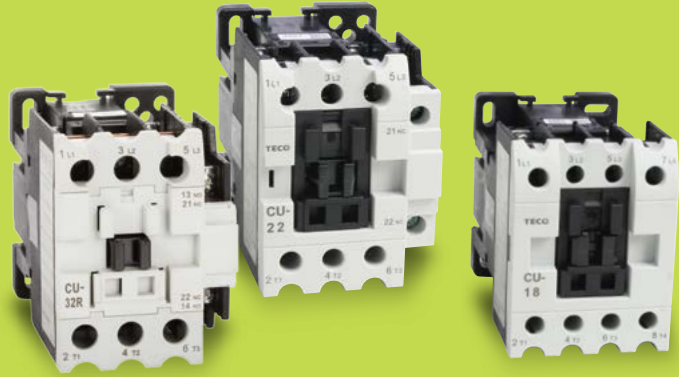


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5 Features



1 High Performance

- Comply with IEC 60947, UL 508
CSA C22.2, GB 14048
- Electrical Life span : 1M operations



2 High Reliability

- Dual Points Aux. Contact Design



3 Safety

- V-0 Flame Retardant Materials in Casing
- IP-20 Finger Protection Terminals



4 Green Products

- Compliance with RoHS
- Environmentally Friendly Materials















5 Universal Design

- New Appearance with Streamline Front Cover Design
- Approvals :   







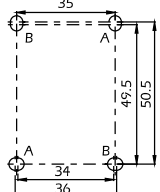


Certificates

Certificates						
Catalogue number	Canada		Canada & U.S.A.		Germany	EC Declaration of conformity
						
Miniature Contactors						
CN-5		•		•	•	•
CN-5K		•		•	•	•
CN-6		•		•	•	•
CN-6K		•		•	•	•
CNL-5		•		•	•	•
CNL-5K		•		•	•	•
CNL-6		•		•	•	•
CNL-6K		•		•	•	•
U Series IEC Contactors						
CU-9		•		•	•	•
CU-11		•		•	•	•
CU-12				•	•	•
CU-16		•		•	•	•
CU-17				•	•	•
CU-18		•		•	•	•
CU-18/4P		•		•	•	•
CU-22		•		•	•	•
CU-22/4P		•		•	•	•
CU-27		•		•	•	•
CU-32R				•	•	•
CU-38		•		•	•	•
CU-40		•		•	•	•
CU-50		•		•	•	•
CU-65		•		•	•	•
CU-80		•		•	•	•
CU-90				•	•	•
CUL-9		•		•	•	•
CUL-11		•		•	•	•
CUL-12				•	•	•
CUL-16		•		•	•	•
CUL-17				•	•	•
CUL-18		•		•	•	•
CUL-18/4P		•		•	•	•
CUL-22		•		•	•	•
CUL-22/4P		•		•	•	•
CUL-27		•		•	•	•
CUL-32R				•	•	•
CUL-38		•		•	•	•
CUL-40		•		•	•	•
CUL-50		•		•	•	•
CUL-65		•		•	•	•
CUL-80		•		•	•	•
CUL-90				•	•	•
CL-10F	•					
N Series IEC Contactors						
CN-100R				•	•	•
CN-125R				•	•	•
CN-150		•		•	•	•
CN-180		•		•	•	•
CN-220		•		•	•	•
CN-300		•		•	•	•
CN-400(K)					•	•
CN-500(K)					•	•
CN-630(K)					•	•
CNL-100R				•	•	•
CNL-125R				•	•	•
CNL-150		•		•	•	•
CNL-180		•		•	•	•
CNL-220		•		•	•	•
CNL-300		•		•	•	•

Certificates						
Catalogue number	Canada		Canada & U.S.A.		Germany	EC Declaration of conformity
						
RHU / RHN Series Bimetallic Overload Relays						
RHU-5		•		•	•	•
RHU-10		•		•	•	•
RHU-80		•		•	•	•
RHN-180		•		•	•	•
D.O.L Magnetic Starters						
HUE-9/11/16					•	•
HUEB-9/11/16					•	•
HUF-9/11/16/18					•	•
HUFB-9/11/16/18					•	•
Definite Purpose Contactors						
DPA-1 Pole		•	•			•
DPA-1.5 Pole		•	•			•
DPA-2 Pole		•	•			•
DPA-3 Pole		•	•			•
Electronic Overload Relays						
EOL-40/		•		•	•	•
EOL-80/				•	•	•
EOL-200/		•		•	•	•
Accessories						
CUA-2		•		•	•	•
CUA-4		•		•	•	•
CNA-2M		•		•	•	•
CNA-4M		•		•	•	•
CNA-110		•		•	•	•
CNA-111B(C)		•		•	•	•
CNA-111SR		•		•	•	•
RAU-4		•		•		•
RAM-4		•		•		•
RAM-4K		•		•		•
CI-18/35		•		•		•
CNI-6		•		•		•
CNI-18		•		•		•
CNI-100		•		•		•
CNE-1		•		•		•
CSS-1/2(S)		•		•		•

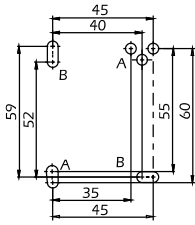
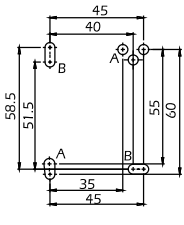
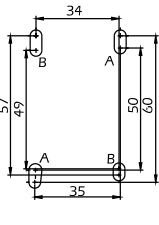
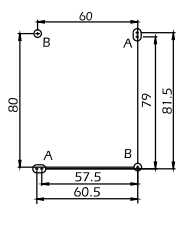
CN Series IEC Contactors

Catalogue number	Non-reversing type	CN-5(K)			CN-6(K)			
								
	Pin	CN-5P(K)			CN-6P(K)			
								
	Reversing type	CNL-5(K)			CNL-6(K)			
								
Rated Insulation Voltage (Ui) IEC V		690						
Rated Operational Voltage (Ue) IEC V		690						
Thermal Current (Ith) IEC/UL A		20/20						
		A	kW	Hp	A	kW	Hp	
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V	8	0.37	0.5	10.5	0.55	0.75
		220V	7	0.75	1	10	1.1	1.5
	Three phase	220/230V	7.5	1.5	2	10.1	2.2	3
		380/400V	7	3	4	9	4	5.5
		415V	6.5	3	4	8.5	4	5.5
		440V	6	3	4	8	4	5.5
		500V	5	3	4	6.5	4	5.5
660V	4	3	4	5	4	5.5		
690V	4	3	4	5	4	5.5		
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V	—	—	—	—	—	
		220-240V	—	—	—	—	—	
	Three phase	200-208V	7.5	—	2	11	—	3
		220-240V	6.8	—	2	9.6	—	3
		440-480V	4.8	—	3	7.6	—	5
550-600V	3.9	—	3	6.1	—	5		
NEMA Class		00						
Contact Configuration	Non-reversing	3A1a or 3A1b						
	Reversing	3A1a x 2 or 3A1b x 2						
Electrical Durability (ops) AC-3		1M			1M			
Mechanical Durability (ops)		5M			5M			
Operating Temperature (°C)		-20°C~55°C (non frozen or non dew)						
Contact Capacities	Rated Insulation Voltage (Ui) V	690/600						
	Thermal Current AC/DC (Ith) A	10/2.5						
	Rated Operational Current Ie(A) AC 15	120V	6					
		240V	3					
		380V	1.9					
Overall Dimensions (w* h * d) mm / (kg)	Non-reversing	45 * 58 * 54 / 0.18						
		45 * 58 * 54 / 0.18						
	Reversing	90 * 58 * 54 / 0.4						
Installation information								









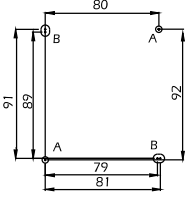
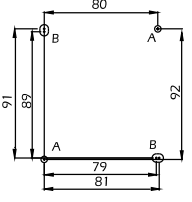
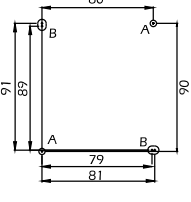
CU、CN Series IEC Contactors

Catalogue number		Non-reversing type		CU-9			CU-11			CU-12			CU-16			CU-17				
		Reversing type		CUL-9			CUL-11			CUL-12			CUL-16			CUL-17				
Rated Insulation Voltage (Ui) IEC		V		690			690			690			690			690				
Rated Operational Voltage (Ue) IEC		V		690			690			690			690			690				
Thermal Current (Ith) IEC/UL		A		25/24			25/24			25/24			25/32			25/32				
				A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp		
Rated Power Capacities (Ie) AC3 IEC 60947-4-1		Single		110V	10.5	0.55	0.75	10.5	0.55	0.75	10.5	0.55	0.75	13.5	0.75	1	13.5	0.75	1	
				220V	10.5	1.1	1.5	10.5	1.1	1.5	10.5	1.1	1.5	14	1.5	2	14	1.5	2	
		Three phase		220/230V	11.5	2.5	3.5	12	3	4	12	3	4	16	4	5.5	16	4	5.5	
				380/400V	11	4	5.5	12	5.5	7.5	12	5.5	7.5	16	7.5	10	16	7.5	10	
				415V	10	4	5.5	11	5.5	7.5	11	5.5	7.5	15	7.5	10	15	7.5	10	
				440V	9	4	5.5	11	5.5	7.5	11	5.5	7.5	15	7.5	10	15	7.5	10	
				500V	8	4	5.5	9	5.5	7.5	9	5.5	7.5	13	7.5	10	13	7.5	10	
660V	6	4	5.5	7	5.5	7.5	7	5.5	7.5	10	7.5	10	10	7.5	10					
690V	6	4	5.5	7	5.5	7.5	7	5.5	7.5	10	7.5	10	10	7.5	10					
Rated Power Capacities (Ie) AC3 UL 508		Single		110-120V	13.8	—	0.75	16	—	1	16	—	1	20	—	1.5	20	—	1.5	
				220-240V	12	—	2	12	—	2	12	—	2	17	—	3	17	—	3	
		Three phase		200-208V	12	—	3	18	—	5	18	—	5	18	—	5	18	—	5	
				220-240V	9.6	—	5	15.2	—	5	15.2	—	5	15.2	—	5	15.2	—	5	
				440-480V	7.6	—	5	11	—	7.5	11	—	7.5	14	—	10	14	—	10	
550-600V	6	—	7.5	11	—	10	11	—	10	11	—	10	11	—	10					
NEMA Class				0			0			0			0			0				
Contact Configuration		Non-reversing		3A1a,3A1b,4A			3A1a,3A1b,4A			3A1a1b			3A1a,3A1b,4A			3A1a1b				
		Reversing		3A1a x 2 or 3A1b x 2			3A1a x 2 or 3A1b x 2			3A1a1b x 2			3A1a x 2 or 3A1b x 2			3A1a1b x 2				
Electrical Durability (ops) AC-3				1M																
Mechanical Durability (ops)				5M																
Operating Temperature (°C)				-20°C~55°C (non frozen or non dew)																
Contact Capacities		Rated Insulation Voltage (Ui) V		690/600																
		Thermal Current AC/DC (Ith) A		10/2.5																
		Rated Operational Current Ie(A)		AC 15		6														
						3														
				1.9																
Overall Dimensions (w * h * d) mm / (kg)		Non-reversing		45*70 *82 / 0.3			45*70*82 / 0.3			55*67*82 / 0.3			45*70*82 / 0.3			55*67*82 / 0.3				
		Reversing		100*70 *82 / 0.65			100*70 *82 / 0.65			120*67*82 / 0.3			100*70*82 / 0.65			120*67*82 / 0.3				
Installation information																				

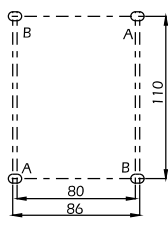
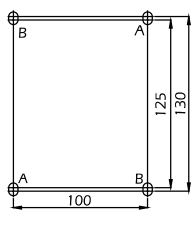
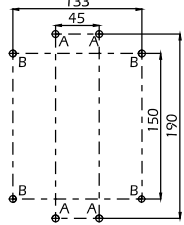
CU、CN Series IEC Contactors

Catalogue number	Non-reversing type		CU-18			CU-22			CU-32R			CU-38			CU-40								
	Reversing type		CUL-18			CUL-22			CUL-32R			CUL-38			CUL-40								
Rated Insulation Voltage (Ui) IEC		V	1000			1000			1000			1000			1000								
Rated Operational Voltage (Ue) IEC		V	690			690			690			690			690								
Thermal Current (Ith) IEC/UL		A	35/35			40/40			60/50			60/55			60/60								
Rated Power Capacities (Ie) AC3 IEC 60947-4-1		Single	110V	19.5	1.1	1.5	25.5	1.5	2	35	1.5	2	39	2.2	3	43	2.2	3					
			220V	20.5	2.2	3	26	3	4	35	3.7	5	39	5	7	43	5.5	7.5					
Rated Power Capacities (Ie) AC3 IEC 60947-4-1		Three phase	220/230V	23	5.5	7.5	27	7.5	10	35	9	12	39	11	15	44	11	15					
			380/400V	22	11	15	26	11	15	32	15	20	38	18.5	25	40	20	27					
			415V	21	11	15	21	11	15	32	15	20	38	22	30	40	22	30					
			440V	21	11	15	21	11	15	32	15	20	38	22	30	40	22	30					
			500V	19	11	15	19	11	15	30	18.5	25	33	22	30	35	22	30					
			660V	14	11	15	14	11	15	23	18.5	25	25.2	22	30	26	22	30					
Rated Power Capacities (Ie) AC3 UL 508		Single	110-120V	24	—	2	24	—	2	24	—	2	34	—	3	34	—	3					
			220-240V	17	—	3	28	—	5	28	—	5	40	—	7.5	40	—	7.5					
		Three phase	200/208V	26	—	7.5	26	—	7.5	25.3	—	7.5	32.2	—	10	49	—	15					
			220-240V	22	—	7.5	28	—	10	28	—	10	42	—	15	42	—	15					
			440-480V	21	—	15	27	—	20	27	—	20	40	—	30	40	—	30					
550-600V	17	—	15	22	—	20	27	—	25	32	—	30	41	—	40								
NEMA Class			1			1			2			2			2								
Contact Configuration		Non-reversing	3A1a1b, 3A2a			3A1a1b, 3A2a			3A1a1b, 3A2a			3A1a1b			3A1a1b								
		Reversing	3A1a1b x 2			3A1a1b x 2			3A1a1b x 2			3A1a1bx2			3A1a1bx2								
Electrical Durability (ops) AC-3			1M																				
Mechanical Durability (ops)			5M																				
Temperature Compensation Range (°C)			-20°C~55°C (non frozen or non dew)																				
Contact Capacities		Rated Insulation Voltage (Ui)		V	690/600																		
		Thermal Current AC/DC (Ith)		A	10/2.5																		
		Rated Operational Current Ie(A)	AC 15	120V	6																		
240V	3																						
			380V	1.9																			
Overall Dimensions (w* h * d) mm / (kg)		Non-reversing		55*72*92 / 0.4					55*75*92 / 0.4					58*94.3*111.7 / 0.7					69*99*111.7 / 0.8				
		Reversing		120*72*92 / 0.85					110*75*92 / 0.85					126*94.3*111.7 / 1.45					148*99*111.7 / 1.77				
Installation information																							

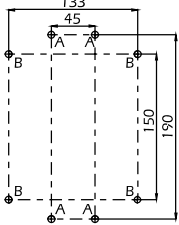
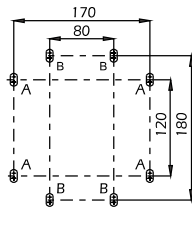
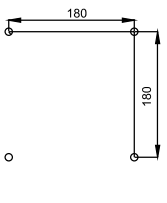
CU、CN Series IEC Contactors

Catalogue number		Non-reversing type		CU-50			CU-65			CU-80			CU-90			
		Reversing type		CUL-50			CUL-65			CUL-80			CUL-90			
																
																
Rated Insulation Voltage (Ui) IEC		V		1000			1000			1000			1000			
Rated Operational Voltage (Ue) IEC		V		690			690			690			690			
Thermal Current (Ith) IEC/UL		A		70/72			80/85			100/104			135/120			
				A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	
Rated Power Capacities (Ie) AC3 IEC 60947-4-1		Single		110V	48	3	4	50	3	4	60	4	5.5	—	—	—
				220V	48	6	8	50	6	8	55	7.5	10	—	—	—
		Three phase		220/230V	55	15	20	65	18.5	25	75	22	30	85	25	35
				380/400V	55	25	35	64	30	40	72	37	50	85	45	60
				415V	52	25	35	64	33	45	72	40	54	85	45	60
				440V	52	30	40	64	37	50	70	40	54	85	51	70
				500V	45	30	40	55	37	50	65	45	60	80	55	75
660V	35	30	40	45	37	50	60	45	60	65	55	75				
690V	35	30	40	45	37	50	60	45	60	65	55	75				
Rated Power Capacities (Ie) AC3 UL 508		Single		110-120V	56	—	5	56	—	5	80	—	7.5	80	—	7.5
				220-240V	50	—	10	68	—	15	68	—	15	68	—	15
		Three phase		200/208V	49	—	15	63	—	20	79	—	25	79	—	25
				220-240V	54	—	20	68	—	25	80	—	30	80	—	30
				440-480V	52	—	40	65	—	50	77	—	60	77	—	60
550-600V	52	—	50	62	—	60	62	—	60	77	—	75				
NEMA Class				2			2			3			3			
Contact Configuration		Non-reversing		3A2a2b			3A2a2b			3A2a2b			3A2a2b			
		Reversing		3A2a2bx2			3A2a2bx2			3A2a2bx2			3A2a2bx2			
Electrical Durability (ops) AC-3				1M												
Mechanical Durability (ops)				5M												
Temperature Compensation Range (°C)				-20°C~55°C (non frozen or non dew)												
Contact Capacities		Rated Insulation Voltage (Ui) V		690/600												
		Thermal Current AC/DC (Ith) A		10/2.5												
		Rated Operational Current Ie(A) AC 15		120V	6											
		240V		3												
		380V		1.9												
Overall Dimensions (w* h * d) mm / (kg)		Non-reversing		93.5*116*123 / 1.3						93.5*149.5*123 / 1.3			93.5*149.5*123 / 1.3			
		Reversing		235*150 *127 / 3.5						235*150 *127 / 3.5			235*150*127 / 3.5			
Installation information																

CU · CN Series IEC Contactors




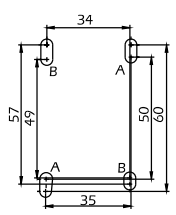
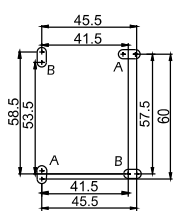
Catalogue number	Non-reversing type		CN-100R			CN-125R			CN-150			CN-180			CN-220					
	Reversing type		CNL-100R			CNL-125R			CNL-150			CNL-180			CNL-220					
Rated Insulation Voltage (Ui) IEC V			1000			1000			1000			1000			1000					
Rated Operational Voltage (Ue) IEC V			690			690			690			690			690					
Thermal Current (Ith) IEC/UL A			135/130			150/150			200/200			240/240			260/260					
			A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp			
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
		220V	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
	Three phase	220/230V	115	30	40	138	40	54	150	45	60	182	55	75	225	65	85			
		380/400V	115	60	80	138	75	100	147	80	110	179	95	125	225	120	160			
		415V	105	60	80	138	75	100	138	80	110	182	100	136	220	125	170			
		440V	105	60	80	135	75	100	131	80	110	182	110	150	220	132	180			
		500V	93	65	85	105	75	100	129	90	125	156	110	150	190	132	180			
660V	75	65	85	85	75	100	107	100	136	118	110	150	140	132	180					
690V	75	65	85	85	75	100	107	100	136	118	110	150	140	132	180					
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V	100	—	10	—	—	—	—	—	—	—	—	—	—	—	—			
		220-240V	68	—	15	—	—	—	—	—	—	—	—	—	—	—	—			
	Three phase	200/208V	92	—	30	120	—	40	150	—	50	177	—	60	221	—	75			
		220-240V	104	—	40	130	—	50	154	—	75	192	—	75	248	—	100			
		440-480V	96	—	75	124	—	100	156	—	125	180	—	150	240	—	200			
550-600V	99	—	100	99	—	100	125	—	125	144	—	150	192	—	200					
NEMA Class			3			4			4			4			4					
Contact Configuration		Non-reversing		3A2a2b (Max. 3A4a4b)																
		Reversing		3A2a2b x 2 (Max. 3A3a3bx2)																
Electrical Durability (ops) AC-3			1M																	
Mechanical Durability (ops)			5M																	
Temperature Compensation Range (°C)			-20°C~55°C (non frozen or non dew)																	
Contact Capacities	Rated Insulation Voltage (Ui) V		690/600																	
	Thermal Current AC/DC (Ith) A		10/2.5																	
	Rated Operational Current Ie(A)	AC 15	120V	6																
		240V	3																	
380V		1.9																		
Overall Dimensions (w * h * d) mm / (kg)	Non-reversing		100*150*133 / 2.2						130 *222.4 *157.2 / 4.1						146*228.4*183.2 / 6.7					
	Reversing		240*180*133 / 3.8						375 *255 *160.4 / 10.8						375 *255 *186.4 / 15					
Installation information																				

