

# Solid-state reversing contactor - ELR W3- 24DC/500AC-2I - 2297031

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"4 in 1" three-phase semiconductor reversing contactor with 24 V DC input, 2 A output current, emergency stop function, and adjustable overload shutdown.

## Product Features

- 22.5 mm wide
- Safety level according to IEC 61508-1: SIL 3, ISO 13849: PL e
- Long service life
- Reduction in wiring
- Space saving
- 3-phase loop bridges
- Bimetal function can be set up to 9 A



## Key commercial data

|                  |               |
|------------------|---------------|
| package_quantity | 1             |
| GTIN             | 4046356167864 |

## Technical data

### Dimensions

|        |          |
|--------|----------|
| Width  | 22.5 mm  |
| Height | 99 mm    |
| Depth  | 114.5 mm |

### Ambient conditions

|   |                  |
|---|------------------|
| Ambient temperature (operation)         | -25 °C ... 70 °C |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C |
| Degree of protection                    | IP20             |

### Input data

|                                       |               |
|---------------------------------------|---------------|
| Input name                            | Device supply |
| Rated control supply voltage $U_s$    | 24 V DC       |
| Voltage range with reference to $U_s$ | 0.8 ... 1.25  |
| Rated control supply current $I_s$    | 40 mA         |

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## Technical data

### Input data

|   |   |
|---|---|
| Rated actuating voltage $U_c$           | 24 V DC   |
| Voltage range with reference to $U_c$   | 0.8 ... 1.25  |
| Rated actuating current $I_c$           | 5 mA  |
| Switching threshold "0" signal, voltage | 9.6 V   |
| Switching threshold "1" signal voltage  | 19.2 V  |
| Protective circuit                      | Protection against polarity reversal Parallel polarity protection diode |
| Protective circuit                      | Surge protection  |
| Typical response time                   | < 35 ms   |
| Typical turn-off time                   | < 40 ms   |
| Operating voltage display               | Green LED   |
| Status display                          | Yellow LED  |
| Indication                              | Red LED   |
| Input name                              | Control input right/left  |

### Output data

|                                   |  |
|-----------------------------------|--|
| Output name                       | AC output                              |
| Nominal output voltage            | 500 V AC                               |
| Nominal output voltage range      | 42 V AC ... 550 V AC                   |
| Load current                      | max. 2.4 A (see derating curve)        |
| Rated operating current at AC-51  | 2.4 A                                  |
| Rated operating current at AC-53a | 2.4 A                                  |
| Leakage current                   | 0 mA                                   |
| Residual voltage                  | < 0.3 V                                |
| Surge current                     | 100 A (t = 10 ms)                      |
| Type of protection                | Surge protection                       |
| Output name                       | Acknowledge output                     |
| Note                              | Confirmation 01: Floating PDT contact  |
| Nominal output voltage            | max. 253 V AC 0 % ... 100 % (300 V DC) |
| Continuous load current           | 2 A                                    |
| Residual voltage                  | < 0.5 V                                |

### Output data, signaling contact

|               |   |
|---------------|---|
| Measuring via | Current transformer for line current on L1 and L3 |
|---------------|---|

### Connection data

|  |                      |
|--|----------------------|
| Connection method                      | Screw connection     |
| Conductor cross section solid min.     | 0.14 mm <sup>2</sup> |
| Conductor cross section solid max.     | 2.5 mm <sup>2</sup>  |
| Conductor cross section stranded min.  | 0.14 mm <sup>2</sup> |
| Conductor cross section stranded max.  | 2.5 mm <sup>2</sup>  |
| Conductor cross section AWG/kcmil min. | 26                   |

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## Technical data

### Connection data

|  |    |
|--|----|
| <b>Conductor cross section AWG/kcmil max</b> | 14 |
|--|----|

### General

|   |   |
|---|---|
| <b>Test voltage input/output</b>        | 4 kV <sub>rms</sub>                                   |
| <b>Mounting position</b>                | Vertical (horizontal DIN rail)                        |
| <b>Assembly instructions</b>            | Can be aligned with spacing = 20 mm                   |
| <b>Operating mode</b>                   | 100% operating factor                                 |
| <b>Designation</b>                      | Standards/regulations                                 |
| <b>Standards/regulations</b>            | DIN EN 50178  |
| <b>Standards/regulations</b>            | EN 60947  |
| <b>Designation</b>                      | Power station requirements                            |
| <b>Standards/regulations</b>            | DWR 1300 / ZXX01/DD/7080.8d                           |
| <b>Designation</b>                      | Air and creepage distances between the power circuits |
| <b>Standards/regulations</b>            | DIN EN 50178  |
| <b>Rated surge voltage / insulation</b> | 6 kV/safe isolation                                   |
| <b>Rated insulation voltage</b>         | 500 V   |
| <b>Pollution degree</b>                 | 2   |
| <b>Surge voltage category</b>           | III   |
| <b>Category in acc. with EN 954-1</b>   | 3   |

