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## FAQ Applicative conversion from 3TK28 to 3SK1

SIRIUS Safety

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# 1 Introduction

SIRIUS 3SK1 safety relays are the key elements of a consistent, cost-effective safety chain. Whether you need EMERGENCY-STOP disconnection, protective door monitoring, light arrays, laser scanners or the protection of presses or punches – with SIRIUS safety relays 22.5 mm wide every safety application can be implemented to optimum effect in terms of engineering and price.

The following safety-oriented functions are available:

- Monitoring the safety functions of sensors
- Monitoring the sensor leads
- Monitoring correct functioning of safety relays
- Monitoring the actuators in the shutdown circuit
- Safety-oriented disconnection when dangers arise

SIRIUS 3SK1 safety relays satisfy the most stringent requirements of IEC 61508/IEC 62061 (SIL 3) and EN ISO 13849-1 (PL e).

SIRIUS 3SK1 safety relays stand out due to their flexibility for both parameterization and system designs with several evaluation units. Optimized solutions when selecting components are facilitated by a clearly structured component range:

- Standard basic units
- Advanced basic units
- Output expansions
- Input expansions
- Accessories

The 3SK1 Standard basic units are characterized by the following features:

- Compact design
- Simple operation
- Relay and semiconductor outputs
- Economical solution

However, the 3SK1 Advanced basic units also offer the following:

- Universal application opportunities thanks to multifunctionality
- Time-delayed outputs
- Expansion of inputs and outputs

In the case of Advanced basic units, the 3ZY1 device connector allows safety functions involving several sensors and actuators to be constructed very quickly.

The 3SK1 Standard and Advanced series are a high-quality replacement for the 3TK28 safety relays. In their narrower design, and equipped with greater functionality, they can replace every 3TK28 device. The standstill and speed monitors 3TK2810 remain and will not be replaced by 3SK.

For further assistance in replacing those devices please contact Technical Assistance.





The following chapters offer detailed assistance in converting your application with safety relays 3TK28 to the new series 3SK1.

**Note**



A fuse must be fitted as short-circuit protection in the supply line to the supply voltage and to the relay contacts of the 3SK1 devices. The design is shown in the corresponding technical data.

**Explanation to the shown DIP switch positions in the wiring diagrams of the 3SK1**

- Devices with 4 DIP switches:

|   |  |
|---|--|
|  1   Autostart / Monitored Start<br> 2   Cross fault detection OFF / ON<br> 3   2 single ch. / 1 double ch. sensor<br> 4   Start up Test yes / no | DIP switch 1,2, and 4 position right<br>DIP switch 3 position left |
|---|--|

- Device with one DIP switch:

|  |                          |
|--|--------------------------|
|  Autostart /<br>Monitored Start | DIP switch position down |
|  Delayed<br>Undelayed          | DIP switch position up   |

## 2 Safety relays with relay outputs

### 2.1 3TK2801

#### Corresponding order numbers

| 3TK28        | 3SK1 Standard | 3SK1 Advanced   | Bemerkung |
|--------------|---------------|-----------------|-----------|
| 3TK2801-0AC2 | 3SK1111-1AB30 | --              | 24 V AC   |
| 3TK2801-0AG2 | 3SK1111-1AW20 | 3SK1121-1AB40 * | 110V AC   |
| 3TK2801-0AL2 | 3SK1111-1AW20 | 3SK1121-1AB40 * | 230 V AC  |
| 3TK2801-0DB4 | 3SK1111-1AB30 | 3SK1121-1AB40   | 24 V DC   |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

#### Terminal marking

| 3TK2801 | 3SK1 Standard | 3SK1 Advanced | Terminal description   |
|---------|---------------|---------------|------------------------|
| A1      | A1            | A1            | Power supply +         |
| A2      | A2            | A2            | Power supply -         |
| X1/X2   | T1/IN1        | T1/IN1        | Channel 1              |
| --      | T2/IN2        | T2/IN2        | Channel 2              |
| X5/X6   | T4/INF/S      | INS           | Reset button           |
| X5/X6   | T4/INF/S      | T2/INF        | Feedback circuit       |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)    |
| 27/28   | 41/42         | 41/42         | Signaling circuit (NC) |

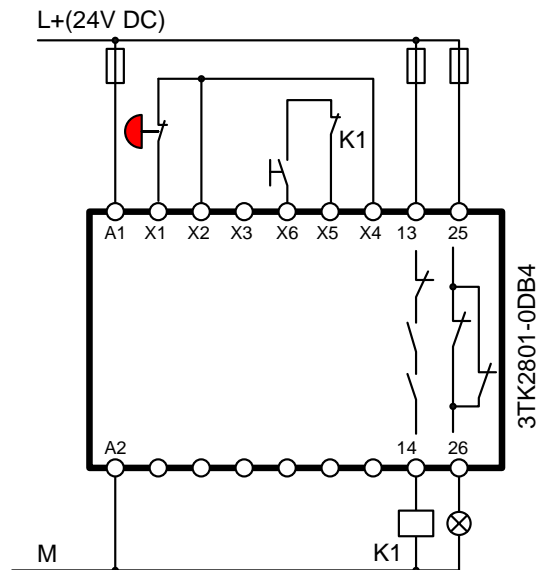


### 2.1.1 Emergency stop monitoring (1-ch.)

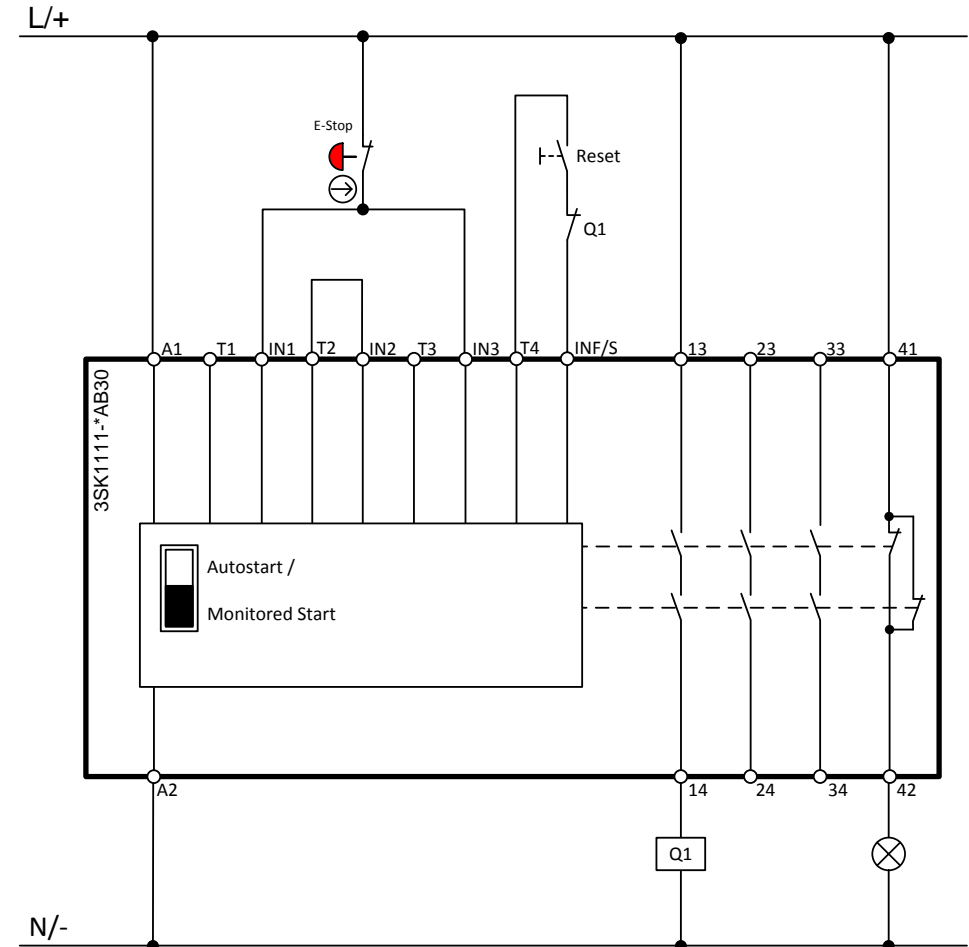
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

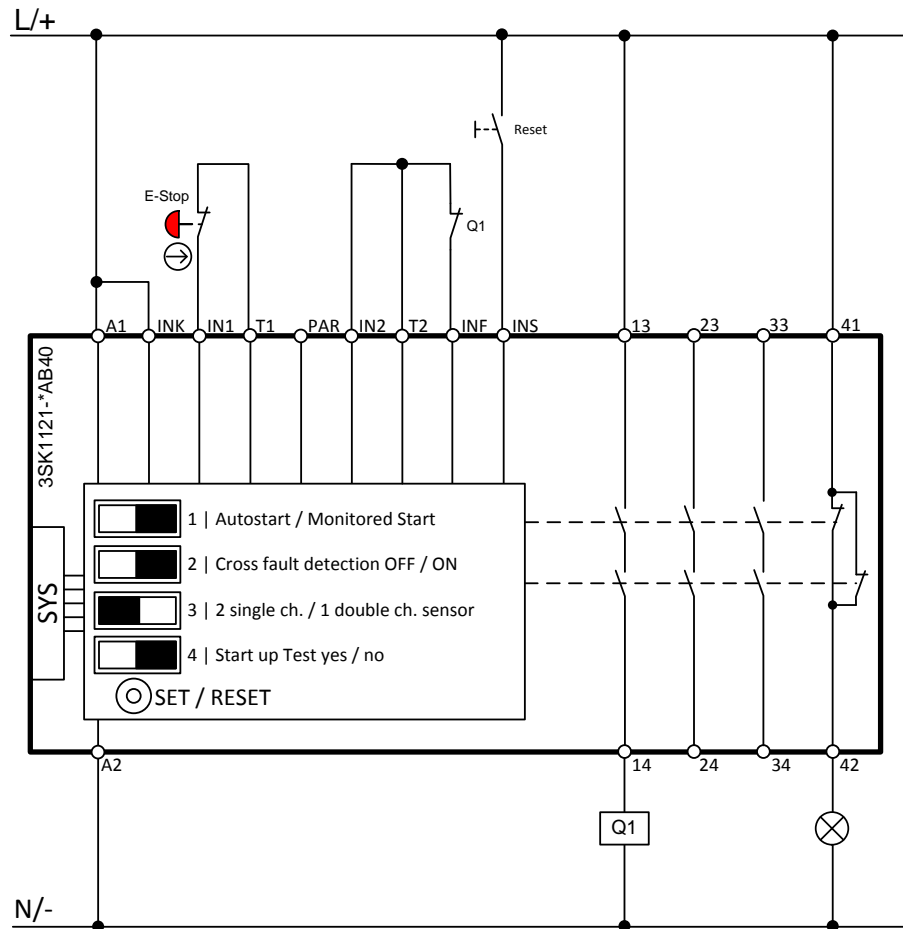
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



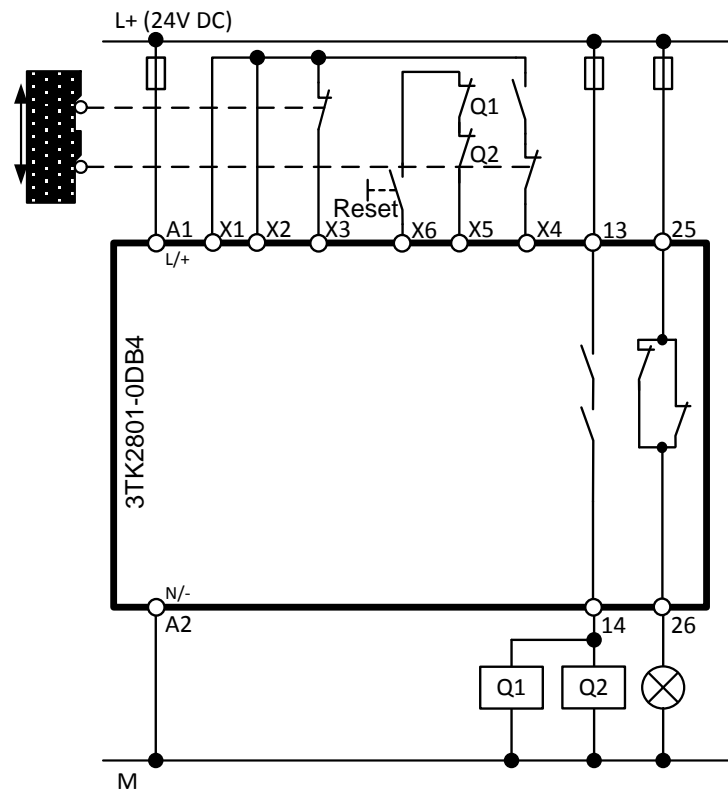
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### 2.1.2 Emergency stop monitoring (2-ch.)

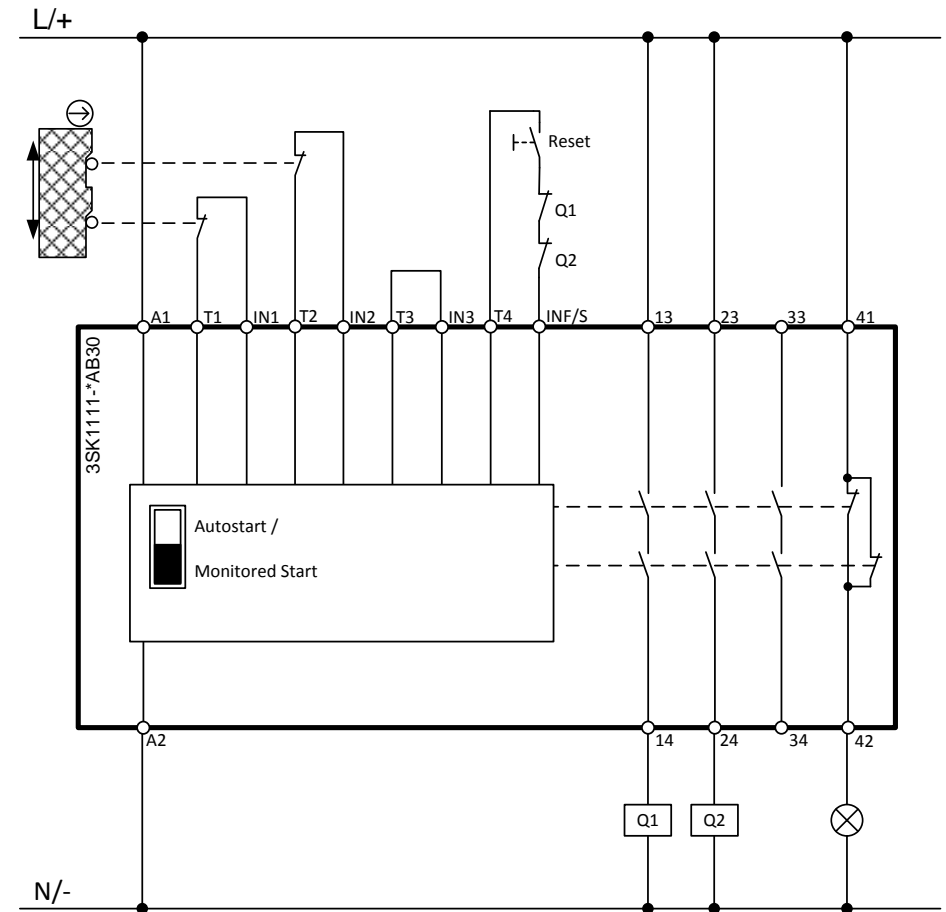
#### Description of safety function and configuration

| Safety function  | Configuration   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 90% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

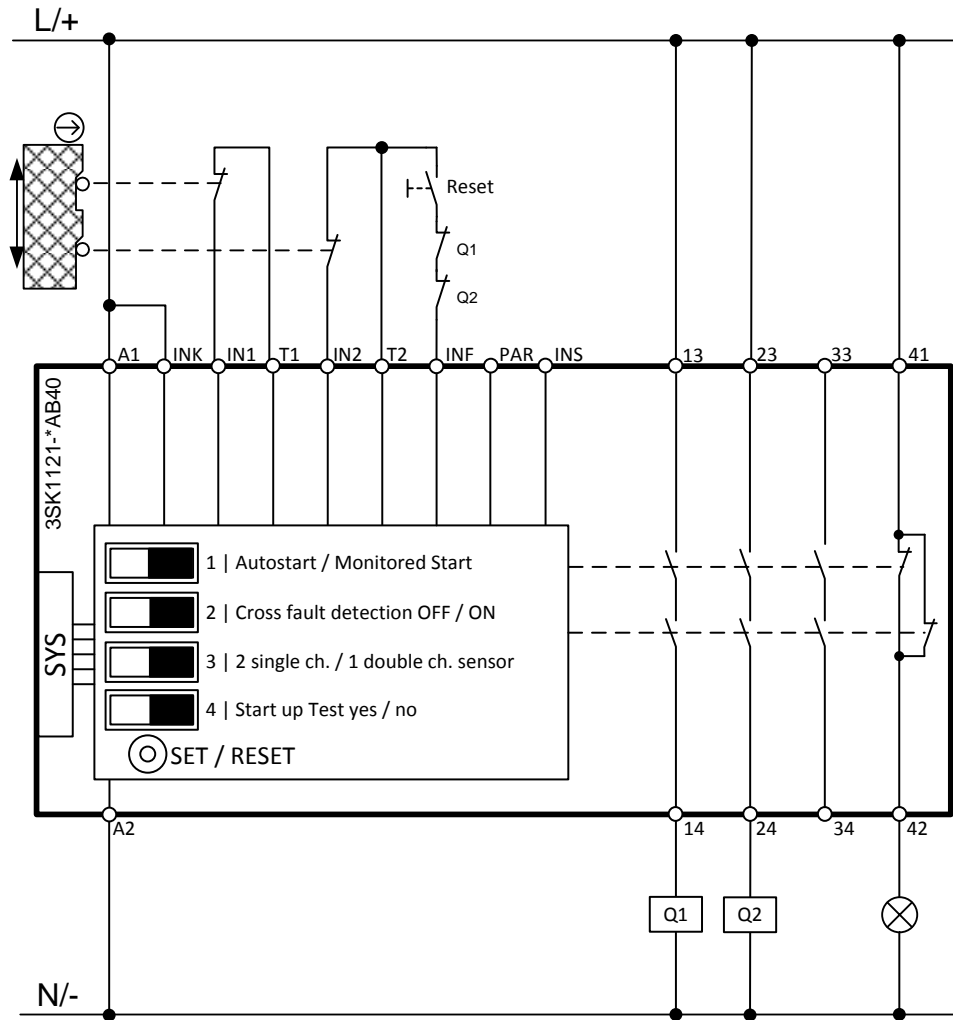
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



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## 2.2 3TK2802

### Corresponding order numbers

| 3TK28        | 3SK1 Standard | 3SK1 Advanced   | Configuration |
|--------------|---------------|-----------------|---------------|
| 3TK2802-0AC2 | 3SK1111-1AB30 | --              | 24 V AC       |
| 3TK2802-0AG2 | 3SK1111-1AW20 | 3SK1121-1AB40 * | 110V AC       |
| 3TK2802-0AL2 | 3SK1111-1AW20 | 3SK1121-1AB40 * | 230 V AC      |
| 3TK2802-0DB4 | 3SK1111-1AB30 | 3SK1121-1AB40   | 24 V DC       |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

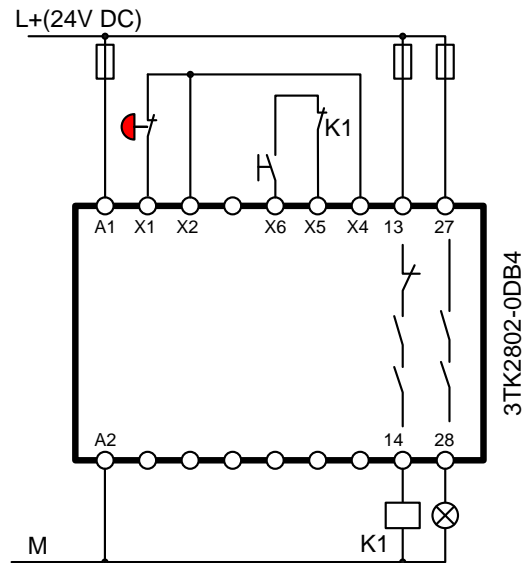
| 3TK2802 | 3SK1 Standard | 3SK1 Advanced | Terminal description   |
|---------|---------------|---------------|------------------------|
| A1      | A1            | A1            | Power supply +         |
| A2      | A2            | A2            | Power supply -         |
| X1/X2   | T1/IN1        | T1/IN1        | Channel 1              |
| --      | T2/IN2        | T2/IN2        | Channel 2              |
| X5/X6   | T4/INF/S      | INS           | Reset button           |
| X5/X6   | T4/INF/S      | T2/INF        | Feedback circuit       |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)    |
| 27/28   | 41/42         | 41/42         | Signaling circuit (NC) |

### 2.2.1 Emergency stop monitoring (1-ch.)

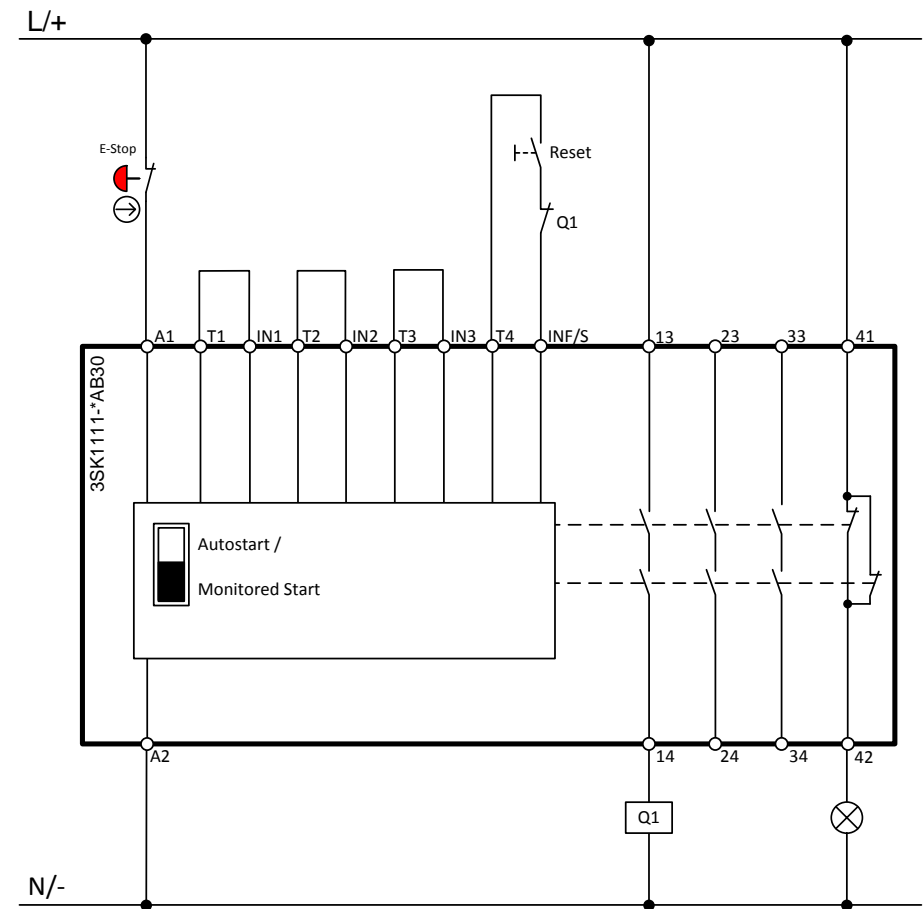
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

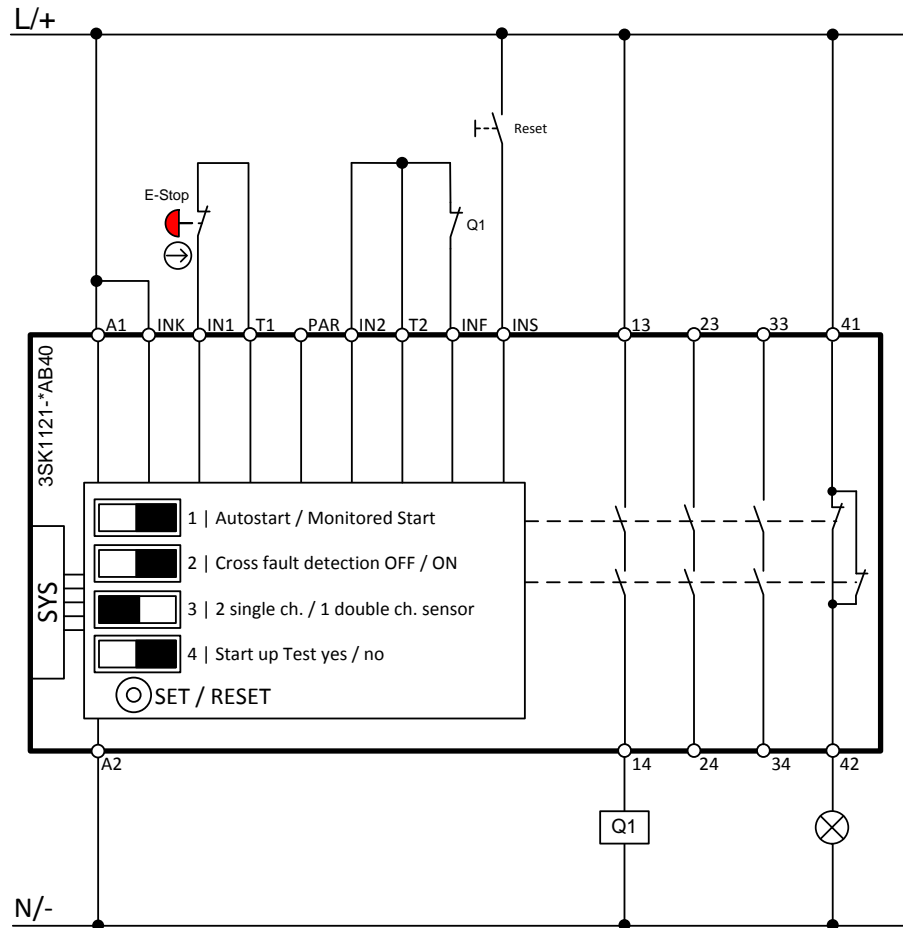
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



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## 2.3 3TK2803

### Corresponding order numbers

| 3TK28        | 3SK1 Standard | 3SK1 Advanced   | Configuration |
|--------------|---------------|-----------------|---------------|
| 3TK2803-0AC2 | 3SK1111-1AB30 | --              | 24 V AC       |
| 3TK2803-0AG2 | 3SK1111-1AW20 | 3SK1121-1AB40 * | 110V AC       |
| 3TK2803-0AL2 | 3SK1111-1AW20 | 3SK1121-1AB40 * | 230 V AC      |
| 3TK2803-0BB4 | 3SK1111-1AB30 | 3SK1121-1AB40   | 24 V DC       |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

| 3TK2803 | 3SK1 Standard | 3SK1 Advanced | Terminal description |
|---------|---------------|---------------|----------------------|
| A1      | A1            | A1            | Power supply +       |
| A2      | A2            | A2            | Power supply -       |
| X1/X2   | T1/IN1        | T1/IN1        | Channel 1            |
| --      | T2/IN2        | T2/IN2        | Channel 2            |
| X5/X6   | T4/INF/S      | INS           | Reset button         |
| X5/X6   | T4/INF/S      | T2/INF        | Feedback circuit     |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)  |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)  |

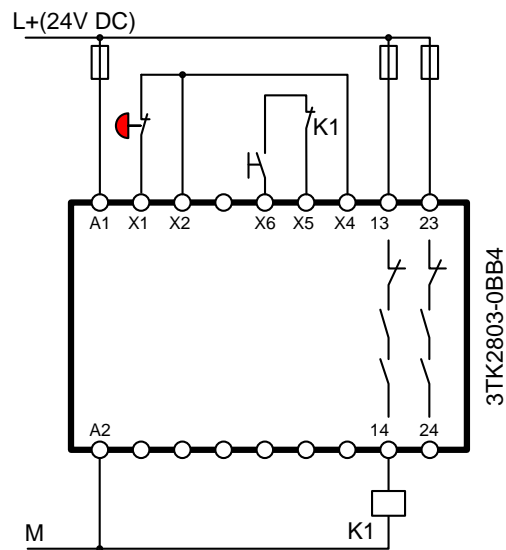


### 2.3.1 Emergency stop monitoring (1-ch.)

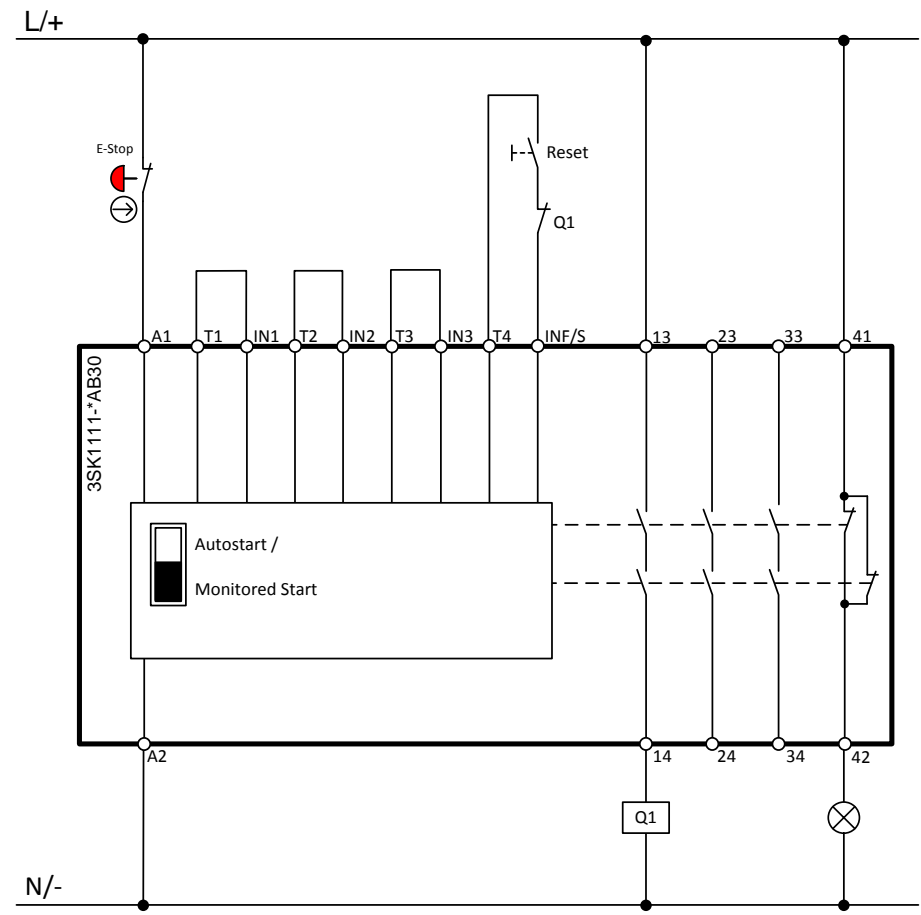
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>monitored start</li> <li>(cross-circuit detection activated)</li> <li>(2x1-ch.)</li> <li>(startup test deactivated)</li> </ul> |

#### Wiring diagram 3TK28



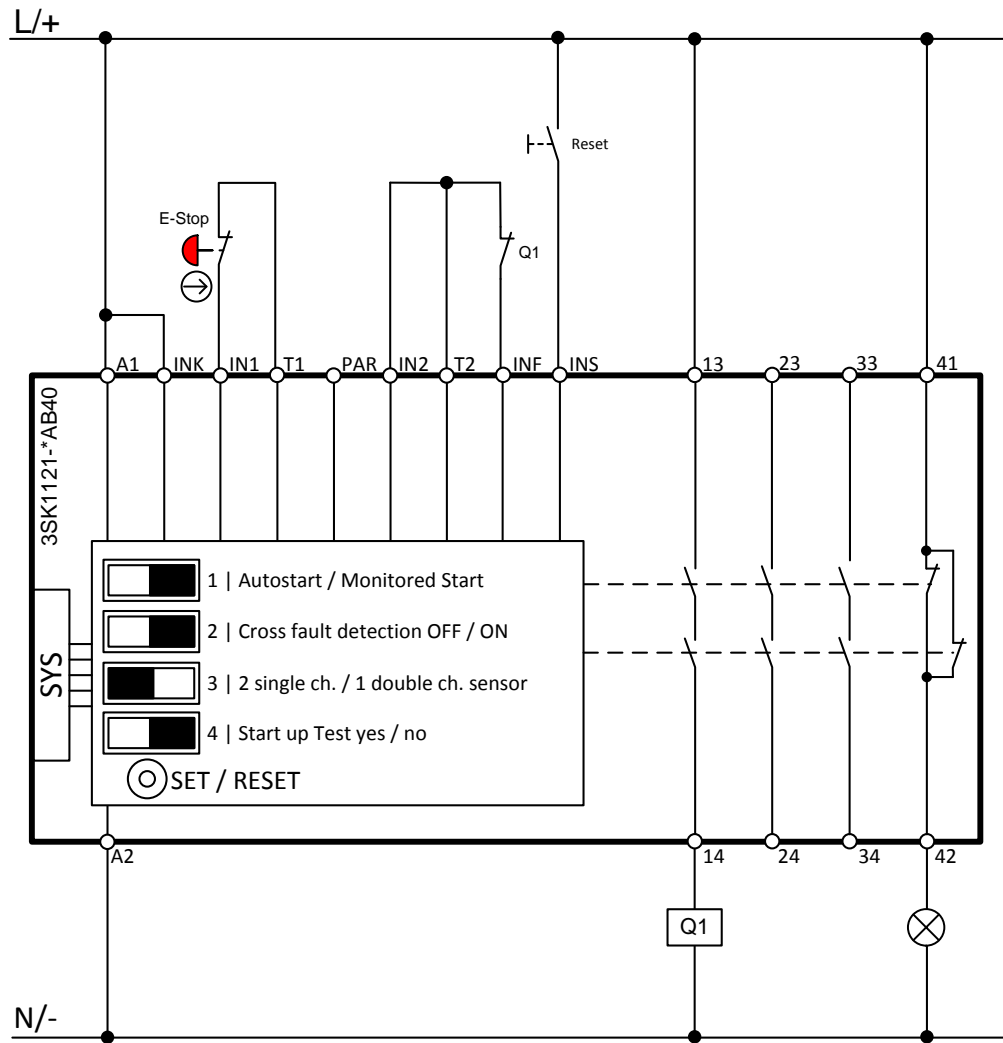
#### Wiring diagram 3SK1 Standard



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**Wiring diagram 3SK1 Advanced**

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## 2.4 3TK2804

### Corresponding order numbers

| 3TK28        | 3SK1 Standard                    | 3SK1 Advanced                     | Configuration |
|--------------|----------------------------------|-----------------------------------|---------------|
| 3TK2804-0AC2 | 3SK1111-1AB30 +<br>3SK1211-1BB00 | --                                | 24 V AC       |
| 3TK2804-0AG2 | 3SK1111-1AW20 +<br>3SK1211-1BW20 | 3SK1121-1AB40* +<br>3SK1211-1BW20 | 110V AC       |
| 3TK2804-0AL2 | 3SK1111-1AW20 +<br>3SK1211-1BW20 | 3SK1121-1AB40* +<br>3SK1211-1BW20 | 230 V AC      |
| 3TK2804-0BB4 | 3SK1111-1AB30 +<br>3SK1211-1BB40 | 3SK1121-1AB40 +<br>3SK1211-1BB40  | 24 V DC       |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

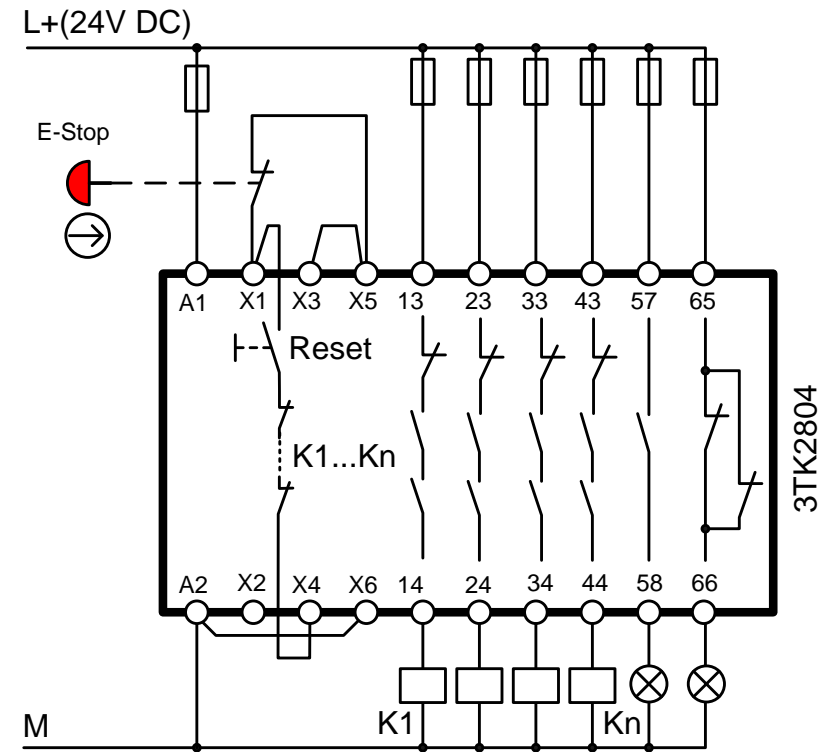
| 3TK2804 | 3SK1 Standard | 3SK1 Advanced | Terminal description   |
|---------|---------------|---------------|------------------------|
| A1      | A1            | A1            | Power supply +         |
| A2      | A2            | A2            | Power supply -         |
| X1/X2   | T1/IN1        | T1/IN1        | Channel 1              |
| --      | T2/IN2        | T2/IN2        | Channel 2              |
| X5/X6   | T4/INF/S      | INS           | Reset button           |
| X5/X6   | T4/INF/S      | T2/INF        | Feedback circuit       |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)    |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)    |
| 33/34   | 13/14         | 13/14         | Output circuit (NO)    |
| 43/44   | --            | --            | Output circuit (NO)    |
| 57/58   | --            | --            | Signaling circuit (NO) |
| 65/66   | 41/42         | 41/42         | Signaling circuit (NC) |

### 2.4.1 Emergency stop monitoring (1-ch.)

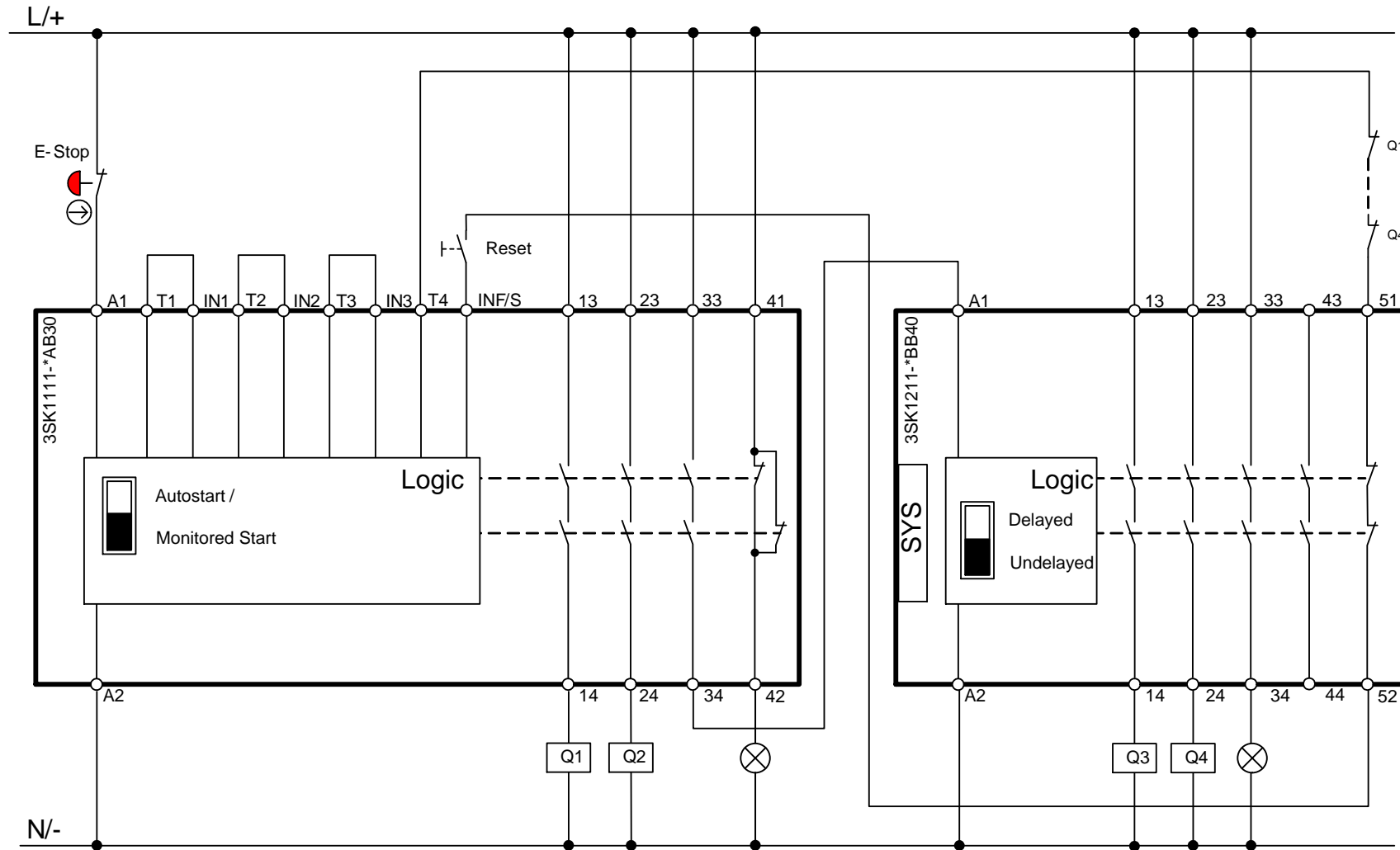
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

