

# Industrial Control Relays

## Type X - NEMA Type Relays

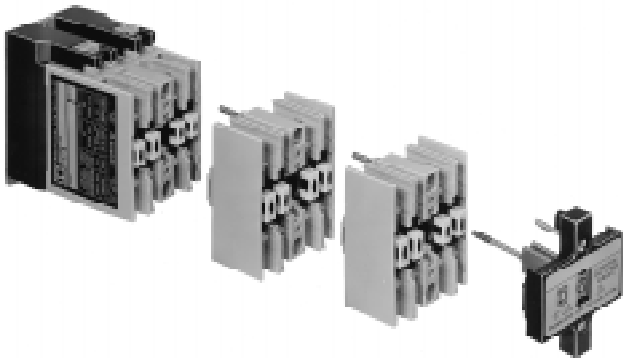
### General Information

Class 8501 Type X relays combine a rugged, heavy-duty design with modular construction for greater flexibility. They are ideal for those applications where long life, high reliability and ease of maintenance are important. The Type X family offers a complete line of relays and accessories for all control applications.

- Specified In Major Automotive Plants
- Modular Design Provides Greater Versatility and Reduction In Stock
- XUDO Version Ideal for Power Plant Applications
- Replaceable, Convertible Contacts
- Extremely Reliable Contacts
- 600 Volt 10 Ampere Rating (NEMA Type A600)
- Plug-In Color-Coded Contact Cartridges
- Mechanical Tie Between Contact Cartridges
- 1 and 3 Minute Timing Relays
- 8 Pole Latching Relays
- DC Operated Relays

### Modular Construction

A basic relay has room for up to 4 convertible contact cartridges. It can be expanded to 6 or 8 poles by installing an adder deck. A 10 or 12 pole relay can be built by adding a second deck. The same adder deck is used for both the middle and upper decks. Latching and timing relays are made by adding a latch or timer attachment to a basic relay. This reduces the number of components required in inventory.



### Common Mechanical Tie Non-Overlapping Contacts



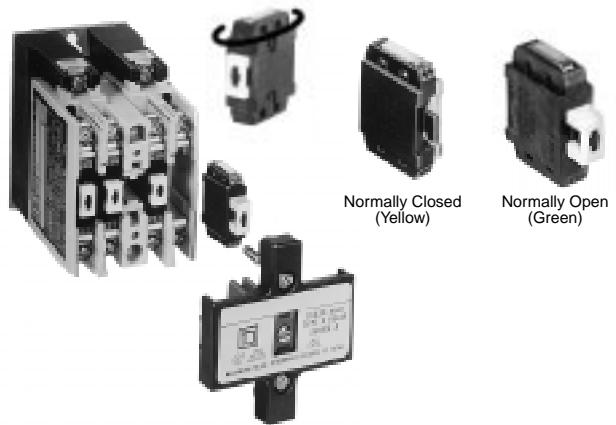
The Type X relay is designed to provide a significant degree of non-overlap between N.O. and N.C. contacts during normal operation. In addition, a common mechanical tie between all contact cartridges is provided. Therefore, the Type X relay is suitable for use in self-checking circuits for press control and automatic transfer line applications. Since the T-bar actuator is held captive in the cover plate, there is no chance of losing or forgetting to replace the mechanical tie when converting a contact or adding another deck.

### Plug-In Contact Cartridges

#### Contact Conversion Without Removing Terminal Screws or Wires

1. Remove relay cover and captive T-bar actuator.
2. Remove contact cartridge and rotate 180°.
3. Plug contact cartridge back in.
4. Replace T-bar actuator and cover.

**Note:** For additional information regarding contact cartridges see Page 9.



### Ring Or Spade Lugs – Form Y414

For relays with terminals that will accept ring or spade lugs, add Form Y414 to the Class and Type number of the device being ordered. Form Y414 is available on all AC relays, DC relays and attachments at no additional charge. Ring or spade lugs must have an outside diameter of .31 inch or less and an inside diameter large enough to accommodate a #6 screw. Lugs should accept #12 – #14 gauge (AWG) stranded copper wire. UL Listing is maintained only when AMP Plasti-Grip® #32958 insulated-barrel ring-tongue lugs are used.

### Normally Closed Contacts

Contact conversion is so simple that it is generally more economical to purchase relays with all contacts N.O. and convert contacts to N.C. as required. If it is preferred that relays be factory assembled with a combination of N.O. and N.C. contacts, change the type number so that following the “XO”, the first number indicates the number of normally open contacts (N.O.) and the second number indicates the number of normally closed contacts (N.C.). As indicated on contact arrangement tables found on Page 6.

There is a price adder for the factory installation of normally closed (N.C.) contacts.

### How to Order:

| To Order Specify:  | Catalog Number |      |              |         |
|--|----------------|------|--------------|---------|
|  | Class          | Type | Voltage Code | Form(s) |
| <ul style="list-style-type: none"> <li>• Class Number</li> <li>• Type Number</li> <li>• Voltage Code</li> <li>• Form(s)</li> </ul> | 8501           | XO40 | V02          | Y414    |



# Industrial Control Relays

## Type X - NEMA Type Relays/DC

### General Information, Order Information



#### DC Control Relays

- Replaceable, highly reliable pure DC Power Plant: no economizing resistors, overlapping contacts or dual-wound coil
- Utilizes the same Type XB Adder Decks and attachments as the AC Version
- Offers all the features of the AC Relay
- Available in up to 8 Poles
- All contact poles are usable since no overlapping contacts are needed
- Self-lifting pressure wire connectors that will accept up to two #12-18 (AWG) gauge stranded copper wires



