## **SIEMENS**

Data sheet 3RV2421-4BA20



Circuit breaker size S0 for transformer protection A-release 13...20 A N-release 325 A Spring-type terminal Standard switching capacity

December 2011   December 2012   December 2013   December 2014   December 201	product brand name	SIRIUS
Separative content of the circuit-breaker   S0	product designation	Circuit breaker
size of the circuit-breaker  size of contactor can be combined company-specific product extension auxiliary switch  at AC in hot operating state  at AC in hot operating state per pole insulation voltage with degree of pollution 3 at AC rated value  surge voltage resistance rated value shock resistance according to IEC 60068-2-27  mechanical service life (switching cycles)  of the main contacts typical of auxiliary contacts typical of auxiliary contacts typical of auxiliary contacts (switching cycles)  reference code according to IEC 81346-2  Quuring storage Ambient conditions installation altitude at height above sea level maximum administration altitude at height above sea level maximum administration altitude at height above sea level maximum administration adjustable current response value current of the current-dependent overload release  operating voltage  • rated value • at AC-3 areted value maximum operation current rated value operational current rated value operational current rated value operational current rated value operational current operational current operational current operational current operational current operational current rated value operational current o	design of the product	For transformer protection
size of the circuit-breaker  size of contactor can be combined company-specific product extension auxiliary switch power loss [W] for rated value of the current  • at AC in hot operating state • at AC in hot operating state per pole insulation voltage with degree of pollution 3 at AC rated value  surge voltage resistance rated value shock resistance according to IEC 60068-2-27 mechanical service life (switching cycles) • of the main contacts typical of auxiliary contacts typical low 0000 electrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum aumient temperature • during operation • during operation • during transport relative humidity during operation  Main circuit number of poles for main current circuit adjustable current response value current of the current dependent overload release operating voltage • rated value • at AC-3e rated value maximum • at AC-3e rated value maximum operational current rated value	product type designation	3RV2
size of contactor can be combined company-specific product extension auxiliary switch  power loss [W] for rated value of the current  • at AC in hot operating state   10.5 W   • at AC in hot operating state per pole   3.5 W   insulation voltage with degree of pollution 3 at AC rated value   surge voltage resistance rated value   6 kV   shock resistance according to IEC 60068-2-27   25g / 11 ms   mechanical service life (switching cycles) • of the main contacts typical   100 000   • of auxiliary contacts typical   100 000   • of auxiliary contacts typical   100 000   • of auxiliary contacts typical   100 000   • electrical endurance (switching cycles) typical   100 000   reference code according to IEC 81346-2   Q   Substance Prohibitance (Date)   10/01/2009   Ambient conditions   installation allitude at height above sea level maximum   2 000 m   ambient temperature   • during operation   -20 +60 °C   • during storage   -50 +80 °C   • during storage   -50 +80 °C   • during transport   -50 +80 °C   relative humidity during operation   10 95 %    Main circuit   number of poles for main current circuit   3   adjustable current response value current of the current-dependent overload release   operating voltage   • rated value   20 690 V   • at AC-3 rated value maximum   690 V	General technical data	
product extension auxiliary switch  power loss [W] for rated value of the current  at AC in hot operating state at AC in hot operating state per pole at AC in hot operating state per pole insulation voltage with degree of pollution 3 at AC rated value  surge voltage resistance rated value shock resistance according to IEC 60088-2-27 get possible per pole of the main contact typical of the main contact typical of auxiliary contacts typical of auxiliary contacts typical lefectrical endurance (switching cycles) typical electrical endurance (switching cycles) typical electrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date) Ambient conditions installation altitude at height above sea level maximum ambient temperature during operation during storage during transport elative humidity during operation 1095 %  Main circuit number of poles for main current circuit adjustable current response value current of the current-dependent overload release operating voltage rated value at AC-3 rated value maximum especially a contact of the current contact of the current contact of the current overload release operating frequency rated value operational current value operational current rated value operational current rated value operational current value operational current rated value operational current value	size of the circuit-breaker	S0
power loss [W] for rated value of the current  at AC in hot operating state at AC in hot operating state at AC in hot operating state per pole insulation voltage with degree of pollution 3 at AC rated value  surge voltage resistance rated value shock resistance according to IEC 60068-2-27 25g / 11 ms  mechanical service life (switching cycles) of the main contacts typical of auxiliary contacts typical letectrical endurance (switching cycles) typical electrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum ambient temperature during operation during storage during transport ston+80 °C elative humidity during operation  Main circuit number of poles for main current circuit adjustable current response value current of the current-dependent overload release operating voltage art act Value at AC-3e rated value maximum appearating frequency rated value operational current operational curre	size of contactor can be combined company-specific	S00, S0
at AC in hot operating state   at AC in hot operating state per pole   insulation voltage with degree of pollution 3 at AC rated value    surge voltage resistance rated value   shock resistance according to IEC 60068-2-27   25g / 11 ms    mechanical service Iife (switching cycles)   of the main contacts typical   ind 0000   ind contacts typical   of auxiliary contacts typical   ind 0000   independent cycles of the main contacts typical   ind 0000   independent cycles of the main contacts typical   ind 0000   independent cycles of the main contacts typical   ind 0000   independent cycles of the main contacts typical   ind 0000   independent cycles of the main cycles of the cycles of the main cycles of the main cycles of the cycl	product extension auxiliary switch	Yes
• at AC in hot operating state per pole insulation voltage with degree of pollution 3 at AC rated value surge voltage resistance rated value 690 V shock resistance according to IEC 60068-2-27 25g / 11 ms mechanical service life (switching cycles) • of the main contacts typical • of auxiliary contacts typical 100 000 electrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum ambient temperature • during operation • during storage • during transport relative humidity during operation  Main circuit adjustable current response value current of the current-dependent overload release operating voltage • rated value • at AC-3e rated value maximum operational current rated value operational current of the c	power loss [W] for rated value of the current	
insulation voltage with degree of pollution 3 at AC rated value  surge voltage resistance rated value  shock resistance according to IEC 60068-2-27  mechanical service life (switching cycles)  of the main contacts typical  of auxiliary contacts typical  electrical endurance (switching cycles) typical  reference code according to IEC 81346-2  Questiance Prohibitance (Date)  Ambient conditions  installation altitude at height above sea level maximum  ambient temperature  of during operation  of during storage  of during transport  relative humidity during operation  mumber of poles for main current circuit  adjustable current response value current of the current-dependent overload release  operating voltage  or rated value  operating voltage  or at AC-3e rated value maximum  operational current rated value  operational current  of both  overational current rated value  operational current rated value  operational current  overational current  overati	<ul> <li>at AC in hot operating state</li> </ul>	10.5 W
value surge voltage resistance rated value shock resistance according to IEC 60068-2-27 mechanical service life (switching cycles)  • of the main contacts typical • of auxiliary contacts typical lelectrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum ambient temperature • during operation • during storage • during transport relative humidity during operation  **Tourned to the strength of the current of the current dependent overload release  Operating voltage • rated value • at AC-3e rated value maximum  operational current  operational current rated value  operational current  of the KV  sag /11 ms  100 000  6 kV  25g / 11 ms  100 000  000  000  000  000  000  000	at AC in hot operating state per pole	3.5 W
shock resistance according to IEC 60068-2-27  mechanical service life (switching cycles)  of the main contacts typical of the main contacts typical lou 000  electrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum ambient temperature oduring operation during storage during transport relative humidity during operation  mumber of poles for main current circuit adjustable current response value current of the current-dependent overload release operating voltage  rated value at AC-3 rated value maximum operation altitude at height above sea level maximum operating frequency rated value operational current		690 V
