



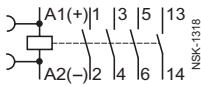
## Internal circuit diagrams

### Size S00

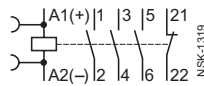
Terminal designations according to EN 50 012

#### 3RT10 1 contactors

**1 NO**  
Ident. no.: 10E



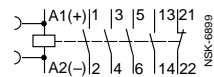
**1 NC**  
01



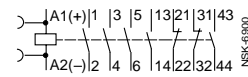
#### 3RT10 1 contactors (with 1 NO)

With 3RH19 11-1H... auxiliary switch blocks, mountable on the front

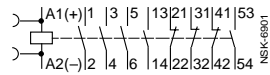
**1 NO + 1 NC**  
Ident. no.: 11E



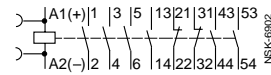
**2 NO + 2 NC**  
22E



**2 NO + 3 NC**  
Ident. no.: 23E



**3 NO + 2 NC**  
32E



### Sizes S0 to S3

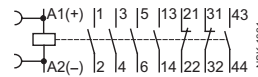
Terminal designations according to EN 50 012

#### 3RT10 2, 3RT10 3, 3RT10 4, 3RT14 46 contactors

#### 3RT10 2, 3RT10 3, 3RT10 4, 3RT14 46 contactors

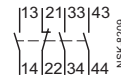
With 3RH19 21-1HA22 4-pole auxiliary switch block, mountable on the front

**2 NO + 2 NC**  
Ident. no.: 22

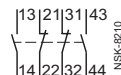


#### 3RH19 21-1HA.. 4-pole auxiliary switch blocks, for snapping onto the front

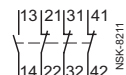
**3 NO + 1 NC**  
Ident. no.: 31



**2 NO + 2 NC**



**1 NO + 3 NC**



#### 3RH19 21-1DA11 first laterally mountable auxiliary switch block<sup>1)</sup>

**1 NO + 1 NC**  
left



**1 NO + 1 NC**  
right



#### 3RH19 21-1JA11 second laterally mountable auxiliary switch block<sup>1)</sup> (only for size S3)

**1 NO + 1 NC**  
left



**1 NO + 1 NC**  
right

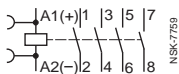


### Contactors with 4 main contacts, size S00

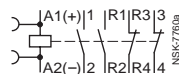
Terminal designations according to EN 50 005

#### 3RT13 and 3RT15 contactors

**4 NO**



**2 NO + 2 NC**



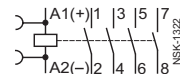
(3RH19 11 auxiliary switch blocks acc. to EN 50 005 can be snapped on)

### Contactors with 4 main contacts, sizes S0 to S3

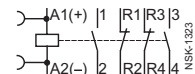
Terminal designations according to EN 50 005

#### 3RT13 and 3RT15 contactors

**4 NO**



**2 NO + 2 NC**



(3RH19 21 auxiliary switch blocks acc. to EN 50 005 can be snapped on)

### Surge suppressor (plug-in direction coded; exception: marked +/- for 3RT19 16-1T... diode assembly) for sizes S00 to S3

Diode



Diode assembly



Varistor



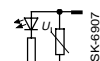
RC element



Diode with LED



Varistor with LED



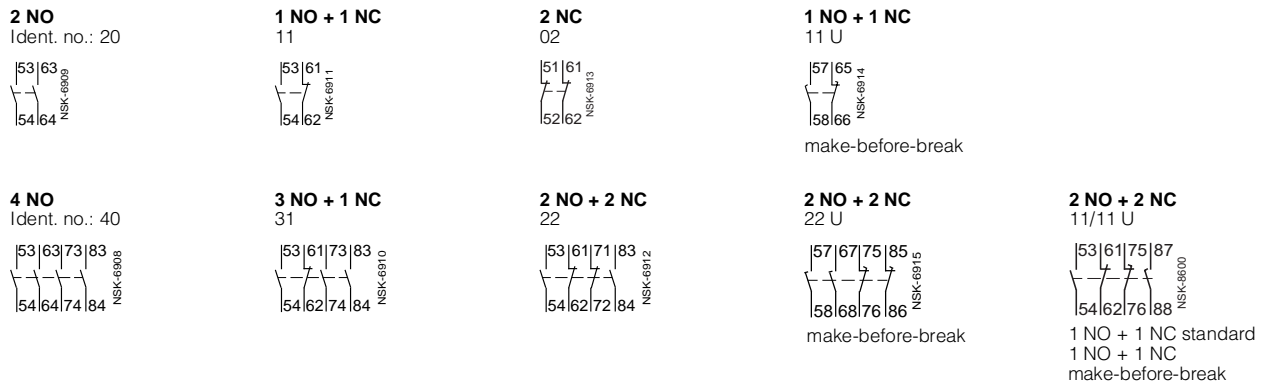
1) Note the location digit.  
Can only be used if no 4-pole auxiliary contact block are snapped onto the front.



