

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
01.2021

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Characteristics

- Compact design
- Compensating the temperature-dependent resistance change of the proportional solenoid
- Multi-course potentiometers for I_{min} , I_{max} and time ramp
- LED status indicator
- Output safeguarded by 2 A or 3 A plug-in fuse
- External voltage or current control

Technical data***Mechanical
characteristics***

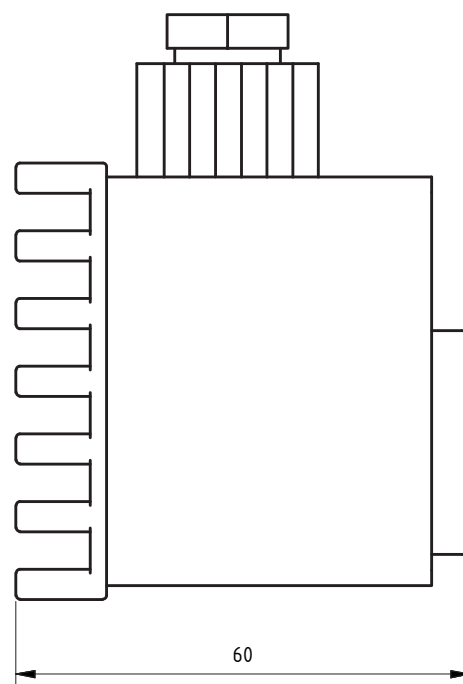
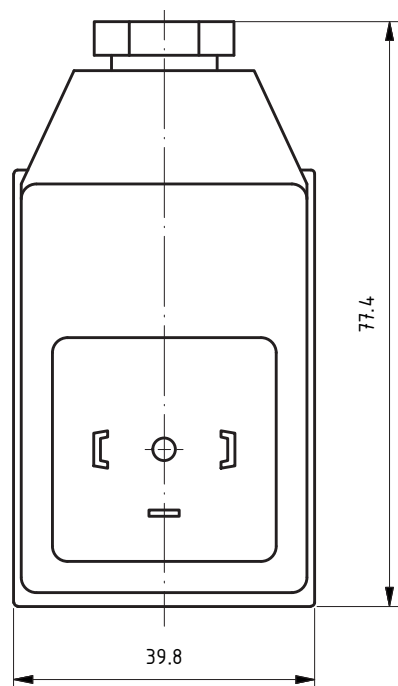
Design:	Amplifier module, amplifier for installation onto mounting rails, double amplifier for 2 prop. solenoids for installation onto mounting rails
Ambient temperature:	-20 °C to +60 °C
Installation position:	Any
Weight:	SC-2000: 0.32 kg ESC-2000: 0.08 kg DSC-2000: 0.14 kg
Permissible acceleration:	2 G

***Electrical
characteristics***

Operating voltage:	8 to 35 V DC
Solenoid rated voltage:	12 V DC, 24 V DC
Solenoid rated resistance:	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)
Operating mode:	100 % PO
Input signal:	0 to 10 V (0 to 5 V) 0 to 20 mA for external load resistor 4 to 20 mA as special version
Deviation:	0.6 % / Ω for temperature fluctuations of the solenoid 0.3 % / V for voltage fluctuations
Electromagnetic compatibility:	CE conforming to EMC Directive 2004/108/EC Transient emissions EMA: EN 55 011-1B Stability EMB: EN 50 082-2

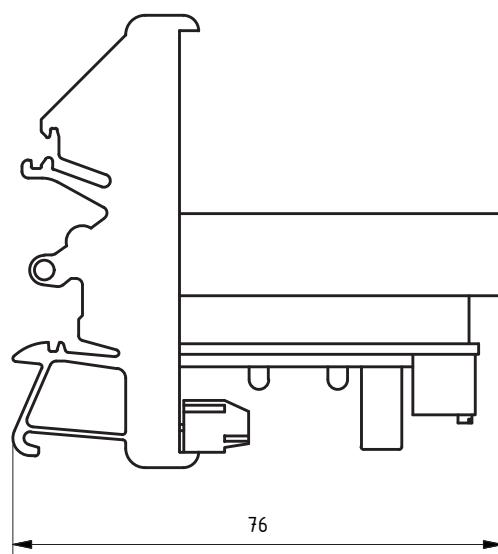
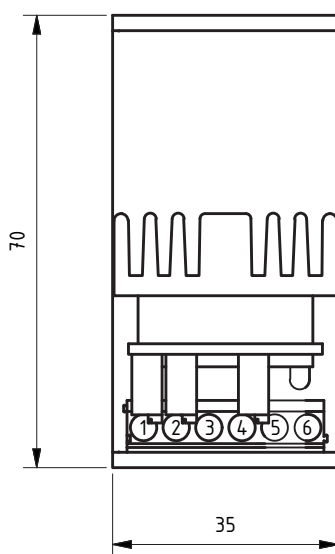
Dimensions

