To All Customers

Rep No.B14044

December 10, 2014

Fuji Electric FA Components & Systems CO., Ltd.

Business Planning Division Business Operations Department

High-voltage Vacuum Circuit Breaker HA Series Auto.V Notice of Changing the Overcurrent Relay

We would like to thank you for your continued patronage of Fuji products.

We will be changing some products as described below.

Please review the following information and take appropriate actions.

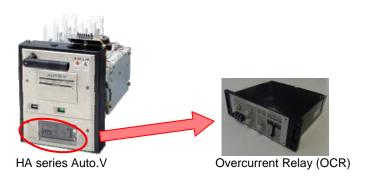
Please inform all related sections of your company.

Product names	High-voltage vacuum circuit breaker				
Series and series name	HA Series Auto.V				
Types	Vacuum circuit breaker: HA08□-△6, HA08□-△7, HA12□-△6, HA12□-△7				
	☐: Installation method (B, C, P), △: Operating method (H, A, B, C, D)				
	Overcurrent relay (OCR) alone: FOC-B■A				
	■: Voltage category 1 (100/110V AC, for shunt trip function)				
	2 (100/110V DC, for shunt trip type)				
Changed parts	Overcurrent relay (OCR)				
Details of the change	The overcurrent relay (OCR) inc	corporated in the vacuum circu	it breaker is changed as follows:		
		T			
		<before change=""></before>	<after change=""></after>		
	Overcurrent relay (OCR) alone	FOC-B1A, FOC-B2A	FOC-C1, FOC-C2		
	Setting value of limited operatin	0.5-1-2-3-4-5-6-7-8-9-10-15- 20-30-40-50	0.25-0.5-0.75-1-1.5-2-2.5-3-4- 5-6-7-8-10-15-20		
	Frequency [Hz]	Common to 50/60	50/60 toggle		
	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		
	Lower limit of limited operating time [ms]	None	150/110 ms toggle		
	Instantaneous operating characteristics	Two-stage characteristics	Two- or three-stage characteristics toggle		
	Mass [kg]	1.3	0.9		
	* See the Attachment for deta	ils.			
Reason for change	Functions are inherited while pro	otective relay QHA Series are	changed to digital type		
Date of production change	Changed products scheduled to be produced from March 2015.				
Attachments	, , , , , , , , , , , , , , , , , , ,				
Notes concerning the change					

REVISIONS

Changing Auto. V Overcurrent Relay (OCR)

(1) Changes



(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-B2A (for 100/110V DC shunt trip type)	FOC-C1 (for current trip type 100/110V AC, with shunt trip function) FOC-C2 (for 100/110V DC shunt trip type)	
Dimensions	187 216 200 12 4×05 RHX	Same as left (external and mounting dimensions are compatible)	
Appearance of main nameplate	DIER 通常点型電料 FOC-BIA G	THE PROPERTY OF THE PROPERTY O	
p Current [A]	0.1	Same as left	
Current [A] Frequency [Hz]	Common to 50/60	50/60 toggle	
Load [VA]	0.5 or less	Same as left	

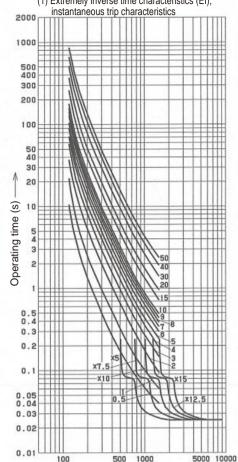
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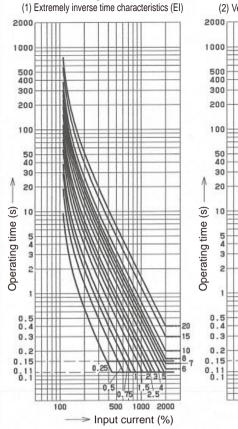
Field		Before change	After change	
			,	
	Primary current [A]	Standard type: 30-75-200 Small rating type: 10-20-50	Same as left	
	Limited current (multiplier of primary current setting value)	0.8 - 1.0 - 1.2 - 1.4 - 1.6	Same as left	
	Limited operating time (setting value at 300% of input current)	0.5 - 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)	
Setting value	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	
	Running indicator	LED (green) light-up Power established current: 40 mA	Same as left	
Display	Operating indicator	R phase - T phase - Instantaneous (orange)	Same as left	
Dis	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	
type	Output contact	Spring return due to dropped current	Same as left	
Reset	Operating indicator	Maintained	Same as left	
	Alarm contact	1NO	Same as left	
Output	Contact time [ms]	60	Same as left	
0	Contact capacity	110V AC 2A (cosø = 0.4)	Same as left	
Те	st terminal	C1 - com - C2	Same as left	
	plication CT	Auto.V dedicated CT	Same as left (no change)	
Ma	ass [kg]	1.3	0.9	
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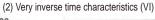
Operating characteristic curve

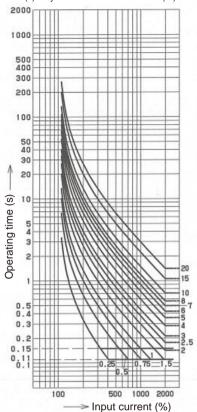
1. Before change (1) Extremely inverse time characteristics (EI),



2. After change

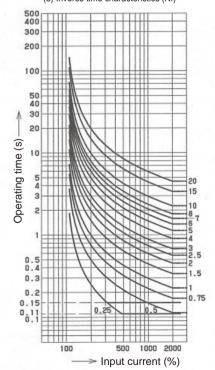




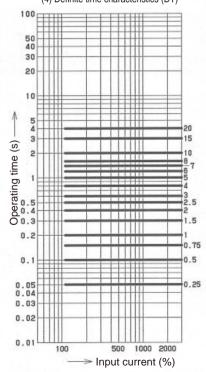


(3) Inverse time characteristics (NI)

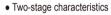
Input current (%)

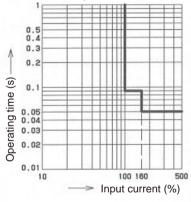


(4) Definite time characteristics (DT)

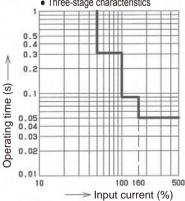


(5) Instantaneous trip characteristics





• Three-stage characteristics



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