



JUTRION

CD2 SERIES

MOTOR OPERATING MECHANISM

OPERATING MANUAL

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1. OVERVIEW

The CD2 series motor operating mechanism (motor operator) uses a compact permanent-magnet DC motor. It is designed for remote closing, opening and reset operation of 63 A to 1250 A molded-case circuit breakers, enabling centralized remote control.

2. FEATURES

1. Compact construction, small size, convenient installation and reliable operation; manual-handle operation is also available.
2. A switching power supply provides strong mechanical and electrical endurance and high reliability.
3. AC and DC versions are available, with a wide control-voltage range and low operating current.
4. Red, green and white indicators show breaker closing, opening and released/tripped status.

3. PERFORMANCE DATA

Rated voltage	DC24V; AC110V/DC110V; AC230V/DC220V; AC400V
Insulation voltage	250V; 500V for the AC400V version
AC frequency	50/60Hz
Rated duty	Intermittent duty
Operating time	0.7-1.5 s
Withstand voltage	1890V AC for 5 s
Ambient temperature	-5 to +40 deg C
Heat/humidity	50 deg C; 90% RH

4. MODEL DESIGNATION

CD 2 - □ / □

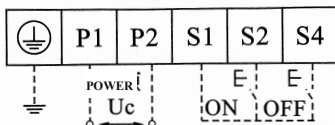
Compatible breaker families: NM1, NXM, CDM1, CDM3, CDM6, TGM1, TGM3, TGM1N, RMM1, CM1, CM3, CM1 residual-current/electronic types, ABB, NS, RDM5 and the new NF series.

Matched breaker frame rated current

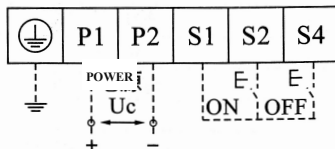
Design sequence

Motor operating mechanism

5. WIRING DIAGRAMS



AC WIRING Fig. 1

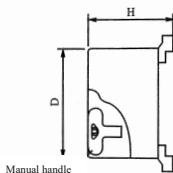


DC WIRING Fig. 2

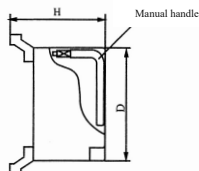
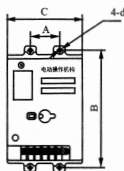
WARNING:

1. For manual operation, rotate the handle clockwise by 180 degrees. Counterclockwise operation is prohibited.
2. For the dielectric test, apply 50Hz, 1890V AC for 5 seconds between P1/P2 and the mounting screw. Exclude S1, S2 and S4.
3. Do not perform a power-frequency withstand test on the DC24V model.
4. Reverse polarity is strictly prohibited for DC wiring.

6. TECHNICAL DATA AND DIMENSIONS



CD2 / ≤ 250 A frame



CD2 / ≥ 400 A frame

Note: Rated control-supply voltage for K1: 110-240VAC / 110-220VDC or 24VDC. Maximum operating frequency: 180 operations per hour.

Rated control-supply voltage for K2: 110-230VAC / 110-220VDC or 24VDC. Maximum operating frequency: 60 operations per hour.

