

CONTACTOR, AC-3, 18.5KW/400V, 1NO+1NC, AC 230V 50/60HZ, 3-POLE, SZ S0 SPRING-LOADED TERMINAL



|                                                     |                 |
|-----------------------------------------------------|-----------------|
| product brandname                                   | SIRIUS          |
| Product designation                                 | Power contactor |
| Product type designation                            | 3RT2            |
| General technical data                              |                 |
| Size of contactor                                   | S0              |
| Product extension                                   |                 |
| • function module for communication                 | No              |
| • Auxiliary switch                                  | Yes             |
| Insulation voltage                                  |                 |
| • rated value                                       | 690 V           |
| Degree of pollution                                 | 3               |
| Surge voltage resistance rated value                | 6 kV            |
| maximum permissible voltage for safe isolation      |                 |
| • between coil and main contacts acc. to EN 60947-1 | 400 V           |
| Protection class IP                                 |                 |
| • on the front                                      | IP20            |
| • of the terminal                                   | IP20            |
| Shock resistance at rectangular impulse             |                 |

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
| • at AC                                                                             | 8,3g / 5 ms, 5,3g / 10 ms  |
| <b>Shock resistance with sine pulse</b>                                             |                            |
| • at AC                                                                             | 13,5g / 5 ms, 8,3g / 10 ms |
| <b>Mechanical service life (switching cycles)</b>                                   |                            |
| • of contactor typical                                                              | 10 000 000                 |
| • of the contactor with added electronics-compatible auxiliary switch block typical | 5 000 000                  |
| • of the contactor with added auxiliary switch block typical                        | 10 000 000                 |

#### Ambient conditions

|                            |                |
|----------------------------|----------------|
| <b>Ambient temperature</b> |                |
| • during operation         | -25 ... +60 °C |
| • during storage           | -55 ... +80 °C |

#### Main circuit

|                                                                      |                    |
|----------------------------------------------------------------------|--------------------|
| <b>Number of poles for main current circuit</b>                      | 3                  |
| <b>Number of NO contacts for main contacts</b>                       | 3                  |
| <b>Operating voltage</b>                                             |                    |
| • at AC-3 rated value maximum                                        | 690 V              |
| <b>Operating current</b>                                             |                    |
| • at AC-1 at 400 V                                                   |                    |
| — at ambient temperature 40 °C rated value                           | 50 A               |
| • at AC-1                                                            |                    |
| — up to 690 V at ambient temperature 40 °C rated value               | 50 A               |
| — up to 690 V at ambient temperature 60 °C rated value               | 42 A               |
| • at AC-2 at 400 V rated value                                       | 38 A               |
| • at AC-3                                                            |                    |
| — at 400 V rated value                                               | 38 A               |
| — at 500 V rated value                                               | 32 A               |
| — at 690 V rated value                                               | 21 A               |
| <b>Connectable conductor cross-section in main circuit at AC-1</b>   |                    |
| • at 60 °C minimum permissible                                       | 10 mm <sup>2</sup> |
| • at 40 °C minimum permissible                                       | 10 mm <sup>2</sup> |
| <b>Operating current for approx. 200000 operating cycles at AC-4</b> |                    |
| • at 400 V rated value                                               | 12 A               |
| • at 690 V rated value                                               | 12 A               |
| <b>Operating current</b>                                             |                    |
| • at 1 current path at DC-1                                          |                    |
| — at 24 V rated value                                                | 35 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                            | 35 A    |
| — at 110 V rated value                           | 35 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                            | 35 A    |
| — at 110 V rated value                           | 35 A    |
| — at 220 V rated value                           | 35 A    |
| — at 440 V rated value                           | 2.9 A   |
| — at 600 V rated value                           | 1.4 A   |
| <b>Operating current</b>                         |         |
| • at 1 current path at DC-3 at DC-5              |         |
| — at 24 V rated value                            | 20 A    |
| — at 110 V rated value                           | 2.5 A   |
| — at 220 V rated value                           | 1 A     |
| — at 440 V rated value                           | 0.09 A  |
| — at 600 V rated value                           | 0.06 A  |
| • with 2 current paths in series at DC-3 at DC-5 |         |
| — at 24 V rated value                            | 35 A    |
| — at 110 V rated value                           | 15 A    |
| — at 220 V rated value                           | 3 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 |         |
| — at 24 V rated value                            | 35 A    |
| — at 110 V rated value                           | 35 A    |
| — at 220 V rated value                           | 10 A    |
| — at 440 V rated value                           | 0.6 A   |
| — at 600 V rated value                           | 0.6 A   |
| <b>Operating power</b>                           |         |
| • at AC-1                                        |         |
| — at 230 V rated value                           | 16 kW   |
| — at 230 V at 60 °C rated value                  | 15.5 kW |
| — at 400 V rated value                           | 28 kW   |
| — at 400 V at 60 °C rated value                  | 27.5 kW |

