

ASEA

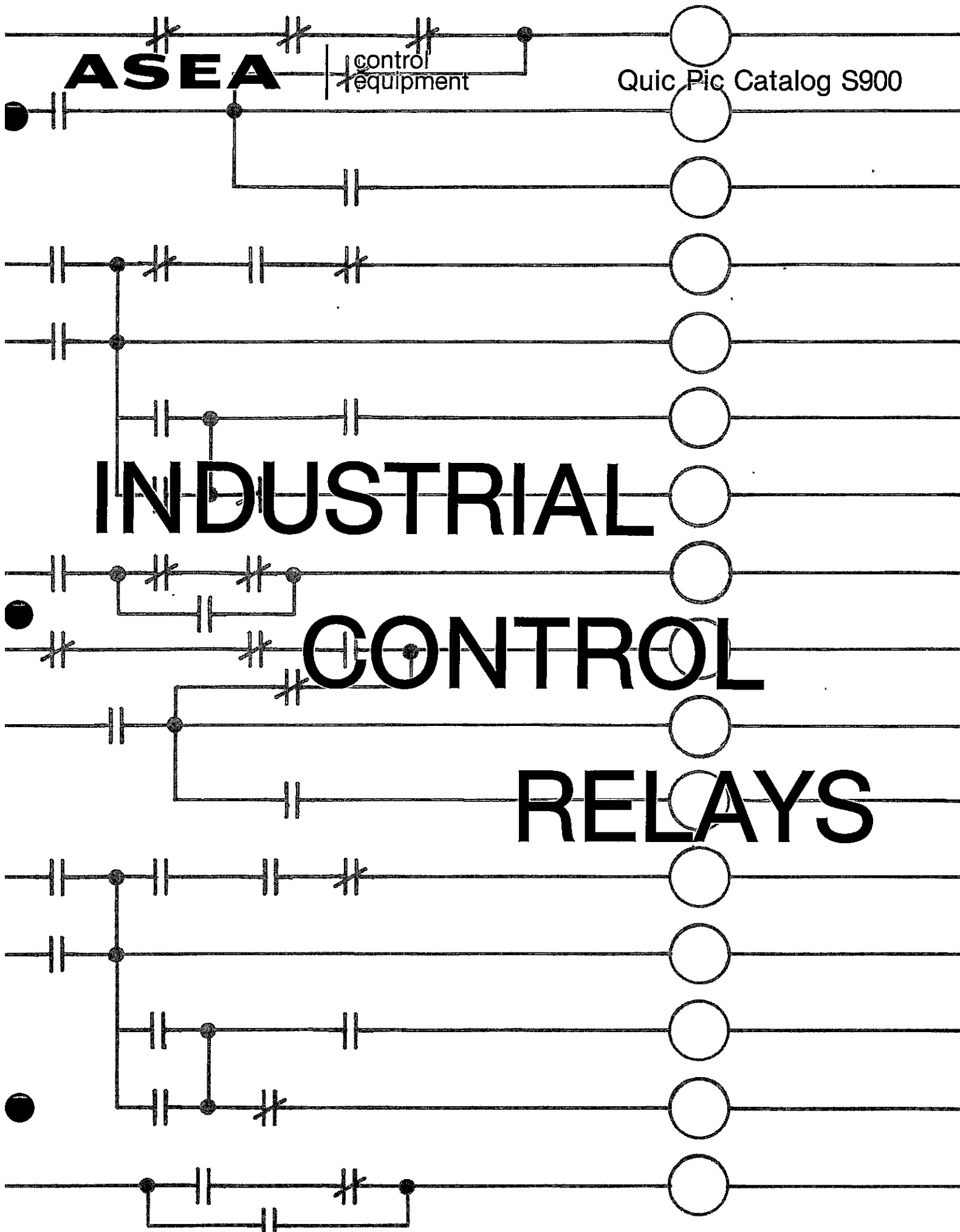
control
equipment

Quic Pic Catalog S900

INDUSTRIAL

CONTROL

RELAYS



Control Relay Catalog Guide

- ECR** — Control Relay Fixed Contact, Multiple Deck, 10A. 600V.
- MTR** — Machine Tool Relay, Convertible Contact, 10A. 600V. A.C.
- MTRD** — Machine Tool Relay, Convertible Contact, D.C. Operated
- MTRML** — Machine Tool Relay, Mechanically Latched.
- MTRPT** — Machine Tool Relay Timing Pneumatic
- MTRST** — Machine Tool Relay Timing, Solid State
- MTRPR** — Machine Tool Relay Timing, Programmable

General:

ASEA's line of components and controls are all designed, engineered and manufactured for long, dependable service. ASEA's motor control production facility is located in Yonkers, New York and has several regional offices and warehouses throughout the United States and Canada, in addition to manufacturing and sales offices throughout the world.

How to Order.

To simplify ordering and to assure speedy delivery, order by catalog number and include a description for each item.

Stock Items.

Most of the catalog listed items are available from stock at your nearest ASEA Control Equipment Authorized Distributor or at one of ASEA's regional warehouses. Check your nearest ASEA distributor or representative for specific stock availability.

Prices and Discounts.

All prices shown are list. The discount schedule is shown at the bottom center of each page. Consult your nearest representative or authorized ASEA Control Equipment Distributor for discount information.

Engineering Assistance.

ASEA maintains a competent, experienced group of design, application and sales engineers who will assist you in the selection and application of cataloged items, as well as non-standard or specialized controls to meet your specific requirements.

Standard Sales Policy

The ASEA Conditions of Sale for Control Equipment Products apply to all products of this catalog. For copies of Conditions of Sale, contact your nearest authorized ASEA Control Equipment Distributor or Representative.

Type ECR relays are compact general purpose relays, complete with a set of snap on attachments which offer flexibility in panel construction. Coils are interchangeable by means of spring clamps and all terminal screws are captive with saddle type clamps for fast wiring and are easily accessible from the front.

The ECR relays have fixed contacts. The contacts are double break bridge type with ridge construction for positive contact on low current and voltage applications or when subjected to harsh environments.

Accessories including a contact adder deck for adding up to 4 additional contacts in addition to the base relay, a pneumatic timer, and a mechanical latch can be added to fulfill specific control requirements.

Type ECR Relay AC operated⁽¹⁾

Contacts		Catalog Number	List Price
N.O.	N.C.		
4	0	ECR 40-*	\$34.
3	1	ECR 31-*	34.
2	2	ECR 22-*	34.
1	3	ECR 13-*	34.
0	4	ECR 04-*	34.