SC-2000-U



HE4/152316

ESC-2000-U

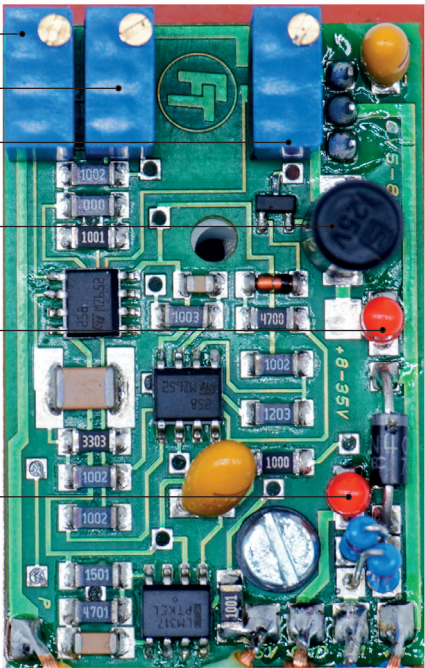


HE4/152315

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

Operational elements

- Setting potentiometer I_{max}
- Setting potentiometer I_{min}
- Setting potentiometer ramp
- Fuse
Wickmann 2 A / 3 A
- LED
Voltage supply and fuse
- LED
Initial state



Type code

2000-U

Series

Dither frequency

140 Hz	
85 Hz	85
300 Hz	300

Ramp time

0-5 s	
0-60 s*	60s

Cable length**

1.5 m	
5 m	5M

Design	
SC	Amplifier plug
ESC	Amplifier module for mounting rails
DSC	Double amplifier module for mounting rails

* only partially available

** only optional for SC-2000-U

Accessories and further information

Accessories/ spare parts	Article:	Material 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

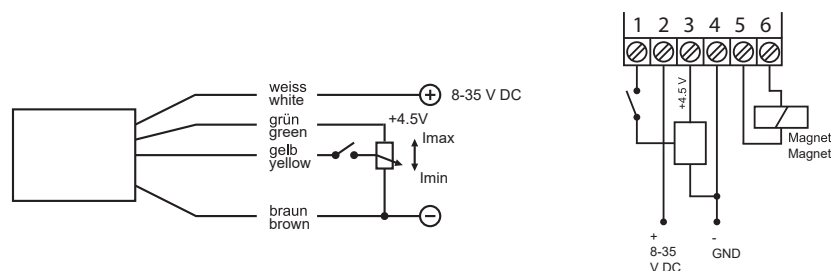
Standard program

Set up

- NOTE** The chopper amplifier has to be adjusted when loaded, i.e. with a connected proportional solenoid.
 Never disconnect the connection to the solenoid while the operating current is connected.
 To obtain optimum results and to avoid defects on the valves and the chopper amplifier, adjust the chopper amplifier according to the following instructions.
 Always adjust the minimum current ($I_{\min}$) before the maximum current ($I_{\max}$).

Potentiometer trigger

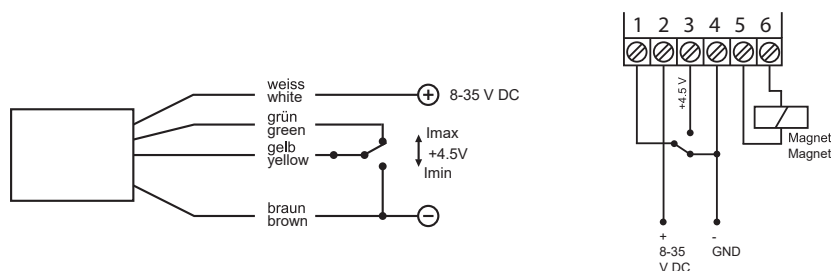
- Connect the supply voltage (see illustration).
- Connect the external potentiometer (see illustration).