|                                                                                               |              |
|-----------------------------------------------------------------------------------------------|--------------|
| — at 690 V rated value                                                                        | 48 kW        |
| — at 690 V at 60 °C rated value                                                               | 47.5 kW      |
| • at AC-2 at 400 V rated value                                                                | 18.5 kW      |
| • <b>at AC-3</b>                                                                              |              |
| — at 230 V rated value                                                                        | 11 kW        |
| — at 400 V rated value                                                                        | 18.5 kW      |
| — at 690 V rated value                                                                        | 18.5 kW      |
| <b>Operating power for approx. 200000 operating cycles at AC-4</b>                            |              |
| • at 400 V rated value                                                                        | 6 kW         |
| • at 690 V rated value                                                                        | 10.3 kW      |
| <b>Thermal short-time current limited to 10 s</b>                                             | 304 A        |
| <b>Power loss [W] at AC-3 at 400 V for rated value of the operating current per conductor</b> | 3.8 W        |
| <b>No-load switching frequency</b>                                                            |              |
| • at AC                                                                                       | 5 000 1/h    |
| <b>Operating frequency</b>                                                                    |              |
| • at AC-1 maximum                                                                             | 1 000 1/h    |
| • at AC-2 maximum                                                                             | 750 1/h      |
| • at AC-3 maximum                                                                             | 750 1/h      |
| • at AC-4 maximum                                                                             | 250 1/h      |
| <b>Control circuit/ Control</b>                                                               |              |
| <b>Type of voltage of the control supply voltage</b>                                          | AC           |
| <b>Control supply voltage at AC</b>                                                           |              |
| • at 50 Hz rated value                                                                        | 230 V        |
| • at 60 Hz rated value                                                                        | 230 V        |
| <b>Operating range factor control supply voltage rated value of magnet coil at AC</b>         |              |
| • at 50 Hz                                                                                    | 0.8 ... 1.1  |
| • at 60 Hz                                                                                    | 0.85 ... 1.1 |
| <b>Apparent pick-up power of magnet coil at AC</b>                                            |              |
| • at 50 Hz                                                                                    | 81 V·A       |
| • at 60 Hz                                                                                    | 79 V·A       |
| <b>Inductive power factor with closing power of the coil</b>                                  |              |
| • at 50 Hz                                                                                    | 0.72         |
| • at 60 Hz                                                                                    | 0.74         |
| <b>Apparent holding power of magnet coil at AC</b>                                            |              |
| • at 50 Hz                                                                                    | 10.5 V·A     |
| • at 60 Hz                                                                                    | 8.5 V·A      |
| <b>Inductive power factor with the holding power of the coil</b>                              |              |
| • at 50 Hz                                                                                    | 0.25         |

|                                                                              |              |
|------------------------------------------------------------------------------|--------------|
| • at 60 Hz                                                                   | 0.28         |
| <b>Closing delay</b>                                                         |              |
| • at AC                                                                      | 8 ... 40 ms  |
| <b>Opening delay</b>                                                         |              |
| • at AC                                                                      | 4 ... 16 ms  |
| <b>Arcing time</b>                                                           | 10 ... 10 ms |
| <b>Residual current of the electronics for control with signal &lt;0&gt;</b> |              |
| • at AC at 230 V maximum permissible                                         | 7 mA         |
| • at DC at 24 V maximum permissible                                          | 16 mA        |

#### Auxiliary circuit

|                                                  |                                                 |
|--------------------------------------------------|-------------------------------------------------|
| <b>Number of NC contacts</b>                     |                                                 |
| • for auxiliary contacts                         |                                                 |
| — instantaneous contact                          | 1                                               |
| <b>Number of NO contacts</b>                     |                                                 |
| • for auxiliary contacts                         |                                                 |
| — instantaneous contact                          | 1                                               |
| Operating current at AC-12 maximum               | 10 A                                            |
| <b>Operating current at AC-15</b>                |                                                 |
| • 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                           | 1 A                                             |
| <b>Operating current at DC-12</b>                |                                                 |
| • 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                                          |
| <b>Operating current at DC-13</b>                |                                                 |
| • 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                                           |
| <b>Contact reliability of auxiliary contacts</b> | 1 faulty switching per 100 million (17 V, 1 mA) |