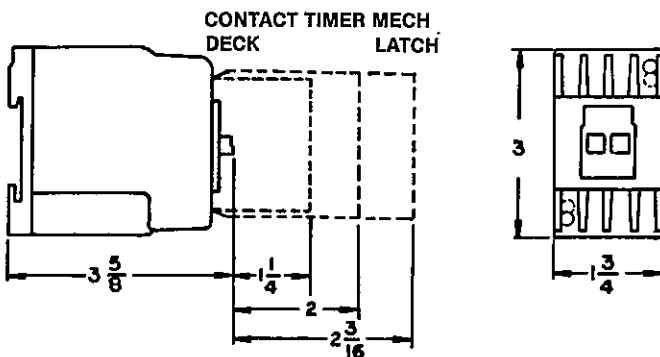
Substitute the proper code letter from the coil selection chart below in place of the asterisk to complete the catalog number.

Coil Selection Chart

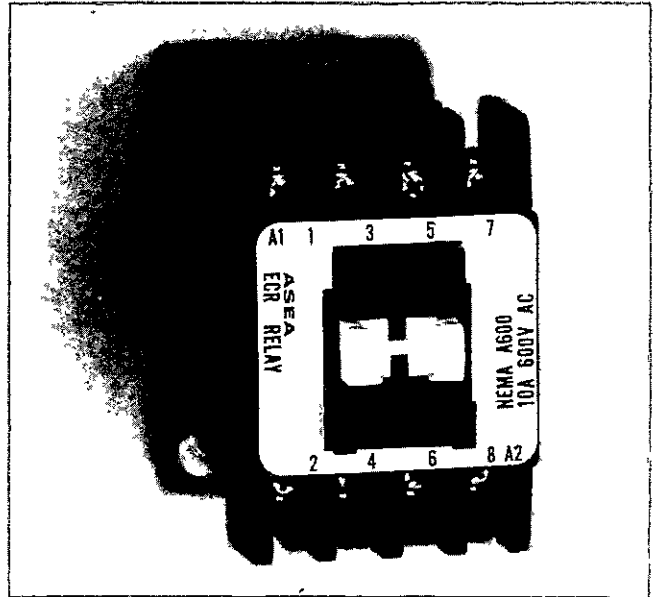
60 Hz	50 Hz
A-120V	H-110V
B-208V	J-220V
C-240V	K-380V
D-480V	
E-600V	
F- 24V	
S-Special (specify)	

Outline Dimensions

Type ECR Relay



(1) The ECR relay when used in conjunction with the ECRAD adder decks cannot contain more than 6 N.C. contacts.



Ratings

Contacts

AC: Make-7200VA, Break-720VA
 Continuous rating — 10 Amperes
 Maximum Voltage 600V
 Nema designation-A600

DC: Make/Break @ 125V — 1.1 Ampere
 @ 250V — .55 Ampere
 @ 301-600 — .20 Ampere

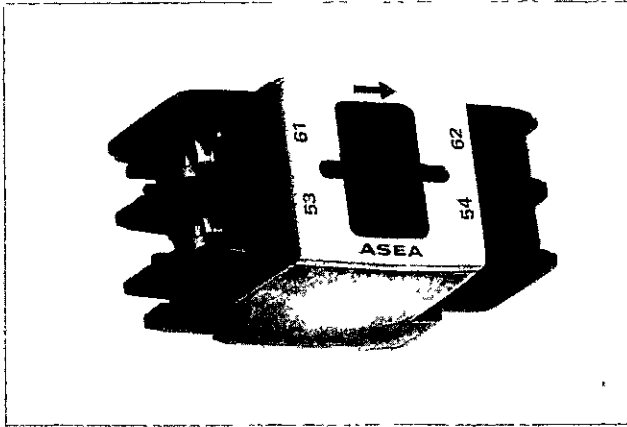
Mechanical Endurance: 20 million operations

Other Information

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Type ECR Multiple Deck Relay Accessories

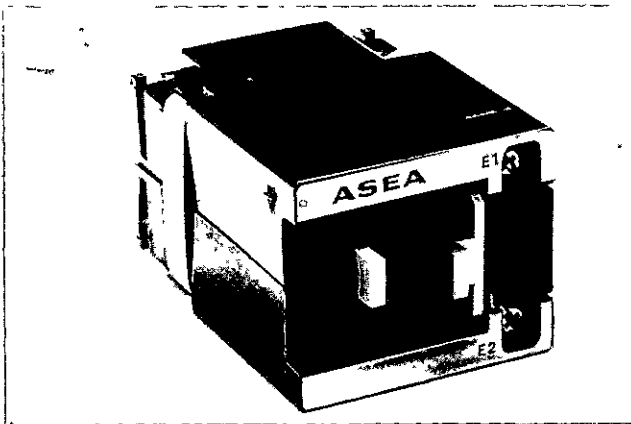
Adder Decks⁽¹⁾



Adder decks are designed to snap onto the top of the ECR control relay. The decks are available in both 2-pole and 4-pole versions in a variety of contact configurations.

Contacts		Catalog Number	List Price
N.O.	N.C.		
2	0	ECRAD-20	\$ 10.
1	1	ECRAD-11	10.
0	2	ECRAD-02	10.
4	0	ECRAD-40	20.
3	1	ECRAD-31	20.
2	2	ECRAD-22	20.
1	3	ECRAD-13	20.
0	4	ECRAD-04	

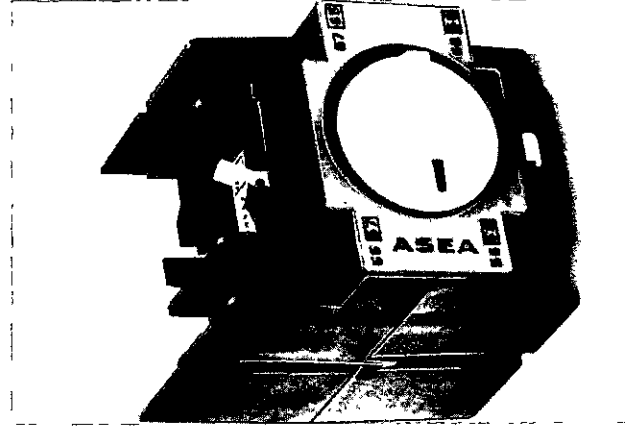
Mechanical Latch*



The latch is a separate snap on attachment designed to mechanically hold the ECR Relay in the picked up position once the control relay has been momentarily energized. The latch contains a trip coil for releasing the relay electrically and a pushbutton for releasing the relay mechanically.
Catalog No. **ECRML** List Price **\$56.00**

*select coil code suffix from chart on page 1 to complete catalog number.

