	400/1275 48/600 40/.028 6 6 5 5 6 6 5 5 6 6 5 5 6 6 5 5 6 6 7 7 8 6 7 7 8 1	25/100/40 600 .120/.040 6 15 6 6 25 1.0 YC, YCL, 30 @ 70-3 50 - 2 -70°C to + YC, YCL, 1.09 oz. (0.810 x 0.810 YC, YCL, SO-1065	V/.028 V/	25/125/5 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	500/1600 30 6 6 6 6 .0 XCL -3000 Hz - 200 0 +125°C XCL (16 g.) 410 x 0.640 XCL 4-10425	0.06 0.06 15 20 10 50 1.0 F600, F601 30 @ 75-3000 Hz 50 -65°C to +125°C F600, F601 3.054 oz. (95 g.) 1.484 x 1.024 x 1.012 F600, F601 S600
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Shock (g): Temperature range Mechanical Data Weight, max: Dimensions, max. (in.): Sockets available Non-latch DC Coil: Latch DC Coil:	30/125/500 43/182/ .100/.040 4 4 4 4 12 4 4 4 4 1.0 X, XL, 30 @ 70-31 50 - 20 -70°C to + 0.56 oz (1 0.810 x 0.410 X, XL, SO-1064 SO-1064	D/1600 730 730 730 730 730 730 730 730 730 7	25/100/4 37/14 .120/.0 6 6 7 7 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	400/1275 48/600 40/.028 6 6 6 5 5 5 6 6 6 6 5 5 6 6 6 6 6 6 6 6 7 7 8 6 6 7 8 7 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	25/100/40 600 .120/.040 6 15 6 15 6 25 1.0 YC, YCL, 30 @ 70-3 50 - 2 -70°C to + YC, YCL 1.09 oz. (0.810 × 0.811 YC, YCL SO-1065 SO-1065	V/028 V/.028 V/.028 V/.028 V/.028 V/CA V/CA V/CA V/CA V/CA V/CA V/CA V/CA	25/125/5 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	500/1600 30 30 6 6 6 6 .0 XCL .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .200 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4	0.06 15 20 10 50 1.0 F600, F601 30 @ 75-3000 Hz 50 -65°C to +125°C F600, F601 3.054 oz. (95 g.) 1.484 x 1.024 x 1.012 F600, F601 S600 SF600
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms): Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Shock (g): Temperature range Mechanical Data Weight, max: Dimensions, max. (in.): Sockets available Non-latch DC Coil: Latch DC Coil:	30/125/500 43/182/ .100/.040 4 4 4 4 12 4 4 4 4 4 4 4 1.0 X, XL, 30 @ 70-30 50 - 20 50	D/1600 730 730 730 730 730 730 730 730 730 7	25/100/4 37/14 .120/.0 6 6 7 7 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	400/1275 18/600 40/.028 6 6 6 5 5 6 6 6 7 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	25/100/40 600 .120/.040 6 15 6 6 25 1.0 YC, YCL 30 @ 70-3 50 - 2 -70°C to + YC, YCL 1.09 oz. (0.810 x 0.811 YC, YCL 50-1065 SO-1065	YCA V.028 YCA 000 Hz 00 125°C YCA 31 g.) 0 x 0.640 YCA 5-001 10392	25/125/5 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	500/1600 30 30 6 6 6 6 .0 XCL -3000 Hz - 200 0 +125°C XCL (16 g.) 410 x 0.640 XCL 4-10425 4-10534	0.06 15 20 10 50 1.0 F600, F601 30 @ 75-3000 Hz 50 -65°C to +125°C F600, F601 3.054 oz. (95 g.) 1.484 x 1.024 x 1.012 F600, F601 S600 SF600 SF600
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Shock (g): Cheprenature range Mechanical Data Mechanical Data Non-latch DC Coil: Latch DC Coil: 28 VAC Coil:	30/125/500 43/182/ .100/.040 4 4 4 4 12 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	D/1600 730 /.024 /.024 /.024 /.024 /.024 /.02 /.02 /.02 /.02 /.02 /.02 /.02 /.02	25/100/4 37/14 .120/.0- 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	400/1275 18/600 40/.028 6 6 5 5 5 6 6 6 5 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	25/100/40 600 .120/.040 6 15 6 6 25 1.0 YC, YCL 30 @ 70-3 50 - 2 -70°C to + YC, YCL, 1.09 oz. (0.810 x 0.810 YC, YCL 50-1065 SO-1065- SO-1065-	YCA V.028 V.02	25/125/5 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	500/1600 500/1600 30 6 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	0.06 15 20 10 50 1.0 F600, F601 30 @ 75-3000 Hz 50 -65°C to +125°C F600, F601 3.054 oz. (95 g.) 1.484 x 1.024 x 1.012 F600, F601 S600 SF600 SF600 S601 S601
DC Non-latch:: DC Latch: AC Coil, Current, I max. Operate time, max. (ms) DC Non-latch:: DC Latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Chromperature range Mechanical Data Non-latch DC Coil: Cockets available Non-latch DC Coil: Latch DC Coil: 28 VAC Coil: 28 VAC Coil:	30/125/500 43/182/ .100/.040 4 4 4 4 12 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	D/1600 730 (.024 	25/100/4 37/14 .120/.0- 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	400/1275 18/600 40/.028 6 6 5 5 6 6 5 5 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	25/100/40 600 .120/.040 6 15 6 6 25 1.0 YC, YCL, 30 @ 70-3 50 - 2 -70°C to + YC, YCL, 1.09 oz. (0.810 x 0.810 YC, YCL, 0.810 x 0.810 YC, YCL, SO-1065 SO-1065- SO-1065- SO-1065- SO-1065-	V/028 V/.028 V/.028 V/.028 V/.028 V/.028 V/.02 V/.02 V/.02 V/.02 V/.02 V/.02 V/.02 V/.02 V/.02 V/.02 V/.02 V/.02 V/.02 V/.028 V/	25/125/5 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7: 7:	500/1600 500/1600 30 30 6 6 6 6 .0 XCL .2000 Hz .200 0 +125°C XCL (16 g.) 410 x 0.640 XCL 4-10425 4-10534 5	0.06 15 20 10 50 1.0 F600, F601 30 @ 75-3000 Hz 50 -65°C to +125°C F600, F601 3.054 oz. (95 g.) 1.484 x 1.024 x 1.012 F600, F601 S600 SF600 SF600 SF600 4

