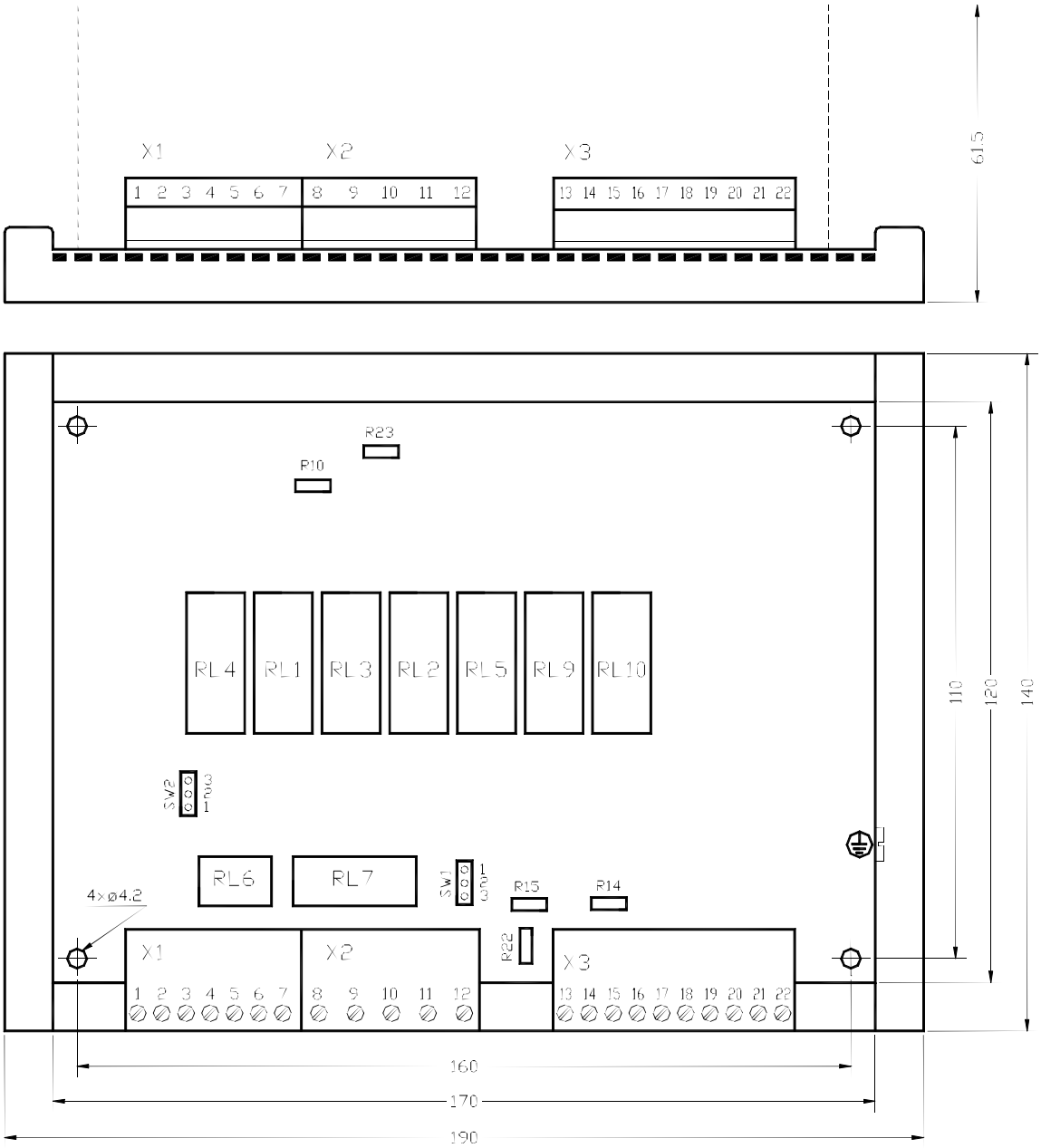
MANUAL

Change-Over Electronic

C-AU-12



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Version
0404-3

Content

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General Information

In the reversing operation of DC-Motors with a 1-Q-Thyristor-controller it must be assured, that the switching of the rotation direction takes place at a very low speed.

If the direction is changed at high speed the armature of the moter is shorted by the inverse diode and a very high current is running. This current can distroy the inverse diode or the switching contacts.

