

3. DEFINITE PURPOSE CONTACTORS & STARTERS

3.1 DC Contactors

Series DU




DU-A60

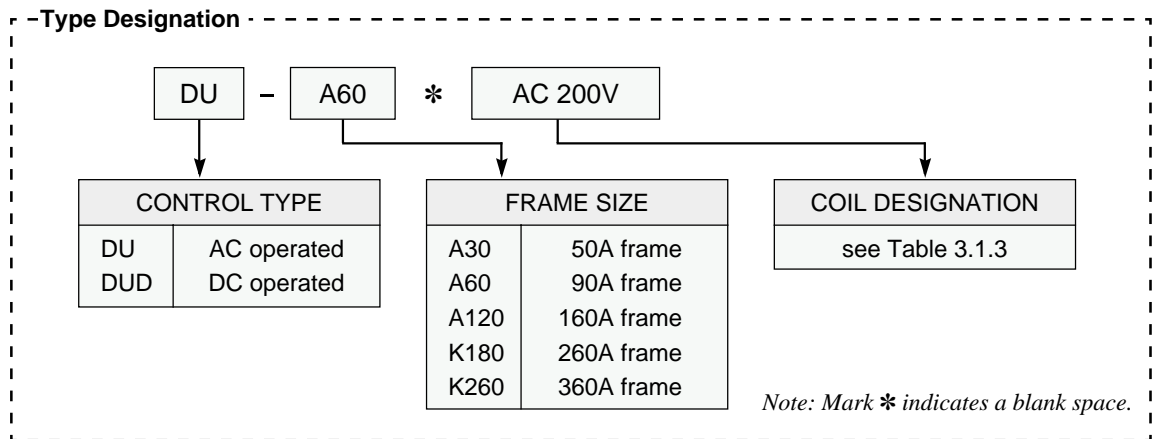


DU-K180

The MITSUBISHI series DU contactors are designed for DC circuits, that is the variable-speed drive-control circuits (SCR switching circuit) and DC motor control circuits.

Features

- Compact design
- High break capacity
- CSA certified models are also available on AC operated type, add suffix "UR" immediately after the Frame size.
- Double break contacts
- UL recognized component (If  marking is required add suffix "UR" immediately after the Frame size).
- Long Life

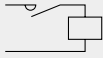



Specifications

- Number of main contacts type DU : 2NO1NC, type DUD : 2NO
Number of auxiliary contacts type DU & DUD : 2NO2NC

• Ratings

Table 3.1.1

Frame size				A30	A60	A120	K180	K260
Conventional free air thermal current			A	50	90	160	260	360
Rated operating current for SCR switching circuit*	NO contact	110VDC	A	40	80	160	260	360
		240VDC	A	40	80	160	260	360
		440VDC	A	15	30	60	90	130
		500VDC	A	15	30	60	90	130
1-pole 	NC contact	110VDC	A	120	240	480	720	1.040
		240VDC	A	120	240	480	720	1.040
		440VDC	A	120	240	480	720	1.040
		500VDC	A	120	240	480	720	1.040
Rated operating current for SCR switching circuit	NO contact	110VDC	A	50	90	160	260	360
		240VDC	A	50	90	160	260	360
		440VDC	A	40	80	160	260	360
		500VDC	A	40	80	160	260	360
Rated operating current category DC 2 & 4	NO contact	110VDC	A	30	60	120	180	260
		240VDC	A	20	40	80	120	175
		440VDC	A	7.5	15	30	—	—
		1-pole 	NC contact	110VDC	A	20	40	80
240VDC	A			15	30	60	75	100
440VDC	A			7.5	15	25	—	—
Rated operating current category DC2 & 4	NO contact	110VDC	A	40	80	160	240	350
		240VDC	A	30	60	120	180	260
		440VDC	A	20	40	80	120	175
Rated operating current of aux. contacts	Category AC11	110VAC	A	6				
		240VAC	A	5				
	Category DC11	110VDC	A	1.2				
		240VDC	A	0.2				

Note: For SCR switching, making current of NO contacts is 2 times the rated operating current and making current of NC contact is 1 times, the rated operating current which means the peak value at making. In this application NO and NC contacts do not break any current.

• Characteristics

Table 3.1.2

Frame size		A30	A60	A120	K180	K260	
Mechanical life	operations	2.5 million					
Electrical life	operations	0.5 million					
Permissible ambient temperature		°C					
		-10 to 55					
Coil voltage tolerance		times					
		0.85 to 1.1 (rated coil voltage)					
Coil consumption	Inrush	240	520	1260	480	480	
	Sealed	28	47	100	44	54	
	Watts	7 (26)	13 (35)	25 (50)	5(41)	7.3(55)	
Operating time	Make	NO contacts ON	15 (60)	20 (100)	20 (140)	30(150)	40(180)
		NC contact OFF	12	13	13	26	37
	Break	NO contacts OFF	6(18)	11 (27)	11 (37)	110(25)	125(30)
		NC contact ON	12	18	18	112	135
Make and break capacity		4 (at the rated operating current)					
Category DC2 & DC4		4 (at the rated operating current)					
Permissible switching frequency		operations/hour					
		1,200					
Vibration resistance	10-55Hz	m/s ²					
Shock resistance	10 msec half sine wave	19.6					
		49					
Conductor size	Main terminals	2-25	2-35	6-70	10-150	16-185	
	Control terminals	mm ²			1-4		
					1-2.5		

Note: Parenthesized data is for type DUD, DC operated contactors.