SUBMINIATURE RELAYS Low level - 75 Amps

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Leach Series:	J, JL	., JA	K, K	L, KA	JC, JC/ JS, JS	A, JCL SA, JL	KC, KC	A, KCL	KD, KI	DA, KDL	KN KXD, K	1, KX XL, KXDL
Rating:	Low level to	12 Amps ‡	Low level to	o 12 Amps ‡	Low level to	o 25 Amps	Low level to	o 25 Amps	Low level	to 25 Amps	50-75	5 Amps
Contact configuration:	2 PI	DT	4 F	PDT	1 P	DT	3 P	DT	3 PST/N	O, 2 Amps	1 PST/DM or	DB, 2 Amps 1
Ū									1 PD	T Aux.	P	ST
Style:	Non-latch a	and Latch	Non-latch	and Latch	Non-latch a	and Latch	Non-latch	and Latch	Non-latch	and Latch †	Non-latch	n and Latch
Designed to:	MIL-PRF	-83536	MIL-PR	F-83536	MIL-PR	F-6106	MIL-PR	F-6106	MIL-PF	RF-6106	MIL-PI	RF-6106
Qualified to:	M83536/9, 10	0, 11, 12, 13	M83536/15	, 16, 17, 18,	JC, JS: M	16106/19	KC: M835	536/32/33	KD, KDA	: M6106/13		
Electrical Data		10		9	JCL: MG	0106/20	KCL: M	S21142	KDL: N	16106/12		
Electrical Data		, JA		L, KA	JU, JUA, JUL	, JS, JSA, JL		A, KUL		JA, KUL		D, KXL, KXDL
Contact rating (Amps).	20 VDC	400 Hz	20 VDC	400 Hz	20 VDC	400 Hz	20 VDC	400 Hz	20 VDC	400 Hz	20 VDC	400 Hz
Resistive:	12	12	12	12	25	25	25	25	25	25	75	50
Inductive:	8	8	8	8	12	15	12	15	12	15	20	15
Motor:	4	4	4	4	10	10	10	10	10	10	20	8
Lamp:	2	2	2	2	5	4	5	5	5	5	10	
Nominal coil voltage(s):												
Coil Power @ Nominal:												
Coil Power @ Pick Up:												
DC Non-latch:	6/12/28/4	48 VDC	6/12/28	/48 VDC	6/12/28/4	48 VDC	6/12/28/	48 VDC	6/12/28	3/48 VDC	6/12/28 VD	C 28 VDC
DC Latch:	6/12/28/4	48 VDC	6/12/28	/48 VDC	6/12/28/4	48 VDC	6/12/28/	48 VDC	6/12/28	3/48 VDC	6/12/28 VD	C 28 VDC
AC Coil:	28, 115/2 50-40	200 VAC 10 Hz	28, 115/ 50-4(200 VAC 00 Hz	28, 115/2 50-40	200 VAC 0 Hz	28, 115/2 50-40	200 VAC)0 Hz	28, 115 50-4	/200 VAC 00 Hz		
Coil resistance(s) (Ohms)	J. JL	JA	K. K	L. KA	JC. JCA. JCL	. JS. JSA. JL	KC. KC	A. KCL	KD. KI	DA. KDL	KM. KX. KX	D. KXL. KXDL
DC Non-latch:	20/80/32	20/1000	18/70/2	290/890	20/100/20	0/4000	40/70/0	00/000	10/70/	,	40/70/00	00 200
	20/00/32		10/10/2		20/80/32	20/1000	18/70/2	90/890	10/10/	290/890	18/70/23	90 Z90
DC Latch:	38/150/6	00/1600	28/112/4	150/1500	38/150/6	00/1600	28/112/4	50/1500	28/112/	450/1500	28/112/4	50 290 50 450
DC Latch: AC Coil, Current, I max.:	38/150/6	00/1600 40/.024	28/112/4	40/.028	38/150/6	00/1600 40/.024	28/112/4	50/1500 40/.028	28/112/	450/1500 040/.028	28/112/4	50 450 120
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms)	38/150/6	00/1600 40/.024	28/112/4	450/1500 40/.028	20/80/32 38/150/6 .100/.04	20/1000 00/1600 40/.024	18/70/2 28/112/4 .120/.04	90/890 50/1500 40/.028	28/112/ .120/.0	450/1500 040/.028	-	50 450 120
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch:	38/150/60 .240/.04	00/1600 40/.024 0	28/112/4 .120/.0	450/1500 40/.028 5	20/80/32 38/150/6 .100/.04	20/1000 00/1600 40/.024	18/70/2 28/112/4 .120/.04	50/1500 40/.028 5	28/112/ .120/.0	450/1500 040/.028 15	-	50 450 120 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch:	38/150/60 .240/.04 10	00/1600 40/.024 0 0	28/112/4 .120/.0	450/1500 40/.028 5 5	20/80/32 38/150/6 .100/.04 10	00/1600 00/1600 10/.024 0 0	18/70/2 28/112/4 .120/.04 1: 1:	50/1500 40/.028 5 5 5	.120/.0	450/1500 040/.028 15 15	-	50 450 120 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil:	38/150/60 .240/.04 10 10	00/1600 40/.024 0 0 5	28/112/4 .120/.0 1 1 2	450/1500 40/.028 5 5 5 20	20/80/32 38/150/6 .100/.04 10 10	20/1000 00/1600 40/.024 0 0 0 5	18//0/2 28/112/4 .120/.04 1: 1: 1: 2:	50/1500 40/.028 5 5 5 0	10/70/ 28/112/ .120/.0	290/890 450/1500 040/.028 15 15 20	-	50 450 120 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms)	2000/22 38/150/60 .240/.04 10 10	00/1600 40/.024 0 0 5 5	28/112/4 .120/.0 1 28/112/4 .120/.0	450/1500 40/.028 5 5 5 20	20/80/32 38/150/6 .100/.04 10 10	00/1000 00/1600 10/.024 0 0 5	18/70/2 28/112/4 .120/.04 1: 1: 1: 2:	50/890 50/1500 40/.028 5 5 5 0	28/112/ .120/.0	250/850 450/1500 040/.028 15 15 20	-	50 450 120 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch:	2000/22 38/150/60 .240/.04 10 10 10	00/1600 40/.024 0 0 5 5 0	28/112/4 .120/.0 1 1 2 1 1 2 1	450/1500 40/.028 5 5 5 5 20 5 5	20/80/32 38/150/6 .100/.04 10 10 10	00/1000 00/1600 10/.024 0 0 0 5 5 0	18/10/2 28/112/4 .120/.04 1: 1: 2: 2: 1: 2: 1:	50/890 50/1500 40/.028 5 5 5 0 0 5 5	18/10/ 28/112/ .120/.0	250/890 450/1500 040/.028 15 15 15 20 15 15	28/112/4	50 450 120 15 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil:	2000/22 38/150/6 .240/.04 10 10 11 11 10 10 50	00/1600 40/.024 0 0 5 5 0 0 0	18/112/4 28/112/4 .120/.0 1 1 2 2 1 5	450/1500 40/.028 5 5 5 5 20 5 5 5 5 5 5 5 5 5 5 5 5 5 5	20/80/32 38/150/6 .100/.04 10 10 10 10 11 10 50	00/1000 00/1600 10/.024 0 0 0 5 5 0 0	18/10/2 28/112/4 .120/.04 1: 1: 2: 1: 2: 1: 5: 5:	50/890 50/1500 40/.028 5 5 5 0 0 5 0	16/70/ 28/112/ .120/.0	250/890 450/1500 040/.028 15 15 20 15 15 50	-	50 450 120 15 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms):	2000/22 38/150/6 .240/.04 10 10 10 10 10 10 10 50 1.1	00/1600 40/.024 0 0 0 5 5 0 0 0 0 0	28/112/4 .120/.0 1 1 2 1 2 2 1 5 5 1	450/1500 40/.028 5 5 5 5 20 5 5 5 5 5 0 20 20 20 20 20 20 20 20 20 20 20 20 2	20/80/32 38/150/6 .100/.04 10 10 10 10 10 50 50	00/1000 00/1600 10/.024 0 0 5 5 5 0 0 0 0	18/10/2 28/112/4 .120/.04 1: 1: 2: 1: 5: 5: 1.	50/890 50/1500 40/.028 5 5 5 0 5 5 0 5 0 0 0	16/70/ 28/112/ .120/.0	250/850 450/1500 040/.028 15 15 20 20 15 50 50 Aux. 4)	18/70/23 28/112/4 -	50 450 120 15 15 15 15 15 .0 (Aux. 4)
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data	38/150/6/ .240/.04 10(11(11(11(11(50(1.1) 1.1) J, JL	00/1600 40/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .120/.0 1 1 2 1 2 1 5 5 1 4 5 5	450/1500 40/.028 55 55 60 55 50 50 60 60 60 60 60 60 60 60 60 60 60 60 60	20/80/32 38/150/6 .100/.04 10 10 10 11 10 50 50 1. JC, JCA, JCL	00/1000 00/1600 10/.024 0 0 0 5 5 5 5 5 7 0 0 0 0 0 0 0 0 0 0 0	18/10/2 28/112/4 .120/.04 1: 1: 2: 1: 5: 1. KC, KC	50/890 50/1500 40/.028 5 5 5 0 0 5 0 0 0 0 4, KCL	16/70/ 28/112/ .120/.0	250/850 450/1500 040/.028 15 15 15 20 15 50 4ux. 4) DA, KDL	1.0 1 KM, KX,	50 450 120 15 15 15 15 .0 (Aux. 4) KXD, KXL
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g):	38/150/6 .240/.04 10 10 10 10 10 10 50 1.1 1.1 30 @ 70-	00/1600 40/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .120/.0 1 1 2 1 2 1 5 5 1 5 5 1 5 30 @ 70	450/1500 40/.028 55 55 60 55 50 50 60 60 60 60 60 60 60 60 60 60 60 60 60	20/80/32 38/150/6 .100/.04 10 10 10 10 50 50 1. JC, JCA, JCL 30 @ 70-	00/1000 00/1600 10/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18/10/2 28/112/4 .120/.04 1: 1: 2: 1: 5: 1. KC, KC 30 @ 70-	50/890 50/1500 40/.028 5 5 5 0 0 5 0 0 0 4, KCL -3000 Hz	16/70/ 28/112/ .120/.0	290/890 450/1500 040/.028 15 15 15 20 15 50 15 50 Aux. 4) DA, KDL 0-3000 Hz	1.0 1 1.0 1 KM, KX, 30 @ 7(20 @ 7(50 450 120 15 15 15 15 .0 (Aux. 4) KXD, KXL 0-3000 Hz 0-3000 Hz
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g):	38/150/6/ .240/.04 10 10 10 10 10 50 10 1.1 30 @ 70- 100 -	00/1600 40/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .120/.0 1 1 2 1 2 1 5 1 5 1 K, K 30 @ 70 100	450/1500 40/.028 5 5 5 5 20 5 5 5 5 5 0 0 5 5 0 0 2 0 2	20/80/32 38/150/60 .100/.04 10 10 10 10 10 50 1.1 JC, JCA, JCL 30 @ 70- 100 -	00/1000 00/1600 10/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18/10/2 28/112/4 .120/.04 1: 1: 2: 1: 5: 1. KC, KC 30 @ 70-	50/890 50/1500 40/.028 5 5 5 0 0 5 0 0 0 0 A, KCL -3000 Hz	28/112/ .120/.0	250/890 450/1500 040/.028 15 15 20 15 50 Aux. 4) DA, KDL 0-3000 Hz - 200	1.0 1 KM, KX, 30 @ 7(20 @ 7(50 450 120 15 15 15 15 .0 (Aux. 4) KXD, KXL 0-3000 Hz 2-3000 Hz 50
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range	38/150/6 .240/.04 10 10 10 10 10 50 1.1 30 @ 70- 100 - -70°C to	00/1600 40/.024 0 0 5 5 0 0 0 0 0 0 3 00 0 3 3000 Hz 200 +125°C	28/112/4 .120/.0 1 1 1 2 1 2 1 1 5 1 1 K, K 30 @ 70 100 -70°C tc	450/1500 40/.028 5 5 5 20 5 5 30 5 5 30 5 5 30 5 5 30 4 4 4 5 5 30 4 4 4 5 5 5 30 4 4 4 4 5 5 5 5 4 2 4 5 5 5 5 5 4 2 4 9 4 9 4 9 4 9 4 9 4 9 4 9 4 9 4 9	20/80/32 38/150/60 .100/.04 10 10 10 10 10 50 1. JC, JCA, JCL 30 @ 70- 100 - -70°C to	2011000 00/1600 10/.024 0 0 5 5 0 0 0 , JS, JSA, JL 200 +125°C	18/70/2 28/112/4 .120/.04 1: 1: 2: 1: 5: 1. KC, KC 30 @ 70- 100 - -70°C to	50/890 50/1500 40/.028 5 5 5 0 0 5 0 0 0 0 A, KCL -3000 Hz -200 +125°C	10/10/ 28/112/ .120/.0	250/890 450/1500 040/.028 15 15 20 15 50 4ux. 4) DA, KDL 0-3000 Hz - 200 0 +125°C	1.0 1 1.0 1 KM, KX, 30 @ 7(20 @ 7(-70°C t	50 250 50 450 120 15 15 15 15 .0 (Aux. 4) KXD, KXL 0-3000 Hz 50 0 +125°C
