Access to the control terminals

To access the control terminals, open the cover on the control front panel.

Removing the terminal card

To make it easier to wire the drive control section, the control terminal card can be removed.

- Undo the screw until the spring is fully extended
- Remove the card by sliding it downwards

**CAUTION**

**IMPROPERLY SECURED TERMINAL CARD**

When replacing the control terminal card, it is essential to fully tighten the captive screw.

Failure to follow this instruction can result in injury and/or equipment damage.

Arrangement of the control terminals

Note: The ATV61 is supplied with a link between the PWR and +24 terminals.
## Control terminals

### Characteristics and functions of the control terminals

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
<th>Electrical characteristics</th>
</tr>
</thead>
</table>
| R1A      | Common point C/O contact (R1C) of programmable relay R1 | • Minimum switching capacity: 3 mA for 24 V
| R1B      |                                      | • Maximum switching capacity on resistive load:
| R1C      |                                      | 5 A for 250 V ~ or 30 V
| R2A      | N/O contact of R2 programmable relay | • Maximum switching current on inductive load (cos $\varphi = 0.4 \frac{L}{R} = 7 \text{ ms}}$):
| R2C      |                                      | 2 A for 250 V ~ or 30 V
|          |                                      | • Reaction time: 7 ms ± 0.5 ms
|          |                                      | • Service life: 100,000 operations at max. switching power |
| +10      | +10 V $= 10.5 \pm 0.5 \text{ V}$ | • +10 V $= 10.5 \pm 0.5 \text{ V}$
|          |                                      | • 10 mA max. |
| AI1+     | Differential analog input AI1         | • -10 to +10 V $= 24 \text{ V}$
| AI1 -    |                                      | • Reaction time: 2 ms ± 0.5 ms, 11-bit resolution + 1 sign bit
|          |                                      | • Accuracy ± 0.6% for $\Delta \theta = 60^\circ \text{C (140^\circ \text{F)}}$, linearity ± 0.15% of max. value |
| COM      | Analog I/O common                     | 0V |
| AI2      | Depending on software configuration:  | • Analog input 0 to +10 V $= 24 \text{ V}$
|          |    Analog voltage input               | • Impedance 30 k$\Omega$
|          | or                                   | or
|          |    Analog current input              | • Analog input X - Y mA, X and Y being programmable from 0 to 20 mA
|          | or                                   | • Impedance 250 $\Omega$
|          |    Logic output                      | • Reaction time: 2 ms ± 0.5 ms
|          |                                      | • 11-bit resolution, accuracy ± 0.6% for $\Delta \theta = 60^\circ \text{C (140^\circ \text{F)}}$, linearity ± 0.15% of max. value |
| COM      | Analog I/O common                     | 0V |
| AO1      | Depending on software configuration:  | • Analog output 0 to +10 V $= 24 \text{ V}$
|          |    Analog voltage output              | • Load impedance greater than 50 k$\Omega$
|          | or                                   | or
|          |    Analog current output              | • Analog output X - Y mA, X and Y being programmable from 0 to 20 mA
|          | or                                   | • Max. load impedance 500 $\Omega$
|          |    Logic output                      | • 10-bit resolution, reaction time: 2 ms ± 0.5 ms
|          |                                      | • Accuracy ± 1% for $\Delta \theta = 60^\circ \text{C (140^\circ \text{F)}}$, linearity ± 0.2% of max. value
|          |                                      | or
|          |                                      | • Logic output: 0 to +10 V or 0 to 20 mA |
| LI1      | Programmable logic inputs            | 0V |
| LI2      |                                      | 0V |
| LI3      |                                      | 0V |
| LI4      |                                      | 0V |
| LI5      |                                      | 0V |
| LI6      | Depending on the position of switch  | Switch SW1
|          |    SW2:                              | State 0 | State 1 |
|          | - Programmable logic input           | < 5 V $\approx$ | > 11 V $\approx$
|          | or                                   | Source (factory setting)
|          | - Input for PTC probes               | Sink Int or Sink Ext $> 16$ $\approx$ | < 10 V $\approx$
| P24      | Input for external +24 V $\approx$   | Switch SW1 in Source or Sink Int position
|          |    control power supply              | • +24 V $= 24 \text{ V}$
|          |                                      | • Impedance 3.5 k$\Omega$
|          |                                      | • Reaction time: 2 ms ± 0.5 ms
|          |                                      | Switch SW1 in Sink Ext position
|          |                                      | • Input for external +24 V $= 24 \text{ V}$
|          |                                      | • Switch SW1
|          |                                      | • Power 30 Watts
| PWR      | Power Removal safety function input  | When PWR is not connected to the 24 V, the motor cannot be started (compliance with functional safety standard EN 954-1, ISO 13849-1 and IEC/EN 61508)
|          |                                      | • +24 V $= 24 \text{ V}$$
|          |                                      | • Impedance 1.5 k$\Omega$
|          |                                      | • State 0 if < 2 V, state 1 if > 17 V
|          |                                      | • Reaction time: 10 ms

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