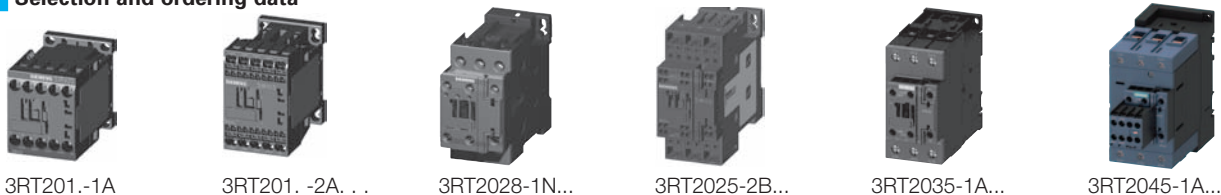


# Contactor for Switching Motors

## 3RT contactors, 3-pole – Size S00 to S3

### Selection and ordering data



| Frame<br>Size         | Amp<br>Ratings                                                                                                        |     | Single-phase<br>HP ratings |      |      | Three-phase<br>HP ratings |      |      |      | Auxiliary<br>contacts |                                                | Screw Terminals | Spring-Loaded<br>Terminals <sup>1)</sup> | Weight<br>approx.<br>kg |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------|-----|----------------------------|------|------|---------------------------|------|------|------|-----------------------|------------------------------------------------|-----------------|------------------------------------------|-------------------------|
|                       | AC3                                                                                                                   | AC1 | 115V                       | 208V | 230V | 208V                      | 230V | 460V | 575V | NO                    | NC                                             | Order No.       | Order No.                                |                         |
| 3RT 3-pole contactors |                                                                                                                       |     |                            |      |      |                           |      |      |      |                       |                                                |                 |                                          |                         |
| S00                   | 6                                                                                                                     | 18  | 0.25                       | 0.5  | 0.75 | 1.5                       | 2    | 3    | 5    | 1                     | 0                                              | 3RT2015-1□●●1   | 3RT2015-2□●●1                            | 0.24/0.29               |
|                       |                                                                                                                       |     |                            |      |      |                           |      |      |      | 0                     | 1                                              | 3RT2015-1□●●2   | 3RT2015-2□●●2                            |                         |
|                       | 9                                                                                                                     | 22  | 0.33                       | 1    | 1    | 2                         | 3    | 5    | 7.5  | 1                     | 0                                              | 3RT2016-1□●●1   | 3RT2016-2□●●1                            |                         |
|                       |                                                                                                                       |     |                            |      |      |                           |      |      |      | 0                     | 1                                              | 3RT2016-1□●●2   | 3RT2016-2□●●2                            |                         |
|                       | 12                                                                                                                    | 22  | 0.5                        | 1.5  | 2    | 3                         | 3    | 7.5  | 10   | 1                     | 0                                              | 3RT2017-1□●●1   | 3RT2017-2□●●1                            |                         |
|                       |                                                                                                                       |     |                            |      |      |                           |      |      |      | 0                     | 1                                              | 3RT2017-1□●●2   | 3RT2017-2□●●2                            |                         |
|                       | 16                                                                                                                    | 22  | 1                          | 2    | 2    | 3                         | 5    | 10   | 10   | 1                     | 0                                              | 3RT2018-1□●●1   | 3RT2018-2□●●1                            |                         |
|                       |                                                                                                                       |     |                            |      |      |                           |      |      |      | 0                     | 1                                              | 3RT2018-1□●●2   | 3RT2018-2□●●2                            |                         |
| S0                    | 9                                                                                                                     | 40  | 1                          | 1    | 1    | 2                         | 3    | 5    | 7.5  | 1                     | 1                                              | 3RT2023-1□●●0   | 3RT2023-2□●●0                            | 0.42/0.60               |
|                       | 12                                                                                                                    | 40  | 1                          | 2    | 2    | 3                         | 3    | 7.5  | 10   | 1                     | 1                                              | 3RT2024-1□●●0   | 3RT2024-2□●●0                            |                         |
|                       | 17                                                                                                                    | 40  | 1                          | 2    | 3    | 5                         | 5    | 10   | 15   | 1                     | 1                                              | 3RT2025-1□●●0   | 3RT2025-2□●●0                            |                         |
|                       | 25                                                                                                                    | 40  | 2                          | 3    | 3    | 7.5                       | 7.5  | 15   | 20   | 1                     | 1                                              | 3RT2026-1□●●0   | 3RT2026-2□●●0                            |                         |
|                       | 32                                                                                                                    | 50  | 2                          | 5    | 5    | 10                        | 10   | 20   | 25   | 1                     | 1                                              | 3RT2027-1□●●0   | 3RT2027-2□●●0                            |                         |
|                       | 38                                                                                                                    | 50  | 3                          | 5    | 5    | 10                        | 10   | 25   | 25   | 1                     | 1                                              | 3RT2028-1□●●0   | 3RT2028-2□●●0                            |                         |
| S2                    | 40                                                                                                                    | 60  | 3                          | 5    | 7.5  | 10                        | 15   | 30   | 40   | 1                     | 1                                              | 3RT2035-1□●●0   | 3RT2035-3□●●0                            | 0.99/1.121              |
|                       | 50                                                                                                                    | 70  | 3                          | 7.5  | 10   | 15                        | 15   | 40   | 50   | 1                     | 1                                              | 3RT2036-1□●●0   | 3RT2036-3□●●0                            |                         |
|                       | 65                                                                                                                    | 80  | 5                          | 10   | 10   | 20                        | 20   | 50   | 50   | 1                     | 1                                              | 3RT2037-1□●●0   | 3RT2037-3□●●0                            |                         |
|                       | 80 <sup>2)</sup>                                                                                                      | 90  | 5                          | 10   | 15   | 20                        | 25   | 50   | 60   | 1                     | 1                                              | 3RT2038-1□●●0   | 3RT2038-3□●●0                            |                         |
| S3                    | 80                                                                                                                    | 125 | 7.5                        | 10   | 15   | 25                        | 30   | 60   | 60   | 1                     | 1                                              | 3RT2045-1□●●0   | 3RT2045-3□●●0                            | 1.8/2.8                 |
|                       | 95                                                                                                                    | 130 | 10                         | 10   | 20   | 30                        | 30   | 75   | 75   | 1                     | 1                                              | 3RT2046-1□●●0   | 3RT2046-3□●●0                            |                         |
|                       | 110                                                                                                                   | 130 | 10                         | 10   | 20   | 30                        | 40   | 75   | 100  | 1                     | 1                                              | 3RT2047-1□●●0   | 3RT2047-3□●●0                            |                         |
|                       | Size S2 only: Replace “B” with “K” for 24VDC coil only<br>Size S0 and S2 only: UC Electronic with integrated varistor |     |                            |      |      |                           |      |      |      |                       | □<br>AC Coil = A<br>DC Coil = B<br>UC Coil = N |                 | □<br>A<br>B<br>N                         |                         |

| NEMA<br>Size            | Amp<br>Ratings | Single-phase<br>HP ratings |      | Three-phase<br>HP ratings |      |      |      | Auxiliary<br>contacts |    | Screw Terminals<br>with AC coil | Screw Terminals<br>with 24 VDC coil | Weight<br>approx.<br><br>kg |
|-------------------------|----------------|----------------------------|------|---------------------------|------|------|------|-----------------------|----|---------------------------------|-------------------------------------|-----------------------------|
|                         |                | 115V                       | 230V | 208V                      | 230V | 460V | 575V | NO                    | NC |                                 |                                     |                             |
| NEMA Labeled Contactors |                |                            |      |                           |      |      |      |                       |    | Order No.                       | Order No.                           |                             |
| 0                       | 18             | 1                          | 2    | 3                         | 3    | 5    | 5    | 1                     | 0  | 3RT2018-1A●●1-0UA0              | 3RT2018-1BB41-0UA0                  | 0.28                        |
| 1                       | 27             | 2                          | 3    | 7.5                       | 7.5  | 10   | 10   | 1                     | 1  | 3RT2027-1A●●0-0UA0              | 3RT2027-1BB40-0UA0                  | 0.42                        |
| 2                       | 45             | 3                          | 7.5  | 10                        | 15   | 25   | 25   | 1                     | 1  | 3RT2036-1A●●0-0UA0              | 3RT2036-1NB30-0UA0                  | 0.986/1.121                 |
| 3                       | 90             | 7.5                        | 15   | 25                        | 30   | 50   | 50   | 1                     | 1  | 3RT2046-1A●●0-0UA0              | 3RT2046-1NB40-0UA0                  | 1.8 / 2.8                   |

1) All terminals are spring loaded on frame sizes S00 & S0.  
Only the coil terminals are spring loaded on frame sizes S2 & S3.

2) Max UL FLA = 65A at 460V

Note: Ring lug terminals are also available in size S00 & S0 contactors, except contactors with communication interface or UC coil. Change the 8th digit of the order number to a "4", e. g. 3RT2015-4AK61.

For further coil voltages, see page 2/49.  
For auxiliaries and accessories, see page 2/66-2/83.  
For spare parts, see page 2/94-2/99.  
For technical data, see page 2/121-2/142.  
For description, see page 2/104-2/105.  
For int. circuit diagrams, see page 2/190-2/197.  
For dimension drawings, see page 2/209-2/212.

### AC Coil Selection for 3RT201 through 3RT204

| ●●Coil Code | C2 <sup>2)</sup> | H2 <sup>3)</sup> | K6    | P6    | U6    | V6    | T6    |
|-------------|------------------|------------------|-------|-------|-------|-------|-------|
| 60 Hz       | 24 V             | 48 V             | 120 V | 240 V | 277 V | 480 V | 600 V |
| 50 Hz       | 24 V             | 48 V             | 110 V | 220 V | —     | —     | —     |

<sup>2)</sup> Use Code B0 for 3RT201, S00

<sup>3)</sup> Use Code H0 for 3RT201, S00

### DC Coil Selection for 3RT201 & 3RT202 (for 3RT203 & 3RT204 see UC)

| ●●Coil Code | A4 <sup>4)</sup> | B4   | W4   | E4   | F4    | G4    | M4    |
|-------------|------------------|------|------|------|-------|-------|-------|
| DC          | 12 V             | 24 V | 48 V | 60 V | 110 V | 125 V | 220 V |

<sup>4)</sup> 3RT201 and 3RT202 only

### UC Coil Selection for 3RT202

| ●●Coil Code | B3     | F3      | P3 <sup>4)</sup> |
|-------------|--------|---------|------------------|
| UC          | 21-28V | 95-130V | 200-280V         |

### UC Coil Selection for 3RT203 & 3RT204

| ●● | B3     | F3      | P3 <sup>5)</sup> |
|----|--------|---------|------------------|
| UC | 20-33V | 83-155V | 175-280V         |

<sup>5)</sup> at upper limit = 1.1 x U<sub>S</sub>

# Contactors for Switching Motors

3RT contactors, 3-pole – Size S6-S12 and NEMA size 4-6

## Selection and ordering data

- \* AC/DC Coils with built in surge suppressor
- \* Coil Types (40Hz to 60Hz, DC):
- \* Conventional Coil
- \* Solid-state operated coil with wider range and 24 V DC PLC input
- \* Solid-state operated coil with Remaining Lifetime Indication (RLT)
- \* Box terminals ordered separately