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range	38/150/6/ .240/.04 10 10 10 11 10 10 10 10 10 10 100 - -70°C to J, JL	00/1600 40/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .120/.0 1 1 2 1 1 2 2 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 5 1 1 5 5 1 1 2 7 0 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 2 7 1 1 2 7 1 1 1 2 1 1 2 1 1 1 2 1 1 1 1	450/1500 40/.028 5 5 5 20 5 5 60 .0 1, KA -3000 Hz - 200 0 +125°C L, KA	20/80/32 38/150/6 .100/.04 10 10 10 10 10 10 10 50 10 10 50 10 10 50 10 10 50 10 10 50 10 10 50 10 10 10 10 10 10 10 10 10 1	20/1000 00/1600 10/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18/70/2 28/112/4 .120/.04 1: 1: 2: 1: 5: 1. KC, KC 30 @ 70- 100 - -70°C to KC, KC	50/890 50/1500 40/.028 5 5 5 0 0 5 0 0 5 0 0 0 8 , KCL 200 +125°C A, KCL	28/112/ 28/112/ .120/.0	250/890 450/1500 040/.028 15 15 20 15 50 404.40 15 50 404.40 20 20 40 20 40 20 20 20 20 20 20 20 20 20 20 20 20 20	18/70/25 28/112/4 - - - - - - - - - - - - - - - - - - -	50 450 120 15 15 15 15 15 15 15 15 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range Mechanical Data Weight, max. (oz./grams):	38/150/6 .240/.04 10 10 10 10 10 10 10 10 10 10 100 - -70°C to J, JL 1.4 oz.	00/1600 40/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .28/112/4 .120/.0 1 1 2 1 2 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 1 5 5 1 1 2 7 0 1 1 2 7 0 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 2 7 1 2 7 1 1 2 7 1 1 2 7 1 1 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 2 7 1 1 1 1	450/1500 40/.028 5 5 5 5 20 5 5 60 .0 1, KA -3000 Hz - 200 0 + 125°C L, KA - 200 0 + 125°C L, KA	20/80/32 38/150/6 .100/.04 10 10 10 10 10 10 10 100 - -70°C to JC, JCA, JCL 1.6 oz.	2000 2007 2007 2007 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2000 2007 200 200	18/70/2 28/112/4 .120/.04 1: 1: 2: 1: 5: 1. KC, KC 30 @ 70- -70°C to KC, KC 3.0 oz.	50/890 50/1500 40/.028 5 5 5 0 0 5 0 0 5 0 0 0 8, KCL -3000 Hz -200 +125°C A, KCL (85 g.)	28/112/ 28/112/ .120/.0	250/890 450/1500 040/.028 15 15 20 15 50 40x. 4) DA, KDL 0-3000 Hz - 200 0 + 125°C DA, KDL . (85 g.)	18/70/25 28/112/4 - - - - - - - - - - - - - - - - - - -	50 450 120 120 15 15 15 15 15 15 15 15 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range Mechanical Data Weight, max. (oz./grams): Dimensions, max. (in.): (L x W x H)	38/150/6 .240/.04 10 10 10 10 10 10 10 50 10 10 50 10 10 50 10 10 -70°C to J, JL 1.4 oz. 1.4 oz. 1.1 2.1025 x 0 AC: 1.025 x 0 1.125	00/1600 40/.024 0 0 0 5 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .120/.0 1 1 1 2 1 2 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 0 0 70 0 100 -70°C to K, K 2.5 o AC: 2.7 o 1.025 x 0.0	450/1500 40/.028 55 55 60 55 60 55 60 60 60 60 75 60 75 75 70 70 70 70 70 70 70 70 70 70 70 70 70	20/80/32 38/150/6 .100/.04 10 10 10 10 10 10 10 10 10 10	201000 00/1600 10/.024 0 0 5 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18/70/2 28/112/4 .120/.04 1: 1: 2: 1: 2: 1: 5: 1: KC, KC 30 @ 70- 100 - -70°C to KC, KC 3.0 oz. 1.025 x 1.0	50/890 50/1500 40/.028 5 5 5 0 0 5 5 0 0 5 5 0 0 5 5 0 0 5 5 0 0 4 X KCL (85 g.) 125 x 1.010	28/112/ .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .100 .100 .70°C to KD, KU .3.0 oz .1.025 x 1.	250/890 450/1500 040/.028 15 15 20 15 50 Aux. 4) DA, KDL 0-3000 Hz - 200 0 + 125°C DA, KDL C, (85 g.) 025 x 1.010	1.0 1 1.0 1 KM, KX, 30 @ 7(20 @ 70 -70°C to KM, KX, 3.0 oz 1.025 x 1	50 450 120 15 15 15 15 15 15 15 15 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range Mechanical Data Weight, max. (oz./grams): Dimensions, max. (in.): (L x W x H)	2000/22 38/150/6 .240/.04 10 10 10 10 50 10 50 10 10 10 -70°C to 1, JL 1.4 oz. DC:1.025 x 0 AC: 1.025 1.11 J, JL	00/1600 40/.024 0 0 0 5 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .120/.0 1 1 2 1 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 1 2 1 2 1 2 1 2 1 2 1 1 2 1 2 1 1 1 2 2 1 1 2 1 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 2 1	450/1500 40/.028 5 5 5 20 5 5 30 5 5 30 5 5 30 5 5 30 5 5 30 5 5 30 4 5 5 30 4 4 5 5 30 4 4 4 5 5 5 30 4 4 4 5 5 5 30 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5	20/80/32 38/150/6 .100/.04 10 10 10 10 10 50 10 10 10 10 -70°C to JC, JCA, JCL 1.6 oz. DC:1.015 x 0 AC:1.015 x 0	2001000 200/1600 40/.024 200 55 200 5, JS, JSA, JL 200 4125°C 5, JS, JSA, JL 200 5, JS, JSA, JL 200 5, JS, JSA, JL 200 200 200 200 200 200 200 20	18/70/2 28/112/4 .120/.04 11 120/.04 11 12 12 12 12 12 12 12 12 12 12 12 12	90/890 50/1500 40/.028 5 5 5 0 0 5 0 0 0 5 0 0 0 0 A, KCL 3000 Hz - 200 +125°C A, KCL (85 g.) 25 x 1.010 A, KCL	28/112/ .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .100 .70°C tr KD, KI 3.0 oz .1.025 x 1.	250/890 450/1500 040/.028 15 15 20 15 50 15 50 Aux. 4) DA, KDL DA, KDL 0, KDL 025 x 1.010 DA, KDL	1.0 1 KM, KX, 3.0 0 7(2.0 0 7(-70°C th KM, KX, 3.0 0 zz	50 250 50 450 120 15 15 15 15 15 15 15 15 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Cnvironmental Data Sinusoidal vibration (g): Shock (g): Temperature range Mechanical Data Weight, max. (oz./grams): Dimensions, max. (in.): (L x W x H) Sockets available Non-latch DC Coil:	38/150/6/ 38/150/6/ 240/.04 10 10 10 10 10 50 10 10 10 10 10 10 10 10 10 10 10 10 10	00/1600 40/.024 0 0 0 5 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .28/112/4 .120/.0 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 2 1 1 2 1 2 1 1 2 1 2 1 2 1 1 2 1 2 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 2 1	450/1500 40/.028 5 5 5 5 20 5 5 20 5 5 20 5 5 5 0 20 5 5 5 0 20 4 2 20 4 2 200 4 2 200 4 2 200 4 2 200 4 2 200 4 2 200 4 2 200 2 2 2 2	20/80/32 38/150/6 .100/.04 10 10 10 10 10 50 10 10 100 - -70°C to JC, JCA, JCL 1.6 oz. DC:1.015 x 0 AC:1.015 x 0 JC, JCA, JCL SO-106	00/1000 00/1600 10/.024 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18/70/2 28/112/4 .120/.04 1: 1: 2: 1: 2: 1: 5: 1. 2: 1: 2: 1: 2: 1: 2: 1: 2: 1: 2: 1: 2: 1: 2: 1: 2: 1: 2: 1: 2: 1: 2: 2: 1: 2: 2: 1: 2: 2: 1: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2: 2:	50/890 50/1500 40/.028 5 5 5 0 0 5 0 0 5 0 0 0 A, KCL 4, KCL (85 g.) 25 x 1.010 25 x 1.010 25 x 1.010	28/112/ .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .100 .70°C tr KD, KI 3.0 oz 1.025 x 1. KD, KI SO-10	250/890 450/1500 040/.028 15 15 20 15 50 40x. 4) DA, KDL 0A, KDL 0A, KDL 025 x 1.010 0A, KDL 59-8914	18/70/25 28/112/4 - - - - - - - - - - - - - - - - - - -	50 450 120 15 15 15 15 15 15 15 15 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Temperature range Mechanical Data Weight, max. (oz./grams): Dimensions, max. (in.): (L x W x H) Sockets available Non-latch DC Coil:	38/150/6/ 38/150/6/ 240/.04 10 10 10 10 50 10 50 10 10 -70°C to 1,1 100 - -70°C to 100 - -70°C to 100 - -70°C to 100 - 2,0°C to 1,1 1.4 oz. 1.4 oz. 1.1 2,1 2,1 2,1 2,1 2,1 2,1 2,1 2,1 2,1 2,	00/1600 40/.024 0 0 0 5 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .120/.0 1 1 1 2 1 1 2 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1	450/1500 40/.028 5 5 5 20 5 5 5 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 5 5 0 0 0 0 1 5 5 0 0 0 0	20/80/32 38/150/6 .100/.04 10 10 10 10 10 10 10 10 10 10	00/1000 00/1600 10/.024 10/	18/70/2 28/112/4 .120/.04 1: 1: 22 1: 22 1: 22 1: 20 20 1: 20 20 1: 20 1: 20 1: 20 1: 20 1: 20 1: 20 1: 20 1: 20 1: 20 1: 20 1: 20 1: 20 20 1: 20 20 1: 20 20 20 20 20 20 20 20 20 20 20 20 20	50/890 50/1500 40/.028 5 5 5 0 0 5 5 0 0 5 5 0 0 5 5 0 0 4 5 5 0 0 4 5 5 0 0 4 5 5 0 0 4 5 5 0 0 4 5 5 0 0 4 7 5 7 0 0 7 7 7 7 7 8 9 12 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	28/112/ 28/112/ .120/.0 .120/.0 .100.0 .1.00 .70°C tr KD, KI 3.0 oz 1.025 x 1. KD, KI SO-10 SO-10	250/890 450/1500 040/.028 15 15 20 15 50 15 50 15 50 4ux. 4) DA, KDL 0-3000 Hz - 200 0 +125°C DA, KDL 0.4 (85 g.) 025 x 1.010 025 x 1.010 025 x 1.010	18/70/25 28/112/4 - - - - - - - - - - - - - - - - - - -	50 450 120 120 15 15 15 15 15 15 15 15 15 15
DC Latch: AC Coil, Current, I max.: Operate time, max. (ms) DC Non-latch: DC Latch: AC Coil: Release time, max. (ms) DC Non-latch: AC Coil: Bounce time, max. (ms): Environmental Data Sinusoidal vibration (g): Shock (g): Shock (g): Temperature range Mechanical Data Weight, max. (oz./grams): Dimensions, max. (in.): (L x W x H) Sockets available Non-latch DC Coil: Latch DC Coil:	2000/22 38/150/6 .240/.04 10 10 10 10 50 10 50 10 10 -70°C to 1,1 30 @ 70- 100 - -70°C to 1,1 1.4 oz. 1.4 oz. 1.4 oz. 1.1 2.5 0.104 3.5 0.104 3.5 0.104	00/1600 40/.024 0 0 0 0 5 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0	28/112/4 .120/.0 1 1 1 2 1 1 2 1 1 2 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 1 1 1 5 5 5 1 1 1 5 5 5 1 1 1 5 5 5 1 1 1 5 5 5 1 1 1 5 5 5 1 1 1 5 5 5 1 1 1 5 5 5 1 1 1 5 5 5 1 1 1 5 5 5 1 1 1 5 5 5 5 1 1 1 5 5 5 5 1 1 1 5	450/1500 40/.028 5 5 5 60 5 5 60 5 5 60 6 5 5 60 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	20/80/32 38/150/6 .100/.04 10 10 10 10 10 10 10 10 10 10	60/1000 60/1000 60/1000 60/1024 10/1024 10/102 1	18/70/2 28/112/4 .120/.04 11 120/.04 11 12 12 12 12 12 12 12 12 12 12 12 12	90/890 50/1500 40/.028 5 5 5 0 0 5 0 0 0 5 0 0 0 4 , KCL 6 5 0 0 0 0 4, KCL (85 g.) 25 x 1.010 (85 g.) 25 x 1.010 (85 g.) 25 x 1.010 (85 g.) 25 x 1.010	 16/10/ 28/112/ .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .120/.0 .100 .10	250/890 450/1500 040/.028 15 15 20 15 20 15 50 Aux. 4) DA, KDL 0-3000 Hz - 200 0 +125°C DA, KDL 0-3000 Hz - 200 0 +125°C DA, KDL 0. (85 g.) 025 x 1.010 025 x 1.010 025 x 1.010	1.0 1 KM, KX, 30 @ 7(2.0 @ 7(2.0 @ 7(50 450 120 15 15 15 15 15 15 15 15 15 15

