

## Protective Devices for SINAMICS G115D decentralized drives

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## General Notes

- The voltage rating of any protection device must be at least the voltage rating of the supply circuit.
- Protective devices of the same type with lower current ratings in accordance with existing applicable local electrical code (e.g. NEC) and regulations may be used, if suitable for application.
- Protection devices of the same type with a lower SCCR / Icc rating may be used.

## Overview of the approved protection devices according to UL/CSA standards

- JDDZ/JDDZ7: Fuses of any manufacturer
- DIVQ/DIVQ7: Siemens circuit breaker
- NKJH/NKJH7: SIEMENS Type E combination motor controllers

## ICC conditional short circuit current Icc

The maximum RMS value of a prospective short circuit current, available from a supply source.

## Short-Circuit Current Rating (SCCR)

The Short-Circuit Current Rating (SCCR) is the prospective symmetrical fault current at a nominal voltage to which an apparatus or system is able to be connected without sustaining damage exceeding defined acceptance criteria.

## UL Certificates

SINAMICS G115D Motor Mounted: FSA, FSB

UL-File E355661, Vol. 4 Sec. 4

SINAMICS G115D Wall Mounted: FSA, FSB, FSC

UL-File E355661, Vol. 5 Sec. 4

## Group Installation

SINAMICS G115D decentralized drives have been evaluated for group installation according to UL61800-5-1. In this case, one single overcurrent protective device is acting as branch circuit protective for multiple drives. This is also applicable in the IEC application.

## Design considerations for SINAMICS G115D

Select a protective device suitable for group installation from the following tables. The sum of the rated input currents of the connected SINAMICS G115D shall not be higher than 80 % of the rated current of the common protective device. Observe the local installation standards regarding the required ampacity of the conductors.

# 1 Protective devices for IEC applications

## 1.1 IEC Fuses

SINAMICS G115D			Fuse		
Frame size	Rated power	Article no.	Max. rated current <sup>1)</sup>	Article no.	ICC @ 400 V AC
FSA	0.37 kW	6SL352-.X..0-3A.0 2KJ8...-2CF..-3....	10 A	3NA3803	65 kA
	0.55 kW	6SL352-.X..0-5A.0 2KJ8...-2EA..-3.... 2KJ8...-4EC..-3.... 2KJ8...-2CF..-4....	10 A	3NA3803	65 kA
	0.75 kW	6SL352-.X..0-7A.0 2KJ8...-2EG..-3.... 2KJ8...-4EH..-3.... 2KJ8...-2EA..-4.... 2KJ8...-4EC..-4.... 2KJ8...-2CF..-5....	10 A	3NA3803	65 kA
	1.1 kW	6SL352-.X..1-1A.0 2KJ8...-2GB..-3.... 2KJ8...-4GC..-3.... 2KJ8...-2EG..-4.... 2KJ8...-4EH..-4.... 2KJ8...-2EA..-5.... 2KJ8...-4EC..-5....	10 A	3NA3803	65 kA
	1.5 kW	6SL352-.X..1-5A.0 2KJ8...-2GG..-3.... 2KJ8...-4GH..-3.... 2KJ8...-2GB..-4.... 2KJ8...-4GC..-4.... 2KJ8...-2EG..-5.... 2KJ8...-4EH..-5....	10 A	3NA3803	65 kA
FSB	2.2 kW	6SL352-.X..2-2A.0 2KJ8...-2JB..-3.... 2KJ8...-4LC..-3.... 2KJ8...-2GG..-4.... 2KJ8...-4GH..-4.... 2KJ8...-2GB..-5.... 2KJ8...-4GC..-5....	16 A	3NA3805	65 kA
	3 kW	6SL352-.X..3-0A.0 2KJ8...-2JG..-3.... 2KJ8...-4LH..-3.... 2KJ8...-2JB..-4.... 2KJ8...-4LC..-4.... 2KJ8...-2GG..-5.... 2KJ8...-4GH..-5....	16 A	3NA3805	65 kA
	4 kW	6SL352-.X..4-0A.0 2KJ8...-2LB..-3.... 2KJ8...-4LN..-3.... 2KJ8...-2JG..-4.... 2KJ8...-4LH..-4.... 2KJ8...-2JB..-5.... 2KJ8...-4LC..-5....	16 A	3NA3805	65 kA
FSC	5.5 kW	6SL352-.X..5-5A.0	32 A	3NA3812	65 kA
	7.5 kW	6SL352-.X..7-5A.0	32 A	3NA3812	65 kA
Any	Group installation <sup>2)</sup>		32 A	3NA3812	65 kA

<sup>1)</sup> Protective devices of the same type with lower current ratings in accordance with existing applicable local electrical code (e.g. NEC) and regulations may be used, if suitable for application.