CU、CN Series IEC Contactors

Catalogue number	Non-reversing type		CN-300			CN-400(K)-R			CN-500(K)			CN-630(K)				
	Reversing type		CNL-300			CNL-400(K)-R			CNL-500(K)			CNL-630(K)				
Rated Insulation Voltage (Ui) IEC		V		1000			1000			1000			1000			
Rated Operational Voltage (Ue) IEC		V		690			690			690			690			
Thermal Current (Ith) IEC/UL		A		350/350			450/—			550/—			660/—			
				A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V		—	—	—	—	—	—	—	—	—	—	—	—	
		220V		—	—	—	—	—	—	—	—	—	—	—	—	—
	Three phase	220/230V		300	90	125	400	110	150	500	150	205	630	200	270	
		380/400V		300	160	220	400	200	270	500	257	350	630	335	450	
		415V		300	160	220	400	220	300	460	257	350	600	355	480	
		440V		300	160	220	400	220	300	430	257	350	600	375	500	
		500V		250	160	220	375	257	350	410	280	380	525	355	480	
660V		220	200	270	330	300	410	355	335	450	460	450	610			
690V		220	200	270	330	300	410	355	335	450	460	450	610			
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V		—	—	—	—	—	—	—	—	—	—	—	—	
		220-240V		—	—	—	—	—	—	—	—	—	—	—	—	—
	Three phase	200/208V		285	—	100	—	—	—	—	—	—	—	—	—	
		220-240V		312	—	125	—	—	—	—	—	—	—	—	—	
		440-480V		302	—	250	—	—	—	—	—	—	—	—	—	
550-600V		242	—	250	—	—	—	—	—	—	—	—	—	—		
NEMA Class		5			5			6								
Contact Configuration		Non-reversing		3A2a2b (Max. 3A4a4b)			3A2a2b (Max. 3A4a4b) ,AC coil plus 1a									
		Reversing		3A2a2b x 2 (Max. 3A3a3bx2)			3A2a2b x 2 (Max. 3A4a4b x 2)									
Electrical Durability (ops) AC-3		1M			0.5M											
Mechanical Durability (ops)		5M			1M											
Temperature Compensation Range (°C)		-20°C~55°C (non frozen or non dew)														
Contact Capacities	Rated Insulation Voltage (Ui)		V		690/600											
	Thermal Current AC/DC (Ith)		A		10/2.5											
	Rated Operational Current Ie(A)	AC 15	120V		6											
			240V		3											
		380V		1.9												
Overall Dimensions (w* h * d) mm / (kg)	Non-reversing		146*228.4*183.2 / 6.7			233*238*232 / 10.8						309*304 *255 / 17.4				
	Reversing		375 *255 *186.4 / 15			485*238*232 / 22.9						636*304*255 / 38.8				
Installation information																



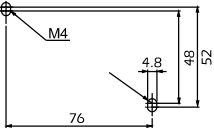
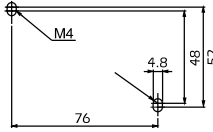
CU、CN Series IEC Contactors

4 - Pole








Catalogue number			CU-10/4P		CU-18/4P		CU-22/4P	
								
Rated Insulation Voltage (Ui) IEC V			690		1000		1000	
Rated Operational Voltage (Ue) IEC V			660		660		660	
Thermal Current (Ith) IEC/UL A			25/24		35/35		40/40	
			A (AC1)	KW (AC1)	A (AC1)	KW (AC1)	A (AC1)	KW (AC1)
Rated Power Capacities (Ie) AC1 IEC 60947-4-1	Single	110V	25	2.7	35	3.9	40	4.3
		220V	25	5.5	35	8	40	8.8
		220V	25	9.5	35	13	40	15
	Three phase	380V	25	16	35	23	40	26
		415V	25	18	35	25	40	28
		440V	25	19	35	27	40	29
		500V	—	—	—	—	—	—
660/690V	—	—	—	—	—	—		
Contact Configuration			4A		4A or 2A2B			
Electrical Durability (ops) AC-3			1M		1M			
Mechanical Durability (ops)			5M		5M			
Temperature Compensation Range (°C)			-20°C~55°C (non frozen or non dew)					
Contact Capacities	Rated Insulation Voltage (Ui) V		690/600					
	Rated Insulation Voltage (Ue) V		660/600					
	Termal Current AC/DC (Ith) A		10/2.5					
	Rated Operational Current Ie(A)	AC 15 /A600	120V	6				
240V			3					
380V			1.9					
Overall Dimensions (w* h * d) mm / (kg)		Non-reversing		8 45*70*52 / 0.3		55*72*92 / 0.4		
Installation information								

L Series IEC Contactors

Reversing type

Catalogue number			CL-10F			HOCL-10F			HCL-10F			
												
Rated Insulation Voltage (Ui) IEC V			660			660			660			
Rated Operational Voltage (Ue) IEC V			660			660			660			
Thermal Current (Ith) IEC/UL A			20			20			20			
			A	kW	Hp	A	kW	Hp	A	kW	Hp	
Rated Power Capacities (Ie) AC3 IEC 60947-4-1 CNS 14816 JEM 1038	Single Single	110V	10	0.5	0.75	10	0.5	0.75	10	0.5	0.75	
		220V	12	1.1	1.5	12	1.1	1.5	12	1.1	1.5	
	Three phase	220/230V	10	2.2	3	10	2.2	3	10	2.2	3	
		380/400V	8	3.7	5	8	3.7	5	8	3.7	5	
		415/440V	8	3.7	5	8	3.7	5	8	3.7	5	
		500V	6.5	3.7	5	6.5	3.7	5	6.5	3.7	5	
		660/690V	5.2	3.7	5	5.2	3.7	5	5.2	3.7	5	
For use with bimetallic overload relays			—			RHU-10/□/1			RHU-10/□/1			
Contact Configuration			3A1ab * 2			3A1ab x 2						
Electrical Durability (ops) AC-3			1M			1M						
Mechanical Durability (ops)			5M			5M						
Temperature Compensation Range (°C)			-20°C~55°C (non frozen or non dew)									
Contact Capacities			Rated Insulation Voltage (Ui) IEC V			690						
			Rated Insulation Voltage (Ue) IEC V			690/600						
			Thermal Current AC/DC (Ith) A			12			12			
			Rated Operational Current Ie(A) JEM 1230	AC 13	110-550V	8			8			
					AC 11	110-120V	4			4		
						220-240V	3			3		
						380-440V	1.5			1.5		
				DC 11	24V	5			5			
					48V	1			1			
					100-110V	0.7			0.7			
					200-220V	0.2			0.2			
			DC 14	24V	10			10				
				48V	5			5				
				100-110V	2.5			2.5				
				200-220V	1			1				
			Rated Operational Current Ie(A) IEC 60947-5-1 UL 508	AC 15 /A600	120V	6			—			
240V	3				—							
380V	1.9				—							
480V	1.5				—							
500V	1.4				—							
600V	1.2			—								
AC 15 /Q600	125V	0.55			—							
	250V	1.27			—							
Overall Dimensions (w* h * d) mm / (kg)			86*73.3*77.5 / 0.562			86*125.5*79.5/ 0.67			145*160*102/ 1.7			
Installation information									—			

Capacitor Contactors

			CU-11C	CU-17C	CU-18C	CU-32C	CU-50C	CU-65C	CU-80C							
Catalogue Number																
Rated Insulation Voltage (Ui) IEC,CNS/UL V			690/600	690/600	1000/600	1000/600	1000/600	1000/600	1000/600							
Thermal Current (Ith) IEC/UL A			25/24	25/32	35/35	60/50	70/72	80/85	100/104							
			KVAR	A	KVAR	A	KVAR	A	KVAR	A						
Rated Power Capacities (Ie) AC 6b IEC 60947-4-1 CNS 14816	Three Phase	220-240V	6.9	18	8.5	22	10	26	15	39	25	60	27	66	36	92
		400-440V	12.5	16	16.7	22	20	26	30	39	40	58	45	65	61	86
		550-600V	18	16	24	21	30	29	44	42	47	45	58	54	84	81
Contact Configuration			3A1a+1a or 3A1b+1a		3A1a1b+1a		3A2a2b+1a									
Rated Making Capacity A			X x Ie ("X" depends on capacity of capacitor)													
Rated Breaking Capacity A			1 x Ie													
Operational Frequency times/hr			300													
Mechanical Durability (million ops)			1													
Electrical Durability AC 6b (million ops)			0.2													
Weight (kg)			0.4	0.5	0.5	0.6	1.4									
Environment	Storage Temperature (°C)		-40 ~ +80													
	Operating Temperature (°C)		-20 ~ +55 (Non frozen)													
	Relative Humidity (RH)		45~85% (Non dew)													
	Operating Altitude (m)		Below 2000m													
	Operating Position (Degree)		±30°													
Control Circuit Features																
Contact Configuration			2a or 1a1b		2a 1b		3a 2b									
Rated Insulation Voltage (Ui) IEC,CNS/UL V			690/600													
Rated Operation Voltage (Ue) IEC,CNS/UL V			660/600													
Thermal Current (Ith) AC/DC A			10 / 2.5													
Contact Rating Code Designator UL			A600 Q300													
Rated Operational (Ie) Current (A) IEC 60947-5-1 UL 508	AC-15 /A600	120V	6													
		240V	3													
		380V	1.9													
		480V	1.5													
		500V	1.4													
		600V	1.2													
	DC-13 /Q600	125V	0.55													
		250V	0.27													

H Series Magnetic Starters



HUO-18



HUE-11

Catalogue number	Enclosure		HU-11			HU-12			HU-16			HU-17			HU-18		
	IP 00		HUO-11			HUO-12			HUO-16			HUO-17			HUO-18		
	IP 40		HUE-11			—			HUE-16			—			—		
	IP 42		HUP-11			—			HUP-16			—			HUP-18		
	IP 65		HUF-11			—			HUF-16			—			HUF-18		
Rated Insulation Voltage (Ui) IEC V		690			690			690			690			1000			
Rated Operational Voltage (Ue) IEC V		690			690			690			690			690			
Thermal Current (Ith) IEC/UL A		25/24			25/24			25/32			25/32			35/35			
		A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V	10.5	0.55	0.75	10.5	0.55	0.75	13.5	0.75	1	13.5	0.75	1	19.5	1.1	1.5
		220V	10.5	1.1	1.5	10.5	1.1	1.5	14	1.5	2	14	1.5	2	20.5	2.2	3
	Three phase	220/230V	12	3	4	12	3	4	16	4	5.5	16	4	5.5	23	5.5	7.5
		380/400V	12	5.5	7.5	12	5.5	7.5	16	7.5	10	16	7.5	10	22	11	15
		415V	11	5.5	7.5	11	5.5	7.5	15	7.5	10	15	7.5	10	21	11	15
		440V	11	5.5	7.5	11	5.5	7.5	15	7.5	10	15	7.5	10	21	11	15
		500V	9	5.5	7.5	9	5.5	7.5	13	7.5	10	13	7.5	10	19	11	15
		660V	7	5.5	7.5	7	5.5	7.5	10	7.5	10	10	7.5	10	14	11	15
690V	7	5.5	7.5	7	5.5	7.5	10	7.5	10	10	7.5	10	14	11	15		
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V	16	—	1	16	—	1	20	—	1.5	20	—	1.5	24	—	2
		220-240V	12	—	2	12	—	2	17	—	3	17	—	3	17	—	3
	Three phase	200/208V	18	—	5	18	—	5	18	—	5	18	—	5	26	—	7.5
		220-240V	15.2	—	5	15.2	—	5	15.2	—	5	15.2	—	5	22	—	7.5
		440-480V	11	—	7.5	11	—	7.5	14	—	10	14	—	10	21	—	15
550-600V	11	—	10	11	—	10	11	—	10	11	—	10	17	—	15		
For use with bimetallic overload relays		RHU-10/□/1			RHU-10/□/1			RHU-10/□/1			RHU-10/□/1			RHU-10/□/1 RHU-80/□/1			
For use with contactors		CU-11			CU-12			CU-16			CU-17			CU-18			
Contact Configuration		3A1a or 3A1b			3A1a1b			3A1a or 3A1b			3A1a1b			3A1a1b			
Electrical Durability (ops)		1M			1M			1M			1M			1M			
Mechanical Durability (ops)		5M			5M			5M			5M			5M			
 Overall Dimensions (w* h * d) mm / (kg)	Enclosure		88*162.6*106 / 0.85			88*162.6*106 / 0.53			100*170.6*111 / 0.85			88*162.6*106 / 0.53			100*170.6*111 / 0.85		
	IP 00		46*119*82 / 0.5			55*121*82 / 0.53			46*119*82/ 0.5			55*121*82 / 0.53			55*124.3*92/ 0.8		
	IP 40		88*160*94 / 0.85			—			88*160*94/ 0.85			—			—		
	IP 42		—			—			—			—			—		
	IP 65		90*184*106 / 0.8			—			90*184*106 / 0.8			—			100*194*116.5 / 0.9		

H Series Magnetic Starters



HUO-18

Catalogue number	Enclosure		HU-22			HU-32R			HU-38			HU-40			HU-50		
	IP 00		HUO-22			HUO-32R			HUO-38			HUO-40			HUO-50		
	IP 40		—			—			—			—			—		
	IP 42		HUP-22			—			—			—			—		
	IP 65		HUF-22			—			—			—			—		
Rated Insulation Voltage (Ui) IEC V			1000			1000			1000			1000			1000		
Rated Operational Voltage (Ue) IEC V			690			690			690			690			690		
Thermal Current (Ith) IEC/UL A			40/40			60/50			60/55			60/60			70/72		
			A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V	25.5	1.5	2	35	1.5	2	39	2.2	3	43	2.2	3	48	3	4
		220V	26	3	4	35	3.7	5	39	5	7	43	5.5	7.5	48	6	8
	Three phase	220/230V	27	7.5	10	35	9	12	39	11	15	44	11	15	55	15	20
		380/400V	26	11	15	32	15	20	38	18.5	25	40	20	27	55	25	35
		415V	21	11	15	32	15	20	38	22	30	40	22	30	52	25	35
		440V	21	11	15	32	15	20	38	22	30	40	22	30	52	30	40
		500V	19	11	15	30	18.5	25	33	22	30	35	22	30	45	30	40
660V	14	11	15	23	18.5	25	25.2	22	30	26	22	30	35	30	40		
690V	14	11	15	22	18.5	25	24.2	22	30	26	22	30	35	30	40		
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V	24	—	2	24	—	2	34	—	3	34	—	3	56	—	5
		220-240V	28	—	5	28	—	5	40	—	7.5	40	—	7.5	50	—	10
	Three phase	200/208V	26	—	7.5	25.3	—	7.5	32.2	—	10	49	—	15	49	—	15
		220-240V	28	—	10	28	—	10	42	—	15	42	—	15	54	—	20
		440-480V	27	—	20	27	—	20	40	—	30	40	—	30	52	—	40
550-600V	22	—	20	27	—	30	32	—	30	41	—	40	52	—	50		
For use with bimetallic overload relays			RHU-10/□1 RHU-80/□1			RHU-10/□1 RHU-80/□1			RHU-10/□2 RHU-80/□4			RHU-80/□2			RHU-80/□3		
For use with contactors			CU-22			CU-32R			CU-38			CU-40			CU-50		
Contact Configuration			3A1a1b			3A1a1b			3A1a1b			3A1a1b			3A2a2b		
Electrical Durability (ops)			1M			1M			1M			1M			1M		
Mechanical Durability (ops)			5M			5M			5M			5M			5M		
Overall Dimensions (w* h * d) mm / (kg)	Enclosure		100*170.6*111 / 0.85			100*70.6*111 / 1.0			130*240*128.5 / 1.0			130*240*128.5 / 1.0			170*330*148 / 3.5		
	IP 00		55*124.3*92 / 0.8			55*143.5*94 / 1.0			58*146.2*111.7 / 1.0			69*150.5*111.7 / 1.2			93.5*219.3*123 / 1.8		
	IP 40		—			—			—			—			—		
	IP 42		—			—			—			—			—		
	IP 65		100*194*116.5 / 0.9			100*194*116.5 / 1.0			—			—			—		

H Series Magnetic Starters



HUO-40



HUO-65



HNO-125

Catalogue number	Enclosure		HU-65			HU-80			HU-90			HN-100			HN-125		
	IP 00		HUO-65			HUO-80			HUO-90			HNO-100			HNO-125		
	IP 40		—			—			—			—			—		
	IP 42		—			—			—			—			—		
	IP 65		—			—			—			—			—		
Rated Insulation Voltage (Ui) IEC V			1000			1000			1000			1000			1000		
Rated Operational Voltage (Ue) IEC V			690			690			690			690			690		
Thermal Current (Ith) IEC/UL A			80/85			100/104			135/120			135/130			150/150		
			A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V	50	3	4	60	4	5.5	—	—	—	—	—	—	—	—	—
		220V	50	6	8	55	7.5	10	—	—	—	—	—	—	—	—	—
	Three phase	220/230V	65	18.5	25	75	22	30	85	25	35	115	30	40	138	40	54
		380/400V	64	30	40	72	37	50	85	45	60	115	60	80	138	75	100
		415V	64	33	45	72	40	54	85	45	60	105	60	80	138	75	100
		440V	64	37	50	70	40	54	85	51	70	105	60	80	135	75	100
		500V	55	37	50	65	45	60	80	55	75	93	65	85	105	75	100
		660V	45	37	50	60	45	60	65	55	75	75	65	85	85	75	100
690V	45	37	50	60	45	60	65	55	75	75	65	85	85	75	100		
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V	56	—	5	80	—	7.5	80	—	7.5	100	—	10	—	—	—
		220-240V	68	—	15	68	—	15	68	—	15	68	—	15	—	—	—
	Three phase	200/208V	63	—	20	79	—	25	79	—	25	92	—	30	120	—	40
		220-240V	68	—	25	80	—	30	80	—	30	104	—	40	130	—	50
		440-480V	65	—	50	77	—	60	77	—	60	96	—	75	124	—	100
		550-600V	62	—	60	62	—	60	77	—	75	99	—	100	99	—	100
For use with bimetallic overload relays			RHU-80/□3			RHU-80/□3			RHU-80/□3			RHU-80/□5			RHU-80/□5 RHN-180/□1		
For use with contactors			CU-65			CU-80			CU-90			CN-100R			CN-125R		
Contact Configuration			3A2a2b			3A2a2b			3A2a2b (Max. 3A4a4b)			3A2a2b (Max. 3A4a4b)					
Electrical Durability (ops)			1M			1M			1M			1M					
Mechanical Durability (ops)			5M			5M			5M			5M					
 Overall Dimensions (w * h * d) mm / (kg)	Enclosure		170*330*148 / 3.5			170*330*148 / 3.5			170*330*148 / 3.5			250*424*172.3 / 5.2					
	IP 00		93.5*219.3*123 / 1.8			93.5*219.3*123 / 1.8			93.5*219.3*123 / 1.8			100*225*133 / 2.4					
	IP 40		—			—			—			—					
	IP 42		—			—			—			—					
	IP 65		—			—			—			—					

H Series Magnetic Starters



HNO-300

Catalogue number	Enclosure		HN-150			HN-180			HN-220			HN-300		
	IP 00		HNO-150			HNO-180			HNO-220			HNO-300		
	IP 40		—			—			—			—		
	IP 42		—			—			—			—		
	IP 65		—			—			—			—		
Rated Insulation Voltage (Ui) IEC V		1000			1000			1000			1000			
Rated Operational Voltage (Ue) IEC V		690			690			690			690			
Thermal Current (Ith) IEC/UL A		200/200			240/240			260/260			350/350			
		A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V	—	—	—	—	—	—	—	—	—	—	—	
		220V	—	—	—	—	—	—	—	—	—	—	—	
	Three phase	220/230V	150	45	60	182	55	75	225	65	85	300	90	125
		380/400V	147	80	110	179	95	125	225	120	160	300	160	220
		415V	138	80	110	182	100	136	220	125	170	300	160	220
		440V	138	80	110	182	110	136	220	132	180	300	160	220
		500V	129	90	125	156	110	150	190	132	180	200	160	220
		660V	107	100	136	118	110	150	140	132	180	220	200	270
690V	107	100	136	118	110	150	140	132	180	220	200	270		
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V	—	—	—	—	—	—	—	—	—	—	—	
		220-240V	—	—	—	—	—	—	—	—	—	—	—	
	Three phase	200/208V	150	—	50	177	—	60	221	—	75	285	—	100
		220-240V	154	—	75	192	—	75	248	—	100	312	—	125
		440-480V	156	—	125	180	—	150	240	—	200	302	—	250
		550-600V	125	—	125	144	—	150	192	—	200	242	—	250
For use with bimetallic overload relays		RHN-180/□2			RHN-180/□3			RHU-10+RP-10+CT RHN-180/□3						
For use with contactors		CN-150			CN-180			CN-220			CN-300			
Contact Configuration		3A2a2b (Max.3A4a4b)												
Electrical Durability (ops)		1M												
Mechanical Durability (ops)		5M												
 Overall Dimensions (w* h * d) mm / (kg)	Enclosure		350*550*202.3 / 8.4						290*550*202.3 / 13.5					
	IP 00		130*255.5*157.2 / 4.8						270*370*183.2 / 8.3					
	IP 40		—											
	IP 42		—											
	IP 65		—											

