

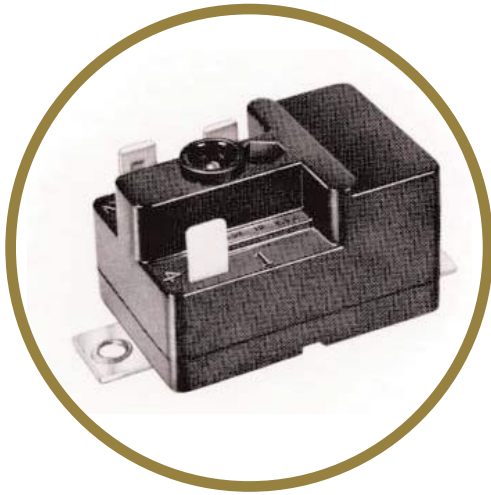


4CR SERIES | MOTOR STARTING RELAY

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.

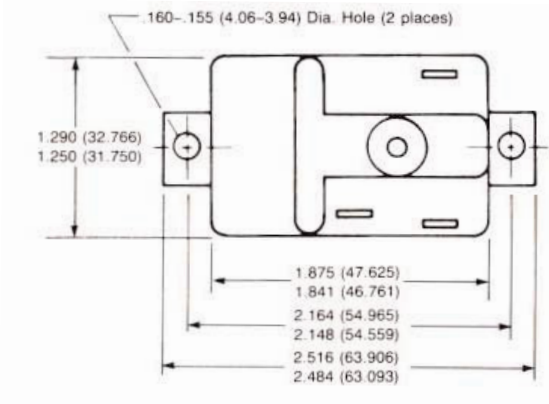
As motor speed increases, the current in the main winding and relay coil decrease to a point where the armature biasing spring force is greater than the decreasing magnetic force, and the armature rotates back to its original position. This opens the relay contacts and disconnects the start winding.



