

Controller

ELMP 150-01G24/01



- robust analogue technique
- no spinner feedback signal required
- control of the diffusion

1 Description

The ELMP 150 controller provides simultaneous control of two proportional solenoids (spread width and spread density) in accordance with the steplessly adjustable control settings and with the vehicle speed. The operating controls and status-indicating LEDs are located on the back-lit front panel. The unit requires a 24 V DC or 12 V DC smoothed power supply. The unit is factory-set for 24 V DC but can be easily reset for 12 V DC. The controller offers four operating modes: Spread, Unload, Maximum Spread ("Blast") and Test. In Spread mode the two outputs are driven in accordance with the control settings and the road speed signal. If the road speed signal falls below a threshold value, the

spread density output is cut off. In Unload mode the spread density control setting is ignored and the output goes to maximum, and the spread width output goes to zero. In Maximum Spread ("Blast") mode either: - the existing spread width output is maintained and the spread density output goes to maximum -or- both outputs go to maximum (de-pendent on jumper setting). In Test mode the outputs are driven in accordance with the control settings together with an internally-simulated road speed signal. As a road signal, either a Impulse-generator or a proximity switch can be used to provide the external road speed signal.

2 Technical data

Electrical characteristics	Unit	Description, value
Power supply	V	12 ... 24 (standard) , smoothed. Ripple < 10%
No. of outputs		2 x proportional; 5 x ON/OFF
Adjustable min. current, spread width ($I_{\min B}$)	A	0,1 ... 1,2
Adjustable max. current, spread width ($I_{\max B}$)	A	0,6 ... 2,5
Adjustable min. current, spread density ($I_{\min D}$)	A	0 ... 1,2
Adjustable max. current, spread density ($I_{\max D}$)	A	1 ... 2,5 (but not less than $I_{\min D}$)
Max. permissible output current (I_{zul})	A	proportional outputs 2,5 ; ON/OFF outputs 3 A
Dither frequency	Hz	set at 100 (rectangular)
Frequency input for road speed signal: maximum input frequency voltage levels at frequency input input impedance of frequency input	Hz	80 ... 200 optionally 600 ... 1500 "Low-Signal" < 5 V; "High-Signal" > 7,5 V 1 kW or 10 kW after removal of a resistor

Electrical characteristics	Unit	Description, value
Power supply for NPN pulse emitter (Road speed)	V	9
Max. loading of power supply for NPN pulse emitter	mA	10
Threshold value for road speed signal	V	0,15 alternatively $0,03 \times f_{\max}$
Speed simulation voltage (Test mode)	V	1,4 ... 3,8 at frequency input
Notable features		- power supply terminals are reverse-polarity protected; - for the duration of a short circuit, the relevant amplifier switches off automatically;
Enclosure protection		IP30
Operating temperature	°C	-20 ... +50
Dimensions	mm	approx. 65 x 185 x 180 (aluminium-housing)
Weight	kg	approx. 1,55
Connection		Twenty-pin solder plug H-A 16 Sta 20S with housing H-A 16 KAg
cable length and cross-section		For 1 mm ² wire, max. cable length is 10 metres
electro-magnetic compatibility		- EN 14982 radiated emission - ISO 11452--2...-5 Immunity radiated electromagnetic energy - ISO/TR 10605 Immunity against discharge static electricity - ISO 7637--0...-2 Immunity against circuit disturbance; class D, A - e1 directive 95/54/EG radiated emission caused by vehicles

