

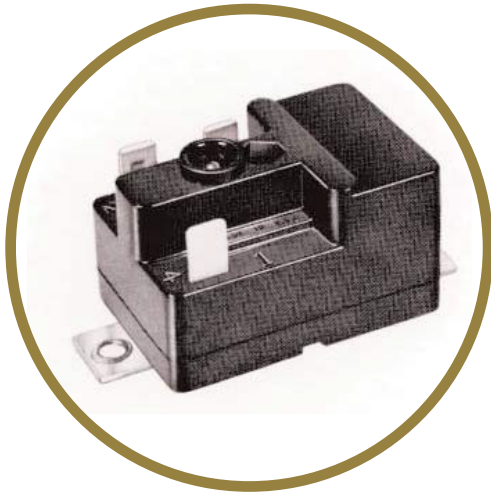


## 4CR SERIES | MOTOR STARTING RELAY

ALL POSITION, CURRENT-TYPE

### Product Description

The Klixon 4CR current type motor starting relay is a compact, high capacity relay, designed for universal application to splitphase and capacitor start, single-phase motors with start-winding currents up to 25 amperes.



### Key Benefits

- Reliable operation and long life independent of mounting position
- Wide range of pick-up and drop-out ratings
- Start-winding current rating - 25 amps
- Small size for installation in compact equipment
- Economical

### Construction

The 4CR relay utilizes a balanced armature to provide positive operation independent of mounting position. Double-break bonded Top-layer contacts provide excellent electrical and thermal conductivity to provide the high switching capacity and long electrical life. Silver cadmium oxide is used for the 25 amp contacts.

### Mounting and Terminals

The 4CR relay's compact size and universal mounting allow cost saving reductions in motor size and elimination of centrifugal switches. Mounting can be in the motor, in the conduit box, or remote from the motor. Calibrated in one position for a specific pick-up and drop-out, the 4CR remains within tolerance in all other mounting positions. A variety of mounting brackets, terminals and assembly screw extensions are available to meet any mounting requirements.

### Pick-Up and Drop-Out Ratings

Ratings indicated maximum pick-up and minimum drop-out current limits. Pick-up is the current through the relay coil required to close the relay contacts. Drop-out is the current through the relay coil at which the contacts open. A production relay of a given rating will have a pick-up and drop-out current within the rating limit.

### Operation

The 4CR relay coil is in series with the main winding of the motor and the normally open contacts are in series with the start winding. When voltage is applied to the motor, the in-rush current of the main winding through the relay coil creates a magnetic force which rotates the armature. This action closes the relay contacts and energizes the motor start winding.

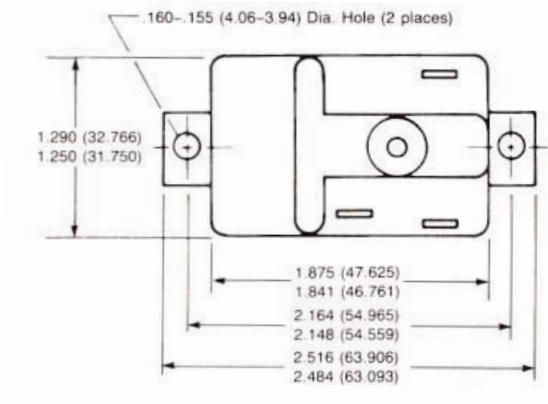
As motor speed increases, the current in the main winding and relay coil decrease to a point where the armature biasing spring force is greater than the decreasing magnetic force, and the armature rotates back to its original position. This opens the relay contacts and disconnects the start winding.