**Wiring diagram 3TK28**

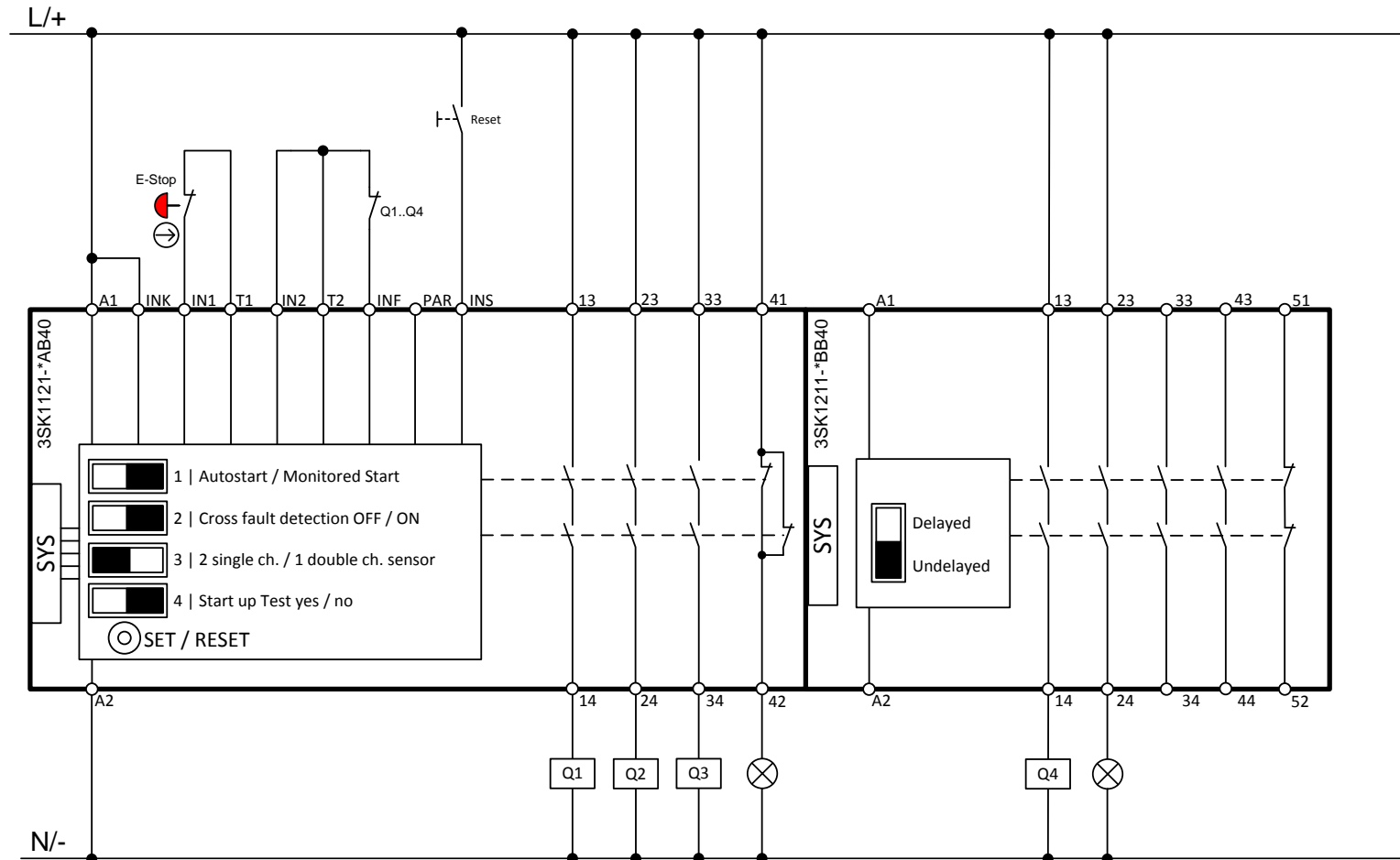


**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.5 3TK2805

### Corresponding order numbers

| 3TK28        | 3SK1 Standard                    | 3SK1 Advanced                     | Configuration |
|--------------|----------------------------------|-----------------------------------|---------------|
| 3TK2805-0AC2 | 3SK1111-1AB30 +<br>3SK1211-1BB00 | --                                | 24 V AC       |
| 3TK2805-0AG2 | 3SK1111-1AW20 +<br>3SK1211-1BW20 | 3SK1121-1AB40* +<br>3SK1211-1BW20 | 110V AC       |
| 3TK2805-0AL2 | 3SK1111-1AW20 +<br>3SK1211-1BW20 | 3SK1121-1AB40* +<br>3SK1211-1BW20 | 230 V AC      |
| 3TK2805-0BB4 | 3SK1111-1AB30 +<br>3SK1211-1BB40 | 3SK1121-1AB40 +<br>3SK1211-1BB40  | 24 V DC       |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

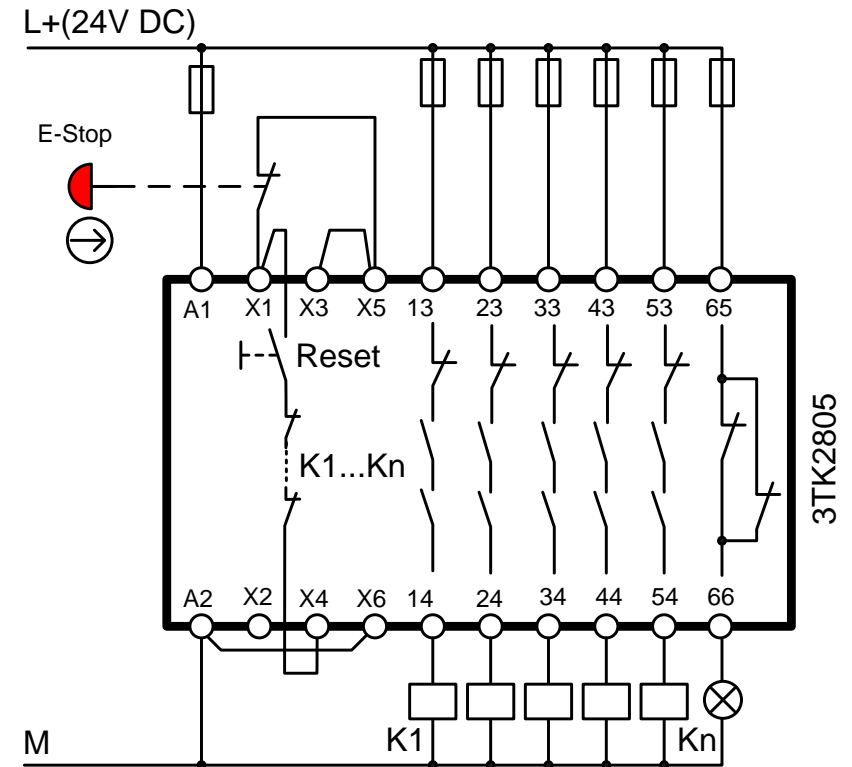
| 3TK2805 | 3SK1 Standard | 3SK1 Advanced | Terminal description   |
|---------|---------------|---------------|------------------------|
| A1      | A1            | A1            | Power supply +         |
| A2      | A2            | A2            | Power supply -         |
| X3/X5   | T1/IN1        | T1/IN1        | Channel 1              |
| X6/-    | T2/IN2        | T2/IN2        | Channel 2              |
| X1/X4   | T4/INF/S      | INS           | Reset button           |
| X1/X4   | T4/INF/S      | T2/INF        | Feedback circuit       |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)    |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)    |
| 33/34   | 33/34         | 33/34         | Output circuit (NO)    |
| 43/44   | --            | --            | Output circuit (NO)    |
| 53/54   | --            | --            | Output circuit (NO)    |
| 65/66   | 41/42         | 41/42         | Signaling circuit (NC) |

### 2.5.1 Emergency stop monitoring (1-ch.)

#### Description of safety function and configuration

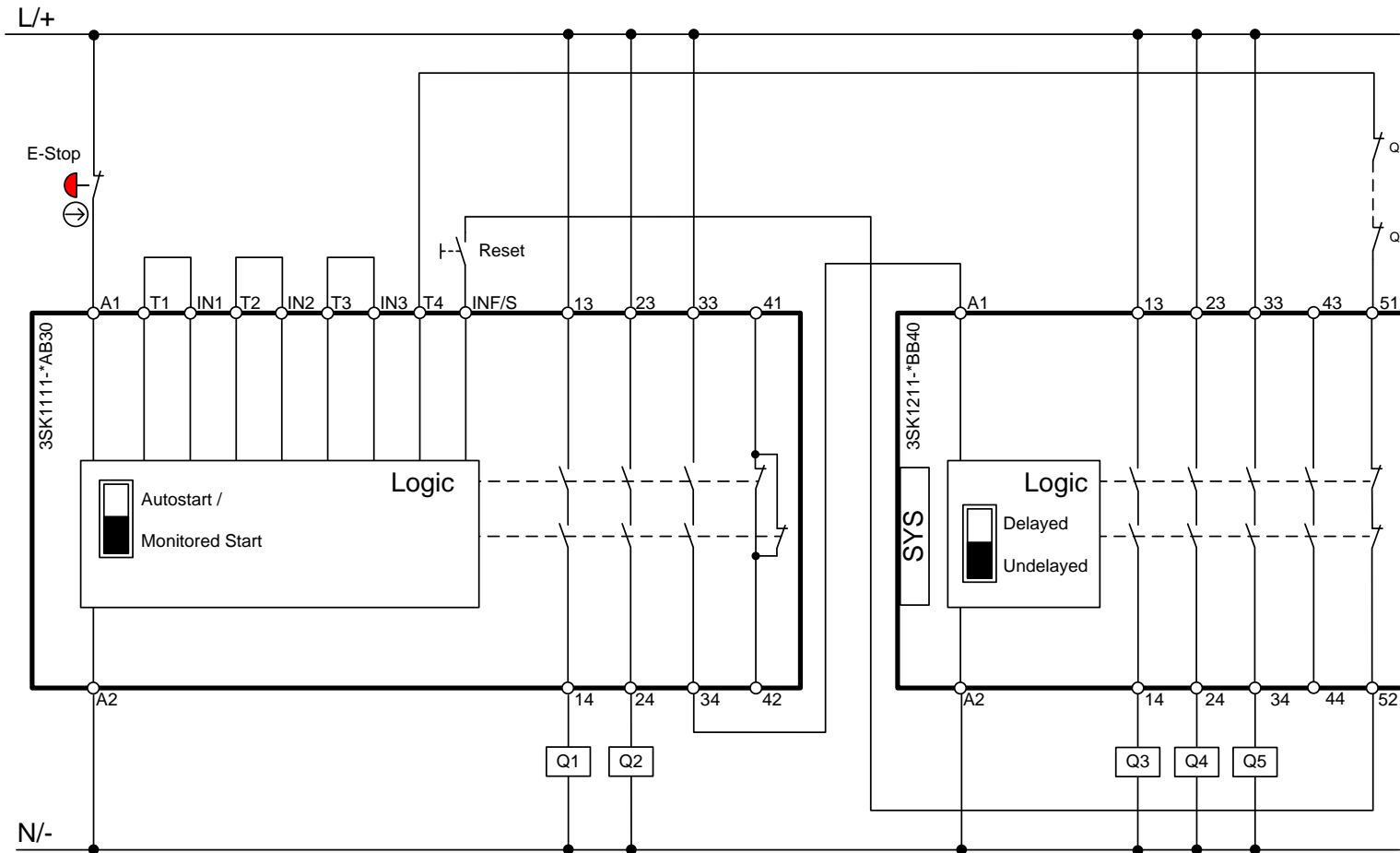
| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>monitored start</li> <li>(cross-circuit detection activated)</li> <li>(2x1-ch.)</li> <li>(startup test deactivated)</li> </ul> |

**Wiring diagram 3TK28**



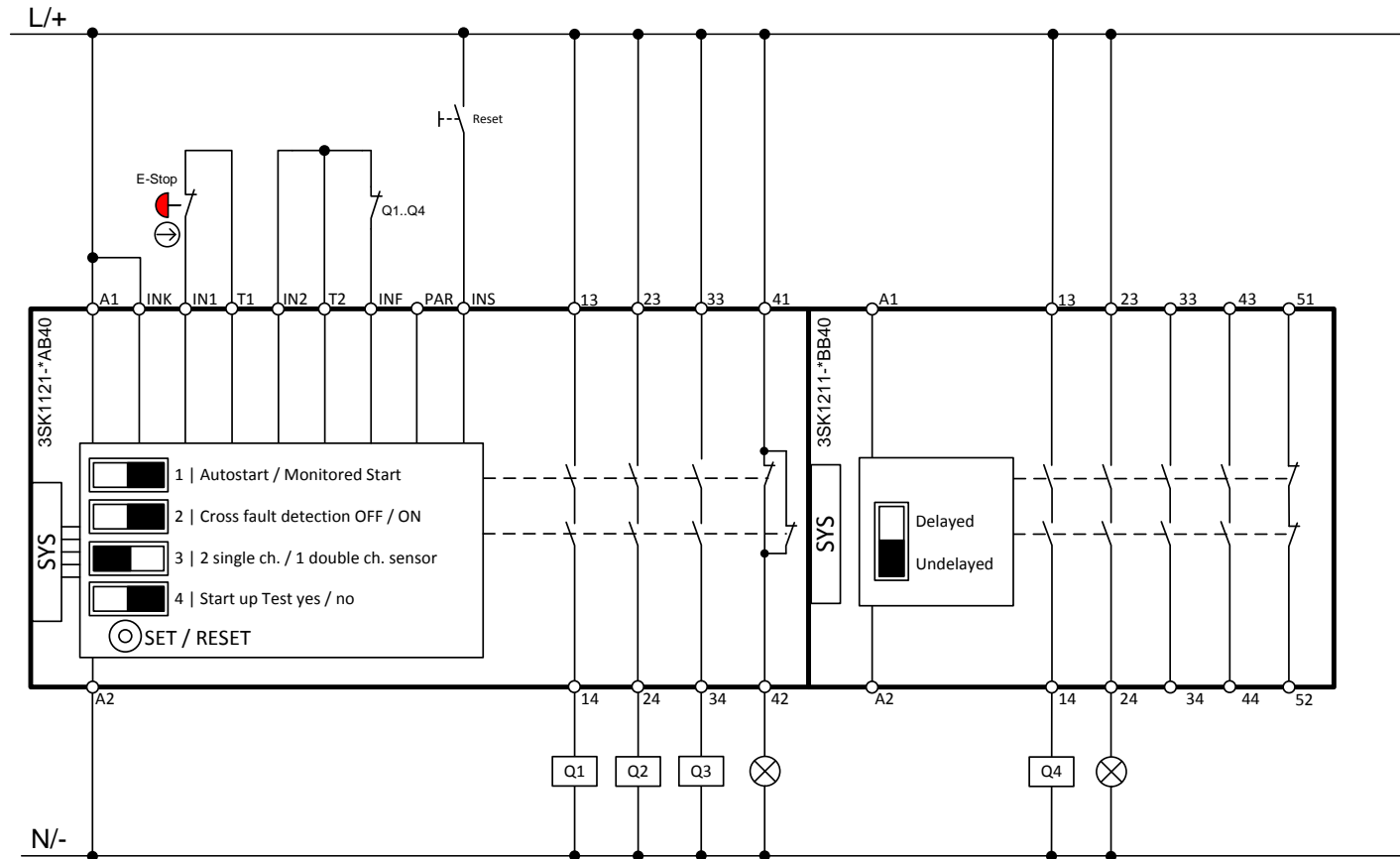


**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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**Note**

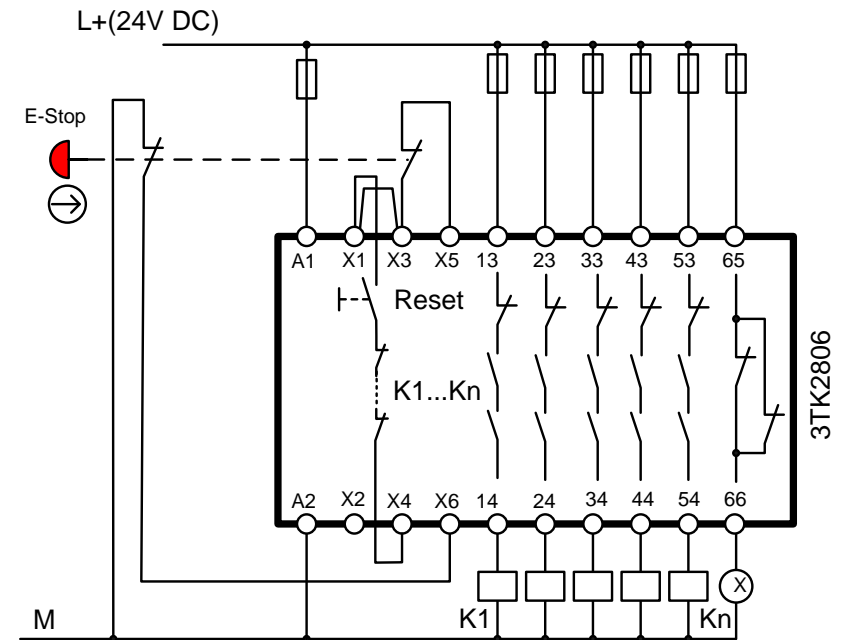
In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.5.2 Emergency stop monitoring (2-ch.)

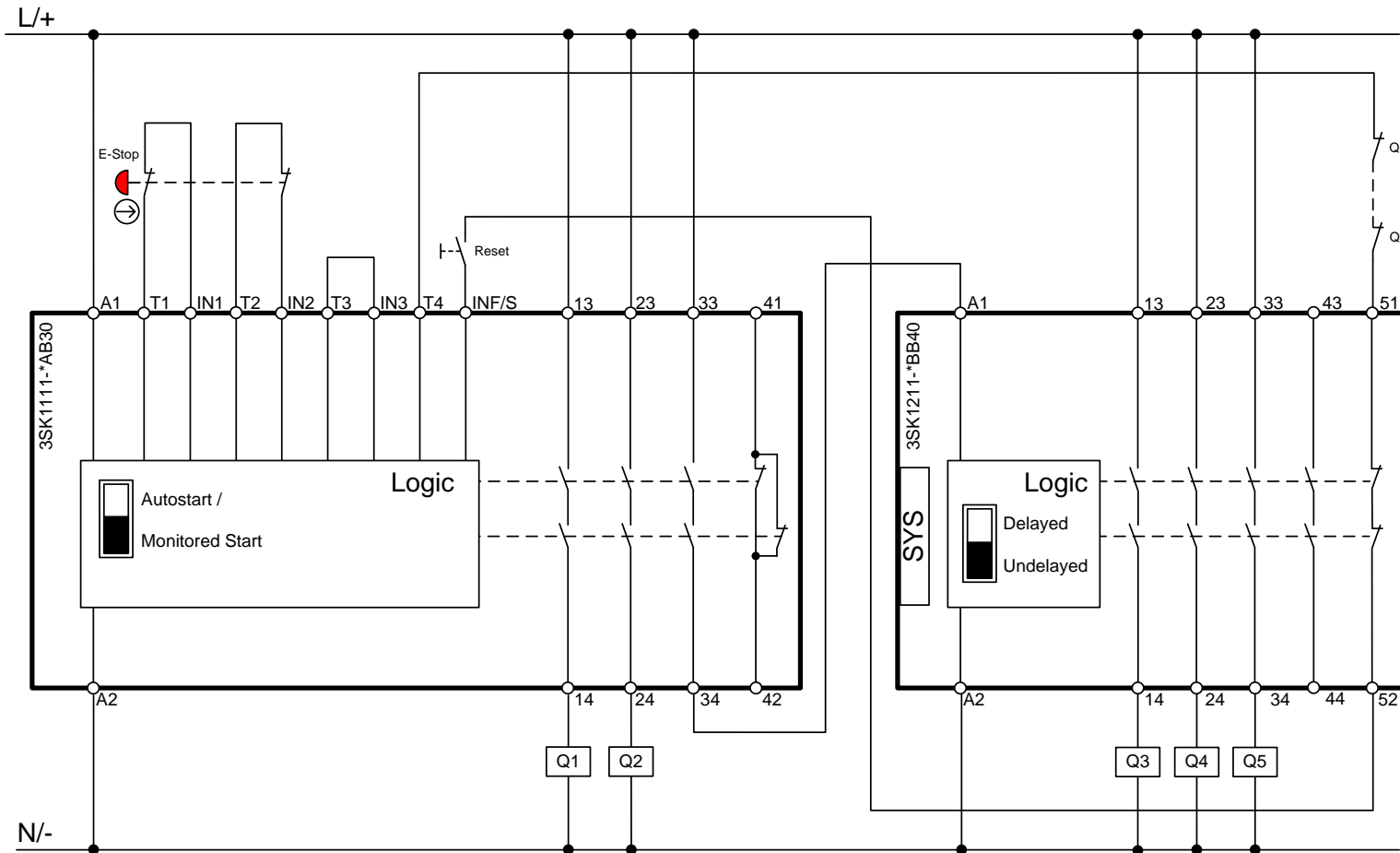
### Description of safety function and configuration

| Safety function  | Configuration   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

### Wiring diagram 3TK28

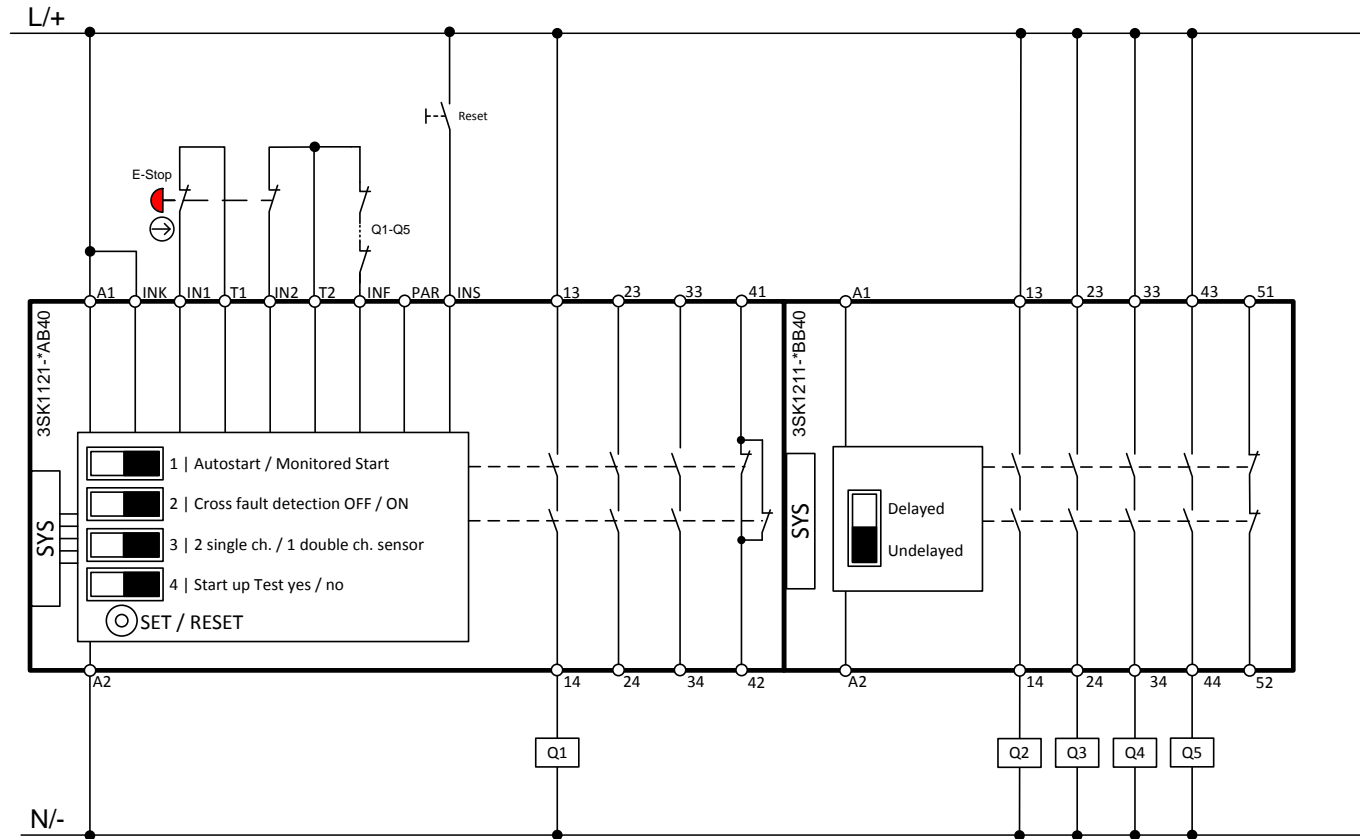


**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.6 3TK2806

### Corresponding order numbers

| 3TK28        | 3SK1 Standard                    | 3SK1 Advanced                     | Configuration |
|--------------|----------------------------------|-----------------------------------|---------------|
| 3TK2806-0AC2 | 3SK1111-1AB30 +<br>3SK1211-1BB00 | --                                | 24 V AC       |
| 3TK2806-0AG2 | 3SK1111-1AW20 +<br>3SK1211-1BW20 | 3SK1121-1AB40* +<br>3SK1211-1BW20 | 110V AC       |
| 3TK2806-0AL2 | 3SK1111-1AW20 +<br>3SK1211-1BW20 | 3SK1121-1AB40* +<br>3SK1211-1BW20 | 230 V AC      |
| 3TK2806-0BB4 | 3SK1111-1AB30 +<br>3SK1211-1BB40 | 3SK1121-1AB40 +<br>3SK1211-1BB40  | 24 V DC       |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

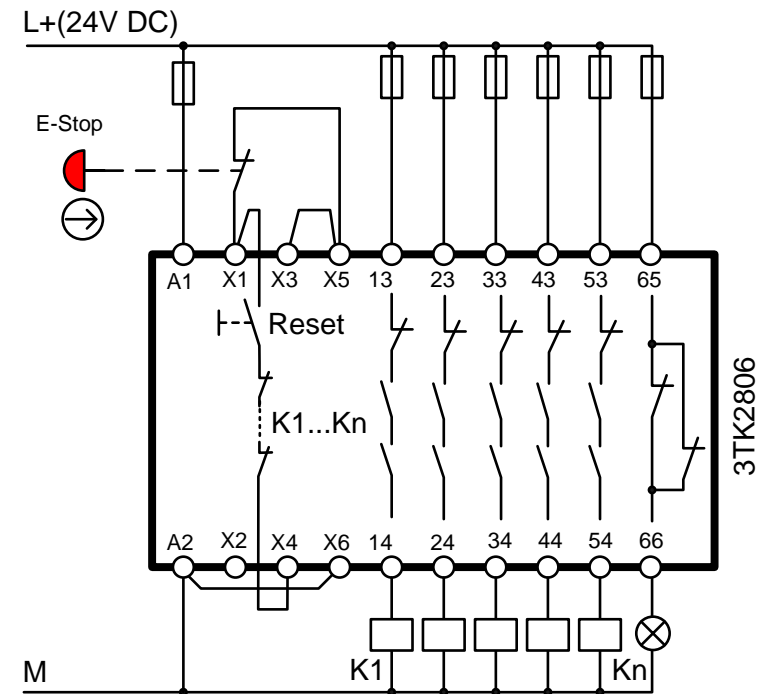
| 3TK2806 | 3SK1 Standard | 3SK1 Advanced | Terminal description   |
|---------|---------------|---------------|------------------------|
| A1      | A1            | A1            | Power supply +         |
| A2      | A2            | A2            | Power supply -         |
| X3/X5   | T1/IN1        | T1/IN1        | Channel 1              |
| X6/-    | T2/IN2        | T2/IN2        | Channel 2              |
| X1/X4   | T4/INF/S      | INS           | Reset button           |
| X1/X4   | T4/INF/S      | T2/INF        | Feedback circuit       |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)    |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)    |
| 33/34   | 33/34         | 33/34         | Output circuit (NO)    |
| 43/44   | --            | --            | Output circuit (NO)    |
| 53/54   | --            | --            | Output circuit (NO)    |
| 65/66   | 41/42         | 41/42         | Signaling circuit (NC) |

### 2.6.1 Emergency stop monitoring (1-ch.)

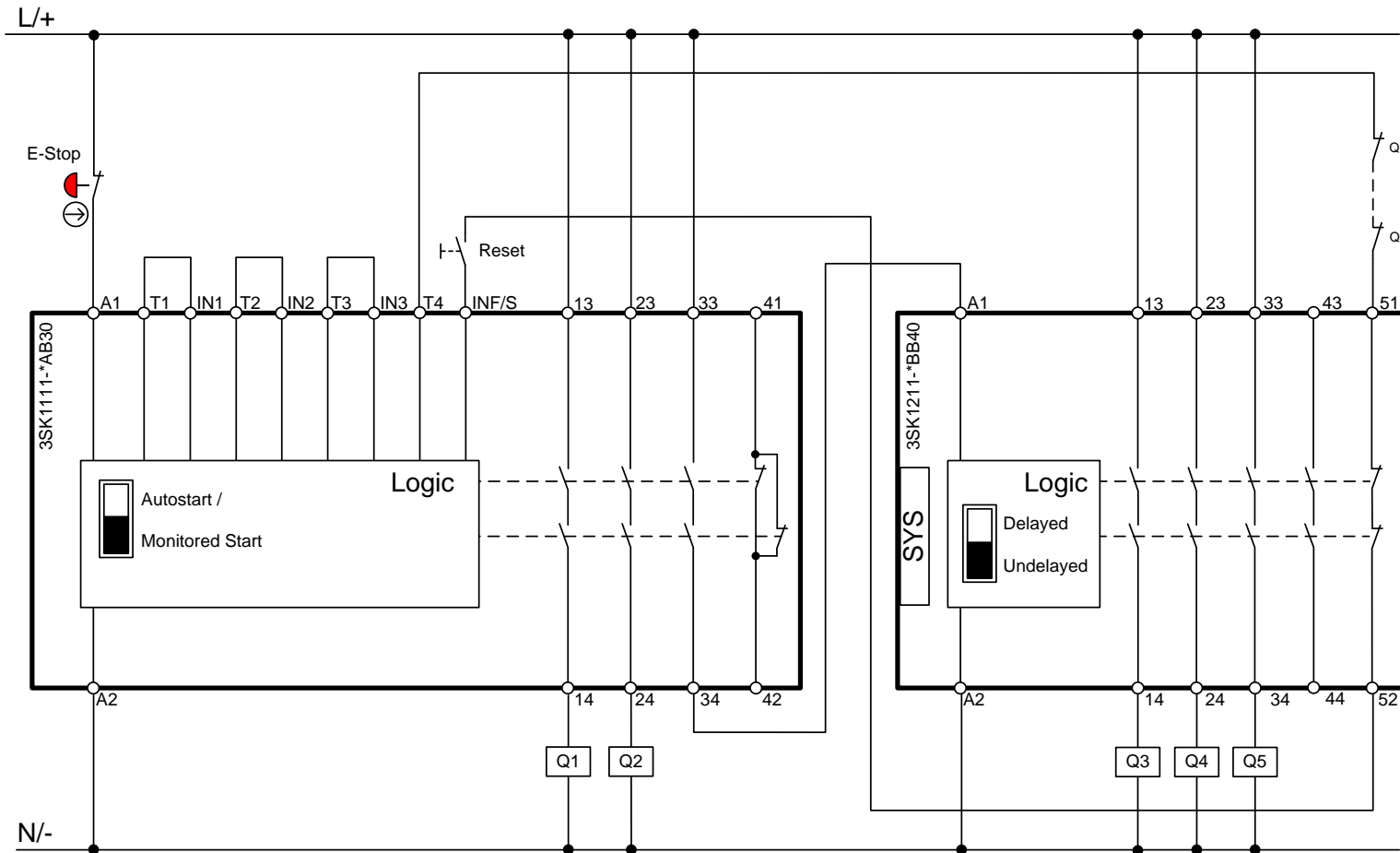
#### Description of safety function and configuration

| Safety function   | Configuration  |
|---|--|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>• manual start (monitored start)</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

#### Wiring diagram 3TK28



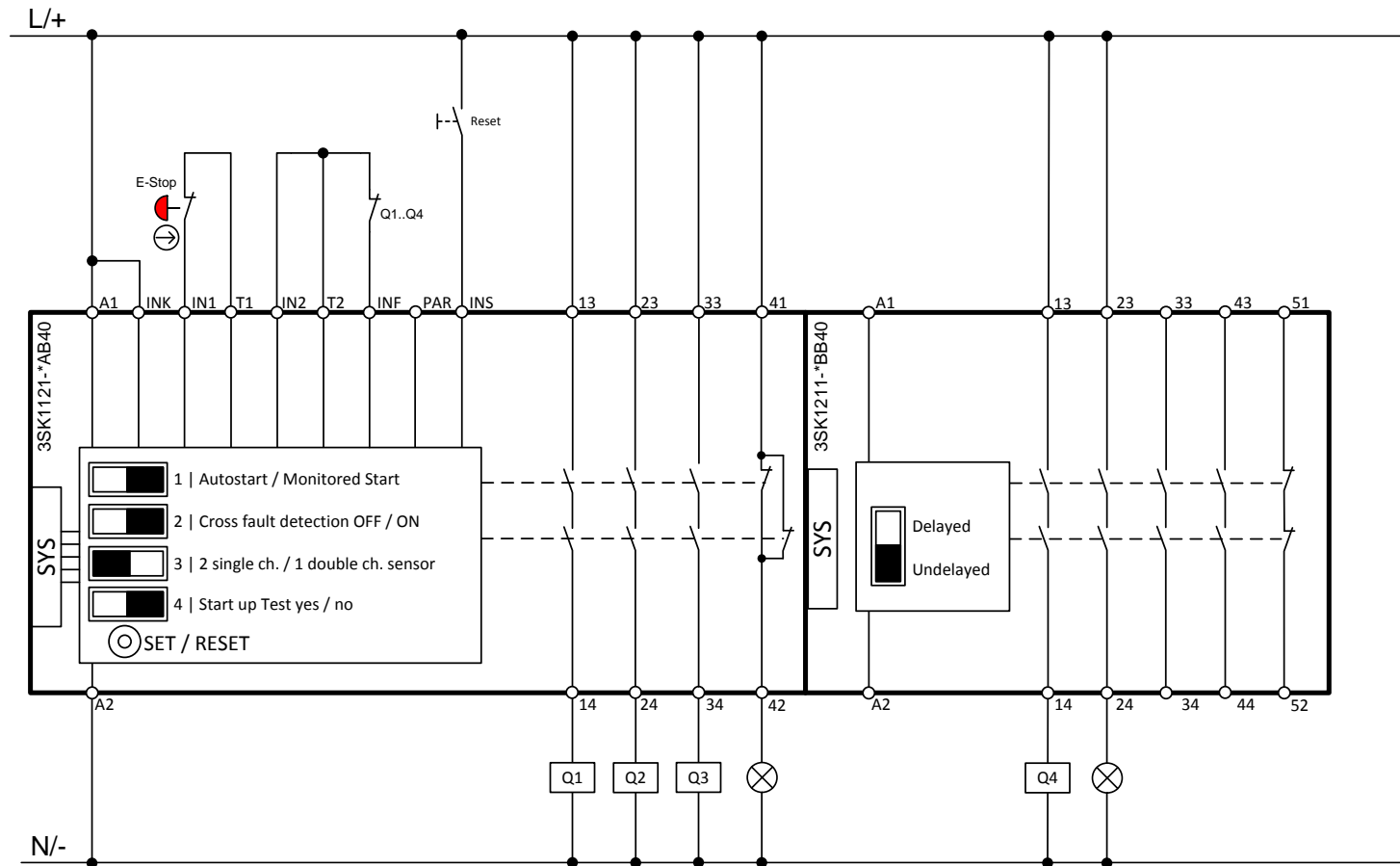
**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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**Note**

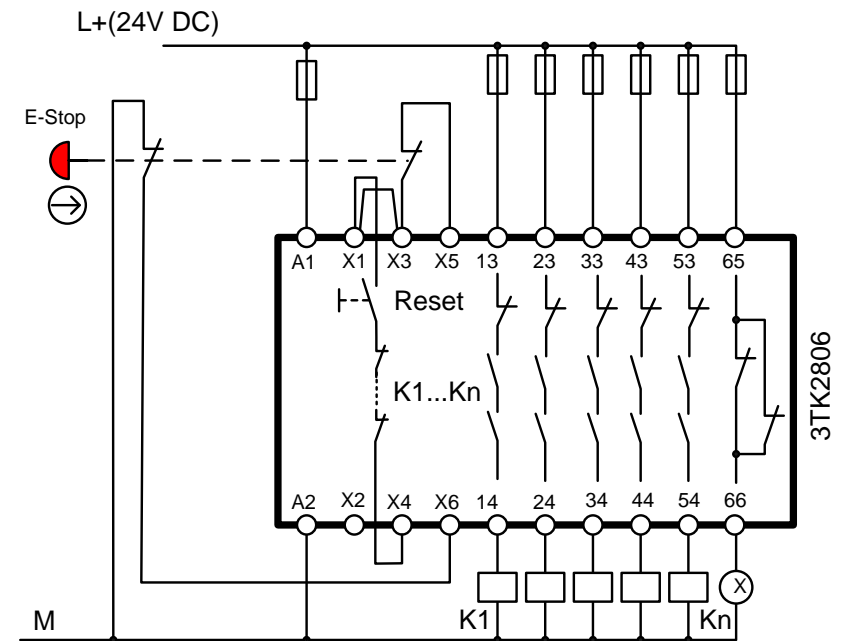
In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.6.2 Emergency stop monitoring (2-ch.)

