

Proportional Chopper Amplifier SC-/ESC-/DSC-2000-U



electric amplifier for
proportional valves
operating voltage 8-35 V DC
maximum current 2,6 A

060110_SC2000_e
01.2021

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Characteristics

- compact design
- compensating the temperature-dependent magneto-resistance of the proportional solenoid
- multi-course potentiometers for adjusting I_{min} , I_{max} and time ramp
- LED signaling
- fuse-protected output 2 A or 3 A
- external voltage or current control

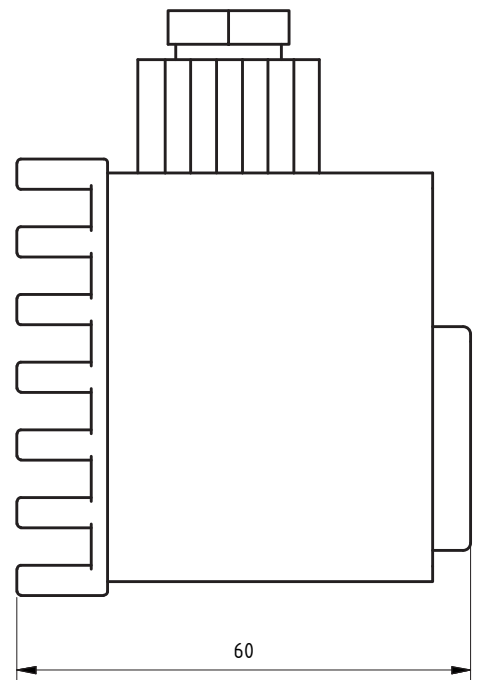
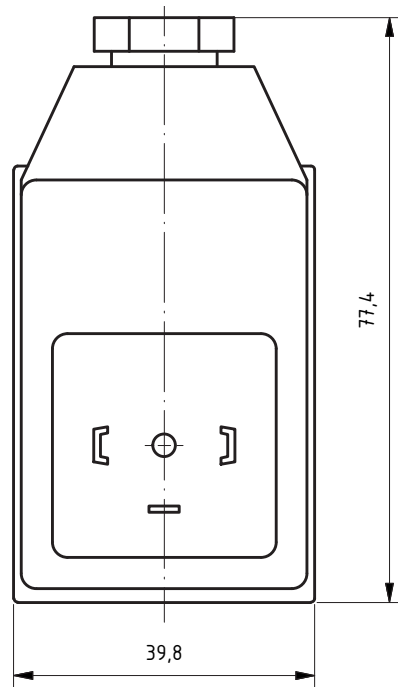
Technical data

<i>Mechanic</i>	Design:	amplifier module, amplifier for installation onto mounting rails, double amplifier for 2 prop. solenoids for installation onto mounting rails
	Ambient temperature:	-20 °C to +60 °C
	Installation position:	any
	Weight:	SC-2000-U: 0,32 kg ESC-2000-U: 0,08 kg DSC-2000-U: 0,14 kg
	Maximum acceleration:	2 G

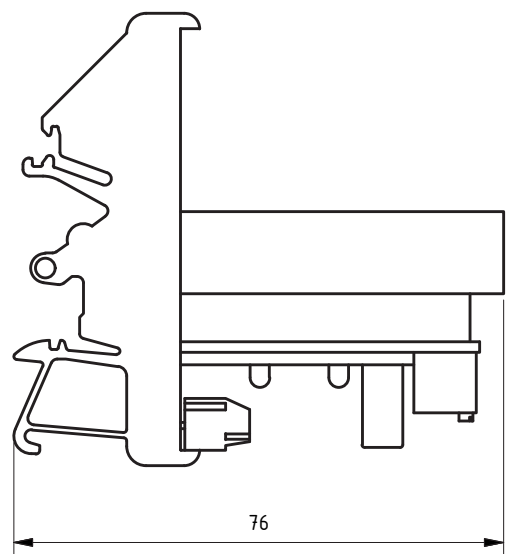
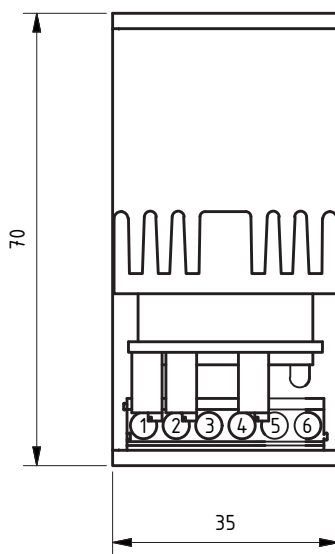
<i>Electric</i>	Operating voltage:	8 to 35 V DC
	Nominal voltage (solenoid):	12 V DC, 24 V DC
	Nominal resistance (solenoid):	2,5 to 60 Ω
	Maximum current:	0 to 2,6 A adjustable
	Minimum current:	0 to 0,6 A adjustable
	Dither frequency:	140 Hz, 85 Hz, 300 Hz
	Stand-by current consumption:	0,016 A
	Ramp generator:	0 to 5 s adjustable
	Protection class:	IP65
	Fuse:	Wickmann microfuse 2 A (max. 3 A)
	Shifting time:	100 % ED
	Input signal:	0 to 10 V (0 to 5 V) 0 to 20 mA (external load resistor) 4 to 20 mA (special version)
	Deviation:	0,6 % / Ω for temperature fluctuations of the solenoid 0,3 % / V for voltage fluctuations
Electromagnetic compatibility:	CE conform to EMV standard 2004/108/EG Transient emissions EMA: EN 55 011-1B Stability EMB: EN 50 082-2	

Dimensions

SC-2000-U



ESC-2000-U



NOTE For the double amplifier DSC-2000-U a second board will be integrated. The dimensions stay the same.

