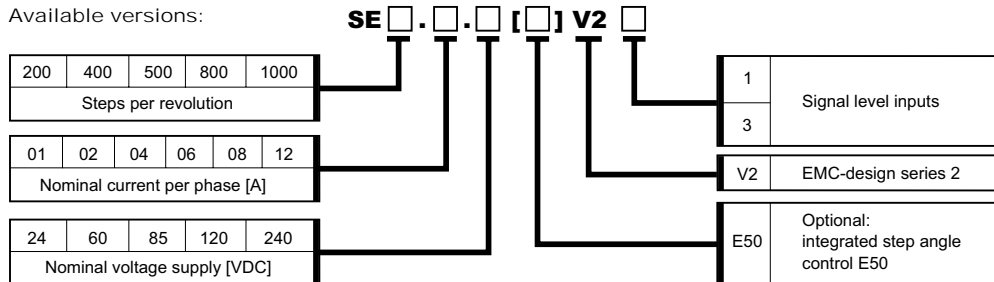


All inputs not used may stay not connected - it is not necessary to connect them to an external potential!

Available versions:



Stepper motor power amplifier board series SE ...V21 / SE...V23

- Bipolar 2-Phases-stepper motor power amplifier
- Compatible with STÖGRA / Zebotronics standard units SE ... (e.g. SE 400.06.85) , SE ... B... and SE ...V11 / SE...V13
- Protected against short circuit, over temperature and under voltage
- Via DIP-switch selectable step resolutions: 200, 400 , 500 , 800 and 1000 steps per revolution
- Via DIP-switch selectable input signal levels High-active TTL or High-active PLC or Low-active
- For version SE... E50.. with encoder input for control of load angle (at connection of a stepper motor with encoder E50)

Dimensions SE... V2.

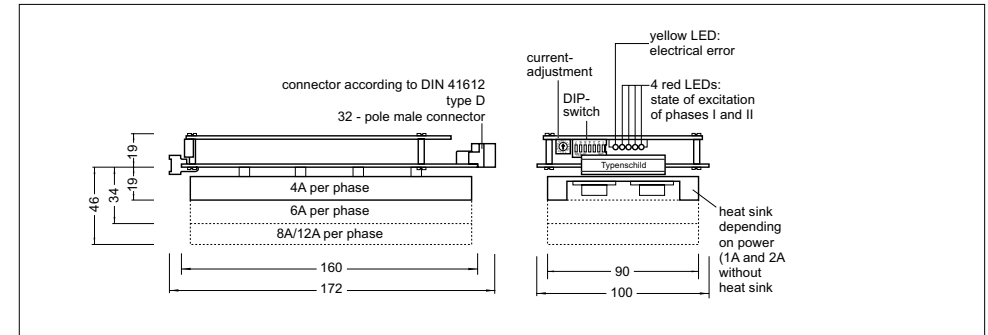


figure1: dimensions SE... V2.

Dimensions SE...E50 V2.

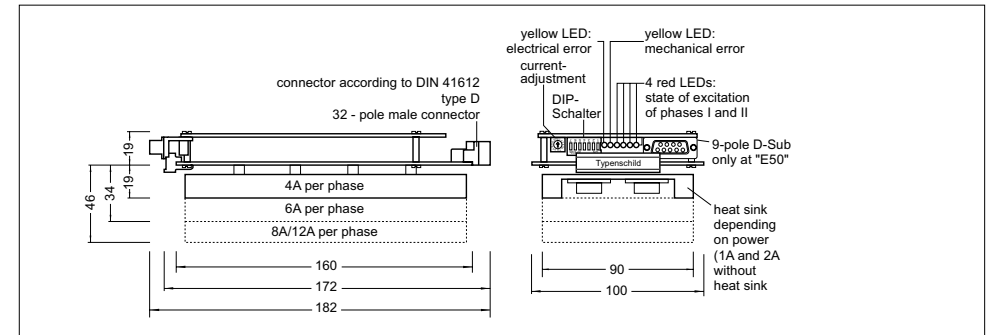


figure 2: dimensions SE..E50 V2.