## classifications

### eCl@ss

|                   |          |
|-------------------|----------|
| <b>eCl@ss 4.0</b> | 27371102 |
| <b>eCl@ss 4.1</b> | 27371102 |
| <b>eCl@ss 5.0</b> | 27371601 |
| <b>eCl@ss 5.1</b> | 27371601 |
| <b>eCl@ss 6.0</b> | 27371601 |
| <b>eCl@ss 7.0</b> | 27371601 |
| <b>eCl@ss 8.0</b> | 27371601 |

### ETIM

|                 |          |
|-----------------|----------|
| <b>ETIM 2.0</b> | EC000066 |
| <b>ETIM 3.0</b> | EC000066 |
| <b>ETIM 4.0</b> | EC000066 |
| <b>ETIM 5.0</b> | EC000066 |

### UNSPSC

|                      |          |
|----------------------|----------|
| <b>UNSPSC 6.01</b>   | 30211915 |
| <b>UNSPSC 7.0901</b> | 39121514 |
| <b>UNSPSC 11</b>     | 39121514 |
| <b>UNSPSC 12.01</b>  | 39121514 |

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## classifications

UNSPSC

|                    |          |
|--------------------|----------|
| <b>UNSPSC 13.2</b> | 39121514 |
|--------------------|----------|

## approvals

ATEX / ATEX / UL Listed / UL Listed / cUL Listed / cUL Listed / GL / GL-SW / IECEE CB Scheme / IECEE CB Scheme / GL / GL-SW / GL / cULus Listed /

## Approval details

|                            |  |
|----------------------------|--|
| ATEX                       |  |
|                            |  |
| Nominal voltage UN         |  |
| Nominal current IN         |  |
| mm <sup>2</sup> /AWG/kcmil |  |

|  |
|--|
|  |
|--|

|           |
|-----------|
| UL Listed |
|-----------|

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|            |
|------------|
| cUL Listed |
|------------|

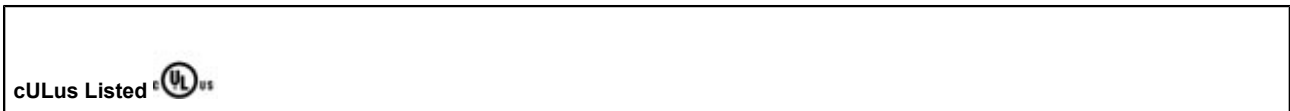
|  |
|--|
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|    |
|----|
| GL |
|----|