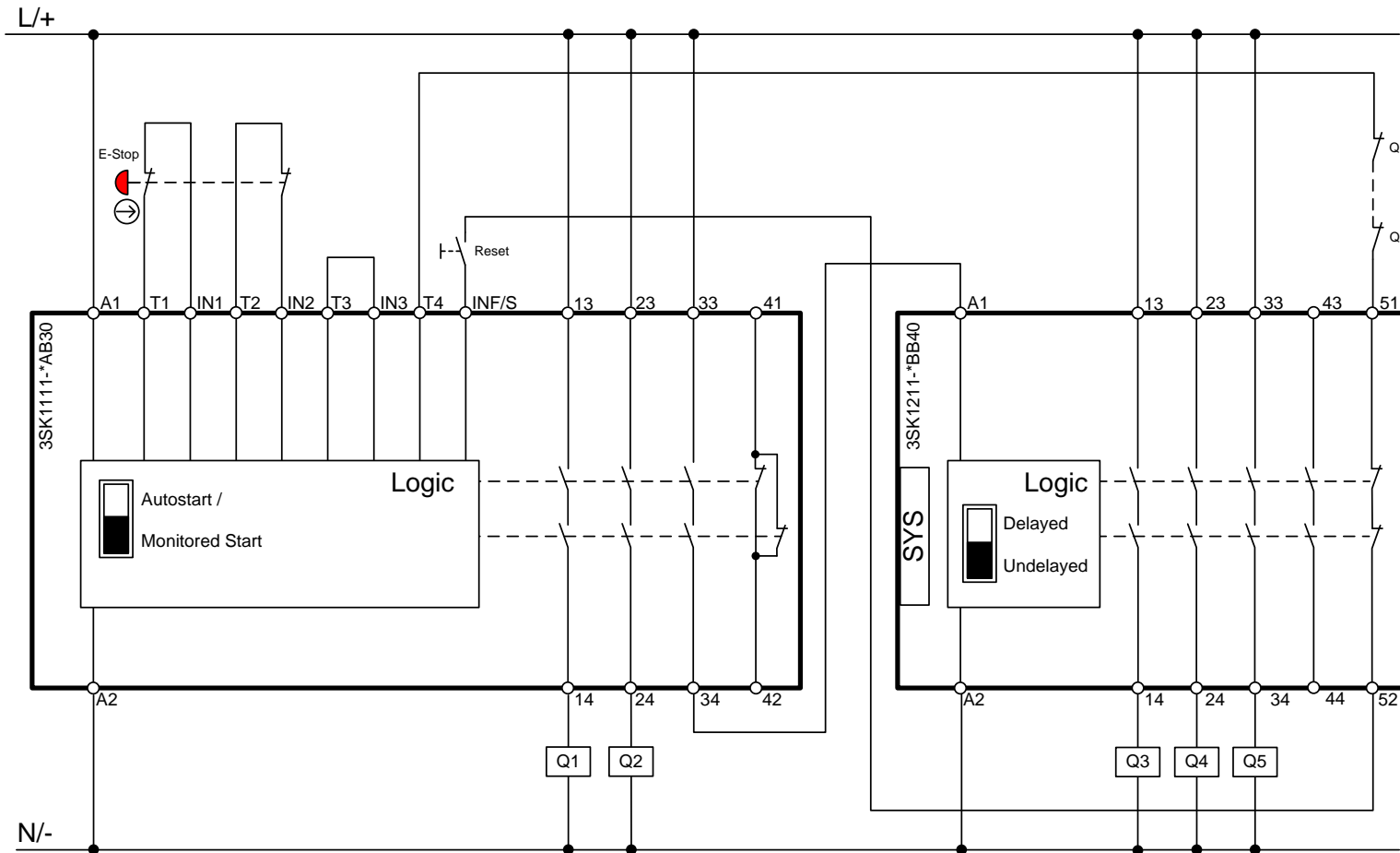
### Description of safety function and configuration

| Safety function  | Configuration   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• Manueller Start (monitored start)</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

### Wiring diagram 3TK28

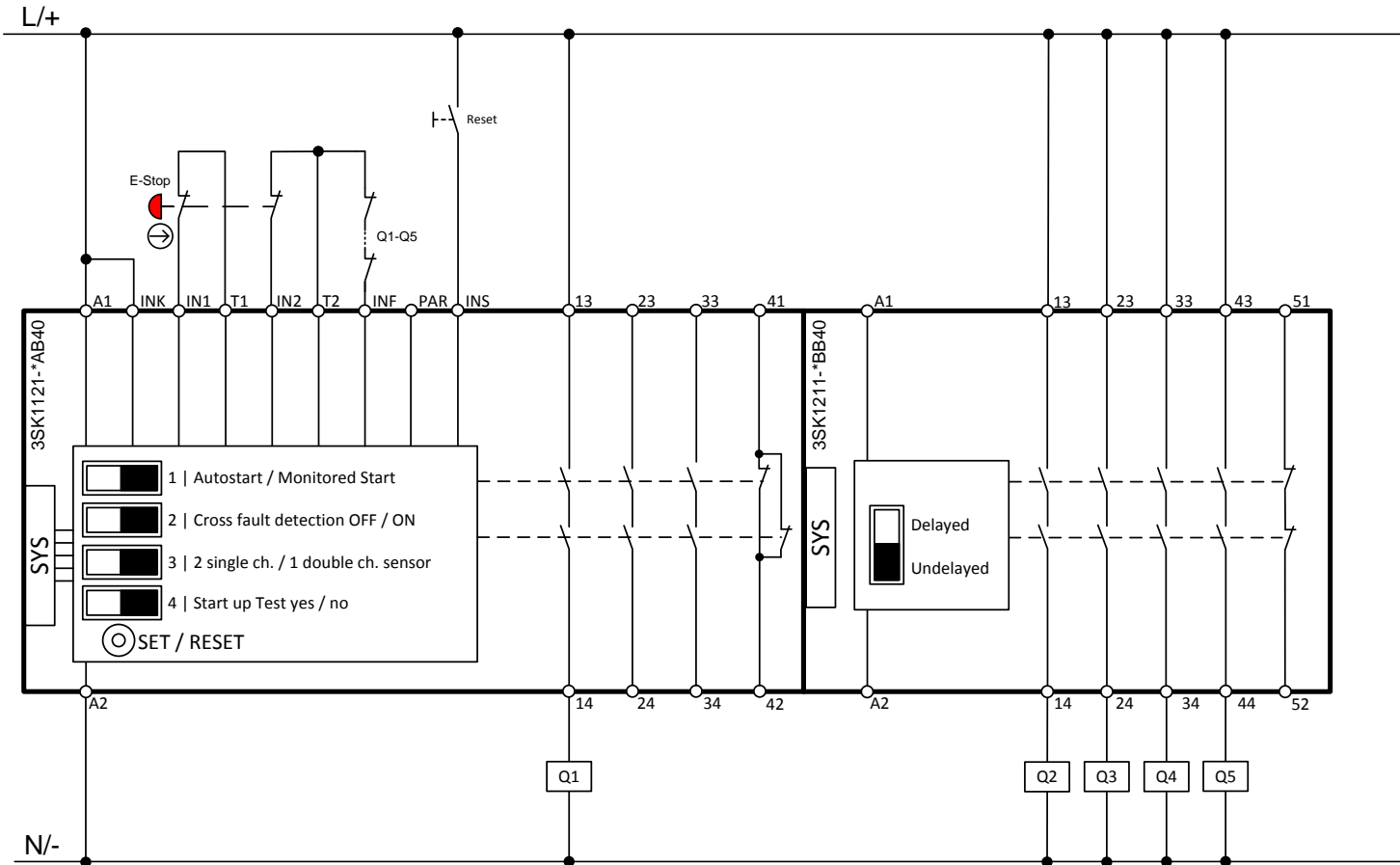


**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.7 3TK2807

### Corresponding order numbers

| 3TK28        | 3SK1 Advanced                     | Configuration |
|--------------|-----------------------------------|---------------|
| 3TK2807-0AC2 | --                                | 24 V AC       |
| 3TK2807-0AG2 | 3SK1121-1CB42* +<br>3SK1211-1BW20 | 110V AC       |
| 3TK2807-0AL2 | 3SK1121-1CB42* +<br>3SK1211-1BW20 | 230 V AC      |
| 3TK2807-0BB4 | 3SK1121-1CB42 +<br>3SK1211-1BB40  | 24 V DC       |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

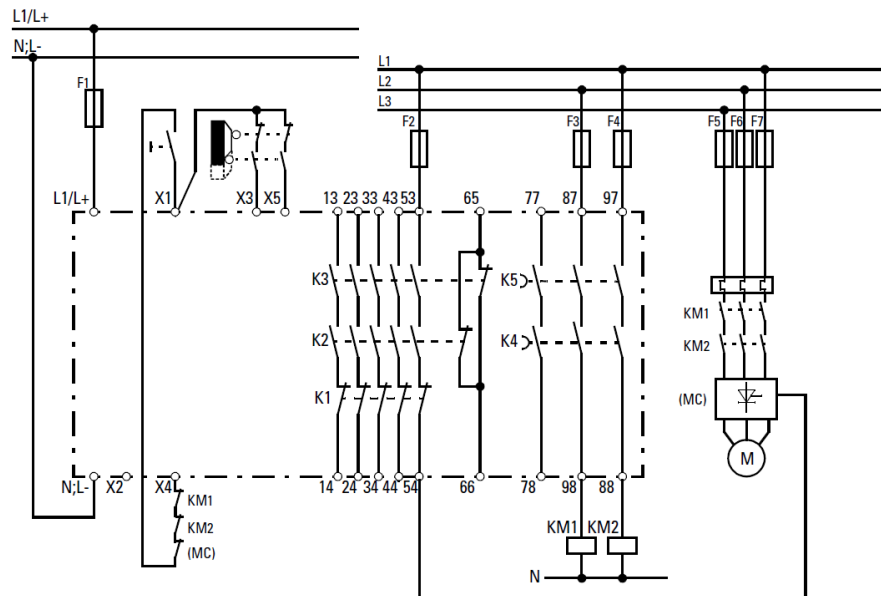
| 3TK2807 | 3SK1 Advanced | Terminal description         |
|---------|---------------|------------------------------|
| A1      | A1            | Power supply +               |
| A2      | A2            | Power supply -               |
| X1/X3   | T1/IN1        | Channel 1                    |
| X1/X5   | T2/IN2        | Channel 2                    |
| X1/X4   | INS           | Reset button                 |
| X1/X4   | T2/INF        | Feedback circuit             |
| 13/14   | 13/14         | Output circuit (NO)          |
| 23/24   | 23/24         | Output circuit (NO)          |
| 33/34   | --            | Output circuit (NO)          |
| 43/44   | --            | Output circuit (NO)          |
| 53/54   | --            | Output circuit (NO)          |
| 65/66   | --            | Signaling circuit (NC)       |
| 77/78   | 37/38         | Output circuit (NO, delayed) |
| 87/88   | 47/48         | Output circuit (NO, delayed) |
| 97/98   | --            | Output circuit (NO, delayed) |

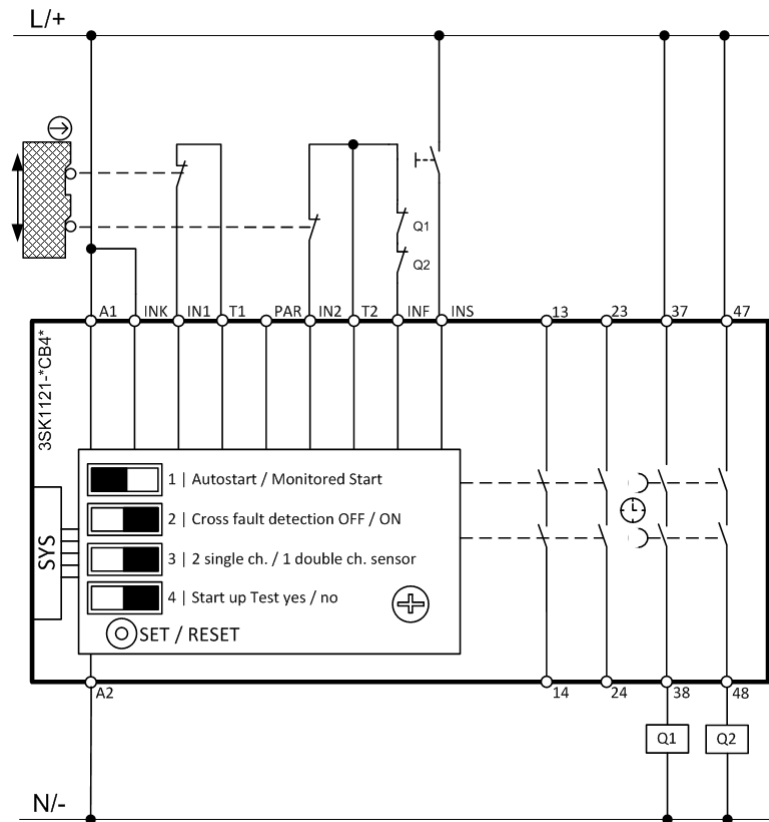
## 2.7.1 Protective door monitoring (2-ch.)

### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Protective door monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 und 1 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• automatic start</li> <li>• (cross-circuit detection activated)</li> <li>• (1x2-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

### Wiring diagram 3TK28



**Wiring diagram 3SK1 Advanced****Note**

The shown solution does not include output expansions which will be used if the outputs on the 3SK1 basic unit do not suffice. In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.8 3TK2907

The expansion moduls 3TK29 are always have to be used with a basic device 3TK28. Per enabling contact at the basic modul an expansion modul can be connected.

### Corresponding order numbers

| 3TK29        | 3SK1 Standard                                       | 3SK1 Advanced   | Comments |
|--------------|---|---|----------|
| 3TK2907-0AC2 | 3SK1111-1AB30 +<br>3SK1211-1BB00 +<br>3SK1211-1BB00 |   | 24 V AC  |
| 3TK2907-0AG2 | 3SK1111-1AW20 +<br>3SK1211-1BW20 +<br>3SK1211-1BW20 | 3SK1121-1AB40 +<br>3SK1211-1BB40 +<br>3SK1211-1BB40 * | 110 V AC |
| 3TK2907-0AL2 | 3SK1111-1AW20 +<br>3SK1211-1BW20 +<br>3SK1211-1BW20 | 3SK1121-1AB40 +<br>3SK1211-1BB40 +<br>3SK1211-1BB40 * | 230 V AC |
| 3TK2907-0BB4 | 3SK1111-1AB30 +<br>3SK1211-1BB40 +<br>3SK1211-1BB40 | 3SK1121-1AB40 +<br>3SK1211-1BB40 +<br>3SK1211-1BB40   | 24 V DC  |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

| 3TK2907 | 3SK1<br>Ausgangserweiterung | Terminal description   |
|---------|-----------------------------|------------------------|
| A1      | A1                          | Power supply +         |
| A2      | A2                          | Power supply -         |
| X7/X8   | 51/52                       | Signaling circuit (NC) |
| 73/74   | 13/14                       | Output circuit (NO)    |
| 83/84   | 23/24                       | Output circuit (NO)    |
| 93/94   | 33/34                       | Output circuit (NO)    |
| 103/104 | 43/44                       | Output circuit (NO)    |
| 113/114 | 13/14                       | Output circuit (NO)    |
| 123/124 | 23/24                       | Output circuit (NO)    |
| 133/134 | 33/34                       | Output circuit (NO)    |

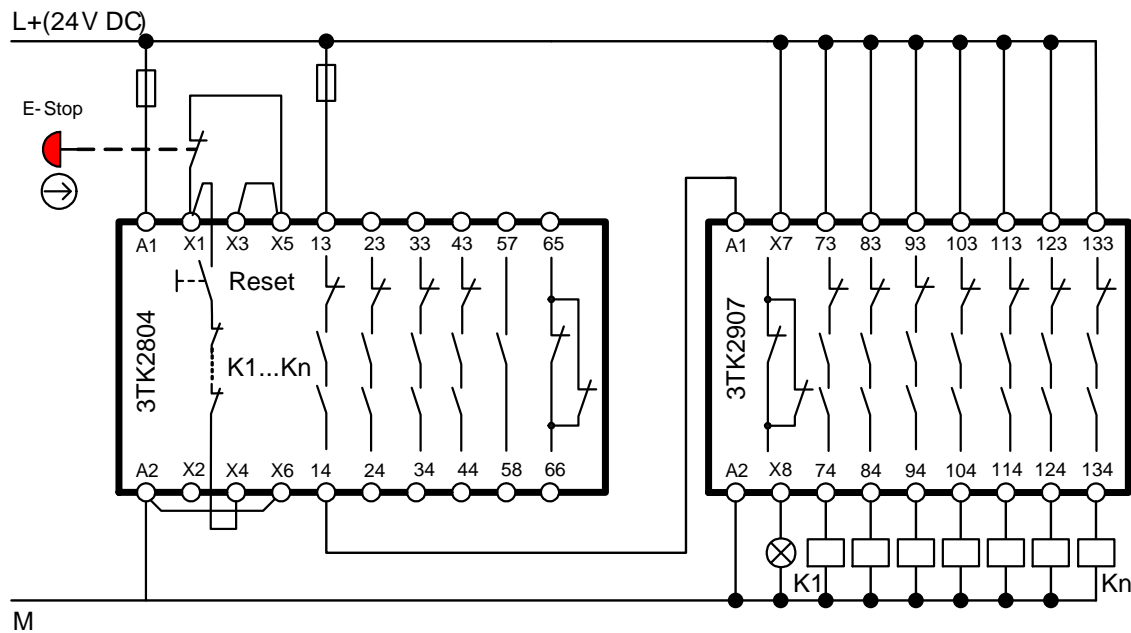


### 2.8.1 Emergency stop monitoring (1 ch.)

#### Description of safety function and configuration

| Safety function  | Configuration   |
|--|---|
| Emergency stop<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>• Monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-ch.)</li> <li>• (startup test deactivated)</li> </ul> |

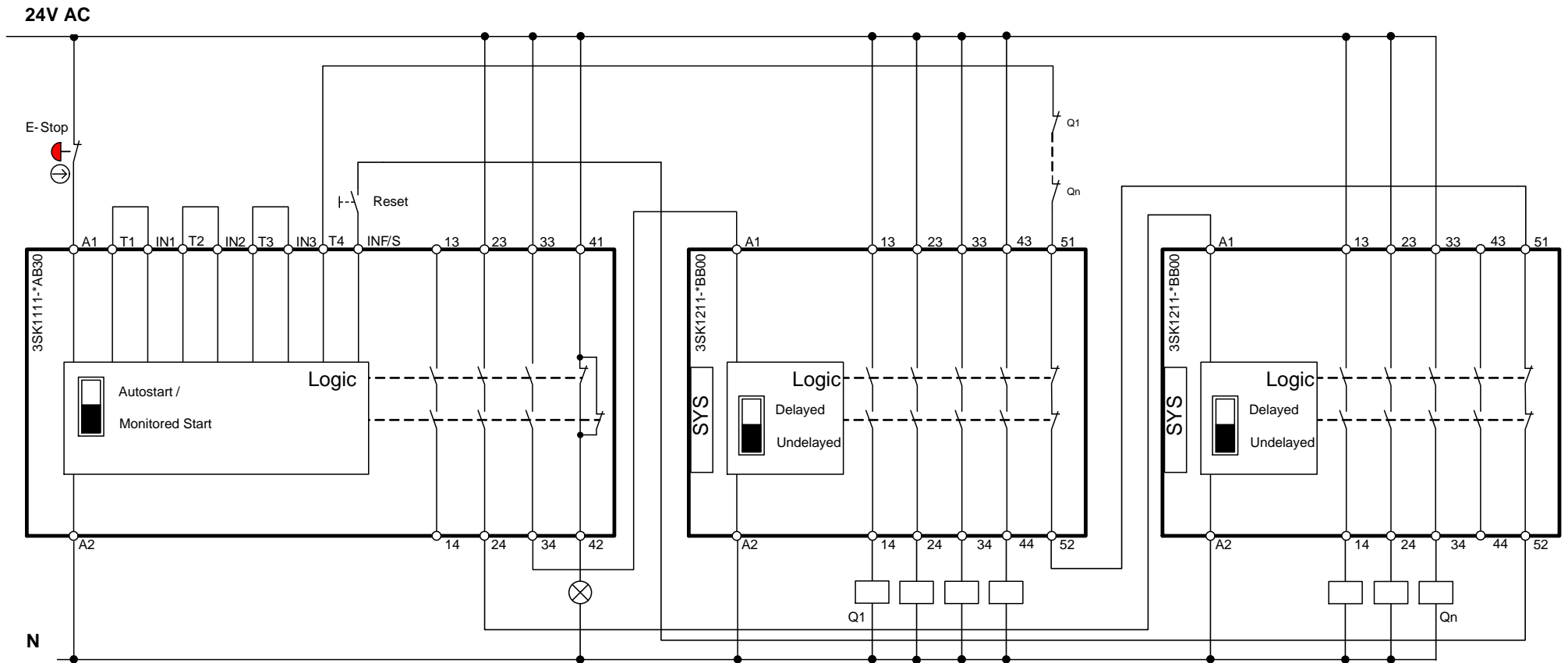
#### Wiring diagram 3TK28



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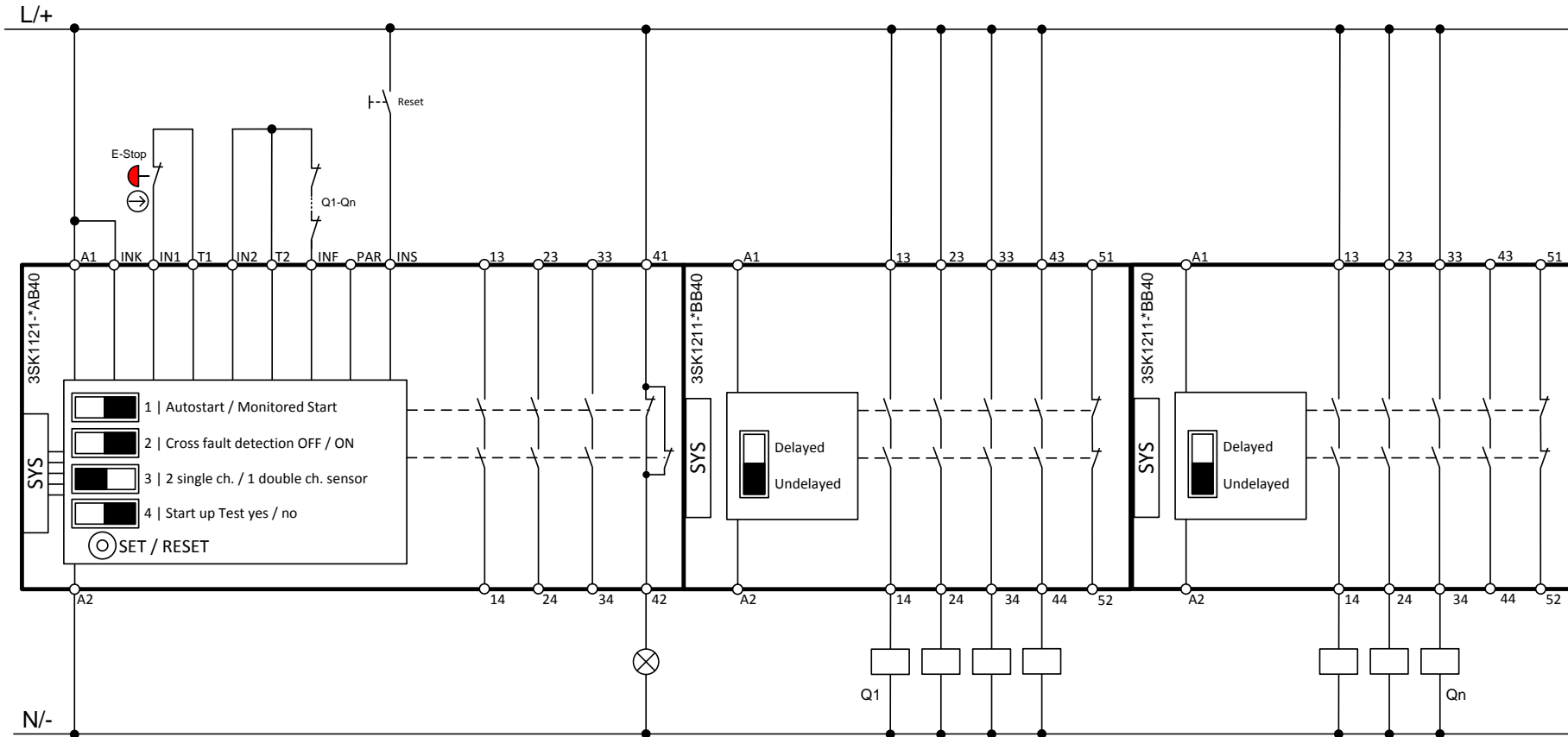
**Wiring diagram 3SK1 Standard**

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**Wiring diagram 3SK1 Advanced**

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**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.9 3TK2820

### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced   | Comments   |
|---------------|---------------|-----------------|------------|
| 3TK2820-1AJ20 | 3SK1111-1AW20 | 3SK1121-1AB40 * | Screw-type |
| 3TK2820-1AL20 | 3SK1111-1AW20 | 3SK1121-1AB40 * | Screw-type |
| 3TK2820-1CB30 | 3SK1111-1AB30 | 3SK1121-1AB40   | Screw-type |
| 3TK2820-2AJ20 | 3SK1111-2AW20 | 3SK1121-2AB40 * | Push-In    |
| 3TK2820-2AL20 | 3SK1111-2AW20 | 3SK1121-2AB40 * | Push-In    |
| 3TK2820-2CB30 | 3SK1111-2AB30 | 3SK1121-1AB40   | Push-In    |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

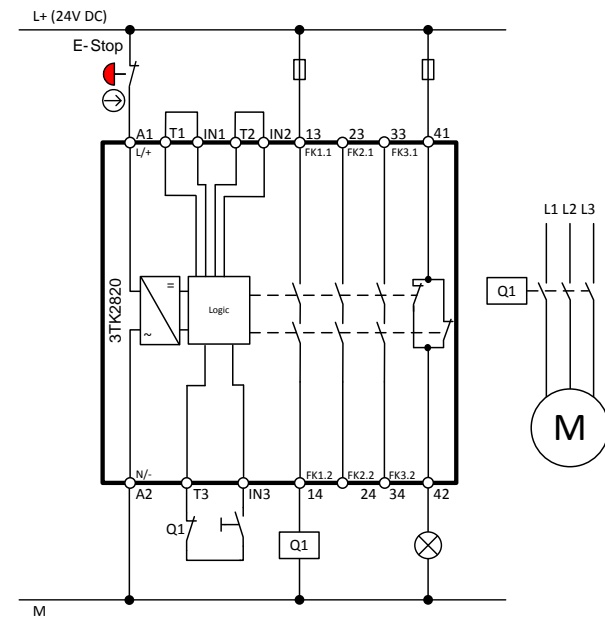
| 3TK2820 | 3SK1 Standard | 3SK1 Advanced | Terminal description                     |
|---------|---------------|---------------|--|
| A1      | A1            | A1            | Power supply +                           |
| A2      | A2            | A2            | Power supply -                           |
| T1/IN1  | T1/IN1        | T1/IN1        | Channel 1                                |
| T2/IN2  | T2/IN2        | T2/IN2        | Channel 2                                |
| --      | T3/IN3        | DIP switch    | Channel 2 for use of OSSDs               |
| T/3IN3  | T4/INF/S      | INS           | Reset button                             |
| T/3IN3  | T4/INF/S      | T2/INF        | Feedback circuit                         |
| --      | --            | INK           | Cascading input                          |
| --      | --            | PAR           | Configuration input for NO/NC evaluation |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)                      |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)                      |
| 33/34   | 33/34         | 33/34         | Output circuit (NO)                      |
| 41/42   | 41/42         | 41/42         | Signaling circuit (NC)                   |

### 2.9.1 Emergency stop monitoring (1 ch.)

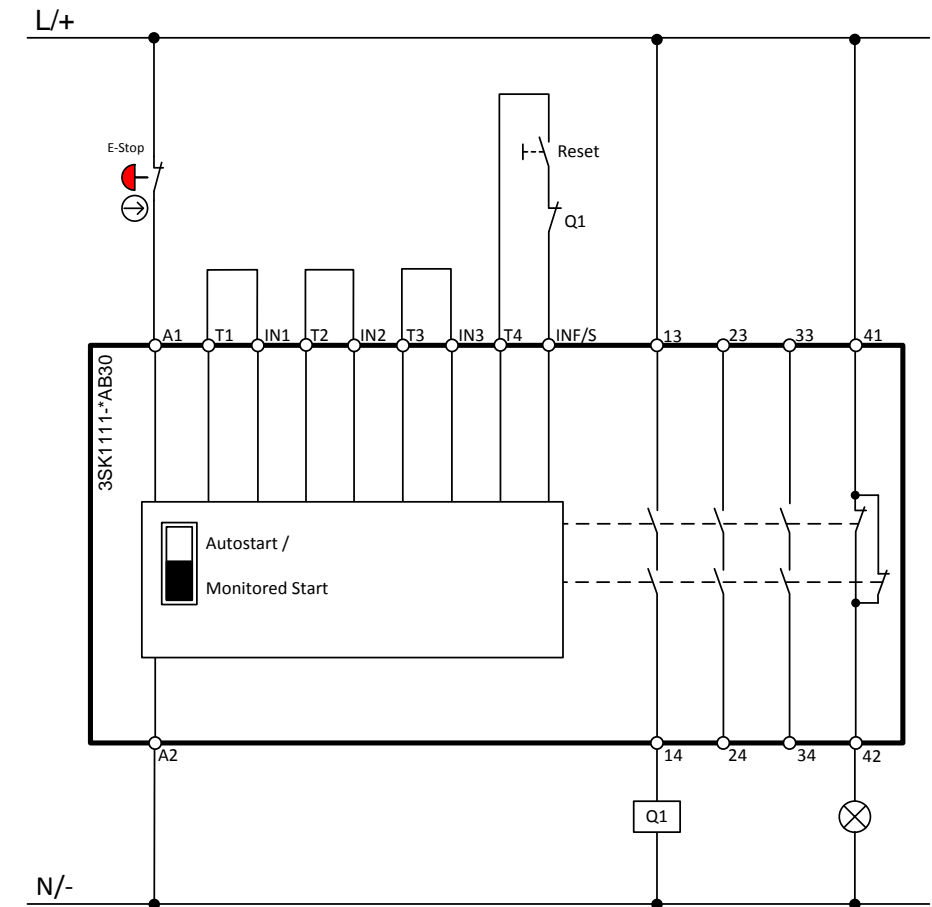
#### Description of safety function and configuration

| Safety function   | Configuration  |
|---|--|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (1 double channel)</li> <li>• (startup test deactivated)</li> </ul> |

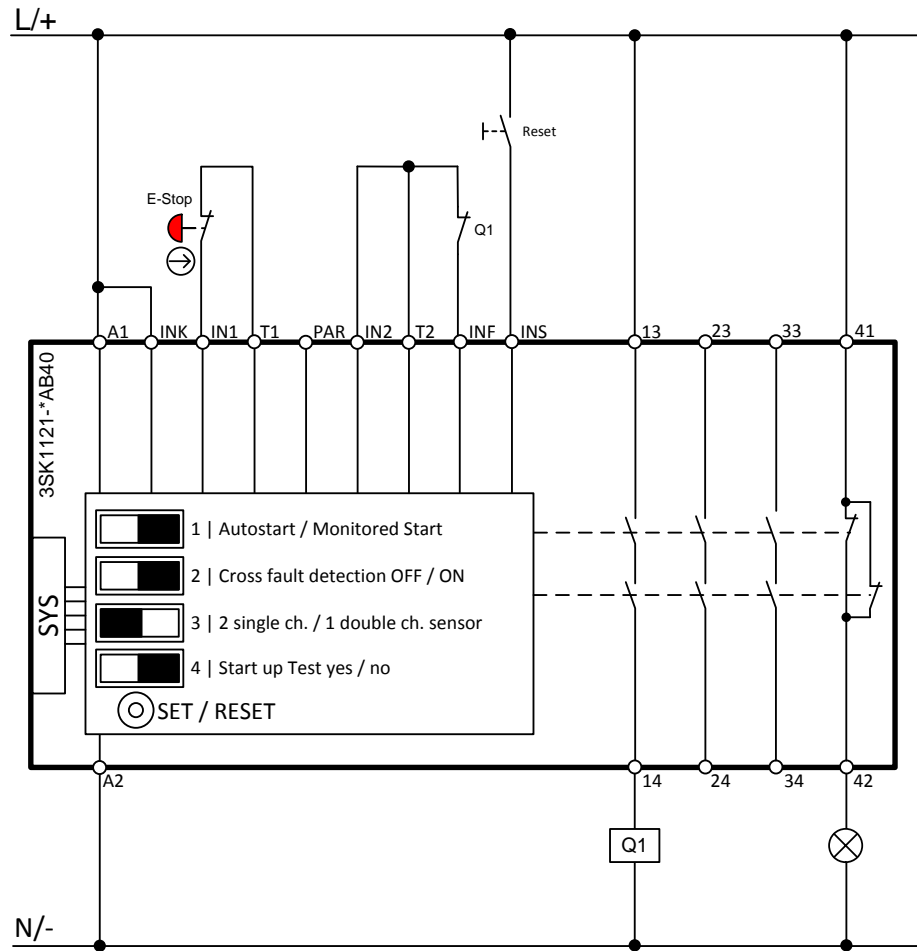
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



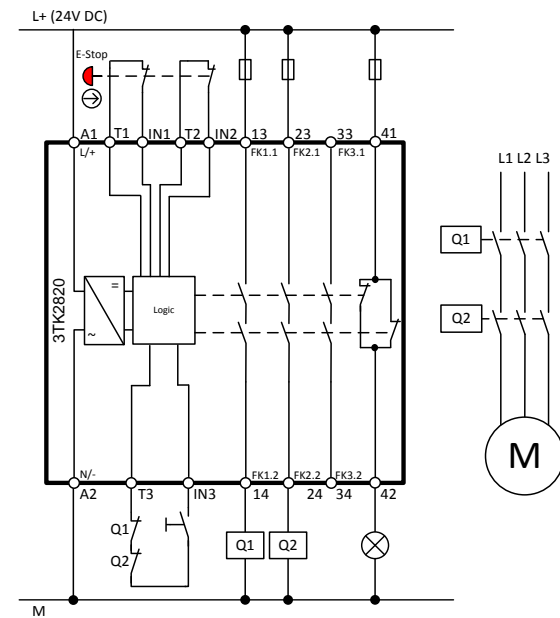
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## 2.9.2 Emergency stop monitoring (2 ch.)

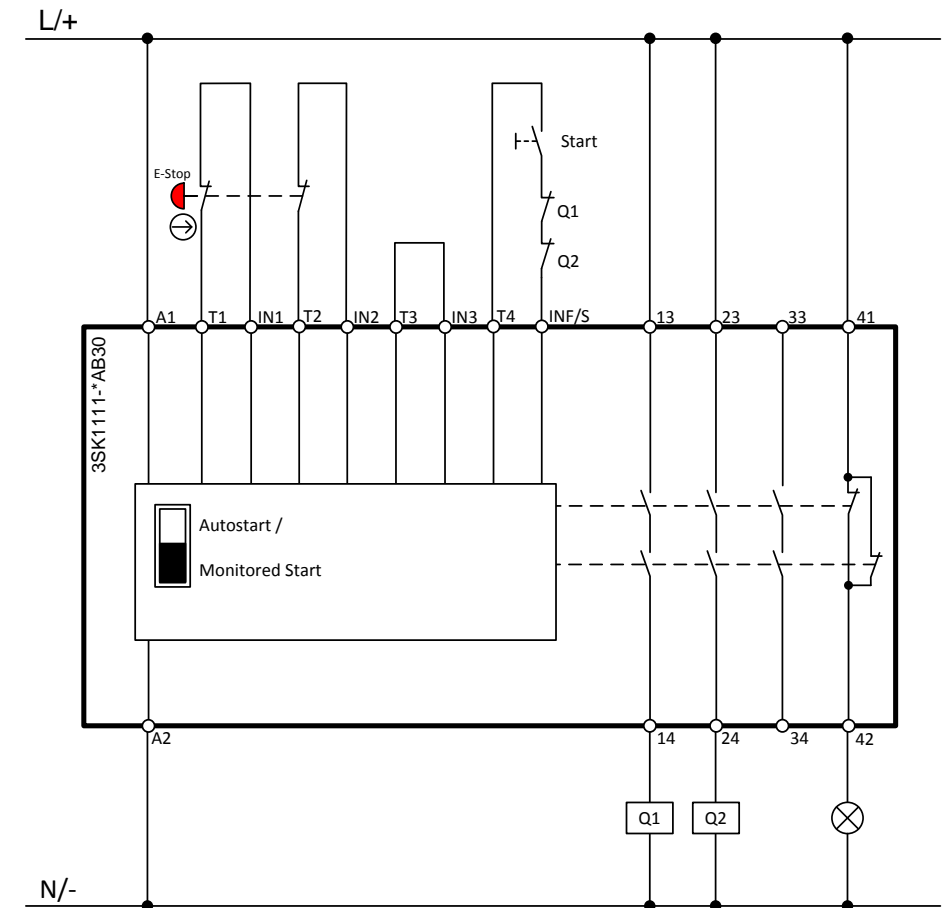
### Description of safety function and configuration

| Safety function  | Configuration   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2 single channels)</li> <li>• (startup test deactivated)</li> </ul> |

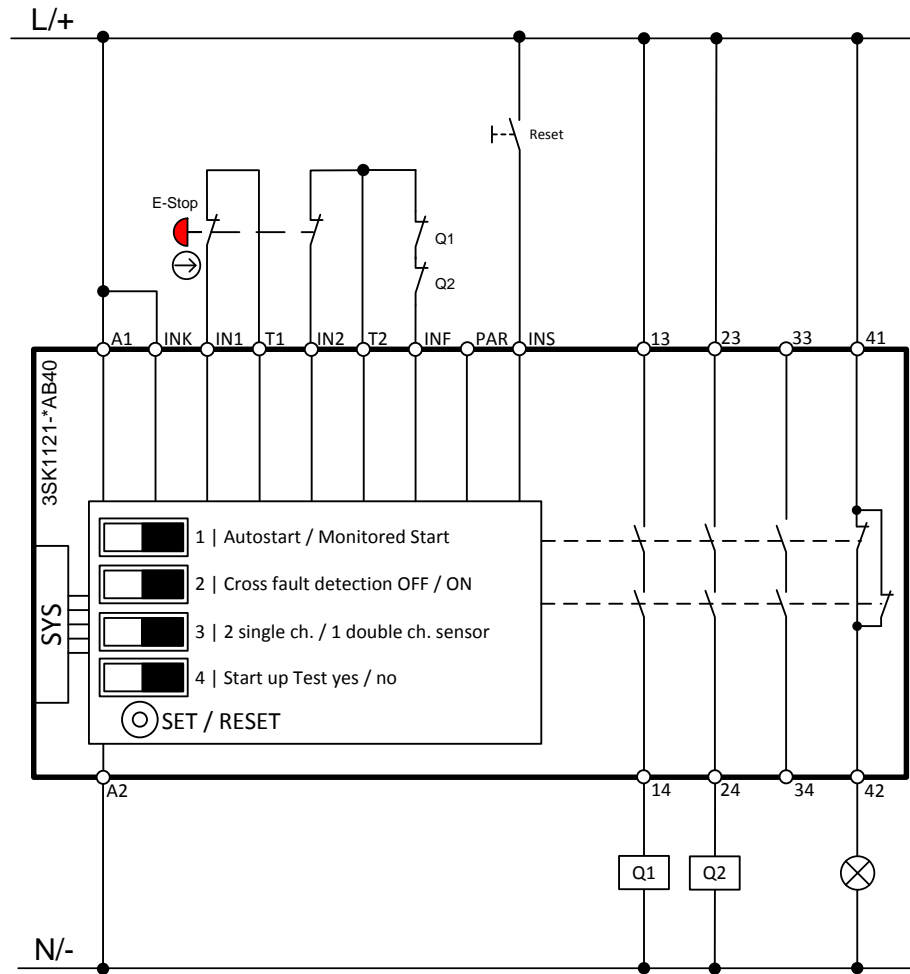
### Wiring diagram 3TK28



### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



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## 2.10 3TK2821

### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced | Comments   |
|---------------|---------------|---------------|------------|
| 3TK2821-1CB30 | 3SK1111-1AB30 | 3SK1121-1AB40 | Screw-type |
| 3TK2821-2CB30 | 3SK1111-2AB30 | 3SK1121-2AB40 | Push-In    |

### Terminal marking

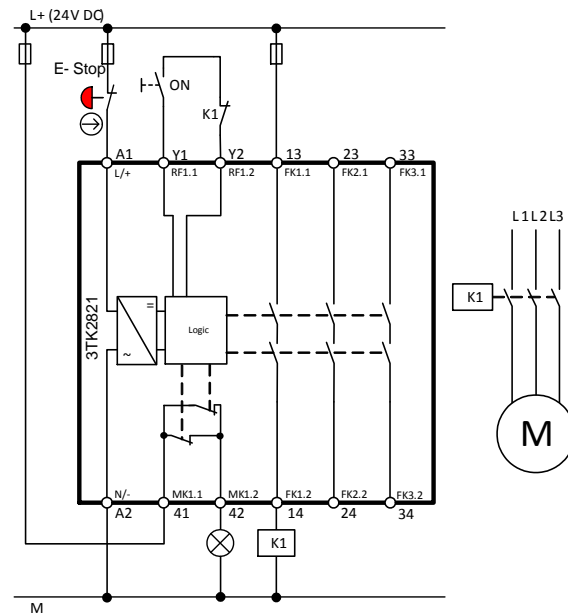
| 3TK2821 | 3SK1 Standard | 3SK1 Advanced | Terminal description                     |
|---------|---------------|---------------|--|
| A1      | A1            | A1            | Power supply +                           |
| A2      | A2            | A2            | Power supply -                           |
| --      | T1/IN1        | T1/IN1        | Channel 1                                |
| --      | T2/IN2        | T2/IN2        | Channel 2                                |
| --      | T3/IN3        | DIP switch    | Channel 2 for use of OSSDs               |
| Y1/Y2   | T4/INF/S      | INS           | Reset button                             |
| Y1/Y2   | T4/INF/S      | T2/INF        | Feedback circuit                         |
| --      | --            | INK           | Cascading input                          |
| --      | --            | PAR           | Configuration input for NO/NC evaluation |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)                      |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)                      |
| 33/34   | 33/34         | 33/34         | Output circuit (NO)                      |
| 41/42   | 41/42         | 41/42         | Signaling circuit (NC)                   |

### 2.10.1 Emergency stop monitoring (1 ch.)

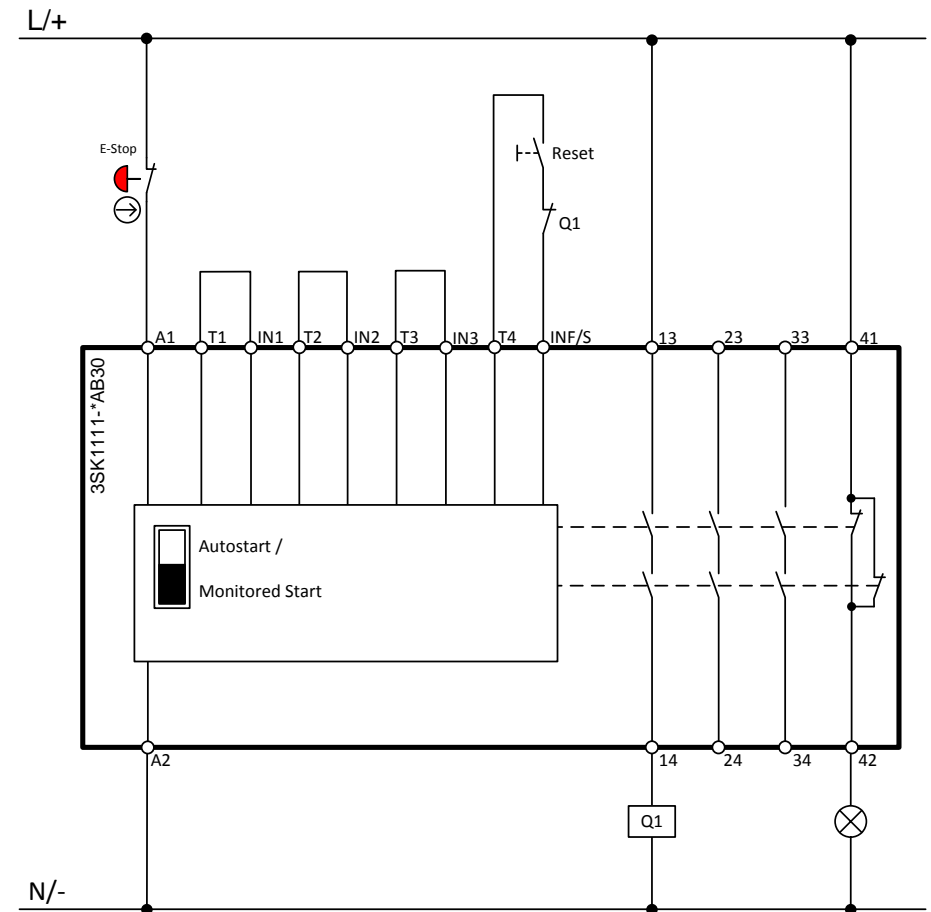
#### Description of safety function and configuration

| Safety function   | Configuration  |
|---|--|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (1 double channel)</li> <li>• (startup test deactivated)</li> </ul> |

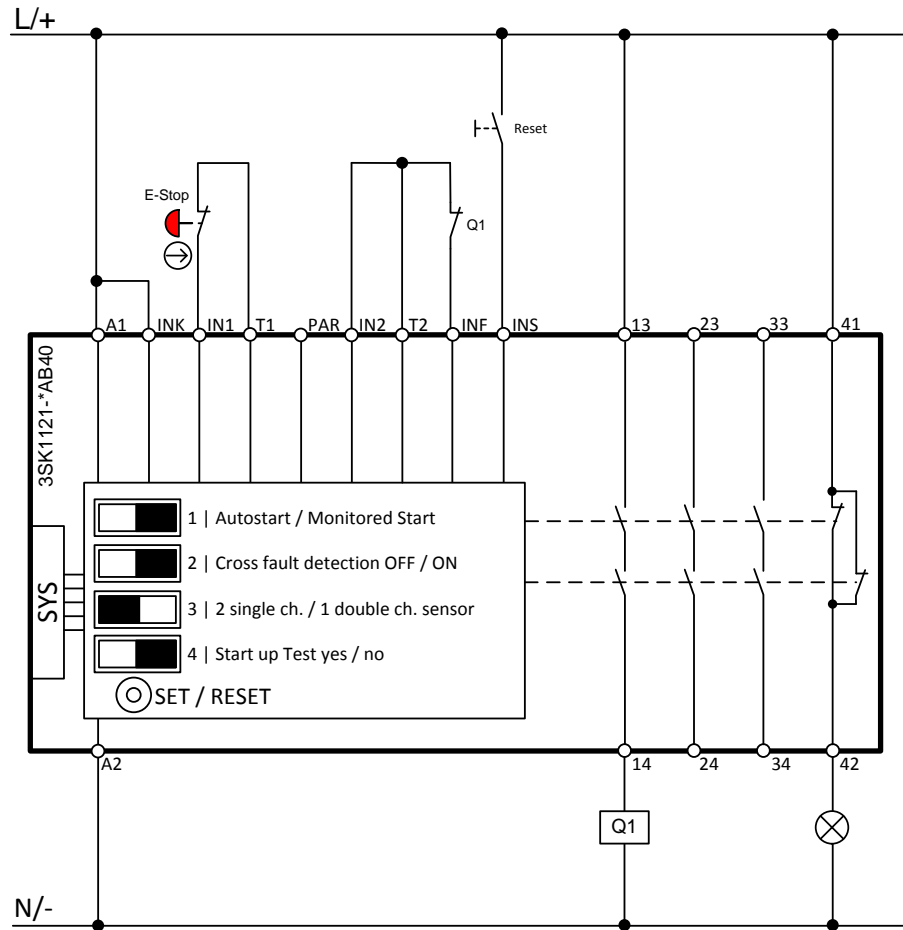
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



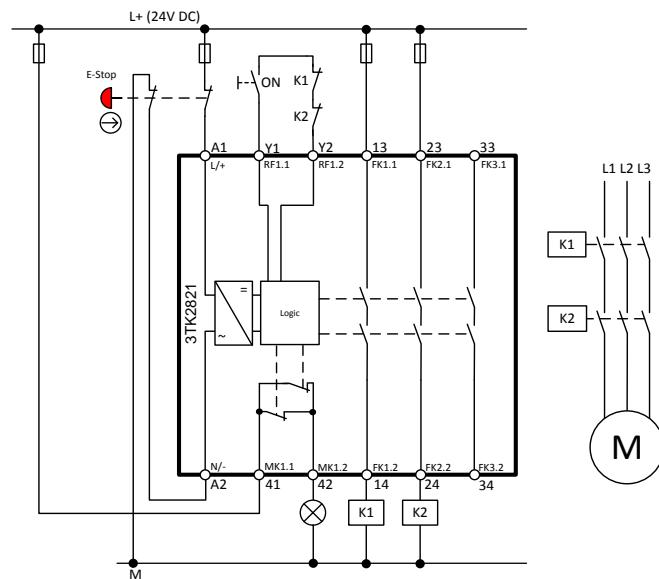
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### 2.10.2 Emergency stop monitoring (2 ch.)