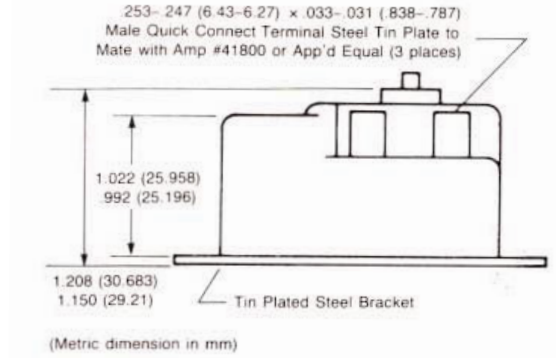
# DIMENSIONS

Metric Dimensions in Parenthesis

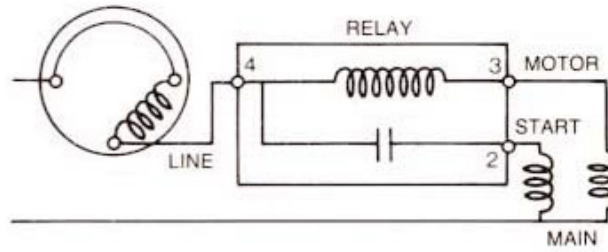
## 4CR-1-xxx



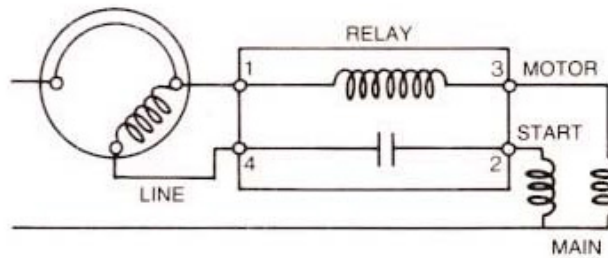
## 4CR-2-xxx = 90° Rotated Bracket



## Circuit Diagram



Single Circuit Relay



Two Circuit Relay



4CR - Y - XXX

**Basic Part Number**

Element: Description

**Physical Characteristics**

Element: Description

**Pick-Up and Drop-Out Rating**

See table on next page.

Rating Data Table

KLIXON Rating No.	Relay Operating Characteristics in Amps		KLIXON Rating No.	Relay Operating Characteristics in Amps		KLIXON Rating No.	Relay Operating Characteristics in Amps	
	Max. Pick-Up	Min. Drop-Out		Max. Pick-Up	Min. Drop-Out		Max. Pick-Up	Min. Drop-Out
<b>600</b>	1.01	0.83	<b>662</b>	6.30	5.20	<b>724</b>	15.0	12.4
<b>601</b>	1.07	0.88	<b>663</b>	6.40	5.30	<b>725</b>	15.2	12.5
<b>602</b>	1.12	0.93	<b>664</b>	6.50	5.35	<b>726</b>	15.4	12.7
<b>603</b>	1.17	0.97	<b>665</b>	6.60	5.45	<b>727</b>	15.6	12.8
<b>604</b>	1.22	1.01	<b>666</b>	6.70	5.50	<b>728</b>	15.8	13.0
<b>605</b>	1.27	1.06	<b>667</b>	6.80	5.60	<b>729</b>	16.0	13.2
<b>606</b>	1.32	1.10	<b>668</b>	6.90	5.70	<b>730</b>	16.2	13.4
<b>607</b>	1.38	1.13	<b>669</b>	7.00	5.80	<b>731</b>	16.4	13.5
<b>608</b>	1.42	1.17	<b>670</b>	7.10	5.90	<b>732</b>	16.6	13.7
<b>609</b>	1.47	1.22	<b>671</b>	7.20	5.90	<b>733</b>	16.8	13.9
<b>610</b>	1.53	1.27	<b>672</b>	7.30	6.00	<b>734</b>	17.0	14.0
<b>611</b>	1.58	1.30	<b>673</b>	7.40	6.10	<b>735</b>	17.3	14.3
<b>612</b>	1.63	1.35	<b>674</b>	7.50	6.20	<b>736</b>	17.5	14.4
<b>613</b>	1.68	1.38	<b>675</b>	7.60	6.30	<b>737</b>	17.7	14.6
<b>614</b>	1.73	1.43	<b>676</b>	7.70	6.30	<b>738</b>	17.9	14.8
<b>615</b>	1.78	1.47	<b>677</b>	7.80	6.40	<b>739</b>	18.1	14.9
<b>616</b>	1.83	1.51	<b>678</b>	7.90	6.50	<b>740</b>	18.3	15.1
<b>617</b>	1.88	1.55	<b>679</b>	8.00	6.60	<b>741</b>	18.5	15.3
<b>618</b>	1.93	1.59	<b>680</b>	8.10	6.70	<b>742</b>	18.7	15.4
<b>619</b>	1.98	1.64	<b>681</b>	8.20	6.80	<b>743</b>	18.9	15.6
<b>620</b>	2.03	1.68	<b>682</b>	8.30	6.80	<b>744</b>	19.1	15.8
<b>621</b>	2.13	1.76	<b>683</b>	8.40	6.90	<b>745</b>	19.3	15.9
<b>622</b>	2.23	1.84	<b>684</b>	8.50	7.00	<b>746</b>	19.5	16.1
<b>623</b>	2.33	1.92	<b>685</b>	8.60	7.10	<b>747</b>	19.7	16.3
<b>624</b>	2.43	2.02	<b>686</b>	8.70	7.20	<b>748</b>	19.9	16.4
<b>625</b>	2.54	2.10	<b>687</b>	8.80	7.30	<b>749</b>	20.1	16.6
<b>626</b>	2.63	2.17	<b>688</b>	8.90	7.40	<b>750</b>	20.3	16.7
<b>627</b>	2.74	2.26	<b>689</b>	9.00	7.50	<b>751</b>	20.5	16.9
<b>628</b>	2.85	2.35	<b>690</b>	9.10	7.50	<b>752</b>	20.7	17.1
<b>629</b>	2.95	2.45	<b>691</b>	9.20	7.60	<b>753</b>	20.9	17.2
<b>630</b>	3.05	2.50	<b>692</b>	9.30	7.70	<b>754</b>	21.1	17.4
<b>631</b>	3.25	2.60	<b>693</b>	9.40	7.80	<b>755</b>	21.3	17.6
<b>632</b>	3.25	2.70	<b>694</b>	9.50	7.80	<b>756</b>	21.5	17.7
<b>633</b>	3.35	2.75	<b>695</b>	9.60	7.90	<b>757</b>	21.7	17.9
<b>634</b>	3.45	2.85	<b>696</b>	9.70	8.00	<b>758</b>	21.9	18.1
<b>635</b>	3.55	2.95	<b>697</b>	9.80	8.10	<b>759</b>	22.1	18.2
<b>636</b>	3.65	3.05	<b>698</b>	9.90	8.20	<b>760</b>	22.3	18.4
<b>637</b>	3.75	3.20	<b>699</b>	10.0	8.30	<b>761</b>	22.5	18.6
<b>638</b>	3.85	3.20	<b>700</b>	10.2	8.40	<b>762</b>	22.7	18.8
<b>639</b>	3.95	3.30	<b>701</b>	10.4	8.60	<b>763</b>	22.9	18.9
<b>640</b>	4.05	3.35	<b>702</b>	10.6	8.70	<b>764</b>	23.1	19.1