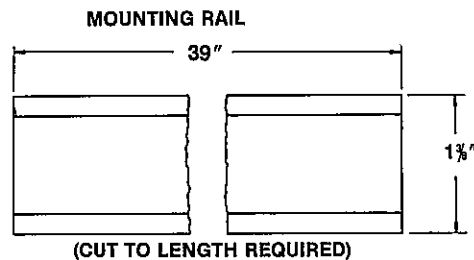
Pneumatic Timer⁽¹⁾



The time delay pneumatic timer attachment is designed to snap onto the top of the ECR control relay. The timer is field convertible from on-delay to off-delay and is equipped with one N.O. and one N.C. timed contact which operates after the timer coil has energized (on-delay) or after the timer coil has de-energized (off-delay.) The timer is adjustable and is available in two ranges.

Timing Range	Catalog No.	List Price
0.1-30 seconds	ECRPT-30	\$72.
10-180 seconds	ECRPT-180	72.

Mounting Rail



Universal mounting rails DIN type are available in 39 inch strips (1 meter) and can be cut to length required and attached to panels. Relays have built in clips which allow for snap on mounting.
Catalog No. **ECRMR** List Price **\$14.00**

(1) The ECR relay when used in conjunction with the ECRAD adder decks cannot contain more than 6 N.C. contacts.

The type MTR relay is a heavy duty, machine tool type relay, Nema class A600. The MTR is available with up to 12 convertible type cartridge contacts and has a complete set of accessories including mounting rails and adder decks. The MTR is physically interchangeable with most other popular industrial relays, and can be used as a direct substitute.

The MTR relay base is constructed of a metal alloy, similar to the type EG contactor, providing for excellent heat dissipation. Coils are encapsulated providing protection from harsh environments, and are easily interchangeable. The relay is deck type, each deck holding up to 4 contacts.

Type MTR Relay, A.C. Operated

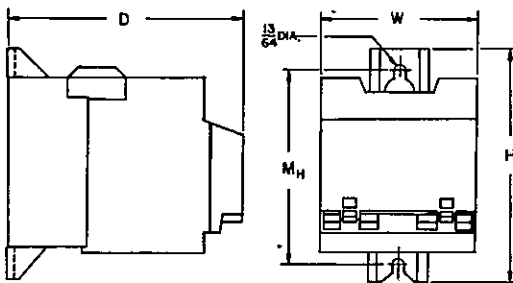
Number of Normally Open Contacts	Catalog Number	List Price
2	MTR20.*	\$ 48.
4	MTR40.*	64.
6	MTR60.*	80.
8	MTR80.*	96.
10	MTR100.*	112.
12	MTR120.*	128.

*Select coil code suffix from chart below to complete catalog number.

Coil Selection Chart

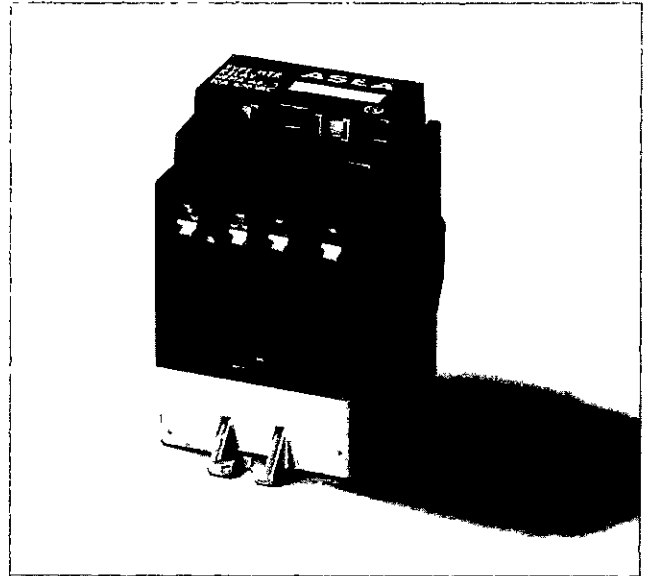
Coil Voltage	Suffix Code
110-120/60 or 110/50 -	A
208/60 -	B
220-240/60 or 220/50 -	C
440-480/60 or 440/50 -	D
550-600/60 or 550/50 -	E
24V/60 -	F
380V/50 -	K

Outline Dimensions Type MTR Relay



Approx. Relay Dimensions and Weights

No. Of Poles	W	H	D	M _H	Wt. (lbs.)
2-4			3-3/4"		1.8
5-8	2-7/32"	3-1/2"	4-7/8"	3-1/8"	2.2
9-12			6"		2.5



Contacts

Contacts provide a dual current path (juxtaposed), and each is enclosed in a plastic cartridge, common across the relay line. Cartridges are convertible from N.O. to N.C. by reversing their position in the MTR deck.

Cartridges are color coded, enabling the mode to be easily determined without removing relay covers. Control cartridges can be removed without disturbing wires connected to relay terminals.

All contact cartridges are mechanically linked by a double bar so that uniform restraint is maintained on all cartridges on each deck. This feature restricts contacts from the opposite mode from changing state if any contact becomes welded.

Contact Rating

NEMA Rating Desgn.	Max Volts.	Amperes		Cont. Amps.	Volt-Amperes	
		Make	Break		Make	Break
Maximum AC Contact Rating Per Pole — 50/60 Hz.						
A600	120	60	6	10	7200	720
	240	30	3	10	7200	720
	480	15	1.5	10	7200	720
	600	12	1.2	10	7200	720
Maximum DC Contact Rating Per Pole						
P300	125	1.1	1.1	5	138	138
	250	0.55	0.55	5	138	138