H Series Magnetic Starters

with Push button



HUEB-11

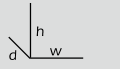


HUFB-18

Catalogue number	IP 40		HUEB-11			HUEB-16			HUB-18			HUB-22			HUB-32R			HUB-40			
	IP 42		HUPB-11			HUPB-16			HUPB-18			HUPB-22			—			—			
	IP 65		HUFB-11			HUFB-16			HUFB-18			HUFB-22			—			—			
Rated Insulation Voltage (Ui) IEC		V		690			690			1000			1000			1000			1000		
Rated Operational Voltage (Ue) IEC		V		690			690			690			690			690			690		
Thermal Current (Ith) IEC/UL		A		25/24			25/32			35/35			40/40			60/55			60/60		
				A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V		10.5	0.55	0.75	13.5	0.75	1	19.5	1.1	1.5	25.5	1.5	2	35	1.5	2	43	2.2	3
		220V		10.5	1.1	1.5	14	1.5	2	20.5	2.2	3	26	3	4	35	3.7	5	43	5.5	7.5
	Three phase	220V		12	3	4	16	4	5.5	23	5.5	7.5	27	7.5	10	35	9	12	44	11	15
		380V		12	5.5	7.5	16	7.5	10	22	11	15	26	11	15	32	15	20	40	20	27
		415V		11	5.5	7.5	15	7.5	10	21	11	15	21	11	15	32	15	20	40	22	30
		440V		11	5.5	7.5	15	7.5	10	21	11	15	21	11	15	32	15	20	40	22	30
		500V		9	5.5	7.5	13	7.5	10	19	11	15	19	11	15	30	18.5	25	35	22	30
		660V		7	5.5	7.5	10	7.5	10	14	11	15	14	11	15	23	18.5	25	26	22	30
690V		7	5.5	7.5	10	7.5	10	14	11	15	14	11	15	22	18.5	25	26	22	30		
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V		16	—	1	20	—	1.5	24	—	2	24	—	2	24	—	2	34	—	3
		220-240V		12	—	2	17	—	3	17	—	3	28	—	5	38	—	5	40	—	7.5
	Three phase	200/208V		18	—	5	18	—	5	26	—	7.5	26	—	7.5	25.3	—	7.5	49	—	15
		220-240V		15.2	—	5	15.2	—	5	22	—	7.5	28	—	10	28	—	10	42	—	15
		440-480V		11	—	7.5	14	—	10	21	—	15	27	—	20	27	—	20	40	—	30
		550-600V		11	—	10	11	—	10	17	—	15	22	—	20	27	—	30	41	—	40
For use with bimetallic overload relays		RHU-10/□1			RHU-10/□1			RHU-10/□1			RHU-10/□1			RHU-10/□2			RHU-80/□2				
For use with contactors		CU-11			CU-16			CU-18			CU-22			CU-32R			CU-40				
Contact Configuration		3A1a or 3A1b						3A1a 1b													
Electrical Durability (ops)		1M						1M													
Mechanical Durability (ops)		5M						5M													
 Overall Dimensions (w * h * d) mm / (kg)	IP 40		88*160*107.5 / 0.9						100*170.6*117.3 / 2.0						130*240*136 / 2.0			130*240*136 / 2.0			
	IP 42		90*184*112 / 0.9						100*194*122.5 / 0.9						—			—			
	IP 65																				

H Series Magnetic Starters

with Push button

Catalogue number	IP 40		HUB-50			HUB-65			HUB-80			HUB-90		
	IP 42		—			—			—			—		
	IP 65		—			—			—			—		
Rated Insulation Voltage (Ui) IEC V		1000			1000			1000			1000			
Rated Operational Voltage (Ue) IEC V		690			690			690			690			
Thermal Current (Ith) IEC/UL A		70/72			80/85			100/104			135/120			
		A	kW	Hp	A	kW	Hp	A	kW	Hp	A	kW	Hp	
Rated Power Capacities (Ie) AC3 IEC 60947-4-1	Single	110V	48	3	4	60	4	5.5	60	4	5.5	—	—	—
		220V	48	6	8	60	7.5	10	55	7.5	10	—	—	—
	Three phase	220V	55	15	20	75	22	30	75	22	30	85	25	35
		380V	55	25	35	72	37	50	72	37	50	85	45	60
		415V	52	25	35	72	40	54	72	40	54	85	45	60
		440V	52	30	40	70	40	54	70	40	54	85	51	70
		500V	45	30	40	65	45	60	65	45	60	80	55	75
		660V	35	30	40	60	45	60	60	45	60	65	55	75
690V	35	30	40	60	45	60	60	45	60	65	55	75		
Rated Power Capacities (Ie) AC3 UL 508	Single	110-120V	56	—	5	80	—	7.5	80	—	7.5	80	—	7.5
		220-240V	50	—	10	68	—	15	68	—	15	68	—	15
	Three phase	200/208V	49	—	15	79	—	25	79	—	25	79	—	25
		220-240V	54	—	20	80	—	30	80	—	30	80	—	30
		440-480V	52	—	40	77	—	60	77	—	60	77	—	60
		550-600V	52	—	50	62	—	60	62	—	60	77	—	75
For use with bimetallic overload relays		RHU-80/□3			RHU-80/□3			RHU-80/□3			RHU-80/□3			
For use with contactors		CU-50			CU-65			CU-80			CU-90			
Contact Configuration		3A1a 1b						3A2a 2b						
Electrical Durability (ops)		1M						1M						
Mechanical Durability (ops)		5M						5M						
 Overall Dimensions (w* h * d) mm / (kg)	IP 40		170*330*154 / 3.5						170*330*154 / 3.5					
	IP 42		—						—					
	IP 65		—						—					

RHU/RHN Series Thermal Overload Relays

Features

- *Reduce power consumption for energy saving and reduction of carbon emissions
- *Comply with IEC, and China GB standard motor
- *Certified: CSA, UL
- *Comply with RoHS, CE
- *Phase failure protection



RP-10

Catalogue number		RHU-5/□	RHU-10/□1	RHU-10/□2	RHU-80/□□1	RHU-80/□□2	RHU-80/□□3	
Frame Size (mm)		45			56			
Rated Insulation Voltage (Ui)		UL 600V, IEC 690V						
Setting Current Range (A)		0.1~0.16 0.16~0.25 0.25~0.4 0.35~0.5 0.45~0.63 0.55~0.8 0.75~1 0.9~1.3 1.1~1.6 1.4~2 1.8~2.5 2.3~3.2 2.9~4 3.5~4.8 4.5~6.3 5.5~7.5 7.2~10 9~12.5	0.1~0.16 0.16~0.25 0.25~0.4 0.35~0.5 0.45~0.63 0.55~0.8 0.75~1 0.9~1.3 1.1~1.6 1.4~2 1.8~2.5 2.3~3.2 2.9~4 3.5~4.8 4.5~6.3 5.5~7.5 7.2~10 9~12.5 11.3~16 15~20 17.5~21.5 21~25 24.5~30 29~36	33~38	9~12.5 11.3~16 15~20 17.5~21.5 21~25 24.5~30 29~36 33~38	17~25 24.5~36	17~25 24.5~36 35~47	24.5~36 35~47 45~60 58~75 72~90
For Use With Contactors		CN-5(K)/ CN-6(K)	CU-9/11/12/16/ 17/18/22/32R	CU-27/32/38	CU-18/22/32R	CU-40	CU-50/65/80	
Type of Terminal	Source Side	Pin	Pin	Pin	Terminal	Terminal	Terminal	
	Load Side	Screw (M4)	Screw (M5)	Screw (M5)	Screw	Screw	Screw	
Reset Mode		—	—	—	Automatic, Manual			
Contacts Configuration		1a+1b						
Temperature Compensation Range		-5°C ~ +40°C						
Trip Class		—			10A			
Contact Capacities (A)	AC 15	120V	6			6		
		240V	3			3		
		380V	1.9			1.9		
		480V	1.5			1.5		
		500V	1.4			1.4		
		600V	1.2			1.2		
	DC 13	125V	—			0.55		
		250V	—			0.27		
Ith	N.C. Contact	10	6			10		
	N.C. Contact	10	6			10		
Applicable adapter		—	RP-10	—	—	—	—	
Maximum wire size in AWG		AWG10 (5.3mm ²)	AWG8 (8.4mm ²)		AWG4 (22mm ²)		AWG3 (38mm ²)	

RHU/RHN Series Thermal Overload Relays



Catalogue number		RHU-80/□□4	RHU-80/□□5	RHU-80/□□P	RHN-180/□□1	RHN-180/□□2	RHN-180/□□3
Frame Size (mm)		56			100		
Rated Insulation Voltage (Ui)		UL 600V, IEC 690V					
Setting Current Range (A)		17~25 24.5~36 35~47	58~75 72~90 77~97	17~25 24.5~36 35~47 45~60 58~75 72~90 77~97	65~95 85~125 110~160	65~95 85~125 110~160	65~95 85~125 110~160 125~185
For Use With Contactors		CU-27/32/38	CN-100R	With adapter	CN-100R/125R	CN-150	CN-180
Type of Terminal	Source Side	Terminal			Terminal (Ø8.4 Bolt Hole)		Terminal (Ø10.5 Bolt Hole)
	Load Side	Screw			Screw		Screw
Reset Mode		Automatic, Manual					
Contacts Configuration		1a+1b					
Temperature Compensation Range		-5°C ~ +40°C					
Trip Class		10A					
Contact Capacities (A)	AC 15	120V	6				
		240V	3				
		380V	1.9				
		480V	1.5				
		500V	1.4				
		600V	1.2				
	DC 13	125V	0.55				
		250V	0.27				
Ith	N.C. Contact	10					
	N.C. Contact	10					
Applicable adapter		—					
Maximum wire size in AWG		AWG4 (22mm ²)	AWG4 (22mm ²)	AWG3 (38mm ²)	—		

RHU/RHN Series Thermal Overload Relays

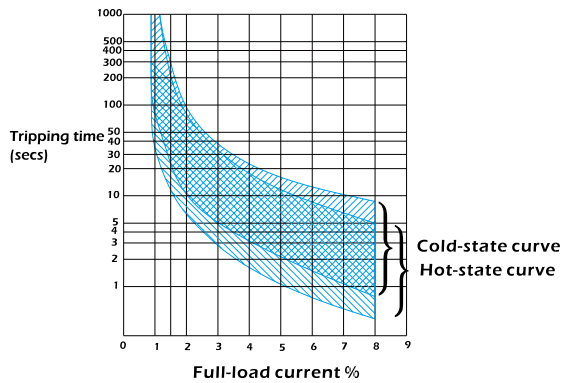


Catalogue number		RHN-180/□□4	RHN-180/□□P	RHN-300/□□	RHN-300/□□P
Frame Size (mm)		100	100	150	
Rated Insulation Voltage (Ui)		UL 600V, IEC 690V			
Setting Current Range (A)		65~95 85~125 110~160 125~185	65~95 85~125 110~160 125~185	145~200 175~240 203~280 245~336	145~200 175~240 203~280 245~336
For Use With Contactors		CN-220/300	—	CN-220/300	—
Type of Terminal	Source Side	Terminal Ø11 Bolt Hole	Screw	Terminal	Screw
	Load Side	Screw	Screw	Screw	Screw
Reset Mode		Automatic, Manual			
Contacts Configuration		1a+1b			
Temperature Compensation Range		-5°C ~ +40°C			
Trip Class		10A			
Contact Capacities (A)	AC 15	120V	6		
		240V	3		
		380V	1.9		
		480V	1.5		
		500V	1.4		
	DC 13	125V	0.55		
		250V	0.27		
	Ith	N.C. Contact	10		
N.C. Contact		10			
Applicable adapter		—			
Maximum wire size in AWG		—			

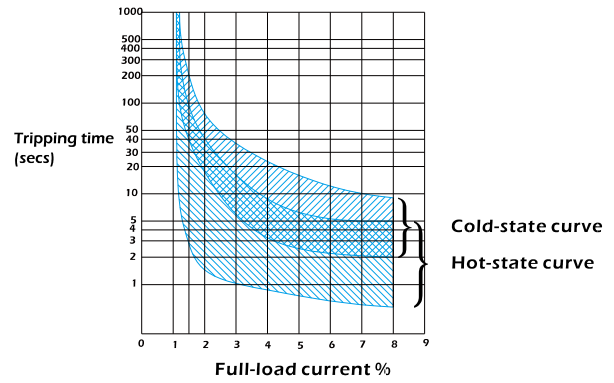
RHU/RHN Series Tripping Curves of Thermal Overload Relays

RHU-5/10 FLC range 0.16~38A

Single-phase protection characteristics

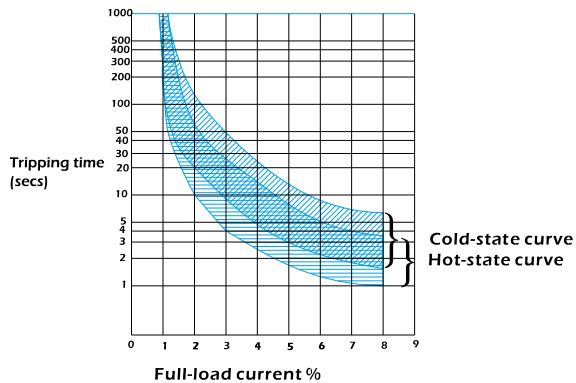


Three-phase protection characteristics

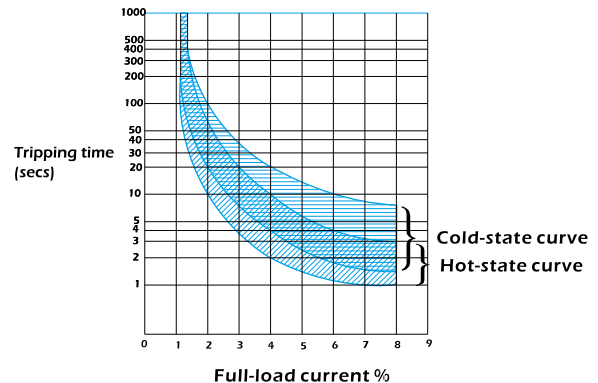


RHU-80/□1,2,3,4,P FLC range 25~97A

Single-phase protection characteristics

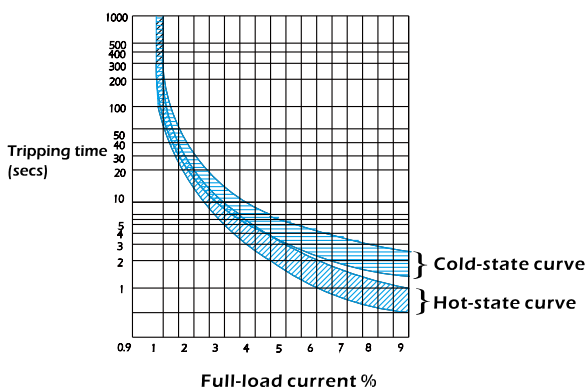


Three-phase protection characteristics

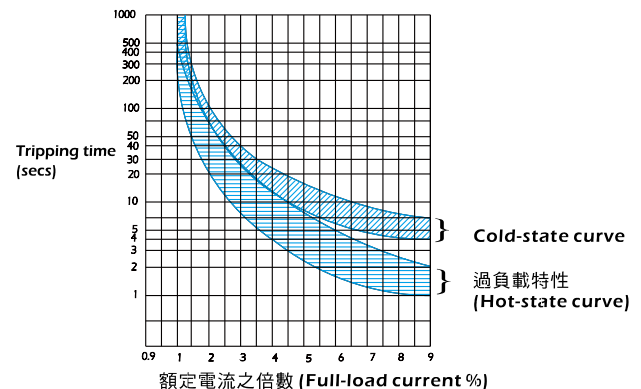


RHN-180/□1,2,P FLC range 95~125A

Single-phase protection characteristics



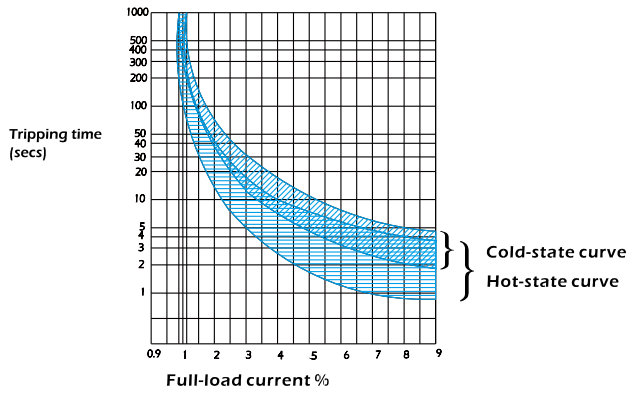
Three-phase protection characteristics



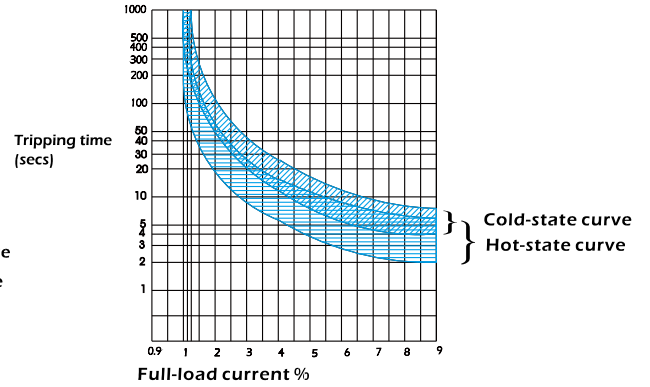
RHU/RHN Series Tripping Curves of Thermal Overload Relays

RHN-180 □ 3,4,P FLC range 160~185A

Single-phase protection characteristics

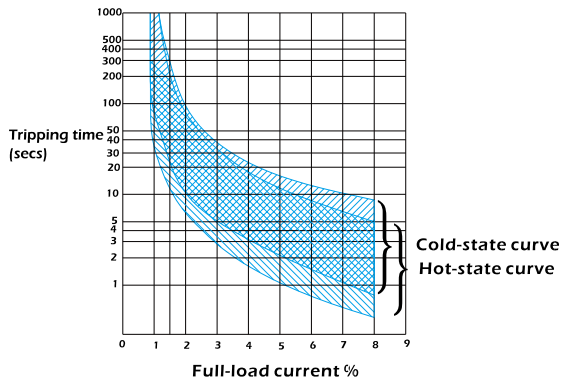


Three-phase protection characteristics

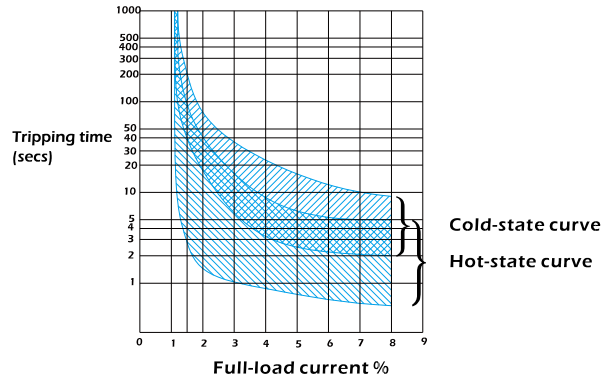


RHU-300/ □ ,P FLC range 200~336A

Single-phase protection characteristics







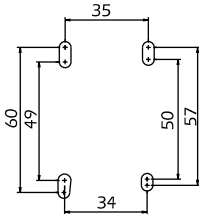
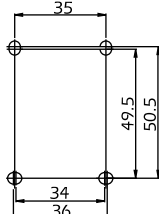
Three-phase protection characteristics



