Variateur pas à pas WSE...230AC V01

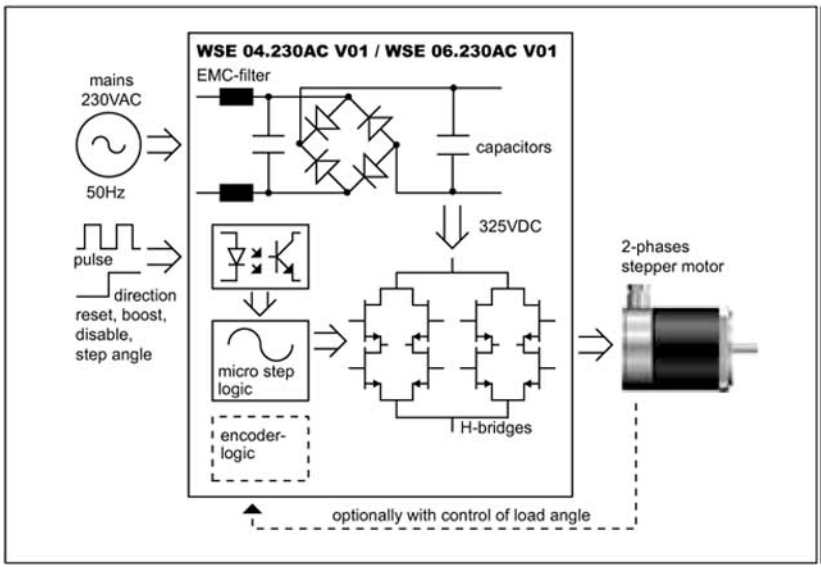
STÖGRA

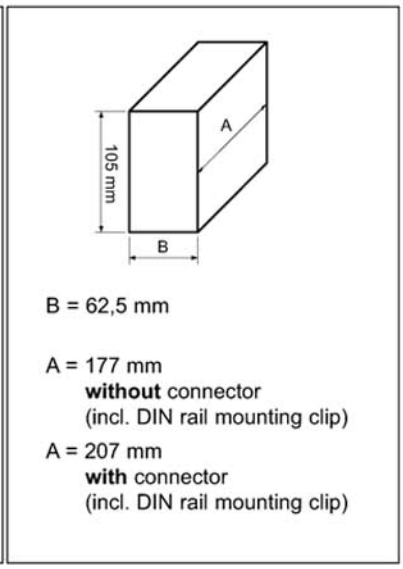
www.rosier.fr

General description

- Maximum power in smallest housing
- Compact metal housing also for small switch cabinets – available versions for DIN rail mounting and panel mounting
- Power amplifier with extremely low dissipation due to newest MOSFET-technology
- Cost effective system due to connection direct to the line (without isolated transformer) → 325VDC motor voltage
- Optimal with **STÖGRA** motor series SM 87, SM 88 and SM 107
  (with new internal winding design suitable for 325VDC operation)
- The motor power at 2A and 325VDC is comparable with 8A / 80VDC at standard DC-supplied motor / amplifier systems, 4A and 325VDC compares to 12A / 110VDC, and 6A and 325VDC compares to 12A / 160 VDC at standard systems
- Via DIP-switch selectable are different step angles from 200 to 12800 steps/revolution
  → micro stepping for true and smooth running of the motor
- Via DIP-switch adjustable phase current characterisics (2 different curves – sinus and damped sinus)
- Phase current adjustable via rotational switch from 0 to 4A / phase – at version WSE 06.230AC V01 from 0 to 6A / phase
- Easy connections via screw terminals and spring terminals at the front side for motor, mains and control signals
- Electronic protection against short circuit (motor and power amplifier), over temperature (power amplifier) and under voltage
- Output ready signal via relay contacts
- All input signals (pulse, direction, reset, boost, disable, switch step angle) are galvanically isolated via opto-couplers

Photos WSE 04.230AC V01:
– with connector,
– without connector,
– rear view with hut rail mounting clip





B = 62,5 mm

A = 177 mm
without connector
(incl. DIN rail mounting clip)

A = 207 mm
with connector
(incl. DIN rail mounting clip)

Stepper Motor specifications

Due to the internal motor voltage of 325VDC, all stepper motors operated with a WSE xx.230AC V01 power amplifier must include a sufficient insulation strength (motor winding insultation test voltage 2000VAC – 1s – according to VDE0530-1).
STÖGRA stepper motors series SM 87, SM 88 and SM 107 with production date beginning from 2004 are motors with suitable insulation strength.

