

Changing Auto.V Overcurrent Relay (OCR)

(1) Changes



HA series Auto.V



Overcurrent Relay (OCR)

(2) Characteristics and functions

- 1) Stable protective characteristics with digital internal circuit
- 2) Easy to coordinate protection with ample functions (for details, see the comparison table)
 - Expanded short-time region of limited operating time
 - Three characteristics added to limited operating characteristics
 - Added lower limit of limited operating time
 - Added three-stage instantaneous trip characteristics
- 3) Increased reliability with redundant output circuit

(3) Comparison table of old and new functions

Field		Before change	After change
Types		FOC-B1A (for current trip type 100/110V AC, with shunt trip function)	FOC-C1 (for current trip type 100/110V AC, with shunt trip function)
		FOC-B2A (for 100/110V DC shunt trip type)	FOC-C2 (for 100/110V DC shunt trip type)
Dimensions			Same as left (external and mounting dimensions are compatible)
Appearance of main nameplate			
Rating	Current [A]	0.1	Same as left
	Frequency [Hz]	Common to 50/60	50/60 toggle
	Load [VA]	0.5 or less	Same as left

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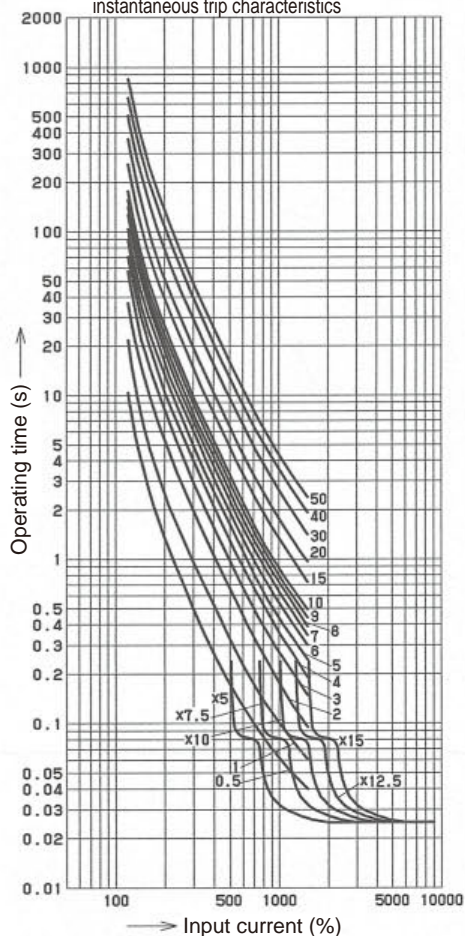
Field		Before change	After change
Setting value	Primary current [A]	Standard type: 30-75-200 Small rating type: 10-20-50	Same as left
	Limited current (multiplier of primary current setting value)	0.8 – 1.0 – 1.2 – 1.4 – 1.6	Same as left
	Limited operating time (setting value at 300% of input current)	0.5 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10 – 15 – 20 – 30 – 40 – 50 (16 stages)	0.25 – 0.5 – 0.75 – 1 – 1.5 – 2 – 2.5 – 3 – 4 – 5 – 6 – 7 – 8 – 10 – 15 – 20 (16 stages)
	Limited operating characteristics	Extremely inverse time characteristics (EI)	Extremely inverse time characteristics (EI) Very inverse time characteristics (VI) Inverse time characteristics (NI) Definite time characteristics (DT)
	Limited operating time Lower limit [ms]	None	150/110 toggle
	Instantaneous current (multiplier of primary current setting value)	5 – 7.5 – 10 – 12.5 – 15 – Lock	Same as left
	Instantaneous operating characteristics	Two-stage characteristics	Two- or three-stage characteristics toggle
Display	Running indicator	LED (green) light-up Power established current: 40 mA	Same as left
	Operating indicator	R phase - T phase - Instantaneous (orange)	Same as left
	Operating time elapsed	Startup – 20 – 40 – 60 – 80% LED (red) light-up	Same as left
	Self-diagnosis	Normal LED (green light-up) Off upon error	Same as left
Reset type	Output contact	Spring return due to dropped current	Same as left
	Operating indicator	Maintained	Same as left
Output	Alarm contact	1NO	Same as left
	Contact time [ms]	60	Same as left
	Contact capacity	110V AC 2A (cos ϕ = 0.4)	Same as left
Test terminal		C1 - com - C2	Same as left
Application CT		Auto.V dedicated CT	Same as left (no change)
Mass [kg]		1.3	0.9

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Operating characteristic curve