<sup>2)</sup> For more information on group installation, see Section "General Notes".

**Note:**

Siemens 3NA low-voltage fuses are recommended.

## 1.2 IEC Motor Starter Protectors

SINAMICS G115D			MSP		
Frame size	Rated power	Article no.	Max. rated current <sup>1)</sup>	Article no.	ICC @ 400 V AC
FSA	0.37 kW	6SL352-.X..0-3A.0	10 A	3RV2011-1JA..	65 kA
		2KJ8...-2CF...-3...-	10 A	3RV2021-1JA..	65 kA
	0.55 kW	6SL352-.X..0-5A.0	10 A	3RV2011-1JA..	65 kA
		2KJ8...-2EA...-3...-	10 A	3RV2021-1JA..	65 kA
		2KJ8...-4EC...-3...-			
	2KJ8...-2CF...-4...-				
	0.75 kW	6SL352-.X..0-7A.0	10 A	3RV2011-1JA..	65 kA
		2KJ8...-2EG...-3...-	10 A	3RV2021-1JA..	65 kA
		2KJ8...-4EH...-3...-			
	2KJ8...-2EA...-4...-				
	1.1 kW	6SL352-.X..1-1A.0	10 A	3RV2011-1JA..	65 kA
		2KJ8...-2GB...-3...-	10 A	3RV2021-1JA..	65 kA
2KJ8...-4GC...-3...-					
2KJ8...-2EG...-4...-					
1.5 kW	6SL352-.X..1-5A.0	10 A	3RV2011-1JA..	65 kA	
	2KJ8...-2GG...-3...-	10 A	3RV2021-1JA..	65 kA	
	2KJ8...-4GH...-3...-				
2KJ8...-2GB...-4...-					
FSB	2.2 kW	6SL352-.X..2-2A.0	16 A	3RV2011-4AA..	55 kA
		2KJ8...-2JB...-3...-	16 A	3RV2021-4AA..	55 kA
		2KJ8...-4LC...-3...-			
		2KJ8...-2GG...-4...-			
	3.0 kW	6SL352-.X..3-0A.0	16 A	3RV2011-4AA..	55 kA
		2KJ8...-2JG...-3...-	16 A	3RV2021-4AA..	55 kA
		2KJ8...-4LH...-3...-			
		2KJ8...-2JB...-4...-			
	2KJ8...-4LC...-4...-				
	4.0 kW	6SL352-.X..4-0A.0	16 A	3RV2011-4AA..	55 kA
		2KJ8...-2LB...-3...-	16 A	3RV2021-4AA..	55 kA
		2KJ8...-4LN...-3...-			
2KJ8...-2JG...-4...-					
2KJ8...-4LH...-4...-					
FSC	5.5 kW	6SL352-.X..5-5A.0	32 A	3RV2021-4EA..	55 kA
				3RV2031-4EA..	65 kA
Any	Group installation <sup>2)</sup>		32 A	3RV2021-4EA..	55 kA
				3RV2031-4EA..	65 kA

<sup>1)</sup> Protective devices of the same type with lower current ratings in accordance with existing applicable local electrical code (e.g. NEC) and regulations may be used, if suitable for application.

<sup>2)</sup> For more information on group installation, see Section "General Notes".

### Note:

ICC values are only valid for supply grids with grounded star point (solidly grounded wye TN or TT systems).  
Siemens 3RV motor starter protectors are recommended.