BALANCED ARMATURE RELAYS 10 - 25 Amps

	NET DE L				
Leach Series:	9330	9274	9324	9325	9339
Rating:	10 Amps	15 Amps	25 Amps	25 Amps	25 Amps
Contact configuration:	2 PDT	4 PDT	3 PST/NO	3 PST-CO/NO	3 PST/NO w/ 2 Amps, 1 PDT
Designed to:	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106
Qualified to:	MS24149	MS24568	MS27418	MS27706	MS6106/41
Electrical Data	9330	9274	9324	9325	9339
Contact rating (Amps)					
@ 28 VDC					
Resistive:	10	10	25 [†]	25 **	25
Inductive:	10	10	15 [†]	15	15
Motor:	6	6	20 †	20	20
Lamp:	2	3	10 †	10 **	10
@ 115 VAC, 400 Hz, 3Ø	9330	9274	9324	9325	9339
Resistive:	10	15	25 †	25 **	25
Inductive:	10	10	25 †	25 **	25
Motor:	6	8 **	20 T	20	20
Lamp:	2	4 **	10 ^T	10 T T	10 #
@ 115 VAC, 50/60 Hz, 3Ø	9330	9274	9324	9325	9339
Resistive:	6	10	25 T	25 **	25
Inductive:	4	6	25	25 **	25
Motor:	3	4	12	12	12
Lamp:	1.5	2	10	10 **	10
Nominal coil voltage(s):	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz*	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz
Resistance, Ohms ±10%:	160Ω	92Ω	160Ω	160Ω (each coil)	160Ω
Operate time max (ms)	9330	9274	9324	9325	0330
DC Coil:	20	25	20	20	20
AC Coil:	20	25	20	20	25
Release time, max. (ms)	20	20	20	20	20
DC Coil:	20	20	10	10	10
AC Coil:	50	50	50	50	50
Bounce time, max. (ms):	2	N/O 3, N/C 5	2	5	2 Aux. 4
Environmental Data	9330	9274	9324	9325	9339
Sinusoidal vibration (g):	10	10	10	10	10
(3)	@ 15-1500 Hz	@ 1000-2000 Hz	@ 55-1500 Hz	@ 55-1500 Hz	@ 55-1500 Hz
Shock (g):	25	50	50	25	50
Temperature range	-70°C to +125°C	-70°C to +125°C	-70°C to +125°C	-70°C to +125°C	-70°C to +125°C
Mechanical Data	9330	9274	9324	9325	9339
Weight, max. (oz./lbs.):	7.04 oz.	12.80 oz.	10.56 oz.	22.7 oz.	7.04 oz.
Dimensions, max. (in.):	2.50 x 1.625 x 2.60	2.062 x 2.062 x 1.807	1.531 x 1.531 x 1.680	3.54 x 3.00 x 3.20	1.531 x 1.531 x 1.680
(L x W x H)					
Option(s) available:	Suppressed DC coil	Suppressed DC coil	Suppressed DC coil	Suppressed DC coil	Suppressed DC coil

* Max. temp. limited to +85° C.

** Value exceeds Mil-Spec.

[†] 440 VAC 60 Hz delta rating, 3.5 amp resistive.

^{††} 25 amp resistive load transfer rating.

 \ddagger Aux. ratings 2 amp resistive, lamp inductive, 0.5 amp lamp.

