## **SIEMENS**

Data sheet 3RT1066-6AR36



power contactor, AC-3e/AC-3 300 A, 160 kW / 400 V, AC (50-60 Hz) / DC Uc: 440-480 V 3-pole, auxiliary contacts 2 NO + 2 NC drive: conventional main circuit: busbar control and auxiliary circuit: screw terminal

| product brand name   | SIRIUS                     |
|--|----------------------------|
| product designation  | Power contactor            |
| product type designation   | 3RT1                       |
| General technical data   |                            |
| size of contactor  | S10                        |
| 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>   | 66 W                       |
| <ul> <li>at AC in hot operating state per pole</li> </ul>  | 22 W                       |
| <ul> <li>without load current share typical</li> </ul>   | 7.4 W                      |
| insulation voltage   |                            |
| <ul> <li>of main circuit with degree of pollution 3 rated value</li> </ul>                                   | 1 000 V                    |
| <ul> <li>of auxiliary circuit with degree of pollution 3 rated value</li> </ul>                              | 500 V                      |
| surge voltage resistance   |                            |
| of main circuit rated value  | 8 kV                       |
| of auxiliary circuit rated value   | 6 kV                       |
| maximum permissible voltage for protective separation between coil and main contacts according to EN 60947-1 | 690 V                      |
| shock resistance at rectangular impulse  |                            |
| • at AC  | 8,5g / 5 ms, 4,2g / 10 ms  |
| • at DC  | 8,5g / 5 ms, 4,2g / 10 ms  |
| shock resistance with sine pulse   |                            |
| • at AC  | 13,4g / 5 ms, 6,5g / 10 ms |
| • at DC  | 13,4g / 5 ms, 6,5g / 10 ms |
| mechanical service life (operating cycles)   |                            |
| <ul> <li>of contactor typical</li> </ul>   | 10 000 000                 |
| <ul> <li>of the contactor with added electronically optimized<br/>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)  | 05/01/2012                 |
| SVHC substance name  | Blei - 7439-92-1           |
| Ambient conditions   |                            |
| installation altitude at height above sea level maximum  | 2 000 m                    |
| ambient temperature  |                            |
| <ul> <li>during operation</li> </ul>   | -25 +60 °C                 |
| during storage   | -55 +80 °C                 |
| relative humidity minimum  | 10 %                       |
| relative humidity at 55 °C according to IEC 60068-2-30   | 95 %                       |

| maximum   |                |
|---|----------------|
| Environmental footprint   |                |
| Environmental Product Declaration(EPD)  | Yes            |
| Global Warming Potential [CO2 eq] total   | 580 kg         |
| Global Warming Potential [CO2 eq] during manufacturing  | 26.3 kg        |
| Global Warming Potential [CO2 eq] during mandiacturing  | 559 kg         |
| Global Warming Potential [CO2 eq] after end of life   | -4.89 kg       |
| Main circuit  |                |
| number of poles for main current circuit  | 3              |
| number of NO contacts for main contacts   | 3              |
| operating voltage   |                |
| at AC-3 rated value maximum   | 1 000 V        |
| • at AC-3e rated value maximum  | 1 000 V        |
| operational current   |                |
| • at AC-1 at 400 V at ambient temperature 40 °C rated value   | 330 A          |
| <ul> <li>at AC-1         — up to 690 V at ambient temperature 40 °C rated value     </li> </ul>                                 | 330 A          |
| — up to 690 V at ambient temperature 60 °C rated value  | 300 A          |
| — up to 1000 V at ambient temperature 40 °C rated value   | 150 A          |
| <ul> <li>up to 1000 V at ambient temperature 60 °C rated value</li> <li>at AC-3</li> </ul>                                      | 150 A          |
| — at 400 V rated value  | 300 A          |
| — at 500 V rated value  | 300 A          |
| — at 690 V rated value  | 280 A          |
| — at 1000 V rated value   | 95 A           |
| • at AC-3e  |                |
| — at 400 V rated value  | 300 A          |
| — at 500 V rated value  | 300 A          |
| — at 690 V rated value  | 280 A          |
| — at 1000 V rated value   | 95 A           |
| • at AC-4 at 400 V rated value  | 280 A          |
| • at AC-5a up to 690 V rated value  | 290 A          |
| at AC-5b up to 400 V rated value  | 249 A          |
| • at AC-6a  | 000.4          |
| — up to 230 V for current peak value n=20 rated value   | 292 A          |
| — up to 400 V for current peak value n=20 rated value   | 292 A          |
| — up to 500 V for current peak value n=20 rated value   | 292 A<br>280 A |
| <ul> <li>up to 690 V for current peak value n=20 rated value</li> <li>up to 1000 V for current peak value n=20 rated</li> </ul> | 280 A<br>95 A  |
| value   | 0071           |
| • at AC-6a  |                |
| — up to 230 V for current peak value n=30 rated value   | 195 A          |
| — up to 400 V for current peak value n=30 rated value   | 195 A          |
| — up to 500 V for current peak value n=30 rated value   | 195 A          |
| — up to 690 V for current peak value n=30 rated value   | 195 A          |
| — up to 1000 V for current peak value n=30 rated value  | 95 A           |
| minimum cross-section in main circuit at maximum AC-1 rated value   | 185 mm²        |
| operational current for approx. 200000 operating cycles at AC-4   |                |
| at 400 V rated value  | 125 A          |
| at 690 V rated value  | 115 A          |
| operational current   |                |
| <ul> <li>at 1 current path at DC-1</li> <li>at 24 V rated value</li> </ul>  | 300 A          |
| — at 24 V rated value  — at 60 V rated value  | 300 A          |
| — at 100 V rated value  — at 110 V rated value  | 33 A           |
| — at 110 v rateu value  | 00 A           |