KLIXON Rating No.	Relay Operating Characteristics in Amps		KLIXON Rating No.	Relay Operating Characteristics in Amps		KLIXON Rating No.	Relay Operating Characteristics in Amps	
	Max. Pick-Up	Min. Drop-Out		Max. Pick-Up	Min. Drop-Out		Max. Pick-Up	Min. Drop-Out
641	4.15	3.45	703	10.8	8.90	765	23.3	19.2
642	4.25	3.55	704	11.0	9.10	766	23.6	19.5
643	4.35	3.60	705	11.2	9.20	767	23.9	19.7
644	4.45	3.70	706	11.4	9.40	768	24.3	20.1
645	4.55	3.80	707	11.6	9.60	769	24.6	20.3
646	4.65	3.85	708	11.8	9.70	770	25.0	20.6
647	4.75	3.95	709	12.0	9.90	771	25.3	20.9
648	4.85	4.00	710	12.2	10.10	772	25.6	21.1
649	4.95	4.10	711	12.4	10.20	773	26.1	21.5
650	5.10	4.20	712	12.6	10.40	774	26.4	21.8
651	5.15	4.25	713	12.8	10.60	775	26.7	22.0
652	5.25	4.35	714	13.0	10.70	776	27.1	22.3
653	5.40	4.45	715	13.2	10.90	777	27.4	22.6
654	5.50	4.55	716	13.4	11.00	778	27.9	23.0
655	5.60	4.60	717	13.6	11.20	779	28.4	23.4
656	5.70	4.70	718	13.8	11.40	780	28.9	23.9
657	5.80	4.75	719	14.0	11.50	781	29.4	24.3
658	5.90	4.85	720	14.2	11.70	782	29.9	24.7
659	6.00	4.95	721	14.4	11.90	783	30.4	25.1
660	6.10	5.05	722	14.6	12.10	784	31.0	25.5
661	6.20	5.15	723	14.8	12.20	785	31.5	26.0

## AGENCY APPROVALS & CERTIFICATIONS



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