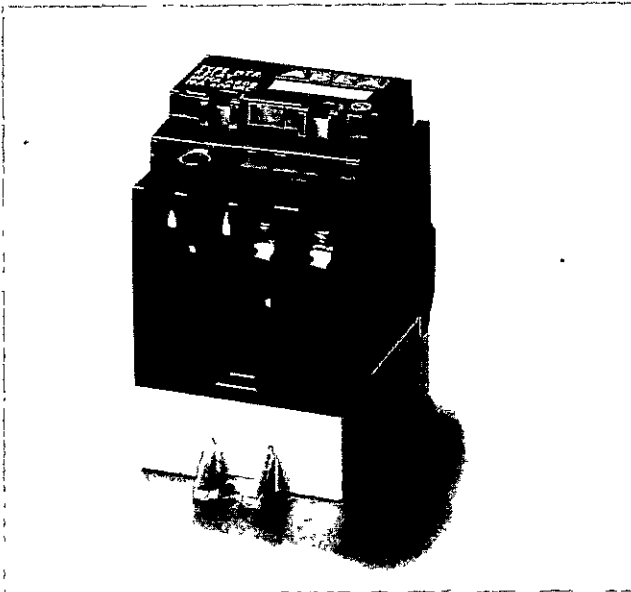
Coil Burden (AC operated)

Sealed VA: 50Hz-26.5VA, 60Hz-23VA
Inrush VA: 50Hz-120VA, 60Hz-138VA

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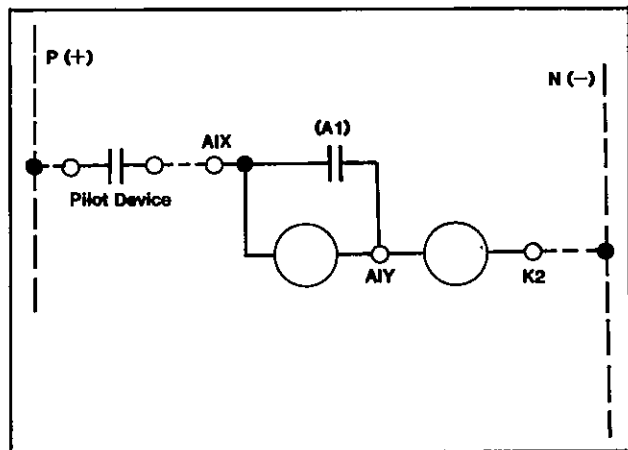
Type MTRD D.C. Operated Machine Tool Relay



The Type MTRD is similar to the MTR A.C. relay, however, is equipped for operation in D.C. control circuits. The coil and magnet frame are constructed differently to provide efficient operation in D.C. control circuits. MTRD relays are available with 2 to 10 convertible contacts (max 7 N.C.).

Type MTRD relays use a tapped coil and 2 contact positions to reconnect coil windings after energization. A normally closed latebreak contact is mounted in the lower deck (at position A1) and connected (through position A2) to the coil center tap at the factory.

D.C. Coil Connection — MTRD Relay



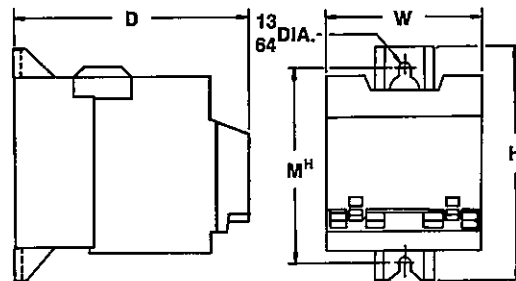
All other features of the MTRD relay are the same as the MTR A.C. operated relay; utilize the same accessories and have similar mounting dimensions.

Type MTRD Relay D.C. Operated⁽¹⁾

Number of Normally Open Contacts	Catalog Number	List Price
2	MTRD20-*	\$ 72.
4	MTRD40-*	88.
6	MTRD60-*	104.
8	MTRD80-*	120.
10	MTRD100-*	136.

*Select coil code suffix to complete catalog number: 120V-P or 240V.-Q.

Outline Dimensions



Approx. Relay Dimensions and Weights

No. Of Poles	W	H	D	M _H	Wt. (lbs.)
2-4			3-3/4"		1.8
4-6	2-7/32"	3-1/2"	4-7/8"	3-1/8"	2.2
8-10			6"		2.5

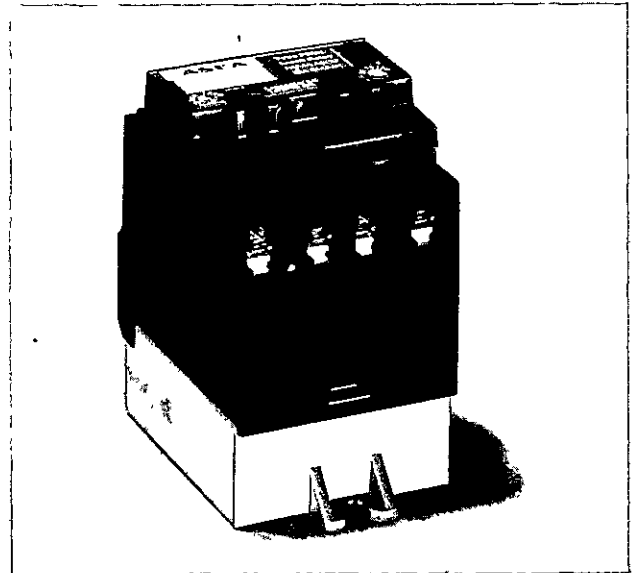
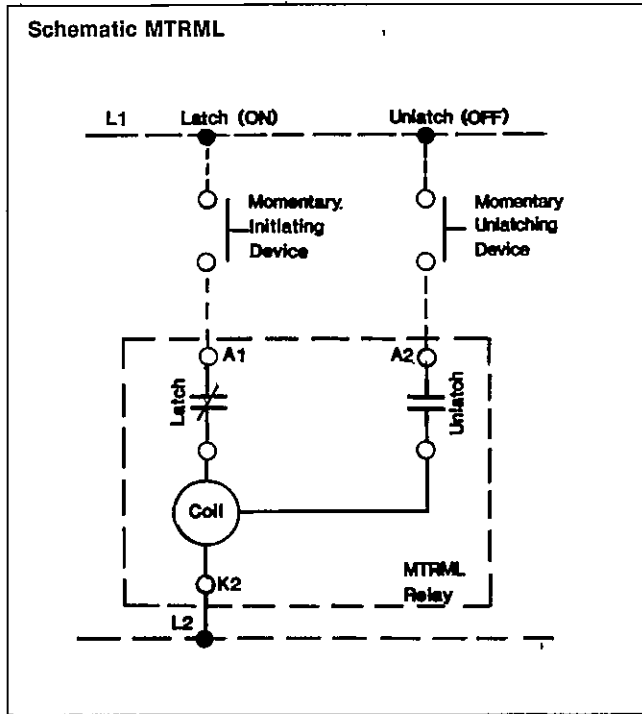
Other Information