| — at 220 V rated value   | 3.8 A       |
|--|-------------|
| — at 440 V rated value   | 0.9 A       |
| — at 600 V rated value   | 0.6 A       |
| <ul> <li>with 2 current paths in series at DC-1</li> </ul>         |             |
| — at 24 V rated value  | 300 A       |
| — at 60 V rated value  | 300 A       |
| — at 110 V rated value   | 300 A       |
| — at 220 V rated value   | 300 A       |
| — at 440 V rated value   | 4 A         |
| — at 600 V rated value   | 2 A         |
| <ul> <li>with 3 current paths in series at DC-1</li> </ul>         |             |
| — at 24 V rated value  | 300 A       |
| — at 60 V rated value  | 300 A       |
| — at 110 V rated value   | 300 A       |
| — at 220 V rated value   | 300 A       |
| — at 440 V rated value   | 11 A        |
| — at 600 V rated value   | 5.2 A       |
| • at 1 current path at DC-3 at DC-5                                |             |
| — at 24 V rated value  | 300 A       |
| — at 60 V rated value  | 11 A        |
| — at 220 V rated value   | 0.6 A       |
| — at 440 V rated value   | 0.18 A      |
| — at 600 V rated value   | 0.125 A     |
| <ul> <li>with 2 current paths in series at DC-3 at DC-5</li> </ul> |             |
| — at 24 V rated value  | 300 A       |
| — at 60 V rated value  | 300 A       |
| — at 110 V rated value   | 300 A       |
| — at 220 V rated value   | 2.5 A       |
| — at 440 V rated value   | 0.65 A      |
| — at 600 V rated value   | 0.37 A      |
| <ul> <li>with 3 current paths in series at DC-3 at DC-5</li> </ul> |             |
| — at 24 V rated value  | 300 A       |
| — at 60 V rated value  | 300 A       |
| — at 110 V rated value   | 300 A       |
| — at 220 V rated value   | 300 A       |
| — at 440 V rated value   | 1.4 A       |
| — at 600 V rated value   | 0.75 A      |
| operating power  |             |
| • at AC-3  |             |
| — at 230 V rated value   | 90 kW       |
| — at 400 V rated value   | 160 kW      |
| — at 500 V rated value   | 200 kW      |
| — at 690 V rated value   | 250 kW      |
| — at 1000 V rated value  | 132 kW      |
| • at AC-3e   | 00.1144     |
| — at 230 V rated value   | 90 kW       |
| — at 400 V rated value   | 160 kW      |
| — at 500 V rated value   | 200 kW      |
| — at 690 V rated value   | 250 kW      |
| — at 1000 V rated value  | 132 kW      |
| operating power for approx. 200000 operating cycles at AC-         |             |
| at 400 V rated value   | 71 kW       |
| at 690 V rated value   | 112 kW      |
| operating apparent power at AC-6a                                  |             |
| up to 230 V for current peak value n=20 rated value                | 110 000 kVA |
| up to 400 V for current peak value n=20 rated value                | 200 000 VA  |
| up to 500 V for current peak value n=20 rated value                | 250 000 VA  |
| up to 690 V for current peak value n=20 rated value                | 330 000 VA  |
| up to 1000 V for current peak value n=20 rated value               | 160 000 VA  |
| operating apparent power at AC-6a                                  |             |
| i v Virri v irinitation and  |             |

