# **SIEMENS**

Data sheet 3RT2037-1AL20



Power contactor, AC-3 65 A, 30 kW / 400 V 1 NO + 1 NC, 230 V AC 50/60 Hz, 3-pole Size S2, screw terminals

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S2
product extension	
<ul> <li>function module for communication</li> </ul>	No
auxiliary switch	Yes
power loss [W] for rated value of the current	
<ul> <li>at AC in hot operating state</li> </ul>	11.4 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	3.8 W
<ul> <li>without load current share typical</li> </ul>	17.2 W
insulation voltage	
<ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>	690 V
<ul> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>	690 V
surge voltage resistance	
<ul> <li>of main circuit rated value</li> </ul>	6 kV
<ul> <li>of auxiliary circuit rated value</li> </ul>	6 kV
maximum permissible voltage for safe isolation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at AC	11.8g / 5 ms, 7.4g / 10 ms
shock resistance with sine pulse	
• at AC	18.5g / 5 ms, 11.6g / 10 ms
mechanical service life (switching cycles)	
<ul> <li>of contactor typical</li> </ul>	10 000 000
<ul> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> </ul>	5 000 000
<ul> <li>of the contactor with added auxiliary switch block typical</li> </ul>	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2014
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
<ul> <li>during operation</li> </ul>	-25 +60 °C
<ul> <li>during storage</li> </ul>	-55 +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Main circuit	

number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	0
at AC-3 rated value maximum	690 V
at AC-3e rated value maximum	690 V
operational current	
at AC-1 at 400 V at ambient temperature 40 °C rated value	80 A
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	80 A
<ul> <li>up to 690 V at ambient temperature 60 °C rated value</li> <li>at AC-3</li> </ul>	70 A
— at 400 V rated value	65 A
— at 500 V rated value	65 A
— at 690 V rated value	47 A
• at AC-3e	
— at 400 V rated value	65 A
— at 500 V rated value	65 A
— at 690 V rated value	47 A
• at AC-4 at 400 V rated value	55 A
<ul> <li>at AC-5a up to 690 V rated value</li> </ul>	70.4 A
<ul> <li>at AC-5b up to 400 V rated value</li> </ul>	53.9 A
<ul><li>at AC-6a</li><li>— up to 230 V for current peak value n=20 rated</li></ul>	56.9 A
value — up to 400 V for current peak value n=20 rated	56.9 A
value — up to 500 V for current peak value n=20 rated value	56.9 A
— up to 690 V for current peak value n=20 rated value	47 A
<ul> <li>at AC-6a</li> <li>up to 230 V for current peak value n=30 rated value</li> </ul>	38 A
up to 400 V for current peak value n=30 rated value	38 A
— up to 500 V for current peak value n=30 rated value	38 A
— up to 690 V for current peak value n=30 rated value	38 A
minimum cross-section in main circuit at maximum AC-1 rated value operational current for approx. 200000 operating	25 mm <sup>2</sup>
cycles at AC-4	
at 400 V rated value	28 A
at 690 V rated value	22 A
operational current	
• at 1 current path at DC-1	
— at 24 V rated value	55 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.4 A
— at 600 V rated value	0.25 A
with 2 current paths in series at DC-1	
— at 24 V rated value	55 A
— at 110 V rated value	45 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
with 3 current paths in series at DC-1	55.4
— at 24 V rated value	55 A
— at 110 V rated value	55 A
— at 220 V rated value — at 440 V rated value	45 A 2.9 A

at 600 V rated value	1.4.6
— at 600 V rated value	1.4 A
<ul> <li>at 1 current path at DC-3 at DC-5</li> <li>— at 24 V rated value</li> </ul>	35 A
— at 24 V rated value  — at 220 V rated value	1 A
— at 440 V rated value	0.1 A
— at 600 V rated value	0.06 A
with 2 current paths in series at DC-3 at DC-5	0.00 A
— at 24 V rated value	55 A
— at 110 V rated value	25 A
— at 220 V rated value	5 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
with 3 current paths in series at DC-3 at DC-5	0.1071
— at 24 V rated value	55 A
— at 110 V rated value	55 A
— at 220 V rated value	25 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.35 A
operating power	
at AC-2 at 400 V rated value	30 kW
• at AC-3	
— at 230 V rated value	18.5 kW
— at 400 V rated value	30 kW
— at 500 V rated value	37 kW
— at 690 V rated value	37 kW
• at AC-3e	
— at 230 V rated value	18.5 kW
— at 400 V rated value	30 kW
— at 500 V rated value	37 kW
— at 690 V rated value	37 kW
operating power for approx. 200000 operating cycles	
at AC-4	447138
• at 400 V rated value	14.7 kW
• at 690 V rated value	20 kW
operating apparent power at AC-6a	00.0 10/4
• up to 230 V for current peak value n=20 rated value	22.6 kVA
• up to 400 V for current peak value n=20 rated value	39.4 kVA 49.2 kVA
<ul> <li>up to 500 V for current peak value n=20 rated value</li> <li>up to 690 V for current peak value n=20 rated value</li> </ul>	56.1 kVA
operating apparent power at AC-6a	30.1 KVA
• up to 230 V for current peak value n=30 rated value	15.1 kVA
<ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>	26.2 kVA
up to 500 V for current peak value n=30 rated value	32.8 kVA
<ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>	45.3 kVA
short-time withstand current in cold operating state	
up to 40 °C	
<ul> <li>limited to 1 s switching at zero current maximum</li> </ul>	1 055 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	730 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	520 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	336 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	272 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at AC	5 000 1/h
operating frequency	
• at AC-1 maximum	800 1/h
<ul><li>at AC-2 maximum</li></ul>	400 1/h
• at AC-3 maximum	700 1/h
• at AC-3e maximum	700 1/h
at AC-4 maximum	200 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
• at 50 Hz rated value	230 V
• at 60 Hz rated value	230 V