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MOTORISATION AXES LINÉAIRES COMMANDES D'AXES

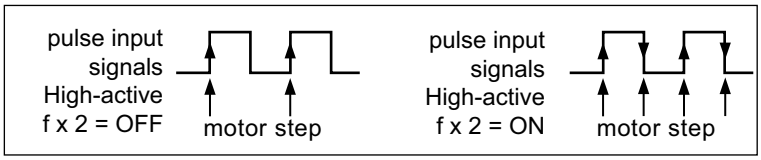
Selection of step angle / resolution

Different step angles can be selected via the switches C0, C1, C2 and C3. With the input »angle« the step angle can be switched externally between two values (works only if switch »W« is open!).
During motion, switching the step angle is possible within the motor start-stop-frequency (when changing simultaneously the pulse frequency and step angle – at any frequency).

steps / revolution resolution externally switchable via the input »angle«		**DIP-switch 3 to 6 for selection of steps / revolution** X = ON, else = OFF				
input not active	**input active**	**C0 (switch 3)**	**C1 (switch 4)**	**C2 (switch 5)**	**C3 (switch 6)**	
200	200	X	X	X	X	for other step angles / resolutions please contact us
400	200	X	X	X		
500	500	X	X		X	
800	400	X	X			
1000	500	X		X	X	
1600	400	X		X		
2000	400	X			X	
2500	500	X				
3200	800		X	X	X	
4000	400		X	X		
5000	500		X		X	
6400	400		X			
8000	500			X	X	
10000	400			X		
10000	1000				X	
12800	800					

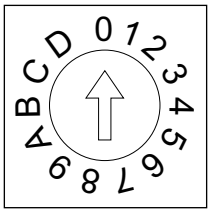
Double pulse (switch 7 »f x 2«)

If the switch 7 (f x 2) is ON, then each signal edge at the pulse input will result in the execution of a motor set (rising edges and fallinge edges will execute motor steps)



Automatical phase current reduction (switch 8 »R/2«)

If the switch 8 (R/2) is ON, then the phase current at motor standstill will be reduced by 50%. The first coming pusle will rise the phase current again to 100%. If a signal is active at the reset input, then the current reduction will not be activated.



Phase current adjustment

Ex factory the power amplifier is set to 2A (WSE 04...) and 3A (WSE 06...). The phase current must be set to the bipolar phase current of the connected stepper motor. The adjustment is done via the rotational switch at the front side of the WSE according to below table. The table value corresponds to the bipolar phase current of the motor.

type / switch position	0	1	2	3	4	5	6	7	**8**	9	A	B	C	D	E	F
4 A/Ph. SE ...**04**...	0,00	0,27	0,53	0,8	1,07	1,33	1,6	1, 87	**2,13**	2,4	2,67	2,93	3,2	3,47	3,73	4
6 A/Ph. SE ...**06**...	0,00	0,4	0,8	1,2	1,6	2	2,4	2,8	**3,2**	3,6	4	4,4	4,8	5,2	5,6	6

Input- / Output signals description

Boost: phase current is increased by 20%

Disable: phase current in the motor phases will be shut off

Reset: Drive errors are reset, drive in reset position (phase zero), pulse signals are disabled

