

Air Circuit Breakers

DA series

Multifunction overcurrent trip device

■ Characteristics of overcurrent trip device

For general feeder circuit/L-characteristic

Protection function	Setting range																																								
Adj. long time delay LTD	Pick-up current I_1 (A) I_0X (0.8 — 0.85 — 0.9 — 0.95 — 1.0 — 1.05 — 1.1 — NON), 8 steps • NON-tripping at $I_1 X 1.05$ or less • Tripping between $1.05I_1$ and $1.2I_1$ Time delay T_1 (s) Tolerance of T_1 (%) (0.5 — 1.25 — 2.5 — 5 — 10 — 15 — 20 — 25 — 30) at $6 X I_1$, 9 steps $\pm 15\%$ $^{+100\text{ms}}$ $^{-06}$																																								
Adj. short time delay STD	Pickup current I_2 (A) Tolerance of T_2 (%) I_0X (1 — 1.5 — 2 — 2.5 — 3 — 4 — 6 — 8 — 10 — NON), 10 steps $\pm 15\%$ Time delay T_2 (ms) Relay time (ms) Opening time (ms) Resettable time (ms) Total fault clearing time (ms) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>80</td><td>160</td><td>240</td><td>320</td><td>400</td><td>480</td><td>560</td><td>640</td><td>800</td><td>1000</td></tr> <tr><td>100</td><td>180</td><td>260</td><td>340</td><td>420</td><td>500</td><td>580</td><td>660</td><td>820</td><td>1020</td></tr> <tr><td>55</td><td>135</td><td>215</td><td>295</td><td>375</td><td>455</td><td>535</td><td>615</td><td>775</td><td>975</td></tr> <tr><td>150</td><td>230</td><td>310</td><td>390</td><td>470</td><td>550</td><td>630</td><td>710</td><td>870</td><td>1070</td></tr> </table>	80	160	240	320	400	480	560	640	800	1000	100	180	260	340	420	500	580	660	820	1020	55	135	215	295	375	455	535	615	775	975	150	230	310	390	470	550	630	710	870	1070
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Adj. instantaneous trip INST *1	Pick-up current I_3 (A) Tolerance (%) I_0X (2 — 4 — 6 — 8 — 10 — 12 — 14 — 16 — NON), 9 steps $\pm 20\%$																																								
Adj. ground fault trip GFT *2	Pick-up current I_G (A) Tolerance of I_G (%) $I_{CT}X$ (0.1 — 0.15 — 0.2 — 0.25 — 0.3 — 0.35 — 0.4), 7 steps $\pm 20\%$ Time delay T_G (ms) Relay time (ms) Opening time (ms) Resettable time (ms) Total fault clearing time (ms) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>80</td><td>160</td><td>240</td><td>320</td><td>400</td><td>480</td><td>560</td><td>640</td><td>800</td><td>1000</td></tr> <tr><td>100</td><td>180</td><td>260</td><td>340</td><td>420</td><td>500</td><td>580</td><td>660</td><td>820</td><td>1020</td></tr> <tr><td>55</td><td>135</td><td>215</td><td>295</td><td>375</td><td>455</td><td>535</td><td>615</td><td>775</td><td>975</td></tr> <tr><td>150</td><td>230</td><td>310</td><td>390</td><td>470</td><td>550</td><td>630</td><td>710</td><td>870</td><td>1070</td></tr> </table>	80	160	240	320	400	480	560	640	800	1000	100	180	260	340	420	500	580	660	820	1020	55	135	215	295	375	455	535	615	775	975	150	230	310	390	470	550	630	710	870	1070
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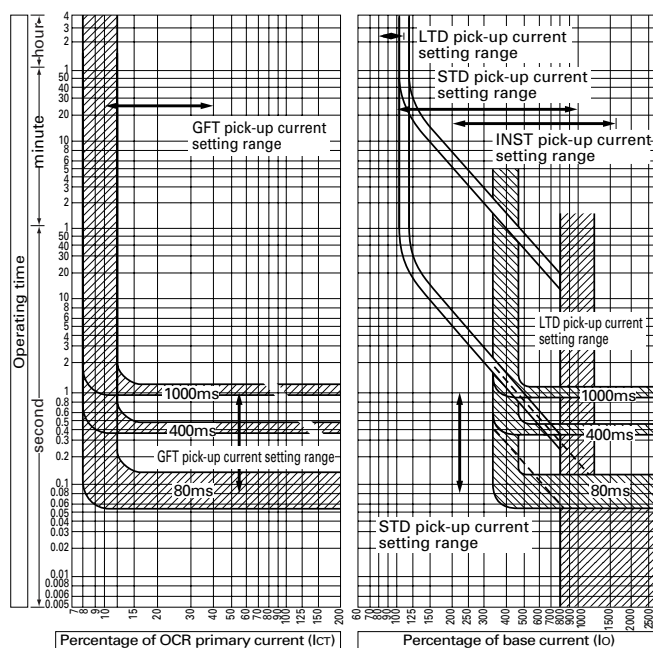
Notes: *1 Pick-up current (I_3) of instantaneous trip (INST) is 50kA or less in DA50 type, and 60kA in DA60 type.

