

SIEMENS

Configuration Manual

Low Voltage Protection Devices

Back-up protection tables

5SU1...FRNFP

Edition

06/2023

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Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. The information provided is binding only when expressly agreed upon in a concluded contract. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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1 Introduction

Product characteristics and limit values within this table are exclusively valid for orderable products in consideration of a possible suffix inside the product-order-number.

Products w/o suffix are products with global marketing (MLFB Addition '-'). Limit values are exclusively valid for those product-variants.

Special or regional product-variants are registered with specific suffix in product-order-number. (Examples: 5SY41016-CC11, 5SU13537-KL06, 3NA3001-RC) Tables and limit values reported with a specific MLFB-Addition like "CC" or "RC" or "OEZ" or "Electrium" are exclusively valid for special or regional product-variants with this specific suffix inside the product-order-number.

Notes regarding selectivity tables

For breakers with adjustable trip unit: the limit current with selectivity I_s [kA] apply to the maximum value I_{max} .

Limit values for total selectivity "T" refer to breaking capacity I_{cu} of downstream MCB/RCBO.

Notes regarding backup-protection tables

Independent of any Backup value in this table, the maximum available current of the circuit where the upstream breaker is used may not exceed its short circuit rating (I_{cu}).

2 Molded case circuit breaker as upstream device

2.1 3VA1 in combination with 5SU1...FRFNFP

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line	Upstream 3VA1									
					Application	Line protection									
					Trip unit	TM210									
					Frame size	100 A									
					Icu [kA]	16 25 36									
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	16	20	25	32	40	50	63	80	100	
Downstream 5SU1...FR/FN/FP	Line protection	B / C	6	6	6	25	25	25	25	25	25	25	25	25	25
					10	25	25	25	25	25	25	25	25	25	25
					13		25	25	25	25	25	25	25	25	25
					15										
					16			25	25	25	25	25	25	25	25
					20				25	25	25	25	25	25	25
			25						25	25	25	25	25	25	
			32							25	25	25	25	25	
			6		25	25	25	25	25	25	25	25	25	25	
			10		25	25	25	25	25	25	25	25	25	25	
			13			25	25	25	25	25	25	25	25	25	
			15												
		16			25	25	25	25	25	25	25	25			
		20				25	25	25	25	25	25	25			
		25					25	25	25	25	25	25			
		32						25	25	25	25	25			
		6	25	25	25	25	25	25	25	25	25	25			
		10	25	25	25	25	25	25	25	25	25	25			
		13		25	25	25	25	25	25	25	25	25			
		15			25	25	25	25	25	25	25	25			
		16			25	25	25	25	25	25	25	25			
		20				25	25	25	25	25	25	25			
		25					25	25	25	25	25	25			
		32						25	25	25	25	25			

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line	Upstream 3VA1														
					Application	Line protection														
					Trip unit	TM210 TM220 TM240										TM240				
					Frame size	160 A										250 A				
					Icu [kA]	5 6 25 36 55 70										36 55 70				
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	16	20	25	32	40	50	63	80	100	125	160	160	200	250	
Downstream 5SU1...FR/FN/FP	Line protection	B / C	6	6	6	25	25	25	25	25	25	25	25	25	25	25	6	6	6	
					10	25	25	25	25	25	25	25	25	25	25	25	6	6	6	
					13		25	25	25	25	25	25	25	25	25	25	6	6	6	
					15															
					16			25	25	25	25	25	25	25	25	25	6	6	6	
					20				25	25	25	25	25	25	25	25	6	6	6	
			25						25	25	25	25	25	25	25	6	6	6		
			32							25	25	25	25	25	25	6	6	6		
			6		25	25	25	25	25	25	25	25	25	25	25	25	20	20	20	
			10		25	25	25	25	25	25	25	25	25	25	25	25	20	20	20	
			13			25	25	25	25	25	25	25	25	25	25	20	20	20		
			15																	
		16			25	25	25	25	25	25	25	25	25	25	20	20	20			
		20				25	25	25	25	25	25	25	25	25	15	15	15			
		25					25	25	25	25	25	25	25	25	15	15	15			
		32						25	25	25	25	25	25	15	15	15				
		6	25	25	25	25	25	25	25	25	25	25	25	25	20	20	20			
		10	25	25	25	25	25	25	25	25	25	25	25	25	20	20	20			
		13		25	25	25	25	25	25	25	25	25	25	20	20	20				
		15			25	25	25	25	25	25	25	25	25	20	20	20				
		16				25	25	25	25	25	25	25	25	20	20	20				
		20					25	25	25	25	25	25	25	15	15	15				
		25						25	25	25	25	25	25	15	15	15				
		32							25	25	25	25	25	15	15	15				

