

# Controller

ELSK 103-17\*\*\*



- short circuit-protected
- durable, reliable analog technique
- inverse-polarity protected
- using the Hare-Tortoise switch, two maximum speeds can be set

## 1 Description

### 1.1 Generals

The ELSK 103-17\*\*\* unit is used to control a proportional solenoid. It consists of the ESSK 103-91\*\*\* card, fitted in a plastic enclosure. The enclosure is provided with a front panel with an On/Off switch, a green status LED, a switch (Hare 0-100%, Tortoise 0-50%), and a demand-signal po-

tentiometer with indicator knob. The output current varies linearly with the angle of rotation of the demand-signal potentiometer. The green LED lights as soon as the unit is switched on.

### 1.2 Application examples

- Agricultural and forestry equipment
  - Fertiliser spreader
  - Dung spreader
  - Fodder mix and cast wagon
- Construction machines
  - Road rollers
  - Ground drilling rigs
- Municipal equipment
  - Snow and ice cleaning equipment
  - Sweeper
- General
  - Belt and disc drive
  - Scraper floor drive

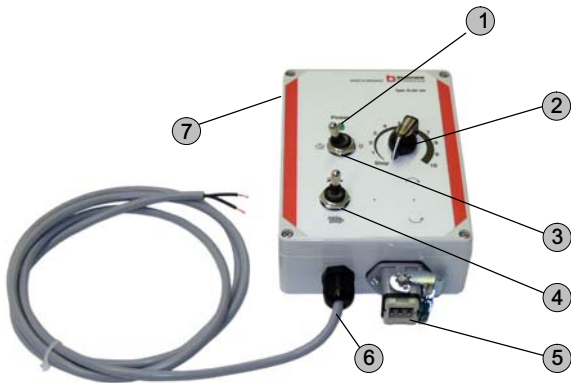
## 2 Technical data

General characteristics	Description, value, unit
Supply voltage	12 ... 30 DC, smoothed. Ripple < 10%
Rotation angle of potentiometer knob	270 °
Adjustable minimum current ( $I_{\min}$ )	(0 ... 0,5) x $I_{\max}$
Adjustable maximum current ( $I_{\max}$ )	0,5 A ... 2,5 A
Maximum permissible output current ( $I_{\text{per}}$ )	2,5 A
Dither frequency	Factory set at 40 Hz (square-wave form)
Protection class	IP41
Operating temperature	-20 °C ... +50 °C
Notable features	- the power-supply input is inverse-polarity protected - the amplifier switches off automatically for the duration of excessive coil current (coil short circuit)
Dimensions	approx. 160 mm x 120 mm x 55 mm (Makrolon enclosure)

Reference: 100-P-700048-EN-04

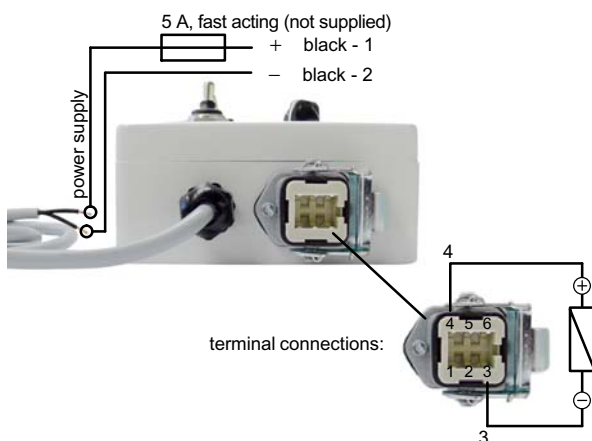
General characteristics	Description, value, unit
Weight	ca. 400 g
Power supply connection	PG9, cable gland
Solenoid connections	Six-pin solder socket insert, Sta 6 F Löt, with bulkhead housing H-A3 Ag
Cable lengths and cross-sections	for 1 mm <sup>2</sup> section wire, max. cable length is 10 metres