• Coil designation

Table 3.1.3

Coils for type DU-A			Coils for type DU-K		Coils for type DUD	
Coil designation	Applicable voltage		Coil designation	Applicable voltage	Coil designation	Applicable voltage
	50Hz	60Hz				
AC100V	100VAC	100-110VAC	AC100V	100-127VAC 50/60Hz	DC24V	24VDC
AC120V	110-120VAC	115-120VAC	AC200V	200-240VAC 50/60Hz	DC48V	48VDC
AC200V	200VAC	200-220VAC	AC300V	260-350VAC 50/60Hz	DC100V	100VDC
AC230V	220-240VAC	230-240VAC	AC400V	380-440VAC 50/60Hz	DC110V	110VDC
AC400V	380-415VAC	400-440VAC	AC500V	460-550VAC 50/60Hz	DC120V¹	120VDC
AC440V	415-440VAC	460-480VAC			DC125V	120-125VDC ²
AC500V	500VAC	500-550VAC			DC200V	200VDC
					DC220V	220VDC

Notes: 1. Only for type DUD-A60
2. 125V DC for type DUD-A60

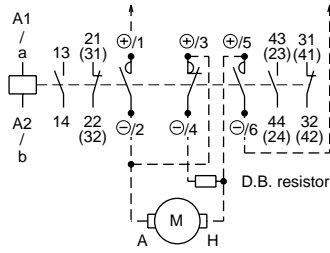
■ Spare parts

Table 3.1.4

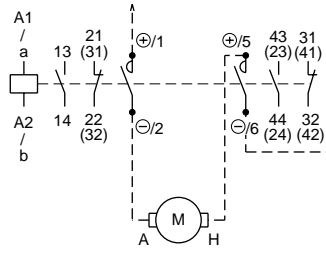
Spare parts	Ordering designation
Main contact kits for DU-□ ¹	MAIN KIT DU-□
Main contact kits for DUD-□ ²	MAIN KIT DUD-□
Auxiliary contact kits for DU(D)-A□ ³	Z926783G30
Auxiliary contact Units for DU(D)-K□ ⁴	UN-AX150
Coils for DU-□ ⁵	DU-□-COIL AC-V
Coils for DUD-□ ⁶	DUD-□-COIL DC-V

Notes: 1. Contact kit of type DU consists of three moving contacts and six stationary contacts.
2. Contact kit of type DUD consists of two moving contacts and four stationary contacts.
3. Aux. contact kits of type DU(D)-A□ are all the same.
4. Aux. contact units of type DU(D)-K□, UN-AX 150 are the same as those of the standard series S-N contactors.
5. Coils for DU-K 180/K 260 are the same as S-N220/N300 each.
6. Coil for DUD-A30 includes only one coil. Other DC operated coils of type DUD include two coils.

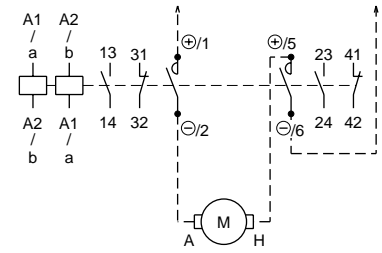
Contact Arrangements



DU-A30, DU-A60, DU-A120
DU-K180, DU-K260



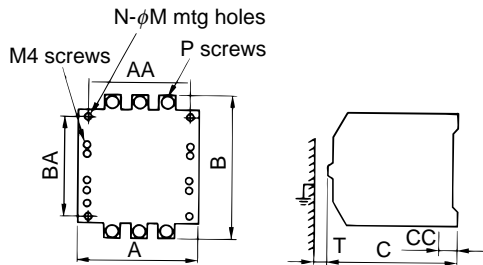
DUD-A30, DUD-A60
DUD-K180, DUD-K260



DUD-A120

Note: Values in parenthesis are shown on auxiliary terminals of DU-A or DUD-A .

Outline Dimensions



Type	A	AA	B	BA	C	CC	N	M	P	Mass(kg)	T
DU-A30	100	86	118	90	105.5	12.5	3	5	6	1.2	10
DU-A60	120	100	144	100	128.5	16	3	5	6	2.0	10
DU-A120	162	130	160	140	162	2.3	4	6	10	4.1	10
DU-K180	138	120	204	190	174	1.6	4	6	10	5.5	30
DU-K260	163	145	243	225	195	2.3	4	8	12	10	50
DUD-A30	101	86	108	90	135.5	3.2	3	5	6	2.1	10
DUD-A60	120	100	144	100	161.5	2	3	5	6	3.5	10
DUD-A120	162	130	160	140	187	2.3	4	6	10	7.1	10
DUD-K180	138	120	204	190	200	1.6	4	6	10	7.5	30
DUD-K260	163	145	243	225	220	2.3	4	8	12	13.5	50