ANTRIEBSTECHNIK
tae

TA-05/C 26V

Instruction and Operation Manual

Caution:

There is always a risk involved in the handling of electrical machinery!
Therefore mounting and maintenance should only be done by authorized personnel.

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http://www.tae-antriebstechnik.de TAE_BA TA-05C_26V_EN.PDF
The German text applies in cases of doubt

Read instructions for operation and adjustments carefully before operating of the drive control.

1. Technical data:

Measurements	refer to drawing page 7
Line Voltage	26VAC - 50/60Hz
Power	100W
Armature Voltage	22V
Armature Current	6 Ams max.
Ambient Temperature	0-40°C
Speed Accuracy	3% with armature feedback 1% with tachometer feedback

1.1 Equipment

❒ Semi-controled single phase bridge ❒ Inner loop current regulator
❒ Acceleration/Deceleration integrator ❒ Torque control

Note:

The electronic circuit is galvanically seperated from the line supply on units with a current-transformer for armature-current detection and tachometer control. If armature-voltage control is used the electronic circuit is at line potential.

2. Connection of unit: (refer also to connection diagram TA-05 C, page 6)

2dz - 6dz	Line supply refer to Type-Marking	26 V ac, 50/60Hz 2dz= Phase 6dz= MP
10dz - 14dz	Armature connection,	10dz = A+ 14dz = A-
28d - 26d	Drive release by relay contact. Jumper III "internal" refer to layout page 7	
26d - 12d	Drive release by SPS (free potential). Jumper III "external" refer to layout page 7	

24z	Reference value input without acceleration (positive) Input voltage 10 V dg, Input current approx. 1,0 mA at maximum speed. If input terminal 24z is used, the centre connected from terminal 28z and terminal 28z must be connected to common ground, e.g. terminal 20dz
24d - 22dz	DC-Tachometer input (22dz=T+ (common) / 24d=T-) Potentiometer P4 and R35 (refer to page 3 *Tachometer feedback control*) is used to adapt tachometer to circuit.
30z - 28z - 26z	Speed potentiometer. With this poterntiometer the speed of the motor is infinite variable from minimum to maximum speed. Potentiometer connections: start = 26z center = 28z end = 30z
30d	Current reference signal input
32d	Current reference signal output. For speed control terminals 30d and 32d must be jumpered.
32z	Terminal for connection of TAE blocking protection B-200 (Nr.20003 F) or B202 (Nr. 20163 F)

3. Adjustments

Minimum speed	**P1**	Adjustment of minimum speed during operation. (set potentiometer fully counter clockwise)
Deceleration rate.		5 seconds
Acceleration rate		5 seconds
Current limit		6 A

4. Indicators

The following functions are indicated with LED´s:

LED 1, green	Line Supply
LED 2, clear	Thyristor triggering
LED 3, yellow	Drive release
LED 4, red	Current limit, Over-speed

E-TA056C.PM4 PT Stand 10.1.02

5. Functional tests and adjustments before operation

Caution !
Do not use any mega-ohm-meter, Buzzer or similar test instrument !
Measuring instruments must be galvanically seperated from line voltage.

○ Armature-voltage control (UA-control)

1) Check all connections with an Ohmmeter for short circuits to ground.

2) Check line supply voltage with reference to the Type Marking

3) Set jumpers I, II, III (refer to lay-out at page 7)

4) Potentiometer P1 Minimum speed, set fully counter clockwise.

5) Switch on line voltage. The green LED 1 must now light up.

6) With a Multimeter (moving coil instrument, min 333 Ohm/V)
Measure potentiometer voltage between terminals 30z - 26z -(10V). If the potentiometer is turned clockwise the armature voltage (motor speed) will increase.
Set potentiometer P4 (max. speed) fully clockwise and adjust the armature voltage (motor speed) for the requested maximum speed.
Set speed potentiometer fully counter clockwise (output voltage must now return to 0 V) and adjust P1 (min. speed) for the requested minimum speed.

○ Tachometer feedback control

1) Check all connections with an Ohmmeter for grounds.

2) Install jumpers I, II, III according to lay-out drawing at page 7.

3) It might be necessary to adapt resistor R35 to the tachometer.
The calculation of R35 is as follows :

$$R35 = \frac{\text{tachometer voltage by nominal speed (volts)}}{0{,}001A} - 30000\ \text{Ohm}$$

4) For all further adjustments refer to the adjustments as previously described for the armature feedback control.