2.2 3VA2 in combination with 5SU1...FRFNFP

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line	Upstream 3VA2											
					Application	Line protection											
					Trip unit	ETU320	ETU320					ETU320					
						ETU330	ETU330					ETU330					
						ETU350	ETU350					ETU350					
						ETU550	ETU550					ETU550					
Frame size	100 A					160 A					250 A						
Icu [kA]	36 / 55 / 85 / 110					36 / 55 / 85 / 110					36 / 55 / 85 / 110						
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	25	40	63	100	25	40	63	100	160	160	250	
Downstream 5SU1...FR/FN/FP	Line protection	B / C	6	6	6	20	20	20	20	20	20	20	20	20	10	10	
					10	20	20	20	20	20	20	20	20	10	10		
					13	20	20	20	20	20	20	20	20	10	10		
					16	20	20	20	20	20	20	20	20	10	10		
					20		6	6	6		6	6	6	6	6	6	
					25		6	6	6		6	6	6	6	6	6	
		32			6	6			6	6	6	6	6				
		6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
		10	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
		13	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
		16	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
		20		25	25	25		25	25	25	25	25	25	25	25	20	20
	25			25	25			25	25	25	25	25	25	25	20	20	
	32				25				25	25	25	25	25	25	20	20	
	6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
	10	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
	13	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
	15	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
	16	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
	20		25	25	25			25	25	25	25	25	25	25	20	20	
	25			25	25				25	25	25	25	25	25	20	20	
	32				25					25	25	25	25	25	20	20	

3 Motor starter protection as upstream device

3.1 3RV2 in combination with 5SU1...FRFNFP

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line		Upstream 3RV2															
					Application		Motor protection															
					Trip unit		TM															
					Frame size		S00			S0												
					Icu [kA]		55 / 100			20 / 55 / 100												
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	10	12,5	16	10	12,5	16	20	22	25	28	32	36	40				
Downstream 5SU1...FR/FN/FP	Line protection	B / C	6 / 7,5 / 15	10	6	25	25	25	25	25	25	25	25	25	25	25	25	25	25			
					10																	
					13																	
					15																	
					16																	
					20																	
					25																	
					32																	

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line		Upstream 3RV2															
					Application		Motor protection															
					Trip unit		TM															
					Frame size		S2															
					Icu [kA]		65 / 100															
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	14	17	20	25	32	36	40	45	52	59	65	73	80				
Downstream 5SU1...FR/FN/FP	Line protection	B / C	6 / 7,5 / 15	10	6	25	25	25	25	25	25	25	25	25	25	25	25	25	25			
					10																	
					13																	
					15																	
					16																	
					20																	
					25																	
					32																	

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line		Upstream 3RV2						
					Application		Motor protection						
					Trip unit		TM						
					Frame size		S3						
					Icu [kA]		65 / 100						
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	40	50	63	75	84	93	100	
Downstream 5SU1...FR/FN/FP	Line protection	B / C	6 / 7,5 / 15	10	6	25	25	25	25	25	25	25	25
					10	25	25	25	25	25	25	25	
					13	25	25	25	25	25	25	25	
					15	25	25	25	25	25	25	25	
					16	25	25	25	25	25	25	25	
					20	25	25	25	25	25	25	25	
					25	25	25	25	25	25	25	25	
					32	25	25	25	25	25	25	25	

4 Fuse as upstream device

4.1 3NA/3NE in combination with 5SU1...FRFNFP

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line	Upstream 3NA																
					Application	Line Protection																
					Characteristic	gG																
					Frame size	00	00				000											
					Icu [kA]	120																
					Un Fuse [V]	400	500															
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	80	35	50	63	80	20	25	32	35	40	50	63	80				
Downstream 5SU1...FR/FN/FP	Line Protection	B / C	6	6 / 10	6	12	30	30	30	15	30	30	30	30	30	30	30	30	30	15		
					10	12	30	30	30	15	30	30	30	30	30	30	30	30	30	30	15	
					13	12	30	30	30	15	30	30	30	30	30	30	30	30	30	30	30	15
					16	12	30	30	30	15	30	30	30	30	30	30	30	30	30	30	30	15
					20	12	30	30	30	15	30	30	30	30	30	30	30	30	30	30	30	15
					25	12	30	30	30	15	30	30	30	30	30	30	30	30	30	30	30	15
			32	12	30	30	30	15	30	30	30	15	30	30	30	30	30	30	30	15		
			6	15	20	20	20	12	20	20	20	20	20	20	20	20	20	20	20	12		
			10	15	20	20	20	12	20	20	20	12	20	20	20	20	20	20	20	12		
			13	15	20	20	20	12	20	20	20	12	20	20	20	20	20	20	20	12		
			16	15	20	20	20	12	20	20	20	12	20	20	20	20	20	20	20	12		
			20	15	20	20	20	12	20	20	20	12	20	20	20	20	20	20	20	12		
		25	15	20	20	20	12	20	20	20	12	20	20	20	20	20	20	20	12			
		32	15	20	20	20	12	20	20	20	12	20	20	20	20	20	20	20	12			
		6	15	25	25	25	15	25	25	25	15	25	25	25	25	25	25	25	15			
		10	15	25	25	25	15	25	25	25	15	25	25	25	25	25	25	25	15			
		13	15	25	25	25	15	25	25	25	15	25	25	25	25	25	25	25	15			
		15	15	25	25	25	15	25	25	25	15	25	25	25	25	25	25	25	15			
		16	15	25	25	25	15	25	25	25	15	25	25	25	25	25	25	25	15			
		20	15	25	25	25	15	25	25	25	15	25	25	25	25	25	25	25	15			
		25	15	25	25	25	15	25	25	25	15	25	25	25	25	25	25	25	15			
		32	15	25	25	25	15	25	25	25	15	25	25	25	25	25	25	25	15			