Model	Compatible breaker	Mounting / overall dimensions (mm)						Ctrl. Current (A)	Life (cycles)	Motor (W)
CD2-63/M1	M1 series	25	117	74	102	94	4	k1 ≤ 0.5	14000	14
CD2-100/M1	M1 series	30	129	90	116	95	4.5	k1 ≤ 0.5	14000	14
CD2-225/M1	M1 series	35	143	90	116	96	4.5	k1 ≤ 0.5	14000	14
CD2-400M1	M1 series	44	194	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-630M1	M1 series	58	200	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-800M1	M1 series	70	243	130	176	151	6.5	k2 ≤ 2	6000	35
CD2-1250/M1	M1 series	70	300	130	176	157	6	k2 ≤ 2	6000	35
CD2-100/M1LE	CM1 RCD/Elect.	30	129	90	116	97	4.5	k1 ≤ 0.5	14000	14
CD2-225/M1LE	CM1 RCD/Elect.	35	143	90	116	93	4.5	k1 ≤ 0.5	14000	14
CD2-400/M1LE	CM1 RCD/Elect.	44	194	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-630/M1LE	CM1 RCD/Elect.	70	243	130	176	151	6.5	k2 ≤ 2	6000	35
CD2-63/CM3	CM3 series	25	111	74	102	98	3.5	k1 ≤ 0.5	14000	14
CD2-100/CM3	CM3 series	30	129	90	116	95	4.5	k1 ≤ 0.5	14000	14
CD2-250/CM3	CM3 series	35	143	90	116	96	4.5	k1 ≤ 0.5	14000	14
CD2-400/CM3	CM3 series	44	194	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-630/CM3	CM3 series	58	200	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-800/CM3	CM3 series	70	243	130	176	151	6.5	k2 ≤ 2	6000	35
CD2-100/CM3E	CM3E series	30	129	90	116	97	4.5	k1 ≤ 0.5	14000	14
CD2-250/CM3E	CM3E series	35	126	90	116	93	4.5	k1 ≤ 0.5	14000	14
CD2-400/CM3E	CM3E series	44	194	130	173	149	6.5	k2 ≤ 2	6000	35
CD2-630/800/CM3E	CM3E series	70	243	130	173	151	6.5	k2 ≤ 2	6000	35
CD2-1250/CM3E	CM3E series	70	303	130	173	156	6.5	k2 ≤ 2	6000	35
CD2-63/CDM1	CDM1 series	25	117	74	102	94	3.5	k1 ≤ 0.5	14000	14
CD2-100/CDM1	CDM1 series	30	129	90	116	95	4.5	k1 ≤ 0.5	14000	14
CD2-225/CDM1	CDM1 series	35	143	90	116	96	4.5	k1 ≤ 0.5	14000	14
CD2-400/CDM1	CDM1 series	44	215	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-630/CDM1	CDM1 series	58	200	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-800/CDM1	CDM1 series	70	243	130	176	151	6.5	k2 ≤ 2	6000	35
CD2-1250/CDM1	CDM1 series	70	300	130	176	157	6.5	k2 ≤ 2	6000	35
CD2-63/125/CDM3	CDM3 series	25	111	74	102	98	3.5	k1 ≤ 0.5	14000	14
CD2-100/CDM3	CDM3 series	30	129	90	116	98	4.5	k1 ≤ 0.5	14000	14
CD2-160/250/CDM3	CDM3 series	35	126	90	116	100	4.5	k1 ≤ 0.5	14000	14
CD2-400/630/CDM3	CDM3 series	44	215	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-800/CDM3	CDM3 series	70	243	130	176	151	6.5	k2 ≤ 2	6000	35
CD2-1250/CDM3	CDM3 series	70	300	130	176	157	6.5	k2 ≤ 2	6000	35
CD2-1250/CDM3S	CDM3 series	70	243	130	176	151	6.5	k2 ≤ 2	6000	35
CD2-63/CDM6	CDM6 series	25	111	74	102	98	3.5	k1 ≤ 0.5	14000	14
CD2-100/CDM6	CDM6 series	30	129	90	116	98	4.5	k1 ≤ 0.5	14000	14
CD2-250/CDM6	CDM6 series	35	126	90	116	100	4.5	k1 ≤ 0.5	14000	14
CD2-400/630/CDM6	CDM6 series	44	215	130	176	149	6.5	k2 ≤ 2	6000	35
CD2-800/CDM6	CDM6 series	70	243	130	176	151	6.5	k2 ≤ 2	6000	35
CD2-63/NM1	NM1 series	25	117	74	102	94	3.5	k1 ≤ 0.5	14000	14
CD2-100/NM1	NM1 series	30	130	90	116	95	4.5	k1 ≤ 0.5	14000	14
CD2-250/NM1	NM1 series	35	143	90	116	96	4.5	k1 ≤ 0.5	14000	14
CD2-250G/NM1	NM1 series	35	142	90	116	103	4.5	k1 ≤ 0.5	14000	14
CD2-400/NM1	NM1 series	44	194	130	176	160	6.5	k2 ≤ 2	6000	35
CD2-630/NM1	NM1 series	58	200	130	176	157	6.5	k2 ≤ 2	6000	35