*2 GFT pick-up current (I_G) is 1200A or less.

● Applicable I_{CT} (overcurrent trip device primary current) and I_0 (base current)

ACB type	Applicable I_{CT} (A)	ACB base current (A)			
		$I_{CT} X 0.5$	$I_{CT} X 0.63$	$I_{CT} X 0.8$	$I_{CT} X 1.0$
DA50	5000	2500	3200	4000	5000
DA60	6300	3200	4000	5000	6300

● Multifunction protection characteristics



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■ Characteristics of overcurrent trip device

For generator protection/S-characteristic

Protection function	Setting range																																								
Adj. long time delay LTD	Pick-up current I_1 (A) Tolerance of I_1 (%) $I_0 \times (0.8 - 1.0 - 1.05 - 1.1 - 1.15 - 1.2 - 1.25 - \text{NON})$, 8 steps $\pm 5\%$ Time delay T_1 (s) Tolerance of T_1 (%) (15 — 20 — 25 — 30 — 40 — 50 — 60) at 120% of I_1 , 7steps $\pm 15\% \pm 100\text{ms}$																																								
Adj. short time delay STD	Pickup current I_2 (A) Tolerance of T_2 (%) $I_0 \times (2 - 2.5 - 2.7 - 3 - 3.5 - 4 - 4.5 - 5 - \text{NON})$, 9 steps $\pm 10\%$ Time delay T_2 (ms) Relay time (ms) Opening time (ms) Resettable time (ms) Max. total breaking time (ms) <table style="display: inline-table; vertical-align: middle; border-collapse: collapse;"> <tr><td>80</td><td>160</td><td>240</td><td>320</td><td>400</td><td>480</td><td>560</td><td>640</td><td>800</td><td>1000</td></tr> <tr><td>100</td><td>180</td><td>260</td><td>340</td><td>420</td><td>500</td><td>580</td><td>660</td><td>820</td><td>1020</td></tr> <tr><td>55</td><td>135</td><td>215</td><td>295</td><td>375</td><td>425</td><td>535</td><td>615</td><td>775</td><td>975</td></tr> <tr><td>150</td><td>230</td><td>310</td><td>390</td><td>470</td><td>550</td><td>630</td><td>710</td><td>870</td><td>1070</td></tr> </table>	80	160	240	320	400	480	560	640	800	1000	100	180	260	340	420	500	580	660	820	1020	55	135	215	295	375	425	535	615	775	975	150	230	310	390	470	550	630	710	870	1070
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Adj. pre-alarm PRE-TRIP	Pick-up current I_P (A) Tolerance of I_P (%) Time delay T_P (S) Tolerance of T_P (%) $I_0 \times (0.75 - 0.8 - 0.85 - 0.9 - 0.95 - 1.0 - 1.05 - 1.1)$, 8 steps $\pm 5\%$ (5 — 10 — 15 — 20 — 25 — 30 — 35 — 40 — 45) at 120% of I_P , 9 steps $\pm 15\% \pm 100\text{ms}$																																								
Control power	100 – 250V AC/DC, 24V DC Power consumption: 5VA																																								

Note: *1 Pick-up current (I_3) of instantaneous trip (INST) is 50kA or less in DA50 type, and 60kA in DA60 type.

● Application range of I_0 (ACB base current) for I_{GEN} (generator rated current)

ACB type	Rated primary current of overcurrent tripping device I_{CT} (A)	Range of ACB base current Generator rated current $I_{GEN} = \text{ACB base current } I_0$
DA50	5000	$2000 \leq I_0 \leq 5000$
DA60	6000	$2500 \leq I_0 \leq 6300$

Note: LTD pick-up current I_1 is 40% of rated primary current I_{CT} or more.

● Multifunction protection characteristics