- Switch on the hydraulic supply.
- Observe the valve functions.
- Turn the external potentiometer to the 0 position.
- Adjust the center potentiometer on the board ($I_{\min}$) so that there is no hydraulic outlet (pressure or volume flow).
- Set the external potentiometer to the maximum value.
- Adjust the left potentiometer on the board ($I_{\max}$) so that the required max. pressure or flow rate is reached.
- The chopper amplifier is adjusted. The adjustment range can be controlled using the external potentiometer.
- If there is a dead range when adjusting the external potentiometer, repeat the basic adjustments ($I_{\min}$ and $I_{\max}$).
- The right potentiometer on the board controls the increase and decrease time of the current output. Set the potentiometer to the required value (0-5 s).

Two-point switching

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



- Switch on the hydraulic supply.

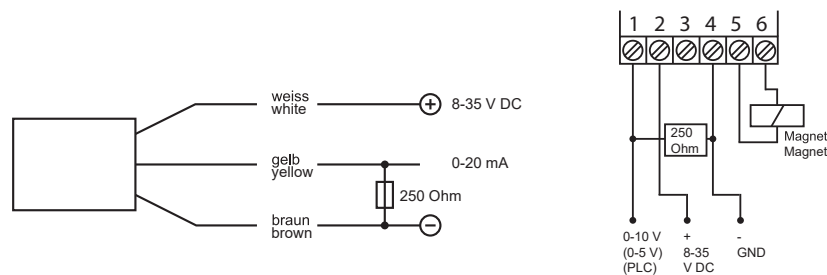
Set up

Two-point switching

- Observe the valve functions.
- Adjust the center potentiometer on the board (I_{min}) so that the required minimum value (pressure or flow rate) is reached.
- Adjust the selector switch to the maximum value (1 to 3 connected).
- Adjust the left potentiometer on the board (I_{max}) so that the required maximum value (pressure or flow rate) is reached.
- The chopper amplifier is adjusted.
- The right potentiometer on the board controls the increase and decrease time of the current output. Set the potentiometer to the required value (0-5 s).

External current trigger 0 -20 mA

- Connect the external load resistor (250 Ω) (see illustration).
- Connect the supply voltage (see illustration).
- Connect the external current trigger (see illustration).

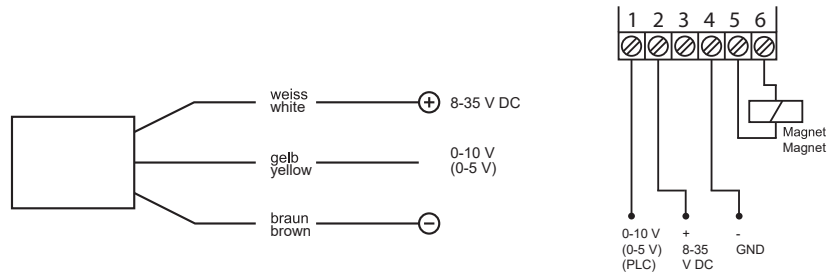


- Switch on the hydraulic supply.
- Observe the valve functions.
- Set the external current to approx. 0.05 mA.
- Adjust the center potentiometer on the board (I_{min}) so that there is no hydraulic outlet (pressure or volume flow).
- Set the external current value to approx. 20 mA.
- Adjust the left potentiometer on the board (I_{max}) so that the required maximum value (pressure or flow rate) is reached.
- The chopper amplifier is adjusted.
- If there is a dead range when adjusting the external potentiometer, repeat the basic adjustments (I_{min} and I_{max}).
- The right potentiometer on the board controls the increase and decrease time of the current output. Set the potentiometer to the required value (0-5 s).

Set up

*External voltage
trigger
(e.g. from PLC)*

- Connect the supply voltage (see illustration).
- Connect the external voltage trigger (5/10 V) (see illustration).



- Switch on the hydraulic supply.
- Observe the valve functions.
- Set the external voltage to approx. 0.005 V.
- Adjust the center potentiometer on the board (I_{min}) so that there is no hydraulic outlet (pressure or volume flow).
- Set the external voltage to the final value (5/10 V).
- Adjust the left potentiometer on the board (I_{max}) so that the required maximum value (pressure or flow rate) is reached.
- The chopper amplifier is adjusted.
- If there is a dead range when adjusting the external potentiometer, repeat the basic adjustments (I_{min} and I_{max}).
- The right potentiometer on the board controls the increase and decrease time of the current output. Set the potentiometer to the required value (0-5 s).