#### Accessories for contactor size S00

##### Terminal designations according to EN 50 005

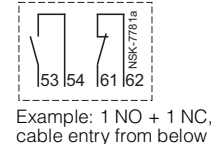
**3RH19 11-1F... auxiliary switch blocks and 3RH19 11-1NF.. solid-state compatible auxiliary switch blocks,** for snapping onto the front



**3RH19 11-1AA.. and 3RH19 11-1BA.. auxiliary switch blocks,** for snapping onto the front, cable entry from above or below

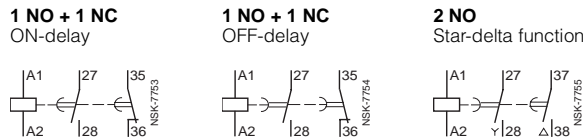


##### Internal wiring



##### Terminal designations according to DIN 46 199 Part 5

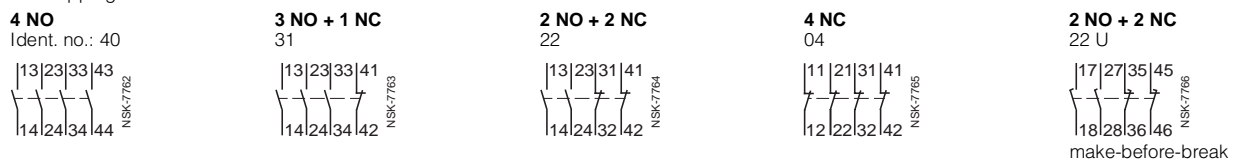
**3RT19 16-2E.../2F.../2G... solid-state, time-delay auxiliary switch blocks**



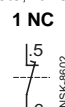
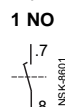
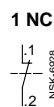
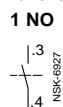
#### Accessories for contactor sizes S0 to S3

##### Terminal designations according to EN 50 005

**3RH19 21-.F... auxiliary switch blocks, 4-pole,** for snapping onto the front



**3RH19 21-1CA.. auxiliary switch blocks, single-pole,** for snapping onto the front



(terminal designations according to EN 50 005 or EN 50 012)

**3RH19 21-1CD.. auxiliary switch blocks, single-pole,** with make-before-break contacts, for snapping onto the front

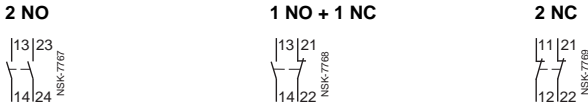


### Internal circuit diagrams

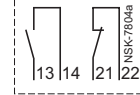
#### Accessories for contactor sizes S0 to S3

##### Terminal designations according to EN 50 005

**3RH19 21-1LA.. and 3RH19 21-1MA.. auxiliary switch blocks, 2-pole,**  
for snapping onto the front,  
cable entry from above or below

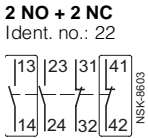


##### Internal wiring

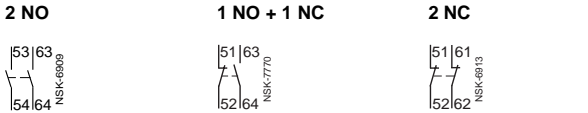


Example: 1 NO + 1 NC,  
cable entry from below

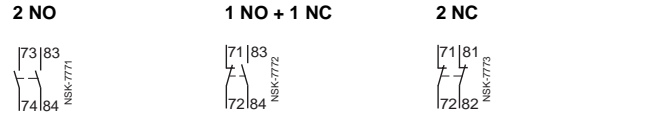
**3RH19 21-1FE22 solid-state compatible auxiliary switch block, 4-pole,**  
for snapping onto the front



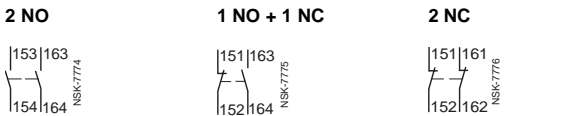
**3RH19 21-1EA.. first laterally mountable auxiliary switch blocks (left)**



