



# STI-10

CE Approved: MD, EMC, LVD

## Category 3/4, EN 954-1

(Estimated category by 2-channel operation)

- 10 A contact load
- 3 NO contacts
- 1 NC contact
- Forced contacts
- Doubling of output contacts
- Monitored timer function
- Detachable terminals

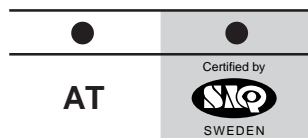
### Function:

STI-10 is designed for time dependent service- and control assignments. STI-10 is used in applications, where a timed override of a function or a conditional start is wanted. For example when it is necessary to override these devices for a short while, during an inspection of a working area, before start-up.

### Technical facilities regarding safety requirements:

- Forced contacts
- Doubling of output contacts
- Monitored timer function

### Approvals:



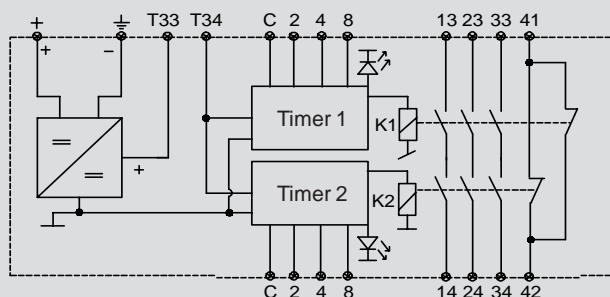
● Approved

### User's advantages:

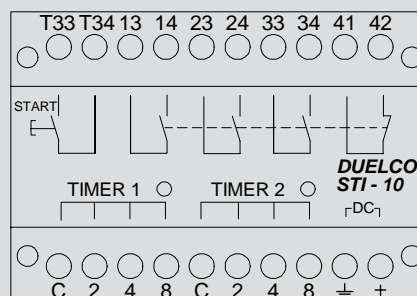
- Contact load: 10 A AC, 5 A DC
- Optional time delay
- 3 NO contacts
- 1 NC contact
- Can operate with all NST relays
- LED indication of timer status
- Detachable terminals
- DIN rail mounting
- Design is based on the European Standard, EN 60204-1
- Complies with MD, EMC, LVD (98/37/EC, 92/31/EEC and 73/23/EEC)

➔ Technical specifications and physical dimensions, see page 44-45

### Block diagram:



### Front layout:



### Terminal description:

- + : Power supply (+)
- ⊖ : Power supply (-)
- T33: Start output terminal
- T34: Start input terminal
- 13-14: NO safety output contact
- 23-24: NO safety output contact
- 33-34: NO safety output contact
- 41-42: NC signal output contact
- C, 2, 4, 8: Time delay programming
- C, 2, 4, 8: Time delay programming

### Order information

Article name	Article no.
STI-10, 24 V DC	42100124
STI-10, 24 V DC special	42110124

**Note:** A special version with a delay according to your needs can be delivered. Contact your local distributor or Duelco for further information.

## Description of operation and connection examples

If the DC supply voltage is connected to terminals plus (+) and earth (⏏), the monitoring circuit will activate. When the monitoring circuit has detected that the relays K1 and K2 are functioning correctly, the safety timer will be ready for use.

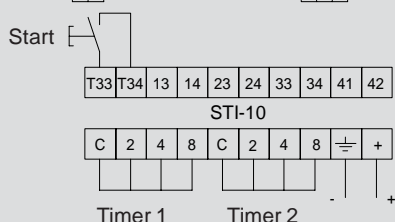
If the start contact between terminals T33-T34 is activated, timer 1 and timer 2 will start and the relays K1 and K2 activate, i.e. the contacts 13-14, 23-24 and 33-34 close and the contacts 41-42 opens. The LEDs at timer 1 and timer 2 illuminate.

After the set time has elapsed (chosen on terminals C, 2, 4 and 8 for timer 1 and timer 2 respectively), the relay will be deactivated again, (the LEDs for timer 1 and timer 2 will extinguish) and the monitoring circuit will be reset.

Due to the use of forced relays, any error in the NO/NC contacts or a permanently activated start contact, will be detected by the monitoring circuit. A new start is then impossible until the error has been corrected and the STI-10 has been reset.

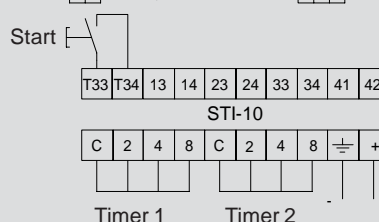
### 1 Description of the time setting

- |   |  |             |   |  |              |
|---|--|-------------|---|--|--------------|
| 1 |  | C. 0,5 sec. | 5 |  | C. 6,5 sec.  |
| 2 |  | C. 2,5 sec. | 6 |  | C. 10,5 sec. |
| 3 |  | C. 4,5 sec. | 7 |  | C. 12,5 sec. |
| 4 |  | C. 5,5 sec. | 8 |  | C. 14,5 sec. |

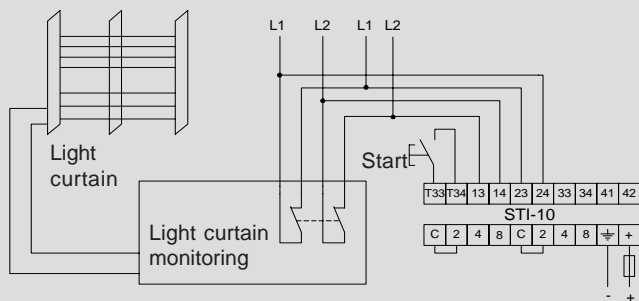


### 2 Description of the time setting, special version

- |   |  |             |   |  |             |
|---|--|-------------|---|--|-------------|
| 1 |  | C. 0,4 sec. | 5 |  | C. 1,7 sec. |
| 2 |  | C. 0,7 sec. | 6 |  | C. 2,0 sec. |
| 3 |  | C. 1,0 sec. | 7 |  | C. 2,3 sec. |
| 4 |  | C. 1,3 sec. | 8 |  | C. 2,7 sec. |



### 3 Cutting out

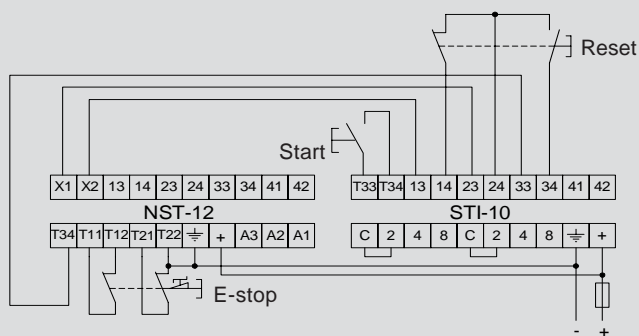


**Figure 3:**  
Time dependent access to a dangerous area

The safety timer STI-10 finds its use by the applications of robots which are screened by photo switches or sliding wire guards. The declutching of the present security device is at time necessary, if it demands service or programming of the robot. The security device is required cut out in the interval, where the operator passes the screening.

STI-10 must be connected parallel with the safety outputs which must be bypassed.

### 4 Conditional start



**Figure 4:**  
Conditional start of a machine

Before start-up of a machine application which is protected by a safety mat or a light curtain, it must be ensured, that nobody is present within the dangerous area. Due to the STI-10 module, the operator can push a button which is placed within the dangerous area and start a time delay. The operator must have left the dangerous area, closed the gate/door and pushed the button to reactivate the machine, before the time delay has run out (0,5 sec. - 14,5 sec.) or (0,4 sec. - 2,7 sec.).