operating range factor control supply voltage rated	
value of magnet coil at AC	
● at 50 Hz	0.8 1.1
● at 60 Hz	0.85 1.1
apparent pick-up power of magnet coil at AC	
• at 50 Hz	210 VA
• at 60 Hz	188 VA
inductive power factor with closing power of the coil	100 771
• at 50 Hz	0.69
• at 60 Hz	0.65
apparent holding power of magnet coil at AC	
● at 50 Hz	17.2 VA
● at 60 Hz	16.5 VA
inductive power factor with the holding power of the	
coil	
● at 50 Hz	0.36
● at 60 Hz	0.39
closing delay	
• at AC	10 80 ms
opening delay	
• at AC	10 18 ms
arcing time	10 20 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
	4
number of NC contacts for auxiliary contacts instantaneous contact	1
	1
number of NO contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
•	10 A
operational current at AC-15	10.4
• at 230 V rated value	10 A
• at 400 V rated value	3 A
at 500 V rated value	2 A
<ul> <li>at 690 V rated value</li> </ul>	1 A
operational current at DC-12	
<ul> <li>at 24 V rated value</li> </ul>	10 A
<ul> <li>at 48 V rated value</li> </ul>	6 A
<ul> <li>at 60 V rated value</li> </ul>	6 A
<ul> <li>at 110 V rated value</li> </ul>	3 A
<ul> <li>at 125 V rated value</li> </ul>	2 A
at 220 V rated value	1 A
at 600 V rated value	0.15 A
operational current at DC-13	
at 24 V rated value	10 A
at 48 V rated value	2 A
at 40 V rated value     at 60 V rated value	2 A
at 100 V rated value     at 110 V rated value	1 A
at 125 V rated value     at 220 V rated value	0.9 A
at 220 V rated value	0.3 A
at 600 V rated value	0.1 A
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	
<ul> <li>at 480 V rated value</li> </ul>	65 A
at 600 V rated value	52 A
yielded mechanical performance [hp]	
for single-phase AC motor	
— at 110/120 V rated value	5 hp
— at 230 V rated value	10 hp
for 3-phase AC motor	10119
•	20 hn
— at 200/208 V rated value	20 hp
— at 220/230 V rated value	20 hp
<ul> <li>at 460/480 V rated value</li> </ul>	50 hp
— at 575/600 V rated value	50 hp