Model	Compatible breaker	Mounting / overall dimensions (mm)						Ctrl : Current (A)	Life (cycles)	Motor (W)	
CD2-800/NM1	NM1 series	70	243	130	176	161	6.5	k2	≤2	6000	35
CD2-1250/NM1	NM1 series	70	300	130	176	157	6.5	k2	≤2	6000	35
CD2-125/NM8	NM8 series	83	135	90	116	102	3.5	k1	≤0.5	14000	14
CD2-250/NM8	NM8 series	95	152	90	116	109	3.5	k1	≤0.5	14000	14
CD2-400/630/NM8	NM8 series	45	200	130	176	152	6.5	k2	≤2	6000	35
CD2-800/NM8	NM8 series	65	235	130	176	149	6.5	k2	≤2	6000	35
CD2-63/125/NXM	NXM series	25	117	74	102	98	4	k1	≤0.5	14000	14
CD2-160/NXM	NXM series	30	131	90	116	102	4.5	k1	≤0.5	14000	14
CD2-250/320/NXM	NXM series	35	142	90	116	103	4.5	k1	≤0.5	14000	14
CD2-400/630NXM	NXM series	44	194	130	176	160	6.5	k2	≤2	6000	35
CD2-800/NXM	NXM series	58	200	130	176	157	6.5	k2	≤2	6000	35
CD2-1000/NXM	NXM series	70	243	130	176	157	6.5	k2	≤2	6000	35
CD2-1600/NXM	NXM series	70	314	130	176	162	6.5	k2	≤2	6000	35
CD2-125/NXMLE	NXMLE series	25	138	74	102	98	4	k1	≤0.5	14000	14
CD2-160/NXMLE	NXMLE series	30	135	90	116	102	4.5	k1	≤0.5	14000	14
CD2-250/NXMLE	NXMLE series	35	150	90	116	103	4.5	k1	≤0.5	14000	14
CD2-400/NXMLE	NXMLE series	44	228	130	176	160	6.5	k2	≤2	6000	35
CD2-630/NXMLE	NXMLE series	58	200	130	176	157	6.5	k2	≤2	6000	35
CD2-63/TGM1	TGM1 series	25	117	74	102	94	3.5	k1	≤0.5	14000	14
CD2-100/TGM1	TGM1 series	30	129	90	116	95	4.5	k1	≤0.5	14000	14
CD2-250/TGM1	TGM1 series	35	143	90	116	96	4.5	k1	≤0.5	14000	14
CD2-400/TGM1	TGM1 series	44	215	130	176	149	6.5	k2	≤2	6000	35
CD2-630/TGM1	TGM1 series	58	200	130	176	149	6.5	k2	≤2	6000	35
CD2-800/TGM1	TGM1 series	70	243	130	176	151	6.5	k2	≤2	6000	35
CD2-1250/TGM1	TGM1 series	70	300	130	176	157	6.5	k2	≤2	6000	35
CD2-100/TGM3	TGM3 series	30	129	90	116	102	4.5	k1	≤0.5	14000	14
CD2-250/TGM3	TGM3 series	35	143	90	116	99	4.5	k1	≤0.5	14000	14
CD2-400/TGM3	TGM3 series	44	195	130	176	149	6.5	k2	≤2	6000	35
CD2-630/800/TGM3	TGM3 series	70	243	130	176	151	6.5	k2	≤2	6000	35
CD2-63/125/TGM1N	TGM1N series	25	111	74	102	97	4.2	k1	≤0.5	14000	14
CD2-160/TGM1N	TGM1N series	30	129	90	116	102	4.5	k1	≤0.5	14000	14
CD2-250/TGM1N	TGM1N series	35	143	90	116	99	4.5	k1	≤0.5	14000	14
CD-400/630/TGM1N	TGM1N series	44	194	130	176	156	6.5	k2	≤2	6000	35
CD2-800/TGM1N	TGM1N series	70	243	130	176	154	6.5	k2	≤2	6000	35
CD2-63/RDM1	RDM1 series	25	117	74	102	94	3.5	k1	≤0.5	14000	14
CD2-100/RDM1	RDM1 series	30	129	90	116	95	4.5	k1	≤0.5	14000	14
CD2-225/RDM1	RDM1 series	35	143	90	116	96	4.5	k1	≤0.5	14000	14
CD2-400/RDM1	RDM1 series	44	215	130	176	152	6.5	k2	≤2	6000	35
CD2-630/RDM1	RDM1 series	58	200	130	176	152	6.5	k2	≤2	6000	35
CD2-800/RDM1	RDM1 series	70	243	130	176	151	6.5	k2	≤2	6000	35
CD2-1250/RDM1	RDM1 series	70	300	130	178	157	6.5	k2	≤2	6000	35
CD2-63/RDM5	RDM5 series	25	111	74	102	97	3.5	k1	≤0.5	14000	14
CD2-125/RDM5	RDM5 series	30	129	90	116	97	4.5	k1	≤0.5	14000	14
CD2-250/RDM5	RDM5 series	35	143	90	116	95	4.5	k1	≤0.5	14000	14
CD2-400/RDM5	RDM5 series	44	196	130	176	148	6.5	k2	≤2	6000	35
CD2-630/RDM5	RDM5 series	58	201	130	176	148	6.5	k2	≤2	6000	35