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line	Upstream 3NE									
					Application	Line Protection									
					Characteristic	gR					gS				
					Frame size	00		1			00		1		
					Icu [kA]	100					100				
					Un Fuse [V]	690					690				
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	80	100	125	160	200	100	125	160		
Downstream 5SU1...FR/FN/FP	Line Protection	B / C	6	6 / 10	6	60	50	25	20	10	20	12	8		
					10	60	50	25	20	10	20	12	8		
					13	60	50	25	20	10	20	12	8		
					16	60	50	25	20	10	20	12	8		
					20	60	50	25	20	10	20	12	8		
					25	60	50	25	20	10	20	12	8		
					32	60	50	25	20	10	20	12	8		
			7,5	6 / 10	6	50	30	20	15		15				
					10	50	30	20	15		15				
					13	50	30	20	15		15				
					16	50	30	20	15		15				
					20	50	30	20	15		15				
					25	50	30	20	15		15				
					32	50	30	20	15		15				
			15	6 / 10	6	60	35	25	20						
					10	60	35	25	20						
					13	60	35	25	20						
					16	60	35	25	20						
					20	60	35	25	20						
					25	60	35	25	20						
					32	60	35	25	20						

4.2 5SE2 in combination with 5SU1...FRFNFP

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line	Upstream 5SE2							
					Application	Line Protection							
					Characteristic	gG							
					Frame size	D02							
					Icu [kA]	50							
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]	20	25	32	35	40	50	63	
Downstream 5SU1...FR/FN/FP	Line Protection	B / C	6	6 / 10	6	15	15	15	15	15	15	15	
					10	15	15	15	15	15	15	15	
					13	15	15	15	15	15	15	15	
					16	15	15	15	15	15	15	15	
					20	15	15	15	15	15	15	15	
					25	15	15	15	15	15	15	15	
					32	15	15	15	15	15	15	15	
		7,5	6 / 10	6	15	15	15	15	15	15	15	15	15
				10	15	15	15	15	15	15	15		
				13	15	15	15	15	15	15	15		
				16	15	15	15	15	15	15	15		
				20	15	15	15	15	15	15	15		
				25	15	15	15	15	15	15	15		
				32	15	15	15	15	15	15	15		

5 Molded case circuit breaker as upstream device

5.1 5SP4/5SY7/5SY8 in combination with 5SU1...FRFNFP

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line			Upstream 5SP4			Upstream 5SY7										
					Application			Line protection			Line protection										
					Characteristic			B / C / D			B / C / D										
					Icu [kA]			10			15 / 20 / 25 / 30										
					Icn [kA]			10			15										
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]			80	100	125	10	13	16	20	25	32	40	50	63		
Downstream 5SU1...FR/FN/FP	Line protection	B / C	6 / 7,5 / 15	6 / 10	6	10	10	10	25	25	25	25	25	25	25	25	25	25	25		
					10	10	10	10	25	25	25	25	25	25	25	25	25	25	25	25	
					13	10	10	10	25	25	25	25	25	25	25	25	25	25	25	25	25
					15	10	10	10	25	25	25	25	25	25	25	25	25	25	25	25	25
					16	10	10	10	25	25	25	25	25	25	25	25	25	25	25	25	25
					20	10	10	10	25	25	25	25	25	25	25	25	25	25	25	25	25
					25	10	10	10	25	25	25	25	25	25	25	25	25	25	25	25	25
					32	10	10	10	25	25	25	25	25	25	25	25	25	25	25	25	25

Siemens AG Back-up-protection [kA] for 230 / 400 V AC acc. to IEC 60947-2					Product line			Upstream 5SY8									
					Application			Line Protection									
					Characteristic			C / D									
					Icu [kA]			20 / 25 / 30 / 40									
					Icn [kA]			n.a.									
Product line	Application	Characteristic	Icu [kA]	Icn [kA]	In [A]			10	13	16	20	25	32	40	50	63	
Downstream 5SU1...FR/FN/FP	Line Protection	B / C	6 / 7,5 / 15	6 / 10	6	25	25	25	25	25	25	25	25	25	25	25	25
					10	25	25	25	25	25	25	25	25	25	25	25	
					13	25	25	25	25	25	25	25	25	25	25	25	
					15	25	25	25	25	25	25	25	25	25	25	25	
					16	25	25	25	25	25	25	25	25	25	25	25	
					20	25	25	25	25	25	25	25	25	25	25	25	
					25	25	25	25	25	25	25	25	25	25	25	25	
					32	25	25	25	25	25	25	25	25	25	25	25	

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