* 1NO + 1NC auxiliary contact ** ± 20% @ 25°C [†] 2PDT auxiliary contact. May be associated with a Hall current sensor

AC/DC POWER CONTACTORS 25 - 100 Amps

Leach Series:	9123	9213	9207	9124
Rating:	25 Amps	25-100 Amps	25-100 Amps	50 Amps
Contact configuration:	3 PST/NO DM	3 PST/NO, 4 PST/NO 2 P/NO, 2 P/NC DB-DM	3 PST/NO DM, 2P/NO, 2P/NC DB-DM	3 PST/NO DB
Designed to:	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106
Qualified to:	MS27997		DESC Spec 84192	MS27222
Electrical Data	9123	9213	9207	9124
Contact rating (Amps)				
@ 28 VDC				
Resistive:	25	25-100 *	25-100 *	50
Inductive:	25	25-100 *	25-100 *	50
Motor:	25	25-100 *	25-100 *	50
Lamp:				
@ 115 VAC, 400 Hz, 3Ø	9123	9213	9207	9124
Resistive:	25	25-100 *	25-100 *	50
Inductive:	25	25-100 *	25-100 *	50
Motor:	25	25-100 *	25-100 *	50
Lamp:				
@ 115 VAC, 50/60 Hz, 3Ø	9123	9213	9207	9124
Resistive:	15	50 *	50 *	30
Inductive:	15	50 *	50 *	30
Motor:	7	50 *	50 *	15
Lamp:				
Nominal coil voltage(s):	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz
Resistance, Ohms ±10%:	50Ω	44.5Ω	44.5Ω	50Ω
@ 25° C for 28 VDC	9123	9213	9207	9124
Operate time, max. (ms)				
DC Coil:	25	30	30	25
AC Coil:	30	40	40	30
Release time, max. (ms)				
DC Coil:	10	20	20	10
AC Coil:	50	60	50	50
Bounce time, max. (ms):	2	10	10	2
Environmental Data	9123	9213	9207	9124
Sinusoidal vibration (g):	15 @ 55-1500 Hz	10 @ 55-1500 Hz	10 @ 55-1500 Hz	15 @ 55-1500 Hz
Shock (g):	50	50	50	50
Temperature range	-70°C to +125°C	-55°C to +71°C	-55°C to +85°C	-70°C to +125°C
Mechanical Data	9123	9213	9207	9124
Weight, max. (oz./lbs.):	20 oz.	44.8 oz.	28 oz.	20 oz.
Dimensions, max. (in.): (L x W x H)	3.73 x 3.305 x 2.50	4.22 x 4.23 x 4.53	3.63 x 3.62 x 2.875	3.73 x 3.305 x 2.50
Option(s) available:	Auxiliary 5 Amp contacts 440 VAC 60 Hz delta rating	Auxiliary 5-25 Amp contacts	Auxiliary 5-25 Amp contacts	Auxiliary 5 Amp contacts 440 VAC 60 Hz delta rating

* 440 VAC 60 Hz wye/delta rated. Sealed rotary, 1, 2, 3 and 4 pole.

* 1NO + 1NC auxiliary contact

 ** \pm 20% @ 25°C $\,$ † 2PDT auxiliary contact. May be associated with a Hall current sensor

AC/DC POWER CONTACTORS 50 - 400 Amps

Leach Series:	HC Center-off	7064, 7264, 7401	H, HD, HP, HT, HTD, HPT ††	HL, HLT ‡
Rating:	50 Amps	50-400 Amps	60 Amps	60 Amps
Contact configuration:	3 PST-NO 1 PST-NO DM	1 PST/NO	3 PST, 3 PDT, 1 PDT-DB-DM	3 PST, 3 PDT, 1 PDT-DB-DM
Style:			Magnetic latch	Magnetic latch
Designed to:	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106
Qualified to:	MS27750	MS24166 MS24171/72 MS24178/79 MS24185	MS27751 M6106/26 and 43	MS27749
Electrical Data	HC Center-off	7064, 7264, 7401	H, HD, HP, HT, HTD, HPT ††	HL, HLT ‡
Contact rating (Amps)				
@ 28 VDC				
Resistive:	25	50-400	50	50
Inductive:	15	50-100	20	20
Motor:	15	50-400	20	20
Lamp:	10		10	10
@ 115 VAC, 400 Hz, 3Ø	HC Center-off	7064, 7264, 7401	H, HD, HP, HT, HTD, HPT ††	HL, HLT ‡
Resistive:	50		60	60
Inductive:	50 **		60	60
Motor:	30		40	40
Lamp:	15		15	15
@ 115 VAC, 50/60 Hz, 3Ø	HC Center-off	7064, 7264, 7401	H, HD, HP, HT, HTD, HPT ††	HL, HLT ‡
Resistive:	30		30	30
Inductive:	30		30	30
Motor:	30		30	30
Lamp:				
Nominal coil voltage(s):	6, 12, 28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	28 VDC	6, 12, 28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	6, 12, 28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz
Resistance, Ohms ±10% @ 25° C for 28 VDC:	6 VDC, 12Ω; 12 VDC, 50Ω; 28 VDC, 200Ω † 115 VAC, .100 Amp	6 VDC, 12Ω; 12 VDC, 50Ω;	6 VDC, 12Ω; 12 VDC, 50Ω; 28 VDC, 200Ω; 115 VAC, .090 Amp	6 VDC, 12Ω; 12 VDC, 50Ω; 28 VDC, 200Ω
Operate time, max. (ms)	HC Center-off	7064, 7264, 7401	H, HD, HP, HT, HTD, HPT ††	HL, HLT ‡
DC Coil:	35		50	35
AC Coil:	35	40	50	35
Release time, max. (ms)				
DC Coil:	25		25	
AC Coil:	80	15	80	
Bounce time, max. (ms):	3		3	3
Environmental Data	HC Center-off	7064, 7264, 7401	H, HD, HP, HT, HTD, HPT ††	HL, HLT ‡
Sinusoidal vibration (g):	10 @ 70-1000 Hz	2 @ 55-500 Hz	10 @ 70-1000 Hz	10 @ 70-1000 Hz
Shock (g):	50	25	50	50
Temperature range	-55°C to +71°C	-55°C to +71°C	-55°C to +71°C	-55°C to +71°C
Mechanical Data	HC Center-off	7064, 7264, 7401	H, HD, HP, HT, HTD, HPT ++	HL. HLT ±
Weight, max. (oz./lbs.)	15 07	.59-2 6 lbs	14 იշ	15 07
Dimensions, max. (in.): (L x W x H)	2.50 diameter x 3.13 4.41 x 2.0 x 3.75	2.76 x 2.1 x 2.56	2.50 diameter x 3.13	2.50 diameter x 3.13
Option(s) available:	Gasket sealed models	Special units upon request	Auxiliary 5 Amp contacts	Auxiliary 5 Amp contacts

**30 Amps for AC coil $^{+}\pm20\%$ @ 25°C $^{++}$ HT (power transfer model) $^{\pm}$ HLT (power transfer model)

AC/DC POWER CONTACTORS 50 - 450 Amps

Leach Series:	W, WC, WL	A, AJ	Busbar Series - HB, ZB, WB	Plug-in Series	Modcon Series
Rating:	250-275 Amps	300-400 Amps	60-275 Amps	60 Amps	50, 90, 175, 350, 450 Amps
Contact configuration(s):	1 PDT-DM-DB, 3 PST/NO 1 PST/NO-DM, 1 PST/NC-DB	1 PST/NO DM	3 PST/NO	3 PST/NO	3 PST/NO 3 PDT
Style:	Non-latch, latch	Non-latch	Non-latch	Non-latch	Non-latch
Designed to:	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106
Qualified to:		M6106/33			
Electrical Data	W, WC, WL	A, AJ	Busbar Series	Plug-in Series	Modcon Series
Contact rating (Amps)					
@ 28 VDC					
Resistive:	125	300/400			
Inductive:	75	100/150			
Motor:	75	250/250			
Lamp:					
@ 115/200 VAC, 400 Hz, 3Ø	W, WC, WL	A, AJ	Busbar Series	Plug-in Series	Modcon Series
Resistive:	275		50 to 275	60	50 to 350
Inductive:	275		50 to 275		
Motor:	175				
Lamp:					
@ 115 VAC, 50/60 Hz Δ	W, WC, WL	A, AJ	Busbar Series	Plug-in Series	Modcon Series
Resistive:					
Inductive:					
Motor:					
Lamp:	20.1/2.0			00.1/2.0	00.1/20
Nominal coll voltage(s):	28 VDC 115 VAC, 400 Hz (W/WC) 28 VDC Suppressed (W/WC)	6, 12, 28 VDC	28 VDC	28 VDC	28 VDC
Resistance, Ohms ±10% @ 25° C for 28 VDC:	(W) 90Ω; (WL) 9.8Ω (WC) 100Ω*	6 VDC, 4Ω; 12 VDC, 15Ω; 28 VDC, 60Ω			
Operate time, max. (ms)	W, WC, WL	A, AJ	Busbar Series	Plug-in Series	Modcon Series
DC Coil:	60	35	12 to 30	50	30
AC Coil:	60				
Release time, max. (ms)					
DC Coil:	40	15	10 to 15	20	30
AC Coil:	125				
Bounce time, max. (ms):	4	4	4	3	2
Environmental Data	W, WC, WL	A, AJ	Busbar Series	Plug-in Series	Modcon Series
Sinusoidal vibration (g):	10 @ 60-2000 Hz	10 @ 70-500 Hz 5 @ 500-2000 Hz	10@ 5-2000 Hz	++++	+++++
Shock (g):	20	25	20	30	15
Temperature range	-55°C to 85°C	-55°C to +71°C	-54°C to +85°C	-15°C to +65°C	-40°C to + 85°C
Mechanical Data	W, WC, WL	A, AJ	Busbar Series	Plug-in Series	Modcon Series
Weight, max. (oz./lbs.):	4.5 lbs.	1.75 lbs.	Up to 2.0 lbs.	Up to 4.37 lbs.	0.5 lbs. to 2.7 lbs.
Dimensions, max. (in.): (L x W x H)	4.625 x 5.56 x 4.10	3.90 x 3.64 x 2.80	4.50in x 3.67in x 2.94in Max	4.43 x 4.43 x 5.0 Max	3.51 x 2.46 x 2.36 Max
Option(s) available:	Auxiliary 8 Amp contacts Magnetic latch ** Center-off versions †, GFI (W)	Auxiliary 5 Amp contacts	Auxiliary 2 Amp contact Dust proof enclosure Gasket Sealed	Auxiliary 5 Amp contacts Smart electronics Dust proof enclosure Gasket Sealed	Dust proof enclosure Gasket Sealed