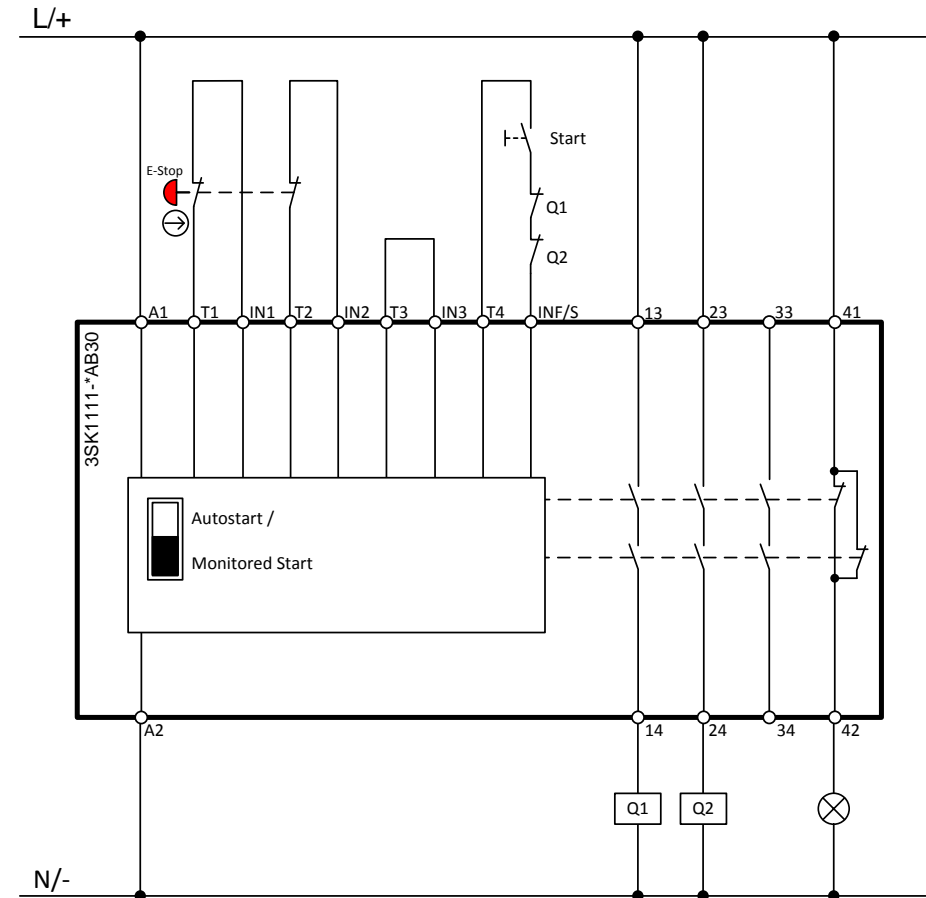
#### Erläuterung der Sicherheitsfunktionen und Parameter

| Safety function<br>3TK28 (3SK1)   | Configuration<br>3SK1 (Advanced)  |
|---|---|
| Emergency stop monitoring<br>SIL 1 (SIL 3)<br>PL c (PL e)<br>Stopp-category 0 (EN 60204-1)<br>DC = 0% (99%) | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-channel)</li> <li>• (startup test deactivated)</li> </ul> |

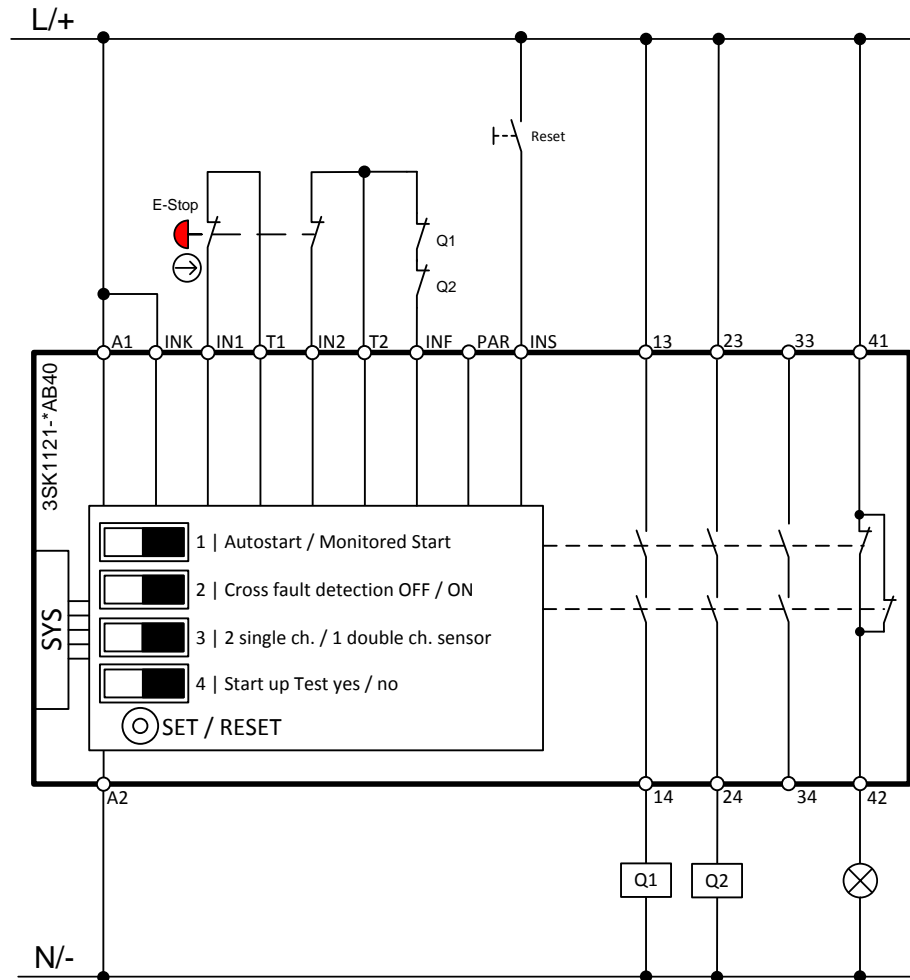
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



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## 2.11 3TK2822

### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced | Comments   |
|---------------|---------------|---------------|------------|
| 3TK2822-1CB30 | 3SK1111-1AB30 | 3SK1121-1AB40 | Screw-type |
| 3TK2822-2CB30 | 3SK1111-2AB30 | 3SK1121-2AB40 | Push-In    |

### Terminal marking

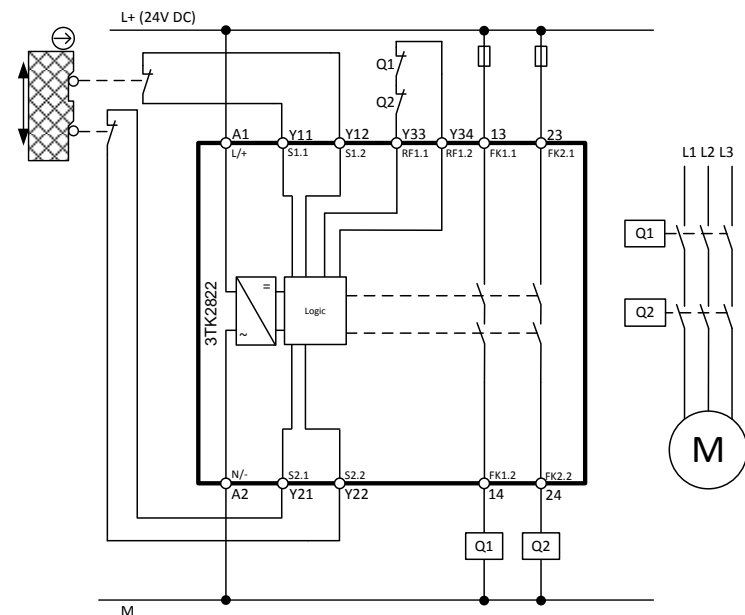
| 3TK2822 | 3SK1 Standard | 3SK1 Advanced | Terminal description                     |
|---------|---------------|---------------|--|
| A1      | A1            | A1            | Power supply +                           |
| A2      | A2            | A2            | Power supply -                           |
| Y11/Y12 | T1/IN1        | T1/IN1        | Channel 1                                |
| Y21/Y22 | T2/IN2        | T2/IN2        | Channel 2                                |
| --      | T3/IN3        | DIP switch    | Channel 2 for use of OSSDs               |
| Y33/Y34 | T4/INF/S      | INS           | Reset button                             |
| Y33/Y34 | T4/INF/S      | T2/INF        | Feedback circuit                         |
| --      | --            | INK           | Cascading input                          |
| --      | --            | PAR           | Configuration input for NO/NC evaluation |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)                      |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)                      |
| --      | 33/34         | 33/34         | Output circuit (NO)                      |
| --      | 41/42         | 41/42         | Signaling circuit (NC)                   |

### 2.11.1 Protective door monitoring (2-ch.)

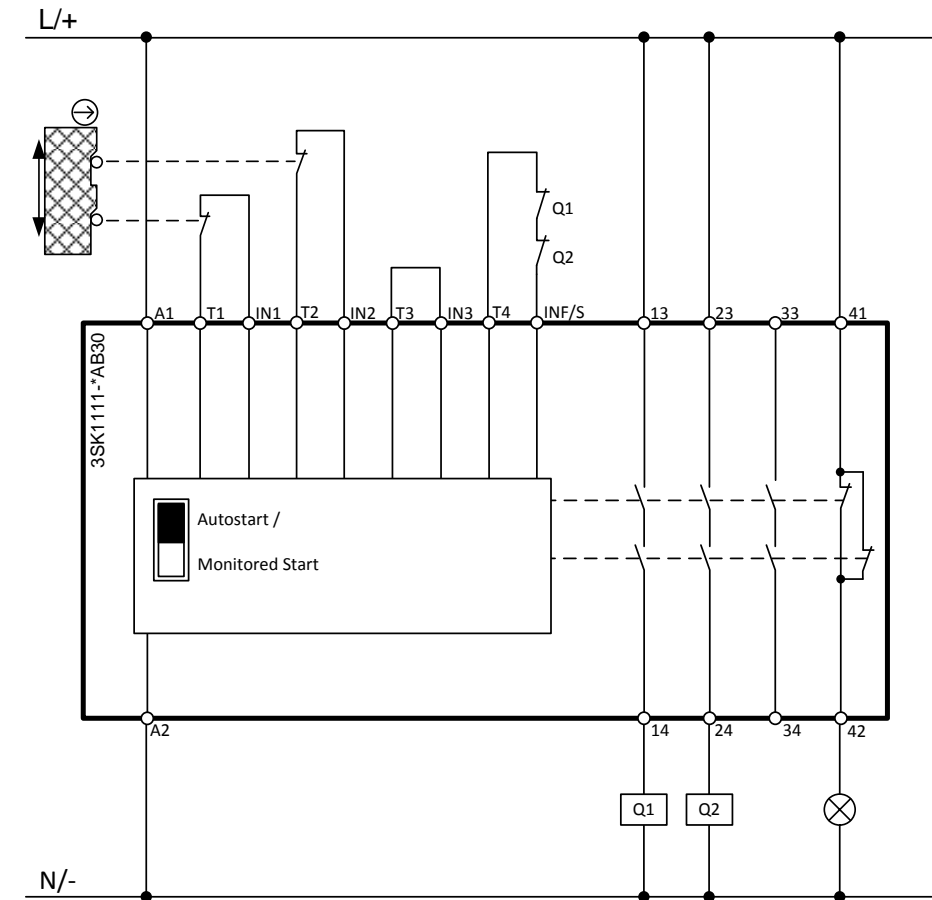
#### Description of safety function and configuration

| Safety function   | Configuration  |
|---|--|
| Protective door monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• automatic start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1-channel)</li> <li>• (startup test deactivated)</li> <li>•</li> </ul> |

#### Wiring diagram 3TK28



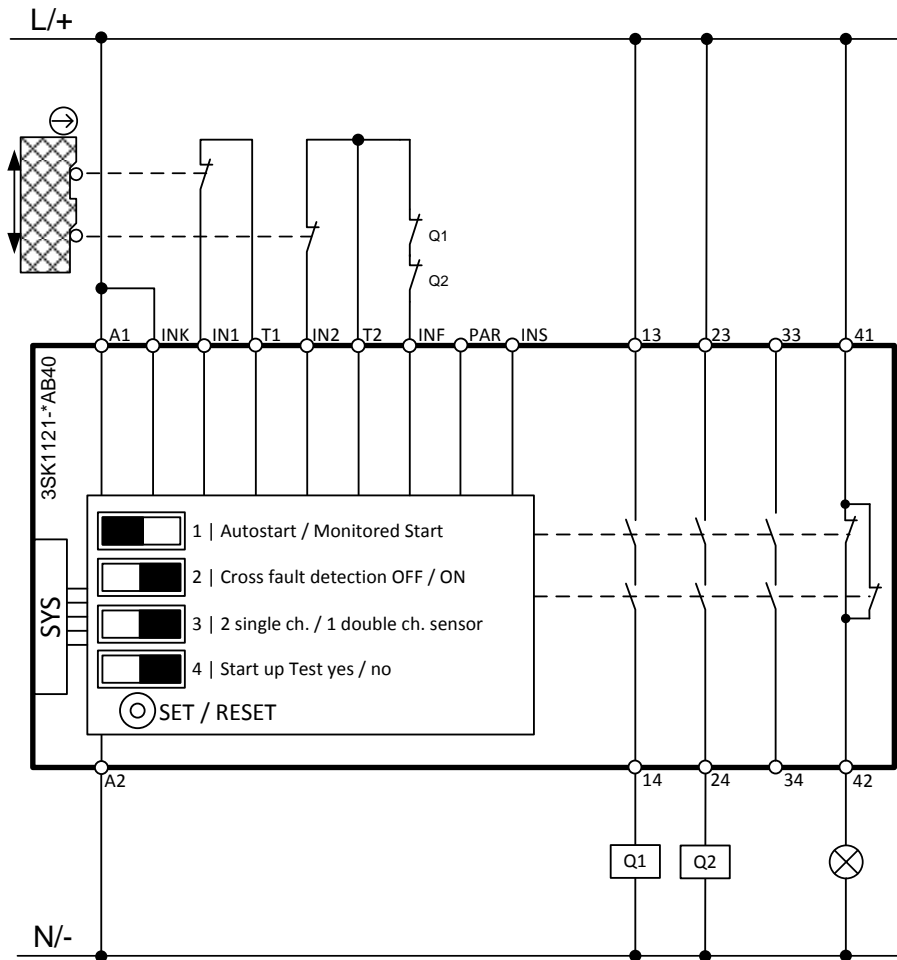
#### Wiring diagram 3SK1 Standard



#### Wiring diagram 3SK1 Advanced

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## 2.12 3TK2823

### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced | Comments   |
|---------------|---------------|---------------|------------|
| 3TK2823-1CB30 | 3SK1111-1AB30 | 3SK1121-1AB40 | Screw-type |
| 3TK2823-2CB30 | 3SK1111-2AB30 | 3SK1121-2AB40 | Push-In    |

### Terminal marking

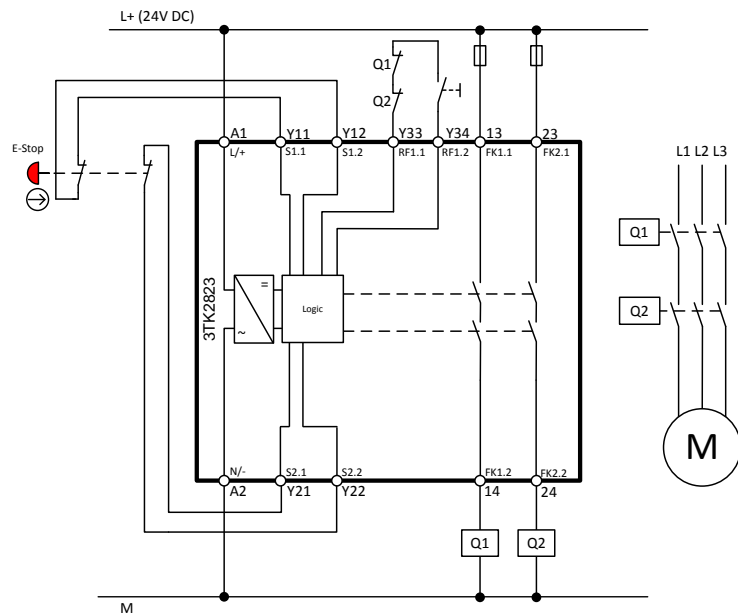
| 3TK2823 | 3SK1 Standard | 3SK1 Advanced | Terminal description                     |
|---------|---------------|---------------|--|
| A1      | A1            | A1            | Power supply +                           |
| A2      | A2            | A2            | Power supply -                           |
| Y11/Y12 | T1/IN1        | T1/IN1        | Channel 1                                |
| Y21/Y22 | T2/IN2        | T2/IN2        | Channel 2                                |
| --      | T3/IN3        | DIP switch    | Channel 2 for use of OSSDs               |
| Y33/Y34 | T4/INF/S      | INS           | Reset button                             |
| Y33/Y34 | T4/INF/S      | T2/INF        | Feedback circuit                         |
| --      | --            | INK           | Cascading input                          |
| --      | --            | PAR           | Configuration input for NO/NC evaluation |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)                      |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)                      |
| --      | 33/34         | 33/34         | Output circuit (NO)                      |
| --      | 41/42         | 41/42         | Signaling circuit (NC)                   |

### 2.12.1 Emergency stop monitoring (2 ch.)

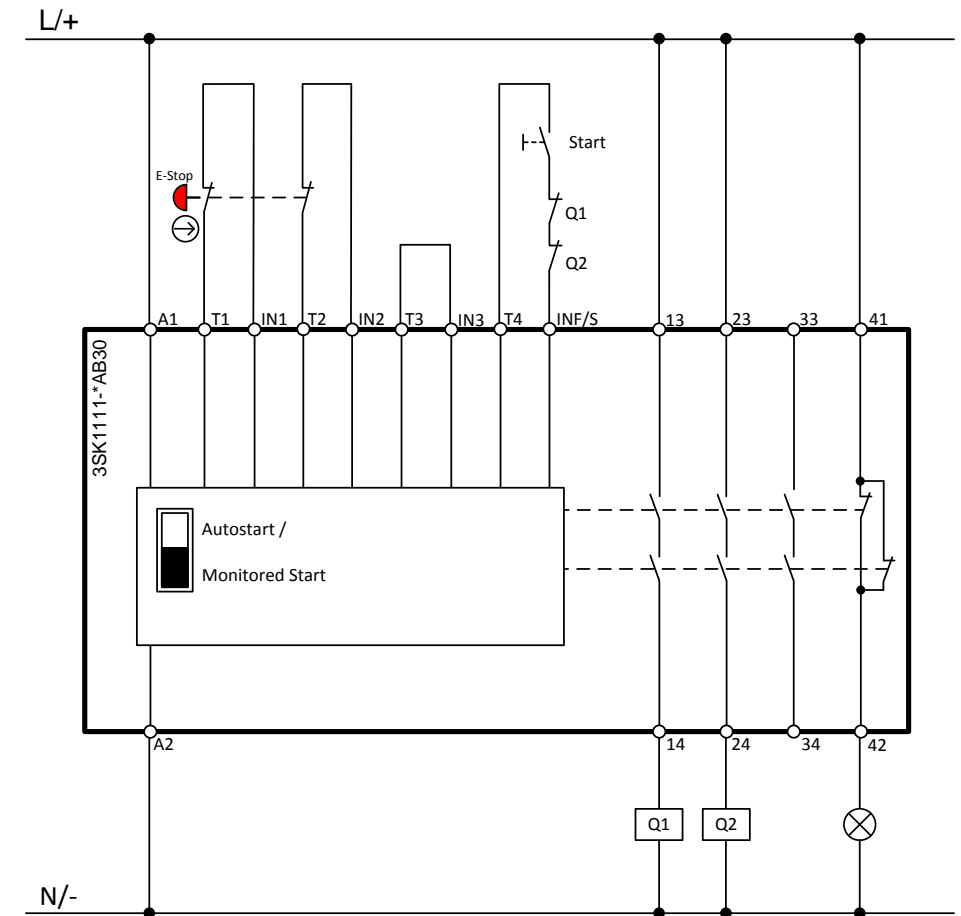
#### Description of safety function and configuration

| Safety function  | Parameter 3SK1 (Advanced)   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (1x2-channel)</li> <li>• (startup test deactivated)</li> </ul> |

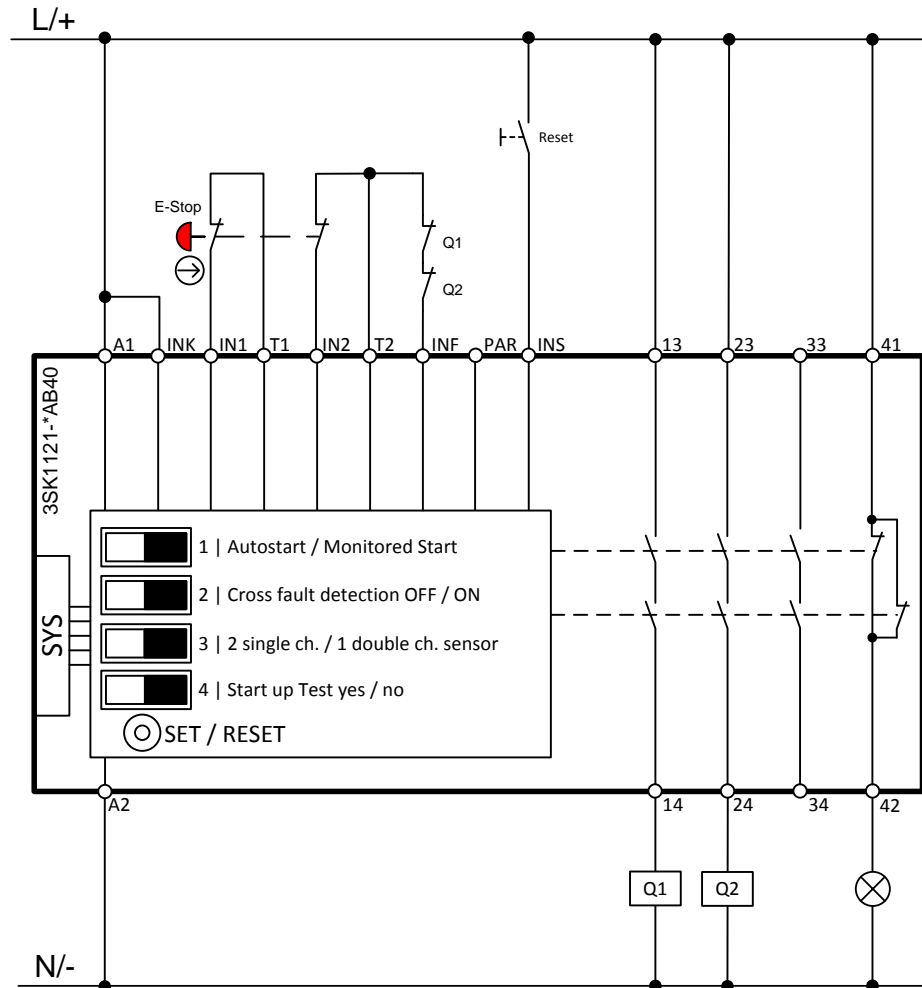
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



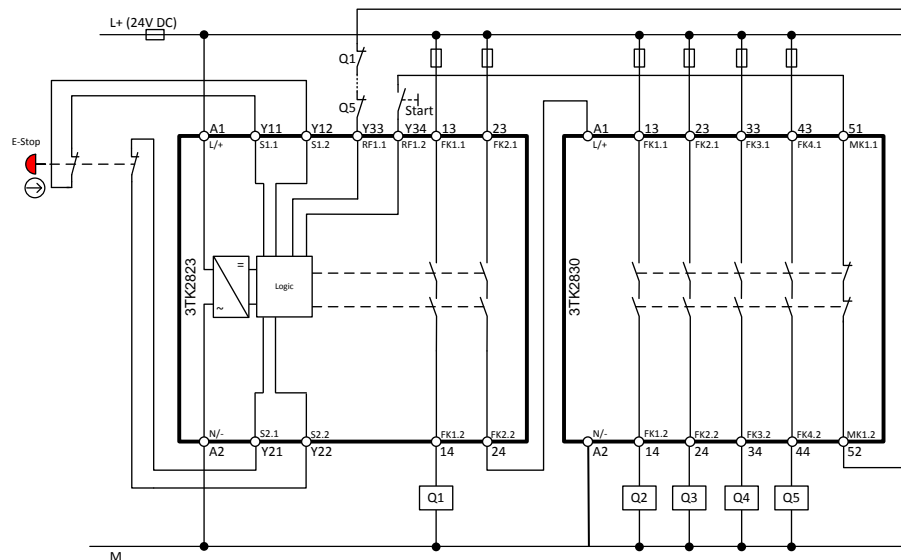
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### 2.12.2 Emergency stop monitoring with contact expansion

#### Example: 3TK2823 + 3TK2830

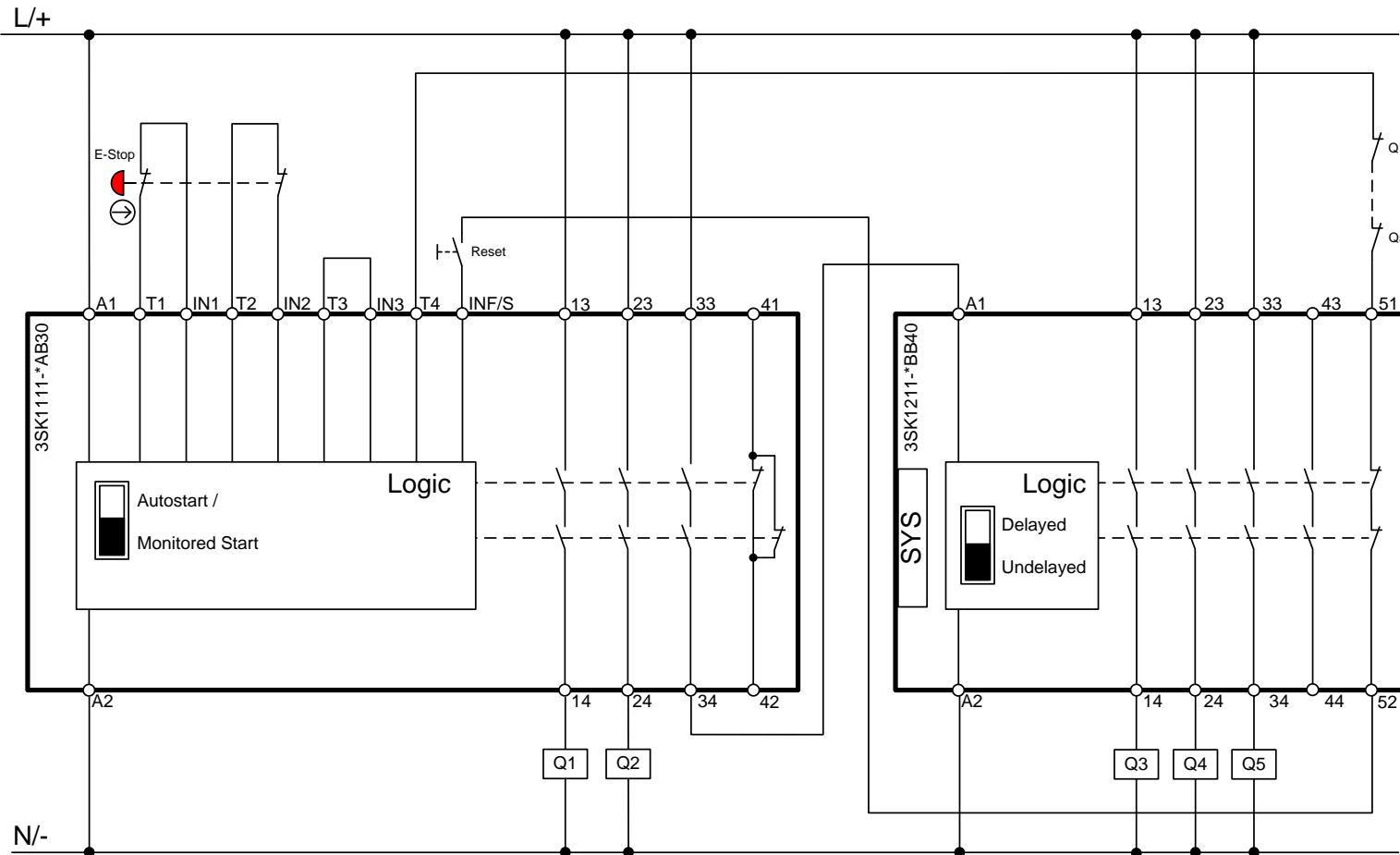
| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring with contact expansion<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>2 single channels</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28



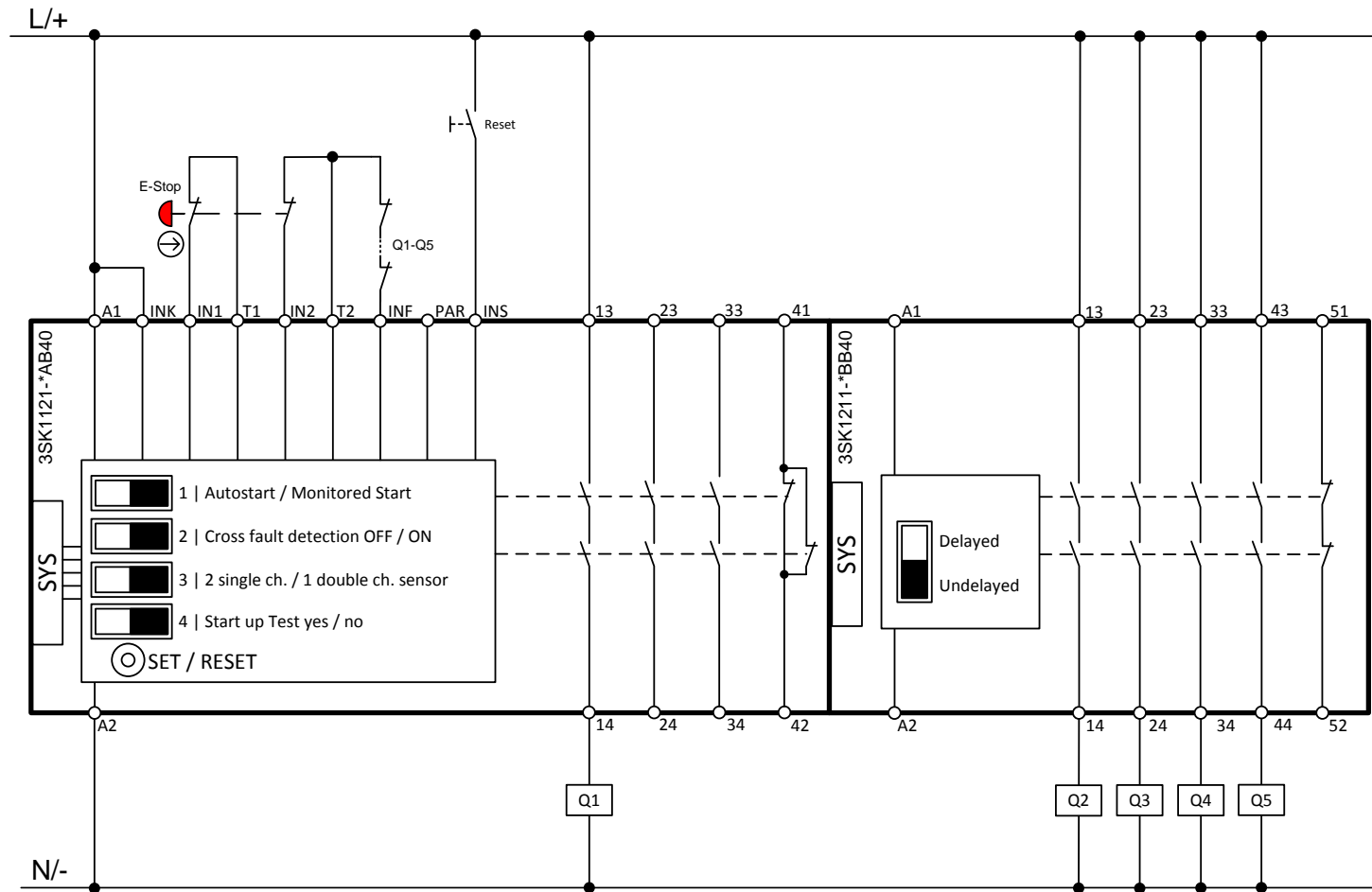
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**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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**Note**

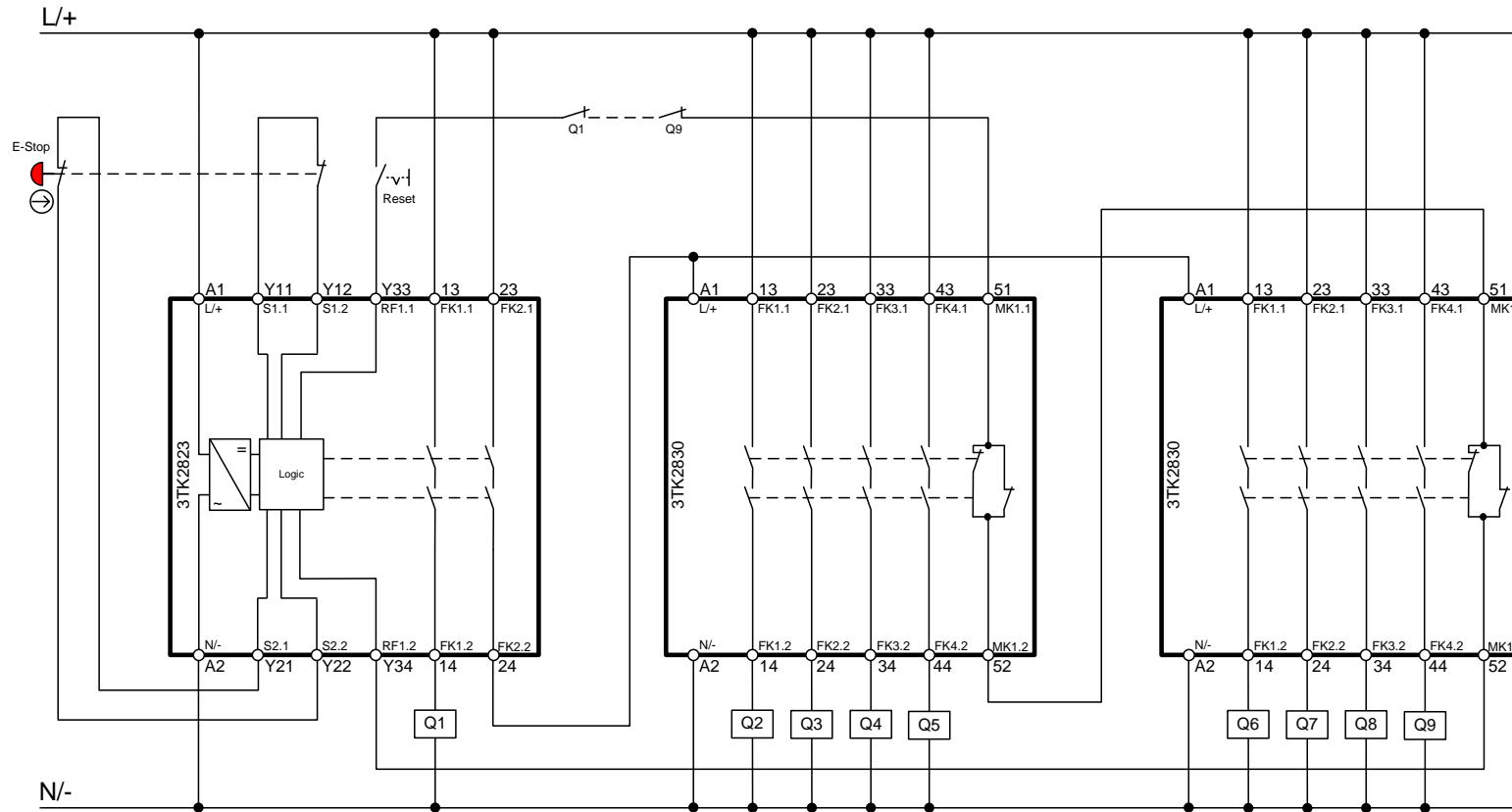
In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

### 2.12.3 Emergency stop monitoring with several contact expansions

#### Example: 3TK2823 + 3TK2830 + 3TK2830

| Safety function  | Configuration  |
|--|--|
| Emergency stop monitoring with contact expansions<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"><li>• monitored start</li><li>• cross-circuit detection activated</li><li>• 1x2-channel</li><li>• startup test deactivated</li></ul> |

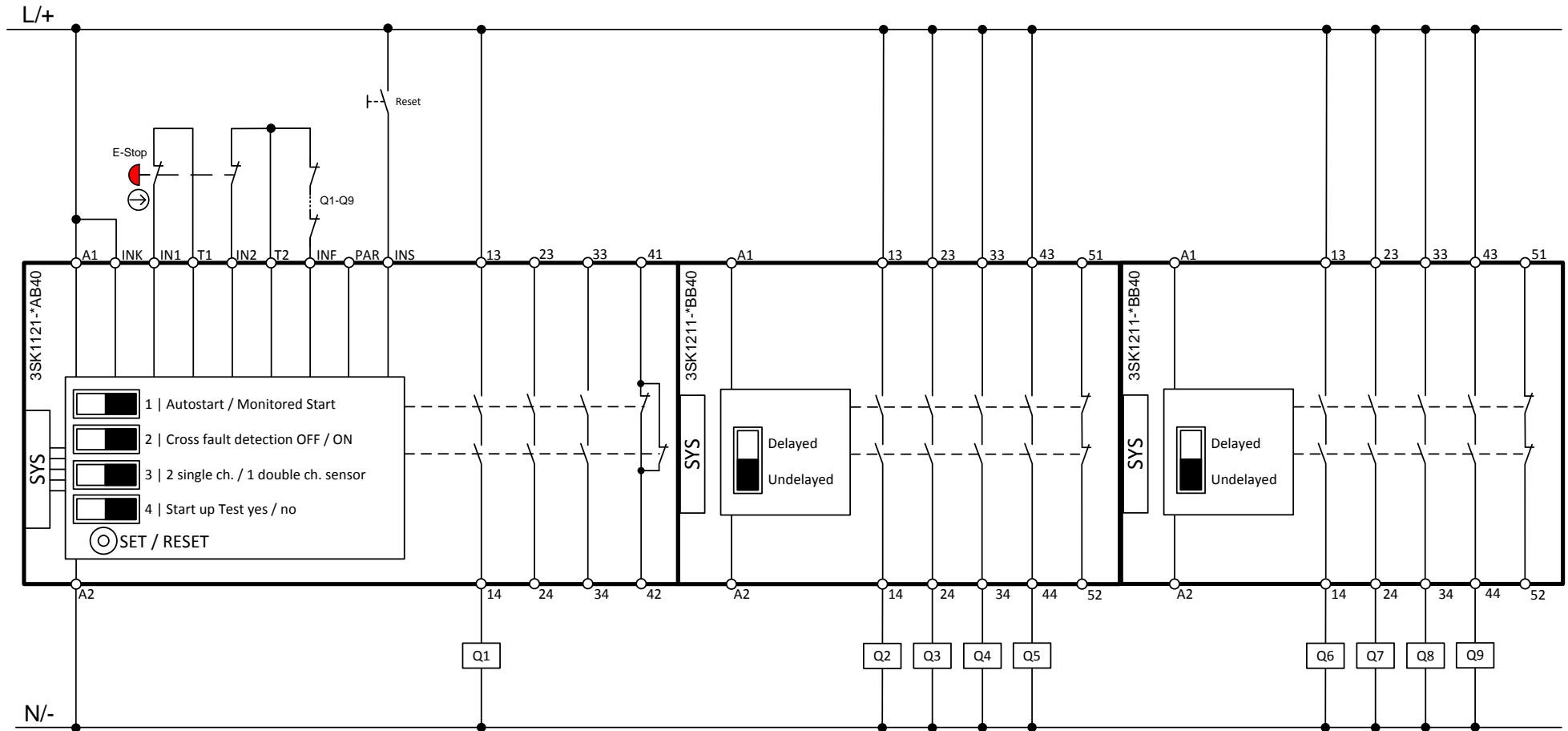
**Wiring diagram 3TK28**



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**Wiring diagram 3SK1 Advanced**



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**Note**

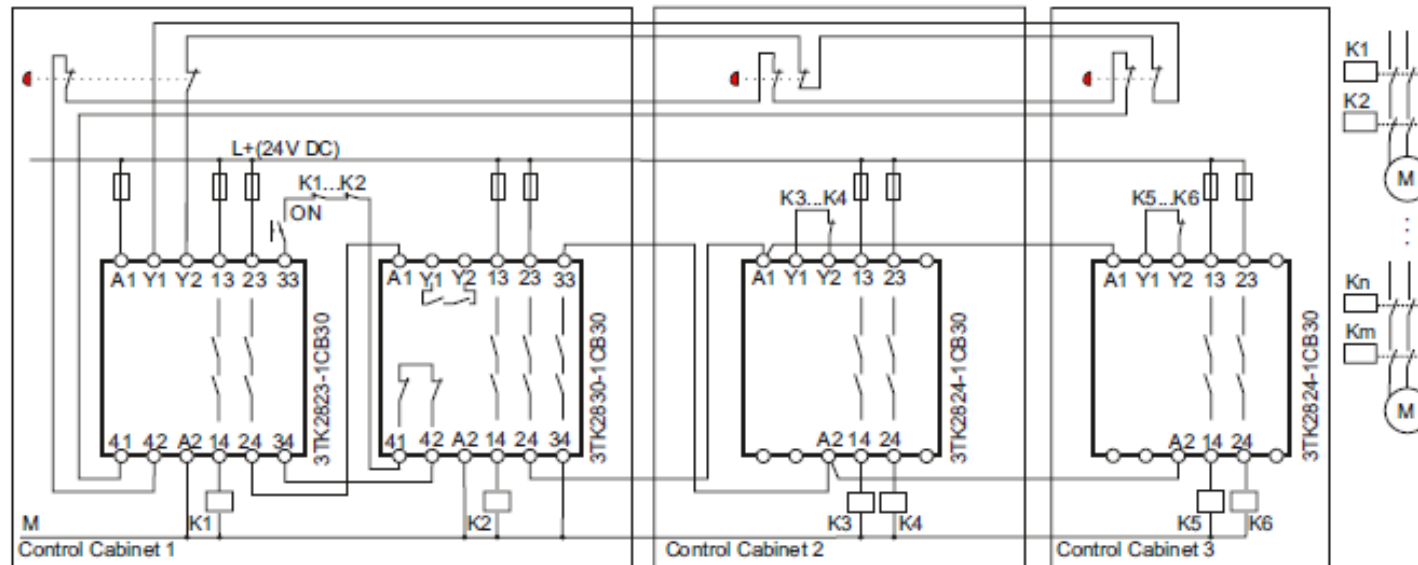
In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