| <ul> <li>up to 230 V for current peak value n=30 rated value</li> </ul>                         | 70 000 VA   |
|---|---|
| <ul> <li>up to 400 V for current peak value n=30 rated value</li> </ul>                         | 130 000 VA  |
| • up to 500 V for current peak value n=30 rated value   | 160 000 VA  |
| <ul> <li>up to 690 V for current peak value n=30 rated value</li> </ul>                         | 230 000 VA  |
| <ul> <li>up to 1000 V for current peak value n=30 rated value</li> </ul>                        | 160 000 VA  |
| 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>                            | 5 524 A; Use minimum cross-section acc. to AC-1 rated value |
| Iimited to 5 s switching at zero current maximum  | 4 579 A; Use minimum cross-section acc. to AC-1 rated value |
| limited to 10 s switching at zero current maximum   | 3 153 A; Use minimum cross-section acc. to AC-1 rated value |
| limited to 30 s switching at zero current maximum   | 1 883 A; Use minimum cross-section acc. to AC-1 rated value |
| limited to 60 s switching at zero current maximum   | 1 445 A; Use minimum cross-section acc. to AC-1 rated value |
|   | 1 445 A, OSE MIMIMUM Cross-Section acc. to AC-1 fateu value |
| no-load switching frequency  • at AC  | 2 000 1/h   |
| • at DC   | 2 000 1/h   |
|   | 2 000 1/11  |
| operating frequency   | 750.4%  |
| • at AC-1 maximum   | 750 1/h   |
| • at AC-2 maximum   | 250 1/h   |
| • at AC-3 maximum   | 500 1/h   |
| • at AC-3e maximum  | 500 1/h   |
| at AC-4 maximum   | 130 1/h   |
| Control circuit/ Control  |   |
| type of voltage of the control supply voltage   | AC/DC   |
| control supply voltage at AC  |   |
| • at 50 Hz rated value  | 440 480 V   |
| at 60 Hz rated value  | 440 480 V   |
| control supply voltage at DC rated value  |   |
| •   | 440 480 V   |
| operating range factor control supply voltage rated value of                                    |   |
| magnet coil at DC   |   |
| • initial value   | 0.8   |
| full-scale value  | 1.1   |
| operating range factor control supply voltage rated value of magnet coil at AC                  |   |
| ● at 50 Hz  | 0.8 1.1   |
| ● at 60 Hz  | 0.8 1.1   |
| design of the surge suppressor  | with varistor   |
| apparent pick-up power  |   |
| <ul> <li>at minimum rated control supply voltage at AC</li> </ul>                               |   |
| — at 50 Hz  | 490 VA  |
| — at 60 Hz  | 490 VA  |
| <ul> <li>at maximum rated control supply voltage at AC</li> </ul>                               |   |
| — at 60 Hz  | 590 VA  |
| — at 50 Hz  | 590 VA  |
| apparent pick-up power of magnet coil at AC   |   |
| • at 50 Hz  | 590 VA  |
| • at 60 Hz  | 590 VA  |
| inductive power factor with closing power of the coil   |   |
| • at 50 Hz  | 0.9   |
| • at 60 Hz  | 0.9   |
| apparent holding power  |   |
| at minimum rated control supply voltage at DC   | 6.1 VA  |
| at minimum rated control supply voltage at DC     at maximum rated control supply voltage at DC | 7.4 VA  |
| · · · · · ·   | 1.7 VA  |
| apparent holding power  |   |
| at minimum rated control supply voltage at AC   | FCVA  |
| — at 50 Hz  | 5.6 VA  |
| — at 60 Hz  | 5.6 VA  |
| <ul> <li>at maximum rated control supply voltage at AC</li> </ul>                               |   |
| — at 50 Hz  | 6.7 VA  |
| — at 60 Hz  | 6.7 VA  |
| inductive power factor with the holding power of the coil                                       |   |
| ● at 50 Hz  | 0.9   |

