3RT2038-3XB40-0LA2

## **Data sheet**



traction contactor, AC-3e/AC-3, 80 A, 37 kW / 400 V, 3-pole, 24 V DC, 0.7-1.25\* Us, electronic drive, with integrated varistor, auxiliary contacts: 1 NO + 1 NC, main circuit: screw terminal, control and auxiliary circuit: spring-loaded terminal, size: S2

product brand name	SIRIUS
product designation	Power contactor
design of the product	With extended operating range
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>	17.1 W
<ul> <li>at AC in hot operating state per pole</li> </ul>	5.7 W
without load current share typical	1 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	
of main circuit rated value	6 kV
of auxiliary circuit rated value	6 kV
maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
• at DC	7.7g / 5 ms, 4.5g / 10 ms
shock resistance with sine pulse	
• at DC	12g / 5 ms, 7g / 10 ms
mechanical service life (operating cycles)	
of contactor typical	10 000 000
<ul> <li>of the contactor with added electronically optimized auxiliary switch block typical</li> </ul>	5 000 000
of the contactor with added auxiliary switch block typical	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>	-40 +70 °C
during storage	-55 +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %
Main circuit	

0101110

number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	
<ul> <li>at AC-3 rated value maximum</li> </ul>	690 V
at AC-3e rated value maximum	690 V
operational current	
• at AC-1 at 400 V at ambient temperature 40 °C rated	90 A
value	
• at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	90 A
— up to 690 V at ambient temperature 60 °C rated value	80 A
at AC-2 at 400 V rated value	80 A
• at AC-3	
— at 400 V rated value	80 A
— at 500 V rated value	80 A
— at 690 V rated value	58 A
• at AC-3e	
— at 400 V rated value	80 A
— at 500 V rated value	80 A
— at 690 V rated value	58 A
at AC-4 at 400 V rated value	55 A
minimum cross-section in main circuit	
at maximum AC-1 rated value	35 mm²
at maximum Ith rated value	35 mm²
operational current for approx. 200000 operating cycles at AC-4	
at 400 V rated value	30 A
at 690 V rated value	24 A
operational current	21/1
• 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	0.207
— 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	
— at 24 V rated value	55 A
— at 110 V rated value	55 A
— at 110 V rated value  — at 220 V rated value	45 A
— at 440 V rated value	2.9 A
— at 440 V rated value  — at 600 V rated value	1.4 A
at 1 current path at DC-3 at DC-5	1.77
— at 24 V rated value	35 A
— at 24 V rated value  — at 110 V rated value	2.5 A
— at 110 v rated value	1 A
— at 220 V rated value	170
— at 220 V rated value	0.1.4
— at 440 V rated value	0.1 A
— at 440 V rated value — at 600 V rated value	0.1 A 0.06 A
<ul> <li>at 440 V rated value</li> <li>at 600 V rated value</li> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul>	0.06 A
<ul> <li>at 440 V rated value</li> <li>at 600 V rated value</li> <li>with 2 current paths in series at DC-3 at DC-5</li> <li>at 24 V rated value</li> </ul>	0.06 A 55 A
<ul> <li>at 440 V rated value</li> <li>at 600 V rated value</li> <li>with 2 current paths in series at DC-3 at DC-5</li> <li>at 24 V rated value</li> <li>at 110 V rated value</li> </ul>	0.06 A 55 A 25 A
<ul> <li>at 440 V rated value</li> <li>at 600 V rated value</li> <li>with 2 current paths in series at DC-3 at DC-5</li> <li>at 24 V rated value</li> <li>at 110 V rated value</li> <li>at 220 V rated value</li> </ul>	0.06 A 55 A 25 A 5 A
<ul> <li>at 440 V rated value</li> <li>at 600 V rated value</li> <li>with 2 current paths in series at DC-3 at DC-5</li> <li>at 24 V rated value</li> <li>at 110 V rated value</li> </ul>	0.06 A 55 A 25 A