3RT1054-6A. . 6

3RT1065-6P. . 5

2  
CONTACTORS AND  
ASSEMBLIES

| Frame<br>Size         | Amp<br>Ratings                                                                              |     | Single-phase<br>HP ratings |      | Three-phase<br>HP ratings |      |      |      | Auxiliary<br>contacts |    | Screw Terminals<br>on coil and aux. | Spring-type<br>terminals on coil<br>and aux. contacts | Weight<br>approx.<br><br>kg |
|-----------------------|---------------------------------------------------------------------------------------------|-----|----------------------------|------|---------------------------|------|------|------|-----------------------|----|-------------------------------------|-------------------------------------------------------|-----------------------------|
|                       | AC3                                                                                         | AC1 | 115V                       | 230V | 200V                      | 230V | 460V | 575V | NO                    | NC |                                     |                                                       |                             |
| 3RT 3-pole Contactors |                                                                                             |     |                            |      |                           |      |      |      |                       |    |                                     |                                                       |                             |
| S6                    | 115                                                                                         | 160 | —                          | 25   | 40                        | 50   | 100  | 125  | 2                     | 2  | 3RT1054-6□●●6                       | 3RT1054-2□●●6                                         | 3.5                         |
|                       | 150                                                                                         | 185 | —                          | 30   | 50                        | 60   | 125  | 150  | 2                     | 2  | 3RT1055-6□●●6                       | 3RT1055-2□●●6                                         |                             |
|                       | 185                                                                                         | 215 | —                          | 30   | 60                        | 75   | 150  | 200  | 2                     | 2  | 3RT1056-6□●●6                       | 3RT1056-2□●●6                                         |                             |
| S10                   | 225                                                                                         | 275 | —                          | —    | 60                        | 75   | 150  | 200  | 2                     | 2  | 3RT1064-6□●●6                       | 3RT1064-2□●●6                                         | 6.7                         |
|                       | 265                                                                                         | 330 | —                          | —    | 75                        | 100  | 200  | 250  | 2                     | 2  | 3RT1065-6□●●6                       | 3RT1065-2□●●6                                         |                             |
|                       | 300                                                                                         | 330 | —                          | —    | 100                       | 125  | 250  | 300  | 2                     | 2  | 3RT1066-6□●●6                       | 3RT1066-2□●●6                                         |                             |
| S12                   | 400                                                                                         | 430 | —                          | —    | 125                       | 150  | 300  | 400  | 2                     | 2  | 3RT1075-6□●●6                       | 3RT1075-2□●●6                                         | 10.5                        |
|                       | 500                                                                                         | 610 | —                          | —    | 150                       | 200  | 400  | 500  | 2                     | 2  | 3RT1076-6□●●6                       | 3RT1076-2□●●6                                         |                             |
|                       | UC Conventional Coil<br>Solid State Operated Coil =<br>Solid State Operated Coil with RLT = |     |                            |      |                           |      |      |      |                       |    |                                     | □<br>A<br>N<br>P●●5                                   |                             |

| NEMA<br>Size            | Amp<br>Ratings | Single-phase<br>HP ratings |      | Three-phase<br>HP ratings |      |      |      | Auxiliary<br>contacts |    | Screw Terminals<br>on coil and aux. | Spring-type<br>terminals on coil<br>and aux. contacts | Weight<br>approx.<br><br>kg |
|-------------------------|----------------|----------------------------|------|---------------------------|------|------|------|-----------------------|----|-------------------------------------|-------------------------------------------------------|-----------------------------|
|                         |                | 115V                       | 230V | 208V                      | 230V | 460V | 575V | NO                    | NC |                                     |                                                       |                             |
| NEMA Labeled Contactors |                |                            |      |                           |      |      |      |                       |    |                                     |                                                       |                             |
| 4                       | 135            | —                          | 30   | 40                        | 50   | 100  | 100  | 2                     | 2  | 3RT1056-6A●●6-0UA0                  | —                                                     | 3.5                         |
| 5                       | 300            | —                          | —    | 100                       | 125  | 250  | 300  | 2                     | 2  | 3RT1066-6A●●6-0UA0                  | —                                                     | 6.7                         |
| 6                       | 400            | —                          | —    | 150                       | 200  | 400  | 500  | 2                     | 2  | 3RT1076-6A●●6-0UA0                  | —                                                     | 10.5                        |

All coil voltages are in the adjacent table.  
 For auxiliaries and accessories, see page 2/66-2/83.  
 For spare parts, see page 2/94-2/99.  
 For technical data, see page 2/143-2/151.  
 For description, see page 2/106-2/107.  
 For int. circuit diagrams, see page 2/196-2/198.  
 For dimension drawings, see page 2/213-2/214.

## Sizes S6 to S12 Coil Codes - UC operation (AC 50 to 60 Hz and DC)

| UC Conventional Coil                                                             |                                           | Solid-State Coil                                                                 |                                                                                        |
|----------------------------------------------------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Rated control supply voltage $U_s$<br>$U_s \text{ min} \dots U_s \text{ max}^1)$ | 3RT1. 5.-.A<br>3RT1. 6.-.A<br>3RT1. 7.-.A | Rated control supply voltage $U_s$<br>$U_s \text{ min} \dots U_s \text{ max}^1)$ | 3RT1. 5.-.N    3RT1. 5.-.P<br>3RT1. 6.-.N    3RT1. 6.-.P<br>3RT1. 7.-.N    3RT1. 7.-.P |
| Coil Codes                                                                       | ●●                                        | Coil Codes                                                                       | ●●    ●●                                                                               |
| 23 ... 26 V AC/DC                                                                | B3                                        | 21 ... 27.3 V AC/DC                                                              | B3    —                                                                                |
| 42 ... 48 V AC/DC                                                                | D3                                        | 96 ... 127 V AC/DC                                                               | F3    F3                                                                               |
| 110 ... 127 V AC/DC                                                              | F3                                        | 200 ... 277 V AC/DC                                                              | P3    P3                                                                               |
| 200 ... 220 V AC/DC                                                              | M3                                        |                                                                                  |                                                                                        |
| 220 ... 240 V AC/DC                                                              | P3                                        |                                                                                  |                                                                                        |
| 240 ... 277 V AC/DC                                                              | U3                                        |                                                                                  |                                                                                        |
| 380 ... 420 V AC/DC                                                              | V3                                        |                                                                                  |                                                                                        |
| 440 ... 480 V AC/DC                                                              | R3                                        |                                                                                  |                                                                                        |
| 500 ... 550 V AC/DC                                                              | S3                                        |                                                                                  |                                                                                        |
| 575 ... 600 V AC/DC                                                              | T3                                        |                                                                                  |                                                                                        |

1) Operating range:  
 $0.8 \times U_s \text{ min}$  to  $1.1 \times U_s \text{ max}$ .

# Contactors for Switching Motors

## 3RT12 vacuum contactors, 3-pole

### Selection and ordering data

- **AC/DC operation** (40 Hz ... 60 Hz, DC)
- **Withdrawable coils**
- **Integrated coil circuit** (varistor)
- **Auxiliary and control conductors: screw connections**
- **Main conductor: bar connections**

| Size                                                     | Horsepower ratings and utilization categories |                               |       |       |     | Auxiliary contacts, lateral       |    | Rated control supply voltage $U_s$ |                            | Order No.                        | Weight approx. |
|----------------------------------------------------------|-----------------------------------------------|-------------------------------|-------|-------|-----|-----------------------------------|----|------------------------------------|----------------------------|----------------------------------|----------------|
|                                                          | AC-3<br>Maximum inductive current             | Ratings of three-phase motors |       |       |     | AC-1<br>Maximum resistive current |    |                                    |                            |                                  |                |
|                                                          | 200 V                                         | 230 V                         | 460 V | 575 V |     |                                   |    |                                    |                            |                                  |                |
|                                                          | Amps                                          | HP                            | HP    | HP    | HP  | Amps                              | NO | NC                                 | AC/DC V                    |                                  | kg             |
| Conventional operating mechanism                         |                                               |                               |       |       |     |                                   |    |                                    |                            |                                  |                |
| S10                                                      | 225                                           | 60                            | 75    | 150   | 200 | 330                               | 2  | 2                                  | 110 ... 127<br>220 ... 240 | 3RT12 64-6AF36<br>3RT12 64-6AP36 | 6.4            |
|                                                          | 265                                           | 75                            | 100   | 200   | 250 | 330                               | 2  | 2                                  | 110 ... 127<br>220 ... 240 | 3RT12 65-6AF36<br>3RT12 65-6AP36 |                |
|                                                          | 300                                           | 100                           | 125   | 250   | 300 | 330                               | 2  | 2                                  | 110 ... 127<br>220 ... 240 | 3RT12 66-6AF36<br>3RT12 66-6AP36 |                |
| S12                                                      | 400                                           | 125                           | 150   | 300   | 400 | 610                               | 2  | 2                                  | 110 ... 127<br>220 ... 240 | 3RT12 75-6AF36<br>3RT12 75-6AP36 | 9.6            |
|                                                          | 500                                           | 150                           | 200   | 400   | 500 | 610                               | 2  | 2                                  | 110 ... 127<br>220 ... 240 | 3RT12 76-6AF36<br>3RT12 76-6AP36 |                |
| Solid-state operating mechanism - for DC 24 V PLC output |                                               |                               |       |       |     |                                   |    |                                    |                            |                                  |                |
| S10                                                      | 225                                           | 60                            | 75    | 150   | 200 | 330                               | 2  | 2                                  | 96 ... 127<br>200 ... 277  | 3RT12 64-6NF36<br>3RT12 64-6NP36 | 6.4            |
|                                                          | 265                                           | 75                            | 100   | 200   | 250 | 330                               | 2  | 2                                  | 96 ... 127<br>200 ... 277  | 3RT12 65-6NF36<br>3RT12 65-6NP36 |                |
|                                                          | 300                                           | 100                           | 125   | 250   | 300 | 330                               | 2  | 2                                  | 96 ... 127<br>200 ... 277  | 3RT12 66-6NF36<br>3RT12 66-6NP36 |                |
| S12                                                      | 400                                           | 125                           | 150   | 300   | 400 | 610                               | 2  | 2                                  | 96 ... 127<br>200 ... 277  | 3RT12 75-6NF36<br>3RT12 75-6NP36 | 9.6            |
|                                                          | 500                                           | 150                           | 200   | 400   | 500 | 610                               | 2  | 2                                  | 96 ... 127<br>200 ... 277  | 3RT12 76-6NF36<br>3RT12 76-6NP36 |                |

| Universal Coil Selection for 3RT126 through 3RT127: Conventional Operation |            |            |              |              |              |              |              |              |              |              |
|----------------------------------------------------------------------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Coil Code                                                                  | B3         | D3         | F3           | M3           | P3           | U3           | V3           | R3           | S3           | T3           |
| Volts AC/DC 40 - 60 Hz, DC                                                 | 23 .. 26 V | 42 .. 48 V | 110 .. 127 V | 200 .. 220 V | 220 .. 240 V | 240 .. 277 V | 380 .. 420 V | 440 .. 480 V | 500 .. 550 V | 575 .. 600 V |

| Solid State Selection for 3RT126 through 3RT127: Solid-State |              |             |              |
|--------------------------------------------------------------|--------------|-------------|--------------|
| Coil Code                                                    | B3           | F3          | P3           |
| Volts AC/DC 40 - 60 Hz, DC                                   | 21 .. 27.3 V | 96 .. 127 V | 200 .. 277 V |

For further vacuum contactors, 500Hp and 700Hp (3TF68/69), see page 2/53.  
 For auxiliaries and accessories, see page 2/68 .  
 For spare parts, see page 2/98-2/99.  
 For technical data, see page 2/152-2/157.  
 For int. circuit diagrams, see page 2/196  
 For dimension drawings, see page 2/215.

# Contactors for Special Applications

## 3RT23 contactors, 4-pole (4 NO contacts) for switching resistive loads (AC-1)

### Standards

IEC 60947-1, EN 60947-1  
IEC 60947-4-1, EN 60947-4-1  
IEC 60947-5-1, EN 60947-5-1 (auxiliary switches)

### Design

The contactors are suitable for use in any climate. They are safe from touch to DIN VDE 0106, Part 100. The accessories for the 3-pole SIRIUS contactors can also be used for the 4-pole designs.

#### Mountable auxiliary contacts

Size S00: 4 auxiliary contacts of which up to 3 can be NC.  
Size S0 & S2: 4 additional auxiliary contacts up to 3 can be NC.  
Sizes S2 and S3: Up to 4 auxiliary contacts (either laterally mounted or snapped onto the top).

