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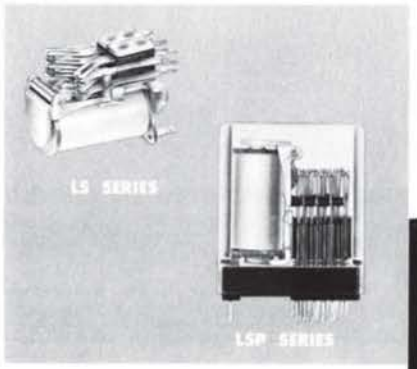
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POTTER & BRUMFIELD TELEPHONE TYPE RELAYS





LS-LSP SERIES The LS open and LSP plastic enclosed relays are reliable, medium coil relays with a life expectancy of 100,000,000 mechanical and 100,000 electrical operations at rated load. Both are available with up to 24 springs (12 per stack). The modular concept of the LSP relay assembly consists of three components: (1) an LST relay with taper tab terminations which plug into (2) a rectangular socket and (3) a plastic cover that snaps over the socket. Each of the three components of the LSP series can be ordered as separate items.

Two sizes each of sockets and covers are available. The smaller size has a 16 pin socket for from 1 to 4 Form C; the larger size has a 28 pin socket for from 5 to 8 Form C contact arrangements.

BS SERIES A versatile, long coil relay for telephone systems, computers, automatic test equipment and many other applications. Long coil construction provides minimum sensitivities of 25 milliwatts for DC relays and 17.9 volt-amps for AC relays. Can be furnished for DC applications with operate or release delay slugs. Bifurcated contacts. Extensive life test indicates BS series will operate over 500,000,000 cycles (mechanical). Can be equipped with two snap-action switches in lieu of spring stacks or with one stack and a single snap-action switch.

LT SERIES A fast acting, inherently reliable long coil relay with sensitivities of 25 milliwatts per movable arm. Single contact arms, sturdy frame construction and a full width hinge bearing capable of a minimum of 50 million operations (mechanical), are all part of the standard LT design. Designated as the LTD for DC voltage operation and LTL for sensitive DC current operation. Can be built with two section windings or slugs for operate and release time delays. Available open, hermetically sealed or in a protective enclosure. All feature a wide range of terminals and mountings.

TS SERIES Designed to meet the need for a short coil relay with sensitivity approaching a long coil relay. DC relays can be furnished with two concentric windings or with slugs for operate or release time delays. TS relays can be furnished with up to 20 springs (10 per stack) for DC operation or 12 springs (6 per stack) for AC operation. Available with printed circuit, taper tab or hook solder terminals.

GS SERIES A short coil relay with a minimum sensitivity of 50 milliwatts. This versatile relay can be furnished for AC or DC operation with a wide range of contact combinations and special features. Available with a variety of terminals all located for front panel connections. Can be equipped with two snap-action switches in lieu of spring stacks or with one stack and a single snap-action switch. The compact design of GS relays makes them ideal for multiple switching applications where space and weight are factors.

MF SERIES Unusually low coil temperature rise is an inherent quality of this small-size, telephone type relay. Designed to operate continuously on AC power, this rise does not exceed 20°C for a 4 Form C relay at 120V 50/60 Hz at 25°C ambient. No expensive cooling need be used even when a large number of MF relays are used in an enclosed chassis. Sensitivity approximates 2.3 voltamperes. Contact forms up to 6 Form C are practical.

SERIES	COIL			TIME VALUES	
	VOLTAGE	POWER* @ +25°C	RESISTANCE (In Ohms)	OPERATE	RELEASE
BS	DC: to 220V	DC: 25MW/movable arm min. 8 watts max.	DC: 100,000 max.	DC: 5 to 120 MS	DC: 5 to 600 MS
	AC: to 240V 60 Hz	AC: 17.9VA	(Breakdown 1,000V rms)	AC: 10 to 25 MS	AC: 10 to 20 MS
LS LSP	DC: to 220V	65MW/movable arm min. 5 watts max.	DC: 55,000 max.	DC: 5 to 70 MS	DC: 5 to 140 MS
	AC: to 240V 60 Hz	AC: 4.4VA	(Breakdown 1,000V rms)	AC: 3 to 15 MS	AC: 3 to 15 MS
LT	DC: to 220V	DC: 25MW/movable arm min. 8 watts max.	DC: 100,000 max.	DC: 10 to 100 MS	DC: 10 to 400 MS
			(Breakdown 1,000V rms)		
TS	DC: to 220V	DC: 100MW/movable arm min. 3 watts max.	DC: 22,000 max.	DC: 5 to 40 MS	DC: 5 to 50 MS
	AC: to 240V 60 Hz	AC: 4.5VA	(Breakdown 1,000V rms)	AC: 10 to 25 MS	AC: 10 to 20 MS
GS	DC: to 220V	DC: 50MW/movable arm min. 6 watts max.	DC: 50,000 max.	DC: 5 to 50 MS	DC: 5 to 100 MS
	AC: to 240V 60 Hz	AC: 12.7VA	(Breakdown 1,000V rms)	AC: 10 to 25 MS	AC: 10 to 20 MS
MF	AC: to 240V 60 Hz	AC: 2.6 VA	(Breakdown 500V rms)	AC: 15 MS max.	AC: 20 MS max.
MG	DC: to 110V	DC: 100MW/movable arm min. 3.25 watts max.	DC: 13,500 ohms max.	DC: 5 to 25 MS	DC: 5 to 15 MS
			(Breakdown 500V rms)		
MH	DC: to 110V	DC: 100MW/movable arm min. 4 watts max.	DC: 22,000 max.	DC: 5 to 35 MS	DC: 5 to 25 MS
	AC: to 240V intermittent duty only	AC: 8.6VA	(Breakdown 500V rms)		
ML	DC: to 110V	DC: 20 MW/movable arm min. 3 watts max.	DC: 33,000 max.	DC: 30 to 80 MS	DC: 5 to 35 MS
			(Breakdown 500V rms)		

