



power contactor, AC-3e/AC-3, 9 A, 4 kW / 400 V, 1 NO + 1 NC, 24 V DC with plugged-in diode combination, 3-pole, frame size S0, spring-loaded terminal

|                          |                 |
|--------------------------|-----------------|
| product brand name       | 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                      |
| power loss [W] for rated value of the current                                                         |                          |
| • at AC in hot operating state                                                                        | 0.6 W                    |
| • at AC in hot operating state per pole                                                               | 0.2 W                    |
| • without load current share typical                                                                  | 5.9 W                    |
| insulation voltage                                                                                    |                          |
| • of main circuit with degree of pollution 3 rated value                                              | 690 V                    |
| • of auxiliary circuit with degree of pollution 3 rated value                                         | 690 V                    |
| surge voltage resistance                                                                              |                          |
| • of main circuit rated value                                                                         | 6 kV                     |
| • of auxiliary circuit rated value                                                                    | 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 DC                                                                                               | 10g / 5 ms, 7,5g / 10 ms |
| shock resistance with sine pulse                                                                      |                          |
| • at DC                                                                                               | 15g / 5 ms, 10g / 10 ms  |
| mechanical service life (operating cycles)                                                            |                          |
| • of contactor typical                                                                                | 10 000 000               |
| • of the contactor with added electronically optimized auxiliary switch block typical                 | 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)                                                                         | 10/01/2009               |

### Ambient conditions

|                                                                |                |
|----------------------------------------------------------------|----------------|
| installation altitude at height above sea level maximum        | 2 000 m        |
| ambient temperature                                            |                |
| • during operation                                             | -25 ... +60 °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