### 2.12.4 Emergency stop monitoring with peripheral contact expansions

#### Example: 3TK2823 + 3TK2830 + 3TK2824 + 3TK2824

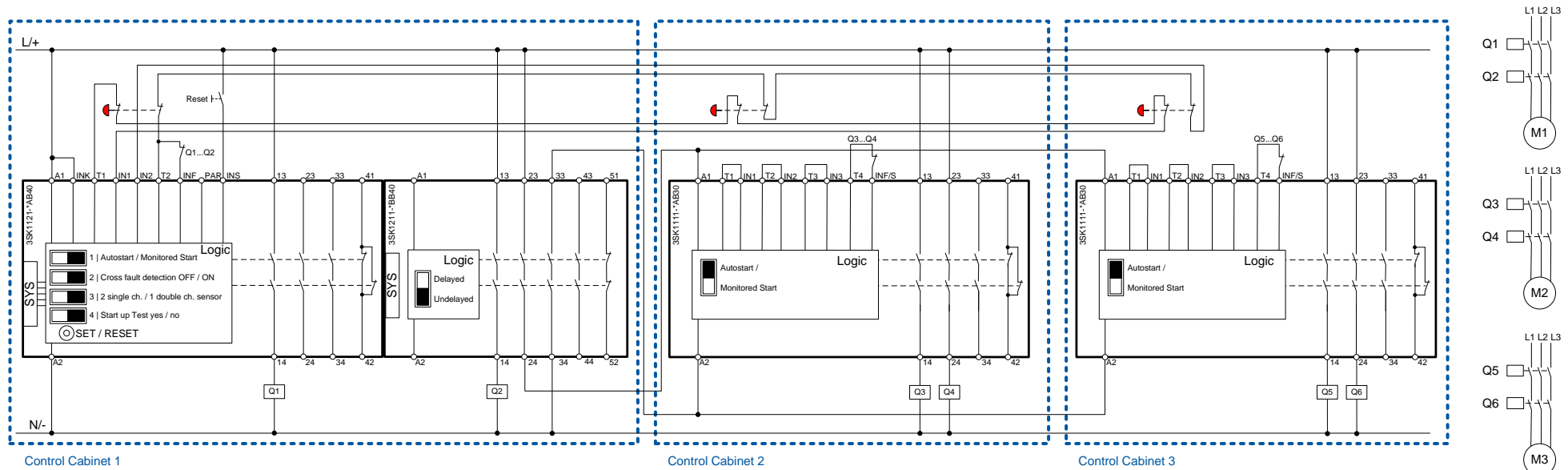
| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring spread over 3 control cabinets                            | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>1x2-channel</li> <li>startup test deactivated</li> </ul> |
| SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% |   |

#### Wiring diagram 3TK28



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**Wiring diagram 3SK1 Advanced**



**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.13 3TK2824-..B.0

### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced | Comments   |
|---------------|---------------|---------------|------------|
| 3TK2824-1CB30 | 3SK1111-1AB30 | 3SK1121-1AB40 | Screw-type |
| 3TK2824-2CB30 | 3SK1111-2AB30 | 3SK1121-1AB40 | Push-In    |
| 3TK2824-1BB40 | 3SK1111-1AB30 | 3SK1121-2AB40 | Screw-type |
| 3TK2824-2BB40 | 3SK1111-2AB30 | 3SK1121-2AB40 | Push-In    |

### Terminal marking

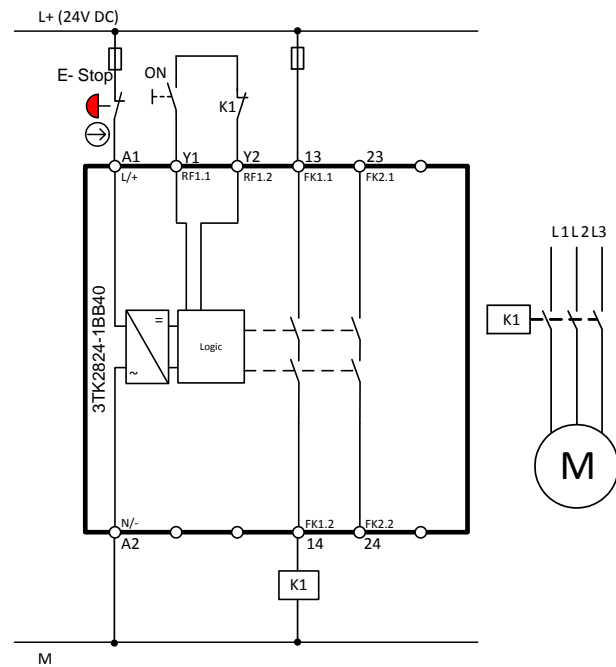
| 3TK2824 | 3SK1 Standard | 3SK1 Advanced | Terminal description                     |
|---------|---------------|---------------|--|
| A1      | A1            | A1            | Power supply +                           |
| A2      | A2            | A2            | Power supply -                           |
| --      | T1/IN1        | T1/IN1        | Channel 1                                |
| --      | T2/IN2        | T2/IN2        | Channel 2                                |
| --      | T3/IN3        | DIP switch    | Channel 2 for use of OSSDs               |
| Y1/Y2   | T4/INF/S      | INS           | Reset button                             |
| Y1/Y2   | T4/INF/S      | T2/INF        | Feedback circuit                         |
| --      | --            | INK           | Cascading input                          |
| --      | --            | PAR           | Configuration input for NO/NC evaluation |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)                      |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)                      |
| --      | 33/34         | 33/34         | Output circuit (NO)                      |
| --      | 41/42         | 41/42         | Signaling circuit (NC)                   |

### 2.13.1 Emergency stop monitoring (1 ch.)

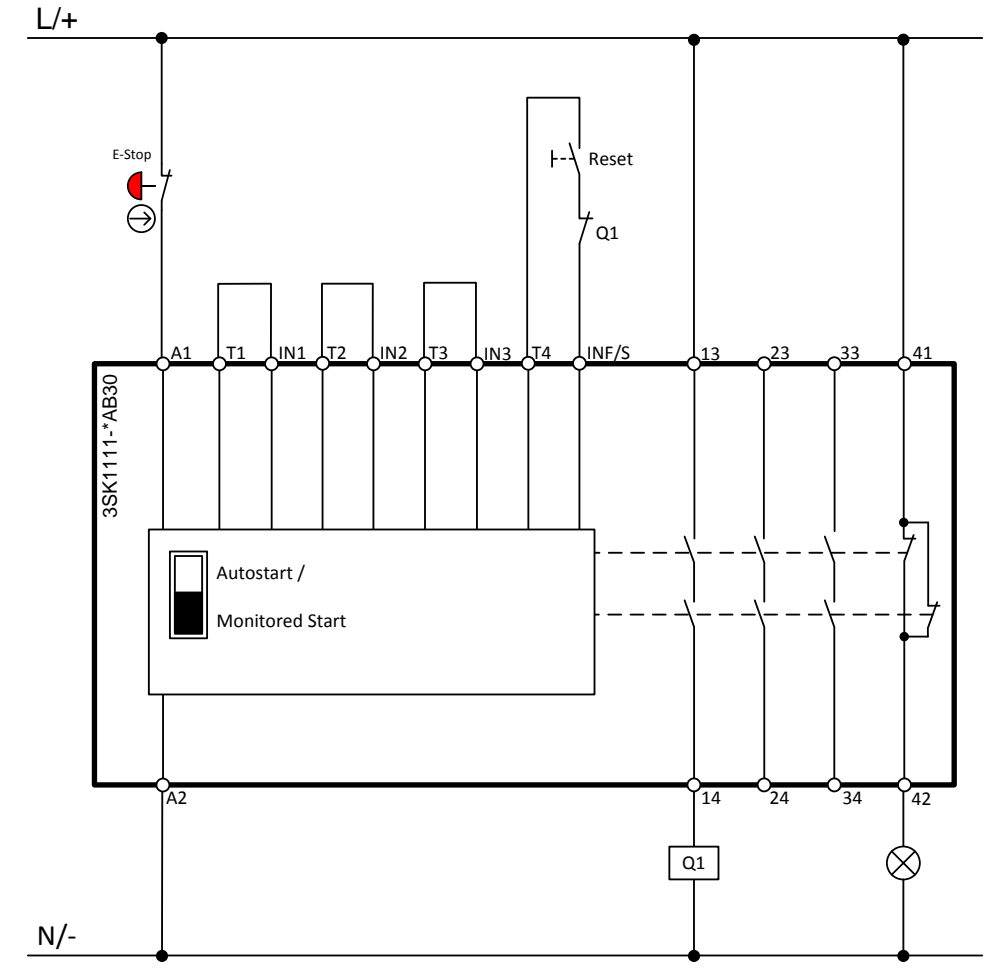
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>• monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (2x1 channel)</li> <li>• (startup test deactivated)</li> </ul> |

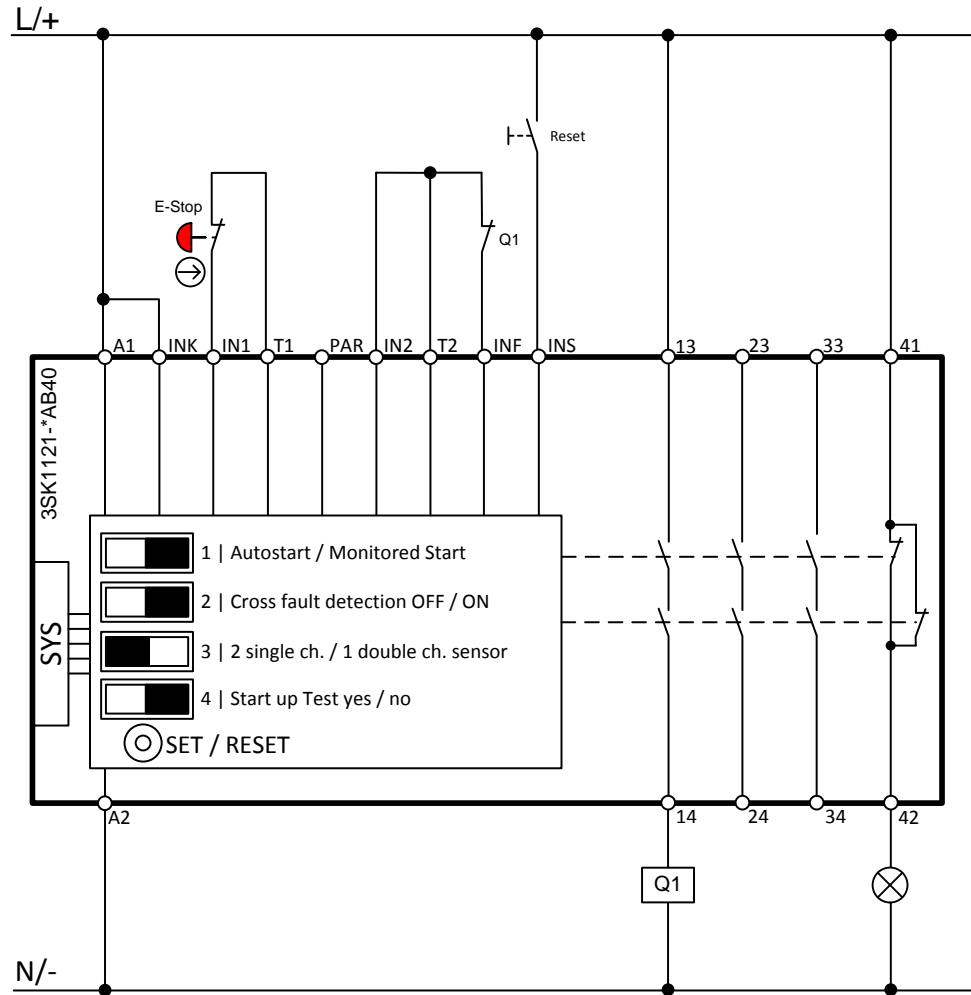
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



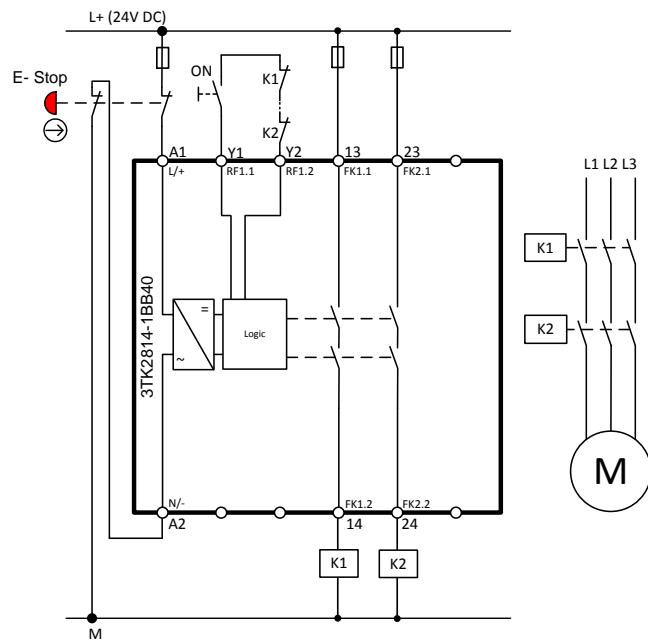
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### 2.13.2 Emergency stop monitoring (2 ch.)

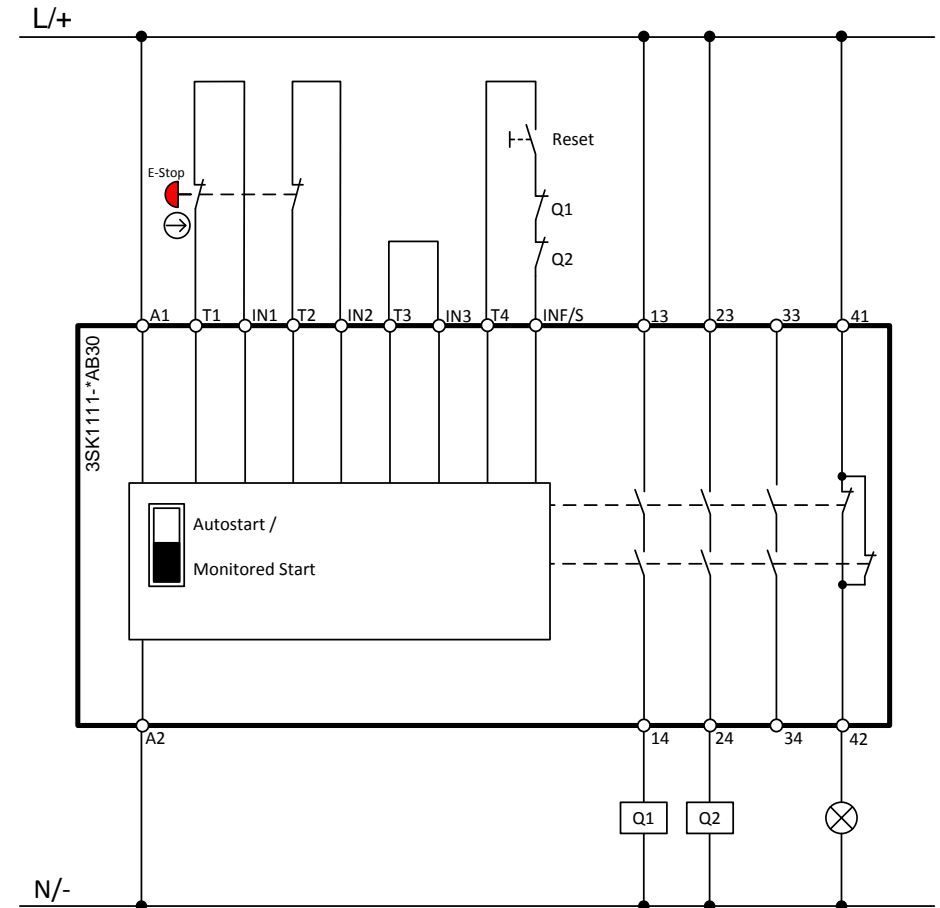
#### Description of safety function and configuration

| Safety function<br>3TK28 (3SK1)  | Configuration<br>3SK1 (Advanced)  |
|--|---|
| Emergency stop monitoring<br>SIL 1 (SIL 3) (IEC 62061)<br>PL c (PL e) (ISO 13849-1)<br>Stopp-Kategorie 0 (EN 60204-1)<br>DC = 0% (99%) | <ul style="list-style-type: none"> <li>• Monitored start</li> <li>• (cross-circuit detection activated)</li> <li>• (1x2-channel)</li> <li>• (startup test deactivated)</li> </ul> |

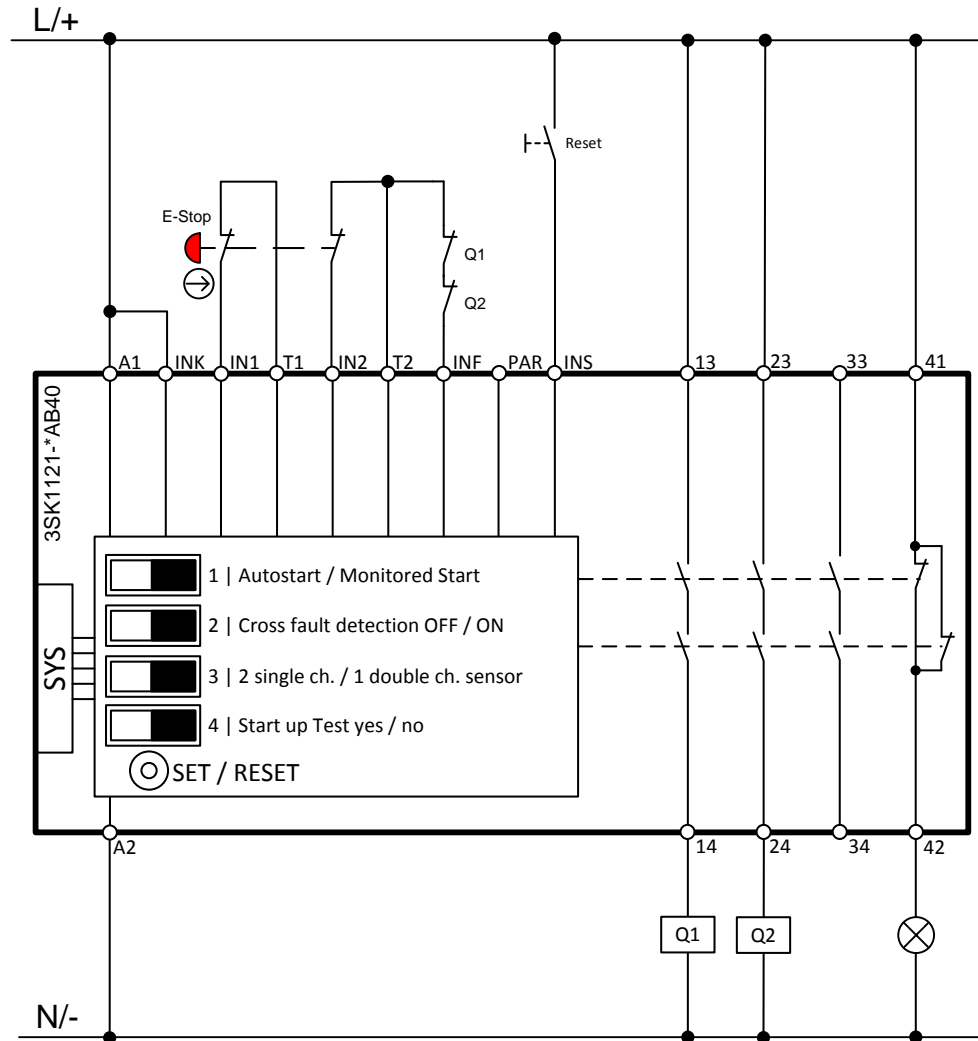
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



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## 2.14 3TK2824-.A.20

### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced   | Comments   |
|---------------|---------------|-----------------|------------|
| 3TK2824-1AJ20 | 3SK1111-1AW20 | 3SK1121-1AB40 * | Screw-type |
| 3TK2824-1AL20 | 3SK1111-1AW20 | 3SK1121-1AB40 * | Screw-type |
| 3TK2824-2AJ20 | 3SK1111-2AW20 | 3SK1121-2AB40 * | Push-In    |
| 3TK2824-2AL20 | 3SK1111-2AW20 | 3SK1121-2AB40 * | Push-In    |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

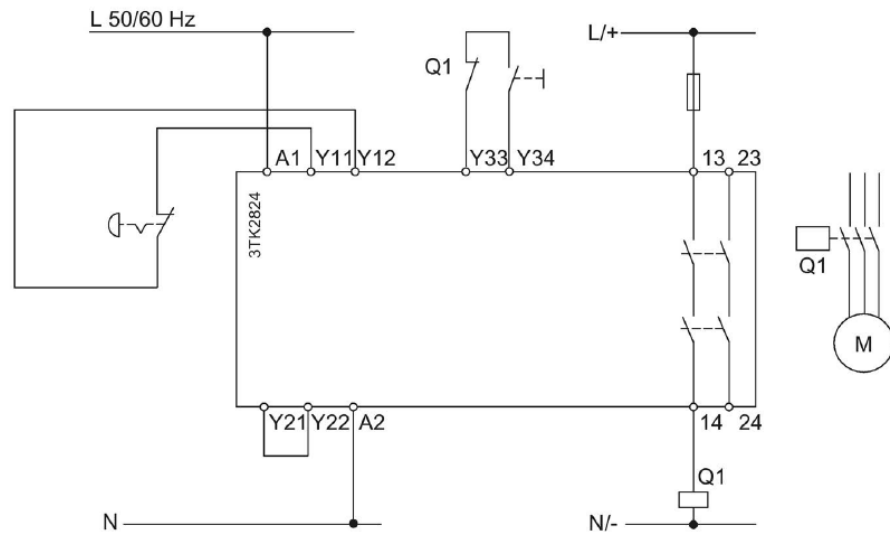
| 3TK2823 | 3SK1 Standard | 3SK1 Advanced | Terminal description                     |
|---------|---------------|---------------|--|
| A1      | A1            | A1            | Power supply +                           |
| A2      | A2            | A2            | Power supply -                           |
| Y11/Y12 | T1/IN1        | T1/IN1        | Channel 1                                |
| Y21/Y22 | T2/IN2        | T2/IN2        | Channel 2                                |
| --      | T3/IN3        | DIP switch    | Channel 2 for use of OSSDs               |
| Y33/Y34 | T4/INF/S      | INS           | Reset button                             |
| Y33/Y34 | T4/INF/S      | T2/INF        | Feedback circuit                         |
| --      | --            | INK           | Cascading input                          |
| Y43/Y44 | DIP switch    | DIP switch    | Configuration input for activation type  |
| --      | --            | PAR           | Configuration input for NO/NC evaluation |
| 13/14   | 13/14         | 13/14         | Output circuit (NO)                      |
| 23/24   | 23/24         | 23/24         | Output circuit (NO)                      |
| --      | 33/34         | 33/34         | Output circuit (NO)                      |
| --      | 41/42         | 41/42         | Signaling circuit (NC)                   |

### 2.14.1 Emergency stop monitoring (1 ch.)

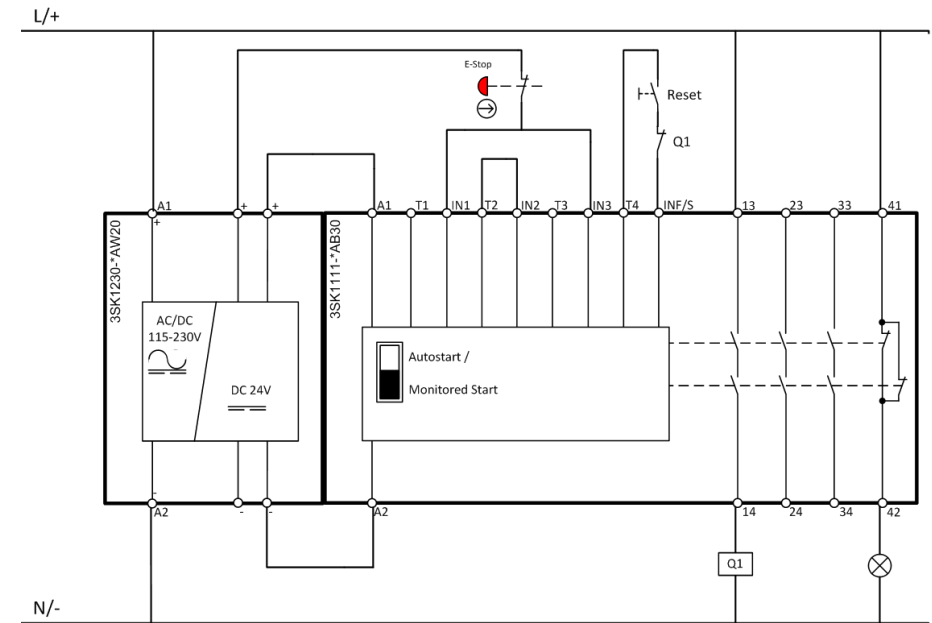
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>monitored start</li> <li>(cross-circuit detection activated)</li> <li>(2x1 channel)</li> <li>(startup test deactivated)</li> </ul> |

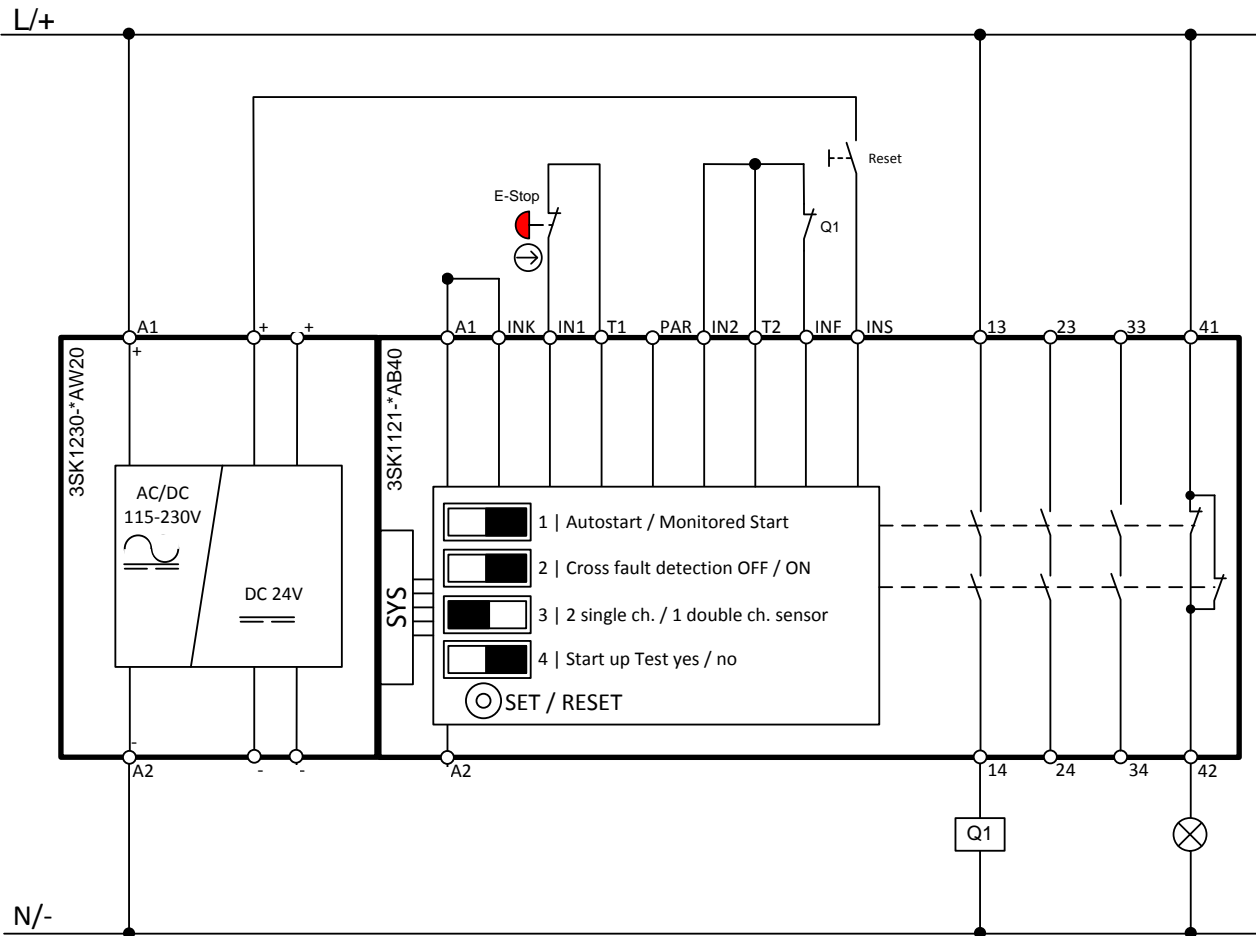
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



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**Note**

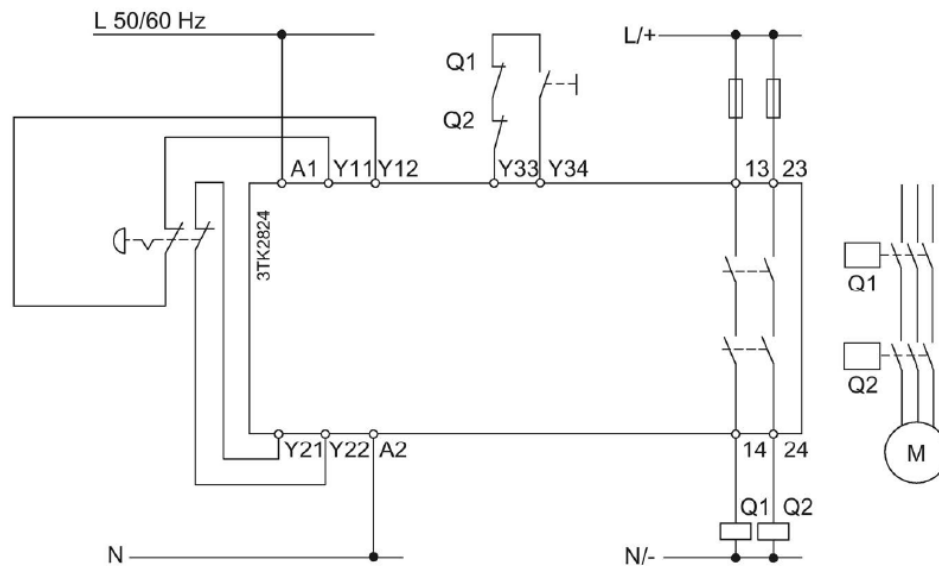
In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.14.2 Emergency stop monitoring (2 ch.)

### Description of safety function and configuration

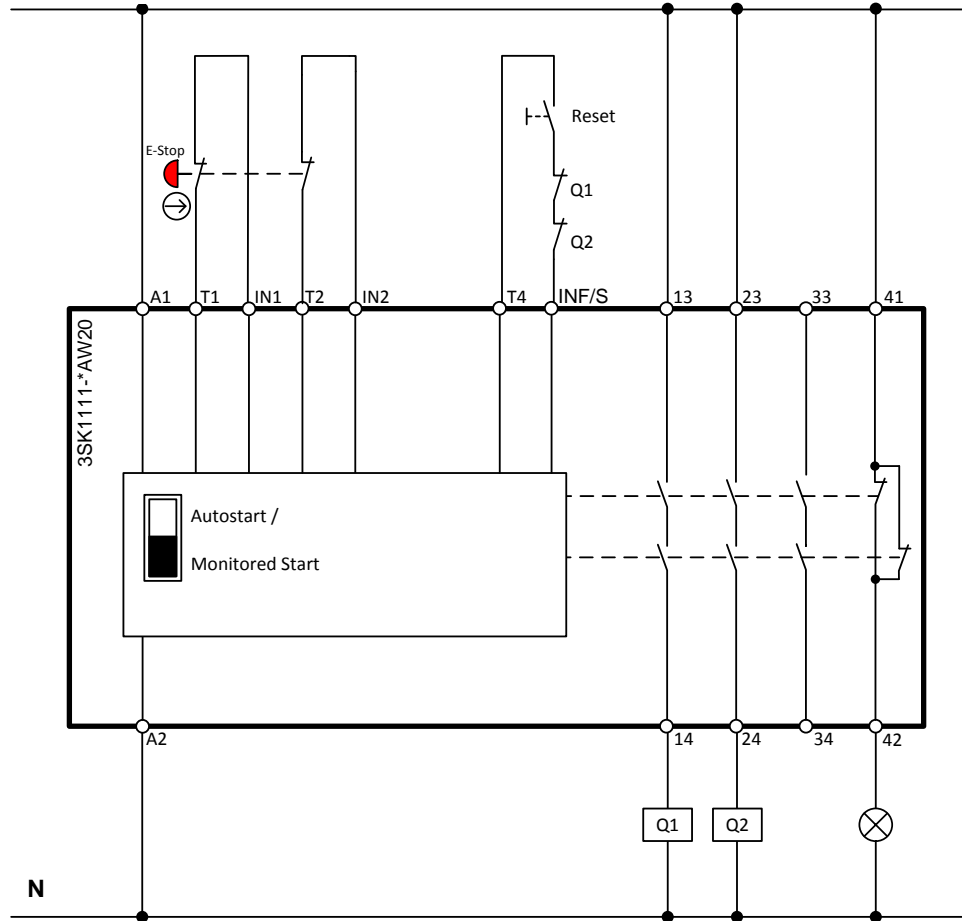
| Safety function  | Configuration   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>(cross-circuit detection activated)</li> <li>(2x1 channel)</li> <li>(startup test deactivated)</li> </ul> |

### Wiring diagram 3TK28



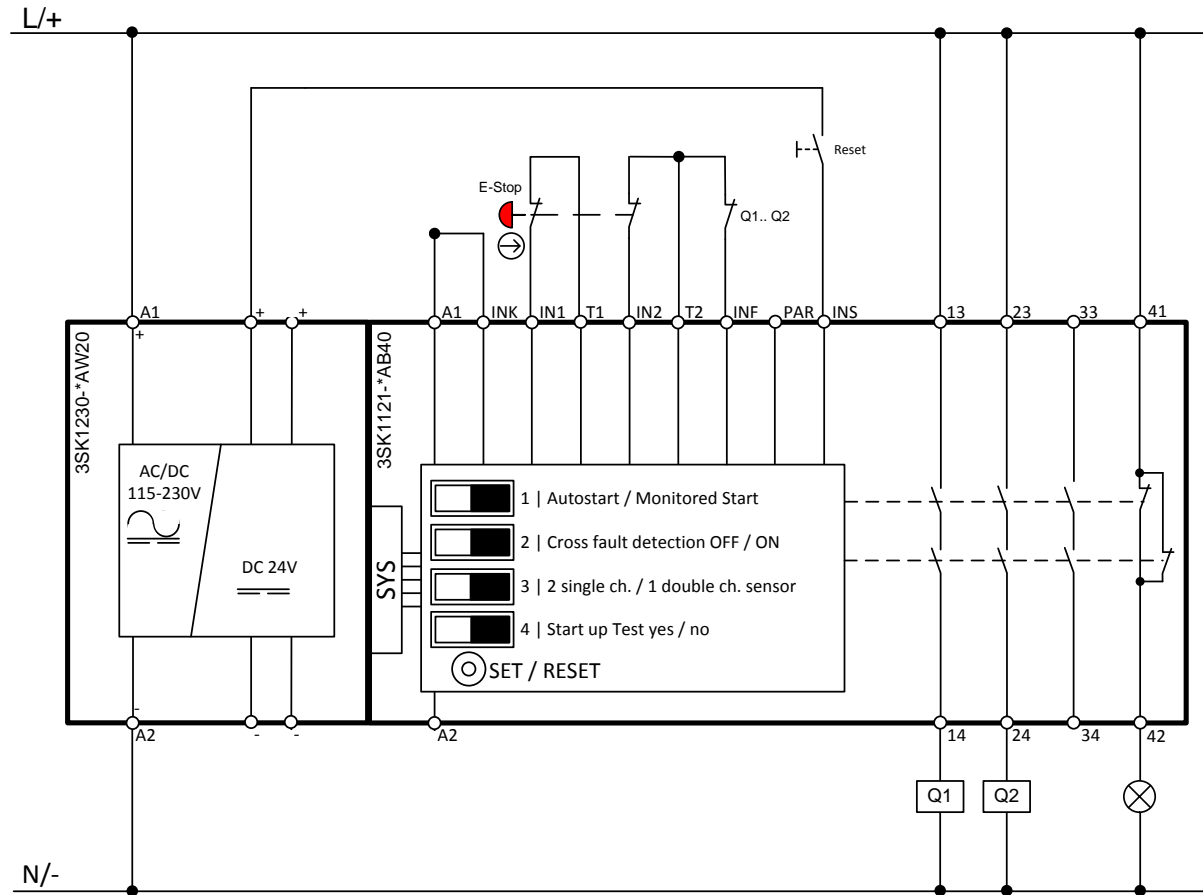
**Wiring diagram 3SK1 Standard**

110 – 240 V AC/DC



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**Wiring diagram 3SK1 Advanced**



**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.15 3TK2825

### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced   | Comments   |
|---------------|---------------|-----------------|------------|
| 3TK2825-1AB20 | 3SK1111-1AB30 | -               | Screw-type |
| 3TK2825-1AJ20 | 3SK1111-1AW20 | 3SK1121-1AB40 * | Screw-type |
| 3TK2825-1AL20 | 3SK1111-1AW20 | 3SK1121-1AB40 * | Screw-type |
| 3TK2825-1BB40 | 3SK1111-1AB30 | 3SK1121-1AB40   | Screw-type |
| 3TK2825-2AB20 | 3SK1111-2AB30 | -               | Push-In    |
| 3TK2825-2AJ20 | 3SK1111-2AW20 | 3SK1121-2AB40 * | Push-In    |
| 3TK2825-2AL20 | 3SK1111-2AW20 | 3SK1121-2AB40 * | Push-In    |
| 3TK2825-2BB40 | 3SK1111-2AB30 | 3SK1121-2AB40   | Push-In    |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

| 3TK2825 | 3SK1 Standard     | 3SK1 Advanced     | Terminal description                     |
|---------|-------------------|-------------------|--|
| A1      | A1                | A1                | Power supply +                           |
| A2      | A2                | A2                | Power supply -                           |
| Y10/Y11 | --                | --                | Channel 1 (1 ch.)                        |
| Y11/Y12 | T1/IN1            | T1/IN1            | Channel 1 (2 ch.)                        |
| Y21/Y22 | T2/IN2            | T2/IN2            | Channel 2 (2 ch.)                        |
| --      | T3/IN3            | <i>DIP switch</i> | Channel 2 for use of OSSDs               |
| Y33/Y34 | T4/INF/S          | INS               | Reset button                             |
| Y33/Y34 | T4/INF/S          | T2/INF            | Feedback circuit                         |
| --      | --                | INK               | Cascading input                          |
| Y43/Y44 | <i>DIP switch</i> | <i>DIP switch</i> | Configuration input for activation type  |
| --      | --                | PAR               | Configuration input for NO/NC evaluation |
| 13/14   | 13/14             | 13/14             | Output circuit (NO)                      |
| 23/24   | 23/24             | 23/24             | Output circuit (NO)                      |
| 33/34   | 33/34             | 33/34             | Output circuit (NO)                      |
| 41/42   | 41/42             | 41/42             | Signaling circuit (NC)                   |
| 51/52   | --                | --                | Signaling circuit (NC)                   |