*Minimum power values given are those necessary at the "just operate" point. For reliable operation nominal power should be selected for at least two times minimum power.

SERIES	CONTACTS			MECHANICAL LIFE (Cycles)	DIMENSIONS*		WT. (approx.) (open)
	MAXIMUM NUMBER OF SPRINGS	CONTACT MATERIAL	RATING (100,000 cycles) Resistive Loads		MOUNTING (standard) (approximate)	(approx. in inches) Length x Width x Height	
BS	DC: 28 (14/stack)	1/16" dia. twin palladium, standard	4 amps @ 120V 60 Hz	300 million min.	Two 8-32 tapped holes on ¼" centers	Min. 3⅛ x 1¾₆₄ x 1½	10 ozs.
	AC: 24 (12/stack)		DC: 4 amps @ 28V			Max. 3⅛ x 1¾₆₄ x 2½	
LS LSP	DC: 24 (12/stack)	1/16" dia. twin palladium	4 amps @ 120V 60 Hz	100 million min.	Two 6-32 tapped holes on ¾₁₆" centers. Also available with plug-in mounting for special socket.	Min. 2⅛ x 1¹⁵/₆₄ x 1⁹/₃₂	3¼ ozs.
	AC: 12 (6/stack —4 mov.)		DC: 4 amps @ 28V			Max. 2⅛ x 1¾ x 1³⁵/₆₄	
LT	DC: 24 (12/stack)	1/16" dia. palladium	3 amps @ 120V 60 Hz	50 million min.	Two 8-32 tapped holes on ¼" centers	Min. 4⅛ x 1⁹/₃₂ x 1¹¹/₆₄	12 ozs.
			DC: 3 amps @ 28V			Max. 4⅛ x 1½ x 2⅛	
TS	DC: 20 (10/stack)	1/16" dia. palladium.	3 amps @ 120V 60 Hz	100 million min.	Four 3-48 tapped holes on ⅛" x ¼" centers	Min. 1⁵/₆₄ x 1¹/₃₂ x 1⁵/₆₄	2¼ ozs.
	AC: 12 (6/stack) (4 poles max.)		DC: 3 amps @ 28V			Max. 1⁵/₆₄ x 1¹/₃₂ x 1³⁵/₆₄	
GS	DC: 20 (10/stack)	3/16" dia. palladium	3 amps @ 120V 60 Hz	50 million min.	Two 8-32 tapped holes on ¾" centers	Min. 2¹³/₃₂ x 1⁹/₃₂ x 1³⁵/₆₄	10 ozs.
	AC: 18 (9/stack)		DC: 3 amps @ 28V			Max. 2¹³/₃₂ x 1½ x 2⅛	
MF	AC: 18 (9/stack)	1/16" dia. gold-flashed silver	5 amps @ 120V 60 Hz	10 million min.	Two 6-32 tapped holes on ¾" centers, or four 4-40 tapped holes on ⅝" x ⅝" centers	2 x 1¹⁵/₆₄ x 1¾	3 ozs.
MG	DC: 12 (6/stack)	1/16" dia. gold-flashed silver	2 amps @ 120V 60 Hz	10 million min.	Four 3-48 tapped holes on ⅛" x ¼" centers	Min. 1¹⁵/₆₄ x 1¹³/₆₄ x 1³⁵/₆₄	1.2 ozs.
			DC: 2 amps @ 28V			Max. 1¹⁵/₆₄ x 1¹³/₆₄ x 1¾	
MH	DC: 18 (9/stack) max.	1/16" dia. gold-flashed silver	5 amps @ 120V 60 Hz	10 million min.	Four 3-48 tapped holes on ⅛" x ¼" centers	Min. 1³⁵/₆₄ x ³⁵/₆₄ x 1³⁵/₆₄	2 ozs.
	AC: 3/stack (2 poles max.)					Max. 1³⁵/₆₄ x ³⁵/₆₄ x 1³⁵/₆₄	
ML	DC: 18 (9/stack)	1/16" dia. gold-flashed silver	3 amps @ 120V 60 Hz	10 million min.	Four 3-48 tapped holes on ⅛" x ¼" centers	Min. 1³⁵/₆₄ x ³⁵/₆₄ x 1³⁵/₆₄	2½ ozs.
						Max. 1³⁵/₆₄ x ³⁵/₆₄ x 1³⁵/₆₄	

*Standard dimensions. For dimensional tolerances consult the factory. For mounting information, see pages 18 and 19.