|                                                                        |                    |
|------------------------------------------------------------------------|--------------------|
| <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              |
| • at AC-3e rated value maximum                                         | 690 V              |
| <b>operational current</b>                                             |                    |
| • at AC-1 at 400 V at ambient temperature 40 °C rated value            | 40 A               |
| • at AC-1                                                              |                    |
| — up to 690 V at ambient temperature 40 °C rated value                 | 40 A               |
| — up to 690 V at ambient temperature 60 °C rated value                 | 35 A               |
| • at AC-3                                                              |                    |
| — at 400 V rated value                                                 | 9 A                |
| — at 500 V rated value                                                 | 9 A                |
| — at 690 V rated value                                                 | 9 A                |
| • at AC-3e                                                             |                    |
| — at 400 V rated value                                                 | 9 A                |
| — at 500 V rated value                                                 | 9 A                |
| — at 690 V rated value                                                 | 9 A                |
| • at AC-4 at 400 V rated value                                         | 8.5 A              |
| • at AC-5a up to 690 V rated value                                     | 35.2 A             |
| • at AC-5b up to 400 V rated value                                     | 7.4 A              |
| • at AC-6a                                                             |                    |
| — up to 230 V for current peak value n=20 rated value                  | 11.4 A             |
| — up to 400 V for current peak value n=20 rated value                  | 11.4 A             |
| — up to 500 V for current peak value n=20 rated value                  | 9.1 A              |
| — up to 690 V for current peak value n=20 rated value                  | 9 A                |
| • at AC-6a                                                             |                    |
| — up to 230 V for current peak value n=30 rated value                  | 7.6 A              |
| — up to 400 V for current peak value n=30 rated value                  | 7.6 A              |
| — up to 500 V for current peak value n=30 rated value                  | 6.1 A              |
| — up to 690 V for current peak value n=30 rated value                  | 6.1 A              |
| minimum cross-section in main circuit at maximum AC-1 rated value      | 10 mm <sup>2</sup> |
| <b>operational current for approx. 200000 operating cycles at AC-4</b> |                    |
| • at 400 V rated value                                                 | 4.1 A              |
| • at 690 V rated value                                                 | 3.3 A              |
| <b>operational current</b>                                             |                    |
| • <b>at 1 current path at DC-1</b>                                     |                    |
| — 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             |
| • <b>with 2 current paths in series at DC-1</b>                        |                    |
| — 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              |
| • <b>with 3 current paths in series at DC-1</b>                        |                    |
| — 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>at 1 current path at DC-3 at DC-5</b>                              |                                                           |
| — 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                                                    |
| • <b>with 2 current paths in series at DC-3 at DC-5</b>                 |                                                           |
| — 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                                                    |
| • <b>with 3 current paths in series at DC-3 at DC-5</b>                 |                                                           |
| — 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-2 at 400 V rated value                                          | 4 kW                                                      |
| • at AC-3                                                               |                                                           |
| — at 230 V rated value                                                  | 2.2 kW                                                    |
| — at 400 V rated value                                                  | 4 kW                                                      |
| — at 500 V rated value                                                  | 4 kW                                                      |
| — at 690 V rated value                                                  | 7.5 kW                                                    |
| • at AC-3e                                                              |                                                           |
| — at 230 V rated value                                                  | 2.2 kW                                                    |
| — at 400 V rated value                                                  | 4 kW                                                      |
| — at 500 V rated value                                                  | 4 kW                                                      |
| — at 690 V rated value                                                  | 7.5 kW                                                    |
| <b>operating power for approx. 200000 operating cycles at AC-4</b>      |                                                           |
| • at 400 V rated value                                                  | 2 kW                                                      |
| • at 690 V rated value                                                  | 2.5 kW                                                    |
| <b>operating apparent power at AC-6a</b>                                |                                                           |
| • up to 230 V for current peak value n=20 rated value                   | 4.5 kVA                                                   |
| • up to 400 V for current peak value n=20 rated value                   | 7.8 kVA                                                   |
| • up to 500 V for current peak value n=20 rated value                   | 7.8 kVA                                                   |
| • up to 690 V for current peak value n=20 rated value                   | 10.7 kVA                                                  |
| <b>operating apparent power at AC-6a</b>                                |                                                           |
| • up to 230 V for current peak value n=30 rated value                   | 3 kVA                                                     |
| • up to 400 V for current peak value n=30 rated value                   | 5.2 kVA                                                   |
| • up to 500 V for current peak value n=30 rated value                   | 5.2 kVA                                                   |
| • up to 690 V for current peak value n=30 rated value                   | 7.2 kVA                                                   |
| <b>short-time withstand current in cold operating state up to 40 °C</b> |                                                           |
| • limited to 1 s switching at zero current maximum                      | 170 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 5 s switching at zero current maximum                      | 170 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 10 s switching at zero current maximum                     | 140 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 30 s switching at zero current maximum                     | 104 A; Use minimum cross-section acc. to AC-1 rated value |
| • limited to 60 s switching at zero current maximum                     | 88 A; Use minimum cross-section acc. to AC-1 rated value  |
| <b>no-load switching frequency</b>                                      |                                                           |
| • at DC                                                                 | 1 500 1/h                                                 |
| <b>operating frequency</b>                                              |                                                           |
| • at AC-1 maximum                                                       | 1 000 1/h                                                 |
| • at AC-2 maximum                                                       | 1 000 1/h                                                 |
| • at AC-3 maximum                                                       | 1 000 1/h                                                 |
| • at AC-3e maximum                                                      | 1 000 1/h                                                 |
| • at AC-4 maximum                                                       | 300 1/h                                                   |

#### Control circuit/ Control

|                                                      |      |
|------------------------------------------------------|------|
| <b>type of voltage of the control supply voltage</b> | DC   |
| <b>control supply voltage at DC</b>                  |      |
| • rated value                                        | 24 V |

|                                                                                       |                       |
|---------------------------------------------------------------------------------------|-----------------------|
| <b>operating range factor control supply voltage rated value of magnet coil at DC</b> |                       |
| • initial value                                                                       | 0.8                   |
| • full-scale value                                                                    | 1.1                   |
| <b>design of the surge suppressor</b>                                                 | with diode assemblies |
| <b>closing power of magnet coil at DC</b>                                             | 5.9 W                 |
| <b>holding power of magnet coil at DC</b>                                             | 5.9 W                 |
| <b>closing delay</b>                                                                  |                       |
| • at DC                                                                               | 50 ... 170 ms         |
| <b>opening delay</b>                                                                  |                       |
| • at DC                                                                               | 15 ... 18 ms          |
| <b>arcing time</b>                                                                    | 10 ... 10 ms          |
| <b>control version of the switch operating mechanism</b>                              | Standard A1 - A2      |