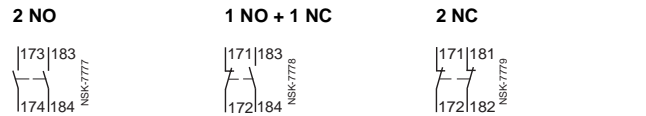
**3RH19 21-1EA.. first laterally mountable auxiliary switch blocks (right)**



**3RH19 21-1KA.. second laterally mountable auxiliary switch blocks (left)**  
(only for size S3)

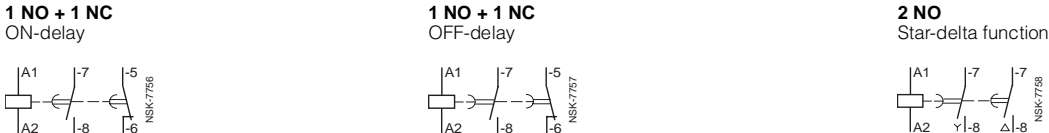


**3RH19 21-1KA.. second laterally mountable auxiliary switch blocks (right)**  
(only for size S3)

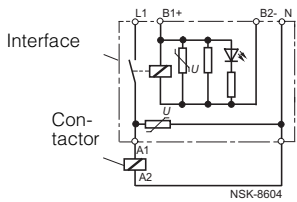


##### Terminal designations according to DIN 46 199 Part 5

**3RT19 26-2E.../2F.../2G... solid-state, time-delay auxiliary switch blocks**



**3RH19 24-1GP11 interface for control by PLC**

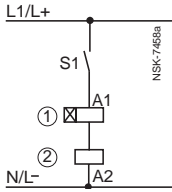




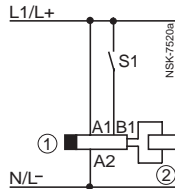
Accessories for contactor sizes S00 to S3

**Solid-state time-delay blocks**  
(see project planning aid on page 3/8!)

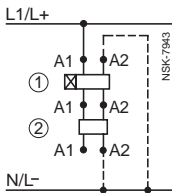
**3RT19 16-2C...**  
ON-delay  
Size S00



**3RT19 16-2D...**  
OFF-delay (with auxiliary voltage)  
Size S00

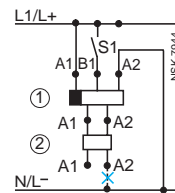


**3RT19 26-2C...**  
ON-delay  
Sizes S0 to S3



A2 can be connected to N(L-) via either the contactor or the time-delay relay.  
--- optional connection

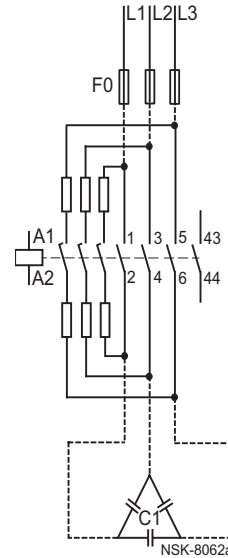
**3RT19 26-2D...**  
OFF-delay (with auxiliary voltage)  
Sizes S0 to S3



A2 can only be connected to N(L-) via the time-delay relay.  
x don't connect

- ① Time-delay block
- ② Contactor

Capacitor contactors  
**3RT16 capacitor contactors**  
Sizes S0 to S3



Contactor with Extended Tolerance

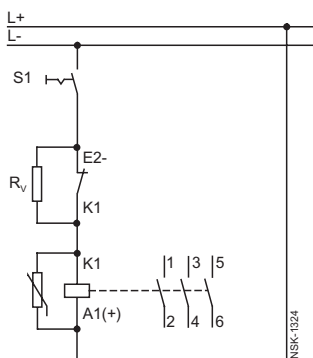
0.7 to 1.25 × U<sub>s</sub>

Internal circuit diagrams

Size S00

Terminal designations according to EN 50 012

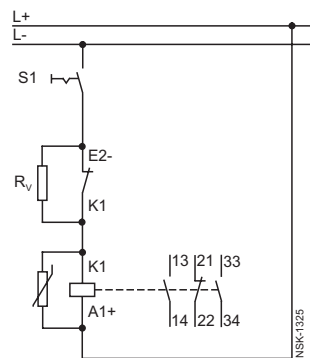
**3RT10 17-2K.42-0LA0 contactors**



Series resistor R<sub>v</sub> plugged on, NC contact prewired.