Dir: Control of motor direction

Clk: Each pulse executes one motor step

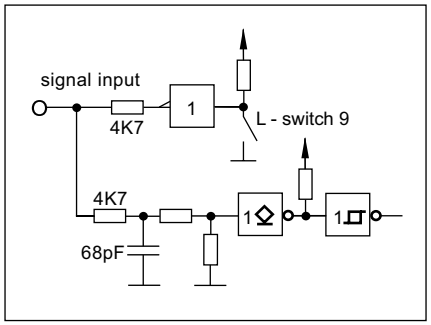
Angle: The step resolution will be changed – see step angle / resolution table above

Ready signal: An **electrical error** (under voltage, short circuit or over temperature) or a **mechanical error** (only E50 versions) will open the relay contact. Other wise the relay contact is closed (ready for operation)

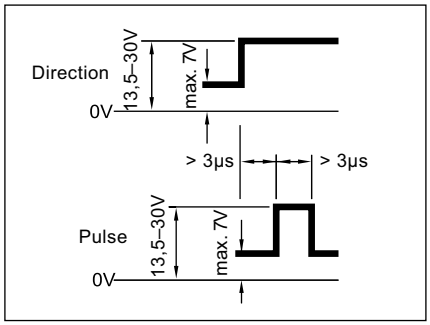
Input signals

Signal rise time max.: 1µs, signal fall time max.: 1µs, frequency pulse max.: 200 KHz

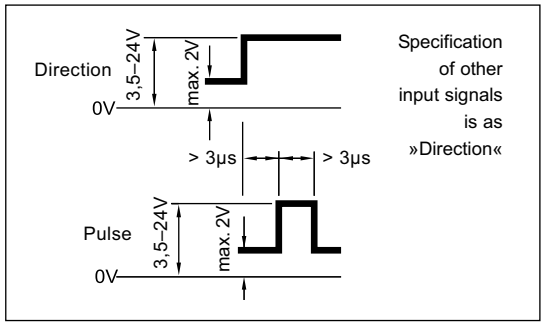
input signals HIGH-active



input signals SPS – level



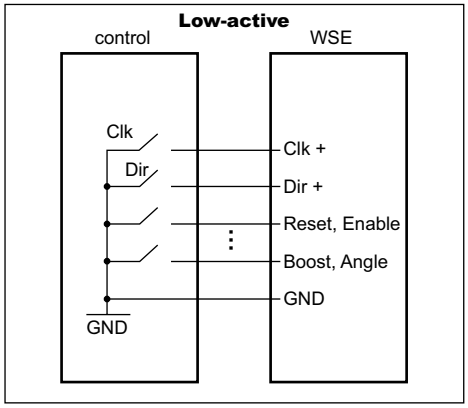
input signals TTL – level

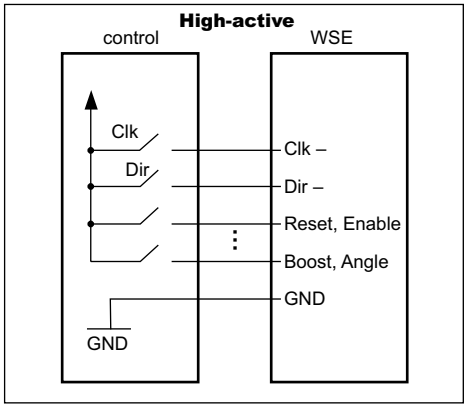


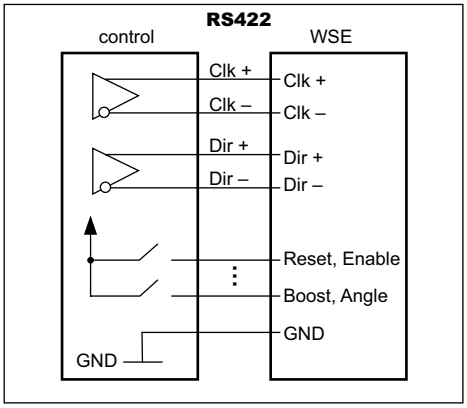
Input signals – adjustment signal level – switch »SPS« and »L«