mechanical service life (switching cycles)  • of the main contacts typical  • of auxiliary contacts typical electrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum ambient temperature • during operation • during storage • during transport relative humidity during operation  Main circuit number of poles for main current circuit adjustable current response value current of the current-dependent overload release operating voltage • rated value • at AC-3 rated value maximum • at AC-3 rated value maximum operational current rated value operational current	surge voltage resistance rated value	6 kV
of the main contacts typical     of auxiliary contacts typical     electrical endurance (switching cycles) typical     reference code according to IEC 81346-2     Substance Prohibitance (Date)      Ambient conditions     installation altitude at height above sea level maximum     ambient temperature     ouring operation     ouring storage     oduring storage     ouring transport     relative humidity during operation     main circuit     number of poles for main current circuit     adjustable current response value current of the current-dependent overload release     operating voltage     operating voltage     otated value     at AC-3 rated value maximum     operating frequency rated value     operational current	shock resistance according to IEC 60068-2-27	25g / 11 ms
of auxiliary contacts typical electrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum ambient temperature     ouring operation     ouring storage     during transport relative humidity during operation  Main circuit number of poles for main current circuit adjustable current response value current of the current-dependent overload release operating voltage     rated value     at AC-3 rated value maximum electrical electrical value operating frequency rated value operational current operational cu	mechanical service life (switching cycles)	
electrical endurance (switching cycles) typical reference code according to IEC 81346-2 Q Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum ambient temperature • during operation • during storage • during transport relative humidity during operation  Main circuit  number of poles for main current circuit adjustable current response value current of the current-dependent overload release operating voltage • rated value • at AC-3 rated value maximum • at AC-3e rated value maximum operational current rated value operational current rated value operational current rated value  operational current rated value operational current rated value operational current rated value operational current rated value operational current	<ul> <li>of the main contacts typical</li> </ul>	100 000
reference code according to IEC 81346-2  Substance Prohibitance (Date)  Ambient conditions installation altitude at height above sea level maximum  ambient temperature  • during operation • during storage • during transport  relative humidity during operation  10 95 %  Main circuit  number of poles for main current circuit adjustable current response value current of the current-dependent overload release  operating voltage • rated value • at AC-3 rated value maximum  operating frequency rated value operational current rated value	of auxiliary contacts typical	100 000
Substance Prohibitance (Date)  Ambient conditions  installation altitude at height above sea level maximum  ambient temperature  • during operation  • during storage  • during transport  relative humidity during operation  10 95 %  Main circuit  number of poles for main current circuit  adjustable current response value current of the current-dependent overload release  operating voltage  • rated value  • at AC-3 rated value maximum  690 V  operating frequency rated value  operational current rated value  20 690 Hz  operational current rated value  20 A  operational current rated value	electrical endurance (switching cycles) typical	100 000
installation altitude at height above sea level maximum  ambient temperature  • during operation • during storage • during transport relative humidity during operation  10 95 %  Main circuit  number of poles for main current circuit adjustable current response value current of the current-dependent overload release operating voltage • rated value • at AC-3 rated value maximum • at AC-3e rated value maximum operational current rated value  20 690 V operating frequency rated value 50 60 Hz operational current rated value 20 A	reference code according to IEC 81346-2	Q
installation altitude at height above sea level maximum  ambient temperature  • during operation  • during storage  • during transport  relative humidity during operation  Main circuit  number of poles for main current circuit  adjustable current response value current of the current-dependent overload release  operating voltage  • rated value  • at AC-3 rated value maximum  • at AC-3e rated value maximum  operational current rated value  operational current rated value  operational current rated value  20 690 V  operational current rated value  20 A	Substance Prohibitance (Date)	10/01/2009
ambient temperature  • during operation • during storage • during transport • during transport  relative humidity during operation  Main circuit  number of poles for main current circuit adjustable current response value current of the current-dependent overload release  operating voltage • rated value • at AC-3 rated value maximum • at AC-3e rated value maximum  operating frequency rated value  operational current rated value  operational current rated value  20 690 V  operational current rated value  50 60 Hz  operational current	Ambient conditions	
<ul> <li>during operation</li> <li>during storage</li> <li>during transport</li> <li>50 +80 °C</li> <li>relative humidity during operation</li> <li>10 95 %</li> </ul> Main circuit <ul> <li>number of poles for main current circuit</li> <li>adjustable current response value current of the current-dependent overload release</li> <li>operating voltage</li> <li>rated value</li> <li>at AC-3 rated value maximum</li> <li>at AC-3e rated value maximum</li> <li>690 V</li> <li>at AC-3e rated value maximum</li> <li>690 V</li> <li>operating frequency rated value</li> <li>50 60 Hz</li> <li>operational current rated value</li> <li>20 A</li> </ul>	installation altitude at height above sea level maximum	2 000 m
<ul> <li>during storage</li> <li>during transport</li> <li>-50 +80 °C</li> <li>relative humidity during operation</li> <li>10 95 %</li> </ul> Main circuit <ul> <li>number of poles for main current circuit</li> <li>adjustable current response value current of the current-dependent overload release</li> <li>operating voltage</li> <li>rated value</li> <li>at AC-3 rated value maximum</li> <li>at AC-3e rated value maximum</li> <li>et AC-3e rated value maximum</li> <li>operating frequency rated value</li> <li>operational current rated value</li> <li>operational current</li> </ul>	ambient temperature	
during transport     relative humidity during operation     10 95 %      Main circuit     number of poles for main current circuit     adjustable current response value current of the current-dependent overload release     operating voltage         • rated value             • at AC-3 rated value maximum             • at AC-3e rated value maximum             • operating frequency rated value             • operational current              • Operational current	<ul> <li>during operation</li> </ul>	-20 +60 °C
relative humidity during operation  10 95 %  Main circuit  number of poles for main current circuit  adjustable current response value current of the current-dependent overload release  operating voltage  • rated value  • at AC-3 rated value maximum  • at AC-3e rated value maximum  operating frequency rated value  operational current rated value  20 690 V  • at AC-3e rated value maximum  690 V  operational current rated value  20 A	during storage	-50 +80 °C
Main circuit  number of poles for main current circuit  adjustable current response value current of the current-dependent overload release  operating voltage  • rated value  • rated value maximum  • at AC-3 rated value maximum  • at AC-3e rated value maximum  operating frequency rated value  operational current rated value  20 690 V  20 690 V  20 690 V  20 690 V	during transport	-50 +80 °C
number of poles for main current circuit  adjustable current response value current of the current-dependent overload release  operating voltage  • rated value  • at AC-3 rated value maximum  • at AC-3e rated value maximum  operating frequency rated value  operational current rated value  operational current  3  13 20 A  20 690 V  690 V  690 V  20 690 V  20 A	relative humidity during operation	10 95 %
adjustable current response value current of the current-dependent overload release  operating voltage  • rated value  • at AC-3 rated value maximum  • at AC-3e rated value maximum  operating frequency rated value  operational current rated value  20 690 V  690 V  operating frequency rated value  50 60 Hz  operational current	Main circuit	
current-dependent overload release  operating voltage  • rated value  • at AC-3 rated value maximum  • at AC-3e rated value maximum  operating frequency rated value  operational current rated value  20 690 V  690 V  operating frequency rated value  50 60 Hz  operational current	number of poles for main current circuit	3
<ul> <li>rated value</li> <li>at AC-3 rated value maximum</li> <li>at AC-3e rated value maximum</li> <li>operating frequency rated value</li> <li>operational current rated value</li> <li>operational current</li> </ul>		13 20 A
<ul> <li>at AC-3 rated value maximum</li> <li>at AC-3e rated value maximum</li> <li>operating frequency rated value</li> <li>operational current rated value</li> <li>operational current</li> </ul>	operating voltage	
<ul> <li>at AC-3e rated value maximum</li> <li>690 V</li> <li>operating frequency rated value</li> <li>operational current rated value</li> <li>operational current</li> </ul> 20 A	• rated value	20 690 V
operating frequency rated value 50 60 Hz operational current rated value 20 A operational current	<ul> <li>at AC-3 rated value maximum</li> </ul>	690 V
operational current rated value 20 A operational current	at AC-3e rated value maximum	690 V
operational current	operating frequency rated value	50 60 Hz
	operational current rated value	20 A
at AC-3 at 400 V rated value     20 A	operational current	
- Million Carlos V Inton Value	<ul> <li>at AC-3 at 400 V rated value</li> </ul>	20 A