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⁽¹⁾ D.C. coil burden data:
Inrush VA: 300
Sealed VA: 4.5 (240V-6.5)

Type MTRML Mechanically Latched Relay

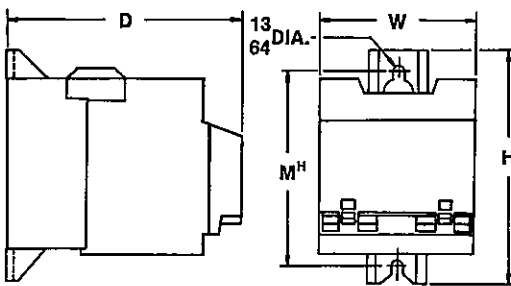
Type MTRML Relays are similar to the MTR AC relay, however are equipped with a built in permanent magnet latch device in the operating base. A special 2 winding coil is used in conjunction with 2 overlapping contacts installed in position 1 and 2 of the base 4 pole relay section, providing latching circuitry.



Type MTRML Relay

Number of N.O. Contacts	Coil ⁽¹⁾ Volt. (60Hz)	Cat. No.	List Price
2	120	MTRML20-A	\$104.
	240	MTRML20-C	

Outline Dimensions



Approx. Relay Dimensions and Weights

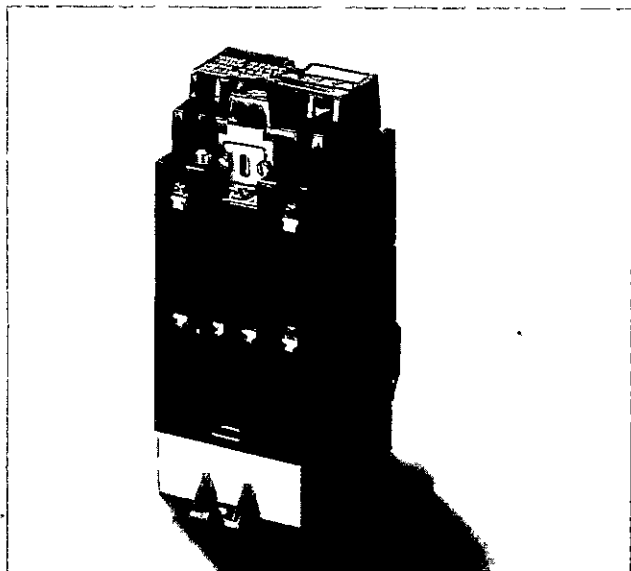
No. Of Poles	W	H	D	M _H	Wt. (lbs.)
2			3-3/4"	3-1/4"	1.8
4-6	2-7/32"	3-1/2"	6"	3-1/4"	2.5

(1) 120V coils operate at 110V/50Hz
240V coils operate at 220V/50Hz

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MTRPT Pneumatic Timing Relay

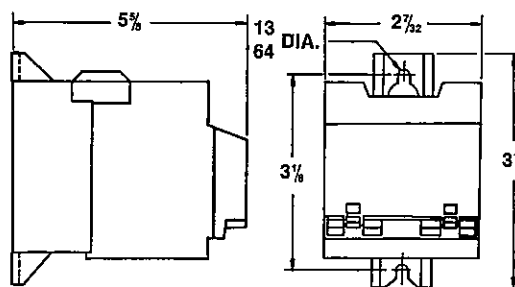


The Type MTRPT Pneumatic timing relay has the same features as the type MTR relay except a pneumatic timing device module is included in the deck structure.

Timing is adjustable from 0.2 to 180 seconds and has $\pm 10\%$ repeatability. ON delay or OFF delay is selected by a dial at the front of the relay. A time setting indicator is visible through the front cover permitting a relative indication of the time setting and a manual operator also permits operation during system checks.

MTRPT relays are supplied with 1 normally open and 1 normally closed timed contacts, additional instantaneous contacts (up to 4) are available on the lower deck of the relay.

Outline Dimensions



Type MTRPT Pneumatic Timer⁽¹⁾

Timed Contacts	Instant. Contacts N.O. ⁽²⁾	Cat. Number	List Price
1-N.O., 1-N.C. supplied	0	MTRPT00-*	\$144.
Standard	2	MTRPT20-*	160.
	4	MTRPT40-*	176.

*Select coil code suffix from chart below to complete catalog number.

Coil Selection Chart

Coil Voltage	Suffix Code
110-120/60 or 110/50 -	A
208/60 -	B
220-240/60 or 220/50 -	C
440-480/60 or 440/50 -	D
550-600/60 or 550/50 -	E
24V/60 -	F
380V/50 -	K

Contact Rating

All cartridges installed in the MTRPT time delay relay are the MTR-CP6 (non-series A), NEMA rated A600/P300. See page 3 for additional information.

Other Information

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(1) On delay: Field adjustment required for off delay.
(2) Factory supplied inst. contacts are N.O. and can be field converted to N.C.

The MTRST solid state timing relay is ideally suited for timing functions where accuracy and repeatability are required. The relay has an R-C timing circuit with an isolated relay output. The timing unit requires a constant 120V, 60Hz input.

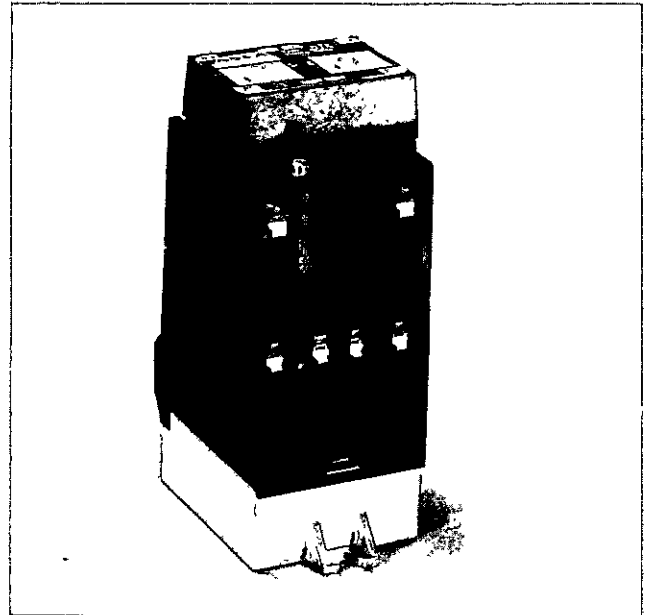
The timing module is assembled as an add on deck to a two pole type MTR relay and can be used in conjunction with or independent of the 2 pole relay base unit. The timing range is from 0.3 to 30 sec. and is adjustable with a 15 turn potentiometer. Units are not field convertible from on delay to off delay.