Terminal designations according to EN 50 005

**3RH11 22-2K.40-0LA0 contactor relays**



Series resistor R<sub>v</sub> plugged on, NC contact prewired.

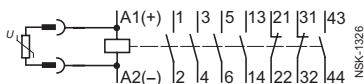
2 NO + 1 NC unassigned

Sizes S0 to S3

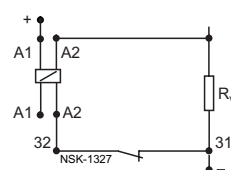
Terminal designations according to EN 50 012

**3RT10 2.-, 3RT10 3.-, 3RT10 4.-3K.44-0LA0 contactors**  
with 3RH19 21-1HA22 4-pole auxiliary switch block, mounted onto the front

**2 NO + 2 NC**  
Ident. no.: 22



**Circuit diagram of the series resistor wiring**



The series resistor is supplied separately packed.  
The 31/32 NC contact is necessary to wire the series resistor.



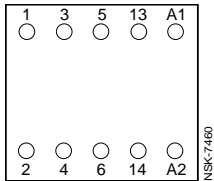
## Position of terminals

### Size S00

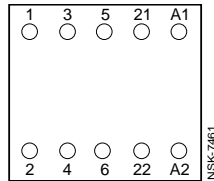
Terminal designations according to EN 50 012

#### 3RT10 1 contactors

**1 NO**  
Ident. no.: 10E



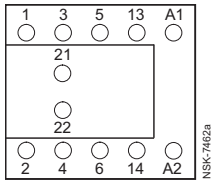
**1 NC**  
01



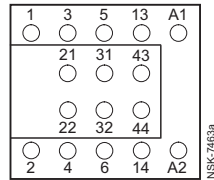
#### 3RT10 1 contactors (with 1 NO)

with auxiliary switch blocks snapped onto the front  
3RH19 11-1H...

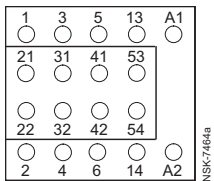
**1 NO + 1 NC**  
Ident. no.: 11E



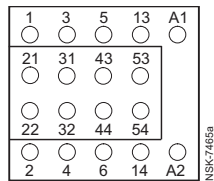
**2 NO + 2 NC**  
22E



**2 NO + 3 NC**  
Ident. no.: 23E



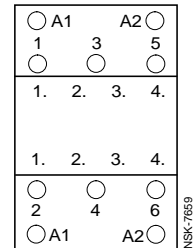
**3 NO + 2 NC**  
32E



### Sizes S0 to S3

Terminal designations according to EN 50 012

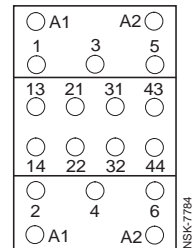
#### 3RT10 2, 3RT10 3, 3RT10 4, 3RT14 46 contactors



#### 3RT10 2, 3RT10 3, 3RT10 4 contactors

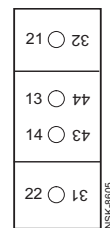
with 4-pole auxiliary switch block snapped onto the front  
3RH19 21-1HA22

**2 NO + 2 NC**  
Ident. no.: 22

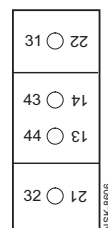


**3RH19 21-1DA11 first laterally mountable auxiliary switch block<sup>1)</sup>**  
right or left

**1 NO + 1 NC**  
left

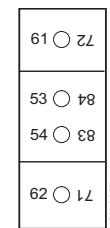


right

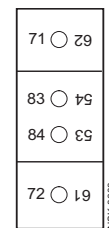


**3RH19 21-1JA11 second laterally mountable auxiliary switch block<sup>1)</sup>**  
right or left  
(only for size S3)

**1 NO + 1 NC**  
left



right

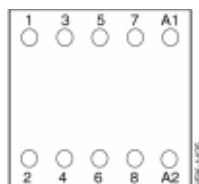


### Contactors with 4 main contacts, size S00

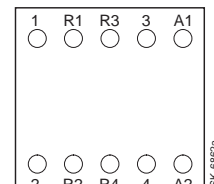
Terminal designations according to EN 50 005

#### 3RT13 and 3RT15 contactors

**4 NO**



**2 NO + 2 NC**

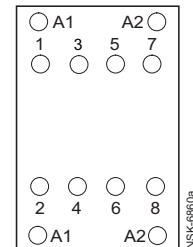


### Contactors with 4 main contacts, sizes S0 to S3

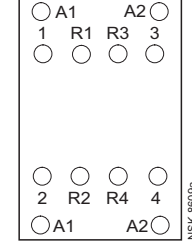
Terminal designations according to EN 50 005

#### 3RT13 and 3RT15 contactors

**4 NO**



**2 NO + 2 NC**



1) Note the location digit.  
Can only be used if no 4-pole auxiliary contact blocks are snapped onto the front.