a at AC 3a at 400 V rated value	20. A
at AC-3e at 400 V rated value	20 A
operating power	
• at AC-3	E 5 1244
— at 230 V rated value	5.5 kW
— at 400 V rated value	7.5 kW
— at 500 V rated value	11 kW
— at 690 V rated value	15 kW
• at AC-3e	
— at 230 V rated value	5.5 kW
— at 400 V rated value	7.5 kW
— at 500 V rated value	11 kW
— at 690 V rated value	15 kW
operating frequency	
• at AC-3 maximum	15 1/h
at AC-3e maximum	15 1/h
Auxiliary circuit	
number of NC contacts for auxiliary contacts	0
number of NO contacts for auxiliary contacts	0
number of CO contacts for auxiliary contacts	0
Protective and monitoring functions	
product function	
ground fault detection	No
phase failure detection	Yes
trip class	CLASS 10
design of the overload release	thermal
breaking capacity maximum short-circuit current (Icu)	
<ul> <li>at AC at 240 V rated value</li> </ul>	100 kA
<ul> <li>at AC at 400 V rated value</li> </ul>	55 kA
<ul> <li>at AC at 500 V rated value</li> </ul>	10 kA
<ul> <li>at AC at 690 V rated value</li> </ul>	4 kA
breaking capacity operating short-circuit current (Ics)	
at AC	
<ul> <li>at 240 V rated value</li> </ul>	100 kA
<ul> <li>at 400 V rated value</li> </ul>	25 kA
<ul> <li>at 500 V rated value</li> </ul>	5 kA
at 690 V rated value	2 kA
response value current of instantaneous short-circuit trip unit	325 A
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
at 480 V rated value	20 A
at 600 V rated value	20 A
yielded mechanical performance [hp]	
for single-phase AC motor	
— at 110/120 V rated value	1.5 hp
— at 230 V rated value	3 hp
• for 3-phase AC motor	
— at 200/208 V rated value	7.5 hp
— at 220/230 V rated value	5 hp
— at 460/480 V rated value	10 hp
Short-circuit protection	
product function short circuit protection	Yes
design of the short-circuit trip	magnetic
design of the short-circuit trip	
protection of the main circuit	
• at 400 V	gL/gG 63 A
● at 500 V	gL/gG 50 A
• at 690 V	gL/gG 50 A
Installation/ mounting/ dimensions	
mounting position	any
variting poortion	will j