#### Contactor assemblies with mechanical interlock

The 4-pole 3RT23 contactors with 4 NO contacts as the main contacts are suitable for making contactor assemblies with a mechanical interlock, e.g. for system transfers.

**Size S00:** Contactor assemblies can be made using two 3RT231 contactors in conjunction with the mechanical interlock and two connecting clips (Order No. 3RA2912-2H, pack comprising 10 interlocking elements and 20 clips for 10 contactor assemblies, see accessories on page 2/72).

**Size S0:** In order to make 4-pole contactor assemblies using two 3RT232 contactors, the fourth pole of the left-hand contactor must always be moved to the left-hand side. The contactor assembly can then be made easily with the aid of the 3RA2922-2H mechanical interlock and connecting clip set fitted between the two contactors.

**Sizes S2 and S3:** Contactor assemblies can be made using two 3RT23 3 or 3RT23 4 contactors in conjunction with the laterally mountable mechanical interlock and the mechanical connectors. The mechanical interlock for fitting onto the front cannot be used for size S2 and S3 contactors.

### Application

- Switching resistive loads
- Isolating systems with unearthed or poorly earthed neutral conductors
- System transfers when alternative AC power supplies are used
- As contactors which only carry current and do not have to switch in case of inductive loads – e.g. variable-speed operating mechanisms
- Switching mixed loads in distribution systems (e.g. for supplying heaters, lamps, motors, PC power supply units) with p.f. > 0.8 according to IEC 60947-4-1, test conditions for utilization category AC-1

### Selection and ordering data

| Rating data                          |                                                          | Auxiliary contacts         |                  | Rated control supply voltage $U_s$<br>50/60 Hz | AC Operation<br>Screw<br>Terminals <sup>1)</sup><br>Order No. | Rated control supply voltage $U_s$<br>V DC | DC Operation<br>Screw<br>Terminals <sup>1)</sup><br>Order No. |
|--------------------------------------|----------------------------------------------------------|----------------------------|------------------|------------------------------------------------|---------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------|
| AC-1<br>Max resist.<br>current $I_e$ | UL ratings<br>AC loads<br>at 600 V,<br>40°C 60°C<br>Amps | Ident-<br>ification<br>No. | Version<br>NO NC |                                                |                                                               |                                            |                                                               |

#### For screwing and stepping onto 35 mm mounting rail

3RT23 17-1AP60



**Size S00** – Auxiliary switches can be retrofitted

|    |    |    |   |   |                          |                                                    |                  |                                                    |
|----|----|----|---|---|--------------------------|----------------------------------------------------|------------------|----------------------------------------------------|
| 18 | 16 | 18 | — | — | 24<br>110/120<br>220/240 | 3RT23 16-1AB00<br>3RT23 16-1AK60<br>3RT23 16-1AP60 | 24<br>125<br>220 | 3RT23 16-1BB40<br>3RT23 16-1BG40<br>3RT23 16-1BM40 |
| 22 | 20 | 20 | — | — | 24<br>110/120<br>220/240 | 3RT23 17-1AB00<br>3RT23 17-1AK60<br>3RT23 17-1AP60 | 24<br>125<br>220 | 3RT23 17-1BB40<br>3RT23 17-1BG40<br>3RT23 17-1BM40 |

**Size S0** – Terminal designations according to EN 50012 —1 NO + 1 NC, identification number 11E

|                  |                  |    |     |   |   |                          |                                                    |                  |                                                    |
|------------------|------------------|----|-----|---|---|--------------------------|----------------------------------------------------|------------------|----------------------------------------------------|
| 35 <sup>2)</sup> | 30 <sup>2)</sup> | 30 | 11E | 1 | 1 | 24<br>110/120<br>220/240 | 3RT23 25-1AC20<br>3RT23 25-1AK60<br>3RT23 25-1AP60 | 24<br>125<br>220 | 3RT23 25-1BB40<br>3RT23 25-1BG40<br>3RT23 25-1BM40 |
| 40 <sup>2)</sup> | 35 <sup>2)</sup> | 35 | 11E | 1 | 1 | 24<br>110/120<br>220/240 | 3RT23 26-1AC20<br>3RT23 26-1AK60<br>3RT23 26-1AP60 | 24<br>125<br>220 | 3RT23 26-1BB40<br>3RT23 26-1BG40<br>3RT23 26-1BM40 |
| 50 <sup>2)</sup> | 42 <sup>2)</sup> | 38 | 11E | 1 | 1 | 24<br>110/120<br>220/240 | 3RT23 27-1AC20<br>3RT23 27-1AK60<br>3RT23 27-1AP60 | 24<br>125<br>220 | 3RT23 27-1BB40<br>3RT23 27-1BG40<br>3RT23 27-1BM40 |

#### Size S2

|     |    |     |     |   |   |                          |                                                    |                            |                                                    |
|-----|----|-----|-----|---|---|--------------------------|----------------------------------------------------|----------------------------|----------------------------------------------------|
| 60  | 55 | 60  | 11E | 1 | 1 | 24<br>110/120<br>220/240 | 3RT23 36-1AC20<br>3RT23 36-1AK60<br>3RT23 36-1AP60 | 20-33<br>83-155<br>175-280 | 3RT23 36-1NB30<br>3RT23 36-1NF30<br>3RT23 36-1NP30 |
| 110 | 95 | 105 | 11E | 1 | 1 | 24<br>110/120<br>220/240 | 3RT23 37-1AC20<br>3RT23 37-1AK60<br>3RT23 37-1AP60 | 20-33<br>83-155<br>175-280 | 3RT23 37-1NB30<br>3RT23 37-1NF30<br>3RT23 37-1NP30 |

#### Size S3

|     |     |     |   |   |   |                          |                                                    |                            |                                                    |
|-----|-----|-----|---|---|---|--------------------------|----------------------------------------------------|----------------------------|----------------------------------------------------|
| 140 | 130 | 120 | — | — | — | 24<br>110/120<br>220/240 | 3RT23 46-1AC20<br>3RT23 46-1AK60<br>3RT23 46-1AP60 | 20-33<br>83-155<br>175-280 | 3RT23 46-1NB30<br>3RT23 46-1NF30<br>3RT23 46-1NP30 |
|-----|-----|-----|---|---|---|--------------------------|----------------------------------------------------|----------------------------|----------------------------------------------------|

1) Size S00 and S0 contactors are also available with spring-type terminals. Replace the 8th digit of the order no. with a "2" e.g. "3RT23 16-2AK60"

2) Minimum conductor cross-section 8 AWG.

For further voltages, see page 2/49.  
For coil voltage tolerance, p. 2/49  
For auxiliaries and accessories, see page 2/66-2/83.  
For spare parts, see page 2/94-2/99.

For technical data, see page 2/166-2/167.  
For in. circuit diagrams, see page 2/191-2/196.  
For dimension drawings, see page 2/216.

# Contactors for Special Applications

## 3RT24, 3-pole for switching resistive loads (AC-1)

### Application

**AC and DC operation**  
(size S3)  
**UC operation (AC/DC)**  
(sizes S6 to S12)

IEC 60 947, EN 60 947  
(VDE 0660)

The contactors are suitable for use in any climate. They are safe from touch to DIN VDE 0106 Part 100.

3RT14/3RT24 contactors are used for switching resistive loads.

(AC-1) or as contactors, for example in variable-speed drives which normally only have to carry the current.

The accessories for the SIRIUS 3RT10/3RT20 contactors can also be used here.

### Selection and ordering data

3RT24 46-1A...0



| Ratings<br>AC-1 utilization category, |                                                              |         |         | UL Ratings  |          |          | Rated control supply voltage $U_s$ | Order No. | Weight approx. |
|---------------------------------------|--------------------------------------------------------------|---------|---------|-------------|----------|----------|------------------------------------|-----------|----------------|
| IEC Ratings                           |                                                              |         |         | Max Current | 230/240V | 460/480V |                                    |           |                |
| Maximum current                       | Rated power of three phase loads $\cos \phi = 0.95$ (@ 60°C) |         |         |             | Hp       | Hp       | Hp                                 | kg        |                |
| Amps                                  | 230V kW                                                      | 400V kW | 500V kW | 690V kW     | Amps     |          |                                    |           |                |

**With screw connections · for screwing and snapping onto 35 mm and 75 mm standard mounting rails**

**Size S3 · (without auxiliary contacts)**

#### • AC operation

| 140 | 50 | 86 | 107 | 148 | 140 | 15 | 30 | 40 | 24 V, 50/60 Hz<br>120 V, 60 Hz<br>240 V, 60 Hz | 3RT24 46-1AC2 0<br>3RT24 46-1AK6 0<br>3RT24 46-1AP6 0 | 1.8 |
|-----|----|----|-----|-----|-----|----|----|----|------------------------------------------------|-------------------------------------------------------|-----|
|-----|----|----|-----|-----|-----|----|----|----|------------------------------------------------|-------------------------------------------------------|-----|

#### • DC operation · DC solenoid system

| 140 | 50 | 86 | 107 | 148 | 131 | 15 | 30 | 40 | DC 24 V<br>DC 48 V | 3RT24 46-1BB4 0<br>3RT24 46-1BW40 | 2.7 |
|-----|----|----|-----|-----|-----|----|----|----|--------------------|-----------------------------------|-----|
|-----|----|----|-----|-----|-----|----|----|----|--------------------|-----------------------------------|-----|

• AC/DC operation (40 Hz ... 60 Hz, DC)  
• Withdrawable coils

• Integrated coil circuit (varistor)

• Auxiliary and control conductors: screw connections

• Main conductor: bar connections

3RT14 6.



| Size | Ratings<br>AC-1 utilization category,               |                                                                        |            |            | UL<br>Rating   | Auxiliary<br>contacts,<br>lateral |    | Rated control<br>supply voltage $U_s$ | Order No. | Weight<br>approx. |
|------|-----------------------------------------------------|------------------------------------------------------------------------|------------|------------|----------------|-----------------------------------|----|---------------------------------------|-----------|-------------------|
|      | IEC Ratings                                         |                                                                        |            |            | Max<br>Current |                                   |    |                                       |           |                   |
|      | AC-1<br>Maximum<br>resistive<br>current<br><br>Amps | Rated power of three phase<br>loads $\cos \varnothing = 0.95$ (@ 60°C) |            |            |                |                                   |    |                                       |           |                   |
|      | 230V<br>kW                                          | 400V<br>kW                                                             | 500V<br>kW | 690V<br>kW | Amps           | NO                                | NC | AC/DC V                               |           | kg                |

#### Conventional operating mechanism

| S6  | 275 | 95  | 165 | 205 | 285 | 210 | 2 | 2 | 110 ... 127<br>220 ... 240 | 3RT14 56-6AF36<br>3RT14 56-6AP36 | 3.1 |
|-----|-----|-----|-----|-----|-----|-----|---|---|----------------------------|----------------------------------|-----|
| S10 | 400 | 145 | 250 | 315 | 430 | 360 | 2 | 2 | 110 ... 127<br>220 ... 240 | 3RT14 66-6AF36<br>3RT14 66-6AP36 | 5.7 |
| S12 | 690 | 245 | 430 | 535 | 740 | 580 | 2 | 2 | 110 ... 127<br>220 ... 240 | 3RT14 76-6AF36<br>3RT14 76-6AP36 | 9.1 |

#### Solid-state operating mechanism · for DC 24 V PLC output

| S6  | 275 | 95  | 165 | 205 | 285 | 210 | 2 | 2 | 96 ... 127<br>200 ... 227 | 3RT14 56-6NF36<br>3RT14 56-6NP36 | 3.1 |
|-----|-----|-----|-----|-----|-----|-----|---|---|---------------------------|----------------------------------|-----|
| S10 | 400 | 145 | 250 | 315 | 430 | 360 | 2 | 2 | 96 ... 127<br>200 ... 277 | 3RT14 66-6NF36<br>3RT14 66-6NP36 | 5.7 |
| S12 | 690 | 245 | 430 | 535 | 740 | 580 | 2 | 2 | 96 ... 127<br>200 ... 277 | 3RT14 76-6NF36<br>3RT14 76-6NP36 | 9.1 |