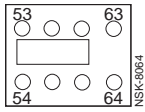
#### Accessories for contactor size S00

##### Terminal designations according to EN 50 005

**3RH19 11-1F...** auxiliary switch blocks and **3RH19 11-1NF..** solid-state compatible auxiliary switch blocks, for snapping onto the front

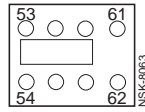
**2 NO**

Ident. no.: 20



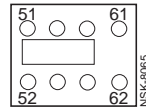
**1 NO + 1 NC**

11



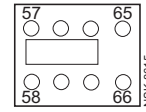
**2 NC**

02



**1 NO + 1 NC**

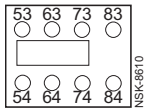
11 U



make-before-break

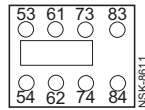
**4 NO**

Ident. no.: 40



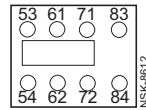
**3 NO + 1 NC**

31



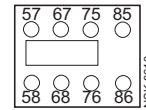
**2 NO + 2 NC**

22



**2 NO + 2 NC**

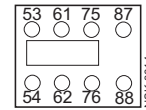
11/11 U



make-before-break

**2 NO + 2 NC**

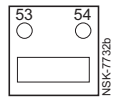
11/11 U



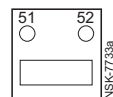
1 NO + 1 NC standard  
1 NO + 1 NC  
make-before-break

**3RH19 11-1AA..** auxiliary switch blocks for snapping onto the front, cable entry from above

**1 NO**

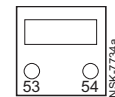


**1 NC**

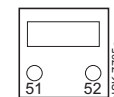


**3RH19 11-1BA..** auxiliary switch blocks for snapping onto the front, cable entry from below

**1 NO**

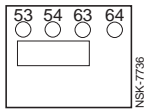


**1 NC**



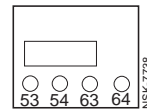
**3RH19 11-1LA20** auxiliary switch blocks for snapping onto the front, cable entry from above

**2 NO**



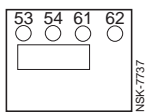
**3RH19 11-1MA20** auxiliary switch blocks for snapping onto the front, cable entry from below

**2 NO**



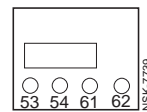
**3RH19 11-1LA11** auxiliary switch blocks for snapping onto the front, cable entry from above

**1 NO + 1 NC**



**3RH19 11-1MA11** auxiliary switch blocks for snapping onto the front, cable entry from below

**1 NO + 1 NC**

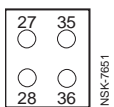


##### Terminal designations according to DIN 46 199 Part 5

**3RT19 16-2E.../2F.../2G...** solid-state, time-delay auxiliary switch blocks

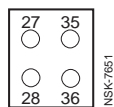
**1 NO + 1 NC**

ON-delay



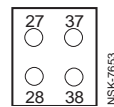
**1 NO + 1 NC**

OFF-delay



**2 NO**

Star-delta function





## Position of terminals

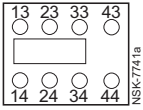
### Accessories for contactor sizes S0 to S3

#### Terminal designations according to EN 50 005

**3RH19 21-1F.. auxiliary switch blocks, 4-pole,**  
for snapping onto the front

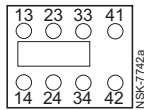
**4 NO**

Ident. no.: 40



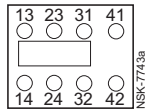
**3 NO + 1 NC**

31



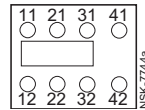
**2 NO + 2 NC**

22



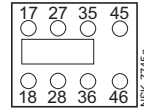
**4 NC**

04



**2 NO + 2 NC**

22 U



make-before-break

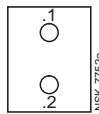
**3RH19 21-1CA.. auxiliary switch blocks, single-pole,**

for snapping onto the front  
(terminal designations according to EN 50 005 or EN 50 012)