Operational elements

Potentiometer I_{max}

Potentiometer I_{min}

Potentiometer Ramp

Fuse

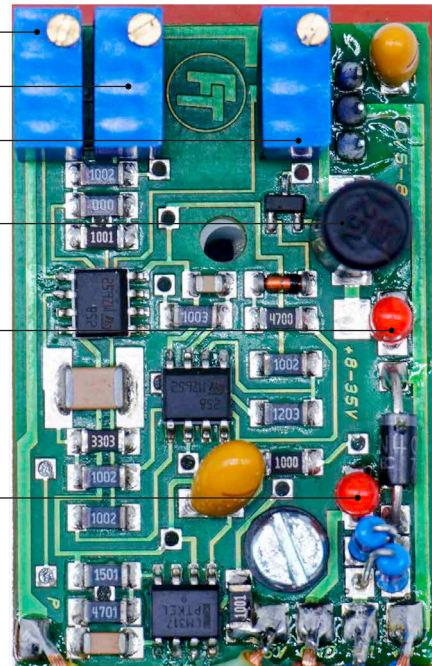
Wickmann 2 A / 3 A

LED

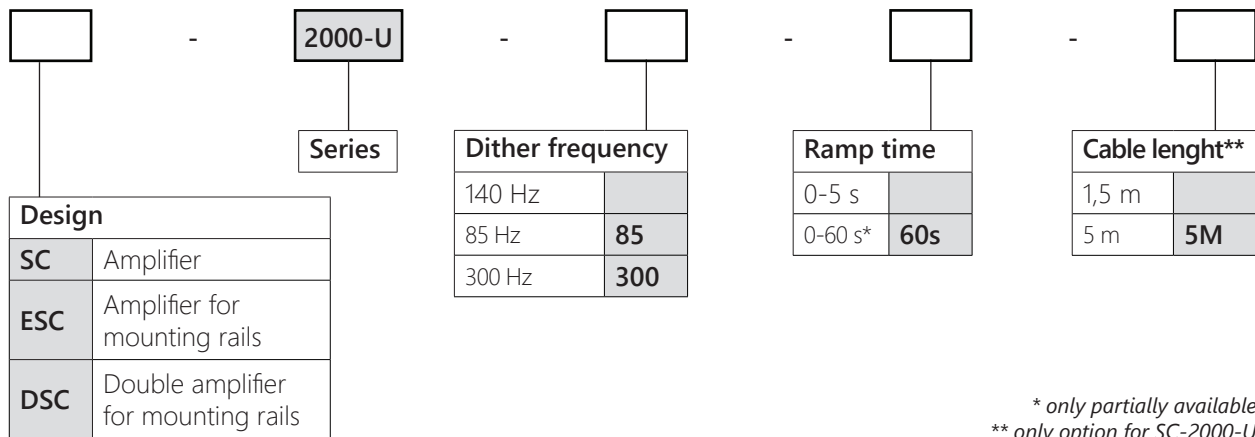
Voltage supply and fuse

LED

initial state



Type code



Accessories and additional information

Accessories/ spare parts	Article:	Article number:
	Adapter plug DIN EN 175301-803 shape B to shape A	109.0006
	Replacement fuse 2 A	109.0003
	Replacement fuse 3,15 A	109.0004

Set up

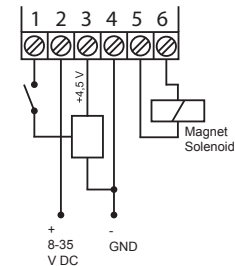
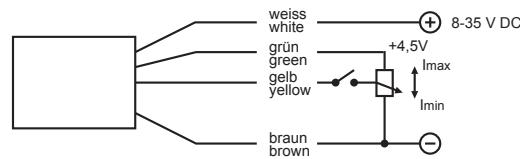
NOTE The chopper amplifier has to be adjusted on-load (with connected prop. solenoid). Never disconnect the solenoid while the operating current is connected.

To get optimal results and to avoid defects on the chopper amplifier and the valves, adjust the chopper amplifier with the following instructions

Adjust minimum current (I_{min}) always before maximum current (I_{max}).

Potentiometer control

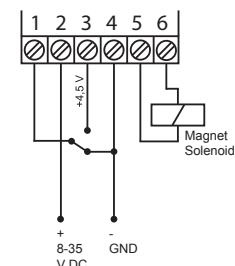
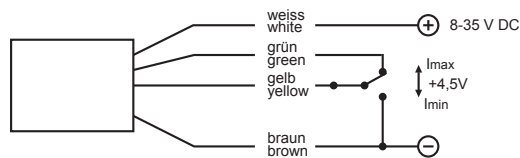
- ▶ Connect supply voltage (see figure).
- ▶ Connect external potentiometer (see figure).