#### Auxiliary circuit

|                                                                    |                                                 |
|--------------------------------------------------------------------|-------------------------------------------------|
| number of NC contacts for auxiliary contacts instantaneous contact | 1                                               |
| number of NO contacts for auxiliary contacts instantaneous contact | 1                                               |
| operational current at AC-12 maximum                               | 10 A                                            |
| <b>operational 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>operational 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>operational 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 3-phase AC motor</b>         |             |
| • at 480 V rated value                                      | 7.6 A       |
| • at 600 V rated value                                      | 9 A         |
| <b>yielded mechanical performance [hp]</b>                  |             |
| • for single-phase AC motor                                 |             |
| — at 110/120 V rated value                                  | 1 hp        |
| — at 230 V rated value                                      | 1 hp        |
| • for 3-phase AC motor                                      |             |
| — at 200/208 V rated value                                  | 2 hp        |
| — at 220/230 V rated value                                  | 3 hp        |
| — at 460/480 V rated value                                  | 5 hp        |
| — at 575/600 V rated value                                  | 7.5 hp      |
| <b>contact rating of auxiliary contacts according to UL</b> | A600 / P600 |

#### 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: 63A (690V,100kA), aM: 32A (690V,100kA), BS88: 63A (415V,80kA) |
| — with type of assignment 2 required                            | gG: 25A (690V,100kA), aM: 20A (690V,100kA), BS88: 25A (415V,80kA) |
| • for short-circuit protection of the auxiliary switch required | gG: 10 A (500 V, 1 kA)                                            |

#### Installation/ mounting/ dimensions

|                          |                                                                       |
|--------------------------|-----------------------------------------------------------------------|
| <b>mounting position</b> | +/-180° rotation possible on vertical mounting surface; can be tilted |
|--------------------------|-----------------------------------------------------------------------|

**fastening method**

- side-by-side mounting

**height****width****depth****required spacing**

- with side-by-side mounting
  - forwards
  - upwards
  - downwards
  - at the side
- for grounded parts
  - forwards
  - upwards
  - at the side
  - downwards
- for live parts
  - forwards
  - upwards
  - downwards
  - at the side

forward and backward by +/- 22.5° on vertical mounting surface  
screw and snap-on mounting onto 35 mm DIN rail according to DIN EN 60715

Yes

102 mm

45 mm

107 mm

10 mm

10 mm

10 mm

0 mm

10 mm

10 mm

6 mm

10 mm

10 mm

10 mm

10 mm

6 mm

**Connections/ Terminals****type of electrical connection**

- for main current circuit
- for auxiliary and control circuit
- at contactor for auxiliary contacts
- of magnet coil

spring-loaded terminals

spring-loaded terminals

Spring-type terminals

Spring-type terminals

**type of connectable conductor cross-sections**

- for main contacts
  - solid
  - solid or stranded
  - finely stranded with core end processing
  - finely stranded without core end processing
- at AWG cables for main contacts

2x (1 ... 10 mm<sup>2</sup>)

2x (1 ... 10 mm<sup>2</sup>)

2x (1 ... 6 mm<sup>2</sup>)

2x (1 ... 6 mm<sup>2</sup>)

2x (18 ... 8)

**connectable conductor cross-section for main contacts**

- solid
- stranded
- finely stranded with core end processing
- finely stranded without core end processing

1 ... 10 mm<sup>2</sup>

1 ... 10 mm<sup>2</sup>

1 ... 6 mm<sup>2</sup>

1 ... 6 mm<sup>2</sup>

**connectable conductor cross-section for auxiliary contacts**

- solid or stranded
- finely stranded with core end processing
- finely stranded without core end processing

