R&R RR-P-508 / ST106 motor-control unit

housing	aluminum anodized
w x h x d	approx. 124 x 84 x 38 mm
	housing similar to ST102 drawing DNR17406
weight	approx. 200 g
application	motor desk control unit
	2 keys for movement
	end position shut down by transducer
	potentiometer or digital input
	end positions defined by pre-set potentiometers
power supply	28V (20V..34V) fuse 10AT

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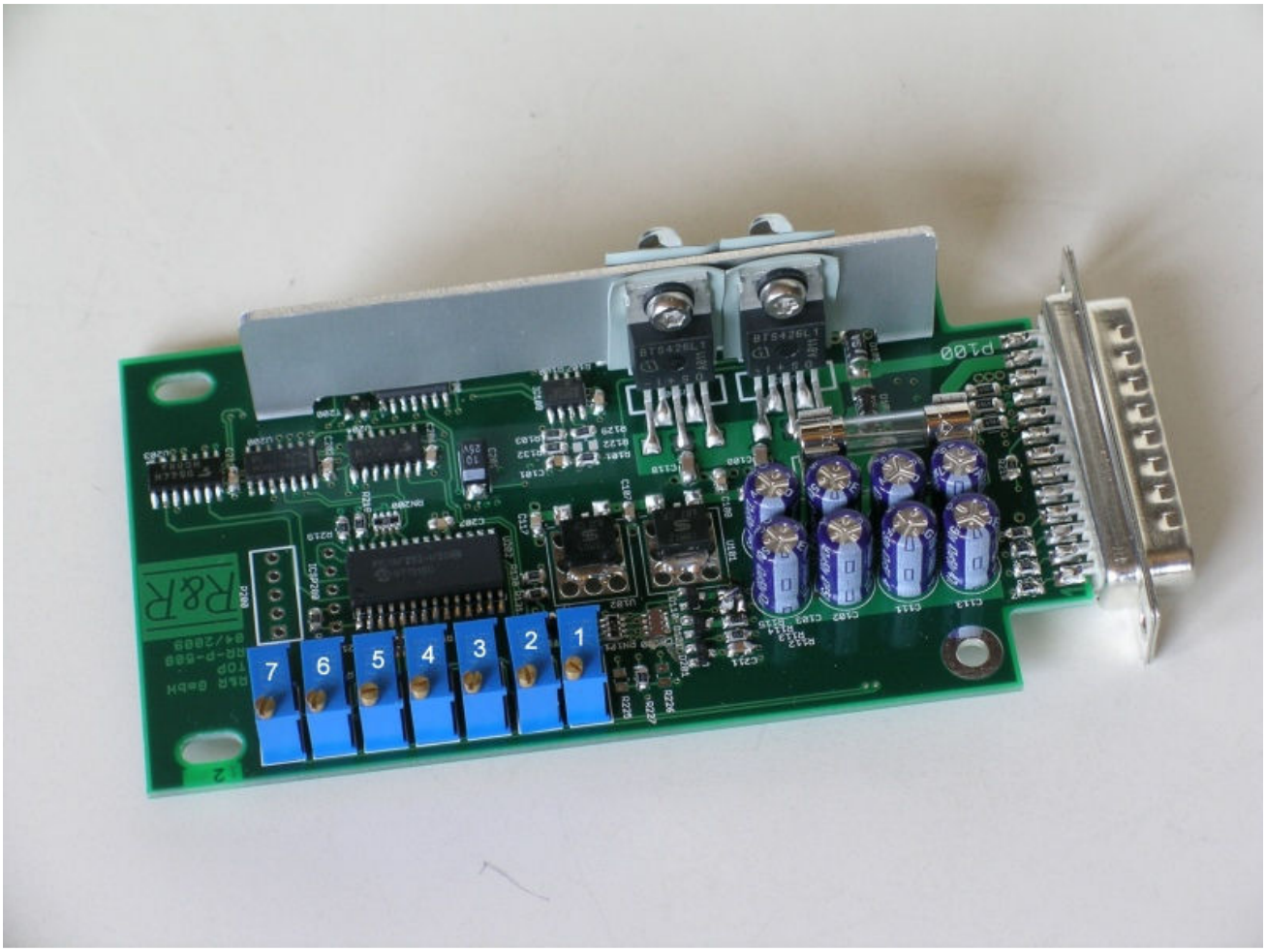
PCB RR-P-508



RR-P-508 potentiometer position RR-P-508 ST106

potentiometer	description
1	Position A
2	Position B
3	Delay
4	shut down current B
5	shut down current A
6	Speed B
7	Speed A

For example A = table up position, B = table down position.