Contact Rating

Timer contacts are rated Nema C300. Maximum 300 volts and require the same polarity. Continuous current capacity 10A. Make rating: 1800VA, break rating 180VA. The MTR base unit contacts are rated A600. Refer to type MTR relays for contact rating information.

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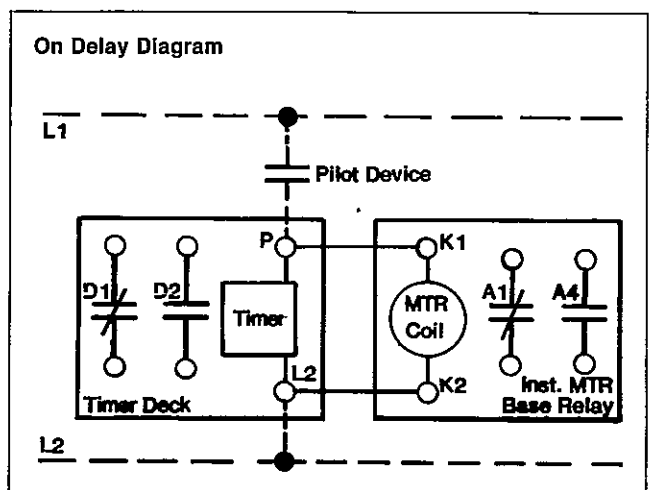
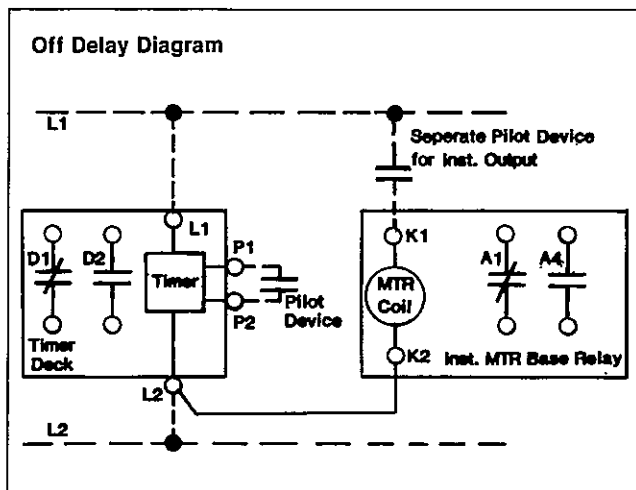


Off Delay Relay

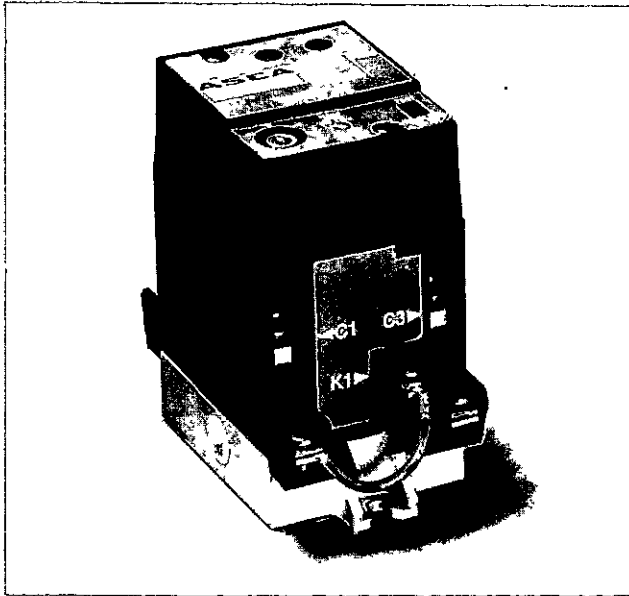
The off delay timing unit requires continuous AC power and utilizes a pilot device connected internally to the timing unit. The base MTR unit requires a separate pilot contact device to provide instantaneous output. For off delay contacts rated A600 use contact D1 of the timer deck as the pilot device for the MTR base relay. 120V. 60Hz only.
Catalog No. **MTRSTOF** List Price **\$160.**

On Delay Relay

On delay units are supplied with the coil of the base MTR relay connected in parallel with the timer unit to provide instantaneous output. If Nema A600 contacts are required for timed output, reconnect the MTR relay coil through contact D1 to obtain timed Nema A600 contacts. 120V. 60Hz only.
Catalog No. **MTRSTON** List Price **\$160.**



Type MTRPR Programmable Timing Relay



The Type MTRPR, Programmable Machine Tool Relay provides flexibility in circuit design, while permitting easy field modification or circuit checks of the system.

The relay includes a mode selector permitting 4 timing sequences: on delay fast; on delay slow; off delay fast and off delay slow.

A test button provides a check of the timing sequence, without energizing output contacts and monitored by LED indicators which permit visual indication of relay operation. A yellow LED indicates timing underway, red indicates timing sequence complete. Timing is adjustable in multiplier increments and accuracy under normal ambient conditions is $\pm 3\%$. The fast timing range is from 0.5 to 5 seconds and the slow timing range is 2 to 200 seconds.

The MTRPR relay can include an electro mechanical module, Type MTR, for NEMA A600 contact outputs or can be used as an independent module within the same relay base.

Construction

The MTRPR consists of 3 sections: Base, timing and electro-mechanical modules.

Base Module

This module provides the mounting base, internal power supply, triac output terminations and external power supply terminations for the MTRPR and is required for all configurations. It has the same mounting dimensions as all other relays in the MTR family and is available only for connection to 120 Volts, 60 Herz.

Standard Timing Module

This module provides the logic circuitry, status indication, setting and testing means for the MTRPR and is required for all configurations.

Electromechanical Module

This optional module is an electromechanical relay, complete with its own coil and magnet structure and two electro-mechanical contact cartridges. It employs the same contact cartridge as the other relays in the MTR family. These contacts may be timed or instantaneous, depending upon how the modules are interconnected. One or two electromechanical modules may be employed in the MTRPR. Each module is supplied with one normally open (N.O.) and one normally closed (N.C.) installed contact cartridges.