#### Solid-state operating mechanism · for DC 24 V PLC with remaining lifetime indication

| S6  | 275 | 95  | 165 | 205 | 285 | 210 | 1 | 1 | 96 ... 127<br>200 ... 277 | 3RT14 56-6PF35<br>3RT14 56-6PP35 | 3.1 |
|-----|-----|-----|-----|-----|-----|-----|---|---|---------------------------|----------------------------------|-----|
| S10 | 400 | 145 | 250 | 315 | 430 | 360 | 1 | 1 | 200 ... 277               | 3RT14 66-6PP35                   | 5.7 |
| S12 | 690 | 245 | 430 | 535 | 740 | 580 | 1 | 1 | 200 ... 277               | 3RT14 76-6PP35                   | 9.1 |

#### Universal Coil Selection for 3RT145 through 3RT147: Conventional Operation

| Coil Code                  | B3          | D3          | F3            | M3            | P3            | U3            | V3            | R3            | S3            | T3            |
|----------------------------|-------------|-------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Volts AC/DC 40 - 60 Hz, DC | 23 ... 26 V | 42 ... 48 V | 110 ... 127 V | 200 ... 220 V | 220 ... 240 V | 240 ... 277 V | 380 ... 420 V | 440 ... 480 V | 500 ... 550 V | 575 ... 600 V |

#### Universal Coil Selection for 3RT145 through 3RT147: Solid-State

| Coil Code                  | B3            | F3           | P3            |
|----------------------------|---------------|--------------|---------------|
| Volts AC/DC 40 - 60 Hz, DC | 21 ... 27.3 V | 96 ... 127 V | 200 ... 277 V |

Note: B3 code not available for Remaining Lifetime Contactors.

For further coil voltages, see page 2/49.  
For auxiliaries and accessories, see page 2/66-2/83.  
For spare parts, see page 2/94-2/99.  
For technical data, see page 2/158-2/165.  
For int. circuit diagrams, see page 2/196.  
For dimension drawings, see page 2/211, 2/213-2/214.

# Contactors for Special Applications

3RT25 contactors, 4-pole (2 NO + 2 NC) contacts for switching motors

## AC and DC operation

IEC 60 947-4-1/EN 60 947-4-1  
(VDE 0660, Part 102)

## Design

The contactors are suitable for use in any climate. They are safe to touch according to EN 50274. The accessories for the 3-pole SIRIUS contactors can also be used for the 4-pole designs.

## Mountable auxiliary contacts

### Size S00 and S0:

4 auxiliary contacts, of which up to 4 can be NC contacts.

### Size S2

Up to 4 auxiliary contacts (either laterally mounted or snapped onto the top; auxiliary switch blocks to EN 50 012 and EN 50 005)

## Application

- Changing the polarity of hoisting gear motors
- Switching two separate loads from the same source

## Selection and ordering data

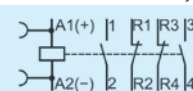
| Rating data                  |                              |                            |      | Auxiliary contacts<br>Version |    | Rated control supply voltage<br>$U_s$ | AC Operation <sup>2)</sup><br>Screw terminals<br><br>Order No. | Rated control supply voltage<br>$U_s$ | DC Operation <sup>2)</sup><br>Screw terminals<br><br>Order No. |
|------------------------------|------------------------------|----------------------------|------|-------------------------------|----|---------------------------------------|----------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------|
| AC-2/AC-3 $T_U$ : up to 60°C |                              | AC-1 Max resistive current |      |                               |    |                                       |                                                                |                                       |                                                                |
| Max Current $I_e$ at 400 V   | Max motor HP at 460 V, 60 Hz |                            |      |                               |    |                                       |                                                                |                                       |                                                                |
|                              |                              | 40°C                       | 60°C |                               |    |                                       |                                                                |                                       |                                                                |
| Amps                         | NO                           | NC                         | Amps | NO                            | NC | V AC, 50/60 Hz                        |                                                                | V DC                                  |                                                                |

## For screwing and snapping onto 35 mm standard mounting rail

3RT25 16-1AB00

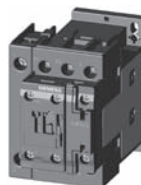


Size S00 <sup>3)</sup> - Auxiliary switches can be retrofitted

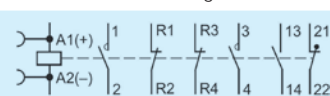


|    |                   |    |    |   |   |         |                |     |                |
|----|-------------------|----|----|---|---|---------|----------------|-----|----------------|
| 9  | 5                 | 18 | 16 | — | — | 24      | 3RT25 16-1AB00 | 24  | 3RT25 16-1BB40 |
|    |                   |    |    |   |   | 110/120 | 3RT25 16-1AK60 | 125 | 3RT25 16-1BG40 |
|    |                   |    |    |   |   | 220/240 | 3RT25 16-1AP60 | 220 | 3RT25 16-1BM40 |
| 12 | 7.5 <sup>4)</sup> | 22 | 20 | — | — | 24      | 3RT25 17-1AB00 | 24  | 3RT25 17-1BB40 |
|    |                   |    |    |   |   | 110/120 | 3RT25 17-1AK60 | 125 | 3RT25 17-1BG40 |
|    |                   |    |    |   |   | 220/240 | 3RT25 17-1AP60 | 220 | 3RT25 17-1BM40 |
| 16 | 10 <sup>4)</sup>  | 22 | 20 | — | — | 24      | 3RT25 18-1AB00 | 24  | 3RT25 18-1BB40 |
|    |                   |    |    |   |   | 110/120 | 3RT25 18-1AK60 | 125 | 3RT25 18-1BG40 |
|    |                   |    |    |   |   | 220/240 | 3RT25 18-1AP60 | 220 | 3RT25 18-1BM40 |

3RT25 26-1AC20



Size S0 - Terminal designations according to EN 50012, 1 NO + 1 NC, identification number 11E

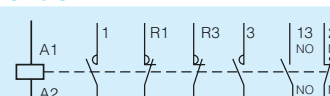


|    |    |    |    |    |   |   |         |                |     |                |
|----|----|----|----|----|---|---|---------|----------------|-----|----------------|
| 25 | 15 | 15 | 40 | 35 | 1 | 1 | 24      | 3RT25 26-1AC20 | 24  | 3RT25 26-1BB40 |
|    |    |    |    |    |   |   | 110/120 | 3RT25 26-1AK60 | 125 | 3RT25 26-1BG40 |
|    |    |    |    |    |   |   | 220/240 | 3RT25 26-1AP60 | 220 | 3RT25 26-1BM40 |

3RT25 35-1AC20



Size S2



|    |    |    |    |    |   |   |         |                |         |                |
|----|----|----|----|----|---|---|---------|----------------|---------|----------------|
| 35 | 30 | 20 | 60 | 55 | 1 | 1 | 24      | 3RT25 35-1AC20 | V UC    | 3RT25 35-1NB30 |
|    |    |    |    |    |   |   | 110/120 | 3RT25 35-1AK60 |         | 3RT25 35-1NF30 |
|    |    |    |    |    |   |   | 220/240 | 3RT25 35-1AP60 |         | 3RT25 35-1NP30 |
| 41 | 30 | 25 | 70 | 60 | 1 | 1 | 24      | 3RT25 36-1AC20 | 20-33   | 3RT25 36-1NB30 |
|    |    |    |    |    |   |   | 110/120 | 3RT25 36-1AK60 | 83-155  | 3RT25 36-1NF30 |
|    |    |    |    |    |   |   | 220/240 | 3RT25 36-1AP60 | 175-280 | 3RT25 36-1NP30 |

For further voltages, see page 2/49.

For auxiliaries and accessories, see page 2/66-2/83.

For spare parts, see page 2/94-2/99.

For technical data, see page 2/168-2/169.

For int. circuit diagrams, see page 2/191-2/196.

For dimension drawings, see page 2/216.

1) For changing polarity; not suitable for reversing.

2) Size S00 and S0 contactors are also available with spring-type terminals. Replace the 8th digit of the order no. with a "2" e.g. "3RT25 16-2AK60"

3) Size S00:

Coil voltage tolerance  
at 50 Hz: 0.8 ... 1.1 x  $U_s$   
at 60 Hz: 0.85 ... 1.1 x  $U_s$

4) The NC contact can switch up to 5 HP.

# 3RT, 3RH Contactors for Special Applications

## 3RH21 contactor relays

### Overview

#### DC operation

IEC 60947-4-1, EN 60947-4-1, for requirements according to IEC 60077-1 and IEC 60077-2.

The contactor relays are finger-safe according to EN 50274. The size S00 contactor relays have spring-type connections for all terminals.

#### Ambient temperature

The permissible ambient temperature for operation of the contactor relays (across the full coil operating range) is -40 to +70 °C.

Uninterrupted duty at temperatures > +60 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

#### Control and auxiliary circuits

The solenoid coils of the contactor relays have an extended coil operating range from  $0.7$  to  $1.25 \times U_s$  and are fitted as standard with suppressor diodes to provide protection against overvoltage. The opening delay is consequently 2 to 5 ms longer than for standard contactors.

### Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e. g. railway applications under extreme climatic conditions, rolling mills, etc.

Also for control supply voltages with battery buffer for longer operating times should the battery charging fail.

#### Contactor relays without series resistor

##### Control and auxiliary circuits

These contactor relays have an extended operating range from  $0.7$  to  $1.25 \times U_s$ ; the solenoid coils are fitted with a suppressor diode. An additional series resistor is not required.

##### Note:

*An additional auxiliary switch block cannot be mounted.*

##### Side-by-side mounting

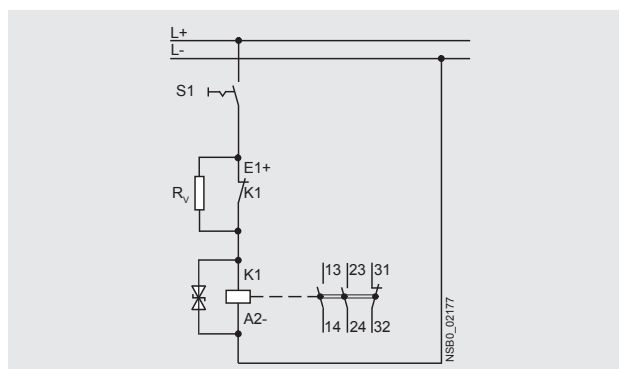
A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C ≤ 70 °C.

#### Contactor relays with series resistor

##### Control and auxiliary circuits

The DC solenoid systems of the contactor relays are modified (to hold-in coil) by means of a series resistor.

The size S00 contactor relays are supplied prewired with a plug-on module containing the series resistor. The suppressor diode is integrated.



A 4-pole auxiliary switch block (according to EN 50005) can be fitted additionally.

##### Side-by-side mounting

Side-by-side mounting is permitted at ambient temperatures up to 70 °C.