### 3 Functional description

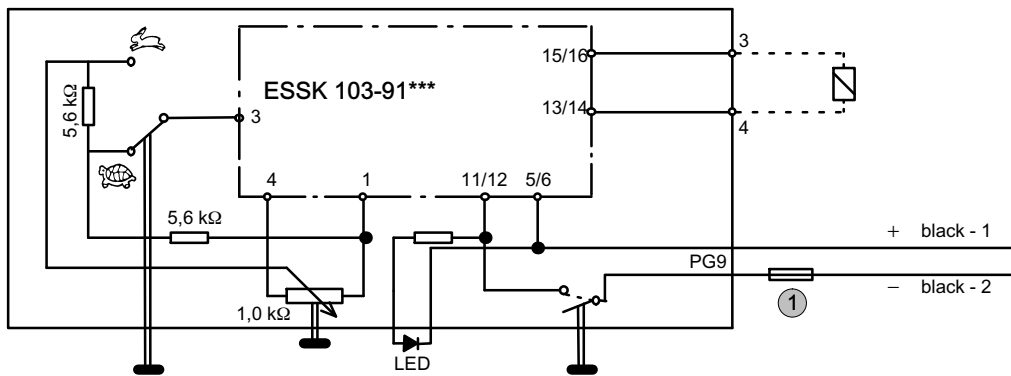


1	Control unit-LED, input current
2	Rotary potentiometer with indicator knob
3	ON/OFF switch
4	Switch (Rabbit 0 ... 100%/ Turtle 0 ... 50%)
5	Six-pin solder socket insert, Sta 6 F Löt, with bulkhead housing H-A3 Ag.
6	Power supply; Cable 2 x 1 mm <sup>2</sup> ; two metres long, (cable gland, PG9).
7	Makrolon enclosure, approx. 160 mm x 120 mm x 55 mm.

### 4 Connection diagram



## 5 Block diagram



1 Accessories; (Fine fuse, 5 A), see par. 8.2

## 6 Commissioning

1. For connecting power lead see circuit diagram.
2. For connecting solenoids see circuit diagram. Switch power on.

## 7 $I_{min}$ and $I_{max}$ setup procedure



For setup procedure of  $I_{min}$  and  $I_{max}$  the enclosure must be open. Only qualified staff may open the box to adjust  $I_{min}$  and  $I_{max}$ . Warranty voids herewith in any case.

1. Unscrew the four bolts of the front plate and remove the lid.
2. Set the potentiometer P2 to maximum.
3. Put the switch in the Hare position.
4. Using trim potentiometer P2, and while increasing the signal, set the required maximum current ( $I_{max}$ ) (the coil current must not exceed 2.5 A).
5. Set the potentiometer P1 to minimum.
6. Using trim potentiometer P1, and while decreasing the signal, set the required minimum current ( $I_{min}$ ).
7. Re-check the settings.



The trim potentiometers that are sealed with colour spots are preset in the factory

## 8 Ordering code

### 8.1 Compact amplifier

Description	Type	Ordering code
Makrolon enclosure, 1 On/Off switch, 1 green status LED, 1 switch (Hare 0-100%, Tortoise 0-50%), and 1 demand-signal potentiometer with indicator knob.	ELSK 103-17***	100024935

### 8.2 Accessories

To connect the solenoid, a GDM 309 connector plug can be supplied. In the event of proportional valve malfunctions that are caused by long power leads, use GDM 209D solenoid plugs.

	Part No.
Solenoid plug, GDM 309	064970
Solenoid plug, GDM209D	014130
Fuse, 5 A	606938
Flying fuse holder	607349
Plug insert (solder), Sta 6 F Löt	209336
Line housing, H-A3 Tgv, for plug insert	209472

For details of these accessories, see data sheet P70010, "Electronic Accessories".

### 8.3 Service parts

	Part No.
Plastic enclosure, MBM 161255	228968
Front panel, ELSK 103	214784
Cable gland, PG 9	601550
Retaining nut, PG 9	601554
Potentiometer, 1.0 k $\Omega$	214663
Potentiometer indicator knob	604397
On/Off switch (Hare and Tortoise)	607681
LED, green, 5 mm	606555
Dropping resistor, 1 $\Omega$ , 1 W	607205
ESSK 103-91***	014781
Cable, 2 x 1 mm <sup>2</sup>	604380
Rubber switch cover	607319
Resistor, 5.6 k $\Omega$ / 0.25 W	606690
Socket insert (solder), H-A3 Sta 6 S Löt	209471
Bulkhead housing, H-A3 Ag, for socket insert	607297