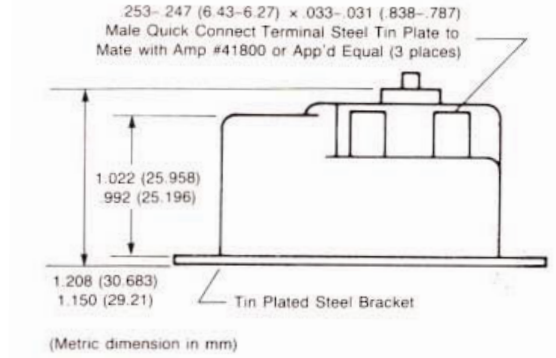
DIMENSIONS

Metric Dimensions in Parenthesis

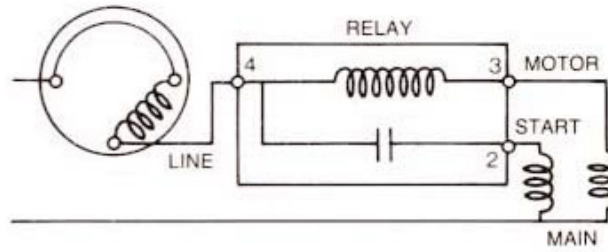
4CR-1-xxx



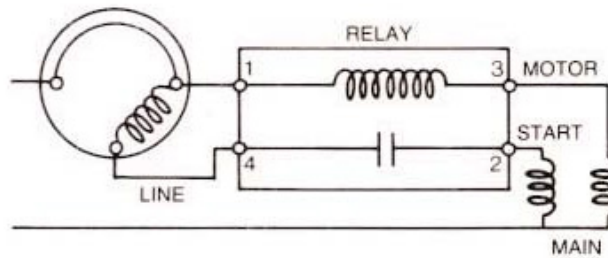
4CR-2-xxx = 90° Rotated Bracket



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
600	1.01	0.83	662	6.30	5.20	724	15.0	12.4
601	1.07	0.88	663	6.40	5.30	725	15.2	12.5
602	1.12	0.93	664	6.50	5.35	726	15.4	12.7
603	1.17	0.97	665	6.60	5.45	727	15.6	12.8
604	1.22	1.01	666	6.70	5.50	728	15.8	13.0
605	1.27	1.06	667	6.80	5.60	729	16.0	13.2
606	1.32	1.10	668	6.90	5.70	730	16.2	13.4
607	1.38	1.13	669	7.00	5.80	731	16.4	13.5
608	1.42	1.17	670	7.10	5.90	732	16.6	13.7
609	1.47	1.22	671	7.20	5.90	733	16.8	13.9
610	1.53	1.27	672	7.30	6.00	734	17.0	14.0
611	1.58	1.30	673	7.40	6.10	735	17.3	14.3
612	1.63	1.35	674	7.50	6.20	736	17.5	14.4
613	1.68	1.38	675	7.60	6.30	737	17.7	14.6
614	1.73	1.43	676	7.70	6.30	738	17.9	14.8
615	1.78	1.47	677	7.80	6.40	739	18.1	14.9
616	1.83	1.51	678	7.90	6.50	740	18.3	15.1
617	1.88	1.55	679	8.00	6.60	741	18.5	15.3
618	1.93	1.59	680	8.10	6.70	742	18.7	15.4
619	1.98	1.64	681	8.20	6.80	743	18.9	15.6
620	2.03	1.68	682	8.30	6.80	744	19.1	15.8
621	2.13	1.76	683	8.40	6.90	745	19.3	15.9
622	2.23	1.84	684	8.50	7.00	746	19.5	16.1
623	2.33	1.92	685	8.60	7.10	747	19.7	16.3
624	2.43	2.02	686	8.70	7.20	748	19.9	16.4
625	2.54	2.10	687	8.80	7.30	749	20.1	16.6
626	2.63	2.17	688	8.90	7.40	750	20.3	16.7
627	2.74	2.26	689	9.00	7.50	751	20.5	16.9
628	2.85	2.35	690	9.10	7.50	752	20.7	17.1
629	2.95	2.45	691	9.20	7.60	753	20.9	17.2
630	3.05	2.50	692	9.30	7.70	754	21.1	17.4
631	3.25	2.60	693	9.40	7.80	755	21.3	17.6
632	3.25	2.70	694	9.50	7.80	756	21.5	17.7
633	3.35	2.75	695	9.60	7.90	757	21.7	17.9
634	3.45	2.85	696	9.70	8.00	758	21.9	18.1
635	3.55	2.95	697	9.80	8.10	759	22.1	18.2
636	3.65	3.05	698	9.90	8.20	760	22.3	18.4
637	3.75	3.20	699	10.0	8.30	761	22.5	18.6
638	3.85	3.20	700	10.2	8.40	762	22.7	18.8
639	3.95	3.30	701	10.4	8.60	763	22.9	18.9
640	4.05	3.35	702	10.6	8.70	764	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



UL	File #SA-3745 3-8-68
CSA	#LR11372

Sensata Technologies, Inc. ("Sensata") data sheets are solely intended to assist designers ("Buyers") who are developing systems that incorporate Sensata products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products. Sensata data sheets have been created using standard laboratory conditions and engineering practices. Sensata has not conducted any testing other than that specifically described in the published documentation for a particular data sheet. Sensata may make corrections, enhancements, improvements and other changes to its data sheets or components without notice.

Buyers are authorized to use Sensata data sheets with the Sensata component(s) identified in each particular data sheet. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER SENSATA INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN. SENSATA DATA SHEETS ARE PROVIDED "AS IS". SENSATA MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE DATA SHEETS OR USE OF THE DATA SHEETS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. SENSATA DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO SENSATA DATA SHEETS OR USE THEREOF.

All products are sold subject to Sensata's terms and conditions of sale supplied at www.sensata.com SENSATA ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR THE DESIGN OF BUYERS' PRODUCTS. BUYER ACKNOWLEDGES AND AGREES THAT IT IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LEGAL, REGULATORY AND SAFETY-RELATED REQUIREMENTS CONCERNING ITS PRODUCTS, AND ANY USE OF SENSATA COMPONENTS IN ITS APPLICATIONS, NOTWITHSTANDING ANY APPLICATIONS-RELATED INFORMATION OR SUPPORT THAT MAY BE PROVIDED BY SENSATA.

Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

CONTACT US

Americas

+1 508 236 2551
electrical-protection-sales@sensata.com

Europe, Middle East & Africa

+3 174 357 8156
info-sse@list.sensata.com

Asia Pacific

EP_Asia_Public@list.sensata.com
China +86 (21)2306 1651
India +91 (40)4033 9611
Japan +81 (45)277 7104
Korea +82 (53) 644 9685
Rest of Asia +65(6478)6860