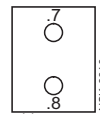
**1 NO**



**1 NC**

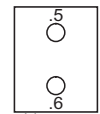


**1 NO**



with extended contact-making

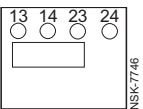
**1 NC**



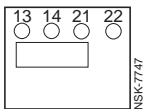
with extended contact-making

**3RH19 21-1LA.. auxiliary switch blocks, 2-pole,**  
for snapping onto the front, cable entry from above

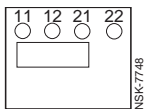
**2 NO**



**1 NO + 1 NC**

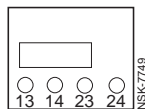


**2 NC**

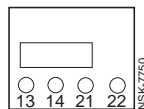


**3RH19 21-1MA.. auxiliary switch blocks, 2-pole,**  
for snapping onto the front, cable entry from below

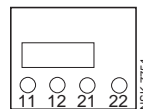
**2 NO**



**1 NO + 1 NC**



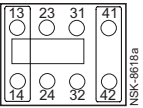
**2 NC**



**3RH19 21-1FE22 solid-state compatible auxiliary switch block, 4-pole,**  
for snapping onto the front

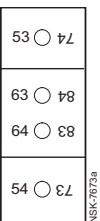
**2 NO + 2 NC**

Ident. no.: 22

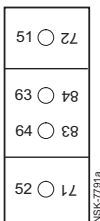


**3RH19 21-1EA.. first laterally mountable auxiliary switch blocks (left)**

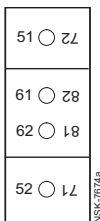
**2 NO**



**1 NO + 1 NC**

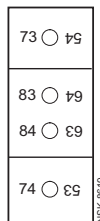


**2 NC**

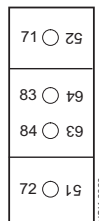


**3RH19 21-1EA.. first laterally mountable auxiliary switch blocks (right)**

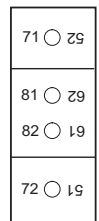
**2 NO**



**1 NO + 1 NC**

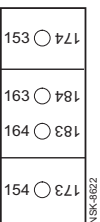


**2 NC**

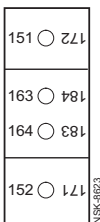


**3RH19 21-1KA.. second laterally mountable auxiliary switch blocks (left)**  
(only for size S3, can only be used if no auxiliary switches are snapped onto the front)

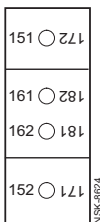
**2 NO**



**1 NO + 1 NC**

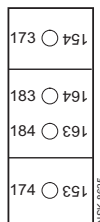


**2 NC**

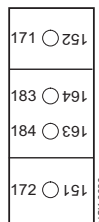


**3RH19 21-1KA.. second laterally mountable auxiliary switch blocks (right)**  
(only for size S3, can only be used if no auxiliary switches are snapped onto the front)

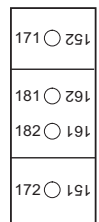
**2 NO**



**1 NO + 1 NC**



**2 NC**





#### Accessories for contactor sizes S0 to S3

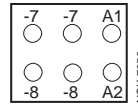
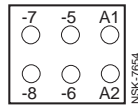
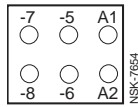
Terminal designations according to DIN 46 199 Part 5

#### 3RT19 26-2E.../2F.../2G... solid-state, time-delay auxiliary switch blocks

1 NO + 1 NC  
ON-delay

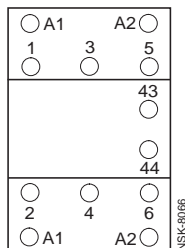
1 NO + 1 NC  
OFF-delay

2 NO  
Star-delta function



#### Capacitor contactors

3RT16 capacitor contactors, sizes S0 to S3,  
with 4-pole auxiliary switch block, mounted onto the front



The auxiliary switch block comprises 3 leading contacts (not shown) and one unassigned NO contact.