Model	Compatible breaker	Mounting / overall dimensions (mm)						Ctrl	Current (A)	Life (cycles)	Motor (W)
CD2-800/RDM5	RDM5 series	70	244	130	176	151	6.5	k2	≤2	6000	35
CD2-63/RMM1	RMM1 series	25	117	74	102	94	3.5	k1	≤0.5	14000	14
CD2-100/RMM1	RMM1 series	30	130	90	116	95	4.5	k1	≤0.5	14000	14
CD2-225/RMM1	RMM1 series	35	143	90	116	96	4.5	k1	≤0.5	14000	14
CD2-400/RMM1	RMM1 series	44	194	130	176	155	6.5	k2	≤2	6000	35
CD2-630/800/RMM1	RMM1 series	70	234	130	176	152	6.5	k2	≤2	6000	35
CD2-63/RMM3	RMM3 series	25	114	74	102	95	4.5	k1	≤0.5	14000	14
CD2-125/160/RMM3	RMM3 series	30	132	90	116	95	4.5	k1	≤0.5	14000	14
CD2-250/315/RMM3	RMM3 series	35	143	90	116	96	4.5	k1	≤0.5	14000	14
CD2-400/RMM3	RMM3 series	44	194	130	176	155	6.5	k2	≤2	6000	35
CD2-630/800/RMM3	RMM3 series	70	243	130	176	152	6.5	k2	≤2	6000	35
CD2-125/ABB	ABB'S HSM1	25	111	74	102	86	4.5	k1	≤0.5	14000	14
CD2-160/ABB	ABB'S HSM1	30	111	74	102	86	4.5	k1	≤0.5	14000	14
CD2-250/ABB	ABB'S HSM1	35	139	90	116	101	4.5	k1	≤0.5	14000	14
CD2-400/ABB	ABB'S HSM1	40	214	130	176	151	6.5	k2	≤2	6000	35
CD2-630/ABB	ABB'S HSM1	70	237	130	176	141	6.5	k2	≤2	6000	35
CD2-1250/ABB	ABB'S HSM1	70	317	130	176	137	6.5	k2	≤2	6000	35
CD2-T1/ABB	ABB/T series	25	107	74	102	101	4.5	k1	≤0.5	14000	14
CD2-T2/ABB	ABB/T series	25	107	74	102	101	4.5	k1	≤0.5	14000	14
CD2-T3/ABB	ABB/T series	30	122	74	102	102	4.5	k1	≤0.5	14000	14
CD2-T4/ABB	ABB/T series	35	176	130	176	143	5.5	k2	≤2	6000	35
CD2-T5/ABB	ABB/T series	46	176	130	176	143	6.5	k2	≤2	6000	35
CD2-T6/ABB	ABB/T series	70	237	130	176	141	6.5	k2	≤2	6000	35
CD2-XT1/ABB	ABB/XT series	25	110	74	102	98	4.5	k1	≤0.5	14000	14
CD2-XT2/ABB	ABB/XT series	30	110	74	102	98	4.5	k1	≤0.5	14000	14
CD2-XT3/ABB	ABB/XT series	35	122	90	116	98	4.5	k1	≤0.5	14000	14
CD2-XT4/ABB	ABB/XT series	35	140	90	116	98	4.5	k1	≤0.5	14000	14
CD2-XT5/ABB	ABB/XT series	46	176	130	176	137	6	k2	≤2	6000	35
CD2-XT6/ABB	ABB/XT series	70	243	130	176	137	6	k2	≤2	6000	35
CD2-100/EZD	EZD/NSC series	25	111	74	102	95	4	k1	≤0.5	14000	14
CD2-250/EZD	EZD/NSC series	35	126	90	116	97	4.5	k1	≤0.5	14000	14
CD2-400/630/EZD	EZD/NSC series	45	200	130	176	152	6.5	k2	≤2	6000	35
CD2-100/250/NS	NS/NSX/CVS/EZS	95	152	90	116	109	3.5	k1	≤0.5	14000	14
CD2-400/630/NS	NS/NSX/CVS/EZS	45	200	130	176	152	6.5	k2	≤2	6000	35
CD2-800/1600NS	NS series	110	150	130	176	170	5	k2	≤2	6000	35
CD2-63/NF	NF series	25	111	74	102	95	3.5	k1	≤0.5	14000	14
CD2-100/NF	NF series	30	132	90	116	95	4.5	k1	≤0.5	14000	14
CD2-250/NF	NF series	35	125	90	116	97	4.5	k1	≤0.5	14000	14
CD2-400/NF	NF series	44	194	130	176	153	6.5	k2	≤2	6000	35
CD2-630/800/NF	NF series	70	243	130	176	156	6.5	k2	≤2	6000	35
CD2-63/SM41	SM41 series	25	117	74	102	94	3.5	k1	≤0.5	14000	14
CD2-100/SM41	SM41 series	30	129	90	116	95	4.5	k1	≤0.5	14000	14
CD2-250/SM41	SM41 series	35	143	90	116	96	4.5	k1	≤0.5	14000	14
CD2-400/SM41	SM41 series	44	194	130	176	152	6.5	k2	≤2	6000	35
CD2-630/SM41	SM41 series	70	234	130	176	152	6.5	k2	≤2	6000	35
CD2-63/BM3	BM3 series	25	129	90	116	94	4.5	k1	≤0.5	14000	14