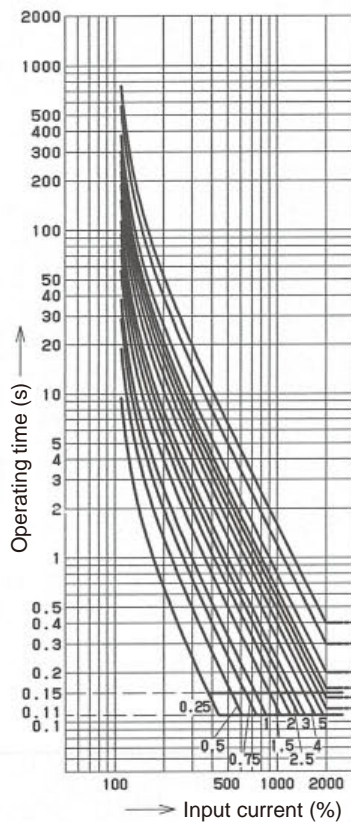
1. Before change

(1) Extremely inverse time characteristics (EI), instantaneous trip characteristics

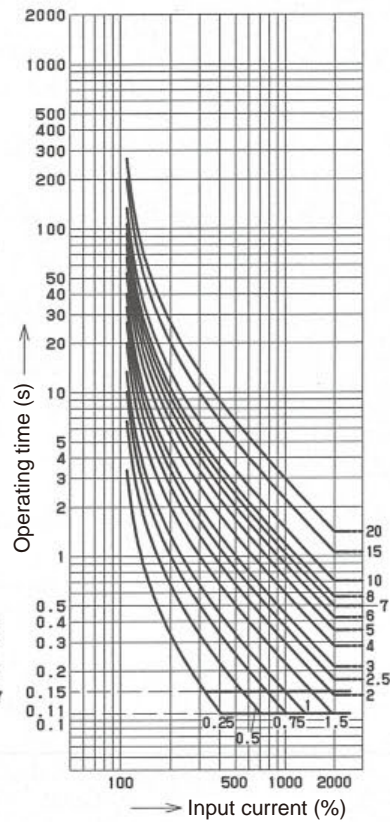


2. After change

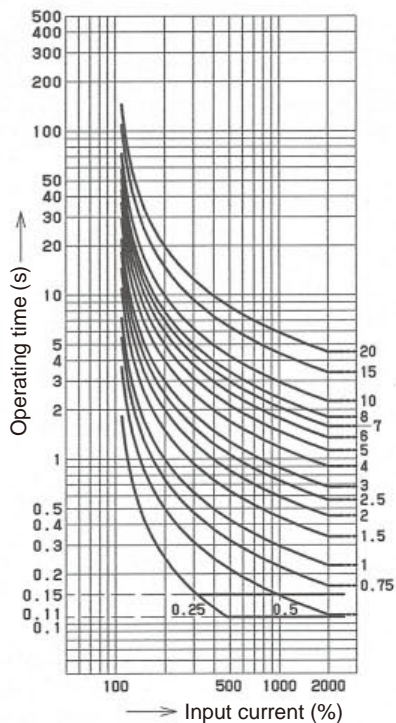
(1) Extremely inverse time characteristics (EI)



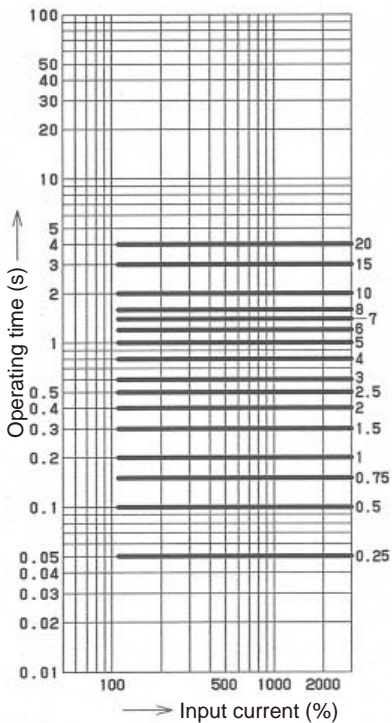
(2) Very inverse time characteristics (VI)



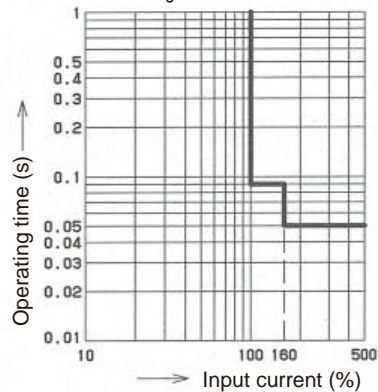
(3) Inverse time characteristics (NI)



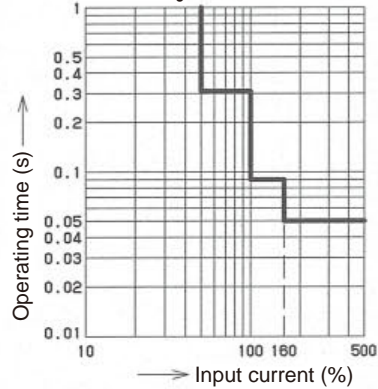
(4) Definite time characteristics (DT)



(5) Instantaneous trip characteristics
• Two-stage characteristics



• Three-stage characteristics



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