Often conventional relay circuits take not enough care of this switching criterion.

The change-over electronic C-AU-12 guarantees safe reversing operation with resistance braking up to a motor current of 12A.

The direction relay, the mains relay, the enable relay, the braking relay and the tachometer changing relay are switched by the logic.
The tachometer relay can be selected as a free switchable relay by jumpers.
The braking relay can be ordered in the versions “resistance braking” and “electric excited brake”.
The directions can be selected using buttons or switches.

Operation with buttons

Jumper S1 plugged, Jumper S2 unplugged.
The button operation requires two closing and one opening button.
The opening button is connected as stop-button to the clamps X1:3 and X1:5(GND). The direction selcting buttons are connected to the clamps X1:1 , X1:2 (direction +) and X1:4 (direction -).

When the direction+ button is pushed the mains relay, the enable relay and the direction relays operate and the drive accelerates to the selected speed. If now the direction- button is pushed the enable relay and the mains relay release and the braking relay operates. The motor decelerates.
As soon as an low speed is reached the braking relay and the direction+ relay release and the directions- relay, the enable relay and the mains relay operate. The drive accelerates in the negative direction.

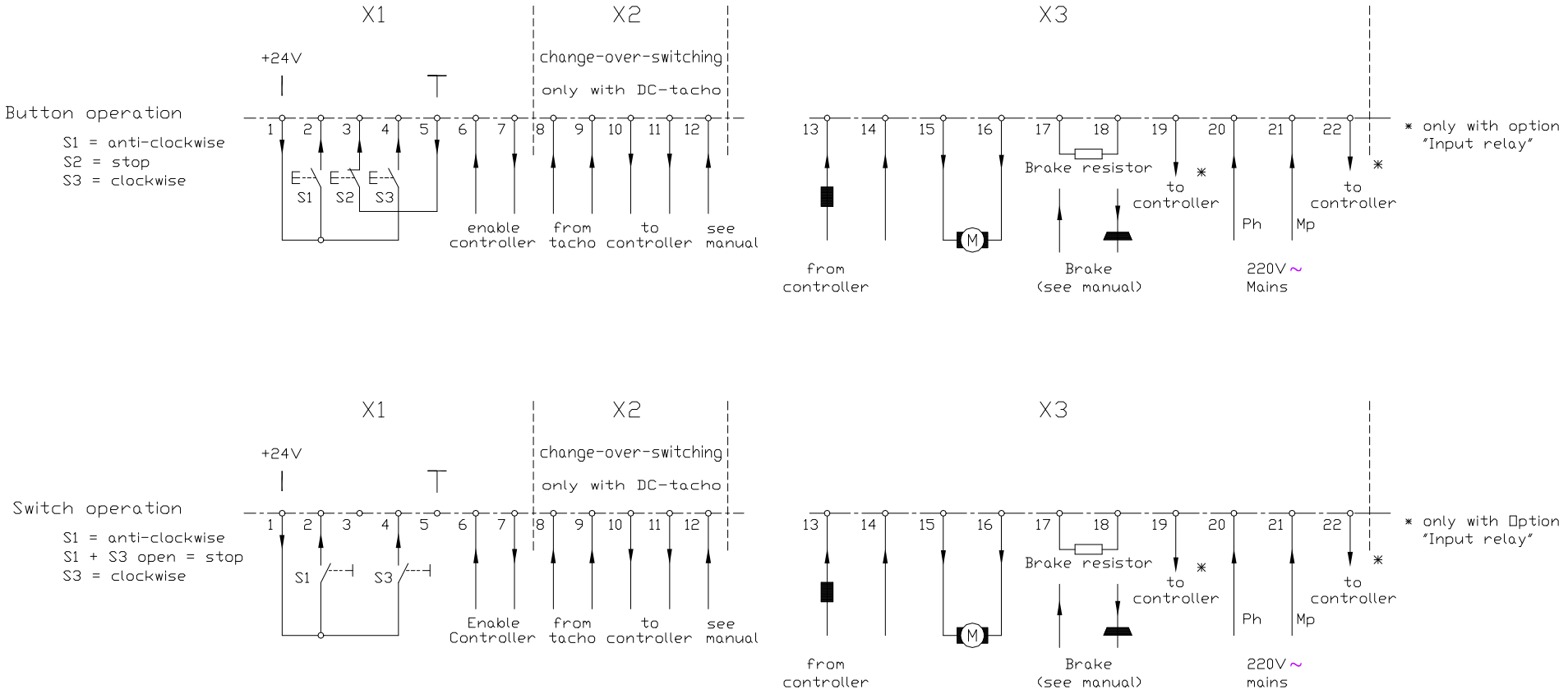
If the stop-button is pushed the functions are the same as by changing the direction, but when the motor stands still all relay release and the drive keeps standing.