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Pin assignment

25pol.Sub-D male plug

pin	signal	Description
1	Speed A	0...5V → pwm 0..100%
14	Speed B	0...5V → pwm 0..100%
2	Current-A	test-point 0..5 volts ➔ 0..7 ampere
15	Current-B	test-point 0..5 volts ➔ 0..7 ampere
3	Delay	test-point 0..5 volts ➔ 0..0.5 seconds
16	Position-B	test-point 0..5 volts
4	Position-A	test-point 0..5 volts
17	0V	reference for test-points / don't connect to power-ground
5	-	not connected / for future extensions
18	-	not connected / for future extensions
6	-	not connected / for future extensions
19	-	not connected / for future extensions
7	-	not connected / for future extensions
20	+5 volts	poti / reference for analogue-input
8	Wiper	poti / analogue input
21	0V	poti / reference for analogue-input / don't connect to power-ground
9	Key-B	digital – input / switch NO
22	Key-A	digital – input / switch NO
10	Stop-B	digital – input / switch NC
23	Stop-A	digital – input / switch NC
11	over-temp	digital – input / switch NC
24	0V-power	power-supply-ground / reference for digital inputs
12	+28V-DC	power-supply-input
25	+Direction-B	power-output / positive if motor runs in direction B
13	+Direction-A	power-output / positive if motor runs in direction A

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signal	type	description
over-temp	digital – input / switch NC	If this input is logical high or open, the motor is turned off
stop-B	digital – input / switch NC	If this input is logical high or open the motor does not run into direction B
stop-A	digital – input / switch NC	If this input is logical high or open, the motor does not run into direction A
key-A	digital – input / switch NO	If this signal changes from high to low the motor starts running into direction A until the key is released. The motor will stop also when: - stop-A input is high or - position-A is reached *1 The key-B is blocked (2 key lock out)
key-B	digital – input / switch NO	If this signal changes from high to low the motor starts running in direction B until the key is released. The motor will stop also when: - stop-B input is high - or position-B is reached *1 Key-A is blocked (2 key lock out)
Wiper	analogue input	Input for position-sensor(potentiometer) The analogue input is specified for an input voltage range from 0 volts to 5 volts Attention! Take care about the direction: Moving in direction A = rising voltage *1
+28V-DC 0V-power	power-supply-input power-supply-ground	power-supply inputs
+direction-A +direction-B	power-outputs	DC motor

*1 To disable the position sensing connect the wiper to 0V (PIN21)

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digital inputs

V_{low}	input < 8 volts	0
	8V < input < 16 V	undefined
V_{high}	input > 16 volts	1

All digital inputs have an internal pull up-resistor of 4.7 kΩ connected to +28V-DC
The reference point for the digital inputs is 0V-power (Pin 24 of the connector)

analogue input

The analogue input is specified for an input voltage range from 0 volts up to 5 volts
Connect the potentiometer to the pins 20, 8 and 21.
Potentiometer value 1 kΩ up to 22 kΩ
Attention!
Take care about the direction:
Moving in direction A = rising voltage
Position sensing is disabled if the wiper voltage is lower as 0.1V !

The minimum change rate of the analogue input is 60 mV/s.
If the change rate is lower as 60 mV/s the controller/motor stops.
The measuring interval is 250 ms
Delay after start is 750 ms.

power output

maximum continue current 7A (low side switch) adjustable thresholds and delay
current limitation 11A (short time) (high side switch)
current limitation 10A by fuse

security

Motor current limiter and delay are done by hardware.
The change rate monitoring is done by software

If an error (over current, change rate) occurres
the motor is running for 3 second in the reverse direction.

Appendix
ST106 Drawing DNR 18747

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