#### UL/CSA ratings

|                                                             |       |
|-------------------------------------------------------------|-------|
| <b>Full-load current (FLA) for three-phase AC motor</b>     |       |
| • at 480 V rated value                                      | 34 A  |
| • at 600 V rated value                                      | 27 A  |
| <b>Yielded mechanical performance [hp]</b>                  |       |
| • for single-phase AC motor                                 |       |
| — at 110/120 V rated value                                  | 3 hp  |
| — at 230 V rated value                                      | 5 hp  |
| • for three-phase AC motor                                  |       |
| — at 200/208 V rated value                                  | 10 hp |
| — at 220/230 V rated value                                  | 10 hp |
| — at 460/480 V rated value                                  | 25 hp |
| — at 575/600 V rated value                                  | 25 hp |
| <b>Contact rating of auxiliary contacts according to UL</b> |       |
| A600 / Q600                                                 |       |

## Short-circuit protection

|                                                                 |                                          |
|-----------------------------------------------------------------|------------------------------------------|
| <b>Design of the fuse link</b>                                  |                                          |
| • for short-circuit protection of the main circuit              |                                          |
| — with type of coordination 1 required                          | gG NH 3NA, DIAZED 5SB, NEOZED 5SE: 125 A |
| — with type of assignment 2 required                            | gG NH 3NA, DIAZED 5SB, NEOZED 5SE: 50 A  |
| • for short-circuit protection of the auxiliary switch required | fuse gG: 10 A                            |

## Installation/ mounting/ dimensions

|                              |                                                                                                                                      |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mounting position</b>     | +/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface |
| <b>Mounting type</b>         | screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715                                               |
| • Side-by-side mounting      | Yes                                                                                                                                  |
| <b>Height</b>                | 102 mm                                                                                                                               |
| <b>Width</b>                 | 45 mm                                                                                                                                |
| <b>Depth</b>                 | 97 mm                                                                                                                                |
| <b>Required spacing</b>      |                                                                                                                                      |
| • with side-by-side mounting |                                                                                                                                      |
| — forwards                   | 0 mm                                                                                                                                 |
| — Backwards                  | 0 mm                                                                                                                                 |
| — upwards                    | 0 mm                                                                                                                                 |
| — downwards                  | 0 mm                                                                                                                                 |
| — at the side                | 0 mm                                                                                                                                 |
| • for grounded parts         |                                                                                                                                      |
| — forwards                   | 0 mm                                                                                                                                 |
| — Backwards                  | 0 mm                                                                                                                                 |
| — upwards                    | 0 mm                                                                                                                                 |
| — at the side                | 6 mm                                                                                                                                 |

|                  |      |
|------------------|------|
| — downwards      | 0 mm |
| • for live parts |      |
| — forwards       | 0 mm |
| — Backwards      | 0 mm |
| — upwards        | 0 mm |
| — downwards      | 0 mm |
| — at the side    | 6 mm |

## Connections/Terminals

|                                                     |                                   |
|-----------------------------------------------------|-----------------------------------|
| <b>Type of electrical connection</b>                |                                   |
| • for main current circuit                          | spring-loaded terminals           |
| • for auxiliary and control current circuit         | spring-loaded terminals           |
| <b>Type of connectable conductor cross-sections</b> |                                   |
| • for main contacts                                 |                                   |
| — solid                                             | 2x (1 ... 10 mm <sup>2</sup> )    |
| — single or multi-stranded                          | 2x (1 ... 10 mm <sup>2</sup> )    |
| — finely stranded with core end processing          | 2x (1 ... 6 mm <sup>2</sup> )     |
| — finely stranded without core end processing       | 2x (1 ... 6 mm <sup>2</sup> )     |
| • at AWG conductors for main contacts               | 2x (18 ... 8)                     |
| <b>Type of connectable conductor cross-sections</b> |                                   |
| • for auxiliary contacts                            |                                   |
| — single or multi-stranded                          | 2x (0,5 ... 2,5 mm <sup>2</sup> ) |
| — finely stranded with core end processing          | 2x (0.5 ... 1.5 mm <sup>2</sup> ) |
| — finely stranded without core end processing       | 2x (0.5 ... 2.5 mm <sup>2</sup> ) |
| • at AWG conductors for auxiliary contacts          | 2x (20 ... 14)                    |