signal specifications	switch »L«	switch »SPS	connection »Clk« and »Dir« at signal plug port
High-active TTL	OFF	OFF	Clk- and Dir- (Clk+ and Dir+ are not connected)
High-active SPS	OFF	ON	Clk- and Dir- (Clk+ and Dir+ are not connected)
Low-active	ON	OFF	Clk+ and Dir+ (Clk- and Dir- are not connected)
not valid	ON	ON	
RS422	OFF	OFF	Clk+ and Clk- and Dir+ and Dir- (all other signals High-active SPS)
RS422	OFF	ON	Clk+ and Clk- and Dir+ and Dir- (all other signals High-active TTL)

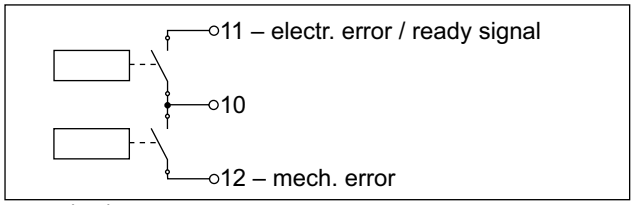
In case of set modes »High-active« and »Low-active« the connection »GND« has to be connected with the control sending the signals »Clk« and »Dir«.
In case of a set mode »RS422« the connection »GND« has to be connected only in case other signals than »Clk« and »Dir« shall be used additionally.