Model	Compatible breaker	Mounting / overall dimensions (mm)						Ctrl. Current (A)	Life (cycles)	Motor (W)
CD2-100/BM3	BM3 series	30	126	74	102	91	4.5	k1 ≤0.5	14000	14
CD2-250/BM3	BM3 series	35	143	74	102	92	4.5	k1 ≤0.5	14000	14
CD2-400/BM3	BM3 series	44	194	130	176	149	6.5	k2 ≤2	6000	35
CD2-630/BM3	BM3 series	58	200	130	176	151	6.5	k2 ≤2	6000	35
CD2-800/BM3	BM3 series	70	243	130	176	151	6.5	k2 ≤2	6000	35
CD2-63/NDM2	NDM2 series	25	117	74	102	94	3.5	k1 ≤0.5	14000	14
CD2-100/NDM2	NDM2 series	30	129	90	116	95	4.5	k1 ≤0.5	14000	14
CD2-250/NDM2	NDM2 series	35	143	90	116	96	4.5	k1 ≤0.5	14000	14
CD2-400/NDM2	NDM2 series	44	194	130	176	149	6.5	k2 ≤2	6000	35
CD2-630/NDM2	NDM2 series	58	200	130	176	149	6.5	k2 ≤2	6000	35
CD2-800/NDM2	NDM2 series	70	243	130	176	151	6.5	k2 ≤2	6000	35
CD2-125/NDM3	NDM3 series	30	129	90	116	95	4.5	k1 ≤0.5	14000	14
CD2-250/NDM3	NDM3 series	35	143	90	116	96	4.5	k1 ≤0.5	14000	14
CD2-400/NDM3	NDM3 series	44	194	130	176	155	6.5	k2 ≤2	6000	35
CD2-630/NDM3	NDM3 series	58	200	130	176	157	6.5	k2 ≤2	6000	35
CD2-800/NDM3	NDM3 series	70	243	130	176	151	4.5	k2 ≤2	6000	35
CD2-160/3VA1	3VA1/3VM series	25	105	74	102	94	4	k1 ≤0.5	14000	14
CD2-250/3VA1	3VA1/3VM series	35	124	90	116	98	4.5	k1 ≤0.5	14000	14
CD2-250/3VA2	3VA2/3VM series	35	147	90	116	108	4.5	k1 ≤0.5	14000	14
CD2-400/3VA2	3VA2/3VM series	46	180	130	176	151	6.5	k2 ≤2	6000	35