## Safety related data

|                                                                           |             |
|---------------------------------------------------------------------------|-------------|
| <b>B10 value</b>                                                          |             |
| • with high demand rate acc. to SN 31920                                  | 1 000 000   |
| <b>Proportion of dangerous failures</b>                                   |             |
| • with low demand rate acc. to SN 31920                                   | 40 %        |
| • with high demand rate acc. to SN 31920                                  | 73 %        |
| <b>Failure rate [FIT]</b>                                                 |             |
| • with low demand rate acc. to SN 31920                                   | 100 FIT     |
| <b>Product function</b>                                                   |             |
| • Mirror contact acc. to IEC 60947-4-1                                    | Yes         |
| <b>T1 value for proof test interval or service life acc. to IEC 61508</b> | 20 y        |
| <b>Protection against electrical shock</b>                                | finger-safe |

## Certificates/approvals

| General Product Approval | EMC |
|--------------------------|-----|
|--------------------------|-----|



[KC](#)



| Functional Safety/Safety of Machinery | Declaration of Conformity | Test Certificates | Shipping Approval |
|---------------------------------------|---------------------------|-------------------|-------------------|
|---------------------------------------|---------------------------|-------------------|-------------------|

[Type Examination](#)



[Type Test  
Certificates/Test  
Report](#)

[Special Test  
Certificate](#)



| Shipping Approval | other |
|-------------------|-------|
|-------------------|-------|



[Confirmation](#)

| other |
|-------|
|-------|

[Environmental  
Confirmations](#)



## Further information

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

<http://www.siemens.com/industrial-controls/catalogs>

**Industry Mall (Online ordering system)**

<https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RT2028-2AL20>

**Cax online generator**

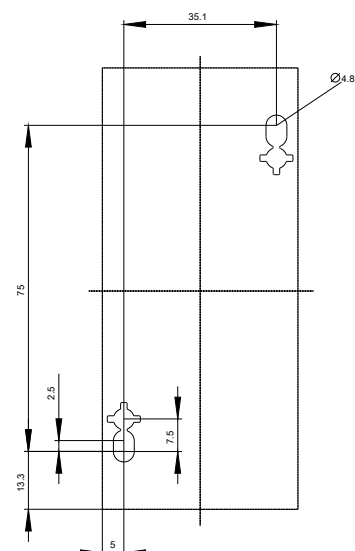
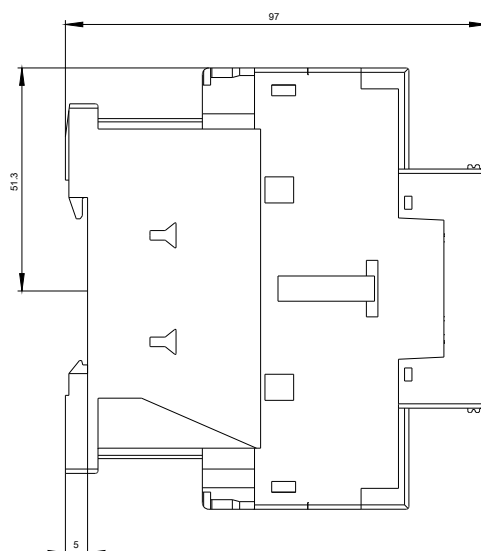
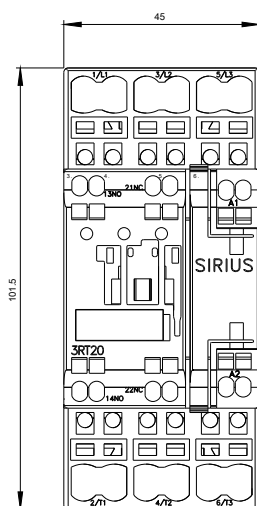
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2028-2AL20>