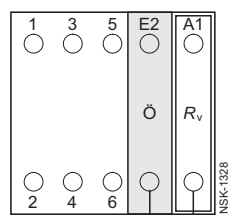
## Contactor with Extended Tolerance

0.7 to 1.25 ×  $U_s$

#### Size S00

Terminal designations according to EN 50 012

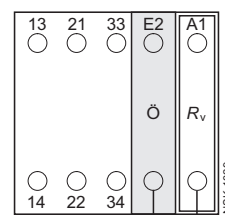
#### 3RT10 17-2K.42-0LA0 contactors



Series resistor  $R_v$  plugged on, NC contact prewired

Terminal designations according to EN 50 005

#### 3RH11 22-2K.40-0LA0 contactor relays



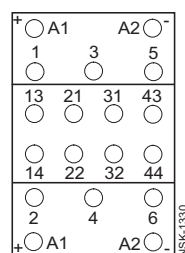
Series resistor  $R_v$  plugged on, NC contact prewired

#### Sizes S0 to S3

Terminal designations according to EN 50 012

3RT10 2.-, 3RT10 3.-, 3RT10 4.-3K.44-0LA0) contactors  
with 3RH19 21-1HA22 4-pole auxiliary switch block, mounted onto the front

2 NO + 2 NC  
Ident. no.: 22



For circuit diagram of the series resistor wiring, see page 3/87.

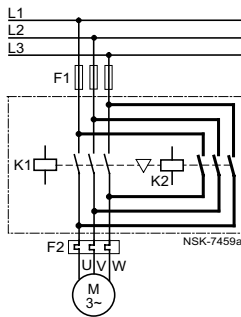




### Circuit diagrams

#### Size S00

##### Main circuit

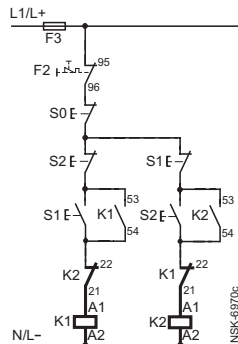


The 3RA19 13-2A installation kit contains, among other things, wiring connectors for connecting the main conducting paths.

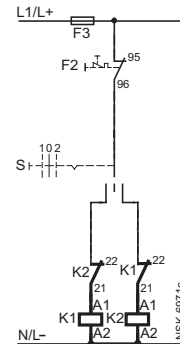
##### Control circuit

(terminal designations of contactors according to EN 50 012)

##### for momentary-contact operation



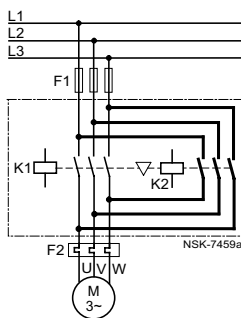
##### for maintained-contact operation



The 3RA19 13-2A installation kit contains, among other things, the electrical interlock.

#### Sizes S0 to S3

##### Main circuit

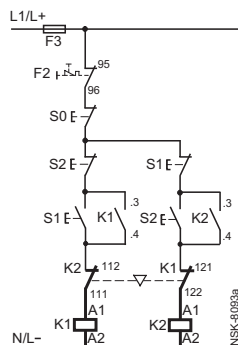


The 3RA19 .3-2A installation kits contain, among other things, the wiring connectors on the top and bottom for connecting the main conducting paths.

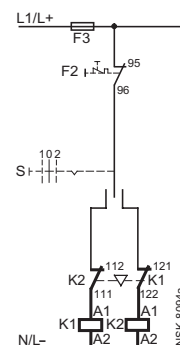
##### Control circuit

(terminal designations of contactors according to EN 50 005)

##### for momentary-contact operation



##### for maintained-contact operation



The 3RA19 24-2B mechanical interlock contains one NC contact for the NC contact interlock for each contactor

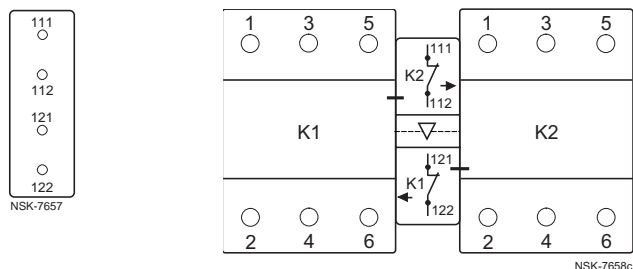
### Position of terminals

#### Sizes S0 to S3

##### Terminal designations according to EN 50 005

**3RA19 24-2B mechanical interlock (laterally mountable), integrated in reversing contactor assemblies (reversing starters),** contains one NC contact for the electrical interlock for each contactor