## 1.3 IEC Circuit Breakers

SINAMICS G115D			Circuit breaker		
Frame size	Rated power	Article no.	Max. rated current <sup>1)</sup>	Article no.	ICC @ 400 V AC
FSA	0.37 kW	6SL352-.X..0-3A.0 2KJ8...-2CF..-3...-	16 A	3VA1196-6E...	65 kA
	0.55 kW	6SL352-.X..0-5A.0 2KJ8...-2EA..-3...- 2KJ8...-4EC..-3...- 2KJ8...-2CF..-4...-	16 A	3VA1196-6E...	65 kA
	0.75 kW	6SL352-.X..0-7A.0 2KJ8...-2EG..-3...- 2KJ8...-4EH..-3...- 2KJ8...-2EA..-4...- 2KJ8...-4EC..-4...- 2KJ8...-2CF..-5...-	16 A	3VA1196-6E...	65 kA
	1.1 kW	6SL352-.X..1-1A.0 2KJ8...-2GB..-3...- 2KJ8...-4GC..-3...- 2KJ8...-2EG..-4...- 2KJ8...-4EH..-4...- 2KJ8...-2EA..-5...- 2KJ8...-4EC..-5...-	16 A	3VA1196-6E...	65 kA
	1.5 kW	6SL352-.X..1-5A.0 2KJ8...-2GG..-3...- 2KJ8...-4GH..-3...- 2KJ8...-2GB..-4...- 2KJ8...-4GC..-4...- 2KJ8...-2EG..-5...- 2KJ8...-4EH..-5...-	16 A	3VA1196-6E...	65 kA
FSB	2.2 kW	6SL352-.X..2-2A.0 2KJ8...-2JB..-3...- 2KJ8...-4LC..-3...- 2KJ8...-2GG..-4...- 2KJ8...-4GH..-4...- 2KJ8...-2GB..-5...- 2KJ8...-4GC..-5...-	16 A	3VA1196-6E...	65 kA
	3.0 kW	6SL352-.X..3-0A.0 2KJ8...-2JG..-3...- 2KJ8...-4LH..-3...- 2KJ8...-2JB..-4...- 2KJ8...-4LC..-4...- 2KJ8...-2GG..-5...- 2KJ8...-4GH..-5...-	16 A	3VA1196-6E...	65 kA
	4.0 kW	6SL352-.X..4-0A.0 2KJ8...-2LB..-3...- 2KJ8...-4LN..-3...- 2KJ8...-2JG..-4...- 2KJ8...-4LH..-4...- 2KJ8...-2JB..-5...- 2KJ8...-4LC..-5...-	16 A	3VA1196-6E...	65 kA
FSC	5.5 kW	6SL352-.X..5-5A.0	32 A	3VA1132-6E...	65 kA
	7.5 kW	6SL352-.X..7-5A.0	32 A	3VA1132-6E...	65 kA
Any	Group installation <sup>2)</sup>		32 A	3VA1132-6E...	65 kA

<sup>1)</sup> Protective devices of the same type with lower current ratings in accordance with existing applicable local electrical code (e.g. NEC) and regulations may be used, if suitable for application.

<sup>2)</sup> For more information on group installation, see Section "General Notes".

**Note:**

Siemens 3RV and 3VA circuit breakers are recommended.