## 3RT, 3RH Contactors for Special Applications

## 3RH21 contactor relays

2

CONTACTORS AND  
ASSEMBLIES

## Selection and ordering data

DC operation · DC solenoid system

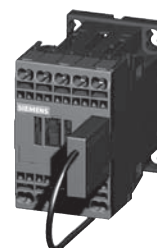
Spring-type terminals

For screw and snap-on mounting onto standard mounting rail

Solenoid coil fitted with suppressor diode



3RH21 22-2K.40



3RH21 22-2K.40-0LA0

|                                                                        |       |       |       |                                                                                   |                                                                                   |                                    |                                                                                                              |                |
|------------------------------------------------------------------------|-------|-------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------|
| Rated operational current<br>$I_B$ /AC-15/AC-14<br>$I_{th}$ : 70 °C at |       |       |       | Contacts                                                                          |                                                                                   | Rated control supply voltage $U_s$ | Spring-type terminals<br> | Weight approx. |
| 230 V                                                                  | 400 V | 500 V | 690 V | Version                                                                           |                                                                                   |                                    |                                                                                                              |                |
| A                                                                      | A     | A     | A     |  |  | V DC                               | Order No.                                                                                                    | kg             |

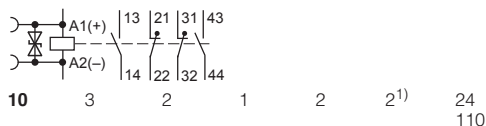
## 3RH21 contactor relays

Size S00

## Without series resistor

Terminal designations according to EN 50011

2 NO + 2 NC, identification number 22E

3RH21 22-2KB40  
3RH21 22-2KF400.300  
0.300

## With series resistor

Terminal designations according to EN 50005

2 NO + 1 NC, identification number 21E

3RH21 22-2KB40-0LA0  
3RH21 22-2KF40-0LA00.300  
0.300

1) It is not possible to mount an auxiliary switch block.

2) 4-pole auxiliary switch block according to EN 50005 can be mounted.

## More information

| Contactors                                     | Type      | 3RH21 ..                      |
|------------------------------------------------|-----------|-------------------------------|
| <b>Upright mounting position</b>               |           |                               |
| • Contactors with series resistor              |           | Special version (on request)  |
| • Contactors without series resistor           |           | Special version (on request)  |
| <b>Ambient temperature</b>                     |           |                               |
| • During operation                             | °C        | -40 ... +70                   |
| • During storage                               | °C        | -55 ... +80                   |
| <b>Solenoid coil operating range</b>           |           | DC                            |
|                                                |           | 0.7 ... 1.25 x $U_s$          |
| <b>Power consumption of the solenoid coils</b> |           | For cold coil and 1.0 x $U_s$ |
| • Contactors with series resistor              | - Closing | W 13                          |
|                                                | - Closed  | W 4                           |
| • Contactors without series resistor           | - Closing | W 2.8                         |
|                                                | - Closed  | W 2.8                         |

All specifications and technical specifications not mentioned here are identical to those of the standard contactor relays.

# 3RT, 3RH Contactors for Special Applications

## 3RT20 motor contactors, 7.5 ... 25 HP

### Overview

#### DC operation

IEC 60947-4-1, EN 60947-4-1, for requirements according to IEC 60077-1 and IEC 60077-2.

The contactors are finger-safe according to EN 50274. The contactors have spring-type connections as well as screw connections. The size S00 and S0 contactors have spring-type connections for all terminals.

#### Ambient temperature

The permissible ambient temperature for operation of the contactors (across the full coil operating range) is  $-40$  to  $+70$  °C.

Uninterrupted duty at temperatures  $> +60$  °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

#### Control and auxiliary circuits

The solenoid coils of the contactor relays have an extended coil operating range from  $0.7$  to  $1.25$  or  $1.3 \times U_s$  and are fitted as standard with suppressor diodes. The opening delay is consequently  $2$  to  $5$  ms longer than for standard contactors.

### Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e. g. railway applications under extreme climatic conditions, rolling mills, etc.

Also for control supply voltages with battery buffer for longer operating times should the battery charging fail.

#### Contactors without series resistor

##### Control and auxiliary circuits

These contactors have an extended operating range from  $0.7$  to  $1.25 \times U_s$ ; on size S00 the coils are fitted with suppressor diodes, on size S0 with varistors. An additional series resistor is not required.

##### Note:

*An additional auxiliary switch block cannot be mounted.*

##### Side-by-side mounting

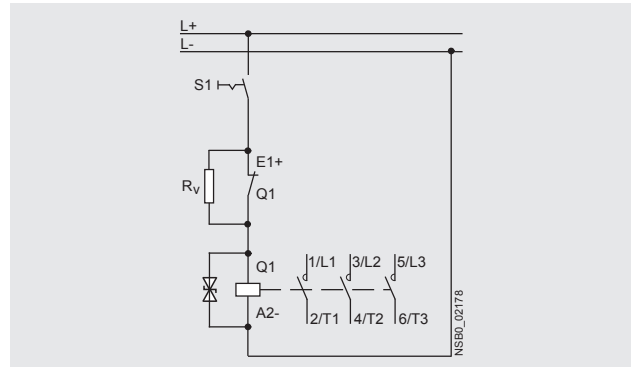
A clearance of  $10$  mm is required for side-by-side mounting at ambient temperatures  $> 60$  °C  $\leq 70$  °C.

### 3RT20 1. contactors with series resistor

#### Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from  $0.7$  to  $1.25 \times U_s$  and are fitted as standard with suppressor diodes to provide protection against overvoltage.

The DC solenoid systems of the contactors are modified (to holding excitation) by means of a series resistor.



The size S00 contactors are supplied prewired with a plug-on module containing the series resistor. The suppressor diode is integrated. A 4-pole auxiliary switch block (according to EN 50005) can be fitted additionally.

A circuit diagram showing the terminals is labeled on each contactor. One NC of the auxiliary contacts is required for the series resistor function. The selection and ordering data shows the number of additional, unassigned auxiliary contacts. With size S00 it is possible to extend the number of auxiliary contacts.

#### Side-by-side mounting

At ambient temperatures up to  $70$  °C, the size S00 contactors and contactor relays are allowed to be mounted side by side.

### 3RT20 2. contactors with solid-state operating mechanism, extended operating range

#### Control and auxiliary circuits

The solenoid coils of the contactors have an extended coil operating range from  $0.7$  to  $1.3 \times U_s$  and are fitted as standard with varistors to provide protection against overvoltage.

The contactors are energized via upstream control electronics which ensure the coil operating range of  $0.7$  to  $1.3 \times U_s$  at an ambient temperature of  $70$  °C. They are supplied as complete units with integrated coil electronics. A varistor is integrated for damping opening surges in the coil.

The mounting possibilities for auxiliary switches correspond to those of the standard contactors for switching motors in the matching size (see page 2/58).

#### Side-by-side mounting

Side-by-side mounting is permitted at ambient temperatures up to  $70$  °C for these contactor versions in size S0.

# 3RT, 3RH Contactors for Special Applications

## 3RT20 motor contactors, 7.5 ... 25 HP

### Selection and ordering data

**DC operation · DC solenoid system**

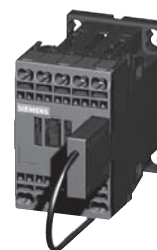
**Spring-type terminals**

**For screw and snap-on mounting onto standard mounting rail**

**Solenoid coil fitted with suppressor diode (S00)**



3RT20 1.-2K.4.



3RT20 1.-2K.42-0LA0

| Rated data                     |       |       |              |       | Auxiliary contacts                                                                |                                                                                   | Rated control supply voltage<br>$U_s$ | Spring-type terminals<br> | Weight approx. |
|--------------------------------|-------|-------|--------------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------|
| AC-3                           |       |       |              |       | Ident. No.                                                                        | Version                                                                           |                                       |                                                                                                              |                |
| Operational current $I_e$ at   |       |       |              |       |                                                                                   |                                                                                   |                                       | Order No.                                                                                                    |                |
| Ratings of induction motors at |       |       |              |       |                                                                                   |                                                                                   |                                       |                                                                                                              |                |
| 400 V                          | 200 V | 230 V | <b>460 V</b> | 575 V |  |  | V DC                                  |                                                                                                              | kg             |
| A                              | HP    | HP    | <b>HP</b>    | HP    | NO                                                                                | NC                                                                                |                                       |                                                                                                              |                |

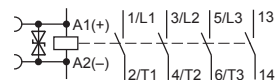
### 3RT20 contactors for switching motors

**Size S00**

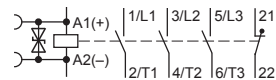
**Without series resistor<sup>4)</sup>**

Terminal designations according to EN 50012 or EN 50005

- 1 NO, identification number **10E**

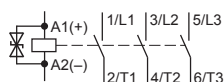


- 1 NC, identification number **01**



|    |    |   |            |    |                         |    |    |     |                       |       |
|----|----|---|------------|----|-------------------------|----|----|-----|-----------------------|-------|
| 12 | -- | 3 | <b>7.5</b> | 10 | <b>10E<sup>1)</sup></b> | 1  | -- | 24  | <b>3RT20 17-2KB41</b> | 0.300 |
|    |    |   |            |    |                         |    |    | 125 | <b>3RT20 17-2KG41</b> | 0.300 |
| 12 | -- | 3 | <b>7.5</b> | 10 | <b>01<sup>1)</sup></b>  | -- | 1  | 24  | <b>3RT20 17-2KB42</b> | 0.300 |
|    |    |   |            |    |                         |    |    | 125 | <b>3RT20 17-2KG42</b> | 0.300 |

### With series resistor



|    |    |   |            |    |                  |    |                 |     |                            |       |
|----|----|---|------------|----|------------------|----|-----------------|-----|----------------------------|-------|
| 12 | -- | 3 | <b>7.5</b> | 10 | -- <sup>2)</sup> | -- | 1 <sup>3)</sup> | 24  | <b>3RT20 17-2KB42-0LA0</b> | 0.300 |
|    |    |   |            |    |                  |    |                 | 125 | <b>3RT20 17-2KG42-0LA0</b> | 0.300 |
| 16 | -- | 5 | <b>10</b>  | 10 | -- <sup>2)</sup> | -- | 1 <sup>3)</sup> | 24  | <b>3RT20 18-2KB42-0LA0</b> | 0.300 |
|    |    |   |            |    |                  |    |                 | 125 | <b>3RT20 18-2KG42-0LA0</b> | 0.300 |

For accessories and spare parts, see page 2/66-2/69.

<sup>1)</sup> It is not possible to mount an auxiliary switch block. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.

<sup>2)</sup> One 4-pole auxiliary switch block according to EN 50005 can be mounted; no distance required up to 70 °C.

<sup>3)</sup> NC contact cannot be used because it is required for switching the series resistor.

<sup>4)</sup> Versions available with screw terminals.

## 3RT, 3RH Contactors for Special Applications

3RT20 motor contactors, 7.5 ... 25 HP

DC operation · DC solenoid system

Spring-type terminals

For screw and snap-on mounting onto standard mounting rail

Solenoid coil fitted with varistor (S0)



3RT20 2.-2K.40



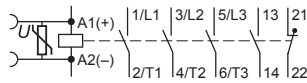
3RT20 2.-2X.40-0LA2

| Rated data<br>AC-3                 |                                      | Auxiliary contacts |                                                                                                                                                                     | Rated control<br>supply voltage<br>$U_s$ |      | Spring-type terminals<br> | Weight<br>approx. |
|------------------------------------|--------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------|--------------------------------------------------------------------------------------------------------------|-------------------|
| Operational<br>current $I_e$<br>at | Ratings of<br>induction motors<br>at | Ident.<br>No.      | Version                                                                                                                                                             |                                          |      |                                                                                                              |                   |
| 400 V                              | 200 V 230 V <b>460 V</b> 575 V       |                    |   |                                          | V DC | Order No.                                                                                                    | kg                |
| A                                  | HP HP <b>HP</b> HP                   |                    | NO NC                                                                                                                                                               |                                          |      |                                                                                                              |                   |

## 3RT20 contactors for switching motors

## Size S0

Terminal designations according to EN 50012

1 NO + 1 NC, identification number **11E**Without series resistor<sup>1)</sup>

|    |    |     |           |    |            |   |   |           |                                                |                |
|----|----|-----|-----------|----|------------|---|---|-----------|------------------------------------------------|----------------|
| 16 | -- | 5   | <b>10</b> | 15 | <b>11E</b> | 1 | 1 | 24<br>125 | <b>3RT20 25-2KB40</b><br><b>3RT20 25-2KG40</b> | 0.600<br>0.600 |
| 25 | -- | 7.5 | <b>15</b> | 20 | <b>11E</b> | 1 | 1 | 24<br>125 | <b>3RT20 26-2KB40</b><br><b>3RT20 26-2KG40</b> | 0.600<br>0.600 |
| 32 | -- | 10  | <b>20</b> | 25 | <b>11E</b> | 1 | 1 | 24<br>125 | <b>3RT20 27-2KB40</b><br><b>3RT20 27-2KG40</b> | 0.600<br>0.600 |