*±20% @ 25°C **WL model † WC model † Z model ‡ Current sensing with remote control capability ‡ Short-time rated for starting loads. ‡## Contact factory for detailed information

AC/DC POWER CONTACTORS 100 - 700 Amps

Leach Series:	ZC, ZCD Center-off	Z, ZG, ZJ	ZL, ZLD	CC02, CC04	Leach Series:	707-CC07
Rating:	100 Amps	120-180 Amps	Up to 120 Amps	200-500 Amps	Rating:	700 Amps
Contact configuration:	3 PDT-NO, 1 PDT/NO DM-DB	3 PDT, 3 PST/NO, SPDT-DB-DM	3 PDT	1 PST/NO DM	Contact configuration:	1 PNO - DM
Style:		SPST/NO-DM, SPST/NC-DB	1 PDT-DB-DM (latch)	Permanent duty bus bar mounting	Auxiliary:	(†)
Designed to:	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106	MIL-PRF-6106	Designed to:	MIL-PRF-6106
Qualified to:				AIR 7304 AIR 8456 B	Related standard:	AIR7304, AIR8456B, AIR9456
Electrical Data	ZC, ZCD Center-off	Z, ZG, ZJ	ZL, ZLD	CC02, CC04	Electrical Data	707-CC07
Contact rating (Amps)					Contact rating (Amps)	
@ 28 VDC					@ 28 VDC	
Resistive:	50	50	50	200-400	Resistive:	700 (In)
Inductive:	30	30	30	125-200	Inductive:	700
Motor:	30	30	30	125-200	Motor:	
Lamp:						
@ 115 VAC, 400 Hz, 3Ø	ZC, ZCD Center-off	Z, ZG, ZJ	ZL, ZLD	CC02, CC04	Coil data @ 28Vdc &	707-CC07
Resistive:	100	120-180	120		ambient temperature	
Inductive:	100	120-180	120		Pull-in current (A):	6.5A
Motor:	60	80-120	80		Holding current (mA):	375mA
Lamp:						
@ 115 VAC, 50/60 Hz, 3Ø	ZC, ZCD Center-off	Z, ZG, ZJ	ZL, ZLD	CC02, CC04	Auxiliaries @ 28 VDC	707-CC07
Resistive:	60	60	60		Resistive:	
Inductive:	60	60	60		Inductive:	
Motor:	40	60	60			
Lamp:					Lamp:	1.5
Nominal coil voltage(s):	6, 12, 28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	6, 12, 28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	6, 12, 28 VDC 115 VAC, 400 Hz 115 VAC, 60 Hz	28 VDC	Auxiliaries @ 115 VAC 400 Hz, 3Ø	707-CC07
Resistance, Ohms ±10%	6 VDC, 9.3Ω; 12 VDC, 38Ω;	6 VDC, 7Ω; 12 VDC, 28Ω;	6 VDC, 10Ω; 12 VDC, 40Ω;	7.2/200, 4.4/152	Resistive:	-
@ 25° C for 28 VDC:	28 VDC, 150Ω **; 115 VAC, 0.9 Amp	28 VDC, 113Ω; 115 VAC, .12 Amp	28 VDC, 163Ω **		Lamp:	-
Operate time, max. (ms)	ZC, ZCD Center-off	Z, ZG, ZJ	ZL, ZLD	CC02, CC04	Operate time, max. (ms)	707-CC07
DC Coil:	60	60	60	30	DC Coil:	Up to 40
AC Coil:	60	60	60		AC Coil:	
Release time, max. (ms)					Release time, max. (ms)	
DC Coil:	40	40		20	DC Coil:	20
AC Coil:	80	40			AC Coil:	
Bounce time, max. (ms):	4	4	4		Bounce time, max. (ms):	4
Environmental Data	ZC, ZCD Center-off	Z, ZG, ZJ	ZL, ZLD	CC02, CC04	Environmental Data	707-CC07
Sinusoidal vibration (g):	5 @ 70-500 Hz	10 @ 70-1000 Hz	10 @ 55-500 Hz	10 @ 5-2000 Hz	Sinusoidal vibration (g):	10
Shock (g):	15	50	15	30	Shock (g):	30 to 50
Temperature range	-55°C to +71°C	-55°C to +71°C	-55°C to +71°C		Temperature range	-55° C to +125° C
Mechanical Data	ZC, ZCD Center-off	Z, ZG, ZJ	ZL, ZLD	CC02, CC04	Mechanical Data	707-CC07
Weight, max. (oz./lbs.):	32-43.2 oz.	32-43.2 oz.	2.0-2.75 lbs.	9 oz.	Weight, max. (oz./lbs.):	4.5 lbs.
Dimensions, max. (in.): (L x W x H)	3.65 diameter x 4.28	3.65 diameter x 4.28	3.65 diameter x 4.28	3.1 x 1.42 x 3.13	Dimensions, max. (in.): (L x W x H)	6.3 x 3.8 x 3
Option(s) available:	Gasket sealed models Magnetically latched models	Auxiliary 5 Amp contacts, GFI (Z) Gasket sealed models	Auxiliary 5 Amp contacts	Auxiliary 2 Amp contacts Low level contacts Dust proof enclosure	Option(s) available:	Auxiliary 5 Amp contacts Dust poor enclosure

*1NO + 1NC auxiliary contact $\,$ ** \pm 20% @ 25°C. May be associated with a Hall current sensor

† P/N ending by 7: no auxiliary contact. P/N ending by 6 and 9: 1 NO + 1NC aux contacts. P/N ending by 8: 2NO + 2NC aux contacts

TIME DELAY RELAY DATA

Specifying a Fixed Time Delay Period

Leach International Corporation and the military identify the time delay period in the same manner. A four-digit dash number specifies the delay period in milliseconds. The first three numbers are significant figures while the fourth indicates the number of zeros to follow the first three.

Examples: -1001 = 1,000 milliseconds (1 second) -2502 = 25,000 milliseconds (25 seconds) -5000 = 500 milliseconds (0.5 second)

In the case of a repeat cycle timer (flasher), a similar method is used. The dash number indicates length of each cycle. (Note: each cycle is 50% on, 50% off).

Examples: -2500 = 250 milliseconds cycle or 4 cycles/sec.

-1001 = 1,000 milliseconds cycle or 1 cycle/sec.

-6002 = 60,000 milliseconds cycle or 1 cycle/min.

Use and Selection of Adjustable Timers

Adjustable timers are useful in system prototyping or breadboard circuits where the precise time delay period is unknown. By the use of an external resistor, these devices are adjustable over a specific "decade range." Although any decade range within the overall timing range can be supplied, the following ranges are offered as standards:

0.1 to 1 second (Specify -1001) 1.0 to 10 seconds (Specify -1002) 5 to 50 seconds (Specify -5002) 50 to 500 seconds (Specify -5003)

Note from above that in specifying a decade range, the four-digit dash number indicates the high or upper limit of the desired decade range. The formula below provides the proper resistance value to achieve the desired time delay:

 $\mathbf{R}_{ext} = \left(\begin{array}{c} T_1 \\ \hline T_0 \end{array} - 1 \right) \begin{array}{c} 100,000 \text{ Ohms} & \text{Where: } \mathbf{R}_{ext} = \text{External resistance value (Ohms)} \\ T_1 = \text{Desired time in seconds} \\ T_0 = \text{Minimum time (low end of the decade range) in seconds} \end{array}$

For example, if a 30-second delay is desired and a 5- to 50-second adjustable timer is being used, the calculation is:

$$\mathbf{R}_{\text{ext}} = \left(\frac{30}{5} \cdot 1\right)$$
 100,000 Ohms or $\mathbf{R}_{\text{ext}} = 500$ K Ohms

Recommended resistors IAW MIL-R-55182 1/8 WATT, 1% (RNC6OHXXXXFS).