## 2 Protective devices for UL/CSA applications

### 2.1 UL/CSA Non-semiconductor Fuses (JDDZ/JDDZ7)

SINAMICS G115D			Fuse	
Frame size	Rated power	Article no.	Max. rated current <sup>1)</sup>	SCCR @ 480
FSA	0.37 kW	6SL352.-X..0-3A.0 2KJ8...-2CF...-3...-	10 A	65 kA
	0.55 kW	6SL352.-X..0-5A.0 2KJ8...-2EA...-3...- 2KJ8...-4EC...-3...- 2KJ8...-2CF...-4...-	10 A	65 kA
	0.75 kW	6SL352.-X..0-7A.0 2KJ8...-2EG...-3...- 2KJ8...-4EH...-3...- 2KJ8...-2EA...-4...- 2KJ8...-4EC...-4...- 2KJ8...-2CF...-5...-	10 A	65 kA
	1.1 kW	6SL352.-X..1-1A.0 2KJ8...-2GB...-3...- 2KJ8...-4GC...-3...- 2KJ8...-2EG...-4...- 2KJ8...-4EH...-4...- 2KJ8...-2EA...-5...- 2KJ8...-4EC...-5...-	10 A	65 kA
	1.5 kW	6SL352.-X..1-5A.0 2KJ8...-2GG...-3...- 2KJ8...-4GH...-3...- 2KJ8...-2GB...-4...- 2KJ8...-4GC...-4...- 2KJ8...-2EG...-5...- 2KJ8...-4EH...-5...-	10 A	65 kA
FSB	2.2 kW	6SL352.-X..2-2A.0 2KJ8...-2JB...-3...- 2KJ8...-4LC...-3...- 2KJ8...-2GG...-4...- 2KJ8...-4GH...-4...- 2KJ8...-2GB...-5...- 2KJ8...-4GC...-5...-	15 A	65 kA
	3.0 kW	6SL352.-X..3-0A.0 2KJ8...-2JG...-3...- 2KJ8...-4LH...-3...- 2KJ8...-2JB...-4...- 2KJ8...-4LC...-4...- 2KJ8...-2GG...-5...- 2KJ8...-4GH...-5...-	15 A	65 kA
	4.0 kW	6SL352.-X..4-0A.0 2KJ8...-2LB...-3...- 2KJ8...-4LN...-3...- 2KJ8...-2JG...-4...- 2KJ8...-4LH...-4...- 2KJ8...-2JB...-5...- 2KJ8...-4LC...-5...-	15 A	65 kA
FSC	5.5 kW	6SL352.-X..5-5A.0	35 A	65 kA
	7.5 kW	6SL352.-X..7-5A.0	35 A	65 kA
Any	Group installation <sup>2)</sup>		35 A	65 kA

<sup>1)</sup> Protective devices of the same type with lower current ratings in accordance with existing applicable local electrical code (e.g. NEC) and regulations may be used, if suitable for application.

<sup>2)</sup> For more information on group installation, see Section "General Notes".

**Note:**

Any non-semiconductor fuse Class CC, G, J, CF, or T (JDDZ/ JDDZ7) from any manufacturer may be used for all Frame Sizes.

## 2.2 UL/CSA Type E Combination Motor Controllers (NKJH/NKJH7)

SINAMICS G115D			CMC			
Frame size	Rated power	Article no.	Max. rated current <sup>1)</sup>	Rated power @ 3 AC 460 V	Article no.	SCCR @ 480 Y / 277 V
FSA	0.37 kW	6SL352-.X..0-3A.0	10 A	7.5 HP	3RV2011-1JA..	65 kA
		2KJ8...-2CF..-3...-	10 A	7.5 HP	3RV2021-1JA..	65 kA
	0.55 kW	6SL352-.X..0-5A.0	10 A	7.5 HP	3RV2011-1JA..	65 kA
		2KJ8...-2EA..-3...- 2KJ8...-4EC..-3...- 2KJ8...-2CF..-4...-	10 A	7.5 HP	3RV2021-1JA..	65 kA
	0.75 kW	6SL352-.X..0-7A.0	10 A	7.5 HP	3RV2011-1JA..	65 kA
		2KJ8...-2EG..-3...- 2KJ8...-4EH..-3...- 2KJ8...-2EA..-4...- 2KJ8...-4EC..-4...- 2KJ8...-2CF..-5...-	10 A	7.5 HP	3RV2021-1JA..	65 kA
		6SL352-.X..1-1A.0	10 A	7.5 HP	3RV2011-1JA..	65 kA
	1.1 kW	2KJ8...-2GB..-3...- 2KJ8...-4GC..-3...- 2KJ8...-2EG..-4...- 2KJ8...-4EH..-4...- 2KJ8...-2EA..-5...- 2KJ8...-4EC..-5...-	10 A	7.5 HP	3RV2021-1JA..	65 kA
		6SL352-.X..1-5A.0	10 A	7.5 HP	3RV2011-1JA..	65 kA
	1.5 kW	2KJ8...-2GG..-3...- 2KJ8...-4GH..-3...- 2KJ8...-2GB..-4...- 2KJ8...-4GC..-4...- 2KJ8...-2EG..-5...- 2KJ8...-4EH..-5...-	10 A	7.5 HP	3RV2021-1JA..	65 kA
		6SL352-.X..2-2A.0	16 A	10 HP	3RV2011-4AA..	65 kA
	FSB	2.2 kW	2KJ8...-2JB..-3...- 2KJ8...-4LC..-3...- 2KJ8...-2GG..-4...- 2KJ8...-4GH..-4...- 2KJ8...-2GB..-5...- 2KJ8...-4GC..-5...-	16 A	10 HP	3RV2021-4AA..
6SL352-.X..3-0A.0			16 A	10 HP	3RV2011-4AA..	65 kA
3.0 kW		2KJ8...-2JG..-3...- 2KJ8...-4LH..-3...- 2KJ8...-2JB..-4...- 2KJ8...-4LC..-4...- 2KJ8...-2GG..-5...- 2KJ8...-4GH..-5...-	16 A	10 HP	3RV2021-4AA..	65 kA
		6SL352-.X..4-0A.0	16 A	10 HP	3RV2011-4AA..	65 kA
4.0 kW		2KJ8...-2LB..-3...- 2KJ8...-4LN..-3...- 2KJ8...-2JG..-4...- 2KJ8...-4LH..-4...- 2KJ8...-2JB..-5...- 2KJ8...-4LC..-5...-	16 A	10 HP	3RV2021-4AA..	65 kA
		6SL352-.X..5-5A.0	32 A	20 HP	3RV2021-4EA..	50 kA
5.5 kW		6SL352-.X..5-5A.0	32 A	20 HP	3RV2031-4EA..	65 kA
		6SL352-.X..7-5A.0	32 A	20 HP	3RV2021-4EA..	50 kA
7.5 kW	6SL352-.X..7-5A.0	32 A	20 HP	3RV2031-4EA..	65 kA	