|       |
|-------|
| GL-SW |
|-------|

# Solid-state reversing contactor - ELR W3- 24DC/500AC-2I - 2297031

approvals



accessories

## Loop bridge

BRIDGE- 2 - 2900746



BRIDGE- 3 - 2900747



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## accessories

BRIDGE- 4 - 2900748



BRIDGE- 5 - 2900749



BRIDGE- 6 - 2900750



BRIDGE- 7 - 2900751



BRIDGE- 8 - 2900752



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## accessories

BRIDGE- 9 - 2900753



BRIDGE-10 - 2900754



BRIDGE- 2-3M - 2901543



BRIDGE- 3-3M - 2901656



BRIDGE- 4-3M - 2901659



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### accessories

BRIDGE- 5-3M - 2901545



BRIDGE- 6-3M - 2901697



BRIDGE- 7-3M - 2901698



BRIDGE- 8-3M - 2901700



BRIDGE- 9-3M - 2901701





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### accessories

BRIDGE-10-3M - 2901702



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BRIDGE- 2-1M - 2901542



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BRIDGE- 3-1M - 2901655



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BRIDGE- 4-1M - 2901658



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BRIDGE- 5-1M - 2901544



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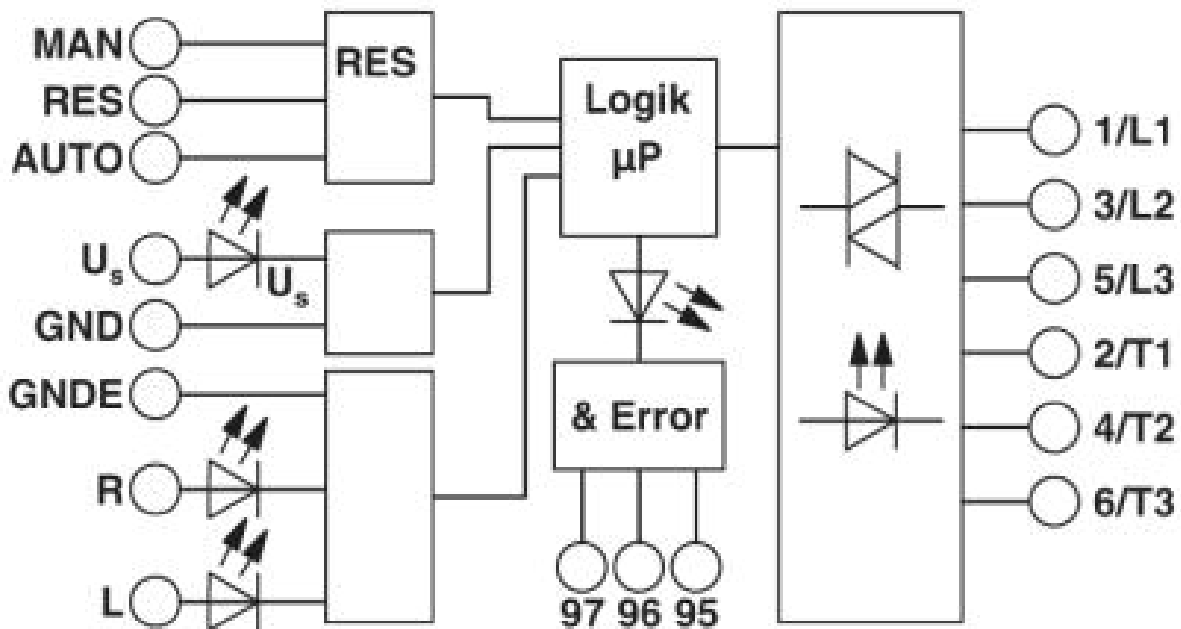
accessories