Adjustements via solder bridges

marker	notes	standard adjustment
16	open: Chopper frequency 11 KHZ closed: Chopper frequency 16 KHZ	open
12A	internal function (do not change!)	12A board closed, else open
M	open: enable output of a mechanical error closed: disable output of a mechanical error	E50 board open, else closed
F	internal function (do not change!)	closed
H	internal function (do not change!)	open

Selection of step resolution

X = switch in ON-position

W2	W1	W0	steps/rev.
			800
		X	400
	X		1000
	X	X	500
X			400 ¹⁾
X		X	200
X	X		not valid
X	X	X	not valid

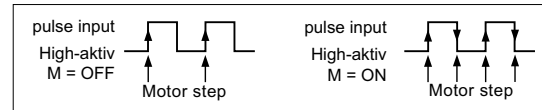
¹⁾ higher torque at low motor speed

Automatical phase current reduction (switch »R«)

If switch »R« = OFF, then the phasen current will be reduced by 50% at motor stand still. The first coming pulse at the pulse input will rise the phase current to 100% again. In case of an active reset signal the current reduction will not be activated.

M-funktion / double step (switch »M«)

If switch »M« = ON, then each signal edge tat the pulse input will execute one motor step (the rising edge and the falling edge will execute one motor step each)



Adjustement of phase current

Ex work the power amplifier board is set to its nominal current. The phase current must be adjusted depending on the connected stepper motor. The adjustment is done via the rotative switch at the boards frontside according to below table. The values in the table correspond to the bipolar phase current of the motors.

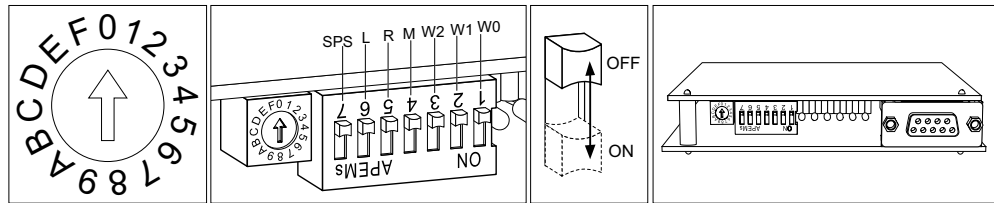


figure.3: phase current adjustment and selections via DIP-switch

Phase current [A]	position of switch															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
nominal current / type																
1 A/Ph. SE ...01...	0,00	0,09	0,19	0,28	0,37	0,47	0,56	0,65	0,75	0,84	0,93	1,03	1,12	1,21	1,31	1,40
2 A/Ph. SE ...02...	0,00	0,18	0,38	0,56	0,74	0,94	1,12	1,30	1,49	1,68	1,86	2,06	2,24	2,42	2,62	2,80
4 A/Ph. SE ...04...	0,00	0,36	0,76	1,12	1,48	1,88	2,24	2,60	2,98	3,36	3,72	4,12	4,48	4,84	5,24	5,60
6 A/Ph. SE ...06...	0,00	0,56	1,12	1,68	2,24	2,80	3,36	3,92	4,48	5,04	5,60	6,16	6,72	7,28	7,84	8,40
8 A/Ph. SE ...08...	0,00	0,84	1,68	2,52	3,36	4,20	5,04	5,88	6,72	7,56	8,40	9,24	10,1	10,9	11,8	12,6
12 A/Ph. SE ...12...	0,00	0,96	1,92	2,88	3,84	4,80	5,76	6,72	7,68	8,64	9,60	11,5	12,5	13,4	14,4	