fastening method	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
height	119 mm
width	45 mm
depth	97 mm
required spacing	
• for grounded parts at 400 V	
— downwards	30 mm
— upwards	30 mm
— at the side	9 mm
• for live parts at 400 V	
— downwards	30 mm
— upwards	30 mm
— at the side	9 mm
• for grounded parts at 500 V	
— downwards	30 mm
— upwards	30 mm
— at the side	9 mm
• for live parts at 500 V	
— downwards	30 mm
— upwards	30 mm
— at the side	9 mm
• for grounded parts at 690 V	
— downwards	50 mm
— upwards	50 mm
— backwards	0 mm
— at the side	30 mm
— forwards	0 mm
• for live parts at 690 V	
— downwards	50 mm
— upwards	50 mm
— backwards	0 mm
— at the side	30 mm
— forwards	0 mm
Connections/ Terminals	
type of electrical connection	
for main current circuit	spring-loaded terminals
arrangement of electrical connectors for main current	Top and bottom
circuit	Top and bottom
type of connectable conductor cross-sections	
for main contacts	
— solid or stranded	2x (1 10 mm²)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (1 6 mm²)
finely stranded without core end processing	2x (1 6 mm²)
at AWG cables for main contacts	2x (18 8)
design of screwdriver shaft	Diameter 3 mm
size of the screwdriver tip	3,0 x 0,5 mm
Safety related data	
B10 value	
with high demand rate according to SN 31920	5 000
proportion of dangerous failures	
with low demand rate according to SN 31920	50 %
with high demand rate according to SN 31920	50 %
failure rate [FIT]	
with low demand rate according to SN 31920	50 FIT
T1 value for proof test interval or service life according to	10 y
IEC 61508	,
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
display version for switching status	Handle