0.5 ... 2.5 mm<sup>2</sup>

0.5 ... 1.5 mm<sup>2</sup>

0.5 ... 2.5 mm<sup>2</sup>

**type of connectable conductor cross-sections**

- for auxiliary contacts
  - solid or stranded
  - finely stranded with core end processing
  - finely stranded without core end processing
- at AWG cables for auxiliary contacts

2x (0.5 ... 2.5 mm<sup>2</sup>)

2x (0.5 ... 1.5 mm<sup>2</sup>)

2x (0.5 ... 2.5 mm<sup>2</sup>)

2x (20 ... 14)

**AWG number as coded connectable conductor cross section**

- for main contacts
- for auxiliary contacts

18 ... 8

20 ... 14

**Safety related data****product function**

- mirror contact according to IEC 60947-4-1

Yes

B10 value with high demand rate according to SN 31920

450 000

**proportion of dangerous failures**

- with low demand rate according to SN 31920
- with high demand rate according to SN 31920

40 %

73 %

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

100 FIT  
20 y  
IP20  
finger-safe, for vertical contact from the front  
Yes

#### Certificates/ approvals

##### General Product Approval



[Confirmation](#)



[KC](#)



| EMC | Functional Safety/Safety of Machinery | Declaration of Conformity | Test Certificates |
|-----|---------------------------------------|---------------------------|-------------------|
|-----|---------------------------------------|---------------------------|-------------------|



[Type Examination Certificate](#)



EG-Konf.

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

##### Marine / Shipping



ABS



DNV



LRS



PRS



RINA

| Marine / Shipping | other | Railway | Dangerous Good |
|-------------------|-------|---------|----------------|
|-------------------|-------|---------|----------------|



RMRS

[Confirmation](#)



VDE

[Vibration and Shock](#)

[Transport Information](#)

#### 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=3RT2023-2FB40>

Cax online generator

<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RT2023-2FB40>

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

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-2FB40>

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

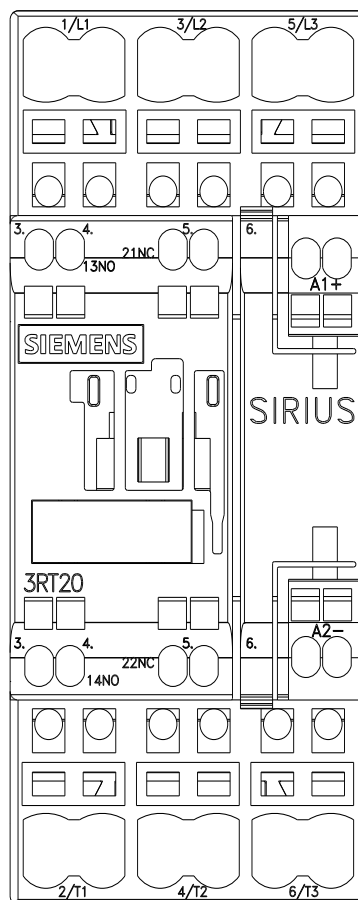
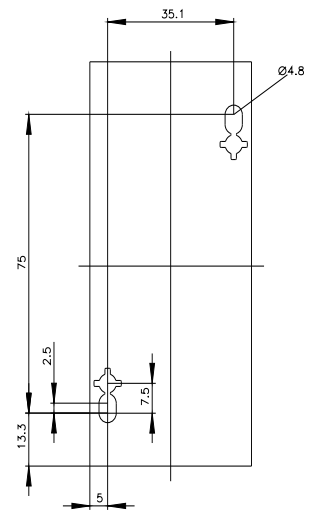
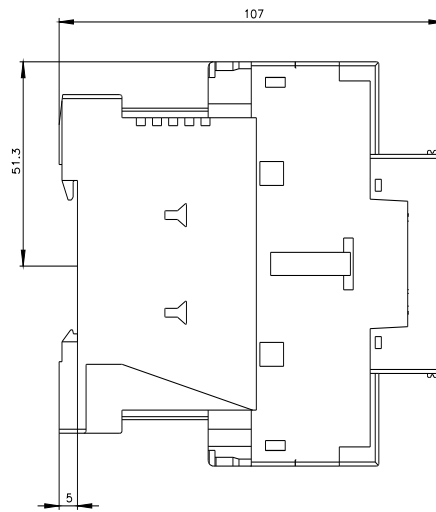
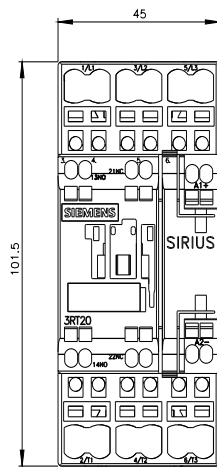
[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RT2023-2FB40&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2023-2FB40&lang=en)