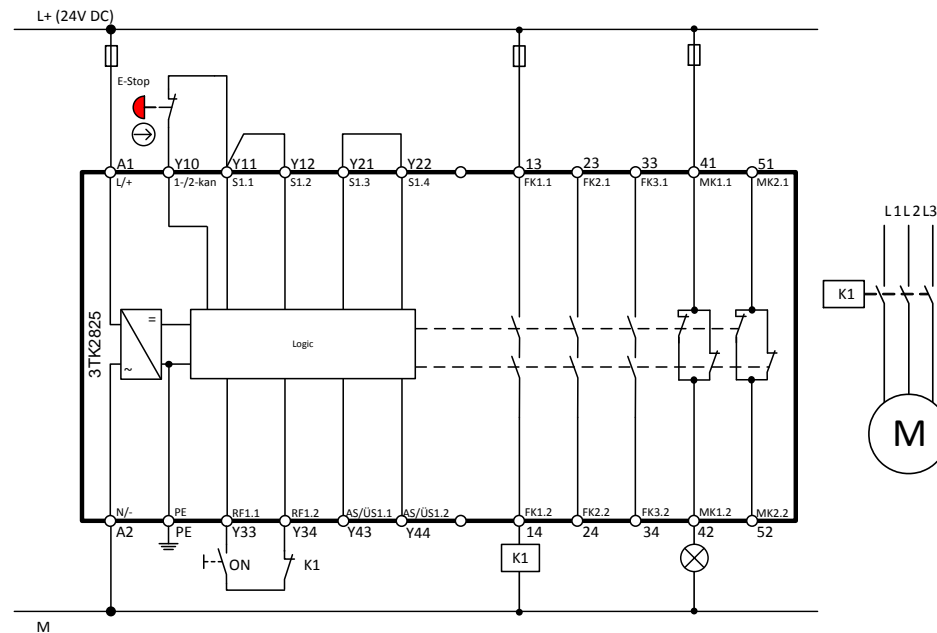


### 2.15.1 Emergency stop monitoring (1 ch.)

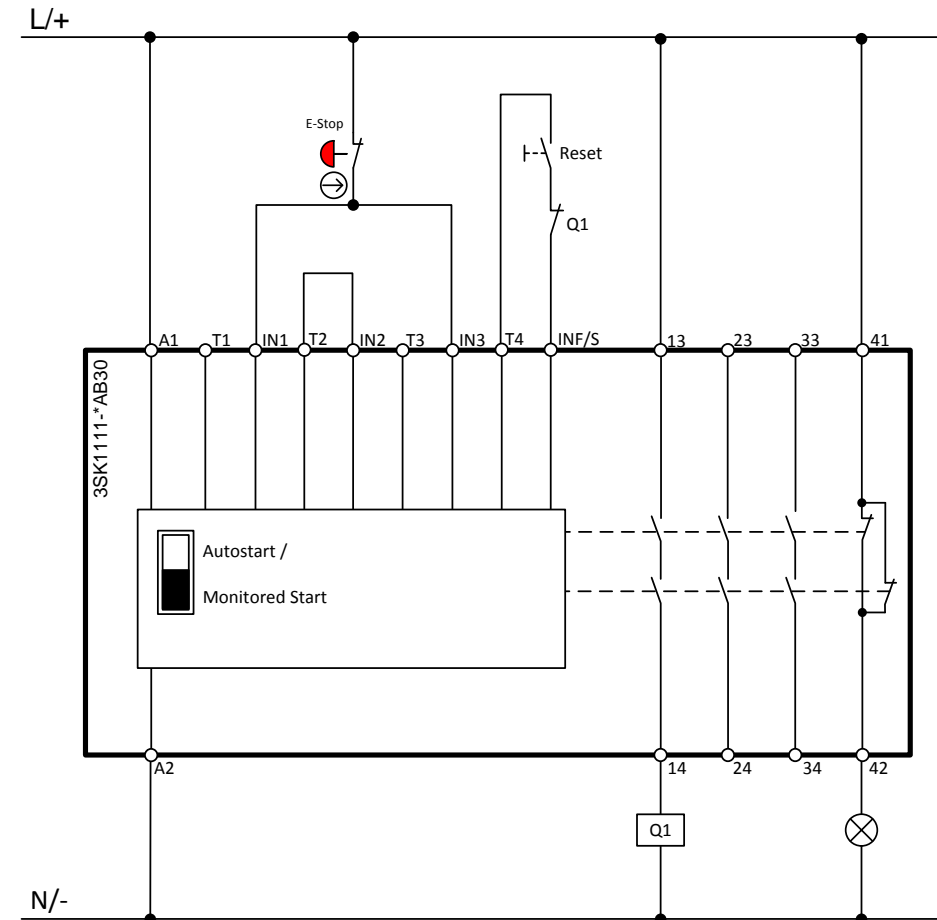
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>monitored start</li> <li>(cross-circuit detection activated)</li> <li>(2x1 channel)</li> <li>(startup test deactivated)</li> </ul> |

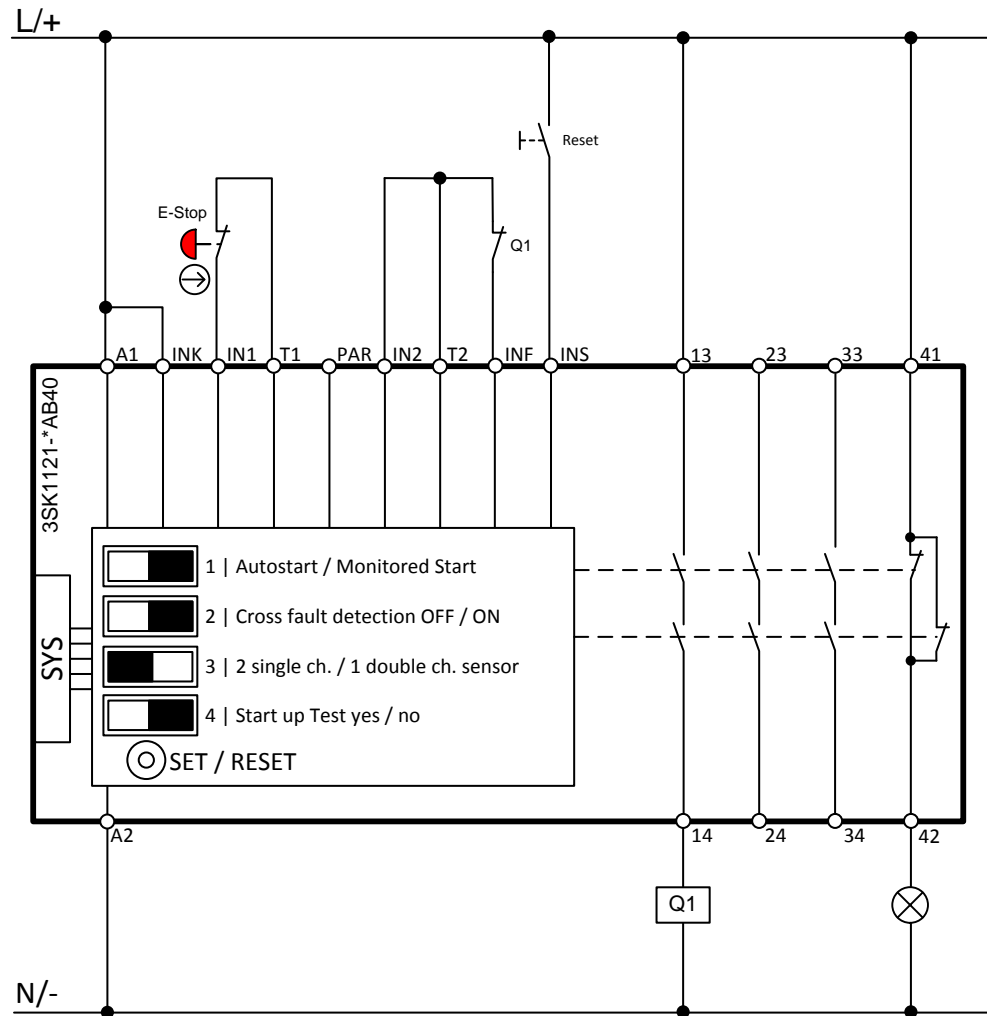
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



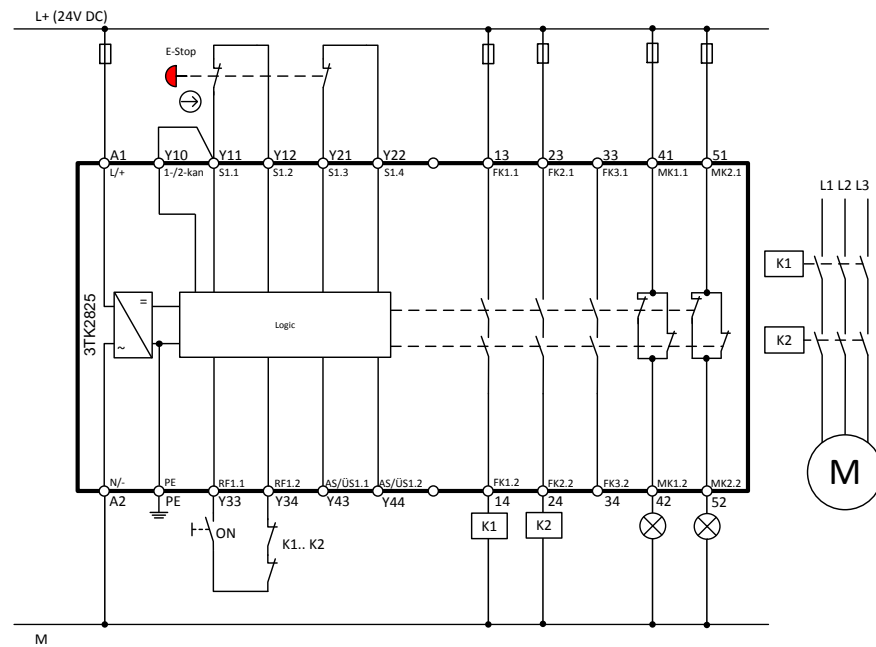
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### 2.15.2 Emergency stop monitoring (2 ch.)

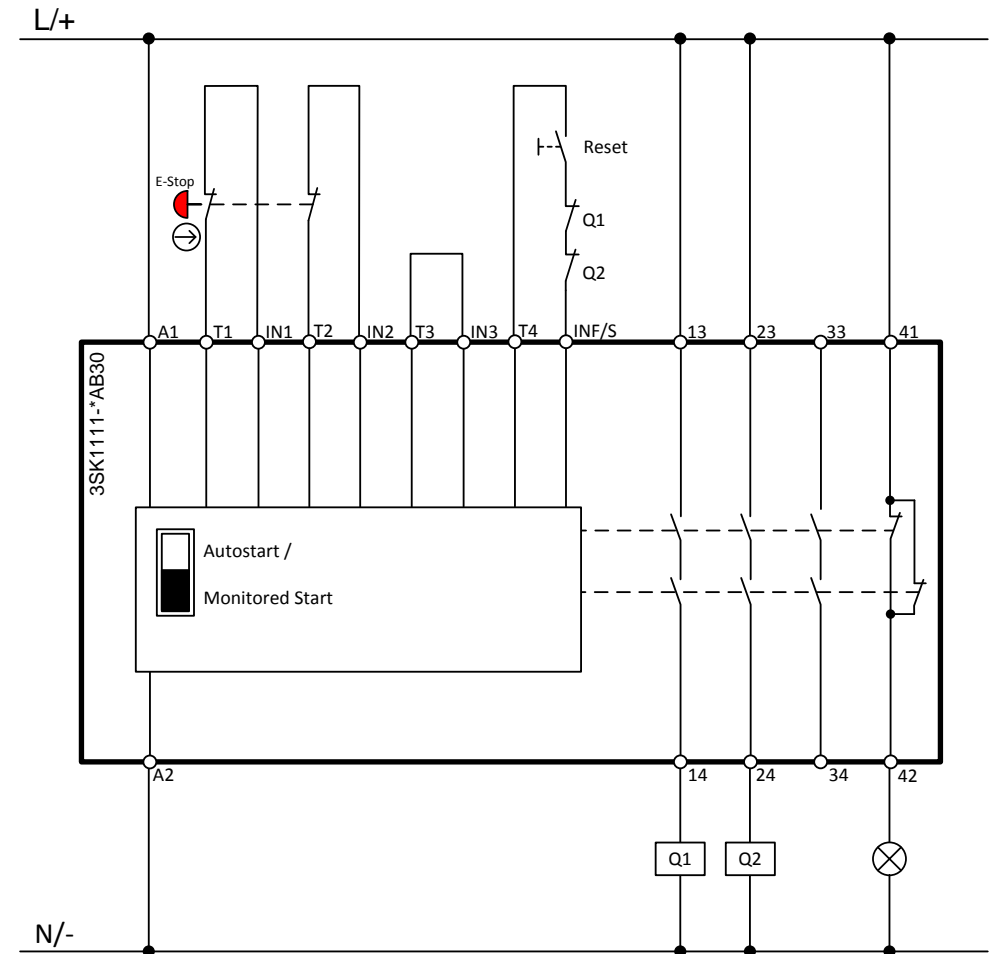
#### Description of safety function and configuration

| Safety function  | Configuration  |
|--|--|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>(cross-circuit detection activated)</li> <li>(1x2 channels)</li> <li>(startup test deactivated)</li> </ul> |

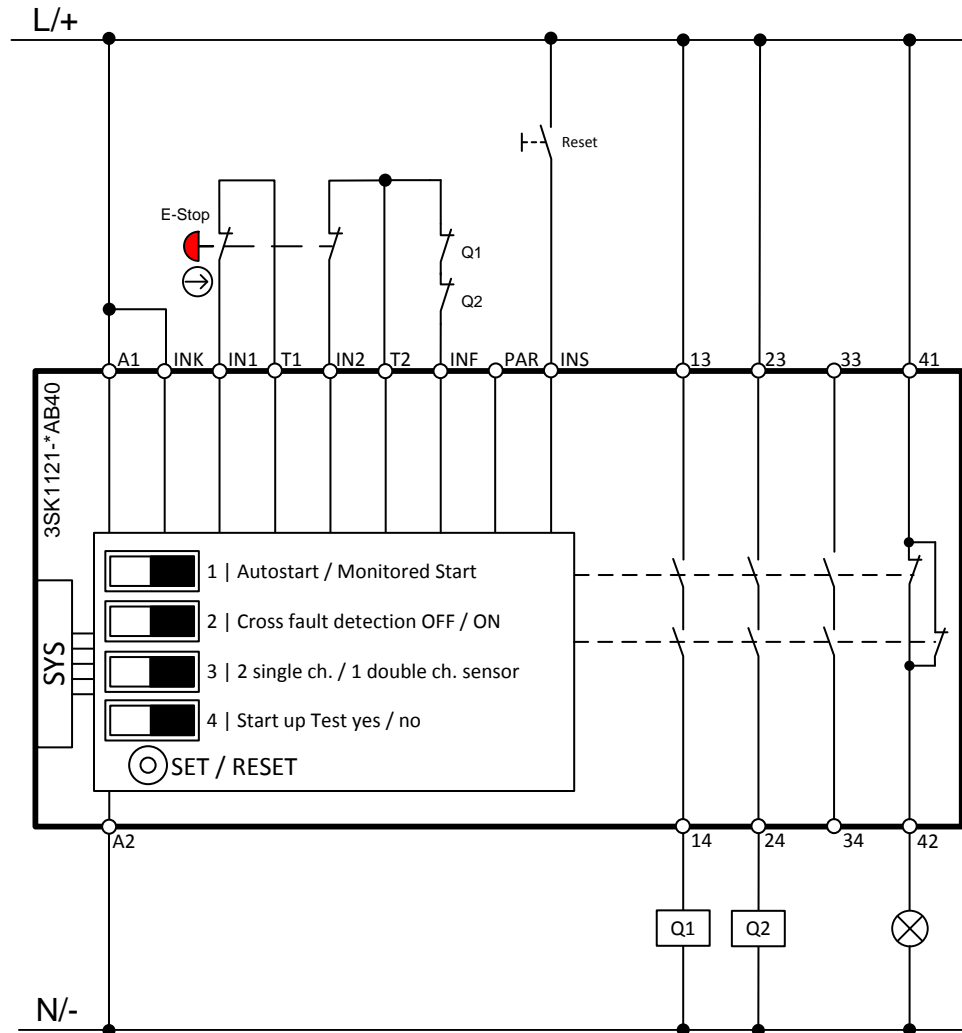
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



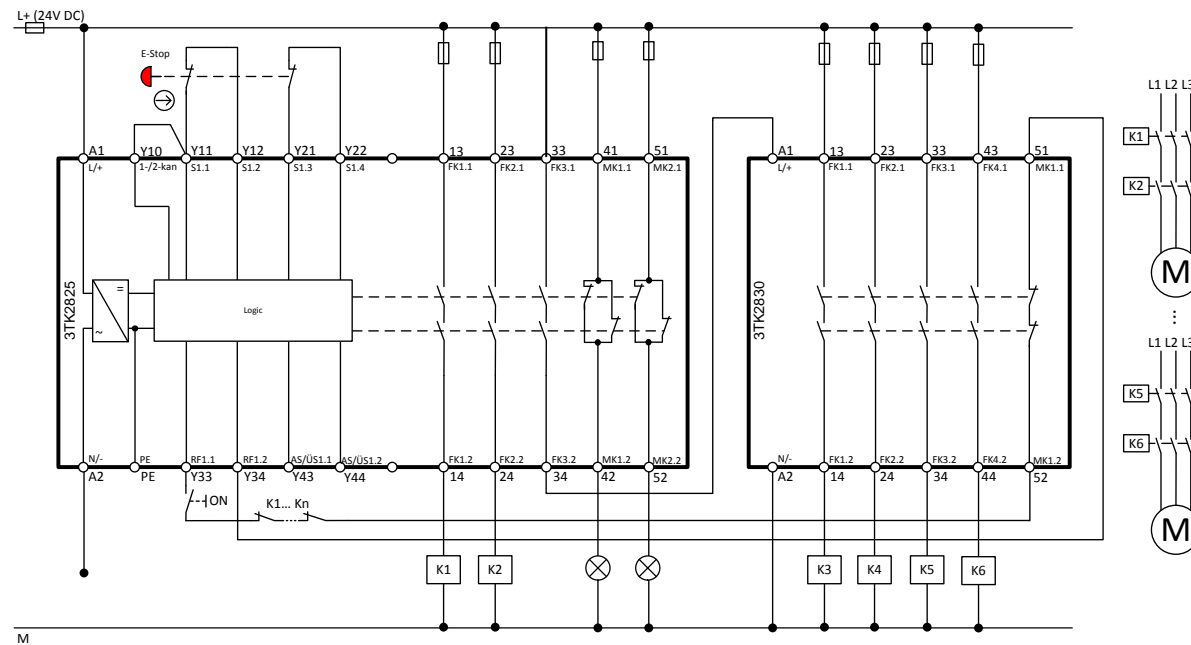
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### 2.15.3 Emergency stop monitoring with contact expansion

#### Example: 3TK2825 + 3TK2830

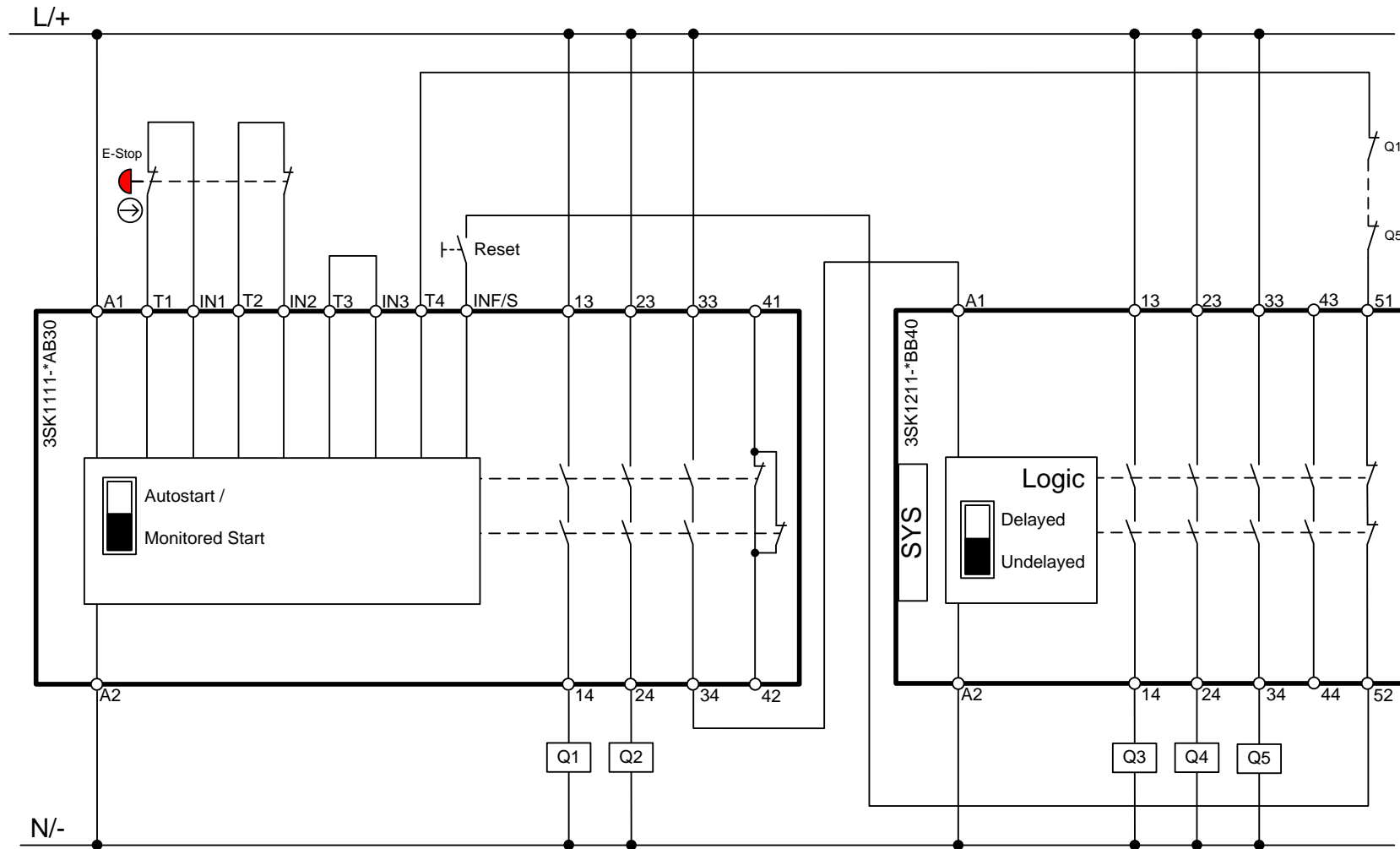
| Safety function   | Configuration  |
|---|--|
| Emergency stop monitoring with contact expansion<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>1x2 channels</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28



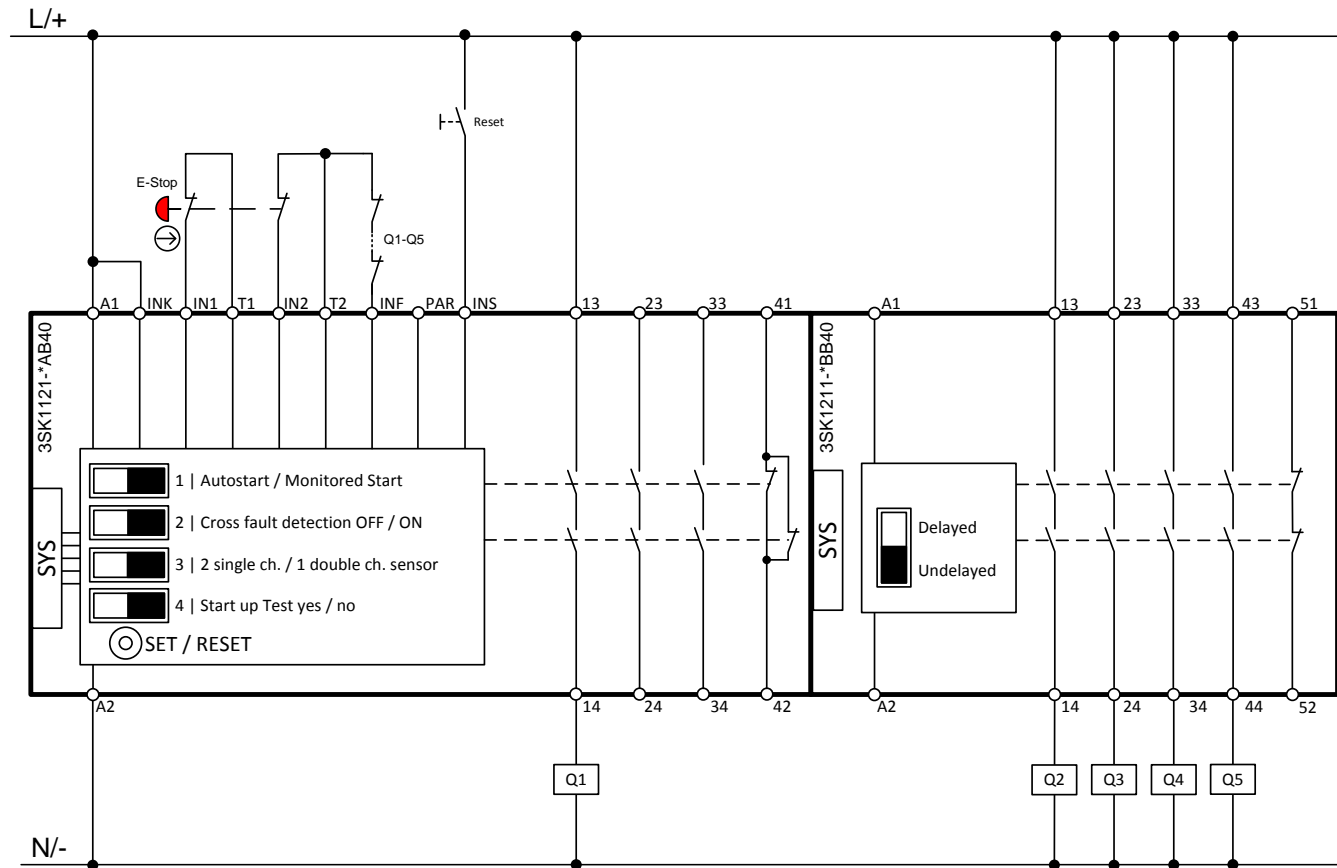
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**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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**Note**

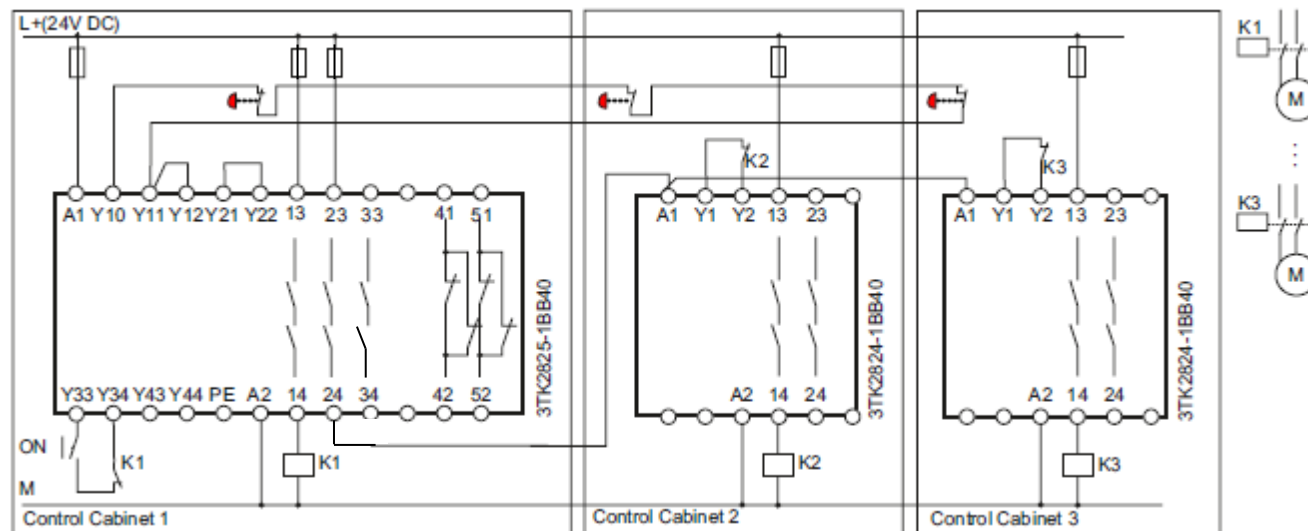
In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

### 2.15.4 Emergency stop monitoring with peripheral contact expansions

#### Example: 3TK2825 + 3TK2824 + 3TK2824

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring verteilt auf drei Schaltschränke<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>2x1 channel</li> <li>startup test deactivated</li> </ul> |

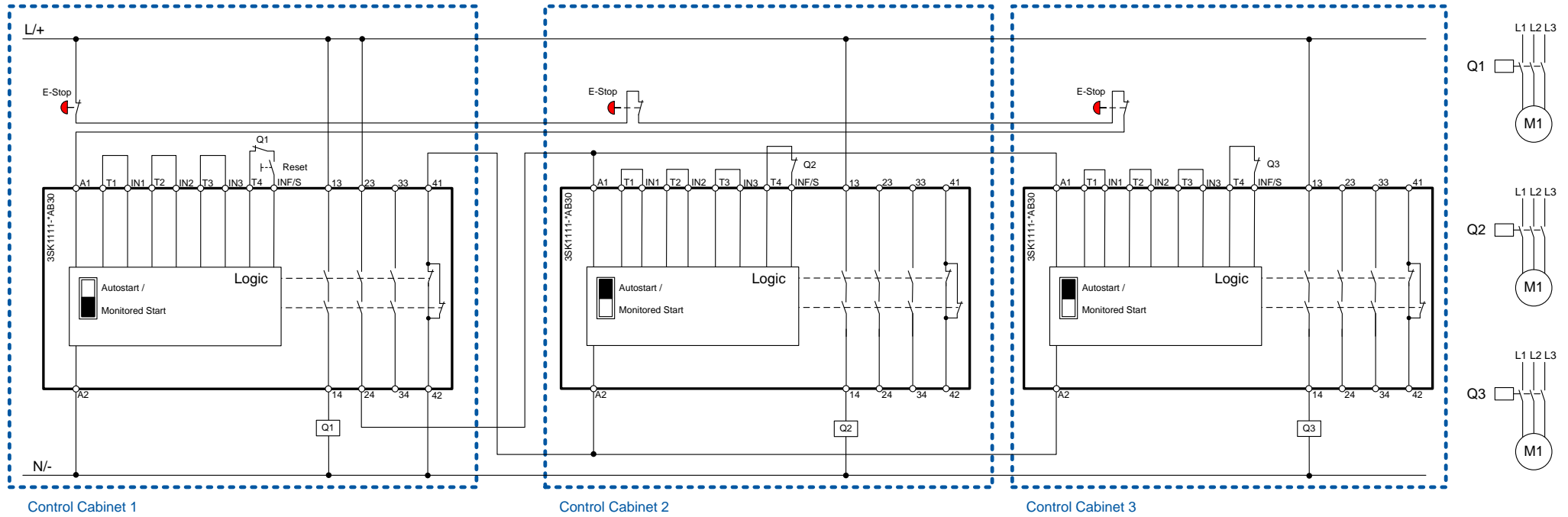
#### Wiring diagram 3TK28



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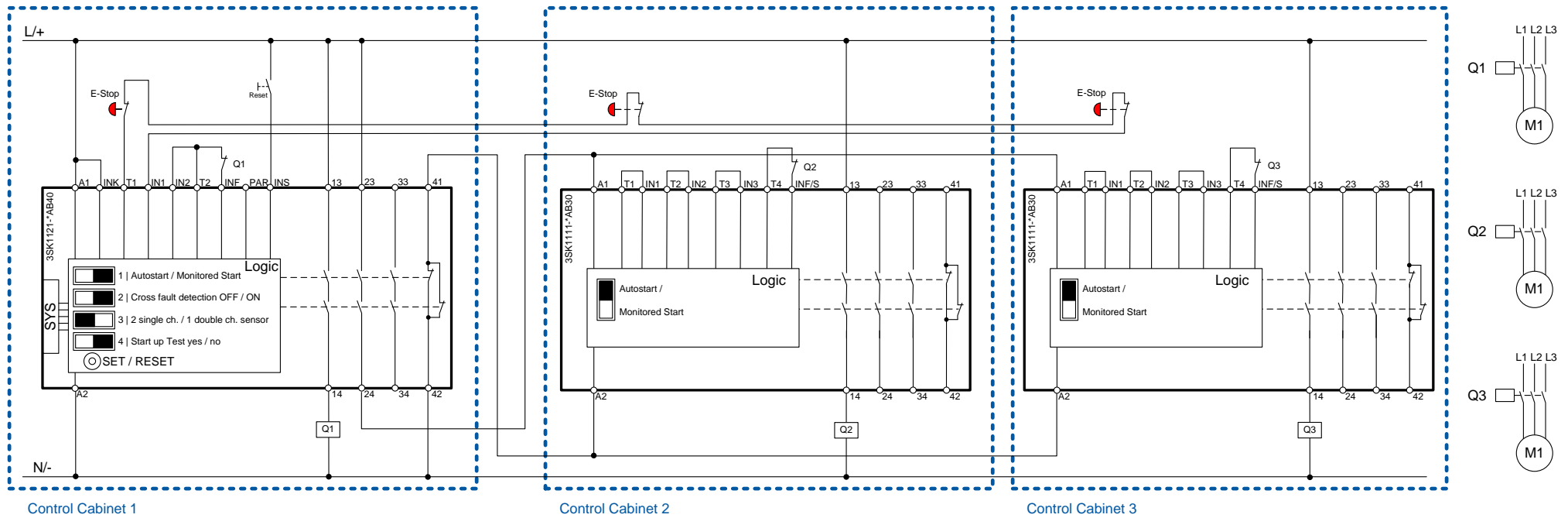


**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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## 2.16 3TK2827

### Corresponding order numbers

| 3TK28         | 3SK1 Advanced   | Comments   |
|---------------|-----------------|------------|
| 3TK2827-1AB20 | --              | Screw-type |
| 3TK2827-1AB21 | --              | Screw-type |
| 3TK2827-1AJ20 | 3SK1121-1CB42 * | Screw-type |
| 3TK2827-1AJ21 | 3SK1121-1CB41 * | Screw-type |
| 3TK2827-1AL20 | 3SK1121-1CB42 * | Screw-type |
| 3TK2827-1AL21 | 3SK1121-1CB41 * | Screw-type |
| 3TK2827-1BB40 | 3SK1121-1CB42   | Screw-type |
| 3TK2827-1BB41 | 3SK1121-1CB41   | Screw-type |
| 3TK2827-2AB20 | --              | Push-In    |
| 3TK2827-2AB21 | --              | Push-In    |
| 3TK2827-2AJ20 | 3SK1121-2CB42 * | Push-In    |
| 3TK2827-2AJ21 | 3SK1121-2CB41 * | Push-In    |
| 3TK2827-2AL20 | 3SK1121-2CB42 * | Push-In    |
| 3TK2827-2AL21 | 3SK1121-2CB41 * | Push-In    |
| 3TK2827-2BB40 | 3SK1121-2CB42   | Push-In    |
| 3TK2827-2BB41 | 3SK1121-2CB41   | Push-In    |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

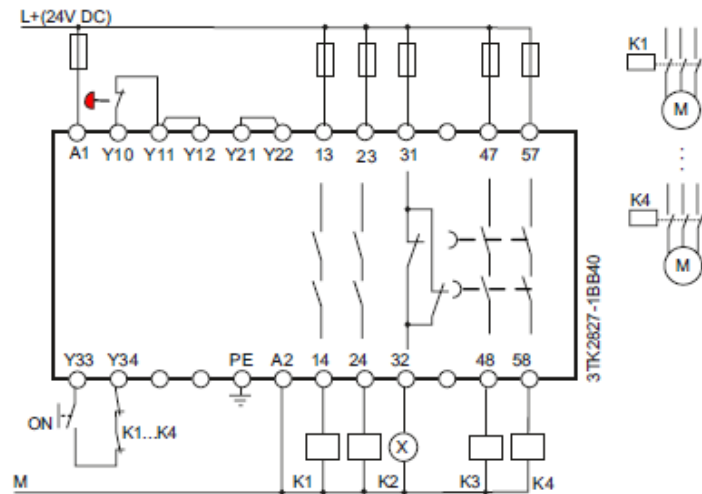
| 3TK2827 | 3SK1 Advanced | Terminal description                     |
|---------|---------------|--|
| A1      | A1            | Power supply +                           |
| A2      | A2            | Power supply -                           |
| Y10/Y11 | --            | Channel 1 (1 ch.)                        |
| Y11/Y12 | T1/IN1        | Channel 1 (2 ch.)                        |
| Y21/Y22 | T2/IN2        | Channel 2 (2 ch.)                        |
| Y33/Y34 | INS           | Reset button                             |
| Y33/Y34 | T2/INF        | Feedback circuit                         |
| --      | INK           | Cascading input                          |
| --      | PAR           | Configuration input for NO/NC evaluation |
| 13/14   | 13/14         | Output circuit (NO)                      |
| 23/24   | 23/24         | Output circuit (NO)                      |
| 47/48   | 37/38         | Output circuit (NO, delayed)             |
| 57/58   | 47/48         | Output circuit (NO, delayed)             |
| 31/32   | --            | Signaling circuit (NC)                   |

### 2.16.1 Emergency stop monitoring (1 ch.)

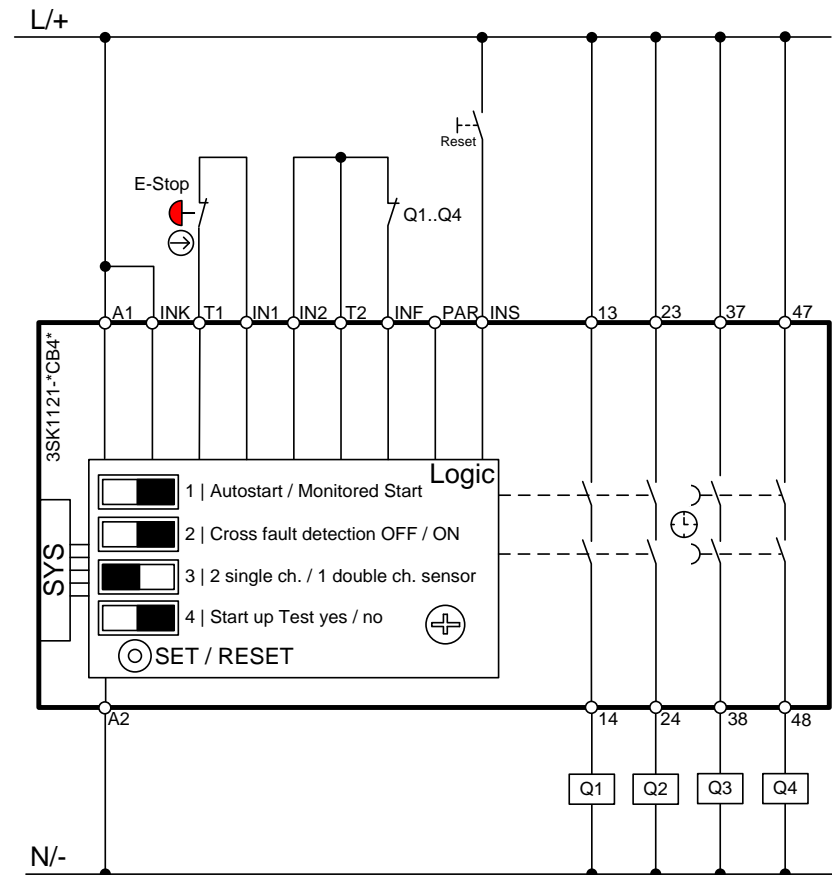
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>2x1 channel</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Advanced

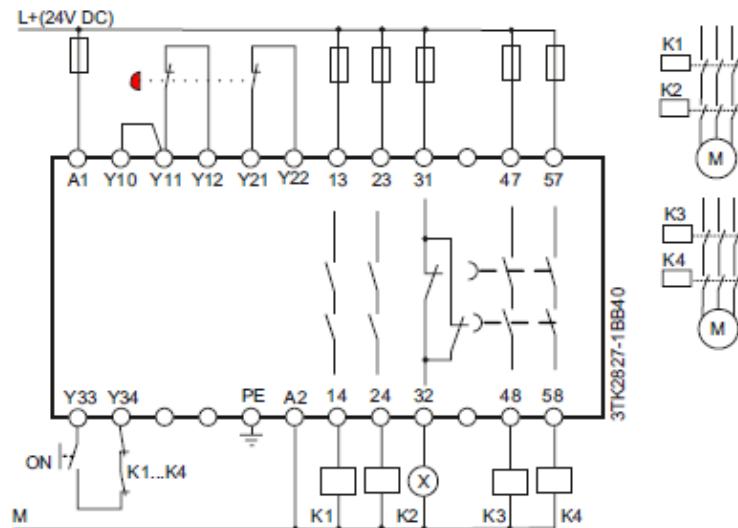


### 2.16.2 Emergency stop monitoring (2 ch.)

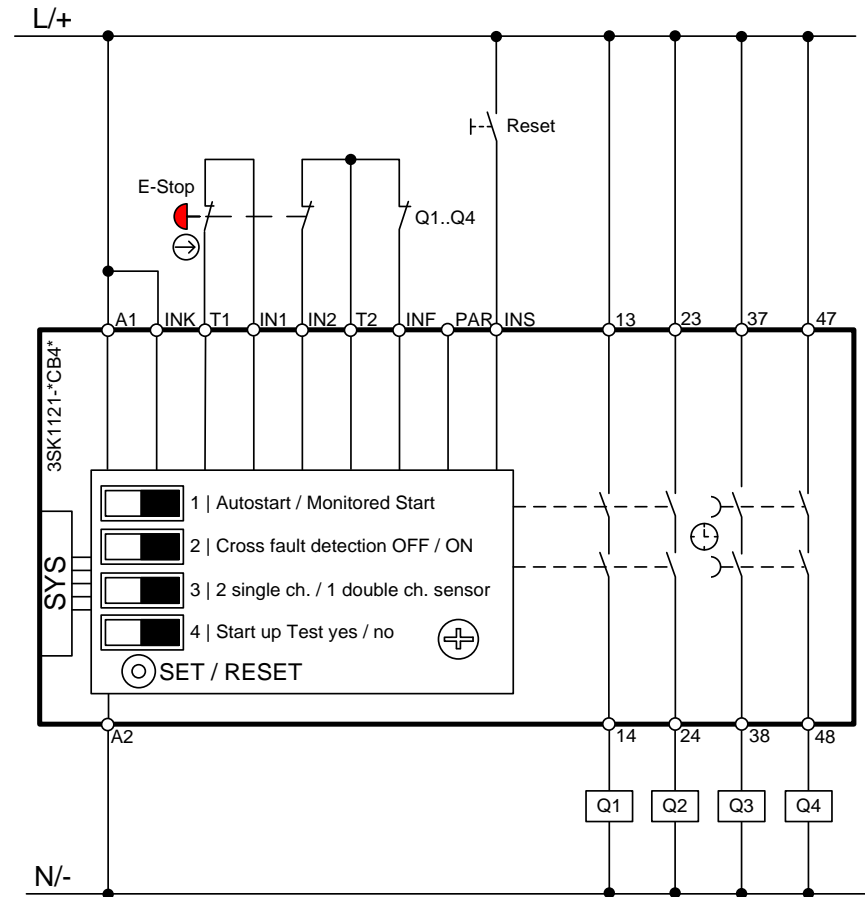
#### Description of safety function and configuration

| Safety function  | Configuration   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>1x2 channel</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Advanced



## 2.17 3TK2828

### Corresponding order numbers

| 3TK28         | 3SK1 Advanced   | Comments   |
|---------------|-----------------|------------|
| 3TK2828-1AB20 | --              | Screw-type |
| 3TK2828-1AB21 | --              | Screw-type |
| 3TK2828-1AJ20 | 3SK1121-1CB42 * | Screw-type |
| 3TK2828-1AJ21 | 3SK1121-1CB41 * | Screw-type |
| 3TK2828-1AL20 | 3SK1121-1CB42 * | Screw-type |
| 3TK2828-1AL21 | 3SK1121-1CB41 * | Screw-type |
| 3TK2828-1BB40 | 3SK1121-1CB42   | Screw-type |
| 3TK2828-1BB41 | 3SK1121-1CB41   | Screw-type |
| 3TK2828-2AB20 | --              | Push-In    |
| 3TK2828-2AB21 | --              | Push-In    |
| 3TK2828-2AJ20 | 3SK1121-2CB42 * | Push-In    |
| 3TK2828-2AJ21 | 3SK1121-2CB41 * | Push-In    |
| 3TK2828-2AL20 | 3SK1121-2CB42 * | Push-In    |
| 3TK2828-2AL21 | 3SK1121-2CB41 * | Push-In    |
| 3TK2828-2BB40 | 3SK1121-2CB42   | Push-In    |
| 3TK2828-2BB41 | 3SK1121-2CB41   | Push-In    |

\* = In connection with power module 3SK1230, see chapter Power module on page 120.