contact rating of auxiliary contacts according to UL	A600 / P600
Short-circuit protection	
design of the fuse link	
<ul> <li>for short-circuit protection of the main circuit</li> </ul>	
<ul> <li>— with type of coordination 1 required</li> </ul>	gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A
	(415 V, 80 kA)
<ul> <li>— with type of assignment 2 required</li> </ul>	gG: 125A (690V,100kA), aM: 63A (690V,100kA), BS88: 100A
	(415V,80kA)
for short-circuit protection of the auxiliary switch	gG: 10 A (500 V, 1 kA)
required	
nstallation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted
factoring mathed	forward and backward by +/- 22.5° on vertical mounting surface screw and snap-on mounting onto 35 mm standard mounting rail
fastening method	according to DIN EN 60715
side-by-side mounting	Yes
height	114 mm
width	55 mm
depth	130 mm
required spacing	100 11111
with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
at the side     for grounded parts	O Hilli
— forwards	10 mm
	10 mm
— upwards	
— at the side	6 mm
— downwards	10 mm
• for live parts	40
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 mm
Connections/ Terminals	
type of electrical connection	
for main current circuit	screw-type terminals
<ul> <li>for auxiliary and control circuit</li> </ul>	screw-type terminals
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Screw-type terminals
of magnet coil	Screw-type terminals
type of connectable conductor cross-sections	
<ul> <li>for main contacts</li> </ul>	
<ul><li>— solid or stranded</li></ul>	2x (1 35 mm²), 1x (1 50 mm²)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (1 25 mm²), 1x (1 35 mm²)
<ul> <li>at AWG cables for main contacts</li> </ul>	2x (18 2), 1x (18 1)
connectable conductor cross-section for main	
contacts	
	1 35 mm²
finely stranded with core end processing	1 55 11111
connectable conductor cross-section for auxiliary	1 55 Hilli
connectable conductor cross-section for auxiliary contacts	
connectable conductor cross-section for auxiliary contacts  • solid or stranded	0.5 2.5 mm²
connectable conductor cross-section for auxiliary contacts  • solid or stranded  • finely stranded with core end processing	
connectable conductor cross-section for auxiliary contacts	0.5 2.5 mm²
connectable conductor cross-section for auxiliary contacts	0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup>
connectable conductor cross-section for auxiliary contacts  • solid or stranded  • finely stranded with core end processing type of connectable conductor cross-sections  • for auxiliary contacts  — solid or stranded	0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> )
connectable conductor cross-section for auxiliary contacts  • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing	0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> ) 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> )
connectable conductor cross-section for auxiliary contacts  • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing • at AWG cables for auxiliary contacts	0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> )
connectable conductor cross-section for auxiliary contacts  • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing	0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> ) 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> )
connectable conductor cross-section for auxiliary contacts  • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing • at AWG cables for auxiliary contacts  AWG number as coded connectable conductor cross	0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> ) 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> )
connectable conductor cross-section for auxiliary contacts  • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing • at AWG cables for auxiliary contacts  AWG number as coded connectable conductor cross section • for main contacts	0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> ) 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> ) 2x (20 16), 2x (18 14)
connectable conductor cross-section for auxiliary contacts  • solid or stranded • finely stranded with core end processing type of connectable conductor cross-sections • for auxiliary contacts — solid or stranded — finely stranded with core end processing • at AWG cables for auxiliary contacts  AWG number as coded connectable conductor cross section	0.5 2.5 mm <sup>2</sup> 0.5 2.5 mm <sup>2</sup> 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> ) 2x (0.5 1.5 mm <sup>2</sup> ), 2x (0.75 2.5 mm <sup>2</sup> ) 2x (20 16), 2x (18 14)

• mirror contact according to IEC 60947-4-1

 positively driven operation according to IEC 60947-5-1

B10 value with high demand rate according to SN 31920 proportion of dangerous failures

• with low demand rate according to SN 31920

• with high demand rate according to SN 31920

failure rate [FIT] with low demand rate according to SN 31920

T1 value for proof test interval or service life according to IEC 61508

protection class IP on the front according to IEC 60529

touch protection on the front according to IEC 60529 suitability for use

· safety-related switching OFF

Yes

No

1 000 000

40 %

73 %

100 FIT

20 y

IP20

finger-safe, for vertical contact from the front

Yes

### Certificates/ approvals

### **General Product Approval**

**EMC** 





Confirmation

**KC** 





Functional
Safety/Safety of
Machinery

**Declaration of Conformity** 

**Test Certificates** 

Marine / Shipping

Type Examination Certificate





Type Test Certificates/Test Report

Special Test Certificate



#### Marine / Shipping













other

Railway

**Dangerous Good** 

Confirmation

Confirmation

Vibration and Shock

<u>Transport Information</u>

## 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=3RT2037-1AL20

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2037-1AL20

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

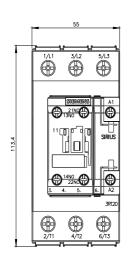
https://support.industry.siemens.com/cs/ww/en/ps/3RT2037-1AL20

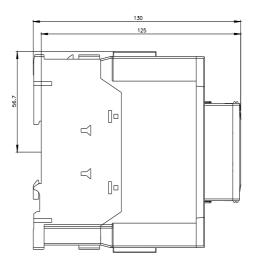
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

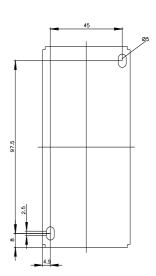
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2037-1AL20&lang=en

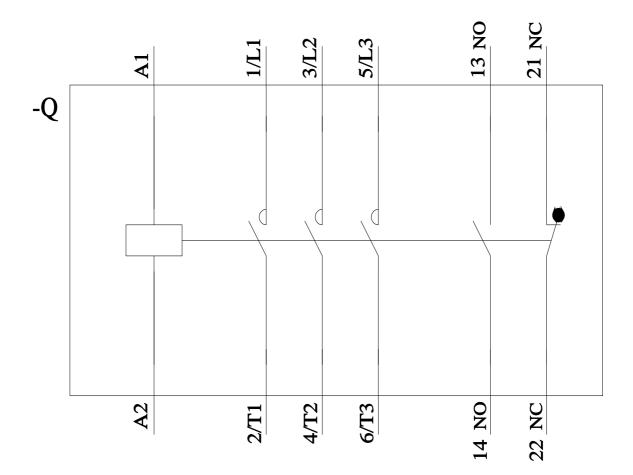
Characteristic: Tripping characteristics, I2t, Let-through current

https://support.industry.siemens.com/cs/ww/en/ps/3RT2037-1AL20/char Further characteristics (e.g. electrical endurance, switching frequency)









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