6. Trouble shooting

For fast and effective troubleshooting and for the location of defective componets proceed as follows :

Check drive for:
a) Intermittent or loose connections
b) Defective insulation of connecting leads
c) Defective motor (brushes etc.)

CAUTION !
The adjustment must be performed within 10 sec, do not use any megohm-meter, buzzer, or similar test instruments. Test instruments must be galvanically separated from the linesupply. The electronic circuit may carry a potential against ground !

○ Fault location

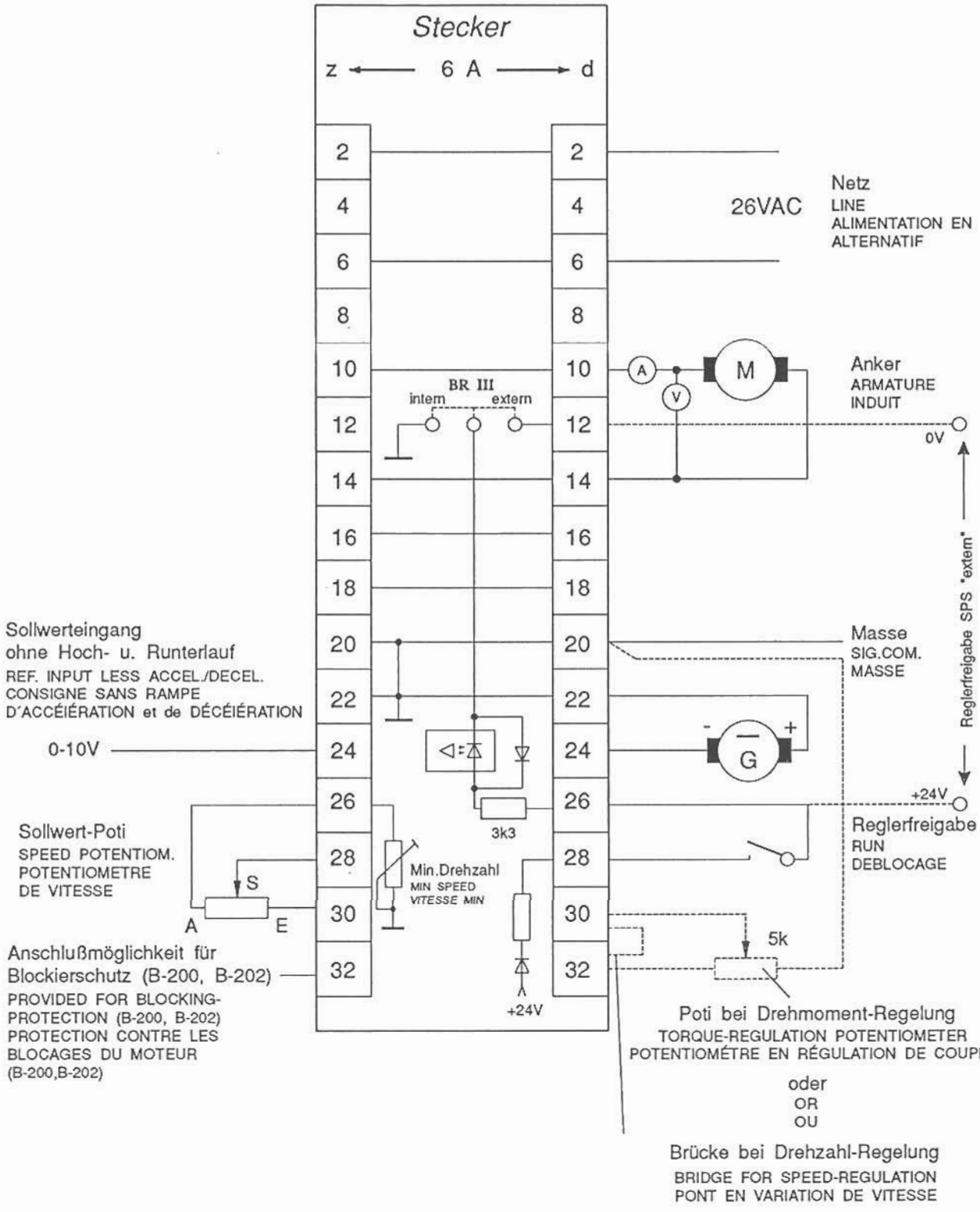
Sympton	Possible causes
Yellow LED 3 does not light up.	a) Check supply connections (Drive-release, Terminals 26c-28c) b) Control voltage + 24V missing, check supply, LED 1 does not light up.
Output voltage does not increase when speedcontrol is turned up.	a) Motor load is too high. Drive operates at current limit. LED 4 current limit lights up. b) Defective Speed potentiometer.
Drive runs unstable	a) Defective tachometer or tachometer leads. b) Wrong connection of auxiliary motor winding. c) Defective Thyristor bridge.
Speed varies without change of setting of speed control.	a) Current limit is set too low, LED 4 (current limit) lights up. b) Motor is overloaded (mechanical defect), LED 4 current limit, lights up.