| ● at 60 Hz   | 0.9  |
|--|--|
| closing power of magnet coil at DC                                 | 650 W  |
| holding power of magnet coil at DC                                 | 7.4 W  |
| closing delay  |  |
| • at AC  | 30 95 ms   |
| • at DC  | 30 95 ms   |
| opening delay  |  |
| • at AC  | 40 80 ms   |
| • at DC  | 40 80 ms   |
| arcing time  | 10 15 ms   |
| control version of the switch operating mechanism                  | Standard A1 - A2   |
| Auxiliary circuit  |  |
| number of NC contacts for auxiliary contacts instantaneous contact | 2  |
| number of NO contacts for auxiliary contacts instantaneous contact | 2  |
| operational current at AC-12 maximum                               | 10 A   |
| operational current at AC-15                                       |  |
| at 230 V rated value   | 6 A  |
| at 400 V rated value   | 3 A  |
| at 500 V rated value   | 2 A  |
| at 690 V rated value   | 1 A  |
| 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 125 V rated value   | 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 60 V rated value  | 2 A  |
| at 110 V rated value   | 1 A  |
| at 125 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   | ridaily difficulting par 100 million (17 V, 1 milly)   |
| full-load current (FLA) for 3-phase AC motor                       |  |
| at 480 V rated value   | 302 A  |
| at 600 V rated value   | 289 A  |
| yielded mechanical performance [hp]                                |  |
| • for 3-phase AC motor   |  |
| — at 200/208 V rated value   | 100 hp   |
| — at 220/230 V rated value   | 125 hp   |
| — at 460/480 V rated value   | 250 hp   |
| — at 575/600 V rated value   | 300 hp   |
| contact rating of auxiliary contacts according to UL               | A600 / Q600  |
| Short-circuit protection   |  |
| design of the fuse link  |  |
| for short-circuit protection of the main circuit                   |  |
| with type of coordination 1 required                               | gG: 500 A (690 V, 100 kA)  |
| with type of assignment 2 required                                 | gG: 400 A (690 V, 100 kA), aM: 315 A (690 V, 50 kA), BS88: 400 A (415 V, 50  |
|  | kA)  |
| for short-circuit protection of the auxiliary switch required      | gG: 10 A (500 V, 1 kA)   |
| Installation/ mounting/ dimensions                                 |  |
| mounting position  | with vertical mounting surface +/-90° rotatable, with vertical mounting surface +/- 22.5° tiltable to the front and back |
| fastening method   | screw fixing   |
|  |  |