<sup>1)</sup> Protective devices of the same type with lower current ratings in accordance with existing applicable local electrical code (e.g. NEC) and regulations may be used, if suitable for application.

**Note:**

3RV20 motor starter protectors are approved in accordance with UL 508/UL60947-4-1 in combination with the terminal blocks listed below:

- 3RV2011 and 3RV2021 with 3RV2928-1H
- 3RV203. with 3RV2938-1K

Not necessary for CSA

## 2.3 UL/CSA Circuit Breakers (DIVQ/DIVQ7)

SINAMICS G115D			Circuit breaker				
Frame size	Rated power	Article no.	Max. rated current <sup>1)</sup>	UL/CSA type	Article no. example (European)	SCCR @	
						480 V	480 Y / 277 V
FSA	0.37 kW	6SL352..X..0-3A.0 2KJ8...F...A...-	15 A	3VA51	3VA5195-6E	65 kA	<sup>3)</sup>
			15 A	3RV2742	3RV2742-5BD..	65 kA	<sup>3)</sup>
			15 A	3RV2711	3RV2711-4AD..	---	65 kA
	0.55 kW	6SL352..X..0-5A.0 2KJ8...2EA..3...- 2KJ8...4EC..3...- 2KJ8...2CF..4...-	15 A	3VA51	3VA5195-6E	65 kA	<sup>3)</sup>
			15 A	3RV2742	3RV2742-5BD..	65 kA	<sup>3)</sup>
			15 A	3RV2711	3RV2711-4AD..	---	65 kA
	0.75 kW	6SL352..X..0-7A.0 2KJ8...2EG..3...- 2KJ8...4EH..3...- 2KJ8...2EA..4...- 2KJ8...4EC..4...- 2KJ8...2CF..5...-	15 A	3VA51	3VA5195-6E	65 kA	<sup>3)</sup>
			15 A	3RV2742	3RV2742-5BD..	65 kA	<sup>3)</sup>
			15 A	3RV2711	3RV2711-4AD..	---	65 kA
	1.1 kW	6SL352..X..1-1A.0 2KJ8...2GB..3...- 2KJ8...4GC..3...- 2KJ8...2EG..4...- 2KJ8...4EH..4...- 2KJ8...2EA..5...- 2KJ8...4EC..5...-	15 A	3VA51	3VA5195-6E	65 kA	<sup>3)</sup>
			15 A	3RV2742	3RV2742-5BD..	65 kA	<sup>3)</sup>
			15 A	3RV2711	3RV2711-4AD..	---	65 kA
	1.5 kW	6SL352..X..1-5A.0 2KJ8...2GG..3...- 2KJ8...4GH..3...- 2KJ8...2GB..4...- 2KJ8...4GC..4...- 2KJ8...2EG..5...- 2KJ8...4EH..5...-	15 A	3VA51	3VA5195-6E	65 kA	<sup>3)</sup>
			15 A	3RV2742	3RV2742-5BD..	65 kA	<sup>3)</sup>
			15 A	3RV2711	3RV2711-4AD..	---	65 kA
	2.2 kW	6SL352..X..2-2A.0 2KJ8...2JB..3...- 2KJ8...4LC..3...- 2KJ8...2GG..4...- 2KJ8...4GH..4...- 2KJ8...2GB..5...- 2KJ8...4GC..5...-	15 A	3VA51	3VA5195-6E	65 kA	<sup>3)</sup>
			15 A	3RV2742	3RV2742-5BD..	65 kA	<sup>3)</sup>
			15 A	3RV2711	3RV2711-4AD..	---	65 kA
3.0 kW		6SL352..X..3-0A.0 2KJ8...2JG..3...- 2KJ8...4LH..3...- 2KJ8...2JB..4...- 2KJ8...4LC..4...- 2KJ8...2GG..5...- 2KJ8...4GH..5...-	15 A	3VA51	3VA5195-6E	65 kA	<sup>3)</sup>
			15 A	3RV2742	3RV2742-5BD..	65 kA	<sup>3)</sup>
			15 A	3RV2711	3RV2711-4AD..	---	65 kA