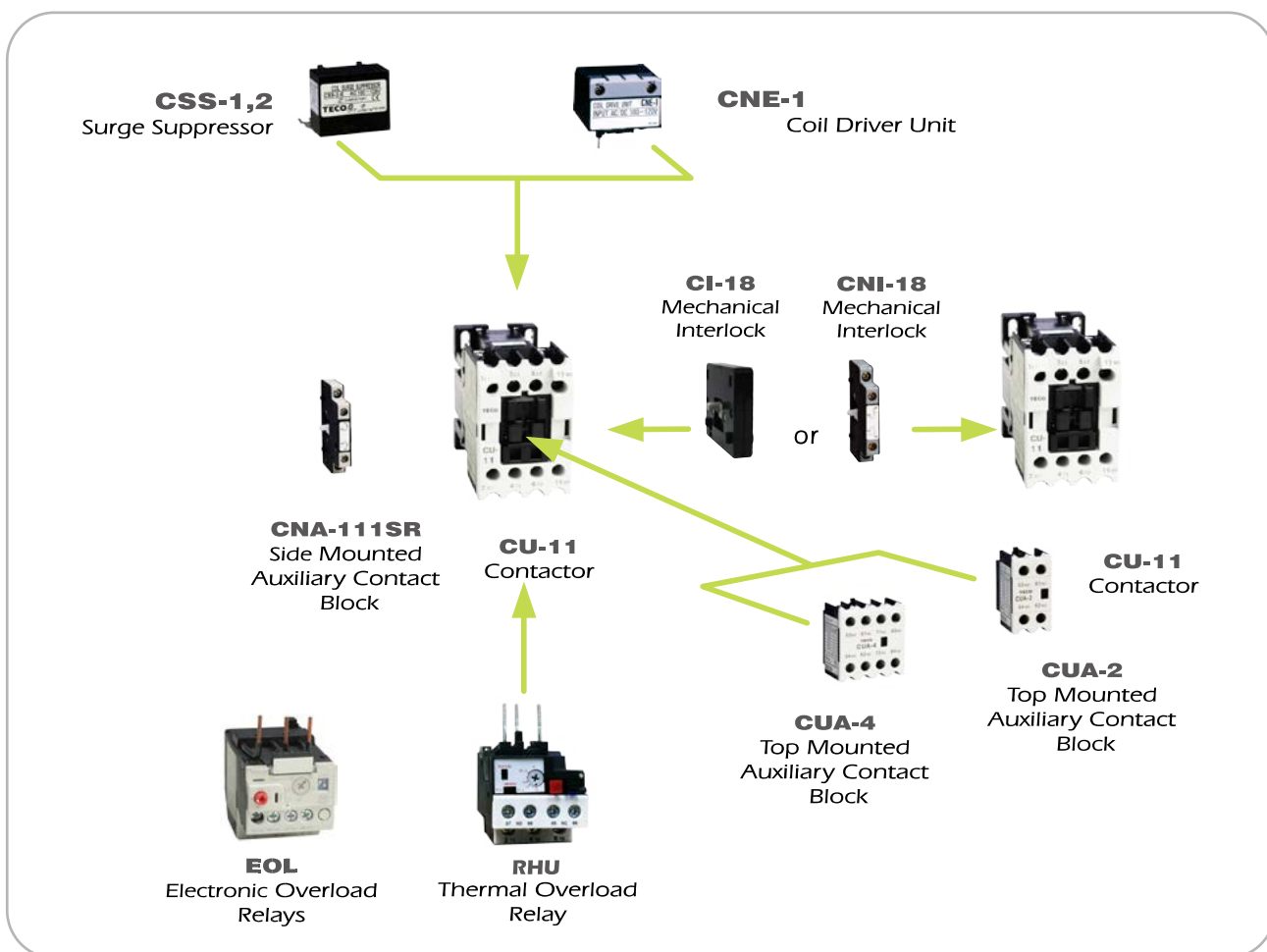
RAU-4 / RAM-4 Control Relays

Features

- *4,6,8 auxiliary contacts available
- *Easy installation by screw and DIN
- *Protective cover design
- *Dual contacts design
- *Flame-retardant engineering plastics in coil set






Catalogue number		RAU-4	RAM-4	RAM-4K
				
Rated insulation voltage (Ui) IEC	V	690	690	690
Rated operational voltage (Ue) IEC	V	690	690	690
Thermal current AC/DC (Ith)	A	10	10	10
Contact rating code designator UL		A600 Q300	A600 Q300	A600 Q300
Rated operational current Ie (A) IEC 60947-5-1 UL 508	AC 15 /A600	120V	6	6
		240V	3	3
		380V	1.9	1.9
		480V	1.5	1.5
		500V	1.4	1.4
		600V	1.2	1.2
	DC 13 /Q300	125V	0.55	0.55
		250V	0.27	0.27
Contact configuration		4a, 3a1b, 2a2b, 1a3b, 4b	4a, 3a1b, 2a2b	4a, 3a1b, 2a2b
Electrical durability (ops) AC 15		1M	1M	1M
Mechanical durability (ops)		5M	5M	5M
Weight (kg)		0.3	0.18	0.18
 Overall Dimensions (w* h * d) mm		45*70*82	45*58*54	45*58*54
Installation information				

Accessories









CNI • CI Interlock

* These reversing contactors (CNL/CUL series) are designed with mechanical interlock. To against short-circuits resulting from stuck contactors.

Catalogue number		CNI-6	CNI-18	CI-18	CI-35	CNI-100		
Photo								
Rated insulation voltage (Ui) IEC V		—	690	—	—	—		
Rated operational voltage (Ue) IEC V		—	660	—	—	—		
Thermal current AC (Ith) A			10					
Contact configuration			2b					
Weight (kg)			0.3					
Minimal operation current		—	DC24V 5mA	—	—	—		
For use with	U Series		CU-11/12/16/17/18/22/32R				CU-11/16/18/22/27/32/32R/38	CU-40/50/65/80/90
	N Series		CN-5/6				—	—
Operational type		Mechanical						
Part number for order		AC : F07912 DC : V83153	V96450 Notes 1	V57909 Notes 1	V57912 Notes 1	V77662		

Notes 1 : These type include two dovetail joints.

Accessories

Catalogue number		CNA-2M	CNA-4M	CUA-2	CUA-4	CNA-111SR	CNA-111B(C)	
								
Rated insulation voltage (Ui) IEC		V 690						
Contact rating code designator UL		A 600 Q300						
Thermal current AC/DC (Ith)		A 10 / 2.5						
Rated operational current Ie (A) IEC 60947-5-1 UL 508	AC 15	120V						6
		240V						3
		380V						1.9
		480V						1.5
		500V						1.4
		600V						1.2
	DC 13	125V						0.55
		250V						0.27
Contact configuration		2a, 2b, 1a1b	4a, 3a1b, 2a2b, 1a3b, 4b	2a, 2b, 1a1b	4a, 4b, 3a1b, 2a2b, 1a3b	1a1b	1a1b	
Electrical durability (ops) AC 15		1M						
Mechanical durability (ops)		5M						
Weight (kg)		0.035	0.04	0.025	0.045	0.04	0.04	
For use with	U Series	—	—	CU-11/12/16/17/18/ 22/32R/38/40/50/ 65/80/90		CU-11/12/16/ 17/18/22/32 /38/40	—	
	N Series	CN-5/6 CN-5K/6K	CN-5/6 CN-5K/6K	—		—	CN-100R/125R/ 150/180/200/ 300	

CSS-1 / 2 Surge Suppressor

Features

*Operating environment: -5~55°C; Altitude limit: 2,000 meters

*Voltage spike in the absorption coil when OFF

*Easy installation

*Complete product line for all needs:

(1)RC type

Applicable to varying voltage spikes

(2)Varistor type

Applicable to peak voltage spike

(3)Operation indicator lamp equipped

Red LED light indicates the status of the coil contact when voltage is applied



Catalogue number	Surge absorber element	Rated control voltage	Rated current I _o (mA)	Operational voltage	For use with	
					U Series	N Series
CSS-1-B	RC	24V	28.5~38.5	AC 22-24V / 60Hz / 50Hz	CU-11/12/16/17/18/22/32R/38/40/50/65/80	CN-100R/125R
CSS-1-C		48V	56.5~76.5	AC 45-50V / 60Hz / 50Hz		
CSS-1-E		110V	36.1~48.9	AC 100-125V / 60Hz / 50Hz		
CSS-1-H		220V	23.1~31.3	AC 200-240V / 60Hz / 50Hz		
CSS-1-O		440V	14.8~20	AC 380-440V / 60Hz / 50Hz		
CSS-1-BS		24V	28.5~38.5	AC 22-24V / 60Hz / 50Hz	—	CN-5 CN-6 CN-5K CN-6K
CSS-1-CS		48V	56.5~76.5	AC 45-50V / 60Hz / 50Hz		
CSS-1-ES		110V	36.1~48.9	AC 100-125V / 60Hz / 50Hz		
CSS-1-HS		220V	23.1~31.3	AC 200-240V / 60Hz / 50Hz		
CSS-1-OS		440V	14.8~20	AC 380-440V / 60Hz / 50Hz		
CSS-2-B	VARISTOR	24V	3.1~4.3	AC/DC 22-24V / 60Hz / 50Hz	CU-11/12/16/17/18/22/32R/38/40/50/65/80	CN-100R/125R
CSS-2-C		48V	6~8.2	AC/DC 45-50V / 60Hz / 50Hz		
CSS-2-E		110V	0.85~1.15	AC/DC 100-125V / 60Hz / 50Hz		
CSS-2-H		220V	1.87~2.53	AC/DC 200-240V / 60Hz / 50Hz		
CSS-2-O		440V	1.275~1.725	AC/DC 380-440V / 60Hz / 50Hz		
CSS-2-BS		24V	3.1~4.3	AC/DC 22-24V / 60Hz / 50Hz	—	CN-5 CN-6 CN-5K CN-6K
CSS-2-CS		48V	6~8.2	AC/DC 45-50V / 60Hz / 50Hz		
CSS-2-ES		110V	0.85~1.15	AC/DC 100-125V / 60Hz / 50Hz		
CSS-2-HS		220V	1.87~2.53	AC/DC 200-240V / 60Hz / 50Hz		
CSS-2-OS		440V	1.275~1.725	AC/DC 380-440V / 60Hz / 50Hz		

CNE-1 Series Coil Driver Unit

Features

- *AC controlled coil can be triggered by AC/DC
- *Noise interference can be avoided
- *Energy savings by over 40%



Catalogue number	Rated Operational Voltage	For use with	Coil Type	Pick-up Vm' % (V)	Prop-out Vh' % (V)	Power Consumption (W)	Operating Delay (msec)	
							Pick-up	Drop-up
CNE-1B(S)-(R)	AC 22-24V (50/60Hz) DC 22-24V	CN-5/6	Primary Coil	66%~77%	50%~63%	0.8~0.85	30~70	17~27
		CU-9/11/12/16/17/18/22/32R	Primary Coil	79%~83%	50%~67%	0.7~1.5	30~70	17~27
CNE-1B-R		CU-27/32/38	Primary Coil	70%~83%	50%~63%	1.0~1.6	30~70	17~27
CNE-1B-R	DC 22-24V (DC ONLY)	CU-40	Special R06574	75%~83%	42%~63%	1.5~2.1	30~70	17~27
		CU-50/65/80/90	Special R07062	75%~83%	42%~63%	1.5~2.1	30~70	17~27
CNE-1CS-R	AC 45-50V (50/60Hz) DC 45-50V	CN-5/6	Primary Coil	66%~75%	33%~63%	0.86~0.92	26~33	20~24
		CU-9/11/12/16/17/18/22/32R	Primary Coil	66%~83%	33%~65%	0.4~1.3	45~55	30~40
		CU-27/32/38	Special R15168	70%~83%	33%~63%	0.8~2.6	25~60	20~35
		CU-40	Special R06587	70%~83%	33%~63%	0.8~2.6	25~35	30~40
CNE-1C-R		CU-50/65/80/90	Special R06590	70%~83%	33%~63%	0.8~2.6	25~35	30~40
		CN-5/6	Primary Coil	64%~73%	41%~55%	1.3~1.6	24~32	18~23
		CU-9/11/12/16/17/18/22/32R	Primary Coil	64%~73%	41%~55%	1.3~2.8	20~30	30~40
		CU-27/32/38	Special R14143	64%~73%	41%~55%	1.6~3.1	30~50	30~50
CNE-1E	AC 100-120V (50/60Hz) DC 100-120V	CU-40	Special R05395	64%~73%	41%~55%	1.6~3.1	25~35	30~40
		CU-50/65/80/90	Special V77581	64%~73%	41%~55%	2.5~4.0	30~40	45~50
		CU-9/11/12/16/17/18/22/32R	Special V88035	75%~82%	41%~55%	Max 2.6	26~34	28~39
		CU-27/32/38	Special F03736	75%~82%	41%~55%	Max 2.6	33~42	35~47
CNE-1W	DC 112-138V (DC ONLY)	CU-40	Special R07339	75%~82%	41%~55%	Max 3.1	33~42	35~47
		CU-50/65/80/90	Special R07743	75%~82%	41%~55%	Max 3	25~34	65~78
		CN-5/6	Primary Coil	60%~65%	41%~50%	2.0~2.2	20~30	25~35
		CU-9/11/12/16/17/18/22/32R	Primary Coil	60%~65%	41%~50%	2.1~3.4	20~30	25~35
CNE-1HS	AC 200-240V (50/60Hz) DC 200-240V	CU-27/32/38	Special R12860	60%~65%	41%~50%	2.1~3.4	21~31	27~37
		CU-40	Special R06037	60%~65%	41%~50%	2.5~4.3	21~31	27~37
		CU-50/65/80/90	Special V77594	60%~65%	41%~50%	2.8~4.5	25~35	35~45
		CN-5/6	Primary Coil	60%~65%	41%~50%	2.0~2.2	20~30	25~35

Definite Purpose Contactor

Features

- *All series comply with RoHS
- *All series provide 1-, 1.5-, 2-, and 3-pole products
- *The contact is an AMP 250 quick coupling contact, which saves wiring time
- *Standard dimensions of the installation holes
- *The design complies with standards including ARI780/790 (American Society of Heating, Refrigerating and Air-Conditioning Engineers, ASHRAE), UL 508 and IEC 60947-1, IEC 60947-4-1
- *International certificate granted: certified by UL and CSA

Characteristics of 3-Pole

- *The screws used for 3P can be interchanged with Lug type contacts
- *Maximum to be equipped with 3 sets of micro switch (ancillary contact)
- *Coil with wide voltage range 208V~240V
- *Top cover is bundled for standard type models
- *Dust-proof cover design ensures higher operation life

Applicable scope

- *It is applied electric heater, fan, air conditioning equipment in HVAC facilities, elevators, power systems, food processing machines, lighting, swimming pools and spa, pumps, overhead traveling cranes and agricultural machinery equipment



Available Coil Voltage





Coil Volt (V)	Hz	Available		
		DPA-1 / 1.5 Pole	DPA-2 Pole	DPA-3 Pole
24 V	50 / 60 Hz	●	●	●
110V		●	●	●
120V		●	●	●
208-240V		●	●	●
220V		●	●	●
277V		●	●	●
		(60Hz only)	(60Hz only)	●
380 V		—	—	●
440V		—	—	●
550V		—	—	●

Aux. Contactors







Aux contactors units (3a3b) available for 3-pole model

Definite Purpose Contactors

Catalogue number		DPA-1020	DPA-1520	DPA-2020	DPA-1025	DPA-1525	DPA-2025	DPA-1030	DPA-1530	DPA-2030	DPA-1040	DPA-1540	DPA-2040		
															
		51.5x83.4x66			51.5x83.4x66			51.5x83.4x66			51.5x83.4x66				
Number of poles		1	1+ Shunt	2	1	1+ Shunt	2	1	1+ Shunt	2	1	1+ SHUNT	2		
Terminal		Screw / Lug			Screw / Lug			Screw / Lug			Screw / Lug				
Rated Insulation Voltage (Ui) UL/IEC		600/660													
Rated Operational Voltage (Ue) UL/IEC		600/660													
Duty thermal current (Ith) UL/IEC		30			35			40			50				
ARI (A) Standard 780/790	Full load amps (FLA)	20			25			30			40				
	Locked rotor amps (LRA) A	Single Phase	240/277V	120			150			180			240		
			480V	100			125			150			200		
			600V	80			100			120			160		
Resistance Load (RES) (A)		30			35			40			50				
UL 508	Full Load current (FLA)	Single Phase	120V	1.5Hp/20A			2Hp/24A			2Hp/24A			3Hp/34A		
			240/277V	3Hp/17A			3Hp/17A			5Hp/28A			7.5Hp/40A		
IEC 60947-1 IEC 60947-4-1 AC 7a, AC 8a	Rated current (A)		220V	20			25			30			40		
			380V	20			25			30			40		
	Resistance Load (RES) (A)		32			35			40			50			
Weight (kg)		0.23	0.23	0.3	0.23	0.23	0.3	0.23	0.23	0.3	0.23	0.23	0.3		

Note : Standard type with Top cover and without dust proof cover.

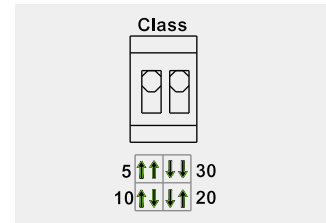
Catalogue number		DPA-3020	DPA-3025	DPA-3030	DPA-3040						
											
		62x95.3x73.9		62x95.3x73.9		62x95.3x73.9		62x95.3x73.9			
Number of poles		3		3		3		3			
Terminal		Screw / Lug		Screw / Lug		Screw / Lug		Screw / Lug			
Rated Insulation Voltage (Ui) UL/IEC		600/660									
Rated Operationue Voltage (Ue) UL/IEC		600/660									
Duty thermal current (Ith) UL/IEC		30		35		40		50			
ARI (A) Standard 780/790	Full load amps (FLA)	20		25		30		40			
	Locked rotor amps (LRA) A	Single Phase	240/277V	120		150		180		240	
			480V	100		125		150		200	
			600V	80		100		120		160	
Resistance Load (RES) (A)		30		35		40		50			
UL 508	Full Load current (FLA)	Single Phase	120V	1.5Hp/20A		2Hp/24A		2Hp/24A		3Hp/34A	
			240/277V	3Hp/17A		5Hp/28A		5Hp/28A		7.5Hp/40A	
	Rated current (A)	Three Phase	440/480V	5Hp/14A		5Hp/14A		7.5Hp/21A		15Hp/34A	
			220/240V	7.5Hp/22A		10Hp/28A		10Hp/28A		10Hp/28A	
			440/480V	7.5Hp/11A		15Hp/21A		15Hp/21A		20Hp/27A	
550/600V	7.5Hp/9A		20Hp/22A		20Hp/22A		25Hp/27A				
IEC 60947-1 IEC 60947-4-1 AC 7a, AC 8a	Rated current (A)		220V	20		25		30		40	
			380V	20		25		30		40	
Resistance Load (RES) (A)		32		35		40		50			
Weight (kg)		0.43		0.43		0.43		0.43			

Electronic Overload Relays

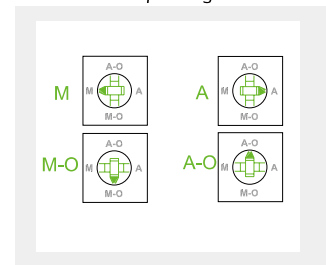
Features

- *MCU(Microprocessor Control Unit) designed.
- *Complied with IEC 60947-4-1, IEC 60947-5-1, UL 508 and CSA C22.2. Certificate : CE, UL, CSA, and TUV
- *Wide adjustable current range (5:1)
- *Phase failure, over current, inrush current, phase unbalance protection
- *Quick response protection within 3 seconds
- *Adjustable trip class 5/10/20/30
- *4-in-1 operating knob for automatic reset/automatic reset-stop/manual reset/manual reset-stop modes
- *Energy-saving with low heat loss, low power consumption
- *Installed with Din rail or screws

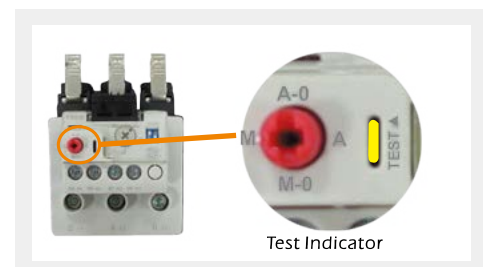
Adjustable current range








4-in-1 operating knob



Testing

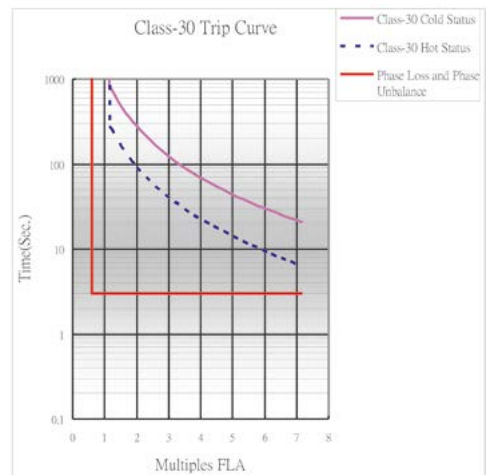
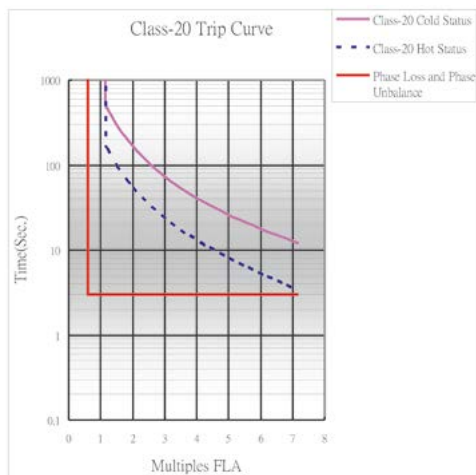
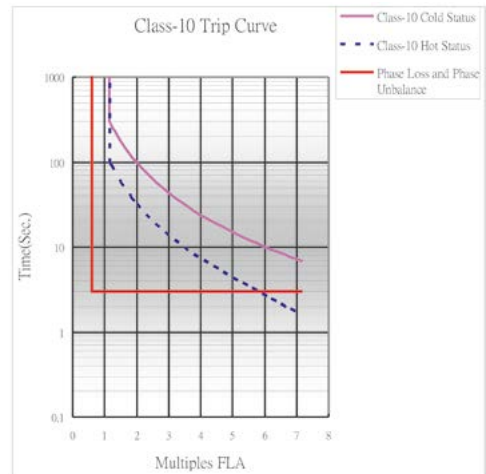
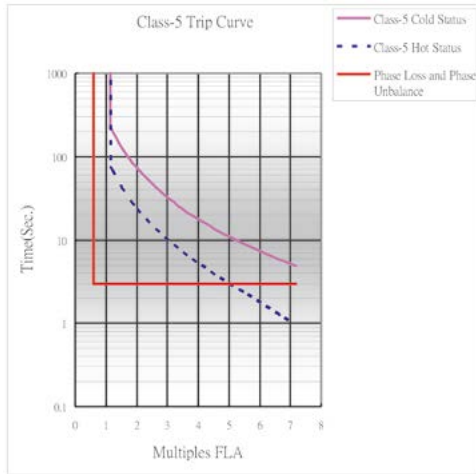