BRIDGE- 6-1M - 2901649



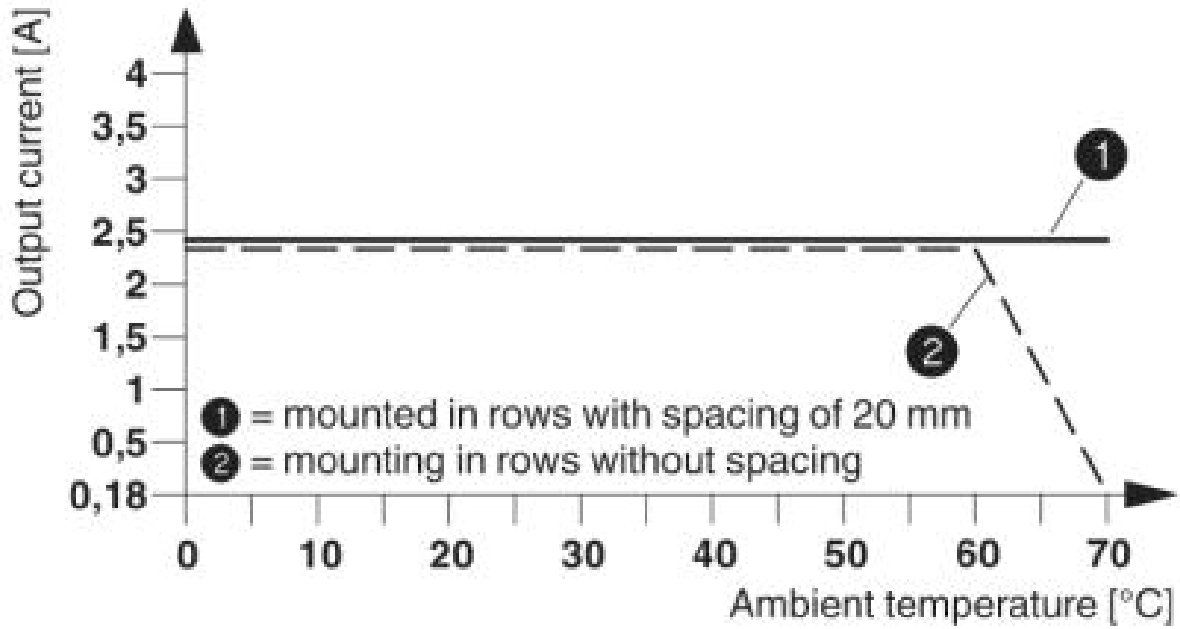
## Drawings

Block diagram



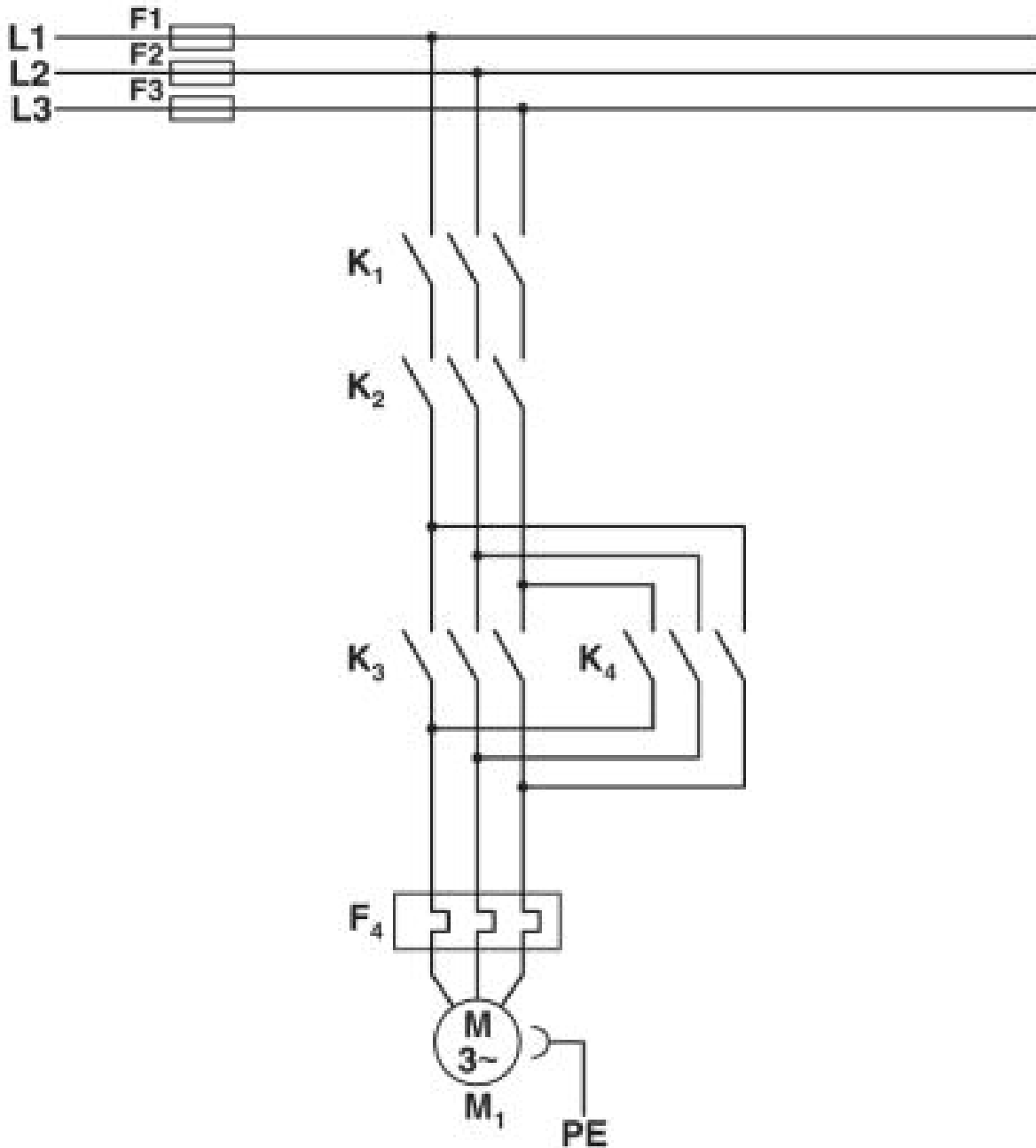
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Diagram