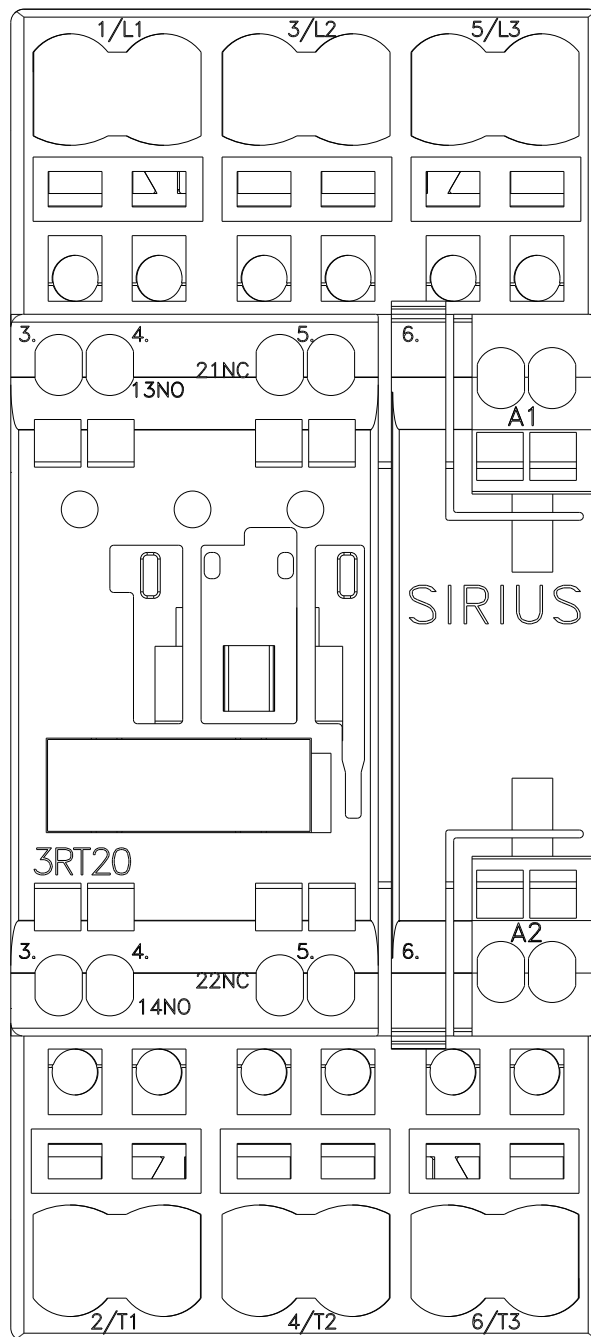
**Service&Support (Manuals, Certificates, Characteristics, FAQs,...)**

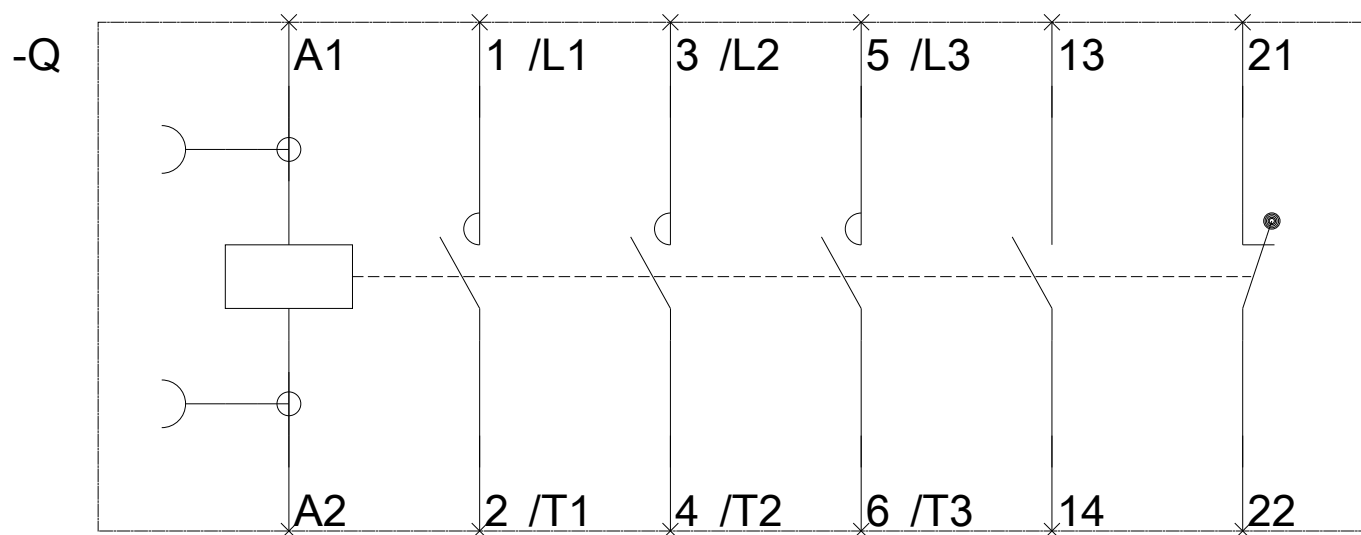
<https://support.industry.siemens.com/cs/ww/en/ps/3RT2028-2AL20>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2028-2AL20&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2028-2AL20&lang=en)







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