Electronic Overload Relays

Catalogue number		EOL-40/□□□-□	EOL-80/□□□-□	EOL-200/□□□-□	
 Overall Dimensions (w* h * d) mm / (kg)		 45x72.5x79.9 / 0.18	  65x93.5x107 / 0.55 65x106.8x115 / 0.6	 123x190x148.7 / 1.5	
Specification	Control Unit	MCU			
	Power Consumption	<300mW			
	Current Sensors	3CT			
	Current Setting Ranges	0.1~0.5A (005) 6.4~32A (32) 0.4~2A (02) 9~45A (45) 1~5A (05) 1.6~8A (08)	15~75A (75) 22~110A (110)	30~150A (150)	
	Operation Current Setting Ratio	5 : 1			
	Internal / External CT	Internal			
	Insulation Voltage(Ui) IEC	Main Circuit	1000V		
		Auxiliary Circuit	690V		
	Operation Voltage (Ue) IEC	Main Circuit	690V		
		Auxiliary Circuit	660V		
	Resistance to Vibrations (IEC 60.068)	6g (any direction 5~150Hz)			
	Protection to Shock-Hazard, According to (VDE 0106 Part 100)	●			
	Impulse withstand Voltage	8kV			
	Index of protection (IP) (IEC 60529&VDE 0470)	IP 20	IP 20	IP 00	
	Trip Class (IEC)	5/10/20/30 selectable			
Self-Powered (control circuit)	●				
Ambient Temperature Compensation	●				
Mechanism Functions	Trip indication	●			
	Reset/Stop Functions	●			
	Reset	Manual / Auto and Stop on Same Rod			
	Function Test Method (test button)	Mechanical (yellow)			
	Operation Protective Cover	●			
	Mounting	Panel Mounting	●	●	●
Din Rail (35mm)		●	—	—	
Electronic Function	Power Indicate (LED)on/off (Main Circuit)	option			
	Hot/Cold State Trip Memory. Thermal Memeory.	●			
	Automatic Reset Time	1.5 min ~ 4min			
	Manual Instantaneous Reset	●			
	Mounting Position	Any			
	Inrush Current Protection	> 10 x Max scale, trip time is 0.3S (clod status)			
	Phase Loss Protection.	●(phase difference than>70% , will trip within 3 seconds.)			
	Phase Unbalance Protection.	●(phase difference than>40% , will trip within 3 seconds.)			
Overload curve	Inverse Time / Current Curve				
Compatible Contactor List	1	CN-5/6	CU-50/65/80	CN-100R/125R	
	2	CU- 9/11/12/16/17/18/22/32R	CN-100R/125R	CN-150	
	3	CU-40	—	CN-180/220	
	4	CU-27/32/38	—	—	
	P (Note 1)	●	●	—	

Notes ● : available — : not available 1 : Separate mounting type. 2 : Patent in Taiwan, China & US.

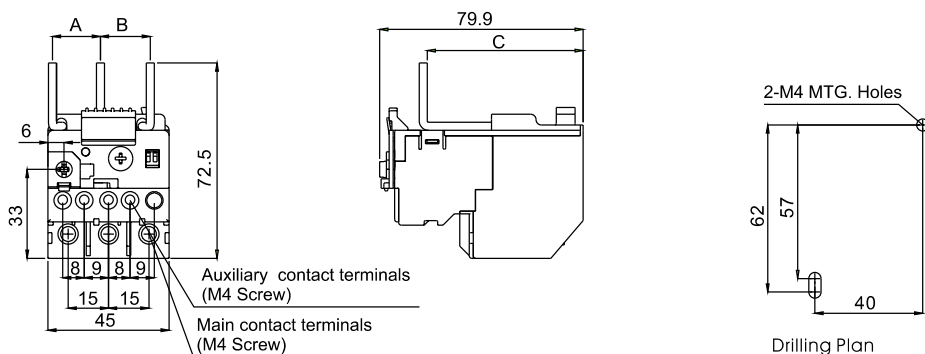
IEC Trip Class



Electronic Overload Relays

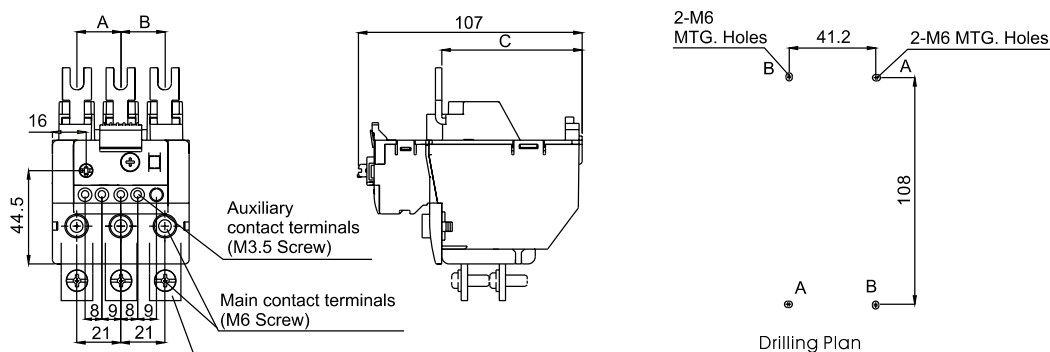
Dimensions (mm)

EOL-40(45mm)



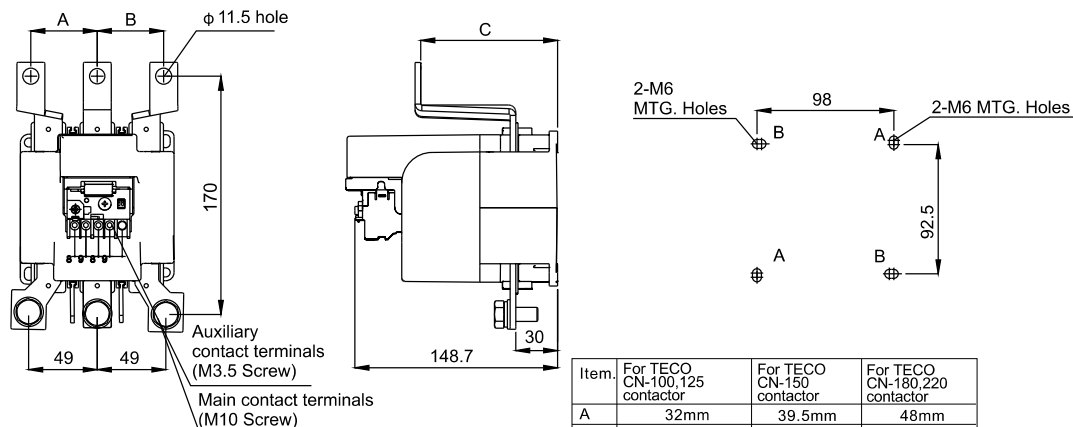
Item.	For TECO CN-5, 6 contactor	For TECO CU-11, 16 contactor	For TECO CU-18, 22 contactor	For TECO CU-27, 32, 38 contactor	For TECO CU-40 contactor
A	8.2mm	12.3mm	12.6mm	17.8mm	17.8mm
B	8.7mm	10.3mm	13mm	18.5mm	18.5mm
C	38.9mm	60.4mm	62.4mm	57.9mm	57.9mm

EOL-80(65mm)



Item.	For TECO CU-50, 65, 80 contactor	For TECO CN-100 contactor
A	21mm	32mm
B	21mm	32mm
C	67mm	82.3mm

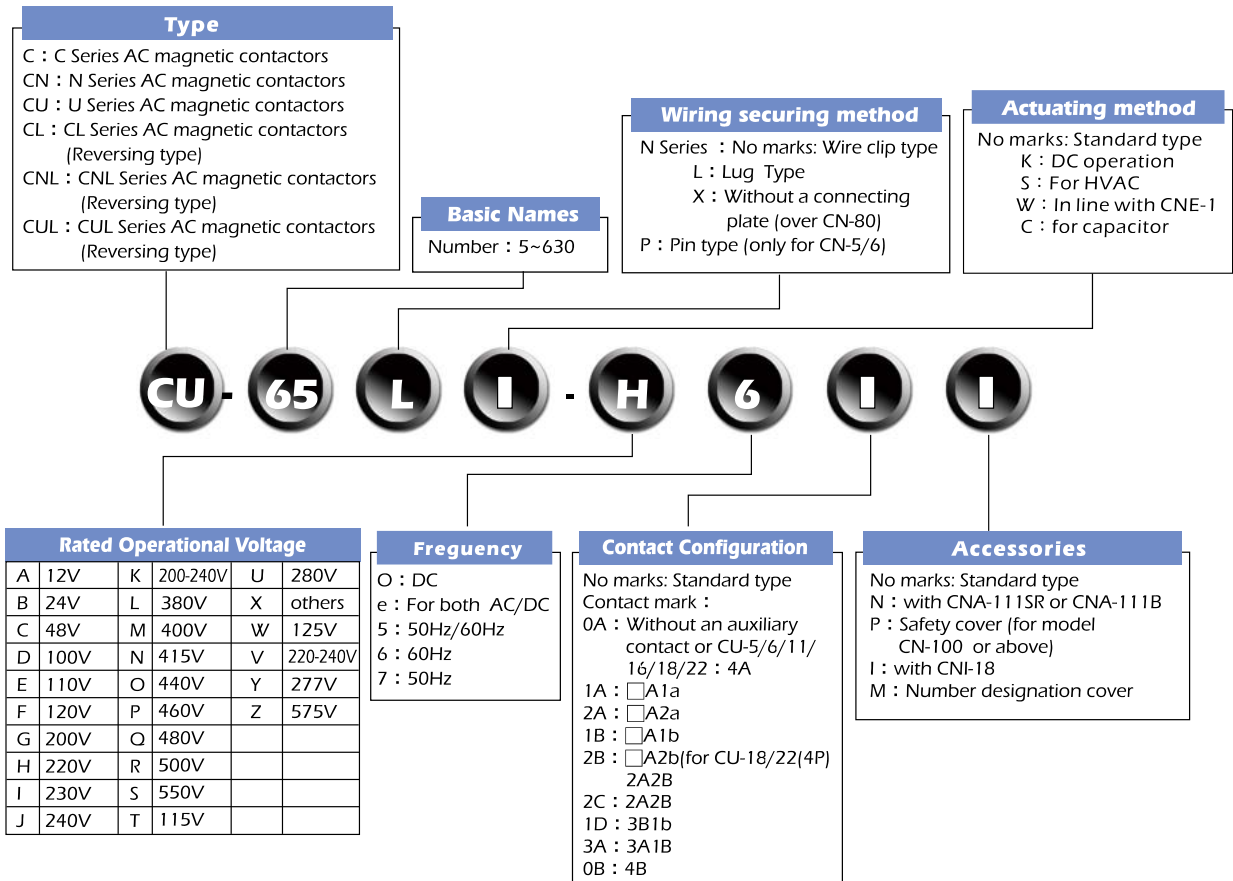
EOL-200(110mm)



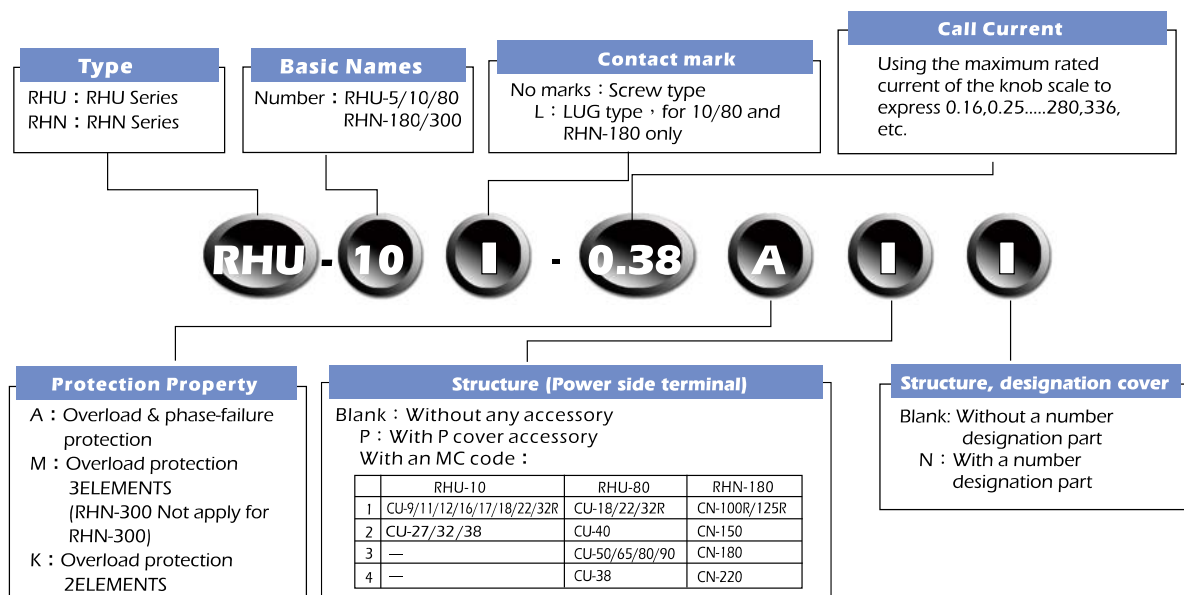
Item.	For TECO CN-100, 125 contactor	For TECO CN-150 contactor	For TECO CN-180, 220 contactor
A	32mm	39.5mm	48mm
B	32mm	39.5mm	48mm
C	80mm	98mm	98mm

Type Number Description

U & N Series AC Magnetic Contactors

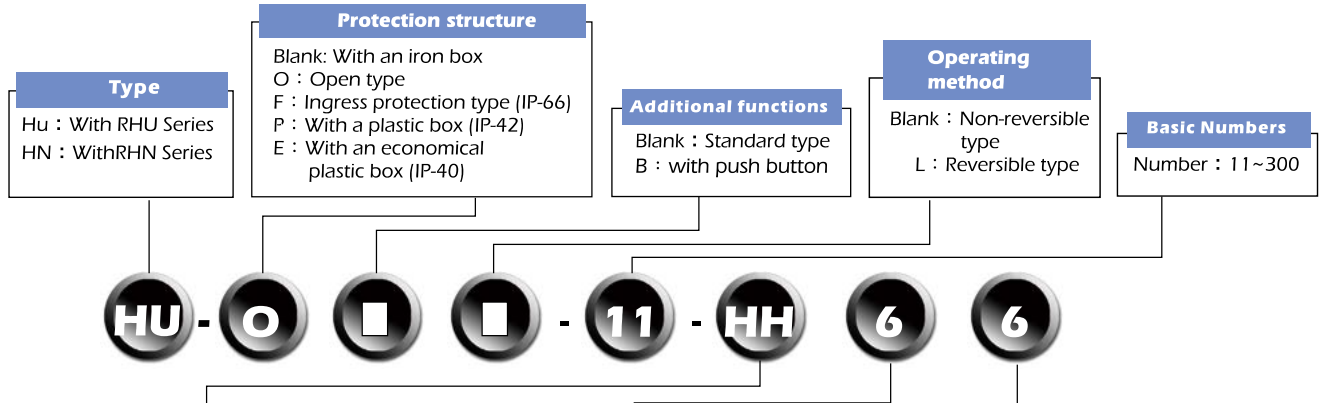


RHU/RHN Series Thermal Overload Relays



Type Number Description

HU/HN Series Magnetic Starters

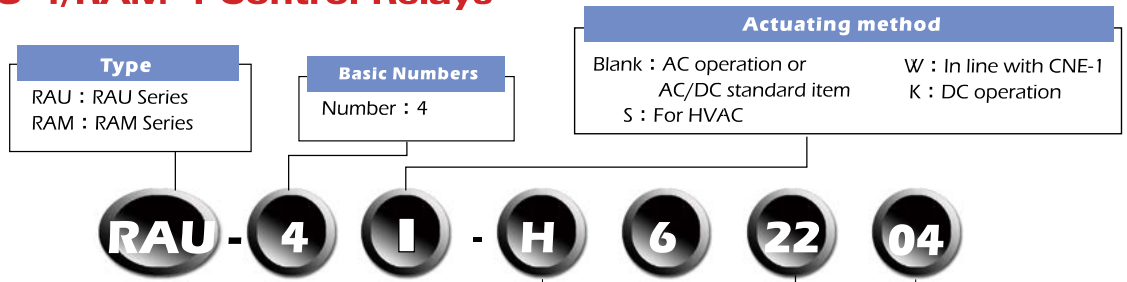


Voltage code					
Main voltage	control voltage	voltage	Main voltage	control voltage	voltage
A	A	12V	N	N	415V
B	B	24V	O	O	440V
C	C	48V	P	P	460V
D	D	100V	Q	Q	480V
E	E	110V	R	R	500V
F	F	120V	T	T	115V
G	G	200V	U	U	208V
H	H	220V	S	S	550V
I	I	230V	V	V	220-240V
J	J	240V	W	W	125V
K	K	200-240V	X	X	others
L	L	380V	Y	Y	277V
M	M	400V			

Frequency	
空白	Without M.S. (Only a box)
0	DC
e	For both AC/DC
5	50Hz/60Hz
6	60Hz
7	50Hz

HP			
1	1/4HP(0.2kW)	J1	54HP(40kW)
2	1/2HP(0.4kW)	K	60HP(45kW)
3	3/4HP(0.55kW)	K1	70HP(51kW)
4	1HP(0.75kW)	L	75HP(55kW)
5	1.5HP(1.1kW)	L1	80HP(59kW)
6	2HP(1.5kW)	8	85HP(63kW)
7	3HP(2.2kW)	M	100HP(75kW)
A	5HP(3.7kW)	M1	110HP(80kW)
A1	4HP(3kW)	N	125HP(95kW)
9	5.5HP(4kW)	N1	136HP(100kW)
A2	7HP(5kW)	O	150HP(110kW)
B	7.5HP(5.5kW)	P	180HP(132kW)
B1	8HP(6kW)	Q	200HP(150kW)
C	10HP(7.5kW)	Q1	220HP(160kW)
C1	12HP(9kW)	R	225HP(168kW)
D	15HP(11kW)	S	250HP(168kW)
E	20HP(15kW)	Q2	270HP(200kW)
F	25HP(18.5kW)	T	300HP(220kW)
H1	27HP(20kW)	U	350HP(260kW)
G	30HP(22kW)	V	400HP(300kW)
H	35HP(26kW)	W	430HP(320kW)
I	40HP(30kW)	X	500HP(375kW)
H2	45HP(33kW)	Y	700HP(522kW)
J	50HP(37kW)	Z	Others

RAU-4/RAM-4 Control Relays



Rated Operational Voltage							
A	12V	H	220V	O	440V	W	125V
B	24V	I	230V	P	460V	V	200-240V
C	48V	J	240V	Q	480V	X	others
D	100V	K	200-240V	R	500V	Y	277V
E	110V	L	380V	S	550V	Z	575V
F	120V	M	400V	T	115V		
G	200V	N	415V	U	208V		