E-TA056C.PM4 PT Stand 10.1.02

Sympton	Possible causes
Speed varies without change of setting of speed potentiometer	c) Defective supply (+/- 15V) for electronic circuit. d) Defective Thyristor or Thyristor bridge. e) Defective tachometer or tachometer leads. f) Defective speed potentiometer.
Main fuse blows	a) Shorted or grounded armature or field connections. b) Defective motor or armature
Drive does not run	a) Defective power supply b) Check relays and relay connections (drive release) c) Defective speed potentiometer d) Check motor and brushes e) Defective fuse F1 (10A FF)
Drive runs after control release at maximum speed however speed control is set for zero speed	a) Intermittent potentiometer P1 (Minimum speed) b) Defective speed potentiometer or connection from terminal 26z to potentiometer
Drive runs after control release at maximum speed without keeping reference speed	a) Tachometer connectons intermittent, defective tachometer, or wrong polarity b) Defective potentiometer P4 (max. speed) c) Check armature connections.
Motor starts without drive release when connected to line supply	a) Grounded armature wiring b) Defective Thyristor bridge.

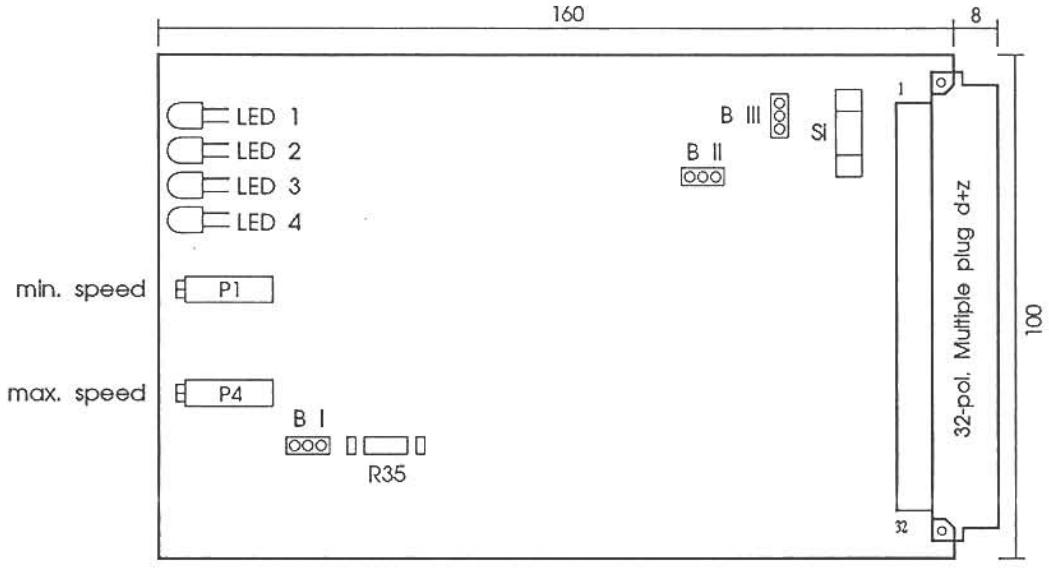
This concludes the preliminary preparations and adjustments of the Thyristor Drive Control TA-05 C.

Connection diagram



E-TA056C.PM4 PT Stand 10.1.02

Layout



armature-feedback	BR I	BR II	RUN	external BR III	internal BR III
tachometer-feedback	BR I	BR II			

Mounting template