Contact Ratings

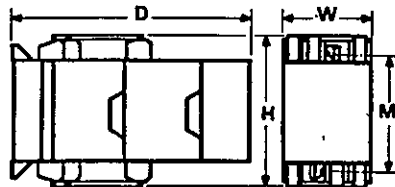
Timing contacts (Triac output):

- NEMA D150 — 120V, A.C. max.
- Make — 3.6 Amps, 432 VA
- Break — 0.6 Amps, 72 VA continuous carrying capacity 1.0

Electromechanical contacts:

See type MTR contact ratings.

Outline Dimensions



Dimensions and Weights

Number of EM Modules	Approx. Dimensions (in.)				Approx. Weight (lbs)
	W	H	D	M _H	
0	2-7/32	3-3/4	2-1/4	3-1/8	0.6
1	2-7/32	4	4-1/8	3-1/8	1.5
2	2-7/32	4	6	3-1/8	2.2

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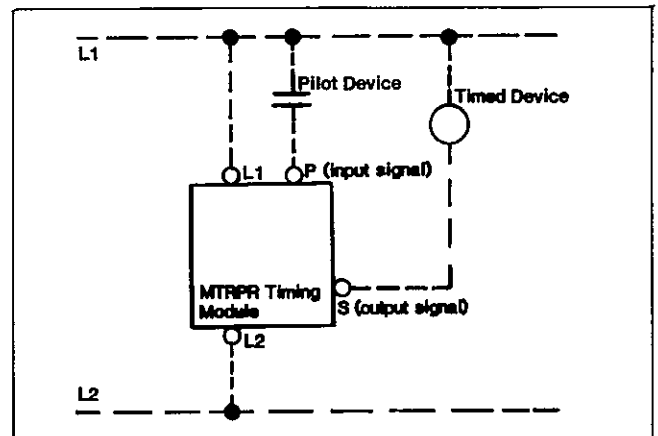
Type MTRPR Programmable Timing Relay

Standard Timing Unit

The Type MTRPR Relay consists of one base module and one standard timing module, providing one N.O. NEMA D150 solid state timed triac output. For operation at 120V, 60Hz only.

Catalog No. MTRPR

List Price \$254.

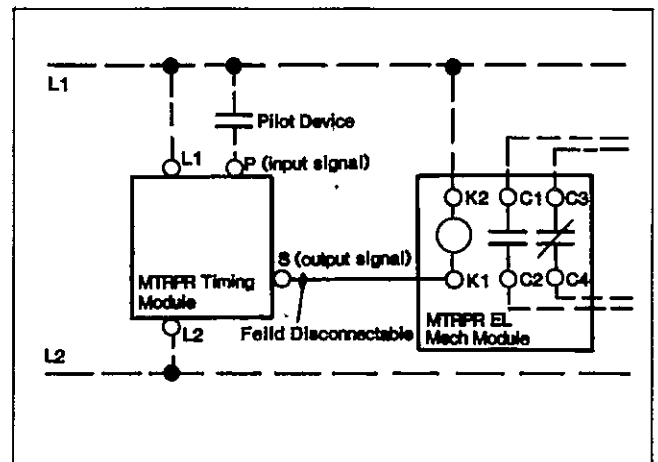


Timing Unit with One Electromechanical Module

The type MTRPR11 Relay consists of one base module, one electromechanical module and one standard timing module. It is factory wired such that the triac output drives the coil of the electromechanical module to provide two timed (1-N.O. and 1-N.C.) NEMA A600 contact cartridge outputs. Wiring can be removed and reconnected to provide either instantaneous contacts in addition to a timed output, or can be wired to operate independent of the timer. Unit for operation at 120V, 60Hz only.

Catalog No. MTRPR11

List Price \$308.

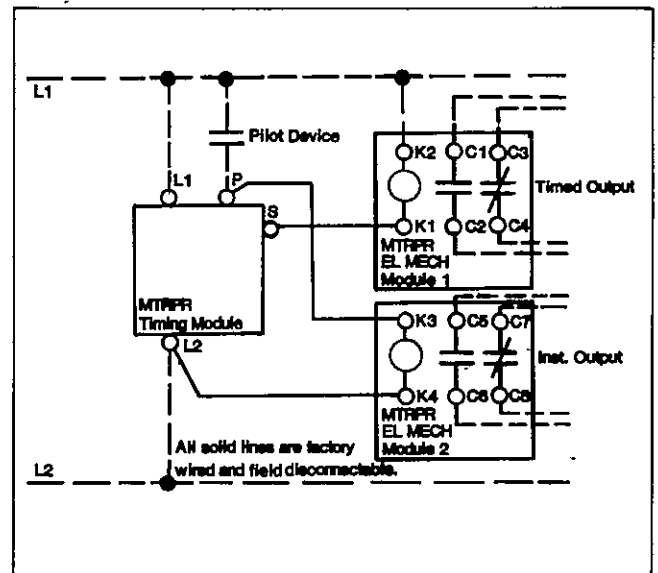


Timing Unit with Two Electromechanical Modules

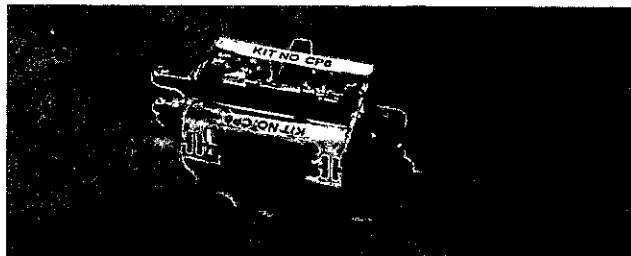
The type MTRPR22 Relay consists of one base module, two electromechanical modules and one standard timing module. It is factory wired such that the triac output drives the coil of one electromechanical module and the other electromechanical module is driven by the pilot device to provide two timed (1-N.O. & 1-N.C.) and two instantaneous (1-N.O. & 1 N.C.) NEMA A600 contacts. The unit is field reconnectable so that four timed contacts or one timed triac output and four instantaneous contacts can be made available. Unit for operation at 120V, 60Hz only.

Catalog No. MTRPR22

List Price \$362.



Contact Cartridges

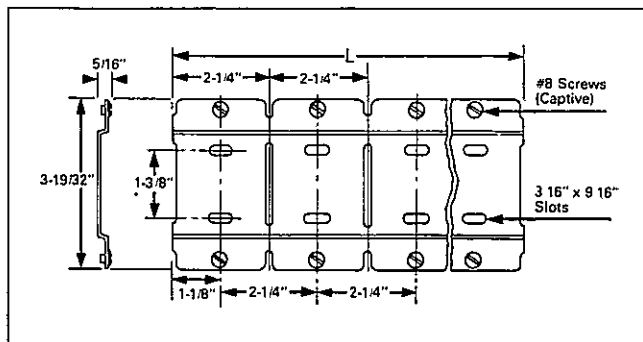


Standard contact cartridges are available in packages of four. Cartridges are convertible and interchangeable on all MTR relays. An overlap contact kit is available including 2 contact cartridges; to obtain overlap install one cartridge N.O. and the other N.C.