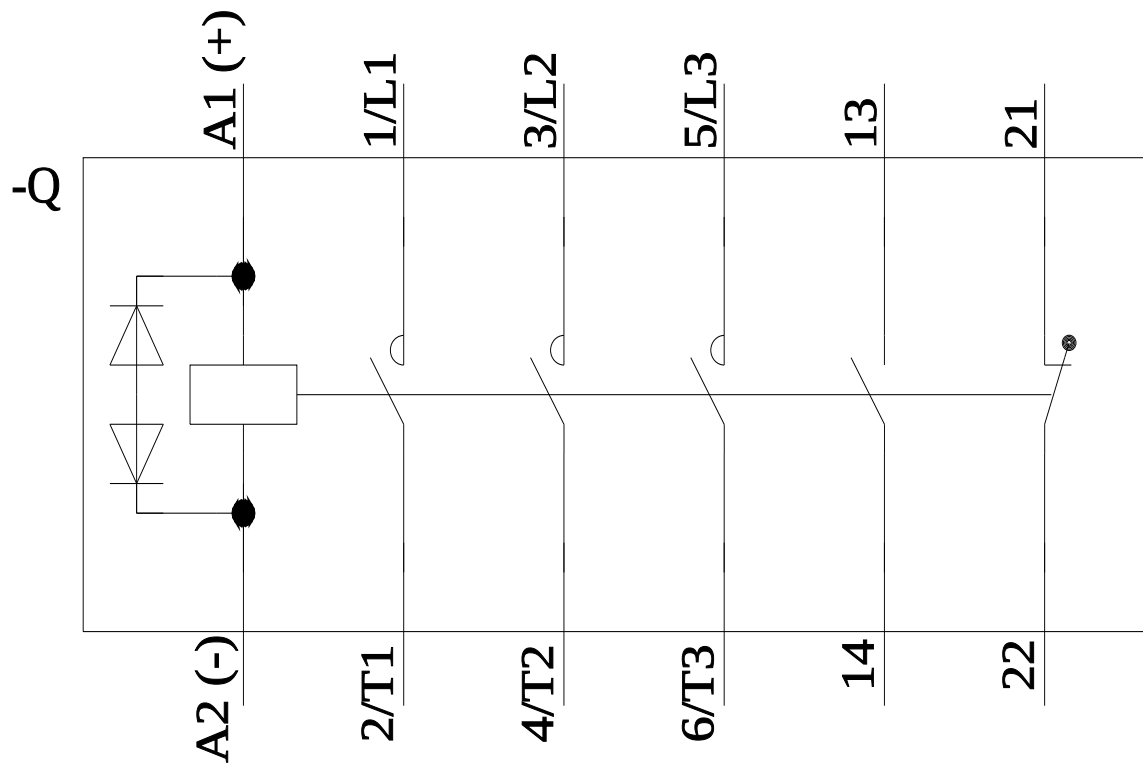
Characteristic: Tripping characteristics, I<sub>t</sub>, Let-through current

<https://support.industry.siemens.com/cs/ww/en/ps/3RT2023-2FB40/char>

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

<http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2023-2FB40&objecttype=14&gridview=view1>





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