4.0 kW		6SL352..X..4-0A.0 2KJ8...2LB..3...- 2KJ8...4LN..3...- 2KJ8...2JG..4...- 2KJ8...4LH..4...- 2KJ8...2JB..5...- 2KJ8...4LC..5...-	15 A	3VA51	3VA5195-6E	65 kA	<sup>3)</sup>
			15 A	3RV2742	3RV2742-5BD..	65 kA	<sup>3)</sup>
			15 A	3RV2711	3RV2711-4AD..	---	65 kA
FSC	5.5 kW	6SL352..X..5-5A.0	35 A	3VA51	3VA5135-6E	65 kA	<sup>3)</sup>
				3RV2742	3RV2742-5FD..	---	65 kA
	7.5 kW	6SL352..X..7-5A.0	35 A	3VA51	3VA5135-6E	65 kA	<sup>3)</sup>
				3RV2742	3RV2742-5FD..	---	65 kA
Any	Group installation <sup>2)</sup>		35 A	3VA51	3VA5135-6E	65 kA	<sup>3)</sup>
				3RV2742	3RV2742-5FD..	---	65 kA


<sup>1)</sup> Protective devices of the same type with lower current ratings in accordance with existing applicable local electrical code (e.g. NEC) and regulations may be used, if suitable for application.

<sup>2)</sup> For more information on group installation, see Section "General Notes".

<sup>3)</sup> The SCCR shown in the table for 3 phase straight rated 480 V AC supply systems can also be applied to 3 phase center point grounded (slash rated) supply systems of 480Y/277 V AC. However, vice versa or conversely CANNOT be done i.e. the SCCR shown in the table for 3 phase center point grounded (slash rated) supply systems CANNOT be applied to straight rated supply systems.



## More Information

For more information, see the following links: 

- Manuals  
<https://support.industry.siemens.com/cs/ww/en/ps/27867/man>
- Siemens SENTRON fuses / 3NA fuses  
<https://support.industry.siemens.com/cs/ww/en/view/45314810>
- Low-Voltage Power Distribution and Electrical Installation Technology  
<https://support.industry.siemens.com/cs/ww/en/view/109482234>
- SIRIUS Industrial Controls  
<https://support.industry.siemens.com/cs/ww/en/view/109747945>
- IEC Circuit Breakers, 3VA1 series  
<https://support.industry.siemens.com/cs/ww/en/view/90318775>
- IEC Circuit Breakers, 3VA5 series  
<https://support.industry.siemens.com/cs/ww/en/view/109758561>
- UL listed Type E CMC or Motor Starter Protectors (MSPs) - 3RV series, see Siemens Industrial Controls Catalog, Section 1  
<https://new.siemens.com/us/en/products/automation/industrial-controls/industrial-controls-catalog.html>
- UL listed Molded Case Circuit Breakers - 3VA, SENTRON & VL series, see Siemens SPEEDFAX Product Catalog, Section 7  
<https://new.siemens.com/us/en/products/energy/low-voltage/speedfax.html>