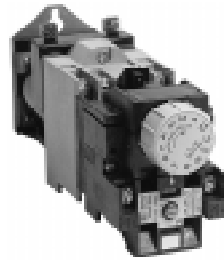
Type XDO40

| Normally Open Convertible Instantaneous Contacts | Control Relay |  |
|--|---------------|--|
|  | Type          |  |
| 0  | XDO00 *       |  |
| 2  | XDO20 *       |  |
| 4  | XDO40 *       |  |
| 6  | XDO60 *       |  |
| 8  | XDO80 *       |  |

 File CCN E78403 NKCR  
 File Class LR 60905 3211 03

#### DC Timing Relays

- Easily convertible On Delay or Off Delay
- Two adjustable timing ranges
- Repeat accuracy well above  $\pm 10\%$
- Convertible 1 N.O. and 1 N.C. timed contacts
- Large knob for easy adjustment of time delay
- Off Delay mode times out even after loss of power



Type XDO40XTE2

 File CCN E78403 NKCR  
 File Class LR 60905 3211 03

| Timing Mode | Normally Open Convertible Instantaneous Contacts | Timed Convertible Contacts |      | Timing Relay |             |
|-------------|--|----------------------------|------|--------------|-------------|
|             |  | N.O.                       | N.C. | 0.2-60 sec.  | 5-180 sec.  |
|             |  |                            |      | Type         | Type        |
| On Delay    | 0  | 1                          | 1    | XDO00XTE1 *  | XDO00XTE2 * |
|             | 2  | 1                          | 1    | XDO20XTE1 *  | XDO20XTE2 * |
|             | 4  | 1                          | 1    | XDO40XTE1 *  | XDO40XTE2 * |
| Off Delay   | 0  | 1                          | 1    | XDO00XTD1 *  | XDO00XTD2 * |
|             | 2  | 1                          | 1    | XDO20XTD1 *  | XDO20XTD2 * |
|             | 4  | 1                          | 1    | XDO40XTD1 *  | XDO40XTD2 * |

\* Voltage code must be specified to order this product. Refer to standard voltage code listed below and insert as shown in How To Order.

| Voltage Codes for 8501 XUDO Relays ONLY: |      | Voltage Codes for 8501 XDO Relays: |      |
|--|------|------------------------------------|------|
| DC Voltages                              | Code | DC Voltages                        | Code |
| 6  | V50  | 6                                  | V50  |
| 12                                       | V51  | 12                                 | V51  |
| 24                                       | V53  | 24                                 | V53  |
| 48                                       | V56  | 32                                 | V54  |
| 125                                      | V63  | 48                                 | V56  |
| 250                                      | V67  | 72                                 | V58  |
|  |      | 90                                 | V59  |
|  |      | 115/125                            | V62  |
|  |      | 230/250                            | V66  |


#### DC Latching Relays

- Mechanical Latch holds all contacts switched even after removal of power from replaceable Latching Coil
- Provides sequence memory in the event of power loss
- Ideal for sequencing applications such as press control, process control and punch presses
- Replaceable Unlatch coil to switch contacts back to original state



Type XDO40XDL

| Normally Open Convertible Instantaneous Contacts | Latching Relay $\Delta$ |  |
|--|-------------------------|--|
|  | Type                    |  |
| 2  | XDO20XDL *              |  |
| 4  | XDO40XDL *              |  |
| 6  | XDO60XDL *              |  |
| 8  | XDO80XDL *              |  |

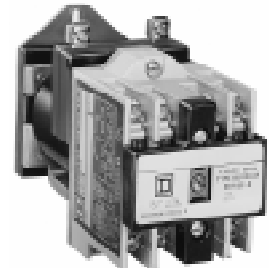
 File CCN E78403 NKCR  
 File Class LR 60905 3211 03

$\Delta$  **Caution:** Unlatch coil is rated for intermittent duty and should be connected through a N.O. contact of the relay if the input signal is maintained. Order one more N.O. contact than the application requires to use as a coil clearing contact. If a coil clearing contact is required in series with the latch coil, consult your local Square D field sales office.

#### DC Utility Relays



Ideal for utility plant applications where reliable performance and a pure DC power plant are required. In addition to the Type XDO relay features, the Type XUDO provides:

- Up to 12 poles N.O. or N.C.
- Nominal 125VDC coil, capable of handling 140VDC continuously and picking up at 105VDC after having been operated at 140VDC continuously. Other voltages with comparable operating characteristics are available
- Enclosed device capable of operating in 145°F ambient



Type XUDO

| Number of Convertible Contacts |      | Open Type  |  |
|--------------------------------|------|------------|--|
| N.O.                           | N.C. | Type       |  |
| 4                              | 0    | XUDO40 *   |  |
| 0                              | 4    | XUDO04 *   |  |
| 8                              | 0    | XUDO80 *   |  |
| 0                              | 8    | XUDO08 *   |  |
| 12                             | 0    | XUDO1200 * |  |
| 0                              | 12   | XUDO0012 * |  |

 File CCN E78403 NKCR  
 File Class LR 60905 3211 03

For Replacement Coils ..... Page 6

#### How to Order:

| To Order Specify: | Catalog Number |       |              |
|-------------------|----------------|-------|--------------|
| • Class Number    | Class          | Type  | Voltage Code |
| • Type Number     | 8501           | XDO40 | V53          |
| • Voltage Code    |                |       |              |