- ▶ Switch on hydraulic supply.
- ▶ Observe the function of the valve.
- ▶ Set external potentiometer to minimum value.
- ▶ Adjust the I_{min} potentiometer so that there is no hydraulic outlet (pressure or volume flow).
- ▶ Set external potentiometer to maximum value.
- ▶ Adjust the I_{max} potentiometer so that the desired max. pressure or volume flow is reached.
- ▶ The chopper amplifier is adjusted. The desired adjustment range is between the minimum value and the maximum value.
- ▶ If there is still a dead range, repeat the basic adjustments (I_{min} and I_{max}).
- ▶ Adjust the ramp potentiometer to the desired value (0-5 s).

Two-point control

- ▶ Connect supply voltage (see figure).
- ▶ Connect selector switch (min./max. value, see figure).
- ▶ Adjust selector switch to minimum value (1 to 4 connected).



- ▶ Switch on hydraulic supply.
- ▶ Observe the function of the valve.
- ▶ Adjust the I_{min} potentiometer so that there is no hydraulic outlet (pressure or volume flow).

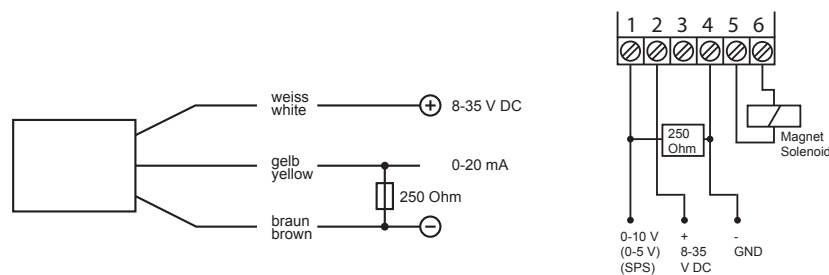
Set up

Two-point control

- ▶ Adjust selector switch to maximum value (1 to 3 connected).
- ▶ Adjust the I_{\max} potentiometer so that the desired max. pressure or volume flow is reached.
- ▶ The chopper amplifier is adjusted. The desired adjustment range is between the minimum value and the maximum value.
- ▶ If there is still a dead range, repeat the basic adjustments (I_{\min} and I_{\max}).
- ▶ Adjust the ramp potentiometer to the desired value (0-5 s).

External current control 0-20 mA

- ▶ Connect load resistor (250 Ω , see figure).
- ▶ Connect supply voltage (see figure).
- ▶ Connect external current control (see figure).

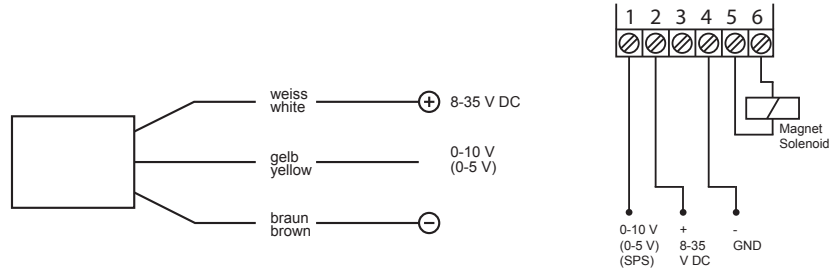


- ▶ Switch on hydraulic supply.
- ▶ Observe the function of the valve.
- ▶ Adjust external current to approx. 0,05 mA.
- ▶ Adjust the I_{\min} potentiometer so that there is no hydraulic outlet (pressure or volume flow).
- ▶ Adjust external current to 20 mA.
- ▶ Adjust the I_{\max} potentiometer so that the desired max. pressure or volume flow is reached.
- ▶ The chopper amplifier is adjusted. The desired adjustment range is between the minimum value and the maximum value.
- ▶ If there is still a dead range, repeat the basic adjustments (I_{\min} and I_{\max}).
- ▶ Adjust the ramp potentiometer to the desired value (0-5 s).

Set up

External voltage control

- ▶ Connect supply voltage (see figure).
- ▶ Connect external voltage control (5/10 V, see figure).



- ▶ Switch on hydraulic supply.
- ▶ Observe the function of the valve.
- ▶ Adjust external voltage to approx. 0,005 V.
- ▶ Adjust the I_{\min} potentiometer so that there is no hydraulic outlet (pressure or volume flow).
- ▶ Adjust external voltage to accumulated value (5/10 V).
- ▶ Adjust the I_{\max} potentiometer so that the desired max. pressure or volume flow is reached.
- ▶ The chopper amplifier is adjusted. The desired adjustment range is between the minimum value and the maximum value.
- ▶ If there is still a dead range, repeat the basic adjustments (I_{\min} and I_{\max}).
- ▶ Adjust the ramp potentiometer to the desired value (0-5 s).