Military Part Numbering Method

<u>M83726</u> /	<u>XX</u>	-	<u>XXXX</u>	¥	¥
1. Basic military specification —					
2. Specific "slash sheet"					
3. Time range designation (see tables above)-					

4. Terminal and/or quality level designator-

QPL Cross Reference - Military Part Number to Leach Part Number

Military Part Number	Leach Part Number	Operation Mode	Output	Time Range (seconds)
M83726/20	TD-1435	Delay on operate - fixed time	250MA, SPST	0.05-500
M83726/21	TD-1436	Delay on operate - adjustable**	250MA, SPST	0.05-500
M83726/22	TD-1412	Repeat cycle timer (flasher)	250MA, SPST	1-600 cycles/min. ^{††}
M83726/23	TD-1505	"True" delay on release - fixed †	10A, 4PDT	0.1-75
M83726/24	TDH-1609	Delay on operate - fixed time	150MA, SPST	0.05-500
M83726/25	TDH-1610	Delay on release - fixed time	150MA, SPST	0.05-500
M83726/28	TDH-8050/8051	Delay on operate - fixed time	10A, 2PDT	0.1-600 ‡
M83726/29	TDH-8070/8071	Delay on release - fixed time	10A, 2PDT	0.1-600 ‡
M83726/30	TDH-8060/8061	Delay on operate - adjustable	10A, 2PDT	0.1-600 ‡
M83726/31	TDH-8080/8081	Delay on release - adjustable	10A, 2PDT	0.1-600 ‡

** All adjustable timers use external resistor (not supplied) to adjust timing range.

† "True" time delay on release requires no external power during timing period.

†† Each cycle is 50% on, 50% off.

‡ Timing ranges above 500 seconds are not MIL qualified.

TIME DELAY RELAYS 10-25 Amps

				Dotte to
Leach Series:	TDH-6000	TDH-800	TDH-7000	T531
On operate, fixed time:	TDH-6050/51	TDH-8050/51	TDH-7050/51	T531
On operate, adjustable:	TDH-6060/61	TDH-8060/61	TDH-7060/61	T531
On release, fixed time:	TDH-6070/71	TDH-8070/71	TDH-7070/71	T531
On release, adjustable:		TDH-8080/81		T531
Repeat cycle timer (flasher):				
Designed to:		MIL-PRF-83726	MIL-PRF-83726	
Qualified to:		M83726/28, 29, 30, 31		
Electrical Data	TDH-6000	TDH-8000	TDH-7000	T531
Contact rating (resistive):	10 Amps	10 Amps	10 Amps	25 Amps
Contact form:	2 PDT	2 PDT	4 PDT	3 PDT
Timing range (seconds):	0.1-600	0.1-600	0.1-600	0.1-1000
Accuracy (percentage) *:	±10	±10	±10	±3 to ±10
Recycle time, max. (ms) **:	50	50	50	≤ 50
Input & control voltage:	20-30 VDC	20-30 VDC	20-30 VDC	18-32 VDC
Operating current, max.:	150 mAmps	150 mAmps	150 mAmps	
Control current, max .:				
EMI per MIL-STD-461 †:	Class 1D	Class 1D	Class 1D	
Dielectric strength, Vrms				
Sea level:	1000/60 Hz	1000/60 Hz	1000/60 Hz	500/50 Hz
80,000 ft.:	350/60 Hz	350/60 Hz	350/60 Hz	250/50 Hz
Insulation resistance megohms:	1000 @ 500 VDC ‡	1000 @ 500 VDC ‡	1000 @ 500 VDC ‡	≥ 500 @ 500 VDC
Environmental Data	TDH-6000	TDH-8000	TDH-7000	T531
Operating temperature (°C):	-55 to +125	-55 to +125	-55 to +125	-55 to +125
Vibration				
Sine (G):	20	30	20	20/10-2000 Hz
Random (G ² /Hz):	0.2	0.4	0.2	
Shock (g):	100	100	100	100/6 ms
Acceleration (g):	20	15	20	
Seal:	Hermetic	Hermetic	Hermetic	Hermetic
Mechanical Data	TDH-6000	TDH-8000	TDH-7000	T531
Weight, max. (oz./lbs.):	1.9 oz. (54 g.)	2.5 oz. (71 g.)	3.0 oz. (85 g.)	4.233 oz. (120 g.)
Dimensions, max. (in.): (L x W x H)	1.025 x 5.25 x 1.520	1.025 x 1.025 x 1.010	1.025 x 1.025 x 1.50	1.73 x 1.54 x 1.02
Mating socket P/N:	SO-1055-8693	SO-1043-8308	SO-1056-8691	S502, SF502
Terminal types ††:	TDH-60X0=PI TDH-60X1=SH	TDH-80X0=PI TDH-80X1=SH	TDH-70X0=PI TDH-70X1=SH	PI, SH

- * The accuracy specification applies to any combination of temperature and voltage. For units with a timing range less than 1 second, add ±10 milliseconds to the ±10% tolerance.
- ** Recycle time is that action which must occur to assure a new timing cycle can be completed within tolerance:
 - A. TD on operate—Remove power from input terminals for the period specified.
 - B. TD on release—Apply power to the control terminal for the period specified.
 - C. "True" TD on release—Apply power to the input terminals for the period specified.

- † EMI test limits will not be exceeded during the timing interval or when continuously energized under steady state conditions, per paragraph 3.23, MIL-PRF-83726A.
- tt Definition of terminal type codes:
 - PI = Plug-in type for use with mating relay socket.
 - SH = Tinned solder hook terminals for direct hard wiring.
 - PC = Tinned straight pins for printed circuit board insertion.
 - TM = Compatible with M12883/52 socket module and M12883/53 mounting track.
- [‡] Terminals X1 and X2 must be connected together during the test. Dielectric withstanding voltage and insulation resistance are measured between all mutually insulated terminals and between all terminals and case.
- \ddagger Not available for new design; commercially available.

SOLID-STATE TIME DELAY RELAYS 150-250 mAmps

	LECCUSCA March 200 March 200 M	HEACH CONSCIENCE HEACH CONSCI		
Looob Parias		TD 1425 TD 1426	TD 1/12+++	FLOHADO
On operate, fixed time:		TD-1435, TD-1430	10-1412+++	FLS11402
On operate, adjustable:	1011-1003	TD-1436		FL SH402
On release, fixed time:	TDH-1610			FLSH402
On release, adjustable:				FLSH402
Repeat cycle timer (flasher):			TD-1412	FLSH402
Designed to:	MIL-PRF-83726	MIL-PRF-83726	MIL-PRF-83726	
Qualified to:	M83726/24, 25	M83726/20, 21	M83726/22	
Electrical Data	TDH-1609, TDH-1610	TD-1435, TD-1436	TD-1412	FLSH402
Contact rating (resistive):	150 mAmps	250 mAmps	250 mAmps ‡‡	250 mAmps
Contact form:	SPST	SPST	SPST	2 SSO
Timing range (seconds):	0.05-500	0.05-500	1 cycle/min. to 10 cycles/second	0.1-625
Accuracy (percentage) *:	±10	±10	±10	±3 to ±10
Recycle time, max. (ms) **:	10	10	10	≤20
Input & control voltage:	20-32 VDC	18-32 VDC	18-32 VDC	18-32 VDC
Operating current, max .:	10 mAmps	5 mAmps + load	5 mAmps + load	
Control current, max .:				5 mAmps @ 28 VDC
EMI per MIL-STD-461 †:	Class 1D	Class 1D	Class 1D	
Dielectric strength, Vrms				
Sea level:	1000/60 Hz	1000/60 Hz	1000/60 Hz	750/50 Hz
80,000 ft.:		350/60 Hz	350/60 Hz	
Insulation resistance megohms:	1000 @ 500 VDC ‡	1000 @ 500 VDC ‡	1000 @ 500 VDC ‡	≥ 100 @ 100 VDC
Environmental Data	TDH-1609, TDH-1610	TD-1435, TD-1436	TD-1412	FLSH402
Operating temperature (°C):	-55 to +125	-55 to +125	-55 to +125	-55 to +125
Vibration				
Sine (G):	20	30	30	30/70-2000 Hz
Random (G ² /Hz):				
Shock (g):	1100	1100	1100	50/11 ms
Acceleration (g):	100	100	100	
Seal:	Hermetic	Hermetic	Hermetic	Hermetic
Mechanical Data	TDH-1609, TDH-1610	TD-1435, TD-1436	TD-1412	FLSH402
Weight, max. (oz./lbs.):	.56 oz. (16g.)	0.5 oz. (14 g.)	0.5 oz. (14 g.)	0.353 oz. (10 g.)
Dimensions, max. (in.): (L x W x H)	.810 x .410 x .640	.810 x .410 x .310	.810 x .410 x .310	0.91 x 0.91 x 0.24
Mating socket P/N:	See note ††			
Terminal types ††:	TM	SH, PC	SH, PC	PI

- * The accuracy specification applies to any combination of temperature and voltage. For units with a timing range less than 1 second, add ± 10 milliseconds to the $\pm 10\%$ tolerance.
- ** Recycle time is that action which must occur to assure a new timing cycle can be completed within tolerance:
 - A. TD on operate—Remove power from input terminals for the period specified.
 - B. TD on release—Apply power to the control terminal for the period specified.
 - C. "True" TD on release—Apply power to the input terminals for the period specified.

- [†] EMI test limits will not be exceeded during the timing interval or when continuously energized under steady state conditions, per paragraph 3.23, MIL-PRF-83726A.
- †† Definition of terminal type codes:
 - PI = Plug-in type for use with mating relay socket.
 - SH = Tinned solder hook terminals for direct hard wiring.
 - PC = Tinned straight pins for printed circuit board insertion.
 - TM = Compatible with M12883/52 socket module and M12883/53 mounting track.