7. INSTALLATION INSTRUCTIONS

1. Before installation, verify that the motor-operator specification matches the circuit-breaker specification.
2. For a plug-in or rear-connected breaker, first install the plug-in base or rear connection plate.
3. Secure the supplied mounting bracket to the breaker. Position the operator so that the breaker handle sits inside the operator slider slot, then tighten the central fixing screw.
4. Remove the transparent terminal cover before wiring and reinstall it after wiring is completed.
5. Connect P1, P2, S1, S2 and S4 to the correspondingly marked terminals.

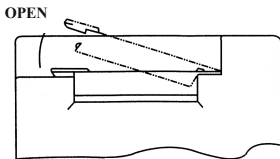


Fig. 3 Manual handle operation

6. Before an energized functional test, verify that the supply voltage is within the operating range. Keep the circuit breaker open, then energize the control supply.

7. The enclosure has an AUTO/MANUAL selector and an operating indicator. AUTO enables electrical control. MANUAL accepts the manual handle and automatically disconnects control power. Rotate the handle clockwise only, approximately 180 degrees. The handle returns automatically. If rotation is incomplete, the manual and electrical positions may become unsynchronized.

8. For the dielectric test, apply 50Hz, 1890V AC for 5 seconds between P1/P2 and the mounting screw. Exclude S1, S2 and S4.

9. Do not perform the power-frequency withstand test on the DC24V model.

8. ADJUSTMENT AND TROUBLESHOOTING

1. After installation, perform manual operation first. Check that breaker opening, closing and reset actions are normal. Follow the enclosure indication and rotate the handle clockwise by 180 degrees for each operation.
2. During an energized no-load test without the breaker coupled, repeated clutch disengagement may occur. The correct test method is to operate the motor mechanism together with the circuit breaker.

9. CARE AND MAINTENANCE

Normally, no intensive maintenance is required. At regular intervals - generally once per year - check that all fasteners are tight, verify normal movement and apply a small amount of lubricant to moving parts.

10. ORDERING INFORMATION

When ordering, specify the motor-operator model, specification and quantity, together with the matched circuit-breaker model and specification.