# Solid-state reversing contactor - ELR W3- 24DC/500AC-2I - 2297031

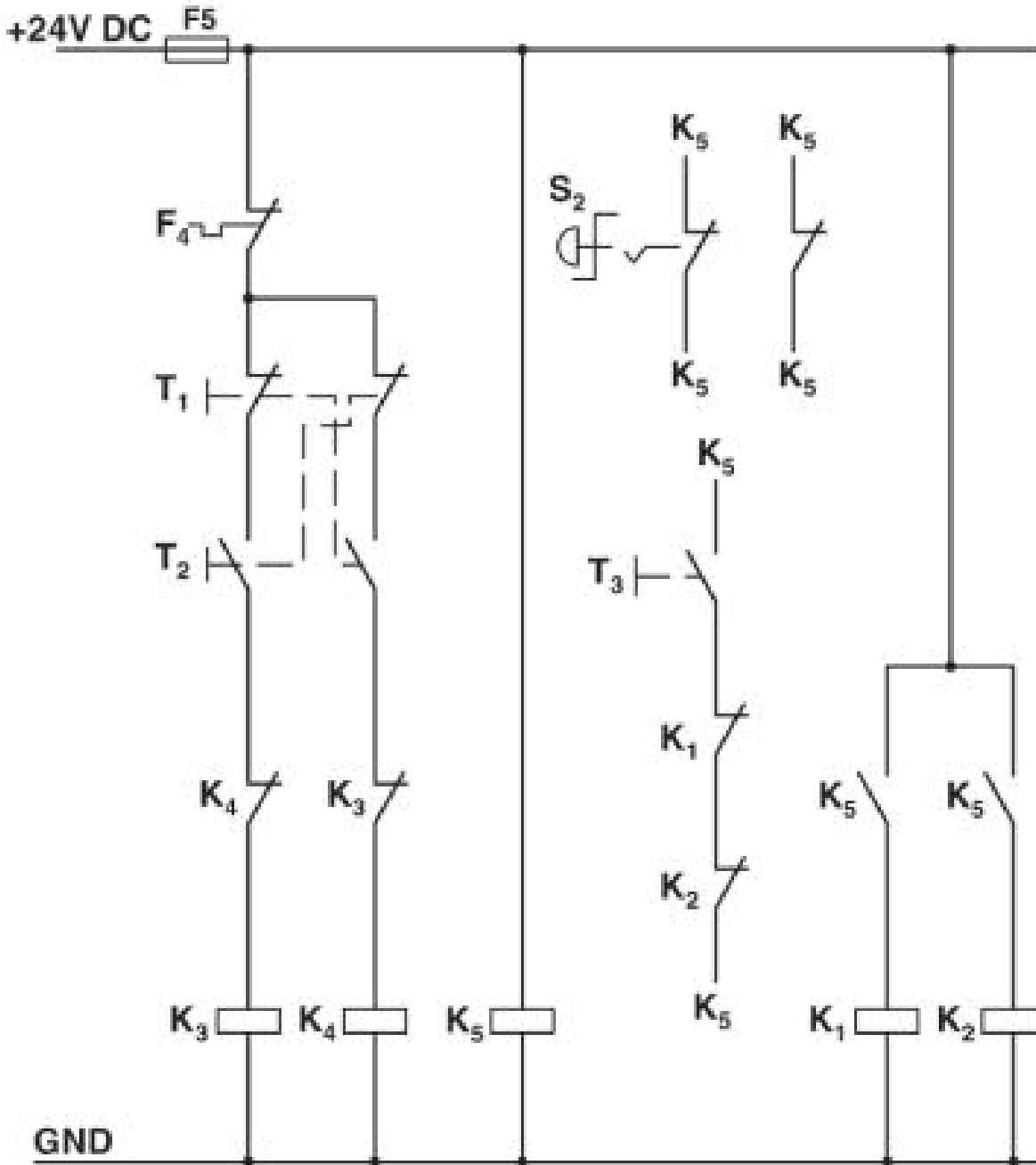
Circuit diagram



Conventional structure  
Main current path for reversing contactor according to category 3  
K1 + K2 = Emergency stop contactor  
K3 = Left contactor  
K4 = Right contactor  
F4 = Motor protection relay