With solid-state operating mechanism

|    |    |     |           |    |            |   |   |           |                                                          |                |
|----|----|-----|-----------|----|------------|---|---|-----------|----------------------------------------------------------|----------------|
| 16 | -- | 5   | <b>10</b> | 15 | <b>11E</b> | 1 | 1 | 24<br>125 | <b>3RT20 25-2XB40-0LA2</b><br><b>3RT20 25-2XG40-0LA2</b> | 0.580<br>0.580 |
| 25 | -- | 7.5 | <b>15</b> | 20 | <b>11E</b> | 1 | 1 | 24<br>125 | <b>3RT20 26-2XB40-0LA2</b><br><b>3RT20 26-2XG40-0LA2</b> | 0.580<br>0.580 |
| 32 | -- | 10  | <b>20</b> | 25 | <b>11E</b> | 1 | 1 | 24<br>125 | <b>3RT20 27-2XB40-0LA2</b><br><b>3RT20 27-2XG40-0LA2</b> | 0.580<br>0.580 |
| 38 | -- | 10  | <b>25</b> | 25 | <b>11E</b> | 1 | 1 | 24<br>125 | <b>3RT20 28-2XB40-0LA2</b><br><b>3RT20 28-2XG40-0LA2</b> | 0.580<br>0.580 |

For accessories and spare parts, see page 2/66-2/69.

<sup>1)</sup> It is not possible to mount an auxiliary switch block. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.

## More information

| Contactors                                        | Type      |    | 3RT20 17                      | 3RT20 2. | 3RT20 2.-2XB40-0LA2 | 3RT20 2.-2XF40-0LA2 |
|---------------------------------------------------|-----------|----|-------------------------------|----------|---------------------|---------------------|
| <b>Ambient temperature</b>                        |           |    |                               |          |                     |                     |
| • During operation                                |           | °C | -40 ... +70                   |          |                     |                     |
| • During storage                                  |           | °C | -55 ... +80                   |          |                     |                     |
| <b>Solenoid coil operating range</b>              | DC        |    | 0.7 ... 1.25 x $U_s$          |          | 0.7 ... 1.3 x $U_s$ |                     |
| <b>Power consumption of the solenoid coils</b>    |           |    | For cold coil and 1.0 x $U_s$ |          |                     |                     |
| • Contactors with series resistor                 | - Closing | W  | 13                            | --       | --                  | --                  |
|                                                   | - Closed  | W  | 4                             | --       | --                  | --                  |
| • Contactors without series resistor              | - Closing | W  | 2.8                           | 4.5      | --                  | --                  |
|                                                   | - Closed  | W  | 2.8                           | 4.5      | --                  | --                  |
| • Contactors with solid-state operating mechanism | - Closing | W  | --                            | --       | 6.7                 | 13.2                |
|                                                   | - Closed  | W  | --                            | --       | 0.8                 | 1.56                |

All specs and technical specs not mentioned here are identical to those of the standard contactors for switching motors.

# Contactors for Special Applications

## 3RT26 capacitor contactors

### AC operation

IEC 60947-5, DIN EN 60947-5-1, (VDE 0660 Part 200)

The contactors are suitable for use in any climate and are finger safe per DIN EN 50274.

The 3RT26 capacitor contactors are application specific variants of the size S00 to S2 SIRIUS Innovations contactors. The capacitors are precharged by means of the mounted leading NO contacts and resistors; only then do the main contacts close.

This prevents disturbances in the power system and welding of the contactors.

Only discharged capacitors are permitted to be switched on with capacitor contactors. Recommendation: use discharge chokes for parallel connection with the capacitors.

The capacitor contactors of size S00 contain either 1NO or 1NC in the basic unit and another unassigned NC contact in the auxiliary switch block fitted to the basic unit.

The auxiliary switch block which is snapped onto the capacitor contactor of sizes S0 contains the three leading NO contacts and one standard NO contact, which is unassigned.

The capacitor contactors of size S2 can be fitted additionally with a 2-pole auxiliary switch on the right side (2 NO, 2 NC or 1 NO + 1 NC), type 3RH19 21-1EA.. for lateral mounting.

For the capacitor making and breaking capacity of the basic 3RT20 contactor variant, see the technical data.

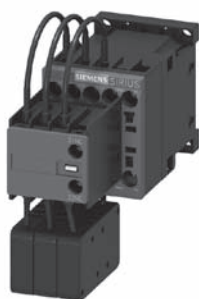
### Selection and ordering data

#### AC operation

| AC-6b utilization category<br>For switching three-phase capacitors at an ambient temperature of 60 °C <sup>2)</sup> |         |         |         |         | Current | Auxiliary contacts, unassigned | Rated control supply voltage $U_s^{1)3)}$ | Screw connection | Weight approx. |
|---------------------------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|--------------------------------|-------------------------------------------|------------------|----------------|
| UL capacitor rating at operational voltage                                                                          |         |         |         |         |         |                                |                                           | Order No.        |                |
|                                                                                                                     | 200/208 | 230/240 | 460/480 | 575/600 |         |                                |                                           |                  |                |
| Phase                                                                                                               | kvar    | kvar    | kvar    | kvar    |         |                                | AC                                        |                  | kg             |

#### For screwing and snapping onto 35 mm standard mounting rail

3RT26 17-1AK63



| • Size S00 |    |     |     |    | Current | Auxiliary contacts, unassigned | Rated control supply voltage $U_s^{1)3)}$ | Screw connection | Weight approx. |
|------------|----|-----|-----|----|---------|--------------------------------|-------------------------------------------|------------------|----------------|
| 1Ø         | 3Ø | 4   | 8.3 | 10 |         |                                |                                           |                  |                |
| 1Ø         | 3Ø | 3.6 | 6.2 | 4  | 18      | 1NO / 1NC                      | 24 V, 50/60 Hz                            | 3RT26 17-1AB03   | 0.24           |
|            |    |     |     |    |         |                                | 120 V, 60 Hz                              | 3RT26 17-1AK63   |                |
|            |    |     |     |    |         |                                | 240 V, 60 Hz                              | 3RT26 17-1AP63   |                |

| • Size S0 |    |     |     |     | Current | Auxiliary contacts, unassigned | Rated control supply voltage $U_s^{1)3)}$ | Screw connection | Weight approx. |
|-----------|----|-----|-----|-----|---------|--------------------------------|-------------------------------------------|------------------|----------------|
| 1Ø        | 3Ø | 4.8 | 8.3 | 5.3 |         |                                |                                           |                  |                |
| 1Ø        | 3Ø | 4.8 | 8.3 | 5.3 | 24      | 1NO / 2NC                      | 24 V, 50/60 Hz                            | 3RT26 25-1AC25   | 0.49           |
|           |    |     |     |     |         |                                | 120 V, 60 Hz                              | 3RT26 25-1AK65   |                |
|           |    |     |     |     |         |                                | 240 V, 60 Hz                              | 3RT26 25-1AP65   |                |
| 1Ø        | 3Ø | 5.8 | 10  | 6.4 | 29      | 1NO / 2NC                      | 24 V, 50/60 Hz                            | 3RT26 26-1AC25   | 0.49           |
|           |    |     |     |     |         |                                | 120 V, 60 Hz                              | 3RT26 26-1AK65   |                |
|           |    |     |     |     |         |                                | 240 V, 60 Hz                              | 3RT26 26-1AP65   |                |

|    |    |     |    |     | Current | Auxiliary contacts, unassigned | Rated control supply voltage $U_s^{1)3)}$ | Screw connection | Weight approx. |
|----|----|-----|----|-----|---------|--------------------------------|-------------------------------------------|------------------|----------------|
| 1Ø | 3Ø | 6.6 | 11 | 7.3 |         |                                |                                           |                  |                |
| 1Ø | 3Ø | 6.6 | 11 | 7.3 | 33      | 1NO / 2NC                      | 24 V, 50/60 Hz                            | 3RT26 27-1AC25   | 0.49           |
|    |    |     |    |     |         |                                | 120 V, 60 Hz                              | 3RT26 27-1AK65   |                |
|    |    |     |    |     |         |                                | 240 V, 60 Hz                              | 3RT26 27-1AP65   |                |
| 1Ø | 3Ø | 8.6 | 15 | 9.5 | 43      | 1NO / 2NC                      | 24 V, 50/60 Hz                            | 3RT26 28-1AC25   | 0.59           |
|    |    |     |    |     |         |                                | 120 V, 60 Hz                              | 3RT26 28-1AK65   |                |
|    |    |     |    |     |         |                                | 240 V, 60 Hz                              | 3RT26 28-1AP65   |                |

| • Size S2 |    |    |    |    | Current | Auxiliary contacts, unassigned | Rated control supply voltage $U_s^{1)3)}$ | Screw connection | Weight approx. |
|-----------|----|----|----|----|---------|--------------------------------|-------------------------------------------|------------------|----------------|
| 1Ø        | 3Ø | 14 | 25 | 16 |         |                                |                                           |                  |                |
| 1Ø        | 3Ø | 14 | 25 | 16 | 72A     | 2 NC                           | 23-33 VUC                                 | 3RT26 36-1NB35   | 1.11           |
|           |    |    |    |    |         |                                | 83-155 VUC                                | 3RT26 36-1NF35   |                |
|           |    |    |    |    |         |                                | 175-280 VUC                               | 3RT26 36-1NP35   |                |
| 1Ø        | 3Ø | 20 | 34 | 22 | 98A     | 2 NC                           | 20-33 VUC                                 | 3RT26 37-1NB35   | 1.11           |
|           |    |    |    |    |         |                                | 83-155 VUC                                | 3RT26 37-1NF35   |                |
|           |    |    |    |    |         |                                | 175-280 VUC                               | 3RT26 37-1NP35   |                |

1) Coil voltage tolerance: 0.85 ... 1.1 x  $U_s$ .

2) A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C

For further voltages, see page 2/49.

For auxiliaries and accessories, see page 2/66-2/83.

For technical data, see page 2/170.

For wiring diagram, see page 2/198.

For dimension drawings, see page 2/217.

#### DC Coil Selection for 3RT261 only

| •• Coil Code | B4   | W4   | E4   | F4    | G4    | M4    |
|--------------|------|------|------|-------|-------|-------|
| DC           | 24 V | 48 V | 60 V | 110 V | 125 V | 220 V |

#### UC Coil Selection for 3RT262

| •• Coil Code | NB3    | NF3     | NP3      |
|--------------|--------|---------|----------|
| UC           | 21-28V | 95-130V | 200-280V |

#### UC Coil Selection for 3RT263

| •• Coil Code | B3     | F3      | P3       |
|--------------|--------|---------|----------|
| UC           | 20-33V | 83-155V | 175-280V |

3) at upper limit = 1.1 x  $U_s$

# Contactors for Special Applications

## 3RT20 coupling contactors (interface) for switching motors, 3-pole

### AC and DC operation

IEC 60947, EN 60947.

The 3RT20 coupling contactors for switching motors are tailored to the special requirements of working with electronic controls.

The 3RT20 1 coupling contactors cannot be expanded with auxiliary switch blocks. Coupling contactors have a low power consumption and an extended solenoid coil operating range.

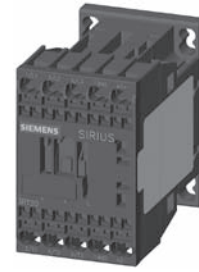
Depending on the version, the solenoid coils are supplied either without overvoltage damping or with a diode, suppressor diode or varistor connected as standard.