Operating with switches

Jumper S2 plugged, S1 unplugged

For each direction a switch contact is contacted to clamp X1:1, X1:2 (+) and X1:4(-).
The stop-input X1:3 is not coated.

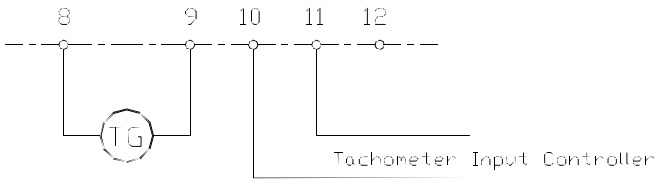
If the contact at X1:2 is closed the drive acelerates in positive direction.
If now the contact at X1:4 is closed and the contact at X1:2 is opened the drive decelerates to a low speed and switches over and acelerates in negetive direction.
If the contact at X1:4 is opened and the contact at X1:2 is not closed the drive decelerates until it stands still and keeps standing.
The relay switching is the same as operating with buttons.



Connection diagram

Tachometer switching

Using a DC-tachometer the tachometer voltage must be switched over with the rotation direction.
The jumpers SW1 and SW2 must be plugged in position 1-2 .



If there is no DC-Tacho used the relay 7 can be controlled externally with an 24V voltage connected to Input 2:12.
The jumpers SW1 and SW2 must be plugged in position 2-3.

Braking relay

The function of the braking relay can be set to resistance braking (standard) or to a free switch contact.
Using a braking resistor the bridges R14 and R15 are soldet in and R22 is open. The Resistor R23 in mounted and the resistor R10 is not.
If the braking relay is used to switch a voltage (to excite an electro- magnetic brake), so the bridge R22 is mounted and the bridges R14 and R15 are open. The resistor R10 and R23 determine the function of the relay.
If R10 is mounted, the relay operates with the direction relays and releayses while braking.If R23 is mounted the function is inverse.
Notice:
when using a motor with field winding the field supply must be connected during braking.

Mains relay

While standing still the drive is disconnected from the mains with relay RL9 and RL10. Selecting one of the direction relay the mains relay operate too.

Enable relay

Selecting the direction the relay contact between X1:6 and X1:7 is closed. Selecting the oposite direction the contact is released until standstill and operates with the switching of the direction relay.
Selecting stop the contact keeps released until a direction is chosen.

Guarantee

UNITEK guarantees that the device is free from material and production defects. Test results are recorded and archived with the serial number.

The guarantee time begins from the time the device is shipped, and lasts one year. Unitek undertakes no guarantee for devices which have been modified for special applications.