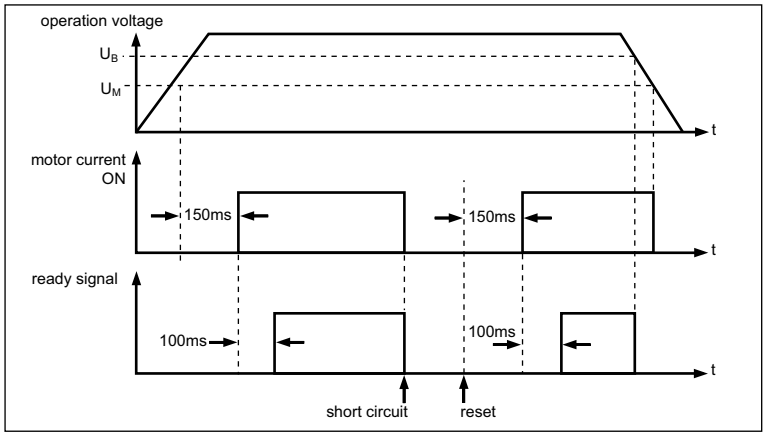




Output-ready signal



output signal



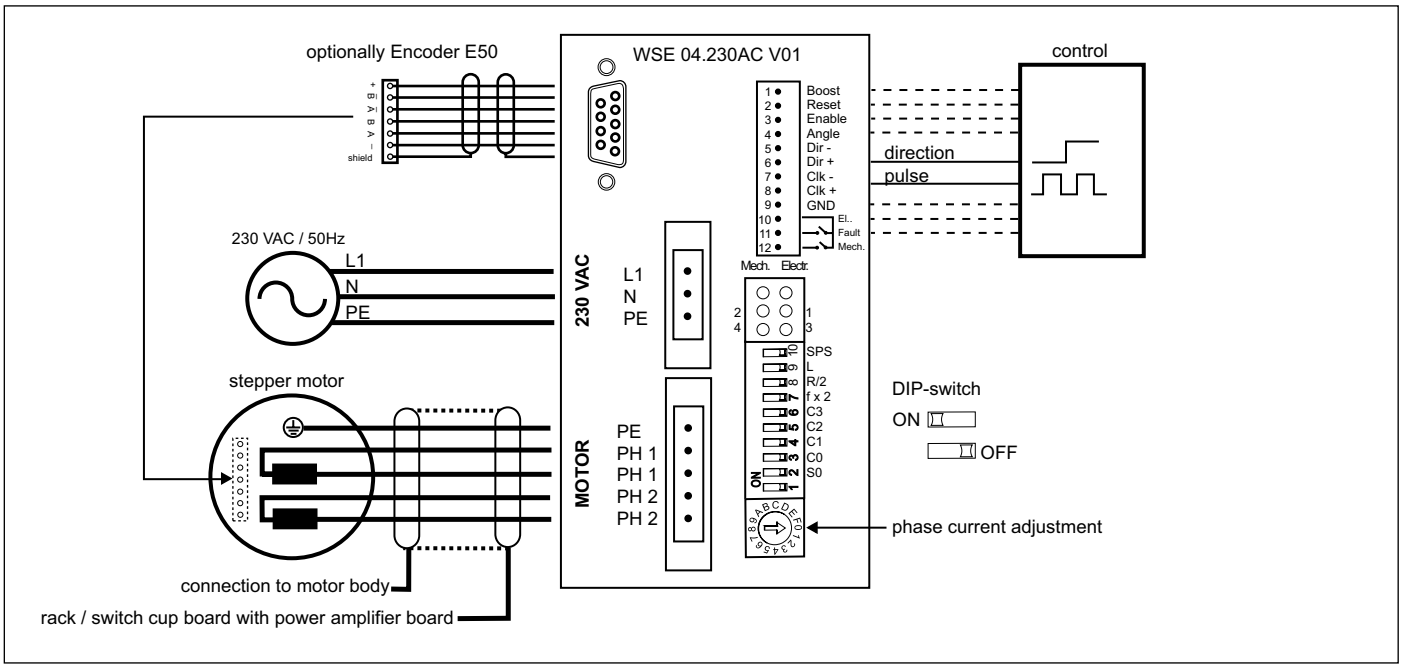
Timing output-ready signal

Voltage supply

WSE ... 230AC V01: 230 VAC / 50 – 60 Hz
Internally 325VDC are created (motor voltage)

WSE ... 115AC V01: 115 VAC / 50 – 60 Hz
Internally 162VDC are created (motor voltage)

Connections

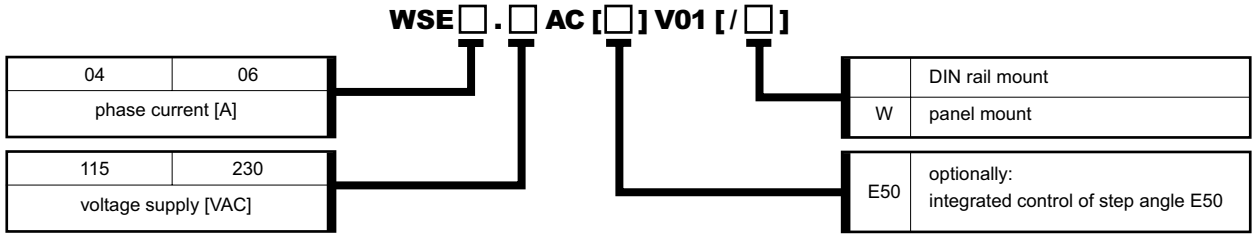


All inputs not used may stay open – it is not necessary to connect them to an external potential.
Pulse and direction are used for a normal stepper motor operation (there is no need to connect the pulse direction signal, if the motor shall run only into one direction).
All other inputs at the signal port may be connected according to the applications requirements.

Technical specifications

protection of device	protection IP20, protection against short circuit, overtemperature und undervoltage
weight	nominal current 4 A/Ph | 6 A/Ph weight 0,9 Kg | 0,9 Kg
ambient conditions	ambient temperature: 0°C to 50°C, max. housing temperature: 85°C
noise imunity	**in case of correct installation:** according to EN50082-2: – at selectedi TTL-signal the inputs are not imune against fast transients (Burst)
noise radiation	**In case of correct installation** and shielding or / and filtering of the lines and signals according to EN55011 class B

Available versions: (e.g.: WSE 04.230AC V01, WSE 06.115AC V01/W, WSE 06.230AC V01, ...)



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