## **General Product Approval**



Confirmation





<u>KC</u>



**Declaration of Conformity** 

**Test Certificates** 

Marine / Shipping





Special Test Certificate

Type Test Certificates/Test Report





Marine / Shipping













Confirmation

other

other

Railway



Confirmation

Vibration and Shock

## **Further information**

Information- and Downloadcenter (Catalogs, Brochures,...)

https://www.siemens.com/ic10

Industry Mall (Online ordering system)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RV2421-4BA20

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RV2421-4BA20

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

https://support.industry.siemens.com/cs/ww/en/ps/3RV2421-4BA20

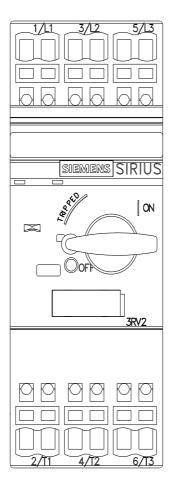
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RV2421-4BA20&lang=en

Characteristic: Tripping characteristics, I2t, Let-through current

https://support.industry.siemens.com/cs/ww/en/ps/3RV2421-4BA20/char

Further characteristics (e.g. electrical endurance, switching frequency) <a href="http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RV2421-4BA20&objecttype=14&gridview=view1">http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RV2421-4BA20&objecttype=14&gridview=view1</a>



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