3 Commissioning

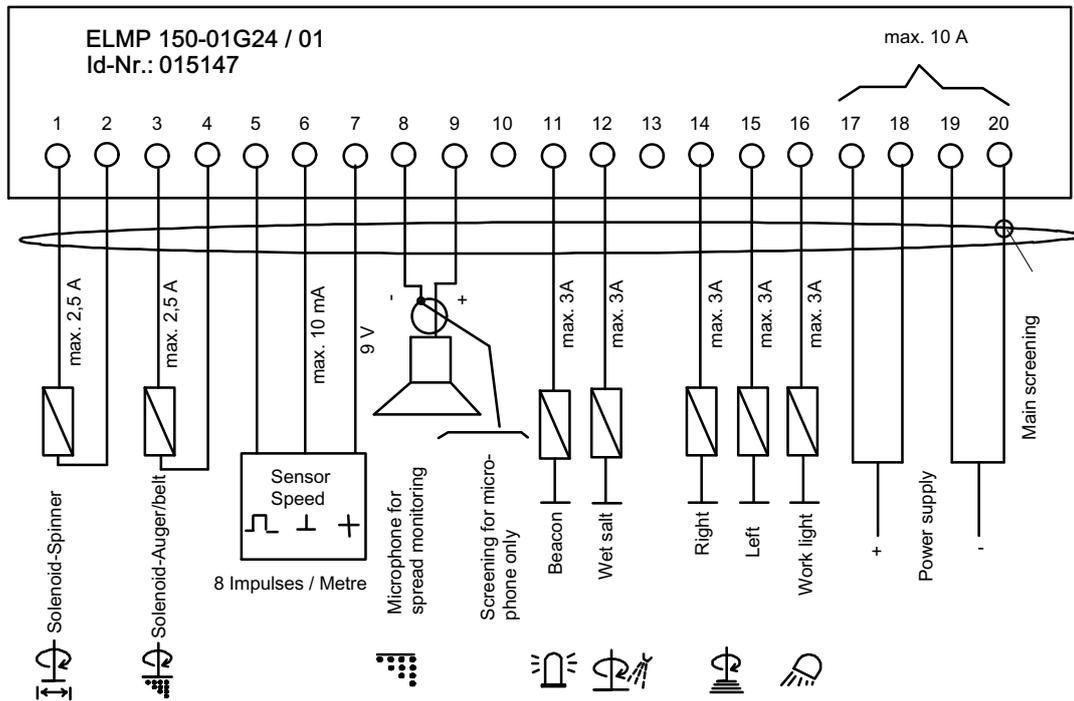
The set-up procedures must be carried out at operating temperature. The two outputs can be set in either order, since they are independent of each other.

1. Connect the controller in accordance with the connection diagram and switch it on.
2. Provide a speed signal (frequency) equivalent to the maximum road speed and set the Test/Operating switch to Operating. Using trimming potentiometer P5, adjust the voltage between test point MP3 and pin 20 (Ground) to 6.5 V (factory setting is 133 Hz; at 8 impulses per meter of travel, this corresponds to a speed of 60 km/hr).
3. Set the Unload switch to Unload. Using the trimming potentiometer P9, and adjusting UP to the final value, set the maximum possible auger/belt speed
4. Switch off the Unload switch. Set the spread width control to maximum. Using the trimming potentiometer P7, and adjusting UP to the final value, set the maximum spinner speed.
5. Set the spread width to minimum. Using the trimming potentiometer P8, and adjusting DOWN to the final value, set the minimum spinner speed.

6. Set the Test/Operating switch to Operating. Set the spread width and spread density controls to minimum and the road speed to the required minimum. Using the trimming potentiometer P3, adjust the spread density to the required minimum.
7. Set the controls for spread width and spread density to maximum and the road speed to the required maximum. Using the trimming potentiometer P2, adjust the spread density to the required maximum.
8. Repeat steps 6 and 7 until the required accuracy is achieved
9. Set the Test/Operating switch to Test. Using the trimming potentiometer P4, set the test speed to the desired value. The road speed simulation voltage can be checked across the middle pin of potentiometer P4 and terminal 20 (Ground).

The potentiometers that are sealed with colour spots are pre-set in the factory.

4 Connection diagram



5 Block diagram

By removing the high-mounted resistance R49, the input impedance of the digital frequency input can be increased to 10 kΩ.

Road signal
mit J3 low < 3V high > 5V
ohne J3 low < 5V high > 7,5V

ELMP150-01G24/01

J1 1-2	J1 3-4	Frequency input
x	x	25 - 60 Hz
x	-	60 - 90 Hz
-	x	bis 250Hz
-	-	bis 1100Hz