— 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	
<ul> <li>at AC-2 at 400 V rated value</li> </ul>	37 kW
• at AC-3	
— at 230 V rated value	22 kW
— at 400 V rated value	37 kW
— at 500 V rated value	37 kW
— at 690 V rated value	45 kW
• at AC-3e	
— at 230 V rated value	22 kW
— at 400 V rated value	37 kW
— at 500 V rated value	37 kW
— at 690 V rated value	45 kW
operating power for approx. 200000 operating cycles at AC-	
4	
• at 400 V rated value	15.8 kW
at 690 V rated value	21.8 kW
short-time withstand current in cold operating state up to 40 °C	
• limited to 1 s switching at zero current maximum	1 298 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 5 s switching at zero current maximum</li> </ul>	898 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 10 s switching at zero current maximum</li> </ul>	640 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 30 s switching at zero current maximum</li> </ul>	414 A; Use minimum cross-section acc. to AC-1 rated value
<ul> <li>limited to 60 s switching at zero current maximum</li> </ul>	333 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
• at DC	1 500 1/h
operating frequency	
• at AC-2 at AC-3e maximum	350 1/h
• at AC-4 maximum	150 1/h
Ratings for railway applications	100 1/11
-	
thermal current (Ith) up to 690 V  • up to 40 °C according to IEC 60077 rated value	90 A
· · · · · · · · · · · · · · · · · · ·	
up to 70 °C according to IEC 60077 rated value	75 A
Control circuit/ Control	
type of voltage	
	DC
type of voltage of the control supply voltage	DC DC
	DC
type of voltage of the control supply voltage control supply voltage at DC • rated value	
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC	DC 24 V
type of voltage of the control supply voltage control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value	DC 24 V 0.7
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC	DC 24 V
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value	DC 24 V 0.7
type of voltage of the control supply voltage control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value	DC 24 V 0.7 1.25
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor	DC  24 V  0.7  1.25  with varistor
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak	DC 24 V  0.7 1.25 with varistor 3 A
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak	DC  24 V  0.7  1.25  with varistor  3 A  50 μs
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value	DC  24 V  0.7 1.25 with varistor 3 A 50 μs 1 A
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value  locked-rotor current peak	DC  24 V  0.7  1.25  with varistor  3 A  50 μs  1 A  2.6 A
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value  locked-rotor current peak  duration of locked-rotor current	DC  24 V  0.7  1.25  with varistor  3 A  50 μs  1 A  2.6 A  230 ms
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value  locked-rotor current peak  duration of locked-rotor current  holding current mean value	DC  24 V  0.7  1.25  with varistor  3 A  50 μs  1 A  2.6 A  230 ms  40 mA
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value  locked-rotor current peak  duration of locked-rotor current  holding current mean value  closing power of magnet coil at DC	DC  24 V  0.7  1.25  with varistor  3 A  50 μs  1 A  2.6 A  230 ms  40 mA  23 W
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value  locked-rotor current peak  duration of locked-rotor current  holding current mean value  closing power of magnet coil at DC  holding power of magnet coil at DC	DC  24 V  0.7  1.25  with varistor  3 A  50 μs  1 A  2.6 A  230 ms  40 mA  23 W
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value  locked-rotor current peak  duration of locked-rotor current  holding current mean value  closing power of magnet coil at DC  holding power of magnet coil at DC  closing delay	DC  24 V  0.7  1.25  with varistor  3 A  50 μs  1 A  2.6 A  230 ms  40 mA  23 W  1 W
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value  locked-rotor current peak  duration of locked-rotor current  holding current mean value  closing power of magnet coil at DC  holding power of magnet coil at DC  closing delay  • at DC	DC  24 V  0.7  1.25  with varistor  3 A  50 μs  1 A  2.6 A  230 ms  40 mA  23 W  1 W
type of voltage of the control supply voltage  control supply voltage at DC  • rated value  operating range factor control supply voltage rated value of magnet coil at DC  • initial value  • full-scale value  design of the surge suppressor  inrush current peak  duration of inrush current peak  locked-rotor current mean value  locked-rotor current peak  duration of locked-rotor current  holding current mean value  closing power of magnet coil at DC  holding power of magnet coil at DC  closing delay  • at DC  opening delay	DC  24 V  0.7  1.25  with varistor  3 A  50 μs  1 A  2.6 A  230 ms  40 mA  23 W  1 W  35 110 ms

Auxiliary circuit	
number of NC contacts for auxiliary contacts	1
instantaneous contact	1
number of NO contacts for auxiliary contacts	1
• instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
at 230 V rated value	10 A
at 400 V rated value	3 A
at 500 V rated value	2 A
at 690 V rated value	1A
operational current at DC-12	
at 24 V rated value	10 A
at 48 V rated value	6 A
at 60 V rated value	6 A
at 110 V rated value	3 A
at 115 V rated value     at 125 V rated value	2 A
at 123 V rated value     at 220 V rated value	1A
at 600 V rated value	0.15 A
operational current at DC-13	0.1071
• at 24 V rated value	10 A
at 48 V rated value     at 48 V rated value	2 A
at 46 V rated value     at 60 V rated value	2 A
at 10 V rated value     at 110 V rated value	1A
at 115 V rated value     at 125 V rated value	0.9 A
at 123 V rated value     at 220 V rated value	0.3 A
at 600 V rated value	0.1 A
UL/CSA ratings	0.17
full-load current (FLA) for 3-phase AC motor	
at 480 V rated value	65 A
at 600 V rated value     at 600 V rated value	62 A
yielded mechanical performance [hp]	02 A
<ul><li>for single-phase AC motor</li><li>— at 110/120 V rated value</li></ul>	5 hn
— at 230 V rated value	5 hp 15 hp
• for 3-phase AC motor	10 πρ
— at 200/208 V rated value	20 hp
— at 220/230 V rated value	25 hp
— at 460/480 V rated value — at 575/600 V rated value	50 hp
— at 575/000 V rated value  contact rating of auxiliary contacts according to UL	60 hp A600 / P600
	A000 / P000
Short-circuit protection	No
product function short circuit protection	No
design of the fuse link	
for short-circuit protection of the main circuit  with two of coordination 1 required.	aC: 250 A (600 V 400 kA) aM: 460 A (600 V 400 kA) D000, 000 A (445 V 00
— with type of coordination 1 required	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: 160A (690V,100kA), aM: 80A (690V,100kA), BS88: 125A (415V,80kA)
for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and
	backward by +/- 22.5° on vertical mounting surface
fastening method	screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715
side-by-side mounting	Yes
height	114 mm
width	55 mm
depth	130 mm
required spacing	
• with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm

	40
— downwards	10 mm
— at the side	0 mm
for grounded parts	
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards	10 mm
• for live parts	
— 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>	spring-loaded terminals
<ul> <li>at contactor for auxiliary contacts</li> </ul>	Spring-type terminals
of magnet coil	Spring-type terminals
type of connectable conductor cross-sections for main contacts	
<ul> <li>solid or stranded</li> </ul>	2x (1 35 mm²), 1x (1 50 mm²)
finely stranded with core end processing	2x (1 25 mm²), 1x (1 35 mm²)
type of connectable conductor cross-sections	
<ul> <li>for auxiliary contacts</li> </ul>	
<ul><li>— solid or stranded</li></ul>	2x (0.5 2.5 mm²)
<ul> <li>finely stranded with core end processing</li> </ul>	2x (0.5 1.5 mm²)
<ul> <li>finely stranded without core end processing</li> </ul>	2x (0.5 2.5 mm²)
for AWG cables for auxiliary contacts	2x (20 14)
AWG number as coded connectable conductor cross section	
<ul> <li>for main contacts</li> </ul>	18 1
<ul> <li>for auxiliary contacts</li> </ul>	20 14
Safety related data	
product function	
<ul> <li>mirror contact according to IEC 60947-4-1</li> </ul>	Yes
<ul> <li>positively driven operation according to IEC 60947-5-1</li> </ul>	No
B10 value with high demand rate according to SN 31920	1 000 000
proportion of dangerous failures	
<ul> <li>with low demand rate according to SN 31920</li> </ul>	40 %
<ul> <li>with high demand rate according to SN 31920</li> </ul>	73 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
T1 value for proof test interval or service life according to IEC 61508	20 a
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
Communication/ Protocol	
product function bus communication	No
Certificates/ approvals	

## **General Product Approval**



Confirmation





<u>KC</u>



Functional  EMC Safety/Safety of Machinery Declaration of Conformity Test Certificates	
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# Type Examination Certificate





Special Test Certificate

Type Test Certificates/Test Report

### Marine / Shipping













other Railway Environment

 Confirmation
 Special Test Certificate
 Vibration and Shock ate
 Type Test Certificates/Test Report
 Environmental Confirmations

#### Further information

Siemens has decided to exit the Russian market (see here).

https://press.siemens.com/global/en/pressrelease/siemens-wind-down-russian-business

Siemens is working on the renewal of the current EAC certificates.

Please contact your local Siemens office on the status of validity of the EAC certification if you intend to import or offer to supply these products to an EAC relevant market (other than the sanctioned EAEU member states Russia or Belarus).

Information on the packaging

https://support.industry.siemens.com/cs/ww/en/view/109813875

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=3RT2038-3XB40-0LA2

Cax online generator

 $\underline{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RT2038-3XB40-0LA2$ 

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-3XB40-0LA2

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

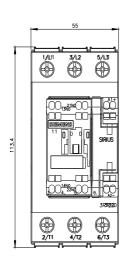
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT2038-3XB40-0LA2&lang=en

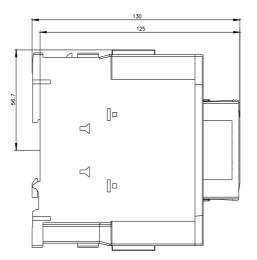
Characteristic: Tripping characteristics, I2t, Let-through current

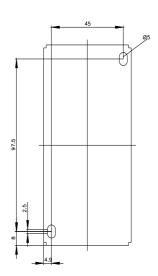
https://support.industry.siemens.com/cs/ww/en/ps/3RT2038-3XB40-0LA2/char

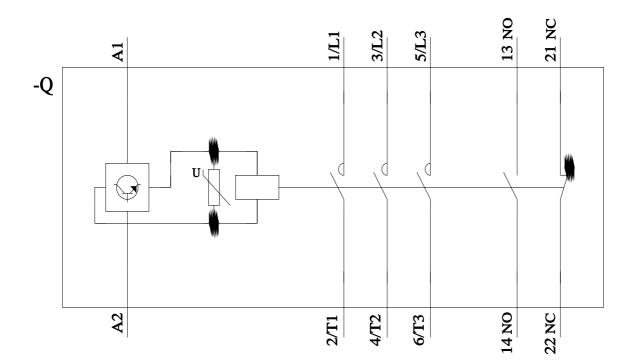
Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2038-3XB40-0LA2&objecttype=14&gridview=view1









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