### Selection and ordering data

#### DC operation



3RT2015-1HB41



3RT2015-2HB41

| Surge suppressor | Ratings Utilization category |                                                   | Auxiliary contacts |        | Screw connection | Spring-type connection | Weight approx. |
|------------------|------------------------------|---------------------------------------------------|--------------------|--------|------------------|------------------------|----------------|
|                  | AC-3                         |                                                   | Ident. no.         | Design | Order No.        | Order No.              | (screw/spring) |
|                  | Maximum inductive current    | Maximum <sup>1)</sup> horsepower ratings at 460 V |                    |        |                  |                        |                |
|                  | Amps                         | HP                                                |                    | NO NC  |                  |                        | kg             |

#### For screwing and snapping onto 35 mm standard mounting rail

##### • Size S00

Terminal designations according to EN 50 012

Rated control supply voltage  $U_s$  = DC 24 V, coil voltage tolerance **0.7 to 1.25** ×  $U_s$

Power consumption of the coils **2.8 W** at 24 V (no auxiliary switch blocks can be mounted)

|                                              |    |     |        |     |                                    |                                    |           |
|----------------------------------------------|----|-----|--------|-----|------------------------------------|------------------------------------|-----------|
| Diode, varistor or RC element can be mounted | 7  | 3   | 10E 01 | 1 – | 3RT20 15-1HB41<br>3RT20 15-1HB42   | 3RT20 15-2HB41<br>3RT20 15-2HB42   | 0.28/0.30 |
| Diode integrated                             | 7  | 3   | 10E 01 | 1 – | 3RT20 15-1J B41<br>3RT20 15-1J B42 | 3RT20 15-2J B41<br>3RT20 15-2J B42 | 0.28/0.30 |
| Suppressor diode integrated                  | 7  | 3   | 10E 01 | 1 – | 3RT20 15-1KB41<br>3RT20 15-1KB42   | 3RT20 15-2KB41<br>3RT20 15-2KB42   | 0.28/0.30 |
| Diode, varistor or RC element can be mounted | 9  | 5   | 10E 01 | 1 – | 3RT20 16-1HB41<br>3RT20 16-1HB42   | 3RT20 16-2HB41<br>3RT20 16-2HB42   | 0.28/0.30 |
| Diode integrated                             | 9  | 5   | 10E 01 | 1 – | 3RT20 16-1J B41<br>3RT20 16-1J B42 | 3RT20 16-2J B41<br>3RT20 16-2J B42 | 0.28/0.30 |
| Suppressor diode integrated                  | 9  | 5   | 10E 01 | 1 – | 3RT20 16-1KB41<br>3RT20 16-1KB42   | 3RT20 16-2KB41<br>3RT20 16-2KB42   | 0.28/0.30 |
| Diode, varistor or RC element can be mounted | 12 | 7.5 | 10E 01 | 1 – | 3RT20 17-1HB41<br>3RT20 17-1HB42   | 3RT20 17-2HB41<br>3RT20 17-2HB42   | 0.28/0.30 |
| Diode integrated                             | 12 | 7.5 | 10E 01 | 1 – | 3RT20 17-1J B41<br>3RT20 17-1J B42 | 3RT20 17-2J B41<br>3RT20 17-2J B42 | 0.28/0.30 |
| Suppressor diode integrated                  | 12 | 7.5 | 10E 01 | 1 – | 3RT20 17-1KB41<br>3RT20 17-1KB42   | 3RT20 17-2KB41<br>3RT20 17-2KB42   | 0.28/0.30 |

For technical data, see page 2/171.

For int. circuit diagrams, see page 2/190-2/195.

For dimension drawings, see page 2/209.

1) Complete HP ratings on [page 2/124](#)

# Contactors for Special Applications

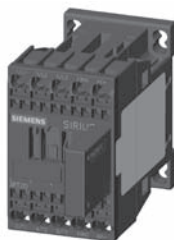
## 3RT20 coupling contactors (interface) for switching motors

### Selection and ordering data

#### DC operation



3RT2015-1VB41



3RT2015-2VB41



3RT2024-1KB40

| Surge suppressor | Ratings                   |                                     | Auxiliary contacts |        | Screw connection | Spring-type connection | Weight approx.<br>(screw/spring) |
|------------------|---------------------------|-------------------------------------|--------------------|--------|------------------|------------------------|----------------------------------|
|                  | Utilization category      |                                     | Ident. no.         | Design |                  |                        |                                  |
|                  | AC-3                      |                                     |                    |        | Order No.        | Order No.              |                                  |
|                  | Maximum inductive current | Maximum horsepower ratings at 460 V |                    |        |                  |                        |                                  |
|                  | Amps                      | HP                                  | NO                 | NC     |                  |                        | kg                               |

#### For screwing and snapping onto 35 mm standard mounting rail

##### • Size S00

Terminal designations according to EN 50 012

Rated control supply voltage  $U_s$  = DC 24 V, coil voltage tolerance **0.85 to 1.85** ×  $U_s$

Power consumption of the coils **1.6 W** at 24 V (no auxiliary switch blocks can be mounted)

|                                              |    |     |        |     |                                            |                                            |           |
|----------------------------------------------|----|-----|--------|-----|--------------------------------------------|--------------------------------------------|-----------|
| Diode, varistor or RC element can be mounted | 7  | 3   | 10E 01 | 1 – | 3RT20 15-1MB41-0KT0<br>3RT20 15-1MB42-0KT0 | 3RT20 15-2MB41-0KT0<br>3RT20 15-2MB42-0KT0 | 0.28/0.30 |
| Diode integrated                             | 7  | 3   | 10E 01 | 1 – | 3RT20 15-1VB41<br>3RT20 15-1VB42           | 3RT20 15-2VB41<br>3RT20 15-2VB42           | 0.28/0.30 |
| Suppressor diode integrated                  | 7  | 3   | 10E 01 | 1 – | 3RT20 15-1SB41<br>3RT20 15-1SB42           | 3RT20 15-2SB41<br>3RT20 15-2SB42           | 0.28/0.30 |
| Diode, varistor or RC element can be mounted | 9  | 5   | 10E 01 | 1 – | 3RT20 16-1MB41-0KT0<br>3RT20 16-1MB42-0KT0 | 3RT20 16-2MB41-0KT0<br>3RT20 16-2MB42-0KT0 | 0.28/0.30 |
| Diode integrated                             | 9  | 5   | 10E 01 | 1 – | 3RT20 16-1VB41<br>3RT20 16-1VB42           | 3RT20 16-2VB41<br>3RT20 16-2VB42           | 0.28/0.30 |
| Suppressor diode integrated                  | 9  | 5   | 10E 01 | 1 – | 3RT20 16-1SB41<br>3RT20 16-1SB42           | 3RT20 16-2SB41<br>3RT20 16-2SB42           | 0.28/0.30 |
| Diode, varistor or RC element can be mounted | 12 | 7.5 | 10E 01 | 1 – | 3RT20 17-1MB41-0KT0<br>3RT20 17-1MB42-0KT0 | 3RT20 17-2MB41-0KT0<br>3RT20 17-2MB42-0KT0 | 0.28/0.30 |
| Diode integrated                             | 12 | 7.5 | 10E 01 | 1 – | 3RT20 17-1VB41<br>3RT20 17-1VB42           | 3RT20 17-2VB41<br>3RT20 17-2VB42           | 0.28/0.30 |
| Suppressor diode integrated                  | 12 | 7.5 | 10E 01 | 1 – | 3RT20 17-1SB41<br>3RT20 17-1SB42           | 3RT20 17-2SB41<br>3RT20 17-2SB42           | 0.28/0.30 |

##### • Size S0

Rated control supply voltage  $U_s$  = DC 24 V, coil voltage tolerance **0.7 to 1.25** ×  $U_s$

Power consumption of the coils **4.5 W** at 24 V no auxiliary switch blocks can be mounted.

|                     |    |     |     |     |                |                |           |
|---------------------|----|-----|-----|-----|----------------|----------------|-----------|
| Varistor integrated | 12 | 7.5 | 11E | 1 1 | 3RT20 24-1KB40 | 3RT20 24-2KB40 | 0.58/0.60 |
|                     | 16 | 10  | 11E | 1 1 | 3RT20 25-1KB40 | 3RT20 25-2KB40 | 0.58/0.60 |
|                     | 25 | 15  | 11E | 1 1 | 3RT20 26-1KB40 | 3RT20 26-2KB40 | 0.58/0.60 |
|                     | 32 | 20  | 11E | 1 1 | 3RT20 27-1KB40 | 3RT20 27-2KB40 | 0.58/0.60 |

For technical data, see page 2/171.

For int. circuit diagrams, see page 2/190-2/195.

For dimension drawings, see page 2/209.

# Contactors & Relays for Safety Applications

3RT, 3TF safety contactors and 3RH2, 3TH2 safety control relays

## Applications

### “Safety” Contactors

Safety rated contactors are required to have mirrored contact construction according to IEC 60947-4-1 Annex F. A mirror contact is a Normally Closed (NC) auxiliary contact which can not be closed simultaneously with a Normally Open (NO) main contact.

In some industries, such as automotive, requirements have been established that a safety rated contactor must also have permanently mounted auxiliary contact blocks. See page 2/23 for Contactors with permanently mounted auxiliary contacts.

### Siemens Contactors for “Safety” applications:

All Siemens standard 3RT, 3TF6, 40HN & 40PH Contactors are provided with positively driven (mirror) contacts which meet or exceed the criteria for “Safety Contactors” according to IEC 60947-4 Annex F which describes the requirements for mirror contact performance. When applying Safety Contactors in safety circuits, the NC auxiliary contacts must be wired in series or parallel and must be used as monitoring contacts with feedback to the safety evaluation device (i.e. safety relay or failsafe logic controller).

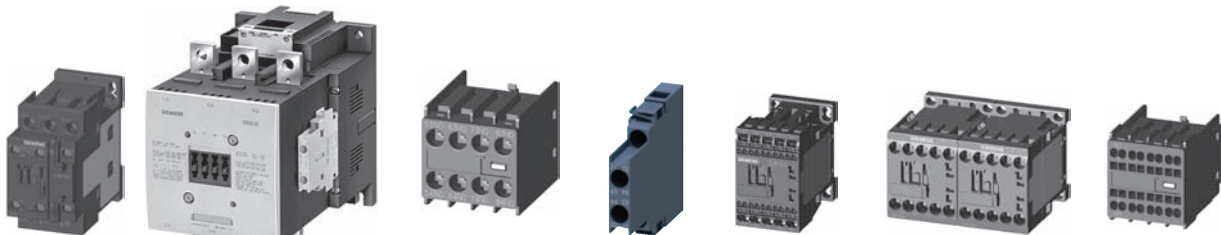
### “Safety” Control Relays

Safety rated control relays are required to have positively driven contact elements according to IEC 60947-5-1 Annex L. Positively driven contact elements are a combination of NO auxiliary contacts and NC auxiliary contacts whose construction prevents them from being closed simultaneously.

In some industries, such as automotive, requirements have been established that a safety rated control relays must also have permanently mounted auxiliary contact blocks. See page 2/18 for Control Relays with permanently mounted auxiliary contacts.

### Siemens Control Relays for “Safety” applications:

All SIRIUS 3RH control relays (with at least 1 NC contact) meet or exceed the criteria for “Safety Control Relays” according to IEC 60947-5-1 Annex L. This is true for the basic 3RH relay with or without an additional auxiliary contact block.