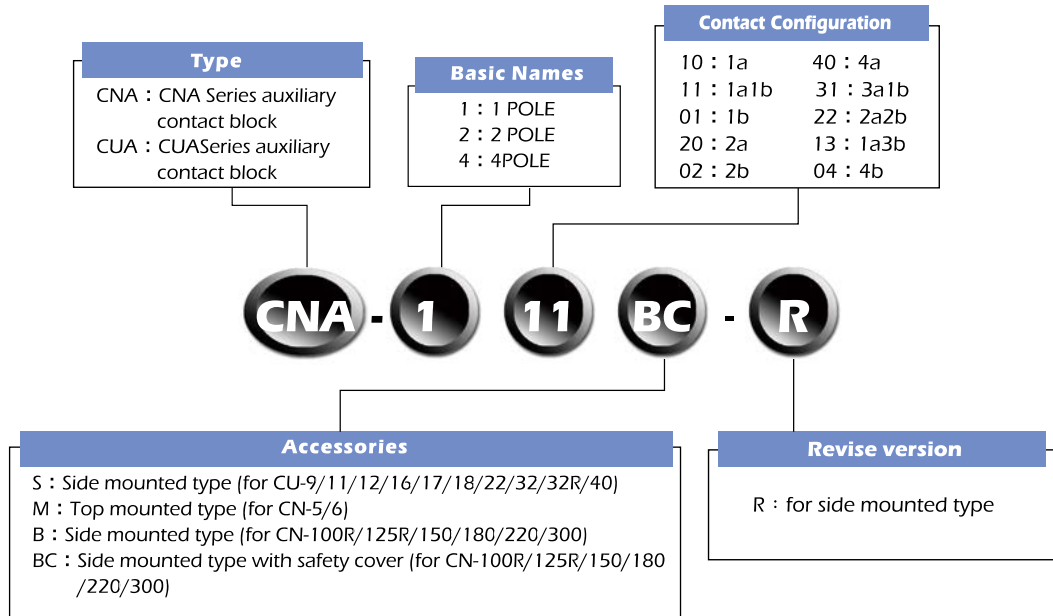
Frequency	
0	DC
5	50/60Hz
6	60Hz
7	50Hz

Contact Configuration	
04	4b
13	1a1b
22	2a2b
31	3a1b
40	4a

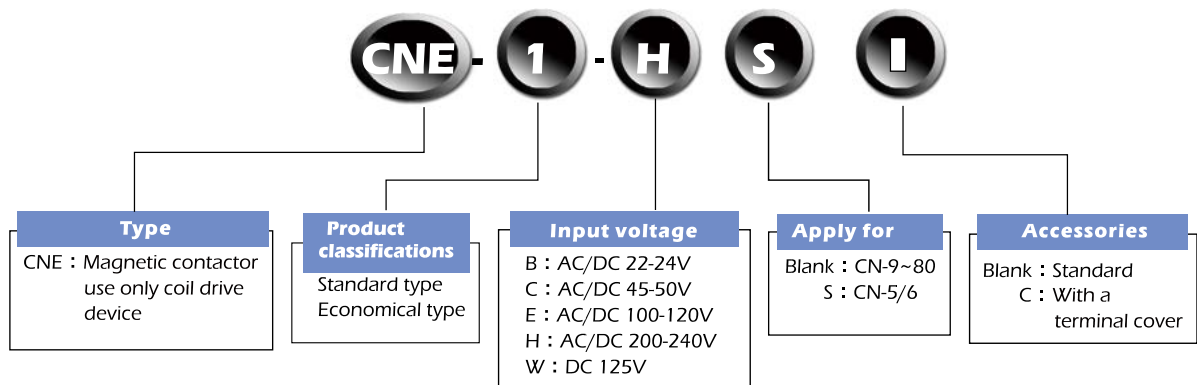
Accessories	
N	With CNA-111S

Type Number Description

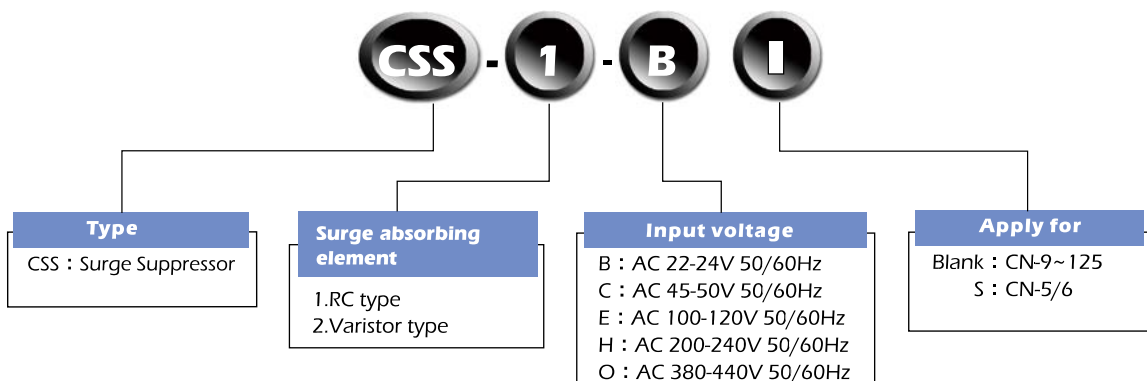
CNA/CUA Auxiliary Contact Block



CNE Series Coil Driver Unit

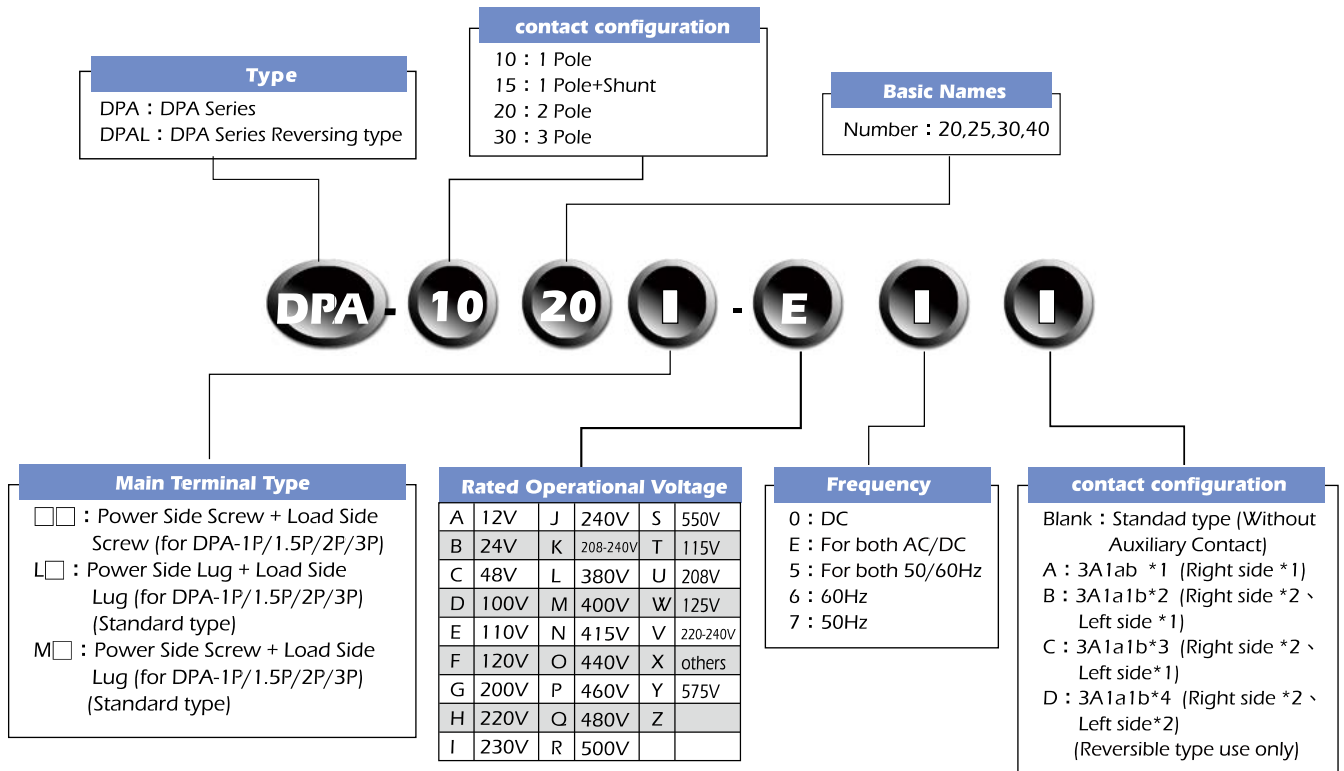


CSS Series Surge Suppressor

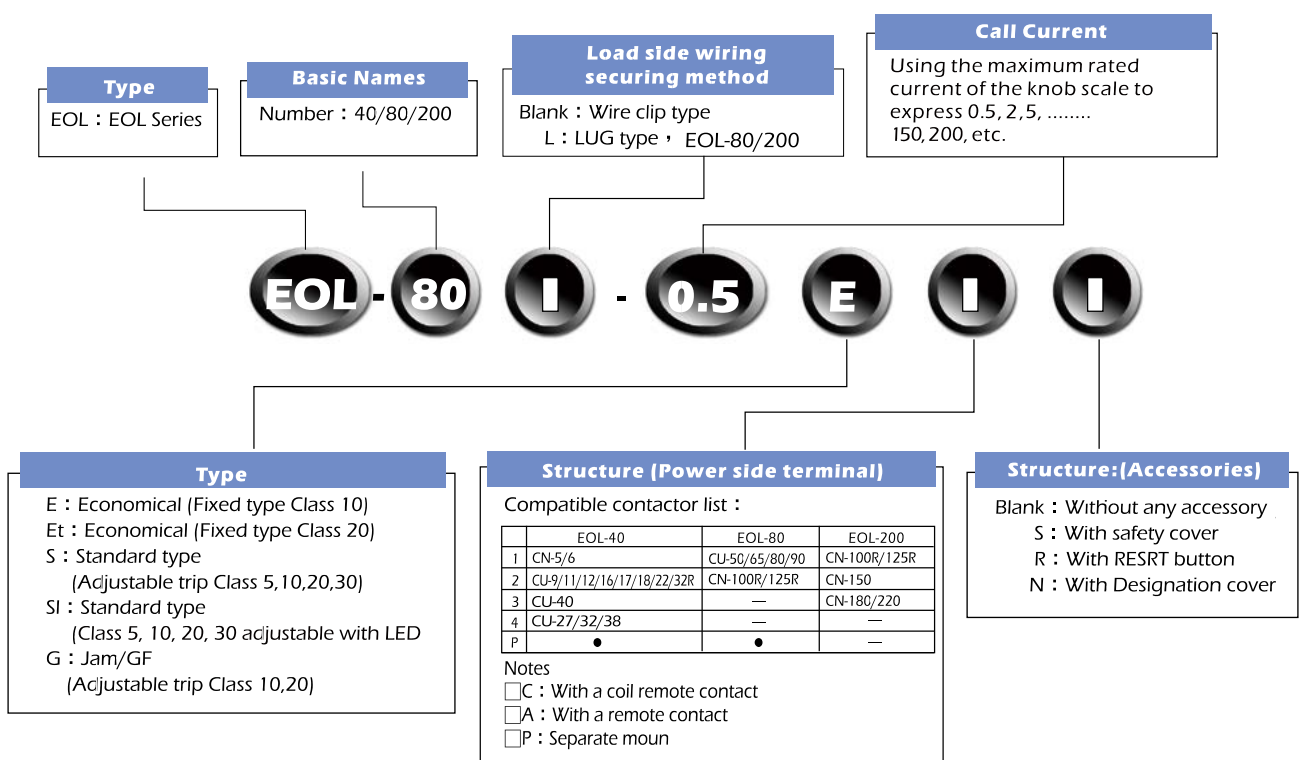


Type Number Description

DPA Series



EOL Series Electronic Overload Relays



Technical Data

Coil Data of Contactors

Mini Series

Catalogue number	Power Consumption		Power Dissipation (W)	Pick-up Voltage	Drop-out Voltage	On Delay Times (ms)		Off Delay Times (ms)	
	Inrush(VA)	Sealed(VA)				N/C	N/O	N/C	N/O
CN-5K,CN-6K,RAM-4K	—	Max 3	Max 3	Max 0.75	Max 0.55	15–30	20–40	5.0–15	4.0–10
CN-5,CN-6,RAM-4	Max 27	Max 5	Max 2	Max 0.75	Max 0.55	15–20	16–22	12–18	8.0–14

CU、CN Series

Catalogue number	Power Consumption		Power Dissipation (W)	Pick-up Voltage	Drop-out Voltage	On Delay Times (ms)		Off Delay Times (ms)	
	Inrush(VA)	Sealed(VA)				N/C	N/O	N/C	N/O
CU-11,CU-12,CU-16,CU-17 CU-10/4P,RAU-4	Max 70	Max 12	Max 4	Max 0.75	Max 0.55	10–22	15–23	7.0–16	7.0–14
CU-18,CU-22,CU-32R	Max 70	Max 12	Max 4	Max 0.75	Max 0.55	8.0–24	12–26	12–20	6.0–14
CU-18/4P,CU-22/4P	Max 70	Max 12	Max 4	Max 0.75	Max 0.55	8.0–24	12–26	12–20	6.0–14
CU-27,CU-32,CU-38	Max 150	Max 15	Max 5	Max 0.75	Max 0.55	10–25	14–30	5.0–30	3.0–25
CU-40	Max 215	Max 27	Max 6	Max 0.75	Max 0.55	9.0–16	14–20	8.0–14	4.0–14
CU-50,CU-65,CU-80,CU-90	Max 280	Max 32	Max 7.5	Max 0.75	Max 0.55	12–18	15–30	5.0–12	10–16
CN-100R/125R	Max 560	Max 63	Max 10	Max 0.8	Max 0.6	8–15	11–28	7–20	4–12
CN-150/180	Max 700	Max 88	Max 15	Max 0.75	Max 0.55	13–26	21–31	9.0–26	5.0–22
CN-220/300	Max 1050	Max 63	Max 15	Max 0.75	Max 0.55	10–40	10–40	12–30	24–30
CN-400-R / CN-500	Max 1100	Max 18	Max 18	Max 0.78	Max 0.45	35–65	40–70	90–150	85–145
CN-400K-R / CN-500K	Max 1200	Max 8	Max 8	Max 0.78	Min 0.15 Max 0.30	45–65	50–70	1–10	0.5–5
CN-630 / CNL-630	Max 1730	Max 25	Max 25	Max 0.8	Max 0.45	85–115	90–120	95–145	90–140
CN-630K / CNL-630K	Max 1920	Max 13	Max 13	Max 0.8	Min 0.15 Max 0.30	35–65	65–86	10–35	7.5–30

DPA Series

Catalogue number	Power Consumption		Power Dissipation (W)	Pick-up Voltage	Drop-out Voltage
	Inrush(VA)	Sealed(VA)			
DPA-1020,1025,1030,1040	Max 25	Max 7.5	Max 4	Max 0.75	Max 0.6
DPA-1520,1525,1530,1540	Max 25	Max 7.5	Max 4	Max 0.75	Max 0.6
DPA-2020,2025,2030,2040	Max 40	Max 8.0	Max 4.5	Max 0.75	Max 0.6
DPA-3020,3025,3030,3040	Max 65	Max 15	Max 7	Max 0.75	Max 0.6

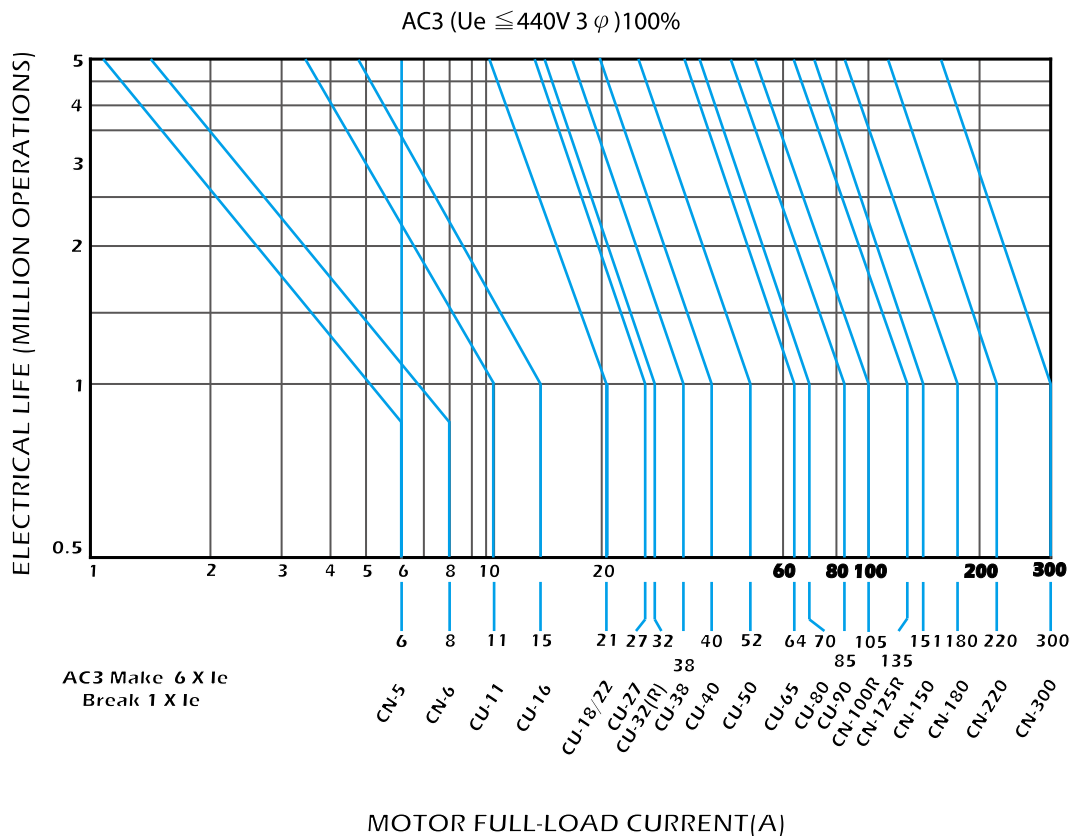
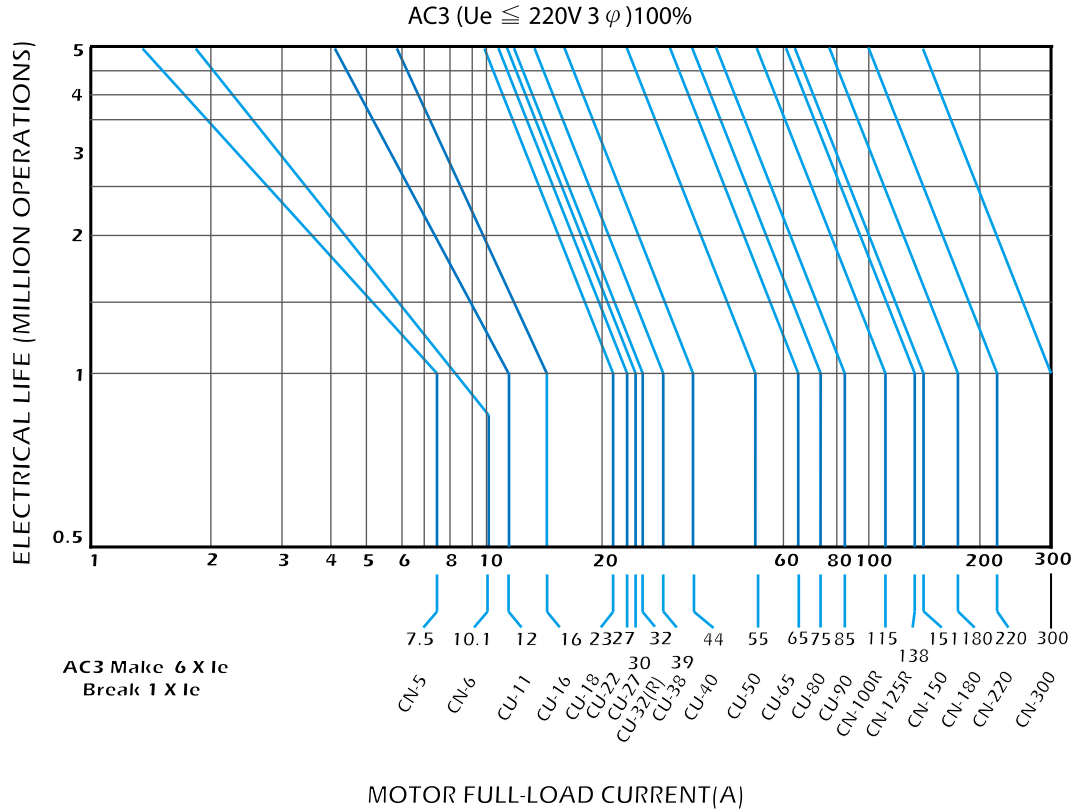
CL-10F Series

Catalogue number	Power Consumption		Power Dissipation (W)	Pick-up Voltage	Drop-out Voltage
	Inrush(VA)	Sealed(VA)			
CL-10F	MAX 70	MAX 12	MAX 78	MAX 70	2.0~3.4