##### 2 NC

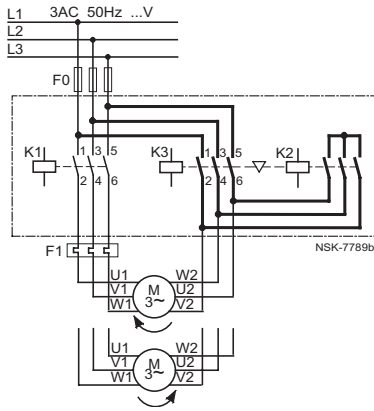


- S0 "OFF" button
- S1 "Clockwise ON" button
- S2 "Counterclockwise ON" button
- S "CW-OFF-CCW" button
- K1 Clockwise contactor
- K2 Counterclockwise contactor
- F1 Fuses for main circuit
- F3 Fuses for control circuit
- F2 Overload relay



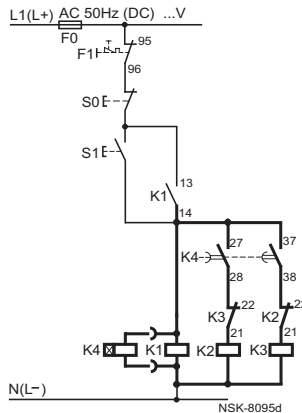
**Size S00**

*Main circuit*

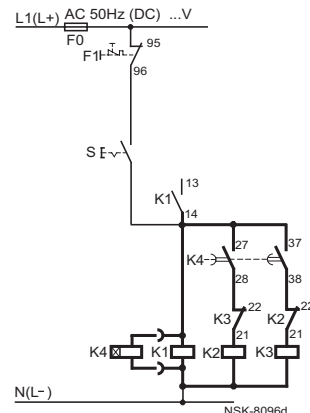


**Control circuits with 3RT19 16-2G... solid-state, time-delay auxiliary switch block, snapped onto the front (typical circuits)**

**for momentary-contact operation**



**for maintained-contact operation**

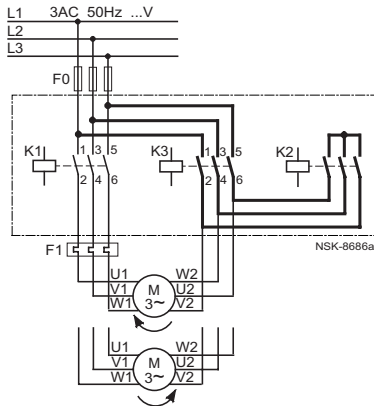


Contact element 27/28 of the solid-state, time-delay auxiliary switch block with a star-delta function is only closed on the star step; the contact element is open on the delta step and when de-energized.

**Sizes S0 to S3**

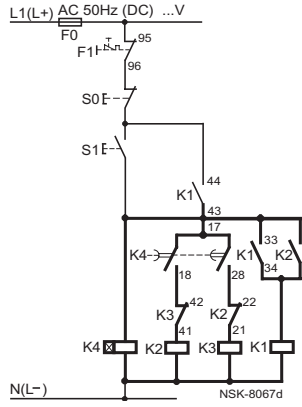
*Main circuit*

**Size S0**

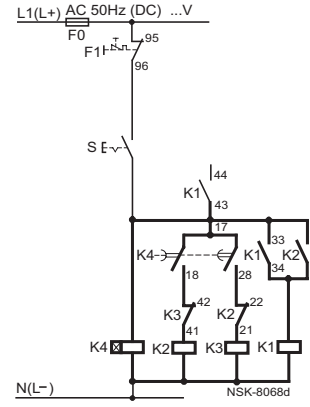


**Control circuits with 3RP15 7. time-delay relay, laterally mounted (typical circuits)**

**for momentary-contact operation**

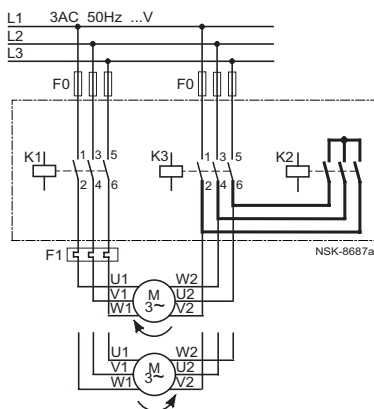


**for maintained-contact operation**



Contact element 17/18 is only closed on the star step; the contact element is open on the delta step and when de-energized.

**Sizes S2 and S3**



- S0 "OFF" button
- S1 "ON" button
- S Maintained-contact switch
- K1 Line contactor
- K2 Star contactor
- K3 Delta contactor
- K4 Solid-state, time-delay auxiliary switch block or time-delay relay
- F0 Fuses
- F1 Overload relay