 Terminals X1 and X2 must be connected together during the test.
 Dielectric withstanding voltage and insulation resistance are measured between all mutually insulated terminals and between all terminals and case.
 Output rating equivalent of two MS25237-387 IAmps in parallel.
 Not available for new design; commercially available.

POWER MONITORS AND SENSORS 2-10 Amps

			Action 1 Million			
Leach Series:	V 610	V 110	V 210, V 310	F410	P510	CS 400, CS 500
Description:	AC Power Monitor	DC Voltage Sensor	AC Under or Over Voltage Sensor	Frequency Sensor	Phase Sequence Sensor	Current Sensing Relay
Operational Data	V 610	V 110	V 210, V 310	F410	P510	CS 400, CS 500
Input Supply:	90-150 VRMS 180-240 VRMS 44-450 Hz 3Ø, 4 wire	19.5-30 VDC	90-150 VRMS 180-240 VRMS 50-450 Hz 3Ø, 4 wire	80-150 VRMS 160-240 VRMS 40-480 Hz 3Ø, 4 wire	90-150 VRMS 180-240 VRMS 44-450 Hz 3Ø, 4 wire	18-32 VDC
Sensed voltage:		1-50 VDC				
Sensing Functions:	Trip point ranges Under voltage: 90-130 VRMS, ± 2% 180-220 VRMS, ± 2% Over voltage: 110-150 VRMS, ±2% 200-240 VRMS, ±2% Under frequency: 44-58 Hz, ±2% 350-390 Hz, ±2% Over frequency: 55-62 Hz, ±2% Phase rotation ABC Time delay: .05-10 sec., ±10%	Energize above, de-energize below selected trip point: 1-50 VDC, ±2%	Selected trip point within: 90-130 VRMS or 180-230 VRMS, ±2%	Energize above, de-energize below selected trip point: 320-480 Hz, ±2% Senses any one line to neutral	Energize when phase sequence is ABC. De-energize for all other sequences, open neutral or loss of voltage	Sensing range: 0.8-49 Amps Min. pickup:
Output contacts: *	2 PDT, 10 Amps or 3 PDT, 10 Amps	10 Amps 2 PDT or 4 PDT	10 Amps 2 PDT or 4 PDT	10 Amps 2 PDT or 4 PDT	10 Amps 2 PDT or 4 PDT	2 Amps 2 PDT
Environmental Data	V 610	V 110	V 210, V 310	F410	P510	CS 400, CS 500
Operating temperature (°C):	-55 to +125	-55 to +125	-55 to +125	-55 to +125	-55 to +125	-55 to +125
Thermal shock (MIL-STD-202):	Method 107	Method 107	Method 107	Method 107	Method 107	
Vibration (MIL-STD-202):	Method 204 **	Method 204 **	Method 204 **	Method 204 **	Method 204 **	15 g./70-3000 Hz
Random:	Method 214 †	Method 214 †	Method 214 †	Method 214 †	Method 214 †	
Shock (MIL-STD-202):	Method 213 ††	Method 213 ††	Method 213 ††	Method 213 ††	Method 213 ††	50G/11 ms
Acceleration (MIL-STD-202):	Method 212	Method 212	Method 212	Method 212	Method 212	
Seal:	Hermetic (potted)	Potted	Potted	Potted	Potted	Hermetic
Mechanical Data	V 610	V 110	V 210, V 310	F410	P510	CS 400, CS 500
Weight, max. (oz./grams):	27 oz. (767 g.)	10 oz. (284 g.)	10 oz. (284 g.)	10 oz. (284 g.)	10 oz. (284 g.)	2.469 oz. (70 g.)
Dimensions, max. (in.): (L x W x H)	2.31 x 2.18 x 3.2 ‡	1.531 x 1.531 x 2.34	1.531 x 1.531 x 2.34	1.531 x 1.531 x 2.34	1.531 x 1.531 x 2.34	1.73 x 1.01 x 1.02
Finish:	Electro tin, type 1 ‡‡	Electro tin, type 1 ‡‡	Electro tin, type 1 ##	Electro tin, type 1 ‡‡	Electro tin, type 1 ##	Corrosion resistant
Engineering Data	V 610	V 110	V 210, V 310	F410	P510	CS 400, CS 500
Dielectric strength	Method 301	Method 301	Method 301	Method 301	Method 301	1000 VRMS/50 Hz.
Voltage strength (MIL-STD-202):	Method 301	Method 301	Method 301	Method 301	Method 301	
Voltage transients (MIL-STD-704):	Category B	Category B	Category B	Category B	Category B	
Operating current						
AC sensors, max. (mAmps):	75 per phase	75 per phase	75 per phase	75 per phase	75 per phase	
DC sensors, max. (mAmps):	175	175	175	175	175	
EMI (MIL-STD-461):	Class 1D	Class 1D	Class 1D	Class 1D	Class 1D	
Life test						
High level (cycles, min.):	100,000	100,000	100,000	100,000	100,000	
Low level (cycles, min.):	100,000 ��	100,000 ��	100,000 ++	100,000 ��	100,000 ��	

*Ratings shown are resistive loads @ 28 VDC, 115 VAC 400 Hz and 115/200 VAC 400 Hz. **Condition D, except 5-2000 Hz frequency. †Test condition IG; 15 min./plane. †† Test condition A (50G) ‡ Solder hook or circular MIL connector. ‡‡ Per MIL-T-10727. Imes Minimum initial test; 50 M Ohms after test. Imes 400,000 cycles mechanical life.

SOLID STATE POWER CONTROLLERS









Leach Series:	EPM-109	EPM-110	P600-Air	P800
Rating:	7.5 and 12 Amps	40 Amps	80 Amps	150 Amps
Style/Voltage:			Stand Alone/28 VDC	Stand Alone/28VDC
Designed to:			MIL-P-81653**	
Configuration:	4 Channels	2 Channels		
Electrical Data	EPM-109	EPM-110	P600-Air	P800
Bias on (voltage):	4.5-5.5	4.5-5.5	4.5-5.5 or 16-33.5	16 - 33.5
Control on (voltage):			16-32	16 - 33.5
Status Output Type:			Load Current + Trip + RCCB	Gate, LVD + RCCB
Typical Operate Time (ms):			1	5
Full Load Voltage Drop (mV):			100	300
Environmental Data	EPM-109	EPM-110	P600-Air	P800
Operating temperature (°C):	-40 to +75	-40 to +75	-40 to +70	-40 to +71
Vibration (g):	20 (20-2000 Hz)	20 (20-2000 Hz)	5 (5-500 Hz)	13.3 (10 - 2000 Hz)
Shock (g):	500	500	30	6
Acceleration (g):	500	500	10	6.75
Seal:			Hermetic	
Mechanical Data	EPM-109	EPM-110	P600-Air	P800
Weight, max. (grams):	150	150	500	500
Dimensions, max. (mm): (L x W x H)	91 x 91 x 23	91 x 91 x 23	95 x 84.5 x 75	80 x 96 x 45





Leach Series:	EPM-111	EPM-112 (WHCU)
Rating:	60 Amps	40 Amps (Dual Channel)
Style/Voltage:		28 Vdc
Designed to:		
Electrical Data	EPM-111	EPM-112 (WHCU)
Bias on (voltage):	4.5-5.5	28 Vdc
Control on (voltage):		Temperature Controlled
Statue Output Type:		ARINC 429
Typical Operate Time (ms):		
Full Load Voltage Drop (mV):		100 mV
Environmental Data	EPM-111	EPM-112 (WHCU)
Operating temperature (°C):	-40 to +75	-40 to +71
Vibration (g):	20 (20-2000 Hz)	4.12 (10-2000 Hz)
Shock (g):	500	20
Acceleration (g):	500	18
Seal:		
Mechanical Data	EPM-111	EPM-112 (WHCU)
Weight, max. (grams):	500	650
Dimensions, max. (mm): (L x W x H)	80 x 96 x 41	80 x 96 x 62.3

*1NO + 1NC auxiliary contact ** ± 20% @ 25°C † 2PDT auxiliary contact. May be associated with a Hall current sensor † † Refer to document RTCA/DO-160

ADDITIONAL CAPABILITIES



High Voltage DC Contactors

Utilizes conventional contactors with a proprietary active arc suppression. Shorter arc period, lower contact erosion, higher number of cycles. Flexible architecture up to 1000A can be used at 270VDC, 540VDC, and beyond.





Next generation Solid-State Power Controllers leveraging state of the art technologies. Ideal for a variety of aerospace, military and transportation applications.





DC Current Sensor Series

A Hall Effect current sensor with galvanic isolation designed to measure DC current, and certified for aerospace applications. The output provides a bidirectional linear voltage signal indicating measured current.



AC Smart Module

The AC Smart Module is fit for commercial and military aerospace power distribution systems. It can be used as a remote control circuit breaker when interfaced with a power contactor. It also has a dedicated load monitoring and protection function. Can be utilized to provide precision differential protection.



Business Jet Thrust Reverser Control Unit

Controls operation of the thrust reverser in response to pilot command and sensor inputs. The TRCU operates the hydraulic control valves that run the thrust reverser while providing monitoring via communication bus.



Solid State Relay

Featuring a solid state solution housed in a hermetically sealed 1 inch cube. The solid-state relay incorporates the overcurrent protection function of a circuit breaker and capable of switching 30 Amps (resistive load) at 28 Vdc.

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