Utilization Categories

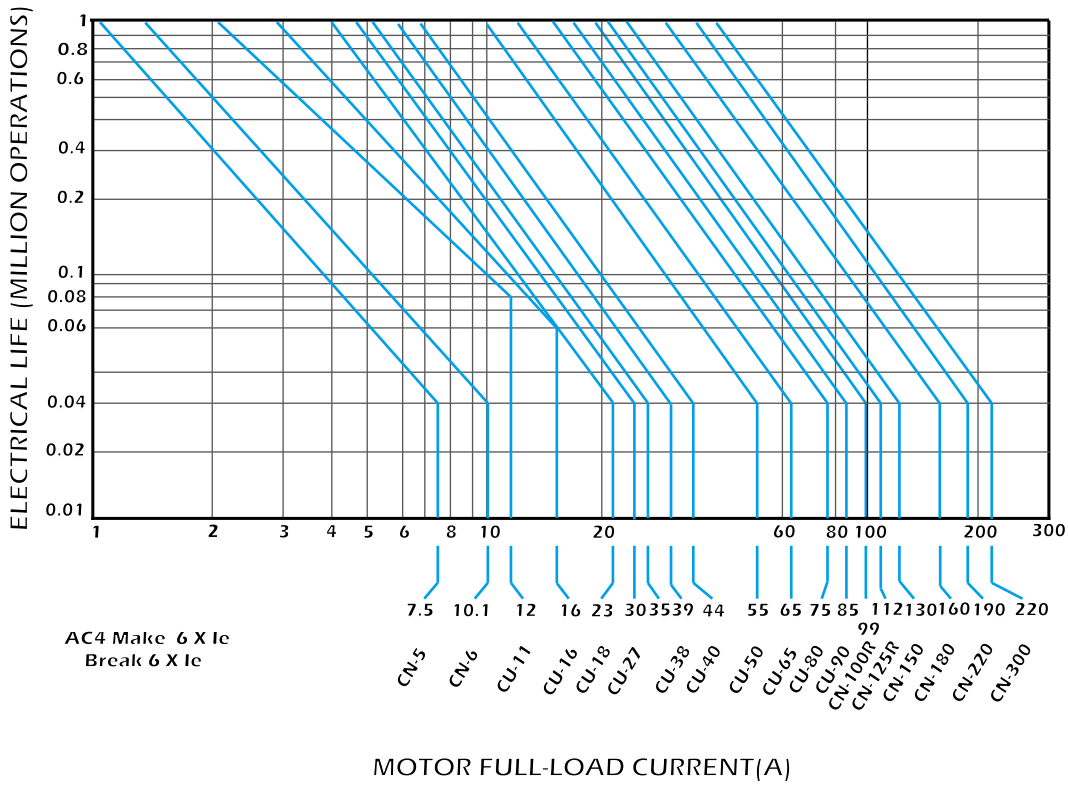
Kind of current	Utilization categories	Additional category designation	Typical applications
AC	AC-1	General use	Non-inductive or slightly inductive loads, resistance furnaces
	AC-2		Slip-ring motors; starting, switching off
	AC-3		Squirrel-cage motors: starting, switching off motors during running ^a
	AC-4		Squirrel-cage motors: starting, plugging, inching
	AC-5a	Ballast	Switching of electric discharge lamp controls
	AC-5b		Switching of incandescent lamps
	AC-6a	Incandescent	Switching of transformers
	AC-6b		Switching capacitor banks
	AC-7a		Slightly inductive loads in household appliances and similar applications
	AC-7b		Motor-loads for household applications
	AC-8a		Hermetic refrigerant compressor motor ^b control with manual resetting of overload releases
AC-8b	Hermetic refrigerant compressor motor ^b control with automatic resetting of overload releases		
DC	DC-1	Incandescent	Non-inductive or slightly inductive loads, resistance furnaces
	DC-3		Shunt-motors: starting, plugging, inching Dynamic breaking of d.c. Motors
	DC-5		Series-motors: starting, plugging, inching Dynamic breaking of d.c. Motors
	DC-6		Switching of incandescent lamps
			<p>a AC-3 category may be used for occasional inching (jogging) or plugging for limited time periods such as machine set-up; during such limited time periods, the number of such operations should not exceed five per minute or more than ten in a 10-min period.</p> <p>b A hermetic refrigerant compressor motor is a combination consisting of a compressor and a motor, both of which are enclosed in the same housing, with no external shaft or seals, the motor operating in the refrigerant.</p> <p>c For AC-7a and AC-7b, see IEC 61095</p>

Electrical Life Curves of AC Contactors - AC3

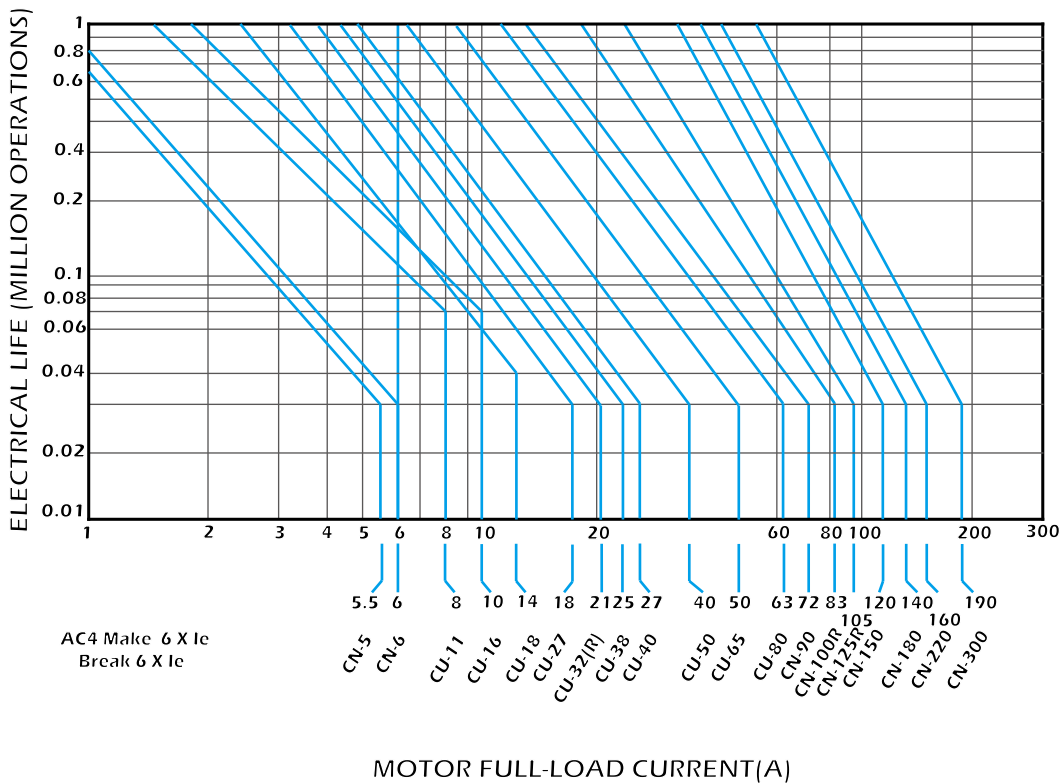


Electrical Life Curves of AC Contactors - AC4

AC4 ($U_e \leq 220V$ 3 ϕ) inching 100%













AC4 ($U_e \leq 440V$ 3 ϕ) inching 100%



Rated Capacities of Contactors at Condensive Loads

Contactor Type	1 ϕ KVA (A)		3 ϕ KVA (A)	
	200-240V	380-440V	200-240V	380-440V
CN-5	0.8(4)	1(2.5)	1.5(3.8)	1.5(2.3)
CN-6	1.1(5.7)	1.5(3.6)	2(5.7)	2.5(3.2)
CU-11	1.2(6)	1.7(4.3)	2(6)	3(4.3)
CU-12	1.2(6)	1.7(4.3)	2(6)	3(4.3)
CU-16	1.8(9)	2.4(6)	3(9)	4(6)
CU-17	1.8(9)	2.4(6)	3(9)	4(6)
CU-18	3(15)	4.8(12)	5(15)	6(9)
CU-22	3.3(16)	5(13)	6(18)	6(9)
CU-32R	4.3(20)	6.5(16)	6.5(19)	11(16)
CU-38	4.5(23)	7.5(19)	7.5(21)	13(19)
CU-40	5(25)	8(20)	8(24)	14(20)
CU-50	7.5(38)	12(30)	13(38)	26(38)
CU-65	9(45)	16(40)	15(45)	30(45)
CU-80	10(50)	20(50)	20(58)	36(54)
CN-100R	13(65)	20(50)	20(58)	40(58)
CN-125R	15(75)	26(65)	26(78)	50(75)
CN-150	18(90)	30(75)	36(105)	70(105)
CN-180	20(100)	36(90)	40(115)	75(114)
CN-220	26(130)	40(100)	45(130)	80(120)
CN-300	30(150)	60(150)	50(150)	100(150)
CN-400	50(250)	75(180)	80(231)	144(218)
CN-500	55(275)	95(248)	87(250)	165(250)
CN-630	60(300)	120(315)	109(315)	207(315)

Operating Voltage of Contactors at Various Mounting Positions

Contactor Type	Minimum Pick-UP voltage					Minimum Hold-in voltage				
	 90° Vertical	 30° Left	 30° Right	 30° Forward	 30° Backward	 90° Vertical	 30° Left	 30° Right	 30° Forward	 30° Backward
CN-5/6	75%Us	72%Us	77%Us	75%Us	75%Us	55%Us	53%Us	57%Us	55%Us	55%Us
CU-9										
CU-11										
CU-12	75%Us	75%Us	75%Us	80%Us	70%Us	55%Us	55%Us	57%Us	52%Us	55%Us
CU-16										
CU-17										
CU-18										
CU-22	75%Us	77%Us	74%Us	80%Us	74%Us	55%Us	51%Us	56%Us	53%Us	54%Us
CU-32R										
CU-38	75%Us	79%Us	77%Us	81%Us	74%Us	55%Us	58%Us	56%Us	54%Us	57%Us
CU-40	75%Us	75%Us	75%Us	78%Us	73%Us	55%Us	57%Us	57%Us	57%Us	55%Us
CU-50										
CU-65										
CU-80	75%Us	79%Us	77%Us	81%Us	74%Us	55%Us	58%Us	56%Us	54%Us	57%Us
CU-90										
CN-100R	80%Us	80%Us	80%Us	83%Us	80%Us	55%Us	55%Us	55%Us	55%Us	55%Us
CN-125R										
CN-150	80%Us	80%Us	80%Us	80%Us	80%Us	55%Us	55%Us	55%Us	55%Us	55%Us
CN-180										
CN-220	80%Us	80%Us	80%Us	80%Us	80%Us	55%Us	55%Us	55%Us	55%Us	55%Us
CN-300										

Ingress Protection (IP) and what it means

First Digit: Solids

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects.

Level	Object size protected against	Effective against
0	Not protected	Not protected No protection against contact and ingress of objects
1	>50mm	Any large surface of the body, such as the back of the hand, but no protection against deliberate contact with a body part.
2	>12.5mm	Fingers or similar objects.
3	>2.5mm	Tools, thick wires, etc.
4	>1mm	Most wires, screws, etc.
5	Dust Protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact.
6	Dust Tight	No ingress of dust; complete protection against contact.

Second Digit: Liquids

Protection of the equipment inside the enclosure against harmful ingress of water.

Second Digit: Liquids

Protection of the equipment inside the enclosure against harmful ingress of water.

Level	Object size protected against	Effective against
0	Not protected	—
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect.
2	Dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.
4	Splashing water	Water splashing against the enclosure from any direction shall have no harmful effect.
5	Water jets	Water projected by a nozzle (6.3mm) against enclosure from any direction shall have no harmful effects.
6	Powerful water jets	Water projected in powerful jets (12.5mm nozzle) against the enclosure from any direction shall have no harmful effects.
7	Immersion up to 1m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).
8	Immersion beyond 1m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. Normally, this will mean that the equipment is hermetically sealed. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects.

Sample IP Rating

IP	6	8
“Ingress Protection”	First Digit: Solids Protection	Second Digit: Liquids Protection

Application of Magnetic Contactors to Lamps

Rated Voltage (V)	Incandescent lamps		Can control the number of Incandescent lamp																		Unit:	
	Capacity (W)	Current (A)	CU-9	CU-11	CU-12	CU-16	CU-17	CU-18	CU-22	CU-32R	CU-38	CU-40	CU-50	CU-65	CU-80	CU-90	CN-100R	CN-125R	CN-150	CN-180	CN-220	CN-300
100-110V	100	1	11	12	12	16	16	22	26	32	38	40	52	64	72	85	105	115	151	180	225	300
	150	1.5	7	8	8	10	10	14	17	21	25	26	34	42	48	56	70	76	100	120	150	200
	200	2	5	6	6	8	8	11	13	16	19	20	26	32	36	42	52	57	75	90	112	150
	250	2.5	4	4	4	6	6	8	10	12	15	16	20	25	28	34	42	46	60	72	90	120
	300	3	3	4	4	5	5	7	8	10	12	13	17	21	24	28	35	38	50	60	75	100
	500	5	2	2	2	3	3	4	5	6	7	8	10	12	14	17	21	23	30	36	45	60
	1000	10	1	1	1	1	1	2	2	3	3	4	5	6	7	8	10	11	15	18	22	30
1500	15	—	—	—	1	1	1	1	2	2	2	3	4	4	5	7	7	10	12	15	20	
200-220V	100	0.5	23	24	24	32	32	44	52	64	76	80	104	128	144	170	210	230	302	360	450	600
	150	0.75	15	16	16	21	21	29	34	42	50	53	69	85	96	113	140	153	201	240	300	400
	200	1	11	12	12	16	16	22	26	32	38	40	52	64	72	85	105	115	151	180	225	300
	250	1.25	9	9	9	12	12	17	20	25	30	32	41	51	57	68	84	92	120	144	180	240
	300	1.5	7	8	8	10	10	14	17	21	25	26	34	42	48	56	70	76	100	120	150	200
	500	2.5	4	4	4	6	6	8	10	12	15	16	20	25	28	34	42	46	60	72	90	120
	1000	5	2	2	2	3	3	4	5	6	7	8	10	12	14	17	21	23	30	36	45	60
1500	7.5	1	1	1	2	2	2	3	4	5	5	6	8	9	11	14	15	20	24	30	40	

Rated Voltage (V)	Incandescent lamps		Can control the number of Incandescent lamp								Unit:	
	Capacity (W)	Current (A)	DPA-2020	DPA-2025	DPA-2030	DPA-2040	DPA-3020	DPA-3025	DPA-3030	DPA-3040		
100-110V	100	1	20	25	30	40	20	25	30	40		
	150	1.5	13	16	20	26	13	16	20	26		
	200	2	10	12	15	20	10	12	15	20		
	250	2.5	8	10	12	16	8	10	12	16		
	300	3	6	8	10	13	6	8	10	13		
	500	5	4	5	6	8	4	5	6	8		
	1000	10	2	2	3	4	2	2	3	4		
1500	15	1	1	2	2	1	1	2	2			
200-220V	100	0.5	40	50	60	80	40	50	60	80		
	150	0.75	26	33	40	53	26	33	40	53		
	200	1	20	25	30	40	20	25	30	40		
	250	1.25	16	20	24	32	16	20	24	32		
	300	1.5	13	16	20	26	13	16	20	26		
	500	2.5	8	10	12	16	8	10	12	16		
	1000	5	4	5	6	8	4	5	6	8		
1500	7.5	2	3	4	5	2	3	4	5			

● **Incandescent lamp**

When the circuit of incandescent lamps is closed, starting current will reach about 30 times rated current in 10 msec.

The selection of contactor is based on that the closing current capacity is more than 2 times rated current capacity.

● **Fluorescent lamp**

The starting current varies with the methods of starting and, in general, is several times rated current. The selection of contactor is on the basis that current capacity is equal to rated current capacity.

● **Mercury-vapor lamp**

When the circuit of mercury-vapor lamps is closed, starting current will reach about 1.5-1.8 times rated current. The current will be reduced to rated current in 8 minutes. The selection of contactor is on the basis that current capacity is 1.5 times rated current capacity.

Application of Magnetic Contactors to Lamps

Rated Voltage (V)	Mercury-vapor lamp ():High power factor type	Can control the number of mercury-vapo lamp																				Unit:	
		Capacity(W)	Current(A)	CJ-9	CJ-11	CJ-12	CJ-16	CJ-17	CJ-18	CJ-22	CJ-32	CJ-32R	CJ-38	CJ-40	CJ-50	CJ-65	CJ-80	CJ-90	CJ-100R	CJ-125R	CJ-150		CJ-180
100-110V	40	1.25	9	9	9	12	12	17	20	25	25	30	32	41	51	57	68	84	92	120	144	180	240
		(0.55)	20	21	21	29	29	40	47	58	58	69	72	94	116	130	154	190	209	274	327	409	545
	100	2.60	4	4	4	6	6	8	10	12	12	14	15	20	24	27	32	40	44	58	69	86	115
		(1.40)	8	8	8	11	11	15	18	22	22	27	28	37	45	51	60	75	82	107	128	160	214
	200	4.60	2	2	2	3	3	4	5	6	6	8	8	11	13	15	18	22	25	32	39	48	65
		(2.60)	4	4	4	6	6	8	10	12	12	14	15	20	24	27	32	40	44	58	69	86	115
	250	5.10	2	2	2	3	3	4	5	6	6	7	7	10	12	14	16	20	22	29	35	44	58
		(3.00)	3	4	4	5	5	7	8	10	10	12	13	17	21	24	28	35	38	50	60	75	100
	300	6.00	1	2	2	2	2	3	4	5	5	6	6	8	10	12	14	17	19	25	30	37	50
		(3.70)	3	3	3	4	4	5	7	8	8	10	10	14	17	19	22	28	31	40	48	60	81
	400	8.00	1	1	1	2	2	2	3	4	4	4	5	6	8	9	10	13	14	18	22	28	37
		(4.90)	2	2	2	3	3	4	5	6	6	7	8	10	13	14	17	21	23	30	36	45	61
	700	14.50	—	—	—	1	1	1	1	2	2	2	2	3	4	4	5	7	7	10	12	15	20
		(8.50)	1	1	1	1	1	2	3	3	3	4	4	6	7	8	10	12	13	17	21	26	35
	1000	21.00	—	—	—	—	—	1	1	1	1	1	1	2	3	3	4	5	5	7	8	10	14
		(12.00)	1	1	1	1	1	1	2	2	2	3	3	4	5	6	7	8	9	12	15	18	25
200-220V	40	0.53	21	22	22	30	30	41	49	60	60	71	75	98	120	135	160	198	216	284	339	424	566
		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	100	1.00	11	12	12	16	16	22	26	32	32	38	40	52	64	72	85	105	115	151	180	225	300
		(0.65)	17	18	18	24	24	33	40	49	49	58	61	80	98	110	130	161	176	232	276	346	461
	200	1.90	6	6	6	8	8	11	13	16	16	20	21	27	33	37	44	55	60	79	94	118	157
		(1.20)	9	10	10	13	13	18	21	26	26	31	33	43	53	60	70	87	95	125	150	187	250
	250	2.10	5	5	5	7	7	10	12	15	15	18	19	24	30	34	40	50	54	71	85	107	142
		(1.50)	7	8	8	10	10	14	17	21	21	25	26	34	42	48	56	70	76	100	120	150	200
	300	2.50	4	4	4	6	6	8	10	12	12	15	16	20	25	28	34	42	46	60	72	90	120
		(1.80)	6	6	6	8	8	12	14	17	17	21	22	28	35	40	47	58	63	83	100	125	166
	400	3.30	3	3	3	4	4	6	7	9	9	11	12	15	19	21	25	31	34	45	54	68	90
		(2.30)	5	5	5	6	6	9	11	13	13	16	17	22	27	31	36	45	50	65	78	97	130
	700	5.90	1	2	2	2	2	3	4	5	5	6	6	8	10	12	14	17	19	25	30	38	50
		(4.10)	2	2	2	3	3	5	6	7	7	9	9	12	15	17	20	25	28	36	43	54	73
	1000	8.30	1	1	1	1	1	2	3	3	3	4	4	6	7	8	10	12	13	18	21	27	36
		(5.80)	1	2	2	2	2	3	4	5	5	6	6	8	11	12	14	18	19	26	31	38	51

● **Incandescent lamp**

When the circuit of incandescent lamps is closed, starting current will reach about 30 times rated current in 10 msec. The selection of contactor is based on that the closing current capacity is more than 2 times rated current capacity.

● **Fluorescent lamp**

The starting current varies with the methods of starting and, in general, is several times rated current. The selection of contactor is on the basis that current capacity is equal to rated current capacity.

● **Mercury-vapor lamp**

When the circuit of mercury-vapor lamps is closed, starting current will reach about 1.5-1.8 times rated current. The current will be reduced to rated current in 8 minutes. The selection of contactor is on the basis that current capacity is 1.5 times rated current capacity.

Application of Magnetic Contactors to Lamps

Rated Voltage (V)	Mercury-vapor lamp ():High power factor type		Can control the number of mercury-vapo lamp								Unit:
	Capacity(W)	Current(A)	DPA-2020	DPA-2025	DPA-2030	DPA-2040	DPA-3020	DPA-3025	DPA-3030	DPA-3040	
100-110V	40	1.25	16	20	24	32	16	20	24	32	
		(0.55)	36	45	54	72	36	45	54	72	
	100	2.60	7	9	11	15	7	9	11	15	
		(1.40)	14	17	21	28	14	17	21	28	
	200	4.60	4	5	6	8	4	5	6	8	
		(2.60)	7	9	11	15	7	9	11	15	
	250	5.10	3	4	5	7	3	4	5	7	
		(3.00)	6	8	10	13	6	8	10	13	
	300	6.00	3	4	5	6	3	4	5	6	
		(3.70)	5	6	8	10	5	6	8	10	
	400	8.00	2	3	3	5	2	3	3	5	
		(4.90)	4	5	6	8	4	5	6	8	
	700	14.50	1	1	2	2	1	1	2	2	
		(8.50)	2	2	3	4	2	2	3	4	
	1000	21.00	0	1	1	1	0	1	1	1	
		(12.00)	1	2	2	3	1	2	2	3	
200-220V	40	0.53	37	47	56	75	37	47	56	75	
		—	—	—	—	—	—	—	—	—	
	100	1.00	20	25	30	40	20	25	30	40	
		(0.65)	30	38	46	61	30	38	46	61	
	200	1.90	10	13	15	21	10	13	15	21	
		(1.20)	16	20	25	33	16	20	25	33	
	250	2.10	9	11	14	19	9	11	14	19	
		(1.50)	13	16	20	26	13	16	20	26	
	300	2.50	8	10	12	16	8	10	12	16	
		(1.80)	11	13	16	22	11	13	16	22	
	400	3.30	6	7	9	12	6	7	9	12	
		(2.30)	8	10	13	17	8	10	13	17	
	700	5.90	3	4	5	6	3	4	5	6	
		(4.10)	4	6	7	9	4	6	7	9	
	1000	8.30	2	3	3	4	2	3	3	4	
		(5.80)	3	4	5	6	3	4	5	6	

● **Incandescent lamp**

When the circuit of incandescent lamps is closed, starting current will reach about 30 times rated current in 10 msec. The selection of contactor is based on that the closing current capacity is more than 2 times rated current capacity.