### Terminal marking

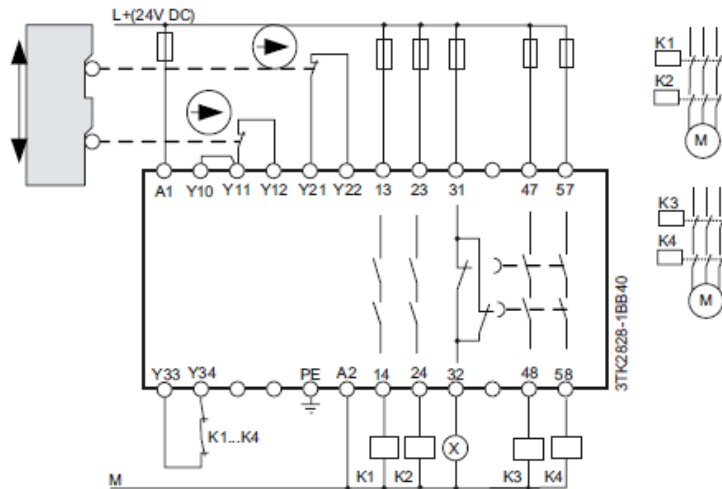
| 3TK2828 | 3SK1 Advanced | Terminal description                     |
|---------|---------------|--|
| A1      | A1            | Power supply +                           |
| A2      | A2            | Power supply -                           |
| Y10/Y11 | --            | Channel 1 (1 single channel)             |
| Y11/Y12 | T1/IN1        | Channel 1 (1 double channel)             |
| Y21/Y22 | T2/IN2        | Channel 2 (1 double channel)             |
| Y33/Y34 | INS           | Reset button                             |
| Y33/Y34 | T2/INF        | Feedback circuit                         |
| --      | INK           | Cascading input                          |
| --      | PAR           | Configuration input for NO/NC evaluation |
| 13/14   | 13/14         | Output circuit (NO)                      |
| 23/24   | 23/24         | Output circuit (NO)                      |
| 31/32   | --            | Signaling circuit (NC)                   |
| 47/48   | 37/38         | Output circuit (NO, delayed)             |
| 57/58   | 47/48         | Output circuit (NO, delayed)             |

### 2.17.1 Protective door monitoring (2 ch.)

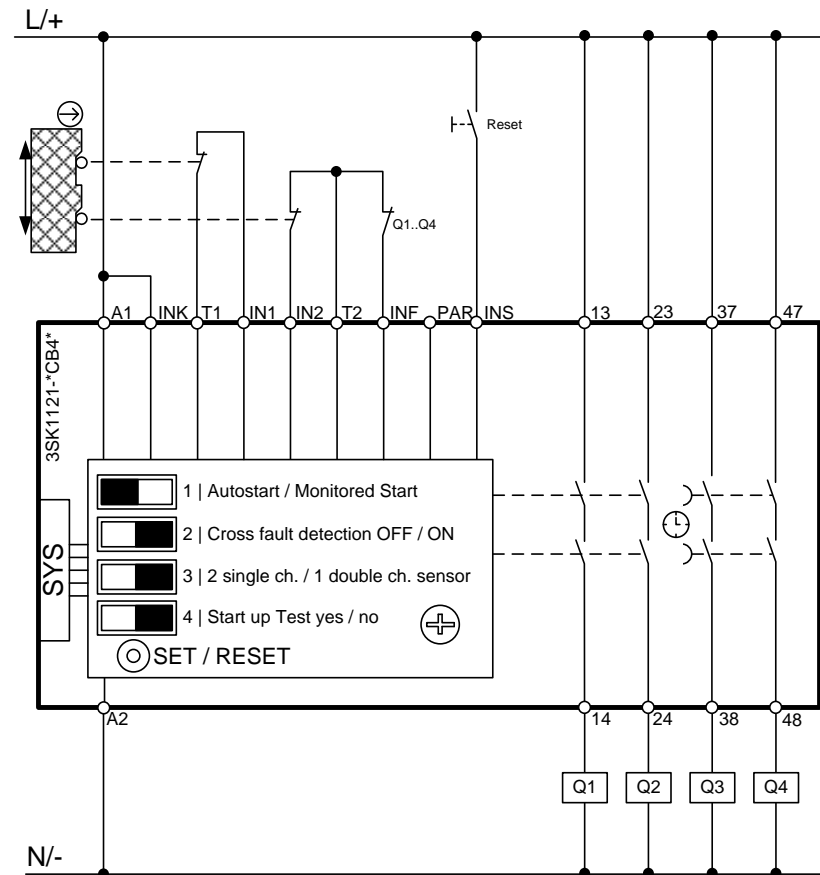
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Protective door monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• automatic start</li> <li>• cross-circuit detection activated</li> <li>• 1x2 channel</li> <li>• startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Advanced

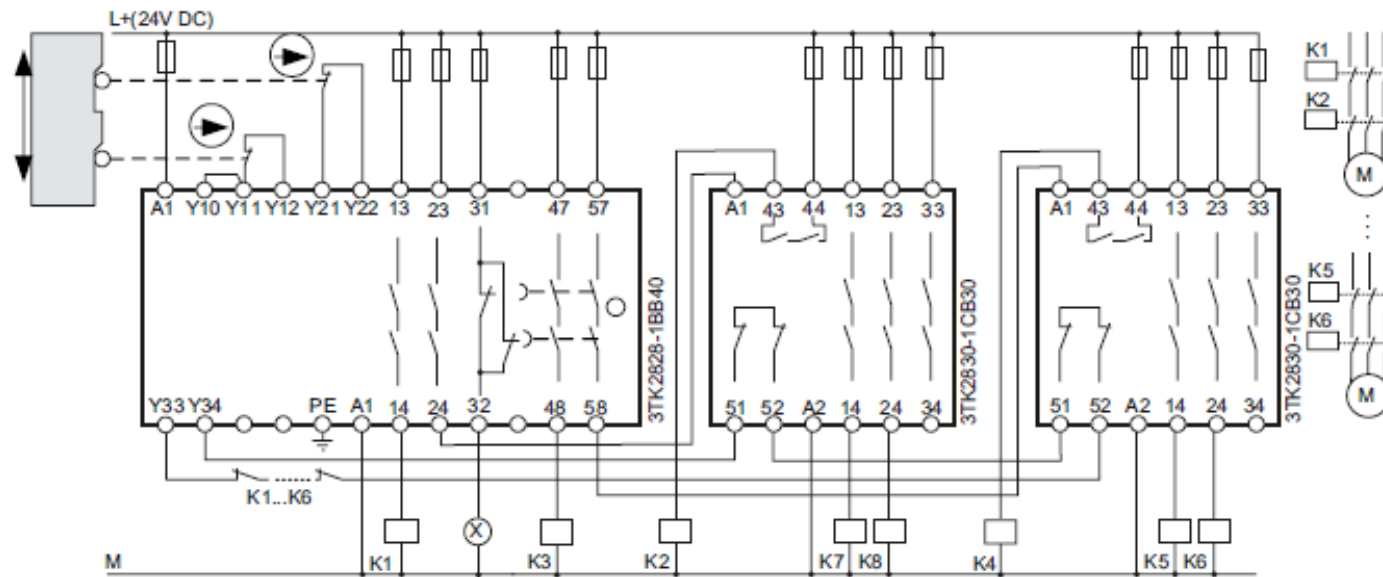


### 2.17.2 Protective door monitoring with several contact expansions

#### Example: 3TK2828 + 3TK2830 + 3TK2830

| Safety function   | Configuration   |
|---|---|
| Protective door monitoring with several contact expansions<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 and 1 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• automatic start</li> <li>• cross-circuit detection activated</li> <li>• 1x2 channel</li> <li>• startup test deactivated</li> </ul> |

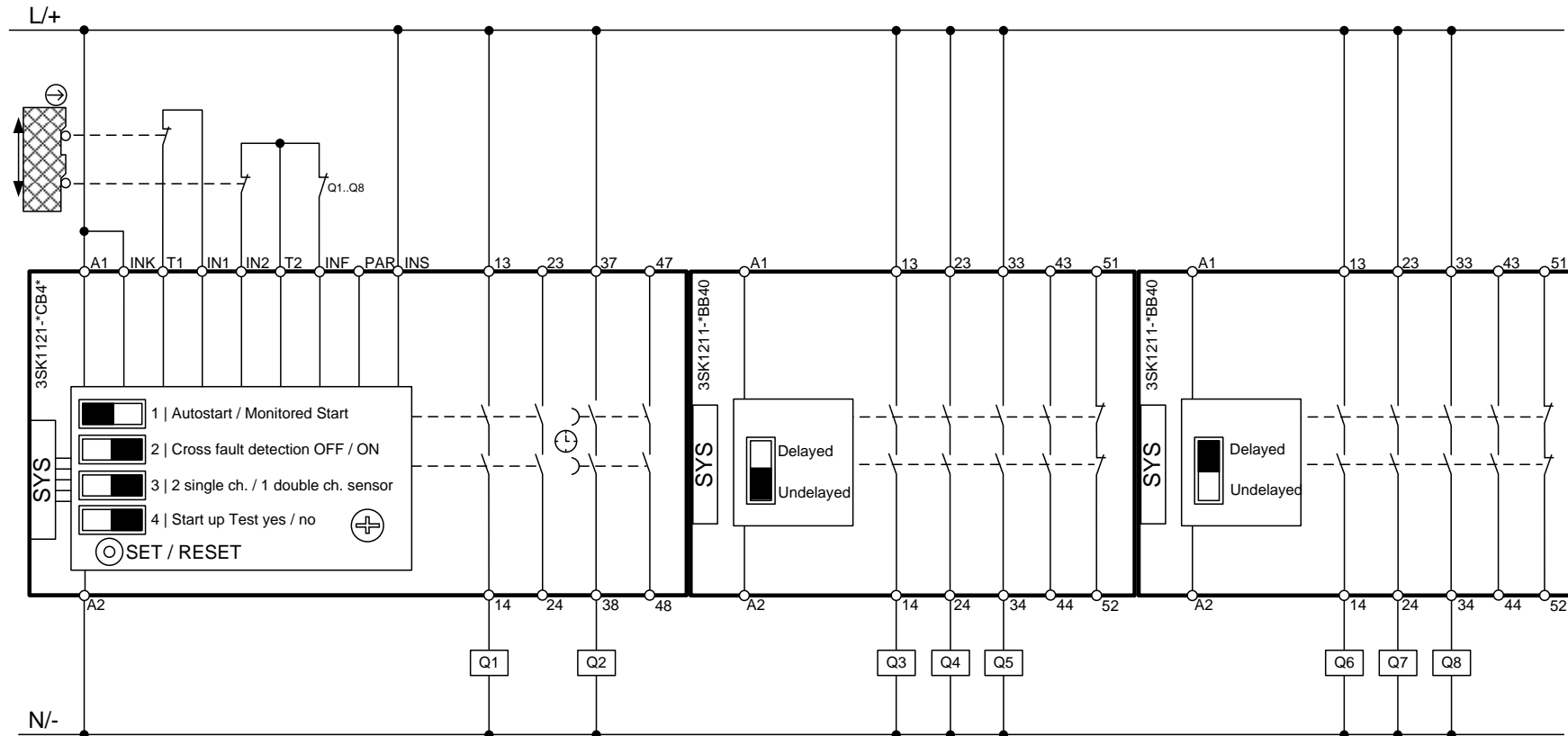
#### Wiring diagram 3TK28



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**Wiring diagram 3SK1 Advanced**



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**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 2.18 3TK2830

### Corresponding order numbers

| 3TK28         | 3SK1   | Comments   |
|---------------|--|------------|
| 3TK2830-1AJ20 | 3SK1211-1BW20                                      | Screw-type |
| 3TK2830-1AL20 | 3SK1211-1BW20                                      | Screw-type |
| 3TK2830-1CB30 | 3SK1211-1BB40 (24 V DC)<br>3SK1211-1BB00 (24 V AC) | Screw-type |
| 3TK2830-2AJ20 | 3SK1211-2BW20                                      | Push-In    |
| 3TK2830-2AL20 | 3SK1211-2BW20                                      | Push-In    |
| 3TK2830-2CB30 | 3SK1211-2BB40 (24 V DC)<br>3SK1211-2BB00 (24 V AC) | Push-In    |

### Terminal marking

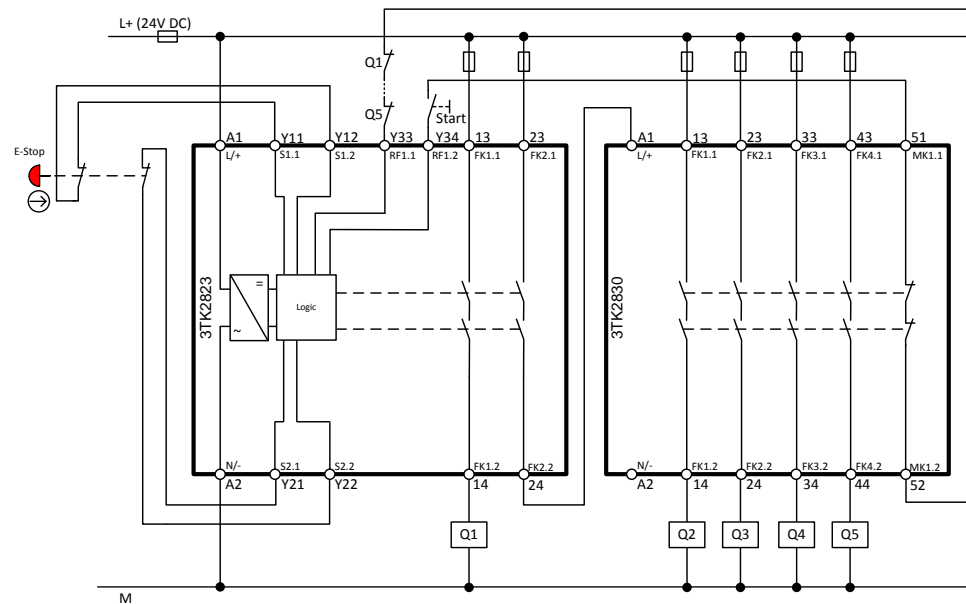
| 3TK2830 | 3SK1211 | Terminal description  |
|---------|---------|-----------------------|
| A1      | A1      | Power supply +        |
| A2      | A2      | Power supply -        |
| 13/14   | 13/14   | Output circuit (NO)   |
| 23/24   | 23/24   | Output circuit (NO)   |
| 33/34   | 33/34   | Output circuit (NO)   |
| 43/44   | 43/44   | Output circuit (NO)   |
| 51/52   | 51/52   | Signaling output (NC) |

### 2.18.1 Emergency stop monitoring with contact expansion

#### Example: 3TK2823 + 3TK2830

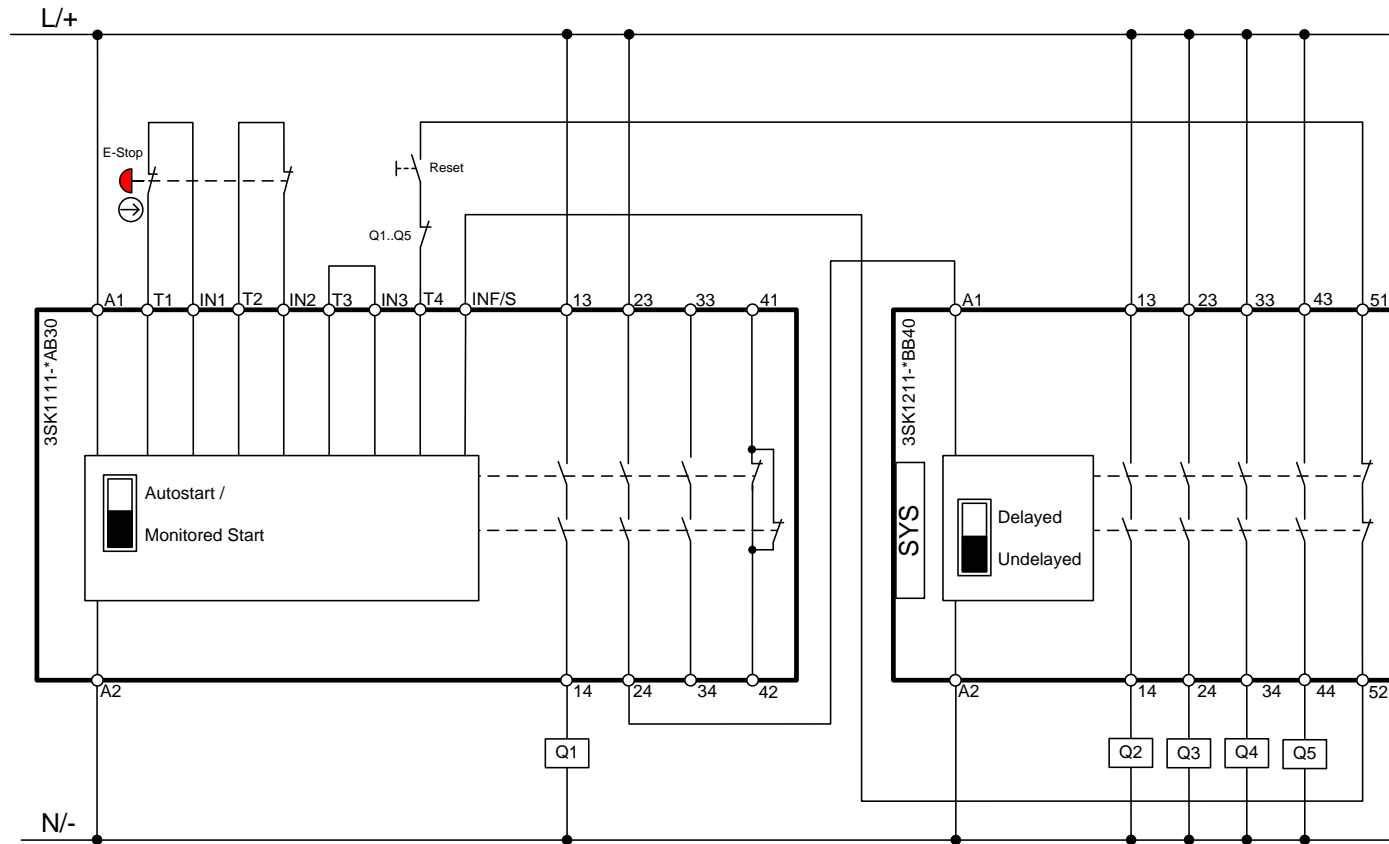
| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring with contact expansion<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>1x2 channel</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28



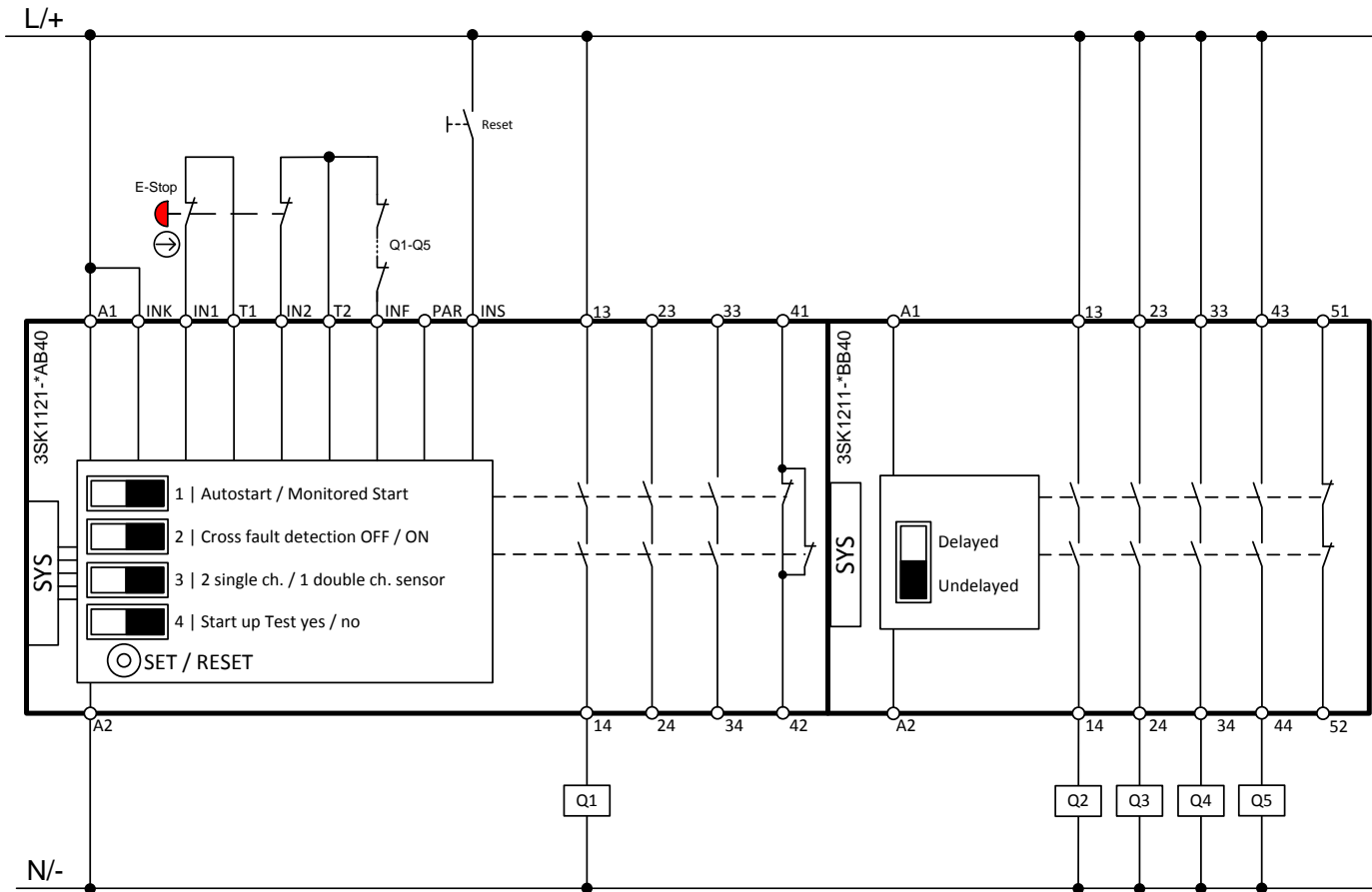
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**Wiring diagram 3SK1 Standard**



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**Wiring diagram 3SK1 Advanced**



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**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 3 Safety relays with solid state outputs

### 3.1 3TK2840

#### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced | Comments   |
|---------------|---------------|---------------|------------|
| 3TK2840-1BB40 | 3SK1112-1BB40 | 3SK1122-1AB40 | Screw-type |
| 3TK2840-2BB40 | 3SK1112-2BB40 | 3SK1122-2AB40 | Push-In    |

#### Terminal marking

| 3TK2840 | 3SK1 Standard     | 3SK1 Advanced     | Terminal description                              |
|---------|-------------------|-------------------|---|
| A1      | A1                | A1                | Power supply +                                    |
| A2      | A2                | A2                | Power supply -                                    |
| Y11/Y12 | T1/IN1            | T1/IN1            | Channel 1   |
| Y21/Y22 | T2/IN2            | T2/IN2            | Channel 2   |
| Y34     | INS               | INS               | Reset button                                      |
| Y33/Y34 | T2/INF            | T2/INF            | Feedback circuit                                  |
| --      | INK               | INK               | Cascading input                                   |
| --      | --                | PAR               | Configuration input for NO/NC evaluation          |
| Y20     | <i>DIP switch</i> | <i>DIP switch</i> | Configuration input for single channel evaluation |
| 14      | Q1                | Q1                | Solid state output                                |
| 24      | Q2                | Q2                | Solid state output                                |
| --      | --                | Q3                | Solid state output                                |
| --      | QM1               | QM1               | Signaling circuit                                 |

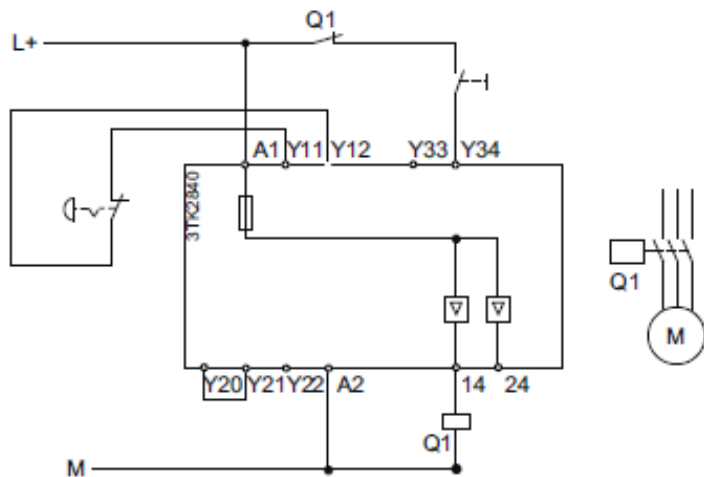
### 3.1.1 Emergency stop monitoring (1 ch.)

#### Description of safety function and configuration

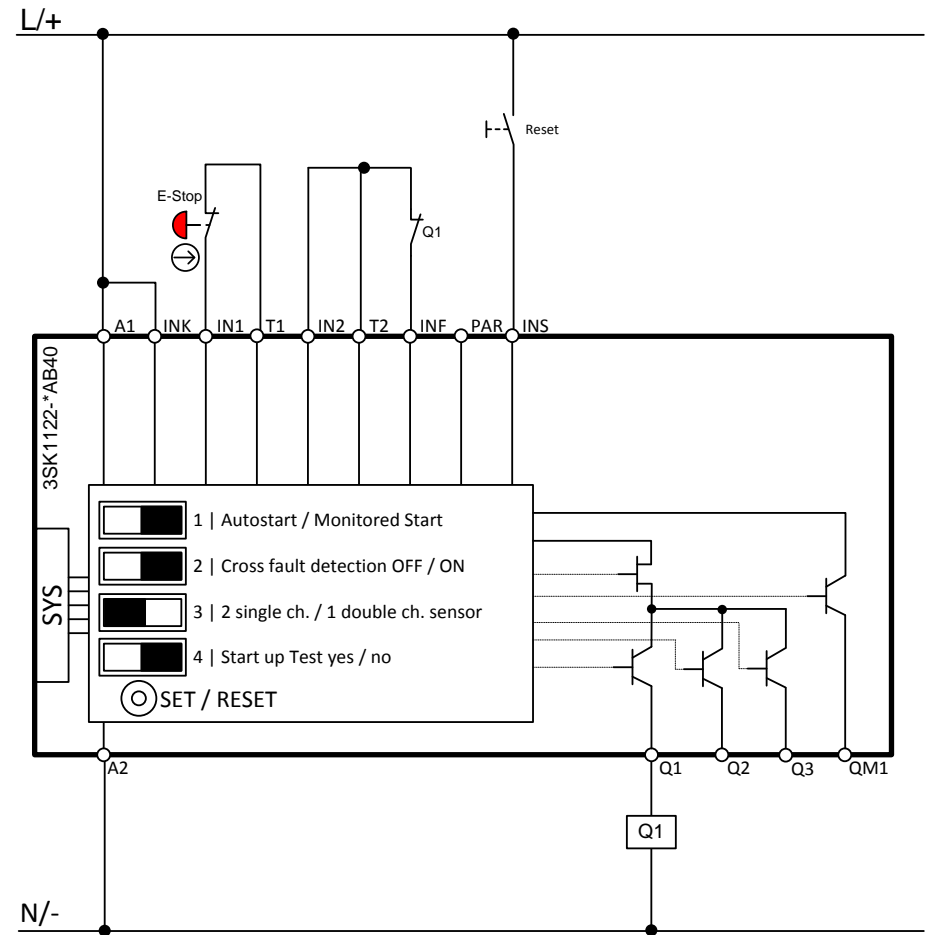
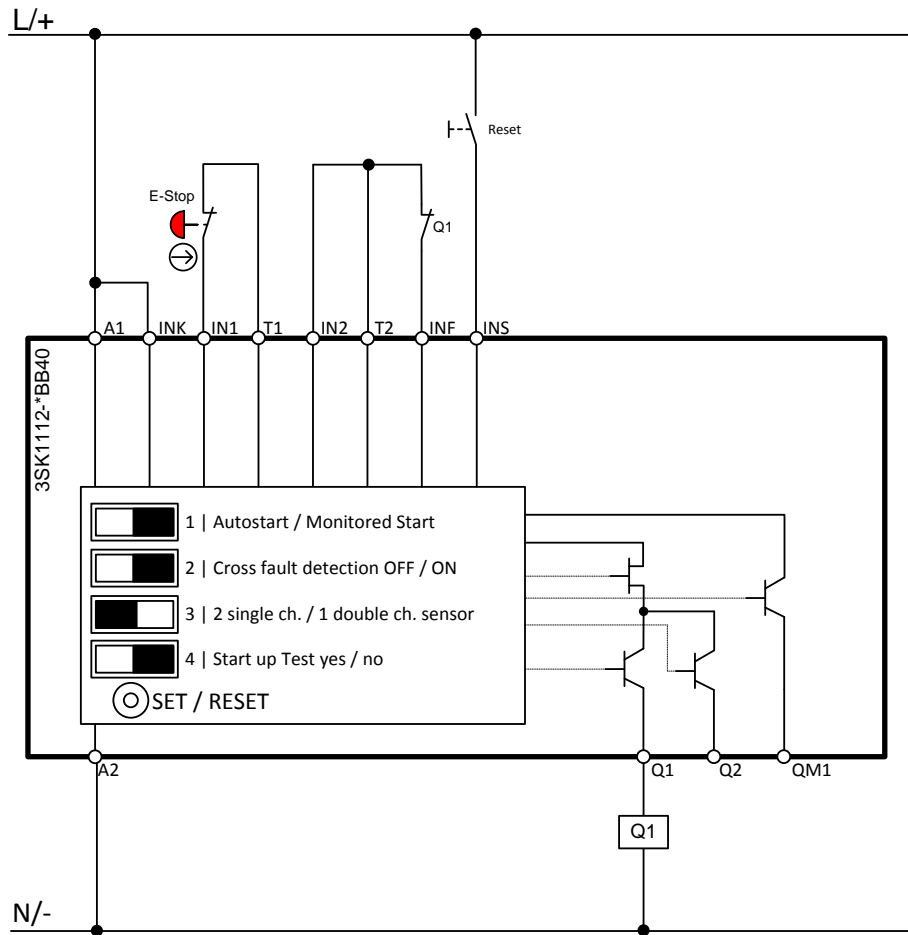
| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>2x1 channel</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3SK1 Standard

#### Wiring diagram 3TK28



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**Wiring diagram 3SK1 Advanced**

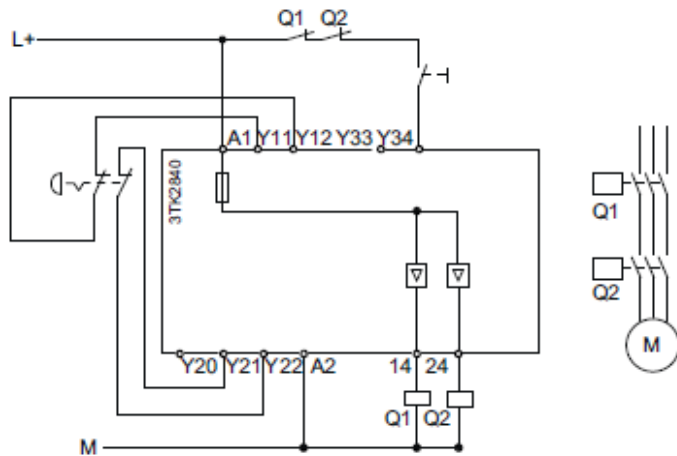


### 3.1.2 Emergency stop monitoring (2 ch.)

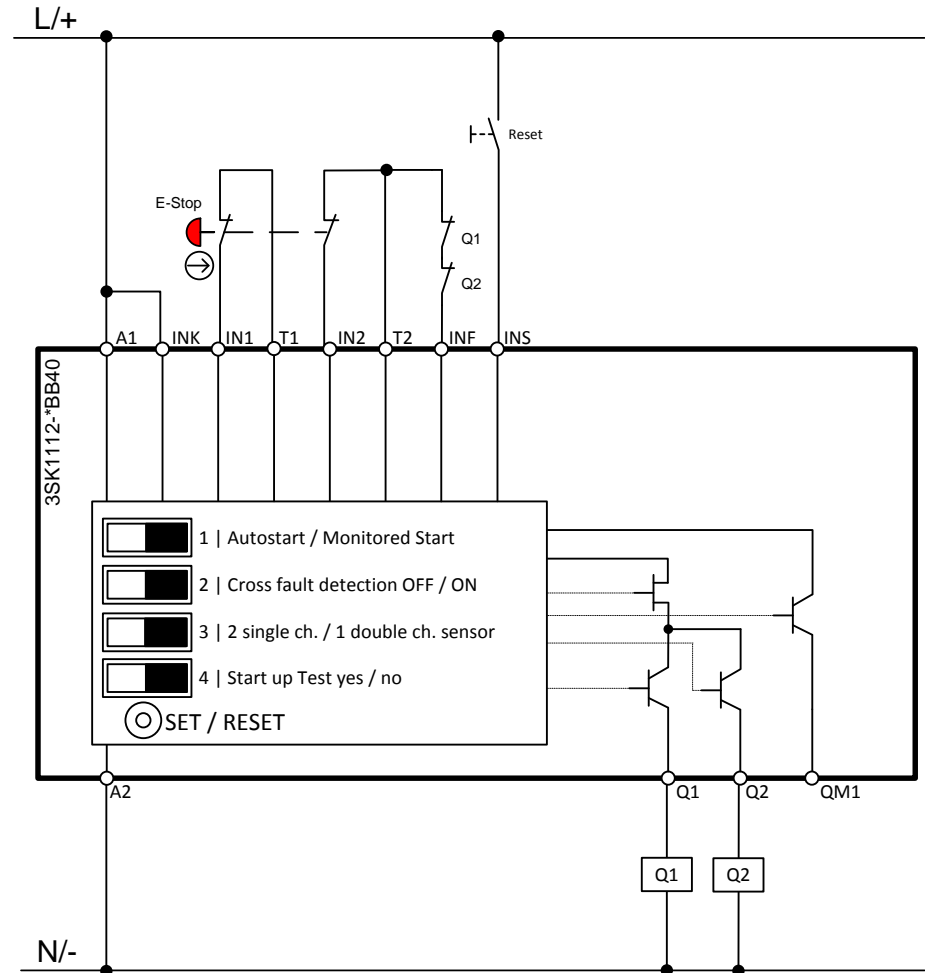
#### Description of safety function and configuration

| Safety function  | Configuration   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>1x2 channel</li> <li>startup test deactivated</li> </ul> |

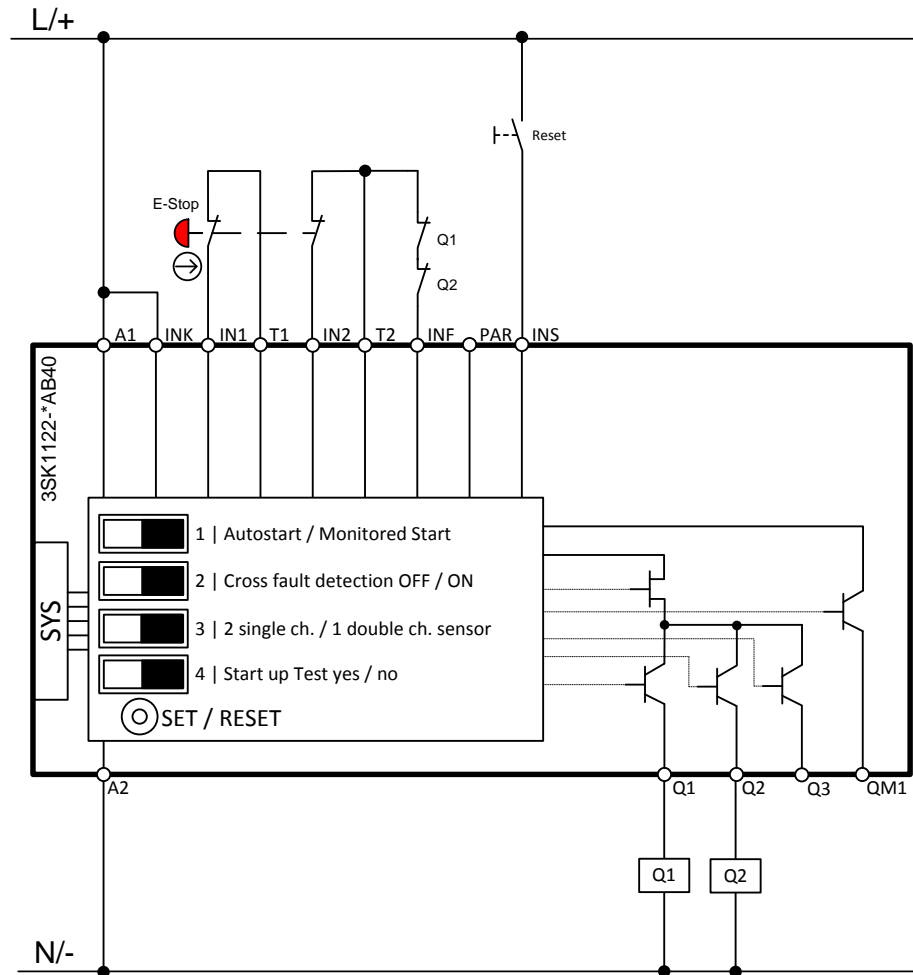
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



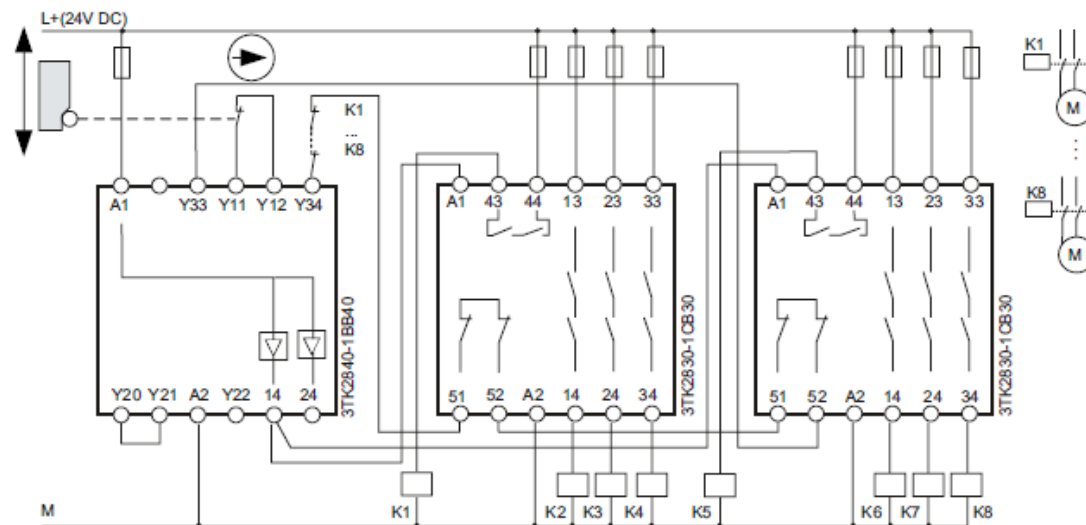
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### 3.1.3 NOT-HALT- und Schutztürüberwachung mit mehreren Kontakterweiterungen

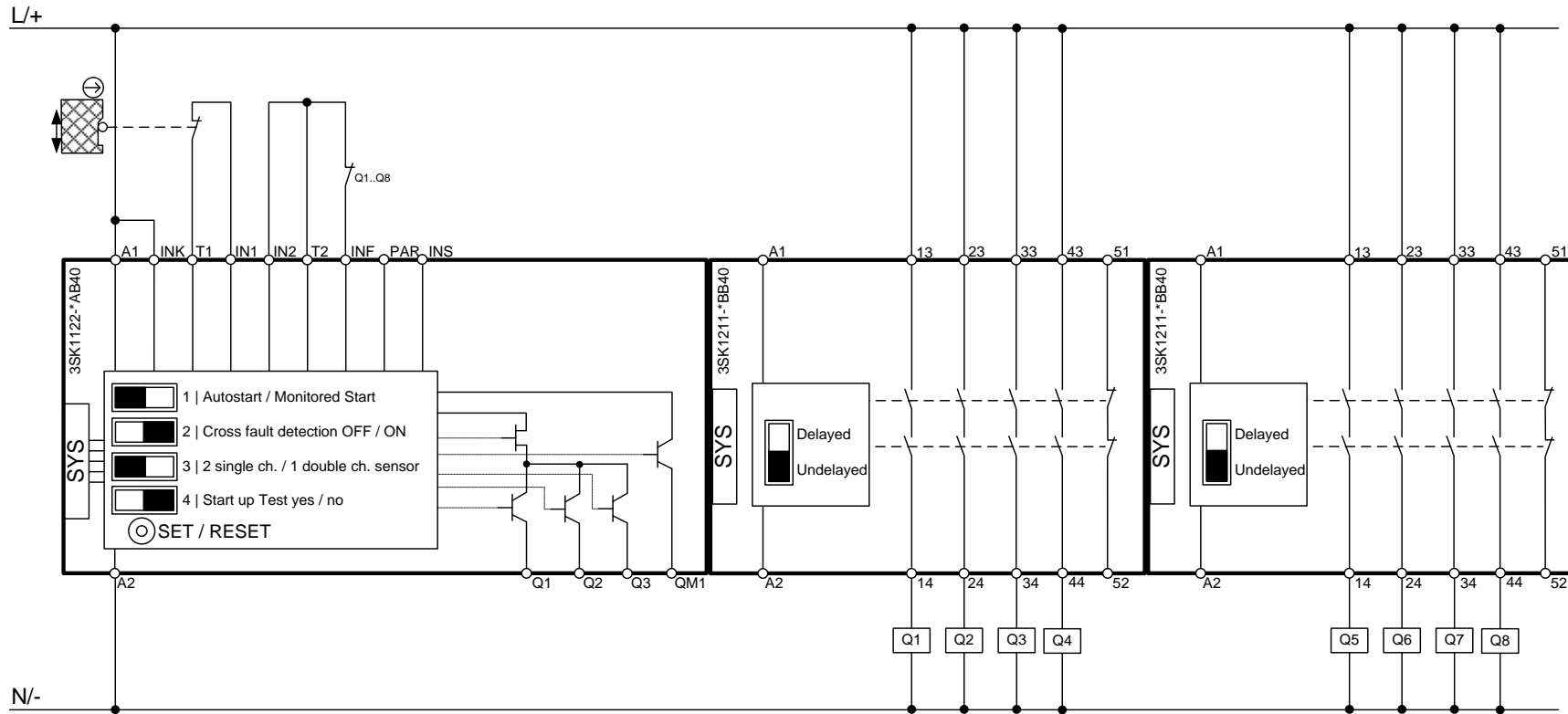
#### Beispiel: 3TK2840 + 3TK2830 + 3TK2830

| Sicherheitsfunktion  | Parameter 3SK1  |
|--|---|
| Schutztürüberwachung mit Kontakterweiterungen<br><br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stopp-Kategorie 0 und 1 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>• automatischer Start</li> <li>• Querschlusserkennung aktiviert</li> <li>• 2x1-kanalig</li> <li>• Anlaufstest deaktiviert</li> </ul> |