3RT20 2.-1A.00

3RT10 7.-6A..6

3RH29 21.-1F

3RH29 21.-1DA 11

3RH21

3RH24

3RH2911-2HA..

| Frame size | Contactors | Auxiliary contact block |
|------------|------------|-------------------------|
| S00        | 3RT201     | 3RH2911                 |
|            | 3RT231     |                         |
|            | 3RT251     |                         |
|            | 3RT261     |                         |
| S0         | 3RT202     | 3RH2921                 |
|            | 3RT232     |                         |
|            | 3RT252     |                         |
|            | 3RT262     |                         |
| S2         | 3RT203     | 3RH2921                 |
|            | 3RT233     |                         |
|            | 3RT253     |                         |
|            | 3RT263     |                         |
| S3         | 3RT204     | 3RH2921                 |
|            | 3RT234     |                         |
|            | 3RT244     |                         |
|            | 3RT264     |                         |
| S6         | 3RT105     | 3RH1921                 |
|            | 3RT145     |                         |
| S10        | 3RT106     | 3RH1921                 |
|            | 3RT126     |                         |
|            | 3RT146     |                         |
| S12        | 3RT107     | 3RH1921                 |
|            | 3RT127     |                         |
|            | 3RT147     |                         |
|            | 3TF6       | 3TY7561-1UA00           |

| Frame size | Control Relays | Auxiliary contact block |
|------------|----------------|-------------------------|
| S00        | 3RH21          | 3RH2911                 |
|            | 3RH24          |                         |
|            | 3TH20          | 3TX44                   |

For contactors, see pages 2/8-2/9.  
For auxiliaries contact blocks, see pages 2/66-2/68.  
For control relays, see pages 2/50-2/52.  
For auxiliaries contact blocks, see page 2/66-2/68..

# Contactors & Relays for Safety Applications

3RT safety contactors, 3RH2 safety control relays with permanently mounted auxiliary contact blocks

## Application

### "Safety" Contactors

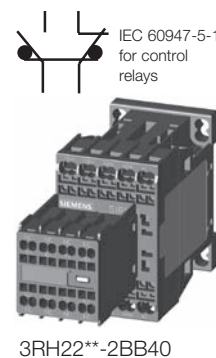
Safety rated contactors are required to have mirrored contact construction according to IEC 60947-4 Annex F. A mirror contact is a Normally Closed (NC) auxiliary contact which can not be closed simultaneously with a Normally Open (NO) main contact. In some industries, such as Automotive, the auxiliary contact blocks are required to be permanently attached to meet the requirements of "unintentional misuse" as specified in IEC 60292, paragraph 3.12. Tested by SUVA.



3RT202\* - 1AK64-3MA0

### "Safety" Control Relays

Safety rated control relays are required to have positively driven contact elements according to IEC 60947-5-1 Annex L. Positively driven contact elements are a combination of NO auxiliary contacts and NC auxiliary contacts whose construction prevents them from being closed simultaneously. In some industries, such as automotive, the auxiliary contact blocks are required to be permanently attached to meet the requirements of "unintentional misuse" as specified in IEC 60292, paragraph 3.12. Tested by SUVA.



3RH22\*\* - 2BB40

## Application

| Frame Size                                                          | Max. current     |     | Single-phase HP ratings |          | Three-phase HP ratings |      |      |      | Auxiliary contacts |    |    | Screw Terminals<br>Order No. | Spring-Type Terminals <sup>1)</sup><br>Order No. |
|---------------------------------------------------------------------|------------------|-----|-------------------------|----------|------------------------|------|------|------|--------------------|----|----|------------------------------|--------------------------------------------------|
|                                                                     | AC3              | AC1 | 115V                    | 220/240V | 200V                   | 230V | 460V | 575V | Ident. No.         | NO | NC |                              |                                                  |
|                                                                     | A                | A   | HP                      | HP       | HP                     | HP   | HP   | HP   |                    |    |    |                              |                                                  |
| <b>Contactors with permanently mounted auxiliary contact blocks</b> |                  |     |                         |          |                        |      |      |      |                    |    |    |                              |                                                  |
| S00                                                                 | 6                | 18  | ¼                       | ¾        | 1 ½                    | 2    | 3    | 5    | 22E                | 2  | 2  | 3RT2015-1●●●4-3MA0           | 3RT2015-2●●●4-3MA0                               |
|                                                                     | 9                | 22  | ½                       | 1        | 2                      | 3    | 5    | 7 ½  | 22E                | 2  | 2  | 3RT2016-1●●●4-3MA0           | 3RT2016-2●●●4-3MA0                               |
|                                                                     | 12               | 22  | ½                       | 2        | 3                      | 3    | 7 ½  | 10   | 22E                | 2  | 2  | 3RT2017-1●●●4-3MA0           | 3RT2017-2●●●4-3MA0                               |
|                                                                     | 16               | 22  | 1                       | 2        | 3                      | 5    | 10   | 10   | 22E                | 2  | 2  | 3RT2018-1●●●4-3MA0           | 3RT2018-2●●●4-3MA0                               |
| S0                                                                  | 9                | 40  | 1                       | 1        | 2                      | 3    | 5    | 7 ½  | 22E                | 2  | 2  | 3RT2023-1●●●4-3MA0           | 3RT2023-2●●●4-3MA0                               |
|                                                                     | 12               | 40  | 1                       | 2        | 3                      | 3    | 7 ½  | 10   | 22E                | 2  | 2  | 3RT2024-1●●●4-3MA0           | 3RT2024-2●●●4-3MA0                               |
|                                                                     | 17               | 40  | 1                       | 3        | 5                      | 5    | 10   | 15   | 22E                | 2  | 2  | 3RT2025-1●●●4-3MA0           | 3RT2025-2●●●4-3MA0                               |
|                                                                     | 25               | 40  | 2                       | 3        | 7 ½                    | 7 ½  | 15   | 20   | 22E                | 2  | 2  | 3RT2026-1●●●4-3MA0           | 3RT2026-2●●●4-3MA0                               |
| S2                                                                  | 32               | 50  | 2                       | 5        | 10                     | 10   | 20   | 25   | 22E                | 2  | 2  | 3RT2027-1●●●4-3MA0           | 3RT2027-2●●●4-3MA0                               |
|                                                                     | 38               | 50  | 3                       | 5        | 10                     | 10   | 25   | 25   | 22E                | 2  | 2  | 3RT2028-1●●●4-3MA0           | 3RT2028-2●●●4-3MA0                               |
|                                                                     | 40               | 60  | 3                       | 7 ½      | 10                     | 15   | 30   | 40   | 22E                | 2  | 2  | 3RT2035-1●●●4-3MA0           | 3RT2035-3●●●4-3MA0                               |
|                                                                     | 50               | 70  | 3                       | 10       | 15                     | 15   | 40   | 50   | 22E                | 2  | 2  | 3RT2036-1●●●4-3MA0           | 3RT2036-3●●●4-3MA0                               |
| S3                                                                  | 65               | 80  | 5                       | 10       | 20                     | 20   | 50   | 50   | 22E                | 2  | 2  | 3RT2037-1●●●4-3MA0           | 3RT2037-3●●●4-3MA0                               |
|                                                                     | 80 <sup>4)</sup> | 90  | 5                       | 15       | 20                     | 25   | 50   | 60   | 22E                | 2  | 2  | 3RT2038-1●●●4-3MA0           | 3RT2038-3●●●4-3MA0                               |
|                                                                     | 95               | 120 | 7 ½                     | 15       | 25                     | 30   | 60   | 75   | 22E                | 2  | 2  | 3RT2045-1●●●4-3MA0           | 3RT2045-3●●●4-3MA0                               |
|                                                                     | 95               | 120 | 10                      | 20       | 30                     | 30   | 75   | 100  | 22E                | 2  | 2  | 3RT2046-1●●●4-3MA0           | 3RT2046-3●●●4-3MA0                               |
| S6                                                                  | 150              | 185 | --                      | 30       | 50                     | 60   | 125  | 150  | 22E                | 2  | 2  | 3RT1055-6●●●6-3PA0           | —                                                |
|                                                                     | 185              | 215 | --                      | 30       | 60                     | 75   | 150  | 200  | 22E                | 2  | 2  | 3RT1056-6●●●6-3PA0           | —                                                |
| S10                                                                 | 225              | 275 | --                      | --       | 60                     | 75   | 150  | 200  | 22E                | 2  | 2  | 3RT1064-6●●●6-3PA0           | —                                                |
|                                                                     | 265              | 330 | --                      | --       | 75                     | 100  | 200  | 250  | 22E                | 2  | 2  | 3RT1065-6●●●6-3PA0           | —                                                |
|                                                                     | 300              | 330 | --                      | --       | 100                    | 125  | 250  | 300  | 22E                | 2  | 2  | 3RT1066-6●●●6-3PA0           | —                                                |

### Control circuit coil options: Replace ●●● with the desired code

| Frame Size S00 - S0             | ●●●        | Frame Size S2        | ●●●        | Frame Size S3        | ●●●        | Frame Size S6 - S10                  | ●●●        |
|---------------------------------|------------|----------------------|------------|----------------------|------------|--------------------------------------|------------|
| 120 V AC                        | <b>AK6</b> | 120 V AC             | <b>AK6</b> | 120 V AC **          | <b>AK6</b> | 23 ... 26 V UC*, conventional coil   | <b>AB3</b> |
| 120 V AC, integrated varistor   | <b>CK6</b> | 120 V AC w/ Varistor | <b>CK6</b> | 24 V DC              | <b>BB4</b> | 21-27 V UC*, solid state coil        | <b>NB3</b> |
| 230 V AC                        | <b>AP0</b> | 24 V DC w/Varistor   | <b>KB4</b> | 24 V DC w/diode assy | <b>QB4</b> | w/ PLC interface                     |            |
| 24 V DC                         | <b>BB4</b> |                      |            |                      |            | 110 ... 127 V UC*, conventional coil | <b>AF3</b> |
| 24 V DC, integrated varistor    | <b>DB4</b> |                      |            |                      |            |                                      |            |
| 24 V DC, integrated diode assy. | <b>FB4</b> |                      |            |                      |            |                                      |            |

\*\*Available in 3RT1046 only

\*UC coil: accepts DC voltage or AC voltage, 40 to 60 Hz.

| Frame Size                                                       | Max. current at 240 V <sup>2)</sup> | Rated control supply voltage U <sub>s</sub> | Auxiliary contacts |    |    | Screw Terminals <sup>3)</sup><br>Order No. | Spring Terminals <sup>3)</sup><br>Order No. |
|------------------------------------------------------------------|-------------------------------------|---------------------------------------------|--------------------|----|----|--------------------------------------------|---------------------------------------------|
|                                                                  |                                     |                                             | Ident. No.         | NO | NC |                                            |                                             |
| Control relays with permanently mounted auxiliary contact blocks |                                     |                                             |                    |    |    |                                            |                                             |
| S00-S00                                                          | 10                                  | 110 V AC, 50 Hz / 120 V AC, 60 Hz           | 44E                | 4  | 4  | 3RH2244-1AK60                              | 3RH2244-2AK60                               |
|                                                                  | 10                                  | 24 V DC                                     | 44E                | 4  | 4  | 3RH2244-1BB40                              | 3RH2244-2BB40                               |
|                                                                  | 10                                  | 110 V AC, 50 Hz / 120 V AC, 60 Hz           | 62E                | 6  | 2  | 3RH2262-1AK60                              | 3RH2262-2AK60                               |
|                                                                  | 10                                  | 24 V DC                                     | 62E                | 6  | 2  | 3RH2262-1BB40                              | 3RH2262-2BB40                               |

For other voltages see page 2/49.

For accessories, see pages 2/73-2/78.

For spare parts, see pages 2/94-2/97.

For technical data, see pages 2/121-2/142.

For description, see pages 2/104-2/105.

For int. circuit diagrams, see page 2/190-2/196.

For dimension drawings, see pages 2/209-2/215.

1) All terminals are spring loaded on frame size S00 and S0. Only the coil and auxiliary contact terminals are spring loaded on frame sizes S2 & S3.

2) For AC-15/AC-14, max current for front mounted auxiliary contacts = 6 A.

3) The 3RH22 control relays are also available with ring lug terminals. Replace the 8th digit of the order number with a "4", e. g. 3RH2244-4AK60

4) Max UL FLA = 65A at 460V