● **Fluorescent lamp**

The starting current varies with the methods of starting and, in general, is several times rated current. The selection of contactor is on the basis that current capacity is equal to rated current capacity.

● **Mercury-vapor lamp**

When the circuit of mercury-vapor lamps is closed, starting current will reach about 1.5-1.8 times rated current. The current will be reduced to rated current in 8 minutes. The selection of contactor is on the basis that current capacity is 1.5 times rated current capacity.

Application of Magnetic Contactors to Lamps

Rated Voltage (V)	Fluorescent lamps			Can control the number of fluorescent lamp																		Unit:	
	Capacity(W)		Current(A)	CU-9	CU-11	CU-12	CU-16	CU-17	CU-18	CU-22	CU-32R	CU-38	CU-40	CU-50	CU-65	CU-80	CU-90	CN-100R	CN-125R	CN-150	CN-180	CN-220	CN-300
100-110V	40	1 lamp	0.59	19	20	20	27	27	37	44	54	64	67	88	108	122	144	177	194	255	305	381	508
		2 lamp	0.96	11	12	12	16	16	22	27	33	39	41	54	66	75	88	109	119	157	187	234	312
	60	1 lamp	0.92	12	13	13	17	17	23	28	34	41	43	56	69	78	92	114	125	164	195	244	326
		1 lamp	1.17	9	10	10	13	13	18	22	27	32	34	44	54	61	72	89	98	129	153	192	256
	110	1 lamp	1.55	7	7	7	10	10	14	16	20	24	25	33	41	46	54	67	74	97	116	145	193
		2 lamp	2.5	4	4	4	6	6	8	10	12	15	16	20	25	28	34	42	46	60	72	90	120
220	1 lamp	2.7	4	4	4	5	5	8	9	11	14	14	19	23	26	31	38	42	55	66	83	111	
200-220V	40	1 lamp	0.29	39	41	41	55	55	75	89	110	131	137	179	220	248	293	362	396	520	620	775	1034
		2 lamp	0.48	23	25	25	33	33	45	54	66	79	83	108	133	150	177	218	239	314	375	468	625
	60	1 lamp	0.46	25	26	26	34	34	47	56	69	82	86	113	139	156	184	228	250	328	391	489	652
		1 lamp	0.58	19	20	20	27	27	37	44	55	65	68	89	110	124	146	181	198	260	310	387	517
	110	1 lamp	0.78	14	15	15	20	20	28	33	41	48	51	66	82	92	108	134	147	193	230	288	384
		2 lamp	1.3	8	9	9	12	12	16	20	24	29	30	40	49	55	65	80	88	116	138	173	230
220	1 lamp	1.35	8	8	8	11	11	16	19	23	28	29	38	47	53	62	77	85	111	133	166	222	

Rated Voltage (V)	Fluorescent lamps			Can control the number of fluorescent lamp								Unit:	
	Capacity(W)		Current(A)	DPA-2020	DPA-2025	DPA-2030	DPA-2040	DPA-3020	DPA-3025	DPA-3030	DPA-3040		
100-110V	40	1 lamp	0.59	33	42	50	67	33	42	50	67		
		2 lamp	0.96	20	26	31	41	20	26	31	41		
	60	1 lamp	0.92	21	27	32	43	21	27	32	43		
		1 lamp	1.17	17	21	25	34	17	21	25	34		
	110	1 lamp	1.55	12	16	19	25	12	16	19	25		
		2 lamp	2.5	8	10	12	16	8	10	12	16		
220	1 lamp	2.7	7	9	11	14	7	9	11	14			
200-220V	40	1 lamp	0.29	68	86	103	137	68	86	103	137		
		2 lamp	0.48	41	52	62	83	41	52	62	83		
	60	1 lamp	0.46	43	54	65	86	43	54	65	86		
		1 lamp	0.58	34	43	51	68	34	43	51	68		
	110	1 lamp	0.78	25	32	38	51	25	32	38	51		
		2 lamp	1.3	15	19	23	30	15	19	23	30		
220	1 lamp	1.35	14	18	22	29	14	18	22	29			

● **Incandescent lamp**

When the circuit of incandescent lamps is closed, starting current will reach about 30 times rated current in 10 msec. The selection of contactor is based on that the closing current capacity is more than 2 times rated current capacity.

● **Fluorescent lamp**

The starting current varies with the methods of starting and, in general, is several times rated current. The selection of contactor is on the basis that current capacity is equal to rated current capacity.

● **Mercury-vapor lamp**

When the circuit of mercury-vapor lamps is closed, starting current will reach about 1.5-1.8 times rated current. The current will be reduced to rated current in 8 minutes. The selection of contactor is on the basis that current capacity is 1.5 times rated current capacity.

Application of Magnetic Contactors to DC Loads

Resistance Load		Non-inductive (A) DC1, DC14 L/R ≤ 1ms			Inductive loads DC2, DC4 L/R ≤ 15ms			Inductive loads DC11 L/R ≤ 100ms			
Contactor Type											
Rated operational current (A)	Contactors	Contact Circuit Voltage									
Rated operational current (A)	CN-5	48V	6	6	6	1.5	3	5	1	3	5
		110V	3	3	6	0.8	2	4	0.3	1.5	2
		220V	0.8	3	6	0.2	0.6	2	0.15	0.3	0.8
	CN-6	48V	6	6	6	1.5	3	5	1	3	5
		110V	3	3	6	0.8	2	4	0.3	1.5	2
		220V	0.8	3	6	0.2	0.6	2	0.15	0.3	0.8
	CU-9	48V	12	12	12	3	6	10	1	5	8
		110V	10	10	12	1.5	4	8	0.7	3	4
		220V	1	6	10	0.25	1.2	4	0.2	0.6	1.5
	CU-11	48V	12	12	12	3	6	10	1	5	8
		110V	10	10	12	1.5	4	8	0.7	3	4
		220V	1	6	10	0.25	1.2	4	0.2	0.6	1.5
	CU-12	48V	12	12	12	3	6	10	1	5	8
		110V	10	10	12	1.5	4	8	0.7	3	4
		220V	1	6	10	0.25	1.2	4	0.2	0.6	1.5
	CU-16	48V	15	17	17	5	8	15	1	5	8
		110V	10	12	17	2	6	8	0.7	3	4
		220V	1	7	15	0.25	1.5	4	0.25	0.6	1.5
	CU-17	48V	15	17	17	5	8	15	1	5	8
		110V	10	12	17	2	6	8	0.7	3	4
		220V	1	7	15	0.25	1.5	4	0.25	0.6	1.5
	CU-18	48V	15	20	20	8	15	20	3	12	15
		110V	12	15	20	2	8	15	1	3	10
		220V	1.5	10	15	0.4	2	8	0.3	1.2	2
	CU-18 4F	48V	15	20	20	8	15	20	3	12	15
		110V	12	15	20	2	8	15	1	3	10
		220V	1.5	10	15	0.4	2	8	0.3	1.2	2
	CU-32-R	48V	26	26	26	10	20	25	3	20	20
		110V	15	26	26	3	10	20	1.2	5	15
		220V	2	15	26	0.4	3	10	0.4	1.5	2
CU-38	48V	30	30	35	10	30	35	5	20	25	
	110V	15	30	35	3	15	20	1.5	5	15	
	220V	2	20	30	0.4	3	10	0.4	1.5	2	
CU-40	48V	30	30	35	10	30	35	5	20	25	
	110V	15	30	35	3	15	20	1.5	5	15	
	220V	2	20	30	0.4	3	10	0.4	1.5	2	
CU-50	48V	50	65	65	20	40	50	5	20	25	
	110V	30	50	65	4	25	30	1.5	5	15	
	220V	2	20	50	0.4	3	20	0.4	1.5	2	
CU-65	48V	65	80	80	30	65	65	—	—	—	
	110V	35	65	80	4	40	65	—	—	—	
	220V	3	30	65	0.5	4	30	—	—	—	
CU-80	48V	80	93	93	30	80	80	—	—	—	
	110V	35	80	93	4	50	65	—	—	—	
	220V	3	40	80	0.5	4	40	—	—	—	
CU-90	48V	85	105	105	39	85	85	—	—	—	
	110V	46	85	105	5	52	85	—	—	—	
	220V	4	39	85	1	5	39	—	—	—	
CN-100-R	48V	88	102	102	33	88	88	—	—	—	
	110V	38	88	102	4	55	71	—	—	—	
	220V	3	44	88	1	4	44	—	—	—	
CN-125-R	48V	88	110	137	33	88	110	—	—	—	
	110V	38	110	137	4	55	71	—	—	—	
	220V	3	55	110	1	4	55	—	—	—	
CN-150	48V	125	125	150	50	125	150	—	—	—	
	110V	35	100	150	5	80	100	—	—	—	
	220V	4	65	125	0.5	5	65	—	—	—	
CN-180	48V	125	150	180	50	125	180	—	—	—	
	110V	35	125	180	5	80	100	—	—	—	
	220V	4	80	150	0.5	5	80	—	—	—	
CN-220	48V	155	185	223	62	155	223	—	—	—	
	110V	43	155	223	6	99	124	—	—	—	
	220V	5	99	185	1	6	99	—	—	—	
CN-300	48V	206	247	297	82	206	297	—	—	—	
	110V	58	206	297	8	132	165	—	—	—	
	220V	7	132	247	1	8	132	—	—	—	
CN-400	48V	275	330	396	110	275	396	—	—	—	
	110V	77	275	396	11	176	220	—	—	—	
	220V	9	176	330	1	11	176	—	—	—	
CN-500	48V	343	412	495	137	343	495	—	—	—	
	110V	96	343	495	14	220	275	—	—	—	
	220V	11	220	412	1	14	220	—	—	—	
CN-630	48V	433	519	623	173	433	623	—	—	—	
	110V	121	433	623	17	277	346	—	—	—	
	220V	14	277	519	2	17	277	—	—	—	

IEC Motor Currents

Average Full-load Currents of Squirrel Cage Motors

1 phase

3 phase 4 pole 50/60 Hz motors

1 phase				3 phase 4 pole 50/60 Hz motors								
KW	hp	220V A	240V A	KW	hp	220V-240V A	380V A	415V A	440V A	500V A	660V A	1000V A
0.37	0.5	3.9	3.6	0.37	0.5	1.8	1.03	-	0.99	1	0.6	0.4
0.55	0.75	5.2	4.8	0.55	0.75	2.75	1.6	-	1.36	1.21	0.9	0.6
0.75	1	6.6	6.1	0.75	1	3.5	2	2	1.68	1.5	1.1	0.75
1.1	1.5	9.6	8.8	1.1	1.5	4.4	2.6	2.5	2.37	2	1.5	1
1.5	2	12.7	11.7	1.5	2	6.1	3.5	3.5	3.06	2.6	2	1.3
1.8	2.5	15.7	14.4	2.2	3	8.7	5	5	4.42	3.8	2.8	1.9
2.2	3	18.6	17.1	3	4	11.5	6.6	6.5	5.77	5	3.8	2.5
3	4	24.3	22.2	3.7	5	13.5	7.7	7.5	7.1	5.9	4.4	3
4	5	29.6	27.1	4	5.5	14.5	8.5	8.4	7.9	6.5	4.9	3.3
4.4	6	34.7	31.8	5.5	7.5	20	11.5	11	10.4	9	6.6	4.5
5.2	7	39.8	36.5	7.5	10	27	15.5	14	13.7	12	8.9	6
5.5	7.5	42.2	38.7	9	12	32	18.5	17	16.9	13.9	10.6	7
6	8	44.5	40.8	10	13.5	35	20	-	-	15	11.5	7.5
7	9	49.5	45.4	11	15	39	22	21	20.1	18.4	14	9
7.5	10	54.4	50	15	20	52	30	28	26.5	23	17.3	12
				18.5	25	64	37	35	32.8	28.5	21.3	14.5
				22	30	75	44	40	39	33	25.4	17
				25	35	85	52	47	45.3	39.4	30.3	20
				30	40	103	60	55	51.5	45	34.6	23
				33	45	113	68	60	58	50	39	25
				37	50	126	72	66	64	55	42	28
				40	54	134	79	71	67	60	44	30
				45	60	150	85	80	76	65	49	33
				51	70	170	98	90	83	75	57	38
				55	75	182	105	100	90	80	61	40
				59	80	195	112	105	97	85	66	43
				63	85	203	117	115	109	89	69	45
				75	100	240	138	135	125	105	82	53
				80	110	260	147	138	131	112	86	57
				90	125	295	170	165	146	129	98	65
				100	136	325	188	182	162	143	107	71
				110	150	356	205	200	178	156	118	78
				129	175	420	242	230	209	184	135	85
				132	180	425	245	240	215	187	140	90
				140	190	450	260	250	227	200	145	95
				147	200	472	273	260	236	207	152	100
				150	205	483	280	270	246	210	159	102
				160	220	520	300	280	256	220	170	115
				180	245	578	333	320	289	254	190	135
				185	250	595	342	325	295	263	200	138
				200	270	626	370	340	321	281	215	150
				220	300	700	408	385	353	310	235	160
				250	340	800	460	425	401	360	274	200
				257	350	826	475	450	412	365	280	203
				280	380	900	510	475	450	400	305	220
				295	400	948	546	500	473	416	320	227
				300	410	980	565	510	481	420	325	230
				315	430	990	584	535	505	445	337	239
				335	450	1100	620	550	518	472	355	250
				355	480	1150	636	580	549	500	370	262
				375	500	1180	670	610	575	527	395	273
				400	545	1250	710	650	611	540	410	288
				425	580	-	760	690	650	574	445	302
				445	600	-	790	730	680	595	455	317
				450	610	-	800	740	690	608	460	320
				475	645	-	850	780	730	645	485	335
				500	680	-	900	820	780	680	515	350

Notes : These values are given as a guide. They may vary depending on the type of motor and the manufacturer.

Universal Voltage and Frequency

Country	Hz	Voltage		Country	Hz	Voltage	
		Single phase	Three phase			Single phase	Three phase
Afghanistan	50	220	220/380	Faeroe Island	50	220	220/380
Algeria	50	127/220	220/380	Fiji	50	240	240/415
Angola	50	220	220/380	Finland	50	220	220/380
Antigua	50	230	230/400	France	50	115/220/127	220/380
Argentina	50	220	220/380	French Guiana	50	220	220/380
Australia	50	240	240/415	Gabon	50	220	220/380
Austria	50	220	220/380	Gambia	50	230	230/400
Azores	50	220	220/380	Germany Federal Rep.	50	110/220	220/380
Bahamas	60	120	120/208	Ghana	50	220	220/400
Bahrain	60			Gibraltar	50	240	240/415
Bangladesh	50	230	230/400	Great Britain	50		
Babados	50	110/200	120/208	Greece	50	220	220/380
Belgium	50	127/220	220/380	Greenland	50	220	220/380
Bermuda	60	115/230	230	Guam	60	110	
Bolivia	50	115/230	220/380	Grenada	50	220	220/400
Botswana	50	220	220/380	Guatemala	60	120/127/220	220/240
Brazil	50,60	110/220/127	220/380	Guinea	50	220	220/380
Bulgaria	50	220	220/380	Gayana	50	110/220	220
Burma	50	230	230/440	Haiti	60	110/220	220
Burundi	50	220	220/380	Hawaii	60	120	
Cambodia	50	120	220/380	Honduras	60	110/220	220
Cameroon	50	127/220	220/380	Hong Kong	60	110/200/230	200/246
Canada	60	110/120	220/240	Hungary	50	220	220/380
Canary Island	50	127/220	220/380	Ice land	50	220	220/380
Channel Africa Rep.	50	220	220/380	India	50	230	220/380 230/400
Ceylon	50	230	230/400	Indonesia	50	127/200	220/380
Chad	50	220	220/380	Iran	50	110/220	220/380
Channel Island	60	240	240/415	Iraq	50	220	220/380
Chile	60	220	220/380	Ireland	50	220	220/380
China People's Rep.	60	220	220/380	Isle of Man	50	240	240/415
Colombia	60	110/220	220	Israel	50	230	230/400
Congo	50	220	220/380	Italy	50	127/220	220/380
Costa Rica	50	120/240	240	Ivory Coast	50	220	220/380
Cuba	60	115/120		Jamaica	50	100/220	220
Cyprus	50	240	240/415	Japan	50,60	110/200	200
Czechoslovakia	50	120/220	220/380	Jordan	50	220	220/380
Dahomey	50	220	220/380	Kenya	50	240	240/415
Den mark	50	220	220/380	Korea	60	100/200	200
Dominican	60	110/220	220	Kuwait	50	220	200
Dubai	50	220		Lebanon	50	110/190	220/380
Ecuador	60	120/127	208/220	Lesotho	50	220	220/380
Egypt	50	220	220/380	Liberia	60	120/240	208/240
El Salvador	60	115	230	Libya	50	127/220	220/230/400
Equatorial Guinea	50	220		Luxembourg	50	120/208	220/380
Ethiopia	50	220	220/380	Laos	50		220/380

Universal Voltage and Frequency

Country	Hz	Voltage		Country	Hz	Voltage	
		Single phase	Three phase			Single phase	Three phase
Macao	50	110/220,100/220	220/380	Spain	50	127/220	220/380
Madeiral	50	220	220/380	Sri Lanka	50	230	230/400
Majokca Island	50	127/220	220/380	Sudan	50	240	240/415
Malagasy Rep.	50	127/220	220/380	Surinam	60	110/220,115/230/127	220/230
Malawi	50	230	230/400	Swaziland	50	230	230/400
Malaysia	50	115/240	240/415	Sweden	50	120/127/220	220/380
Mail Rep.	50	220	220/380	Switzerland	50	220	220/380
Malta	50	240	240/415	Syria	50	115/200	220/380
Martinique	50	220	220/380	Tahiti	60	127/220	220
Mauritania	50	220	220	R.O.C. Taiwan	60	110/220	220
Mauritius	50	230	230/400	Tanzania	50	220	230/400
Mexico	60	110/220,120/127	208/220	Thailand	50	110/220	220/380
Monaco	50	127/220	220/380	Togo Rep. Of	50	127/220	220/380
Montserrat	60	230	220/400	Tonga	50	240	240/415
Morocco	50	115/200/220	220/380	Trinidad	60	115/230	230/400
Mozambique	50	220	220/380	Tobago	60	115/230	230/400
Nepal	50	230	230/440	Tunisia	50	127/220	220/380
Netherlands	50	110/220	220/380	Turkey	50	127/230220	220/380
New Caledonia	50	220	220/380	Uganda	50	240	240/415
New Zealand	50	230	230/400	USA.	60	120/240	240/480
Nicaragua	60	120/240	240	USSR	50	127/220	220
Niger	50	220	220/380	United Kingdom	50	240	240/415
Nigeria	50	230	230/400	Upper Volta	50	220	220/380
Norway	50	230	230	Uruguay	50	220	220
Okinawa	60	120/240,100/200	240單,200民	Venezuela	60	120/240	240
Oman	50	220	220/400	Viet-Nam	50	127/220	220/380
Pakistan	50	230	230/400,220/380	Virgin Island	60	120/240	240
Panama	60	110/220/120	220/240	Western Samoa	50	230	230/400
Paraguay	50	220	220	Yeman (Aden)	50	230	230/400
Peru	60	110/220	220	Yemen (Arab)	50	220	220
Philippines	60	110/220	220	Yugoslavia	50	220	220/380
Poland	50	220	220/380	Zaire Rep. Of	50	220	220/380
Portugal	50	110/190/220	220/380	Zambia	50	220	220/380
Puerto Rico	60	120/240	240				
Qatar	50	240	240/415				
Rhodesia	50	220/230	220/380,230/400				
Romania	50	220	220/380				
Rwanda	50	220	220/380				
Saudi Arabia	50,60	127/220	220/380,230/400				
Scotland	50	240	240/415				
Senegal	50	120/220	220				
Sierra Leone	50	220	220/440				
Singapore	50	115/230	230/400				
Somalia	50	110/220	220/380				
South Africa Rep.	50	220/230	220/380,230/400				