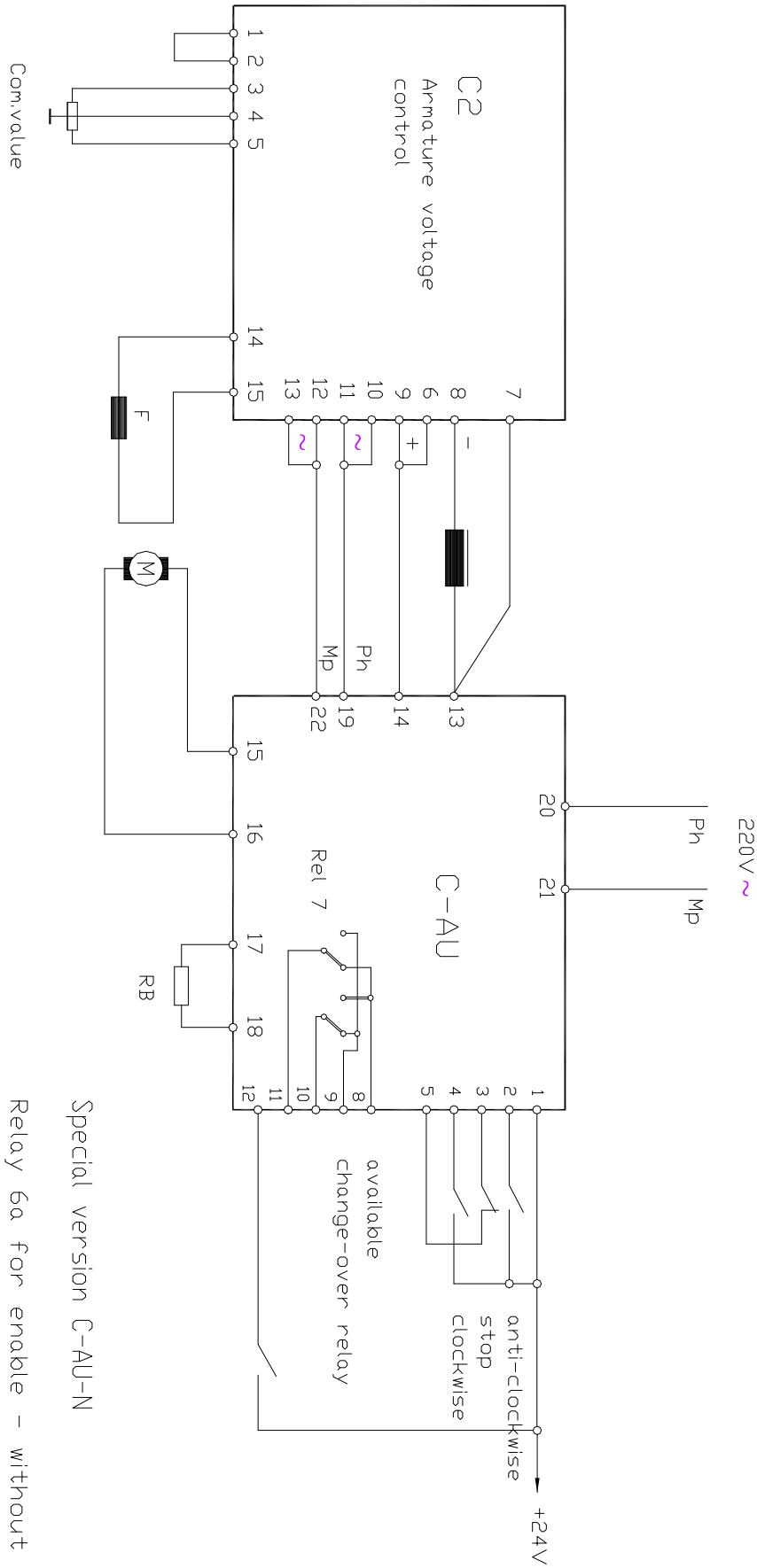
During the warranty period, UNITEK will, at its option, either repair or replace products that prove to be defective, this includes guaranteed functional attributes. UNITEK specifically disclaims the implied warranties or merchantability and fitness for a particular purpose. For warranty service or repair, this product must be returned to a service facility designated by UNITEK.
For products returned to UNITEK for warranty service, the Buyer shall prepay shipping charges to UNITEK and UNITEK shall pay shipping charges to return the product to the Buyer.
However, the Buyer shall pay all shipping charges, duties, and taxes for products returned to UNITEK from another country.
The foregoing warranty shall not apply to defects resulting from:

* improper or inadequate repairs effected by the Buyer or a third party,
* non-observance of the manual which is included in all consignments,
* non-observance of the electrical standards and regulations
* improper maintenance
* acts of nature

All further claims on transformation, diminution, and replacement of any kind of damage, especially damage, which does not affect the UNITEK device, cannot be considered. Follow-on damage within the machine or system, which may arise due to malfunction or defect in the device cannot be claimed.
This limitation does not affect the product liability laws as applied in the place of manufacture (i. e. Germany).

UNITEK reserves the right to change any information included in this MANUAL.
All connection circuitry described is meant for general information purposes and is not mandatory.
The local legal regulations, and those of the Standards Authorities have to be adhered to. UNITEK does not assume any liability, expressively or inherently, for the information contained in this MANUAL, for the functioning of the device or its suitability for any specific application.

Connecting plan



Special version C-AU-N

Relay 6a for enable - without function

Relay 7 free connect. >>> Input 8-12