| fastening method side-by-side mounting   |  |
|--|--|
| height   | 210 mm   |
| width  | 145 mm   |
| depth  | 202 mm   |
| required spacing   |  |
| <ul><li>with side-by-side mounting</li></ul>   |  |
| — forwards   | 20 mm  |
| — upwards  | 10 mm  |
| — downwards  | 10 mm  |
| — at the side  | 0 mm   |
| <ul> <li>for grounded parts</li> </ul>   |  |
| — forwards   | 20 mm  |
| — upwards  | 10 mm  |
| — at the side  | 10 mm  |
| — downwards  | 10 mm  |
| • for live parts   |  |
| — forwards   | 20 mm  |
| — upwards  | 10 mm  |
| — downwards  | 10 mm  |
| — at the side  | 10 mm  |
| Connections/ Terminals   |  |
| type of electrical connection  |  |
| for main current circuit   | Connection bar   |
| for auxiliary and control circuit  | screw-type terminals   |
| at contactor for auxiliary contacts  | Screw-type terminals   |
| of magnet coil   | Screw-type terminals   |
| width of connection bar  | 25 mm  |
| thickness of connection bar  | 6 mm   |
| diameter of holes  | 11 mm  |
|  |  |
| number of holes  | 1  |
| type of connectable conductor cross-sections   | 0/0 500  |
| for AWG cables for main contacts   | 2/0 500 kcmil  |
| connectable conductor cross-section for main contacts                                  | <b>T</b>   |
| • stranded   | 70 240 mm²   |
| connectable conductor cross-section for auxiliary contacts                             |  |
| solid or stranded  | 0.5 4 mm <sup>2</sup>  |
| finely stranded with core end processing   | 0.5 2.5 mm²  |
| type of connectable conductor cross-sections   |  |
| for auxiliary contacts   |  |
| — solid  | 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²), max. 2x (0.75 4 mm²)                |
| — solid or stranded  | 2x (0,5 1,5 mm²), 2x (0,75 2,5 mm²), max. 2x (0,75 4 mm²)                |
| <ul> <li>finely stranded with core end processing</li> </ul>                           | 2x (0.5 1.5 mm²), 2x (0.75 2.5 mm²)                                      |
| for AWG cables for auxiliary contacts  | 2x (20 16), 2x (18 14), 1x 12  |
| AWG number as coded connectable conductor cross  |  |
| section  | 40 44  |
| for auxiliary contacts   | 18 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   |
| suitability for use safety-related switching OFF                                       | Yes; applies only to contactor operating mechanism                       |
| B10 value with high demand rate according to SN 31920                                  | 1 000 000  |
| IEC 61508  |  |
| T1 value   |  |
| <ul> <li>for proof test interval or service life according to IEC<br/>61508</li> </ul> | 20 a   |
| Electrical Safety  |  |
| protection class IP on the front according to IEC 60529                                | IP00; IP20 with box terminal/cover                                       |
| touch protection on the front according to IEC 60529                                   | finger-safe, for vertical contact from the front with box terminal/cover |
| Approvals Certificates   |  |
|  |  |













**General Product Approval** 

**Functional Saftey** 

**Test Certificates** 

Marine / Shipping

<u>KC</u>



Type Examination Certificate

Special Test Certific-<u>ate</u>

Type Test Certificates/Test Report



Marine / Shipping









Confirmation

other

**Miscellaneous** 

other

Railway

**Environment** 

Confirmation

**Miscellaneous** 

Special Test Certificate

EPD Typ II/III (with life cylce assessment)

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=3RT1066-6AR36

Cax online generator

 $\underline{\text{http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en\&mlfb=3RT1066-6AR36}$ 

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

https://support.industry.siemens.com/cs/ww/en/ps/3RT1066-6AR36

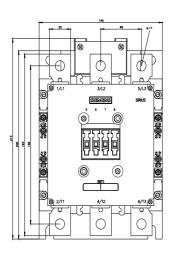
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

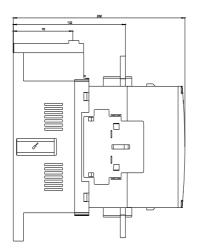
http://www.automation.siemens.com/bilddb/cax\_de.aspx?mlfb=3RT1066-6AR36&lang=en

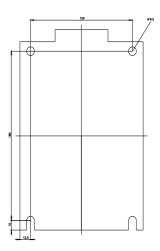
Characteristic: Tripping characteristics, I2t, Let-through current

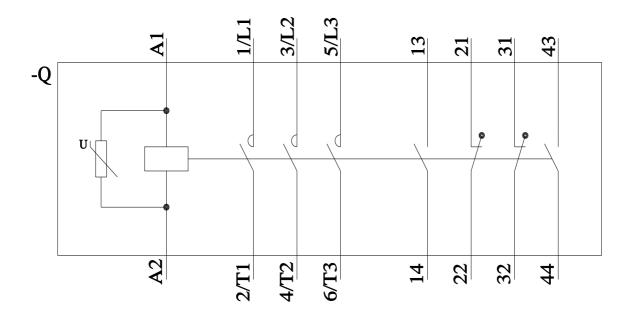
https://support.industry.siemens.com/cs/ww/en/ps/3RT1066-6AR36/char

Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT1066-6AR36&objecttype=14&gridview=view1









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