Standard Cartridge (4 Pack)
Catalog No. **MTR-P6P** List Price \$32.00
Overlap Cartridges (2 Pack)
Catalog No. **MTR-P6P-10** List Price \$16.00

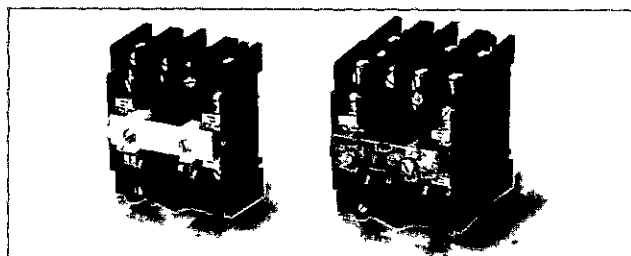
Mounting Rails

Mounting Rails are available to simplify installations of MTR machine tool relays. Rails accept most popular convertible cartridge type relays, and have captive screws for easy changeout or quick additions to existing relay panels.



No. of Relays	Rail Length (inches)	Catalog No.	List Price
4	9	MTR-R4	\$ 4.
8	18	MTR-R8	6.
12	27	MTR-R12	9.
16	36	MTR-R16	11.

Adder Deck



Adder decks each with 4 pole positions, are available to increase the number of contacts on the type MTR relays. Decks can be added to MTR AC and DC relays. Two versions are available; a single deck, supplied with two cartridges or a double deck supplied with six cartridges both factory mounted-N.O. Two additional cartridges can be added to each adder deck.

Description	Cat. No.	List Price
Single deck	MTRSD-20	\$ 16.
Double deck	MTRDD-60	48.

Surge Suppressor

Protects systems sensitive to high voltage interference (spikes). When connected across MTR coils, spikes are limited to 400 Volts.

Catalog No. **MTRK-1** List Price **\$12.00**

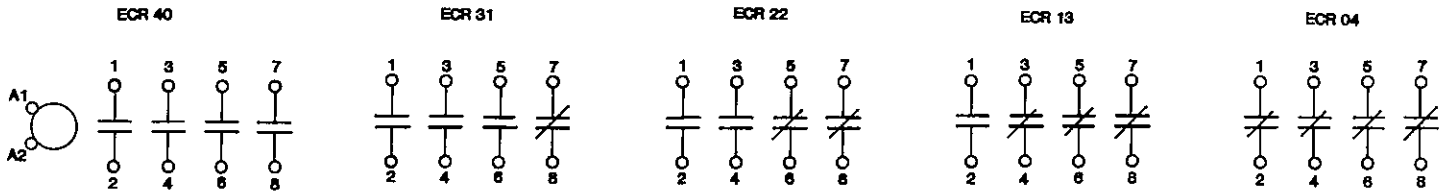
Enclosures

Enclosures are available for mounting up to two 8 pole relays, and are available in Nema 1, 4 or 12 types.

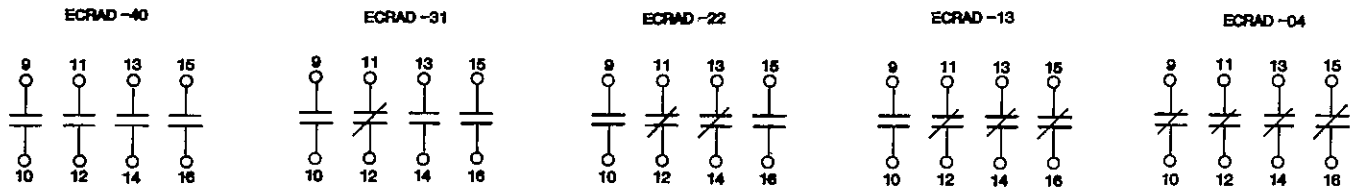
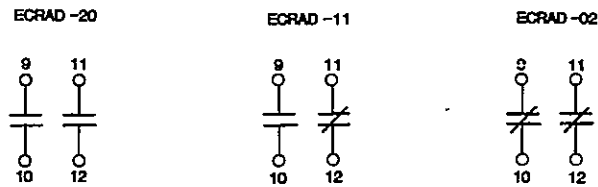
Enclosure Type	Catalog Number	List Price
NEMA 1	MTR01	\$ 30.
NEMA 4	MTR04	190.
NEMA 12	MTR12	80.

Schematic Diagram

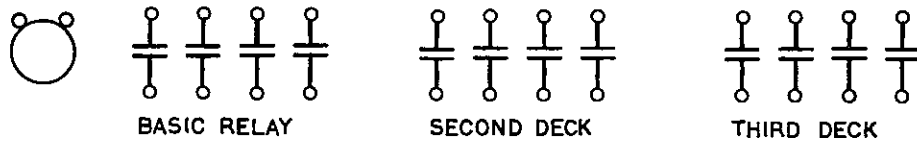
Type ECR Relay



Type ECR Adder Decks

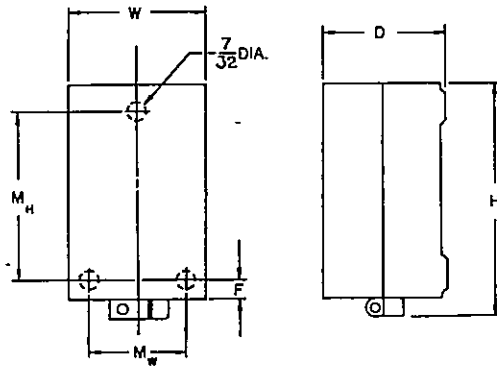


Type MTR Relay



Dimensions subject to change without notice.

Outline Dimensions



Approx. Enclosure Dimensions

Catalog No.	NEMA Type	W	H	D	M _H	M _W	F
MTR01	1	6-3/4"	10-1/5"	6-7/16"	7-3/4"	5"	7/8"
MTR04	4	7-1/4"	11"	6-5/16"	10-1/2"	4"	3/4"
MTR12	12						

Dimensions subject to change without notice.

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Changing technology for changing times

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