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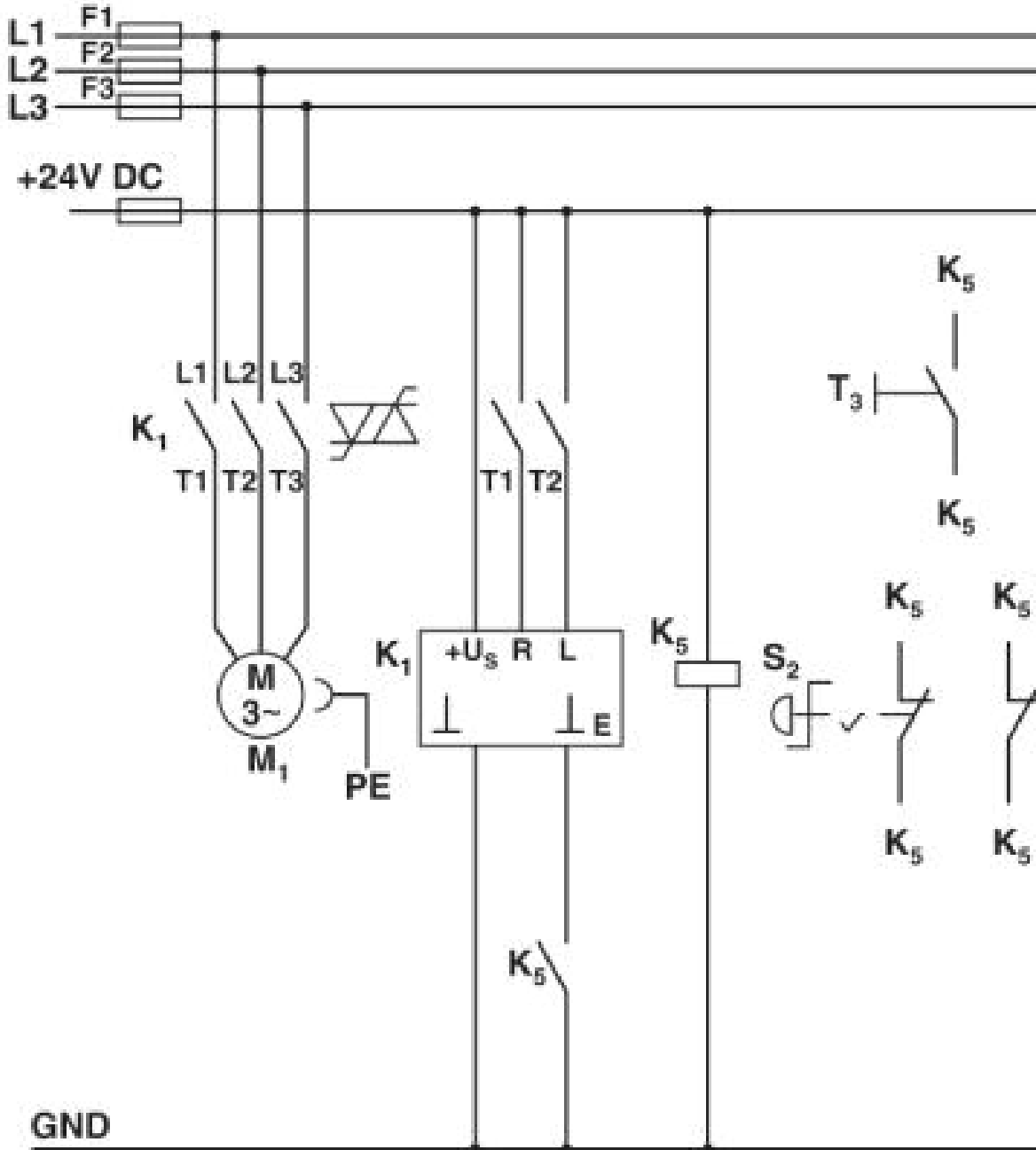
Circuit diagram



Conventional structure  
 Control current path reversing contactor  
 according to category 3  
 K1 + K2 = Emergency stop contactor  
 K3 = Left contactor  
 K4 = Right contactor  
 K5 = PSR SCP-24DC.../Safety relay  
 T1 = Right, T2 = Left, T3 = Reset  
 S2 = Emergency stop  
 F4 = Motor protection relay

# Solid-state reversing contactor - ELR W3- 24DC/500AC- 2I - 2297031

Circuit diagram



Structure with CONTACTRONMain and control current path for '4 in 1' hybrid motor starter with reversing function according to category 3K1 = '4 in 1' hybrid motor starter with reversing function  
 K5 = PSR SCP-24DC.../Safety relay  
 T1 = Right, T2 = Left, T3 = Reset  
 S2 = Emergency stop