SPECIAL FEATURES	BS	LS	LT	TS	GS	MF	MG	MH	ML
Quarter-inch-creepage insulation (1500 volts)	•	•	•	•	•		•	•	
Fixed or adjustable residual	•	•	•	•	•		•	•	•
Humidity and anti-fungus treatment	•	•	•	•	•	•	•	•	•
Protective enclosures	•	•	•	•	•	•	•	•	•
Hermetically sealed	•	•	•	•	•	•	•	•	•
Centrifugally impregnated coil (open relays)	•	•	•	•	•	•	•	•	•
Impregnated pile-up (open relays)	•	•	•	•	•	•	•	•	•
Plug-in mounting (open relays)	•	•	•	•	•				
Time delay	•	•	•	•	•			•	•
Taper tabs	•	•	•	•	•	•		•	•
Printed circuit tabs		•		•		•	•	•	•
Other contact materials available	•	•	•	•	•	•	•	•	•
Bifurcated contact arms available	•	•		•		•		•	•
Special gold alloy contacts available	•	•	•	•	•	•	•	•	•
Other mountings available		•		•	•	•		•	•
Octal plugs, solder header or miniature plug-in	•	•	•	•	•	•	•	•	•
Sealed—available with separately sealed coils									•
Sealed AC relays available w/built-in rectifier	•	•	•	•	•		•	•	

NOTE: Standard stack insulation for all telephone relays consists of laminated phenolic spacers for temperatures up to +85° C. Special insulation for +125° C. operation is available.

NOTE: Standard coil insulation for temperatures up to +85° C. Special insulation material available for operation to +125° C.

MG SERIES This subminiature relay saves space (1.5 square inches, max., open) and weight (1.2 oz. open), and uses only 100MW of coil power per movable arm. It performs all the functions of a standard two-amp relay yet will fit easily into most miniaturization programs. Contact arrangements up to 4PDT for two-amp resistive loads.

MH SERIES A versatile, miniature relay used widely for many years in business machines and airborne computers where compact design and reliability are first considerations. Can be furnished to switch loads ranging from dry circuits to over 5 amps at 120 volts, 60 Hz resistive. Can be furnished in a hermetically sealed enclosure with a sealed coil for minimum contact contamination. For similar relays see MA MB and MC (pages 12 and 14).

ML SERIES This small telephone type relay has a sensitivity of 20 milliwatts per movable arm. Applicable for transistorized computers, telephone systems and battery powered portable communications equipment. Single or bifurcated contact arms can be furnished with up to 18 springs (9 per stack), up to 6 Form C.

ENCLOSURES

DUST COVERS

Type	Maximum Dimensions (Inches) Length	Width	Seated Ht.	Fits Relays
BS	4 15/32	1 13/64	2 33/64	BS
LT	4 15/64	2	2 1/4	LT
P	1 27/64	1 27/64	2 1/64	MH
MG	1 13/64	53/64	1 19/32	MG
LSP (16 pins)	1 25/32	1 25/64	2 17/32	LST
LSP (28 pins)	2 1/4	1 25/64	2 17/32	LST

SEALED OR DUST COVER

Type	Maximum Dimensions (Inches) Length	Width	Seated Ht.	Fits Relays
W	1 29/32	1 1/2	2 3/8	LS
D	1 15/16	1 11/32	2 11/16	TS, MH
D	2	1 11/32	2 1/2	MF
D	1 15/16	1 11/32	2 1/2	ML, MH
K	1 5/8	1 13/32	2 1/8	TS, MH
K	1 11/16	1 7/16	2 9/16	MF
K	1 21/32	1 7/16	2 9/16	ML, MH
K	1 21/32	1 7/16	2 1/8	LS, TS, MH

Type	Maximum Dimensions (Inches) Length	Width	Seated Ht.	Fits Relays
M	1 11/16	1 1/32	2 7/32	MH
M	1 29/32	1 1/32	2 15/32	MF
M	1 11/16	1 1/32	2 1/16	MH, ML
SEALED				
N	4.406	2.406	3.312	BS, LT
G	2 31/32	2 9/32	3 17/64	GS
R	1.421	.890	1 25/32	MH
T	1 47/64	1 5/16	2 7/64	MG

See back cover for ordering information.

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