Input signals - selection of signal level

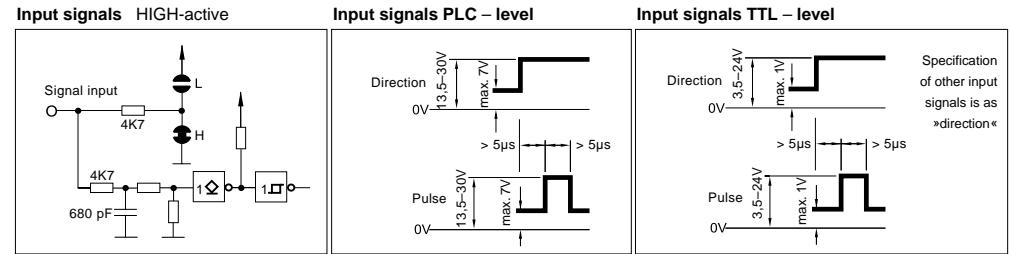
switch position	L = OFF and SPS = OFF	L = ON and SPS = OFF	L = OFF and SPS = ON	L = ON and SPS = ON
signal level	High-active TTL-level	Low-active	High-active PLC-level	not valid

Input signals

- Boost:** Rising of phase current by 20%
- Disable:** Disables motor phases - shuts down phase current
- Reset:** Drive in reset position – phase zero, pulse signals are disabled, ready signal is reset
- Direction:** Control of motor direction
- Pulse:** Each pulse executes one motor step
- Step angle:** Switches step resolution from 1000 to 500 or 800 to 400 or 400 to 200 steps/revolution
The signal is always Low-Active and will work only at switch W0 in OFF-position
- Ready signal:** (see fig. 5 and 6) an **electrcal error** (under voltage, short circuit or over temperature) respective **error mechanical** (only for SE...E50..) inverts the signal. In non-error condition the relay contact is closed.

Inputs

Rise time max.: 1µs , Fallzeit max.: 1ms , frequency pulse max. 45 KHz



Output - ready signal

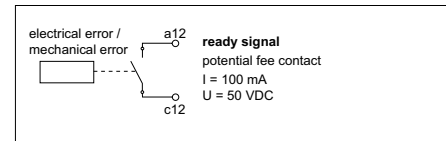


figure 5: output - ready signal

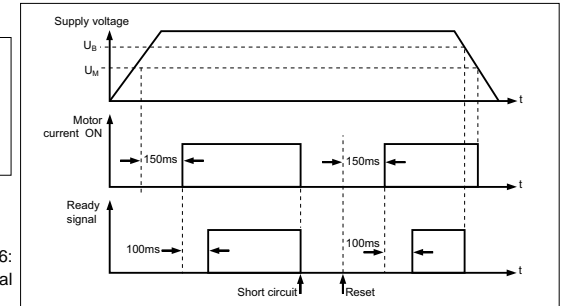


figure 6: timing ready signal

Voltage supply

Maximum allowed voltage supply: Nominal voltage of power amplifier board plus 15% (mains tolerances!)

The nominal output voltage of the power supply (= voltage supply of the power amplifier board) may not be higher than the nominal voltage of the power amplifier board.

E.g. sizing of a power supply for a SE 800.06.120 V13:

Output voltage power supply = 120 VDC (but **not (!)** 138 VDC = 120 VDC + 15%)

Operating range - voltage supply (see also reday signal figure 6)

(Nominal-) voltage supply		
Power amplifier board [VDC]	U _B [VDC]	U _M [VDC]
24	18	16
60	43	32
85	43	32
120	50	38
240	120	100

U_B and U_M +/- 5%

Specifications

Protection of the device Protection class IP 00 Protected against short circuit, over temperature and under voltage	Noise imunity in case of correct installation : according to EN50082-2: – at selected TTL-signal level the inputs are not imune against fast transients (burst)
Weight Version SE 01... SE 02... SE 04... SE 06... SE 08... SE 12... weight 0,2 Kg 0,2 Kg 0,52 Kg 0,77 Kg 1,1 Kg 1,1 Kg	Noise radiation in case of correct installation and shielding and / or filtering the lines and signals, according to EN55011 class B
Ambient conditions Ambient temperature: 0°C to 50°C Max. heat sink temperature: 85°C Forced draft: for adjusted phase currents from aproximately 8A/phase	