#### Wiring diagram 3TK28



**Wiring diagram 3SK1 Advanced**



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**Note**

In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 3.2 3TK2841

### Corresponding order numbers

| 3TK28         | 3SK1 Standard | 3SK1 Advanced | Comments   |
|---------------|---------------|---------------|------------|
| 3TK2841-1BB40 | 3SK1112-1BB40 | 3SK1122-1AB40 | Screw-type |
| 3TK2841-2BB40 | 3SK1112-2BB40 | 3SK1122-2AB40 | Push-In    |

### Terminal marking

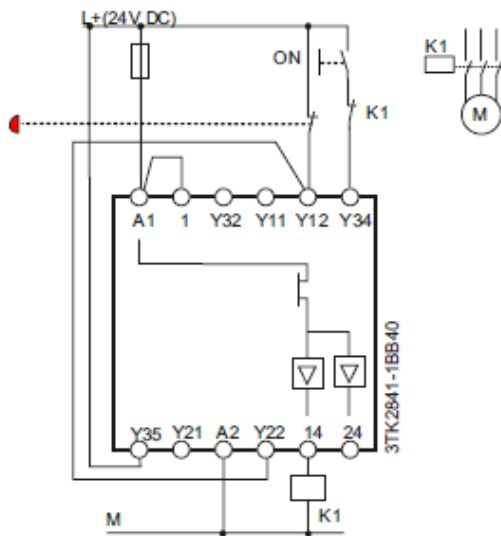
| 3TK2841 | 3SK1 Standard     | 3SK1 Advanced     | Terminal description                              |
|---------|-------------------|-------------------|---|
| A1      | A1                | A1                | Power supply +                                    |
| A2      | A2                | A2                | Power supply -                                    |
| Y11/Y12 | T1/IN1            | T1/IN1            | Channel 1   |
| Y21/Y22 | T2/IN2            | T2/IN2            | Channel 2   |
| Y34     | INS               | INS               | Reset button                                      |
| Y33/Y34 | T2/INF            | T2/INF            | Feedback circuit                                  |
| 1       | INK               | INK               | Cascading input                                   |
| --      | --                | PAR               | Configuration input for NO/NC evaluation          |
| Y35     | <i>DIP switch</i> | <i>DIP switch</i> | Configuration input for cross-circuit detection   |
| Y20     | <i>DIP switch</i> | <i>DIP switch</i> | Configuration input for single channel evaluation |
| 14      | Q1                | Q1                | Solid state output                                |
| 24      | Q2                | Q2                | Solid state output                                |
| --      | --                | Q3                | Solid state output                                |
| --      | QM1               | QM1               | Signaling circuit                                 |

### 3.2.1 Emergency stop monitoring (1 ch.)

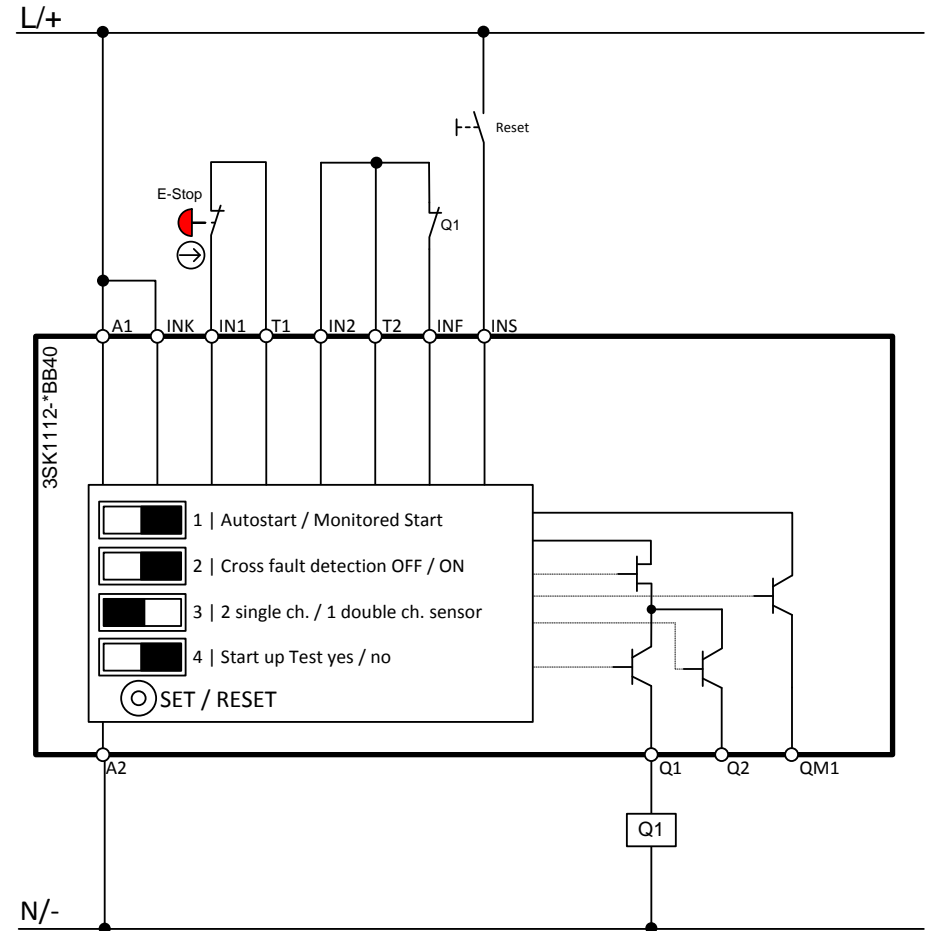
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>2x1 channel</li> <li>startup test deactivated</li> </ul> |

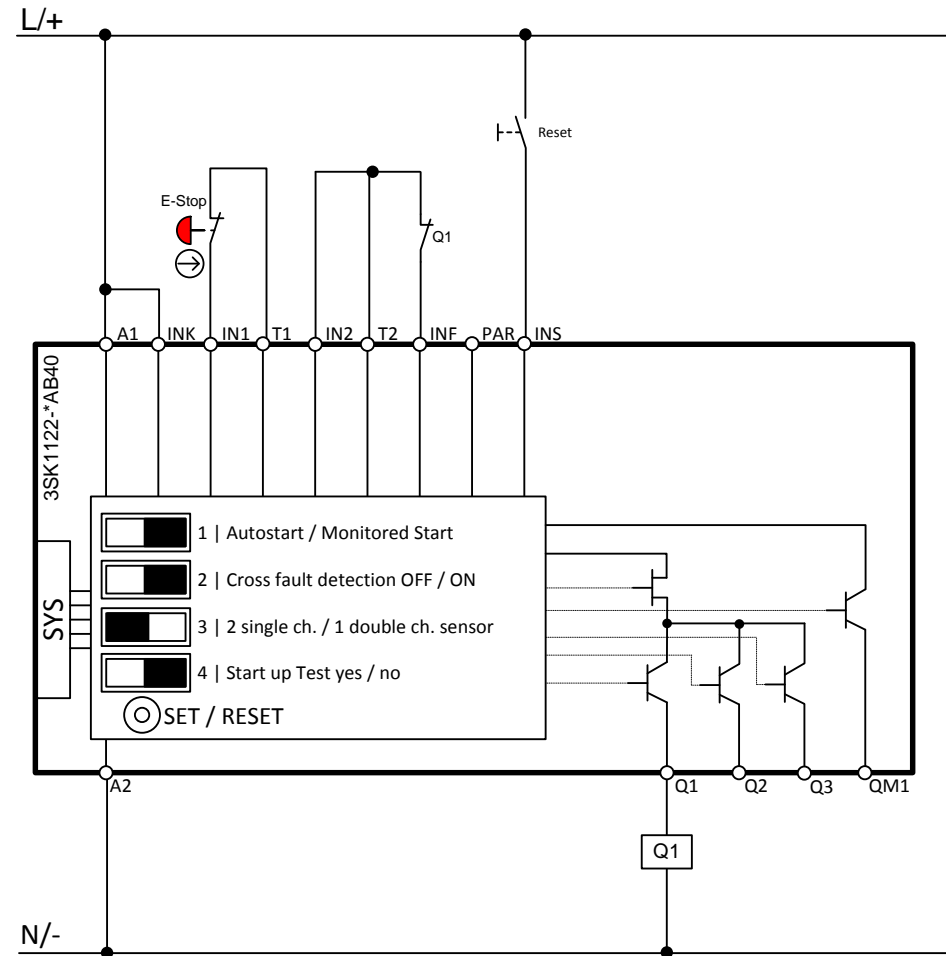
#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Standard



**Wiring diagram 3SK1 Advanced**



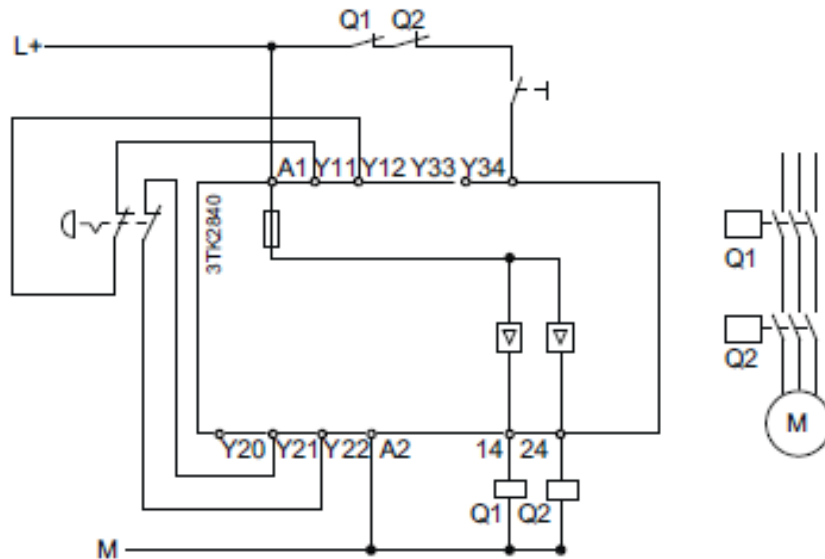
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### 3.2.2 Emergency stop monitoring (2 ch.)

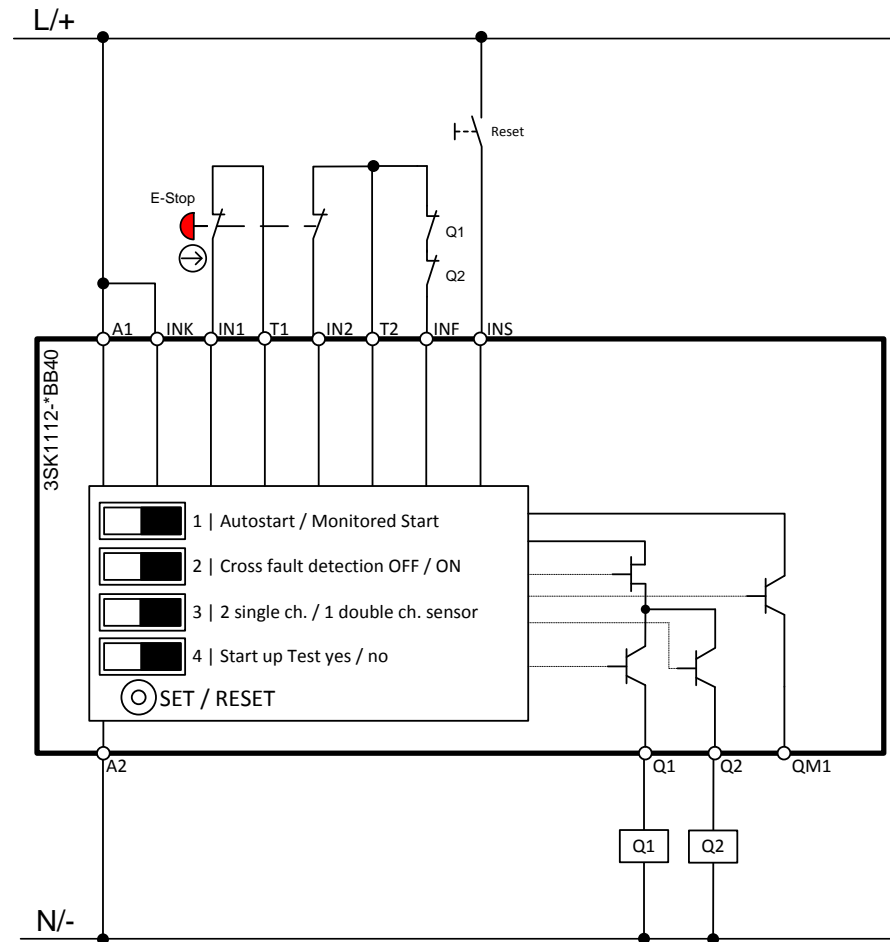
#### Description of safety function and configuration

| Safety function  | Configuration  |
|--|--|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>1x2 channels</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28

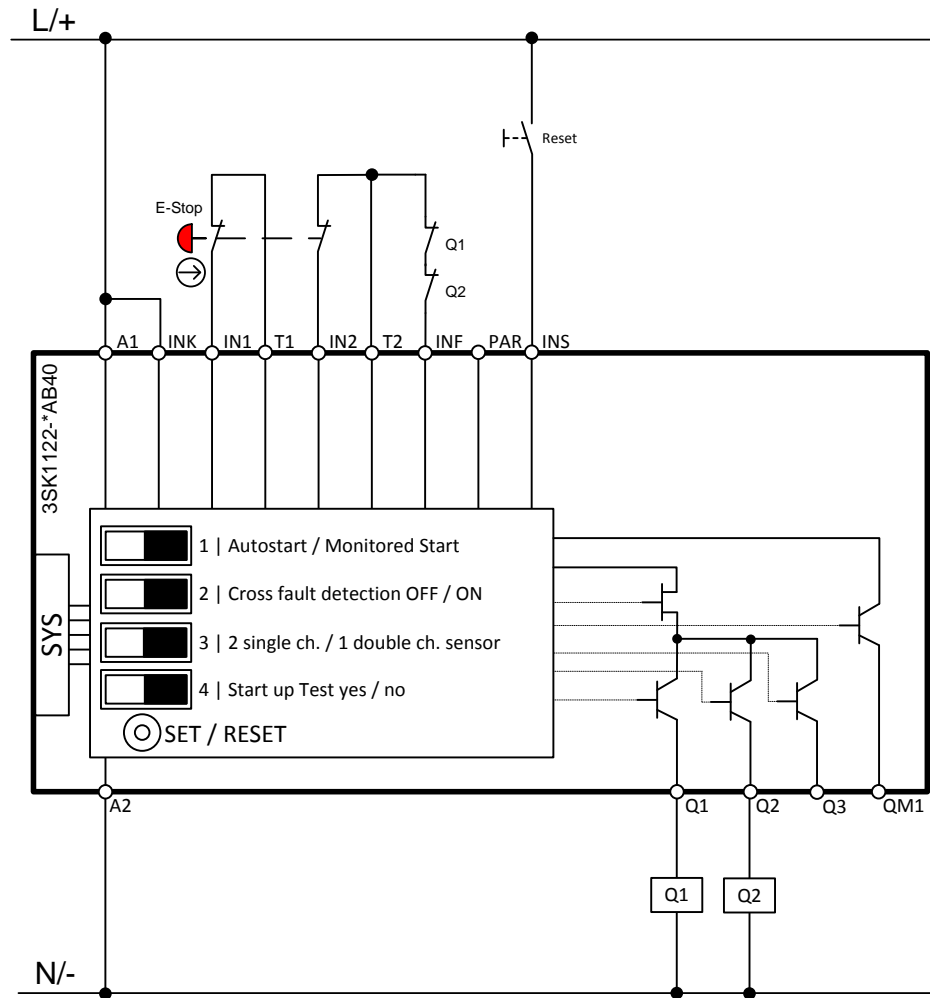


#### Wiring diagram 3SK1 Standard





**Wiring diagram 3SK1 Advanced**



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### 3.3 3TK2842

#### Corresponding order numbers

| 3TK28         | 3SK1 Advanced | Comments   |
|---------------|---------------|------------|
| 3TK2842-1BB41 | 3SK1122-1CB41 | Screw-type |
| 3TK2842-1BB42 | 3SK1122-1CB42 | Screw-type |
| 3TK2842-1BB44 | 3SK1122-1CB44 | Screw-type |
| 3TK2842-2BB41 | 3SK1122-2CB41 | Push-In    |
| 3TK2842-2BB42 | 3SK1122-2CB42 | Push-In    |
| 3TK2842-2BB44 | 3SK1122-2CB44 | Push-In    |

#### Terminal marking

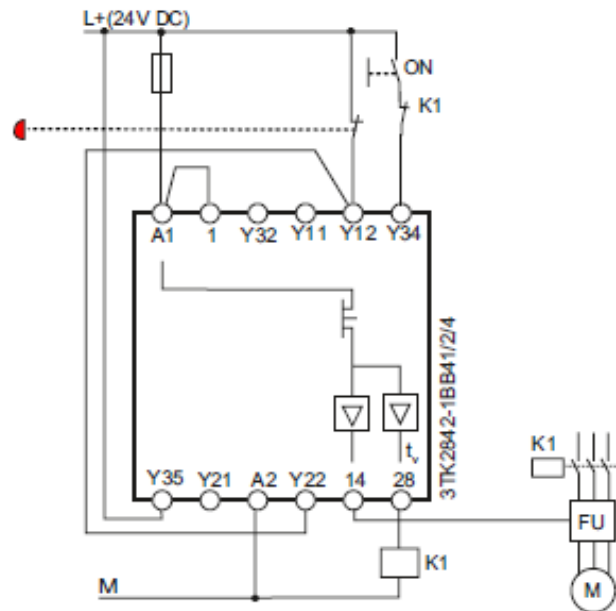
| 3TK2842 | 3SK1 Advanced     | Terminal description                              |
|---------|-------------------|---|
| A1      | A1                | Power supply +                                    |
| A2      | A2                | Power supply -                                    |
| Y11/Y12 | T1/IN1            | Sensor Channel 1                                  |
| Y21/Y22 | T2/IN2            | Sensor Channel 2                                  |
| Y34     | INS               | Reset button                                      |
| Y34     | T2/INF            | Feedback circuit                                  |
| 1       | INK               | Cascading input                                   |
| --      | PAR               | Configuration input for NO/NC evaluation          |
| Y35     | <i>DIP switch</i> | Configuration input for cross-circuit detection   |
| Y32     | <i>DIP switch</i> | Configuration input for single channel evaluation |
| 14      | Q1                | Solid state output                                |
| --      | Q2                | Solid state output                                |
| 28      | Qt1               | Solid state output (delayed)                      |
| --      | Qt2               | Solid state output (delayed)                      |

### 3.3.1 Emergency stop monitoring (1 ch.)

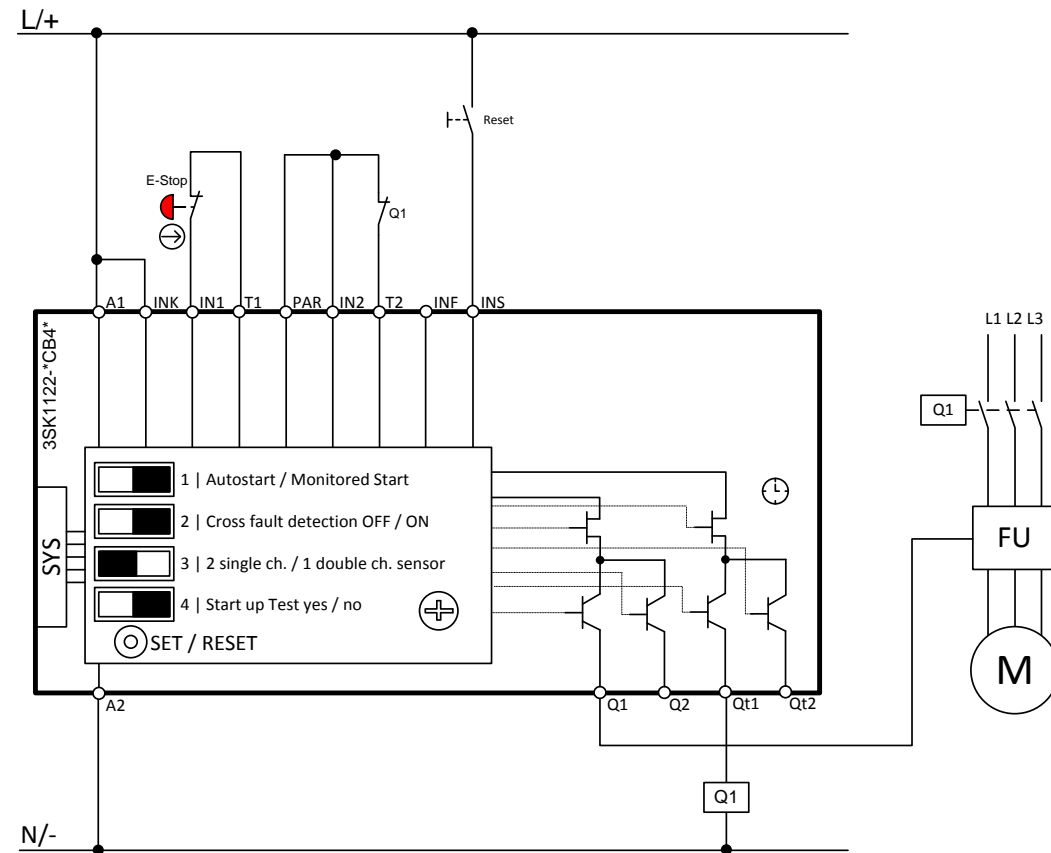
#### Description of safety function and configuration

| Safety function   | Configuration   |
|---|---|
| Emergency stop monitoring<br>SIL 1 (IEC 62061)<br>PL c (ISO 13849-1)<br>Stop category 1 (EN 60204-1)<br>DC = 0% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>2x1 channel</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Advanced



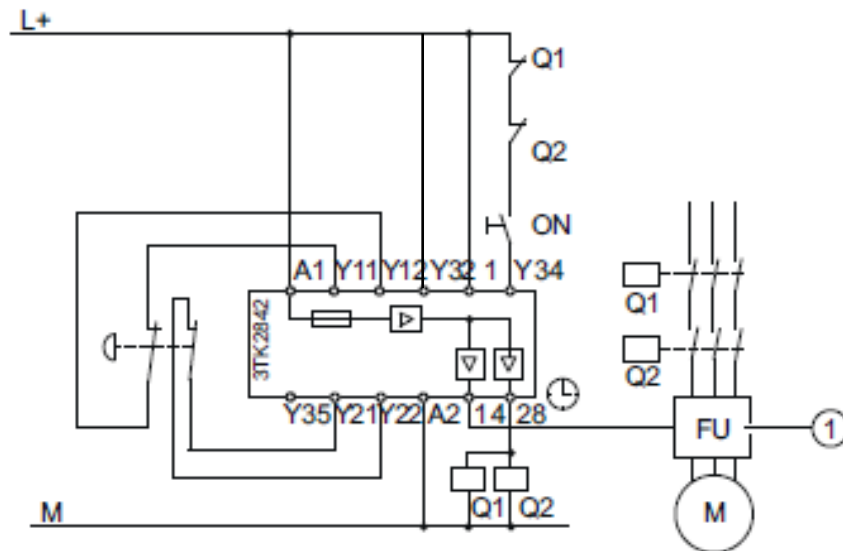
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### 3.3.2 Emergency stop monitoring (2 ch.)

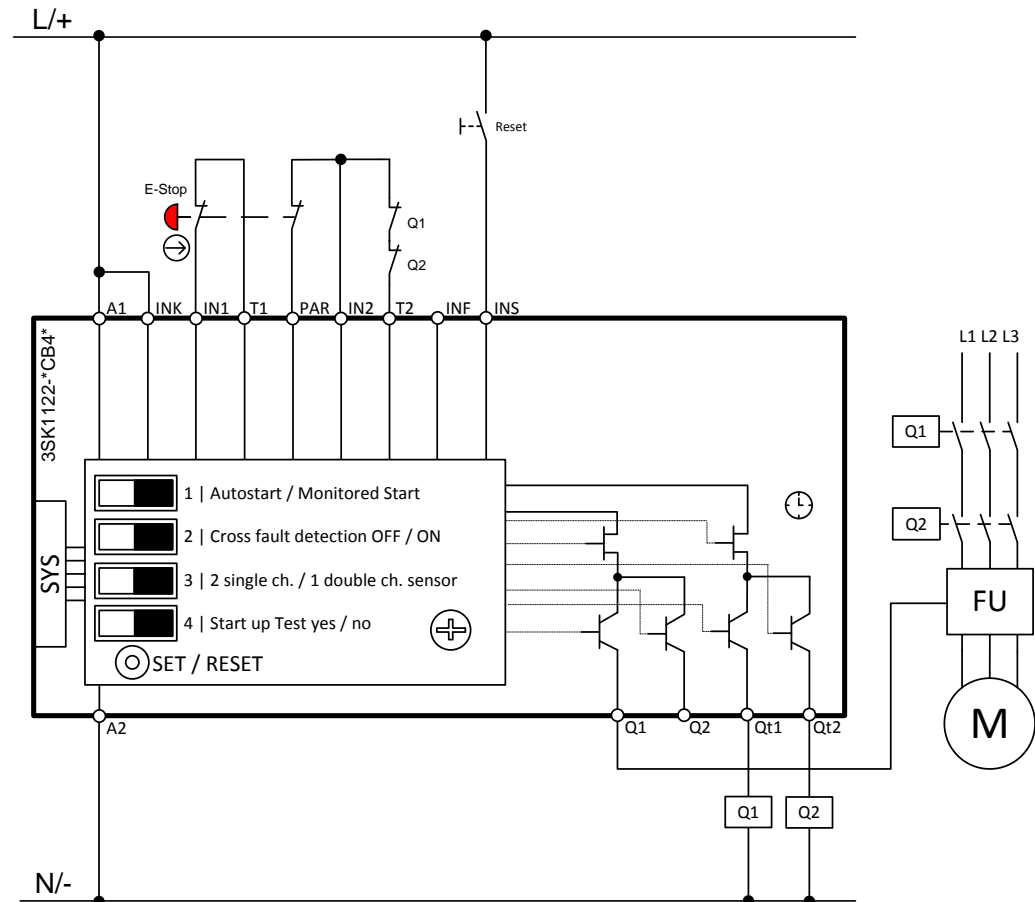
#### Description of safety function and configuration

| Safety function  | Configuration   |
|--|---|
| Emergency stop monitoring<br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 (EN 60204-1)<br>DC = 99% | <ul style="list-style-type: none"> <li>monitored start</li> <li>cross-circuit detection activated</li> <li>1x2 channel</li> <li>startup test deactivated</li> </ul> |

#### Wiring diagram 3TK28



#### Wiring diagram 3SK1 Advanced



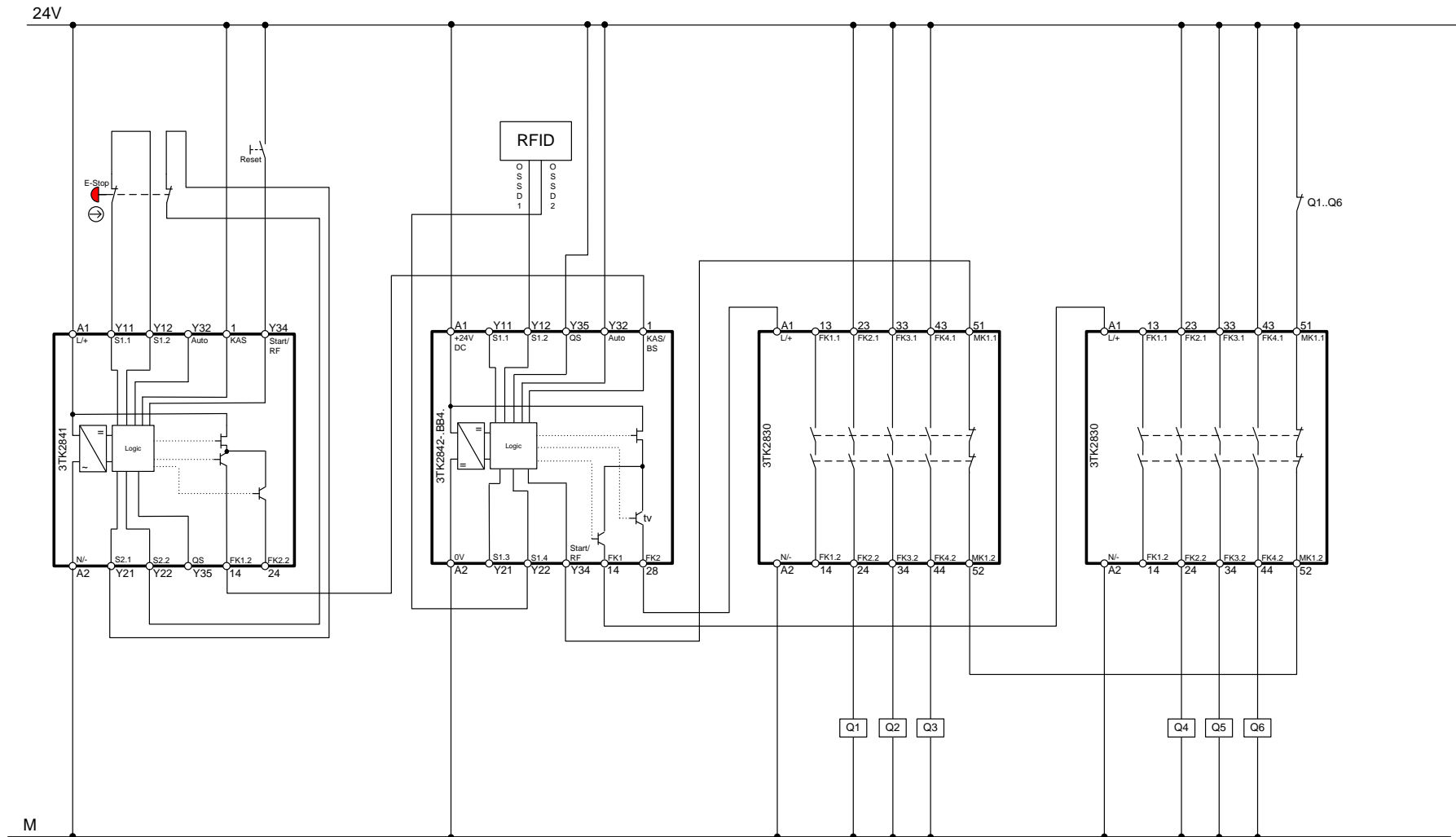
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### 3.3.3 Emergency stop and protective door monitoring with contact expansions

#### Example: 3TK2841 + 3TK2842 + 3TK2830 + 3TK2830

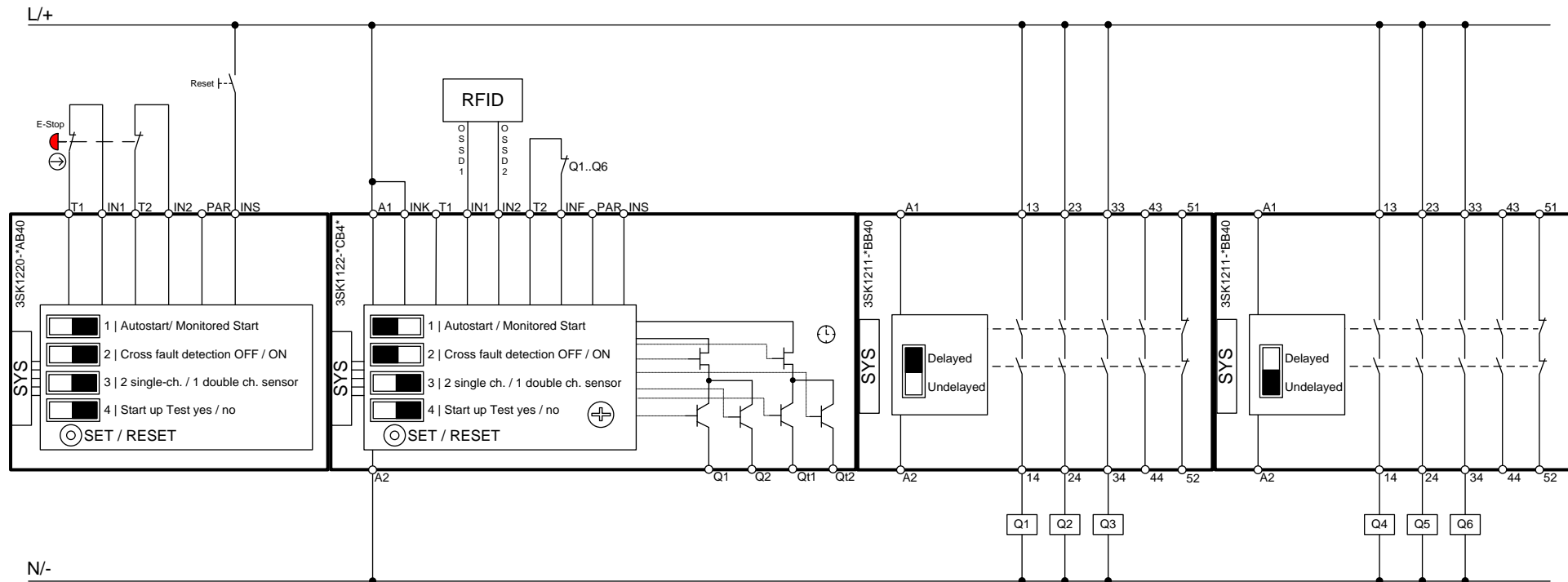
| Safety function  | Configuration   |
|--|---|
| Emergency stop and protective door monitoring with contact expansions<br><br>SIL 3 (IEC 62061)<br>PL e (ISO 13849-1)<br>Stop category 0 and 1 (EN 60204-1)<br>DC = 99% | Input expansion: <ul style="list-style-type: none"> <li>• monitored start</li> <li>• cross-circuit detection activated</li> <li>• 1x2 channel</li> <li>• (startup test deactivated)</li> </ul><br>Basic unit: <ul style="list-style-type: none"> <li>• automatic start</li> <li>• cross-circuit detection deactivated</li> <li>• 1x2 channel</li> <li>• (startup test deactivated)</li> </ul> |

**Wiring diagram 3TK28**



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**Wiring diagram 3SK1 Advanced**



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**Note** In order to connect an expansion module to an Advanced basic unit, an additional device connector is required. You will find the respective order number in chapter Device connectors on page 120.

## 4 Accessoires

### 4.1 Device connectors

| MLFB          | 3SK1  |
|---------------|---|
| 3ZY1212-1BA00 | Device connector set type 1 17,5 mm             |
| 3ZY1212-2BA00 | Device connector set type 1 22,5 mm             |
| 3ZY1212-2DA00 | Device terminating connector set type 1 22,5 mm |
| 3ZY1212-2EA00 | Device connector set type 2 22,5 mm             |
| 3ZY1212-2FA00 | Device terminating connector set type 2 22,5 mm |
| 3ZY1212-0FA01 | Device terminating connector set type 2 45 mm   |

Usage of device connectors:

- A device connector is always necessary when several devices are connected.
- A device terminating connector is always necessary for the last module on the right.

Device terminating connector set type 1:

- Underneath basic unit: the switch on the device terminating connector must be set to the lower position
- Underneath output expansion 3SK1211: the switch on the device terminating connector must set to the upper position.

For further information please refer to the device manual 3SK1:

<https://support.industry.siemens.com/cs/ww/en/view/67585885>

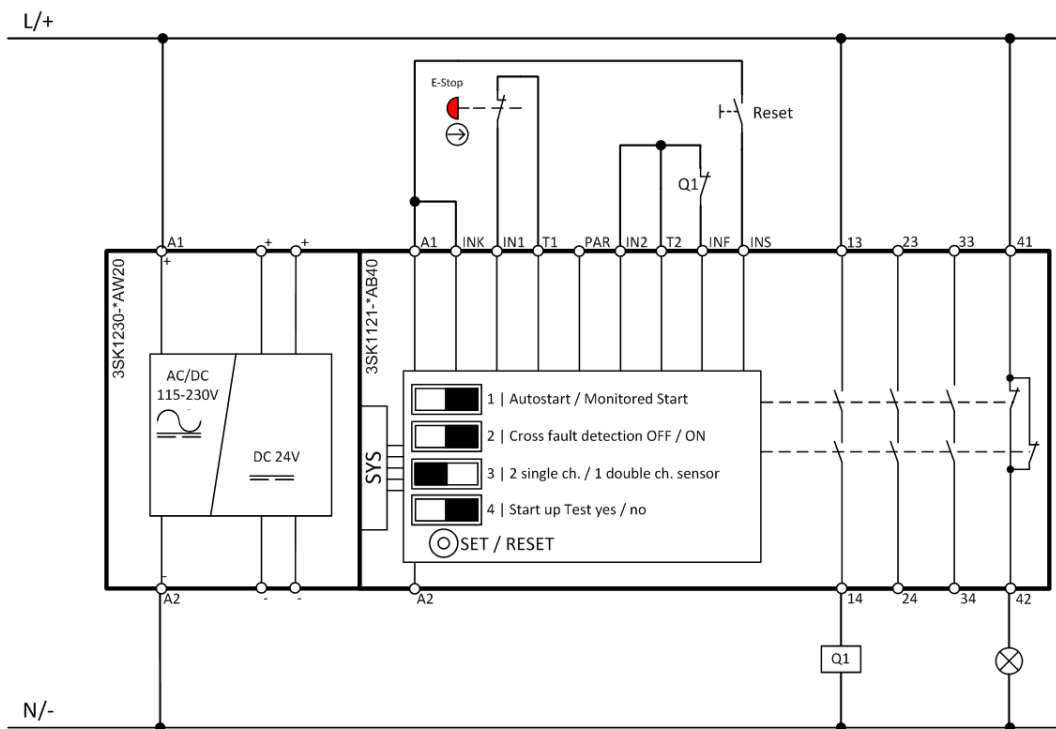
### 4.2 Power module

| MLFB          | 3SK1  |
|---------------|---|
| 3SK1230-1AW20 | Power supply AC/DC 110 ... 240 V (Screw-type) |
| 3SK1230-2AW20 | Power supply AC/DC 110 ... 240 V (Push-In)    |

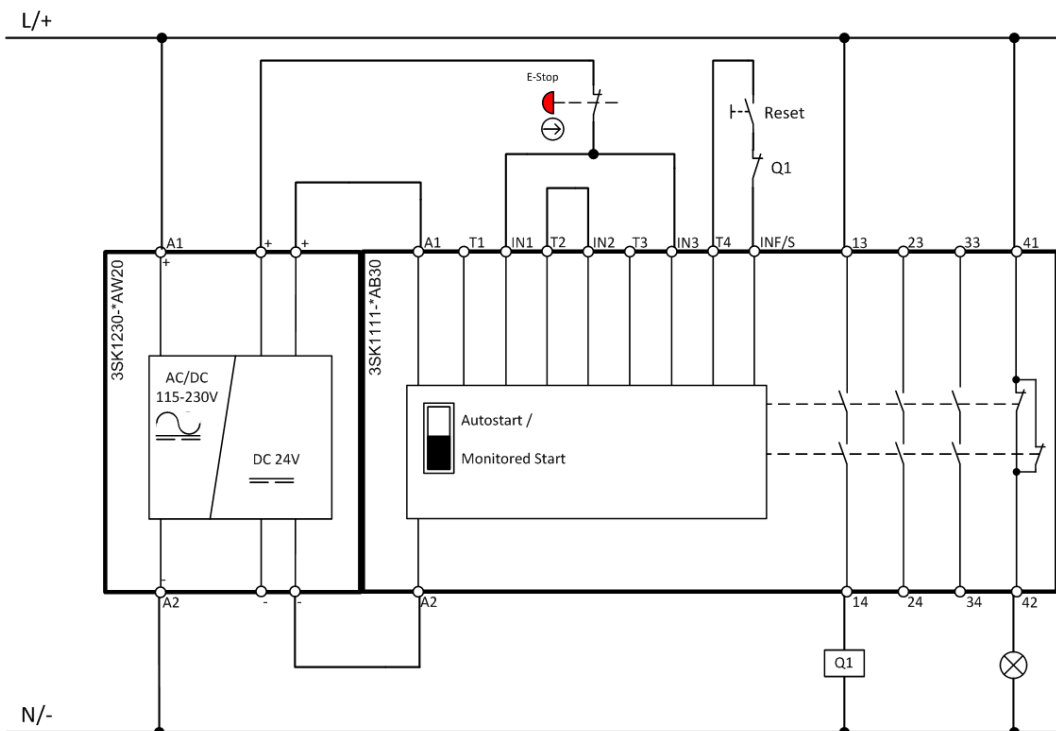
The 24 V power supply supplies up to six components with voltage – whether basic units, input or output expansions. It covers all conventional global control voltages from 110 to 240 V AC/DC. This facilitates the safety relays' international applicability.



**Example – Usage of 3SK1230 power supply via device connector**



**Example – Usage of 3SK1230 power supply via output terminals +/-**



For further information please refer to the device manual 3SK1:

<https://support.industry.siemens.com/cs/ww/en/view/67585885>

## 5 History

| Version | Date       | Release note   |
|---------|------------|--|
| V1.0    | 20.11.2012 | Initial release  |
| V1.1    | 02.04.2013 | Extension of table in chapters 2.10.2 and 2.13.2   |
| V1.2    | 23.04.2013 | Revision of wiring diagrams in chapters 2.11.1, 2.14.1 and 2.14.2  |
| V1.3    | 16.05.2013 | Revision of wiring diagram 3SK1 in chapter 3.3.3   |
| V1.4    | 25.10.2013 | Addition of safety relays 3TK2801 to 3TK2807<br>Revision of wiring diagram 3TK28 in chapter 3.3.3  |
| V1.5    | 10.12.2015 | Error correction   |
| V1.6    | 01.09.2016 | <ul style="list-style-type: none"> <li>• Format adaptation</li> <li>• Revision of wiring diagram 3TK28 in chapter 2.1.1</li> <li>• Additional chapter 2.8</li> <li>• Revision of wiring diagram 3TK28 in chapter 2.12.3</li> <li>• Additional content and corrections</li> </ul> |
| V1.7    | 01.10.2016 | Error correction   |

## 6 Contact/Support

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