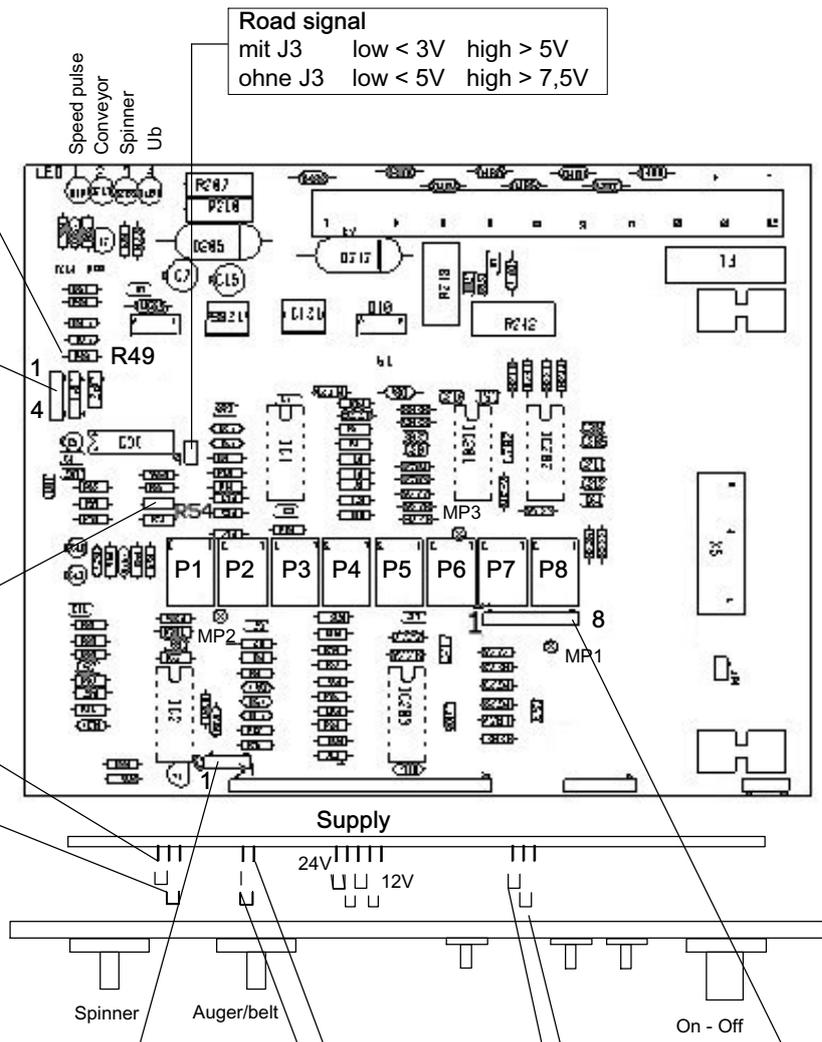
ELMP150-01G24/02

J1 1-2	J1 3-4	Frequency input
x	x	150 - 250 Hz
x	-	250 - 450 Hz
-	x	bis 1000Hz
-	-	bis 2200Hz

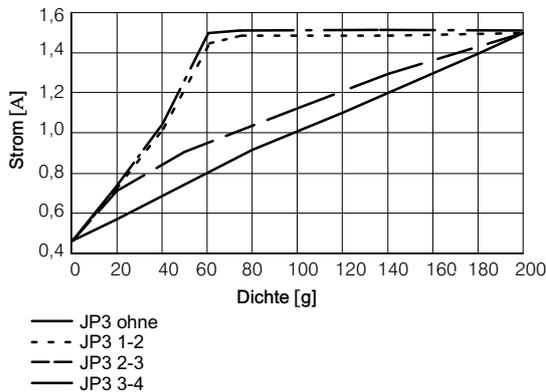
Road signal
without R54 low < 5V high > 7,5V

Max./Blast-Function
Spinner and auger/belt max.

Auger/belt only max.



Characteristic curve auger/belt, JP3*
Splitt: V=60Km/h Breite: 10m



LED-Error
Microphone
Microphone + unload

Panel illumination:
when main switch on
ignition -controlled

- X1 =Diagnostic plug
- 1 Spinner
 - 2 Ub = 9V
 - 3 Uref = 4V
 - 4 Speed 0 kmh
 - 5 Auger/belt
 - 6 Ground
 - 7 3,9V
 - 8 Signal speed

6 Ordering code

		E	L	M	P	1	5	0	-	0	1	G	2	4	/	0	1
Electronic product																	
Unit with housing	=	L															
Controller	=	MP															
Type																	
Model																	
Power supply DC, 12V or 24V (jumper-selectable)																	
Variants / special features																	
with frequency input as speed signal (600 Hz to 1500 Hz maximum frequency) (Option)	=	02															
with frequency input as speed signal (80 Hz to 200 Hz maximum frequency) (Standard)	=	01															
other special features - please give full description when ordering																	

7 Accessories

For Road speed, either a Impulse-generator or a proximity switch (NPN or Namur) can be supplied for measuring the travel speed. Connector plugs, type GDM 309, can be use to connect to the solenoids. In the event of proportional valve malfunc-tions that are caused by long power leads, use connector plugs type GDM 209D.

Description	Ordering No.
Solenoid plug GDM 309	100064970
Solenoid plug GDM 209D	100014130
Angular momentum sensor DIG 360	100016803
Proximity switch Bi5-P18-YOX	100014642
Socket outlet application	100217331
Socket shell PG 16 straight	100209521
Socket shell PG 16 lateral	100607668
Socket shell PG 21 staight	100607419
Plastic- protective cover for socket shells	100607750
Plastic-protective cover for mounting case	100607751

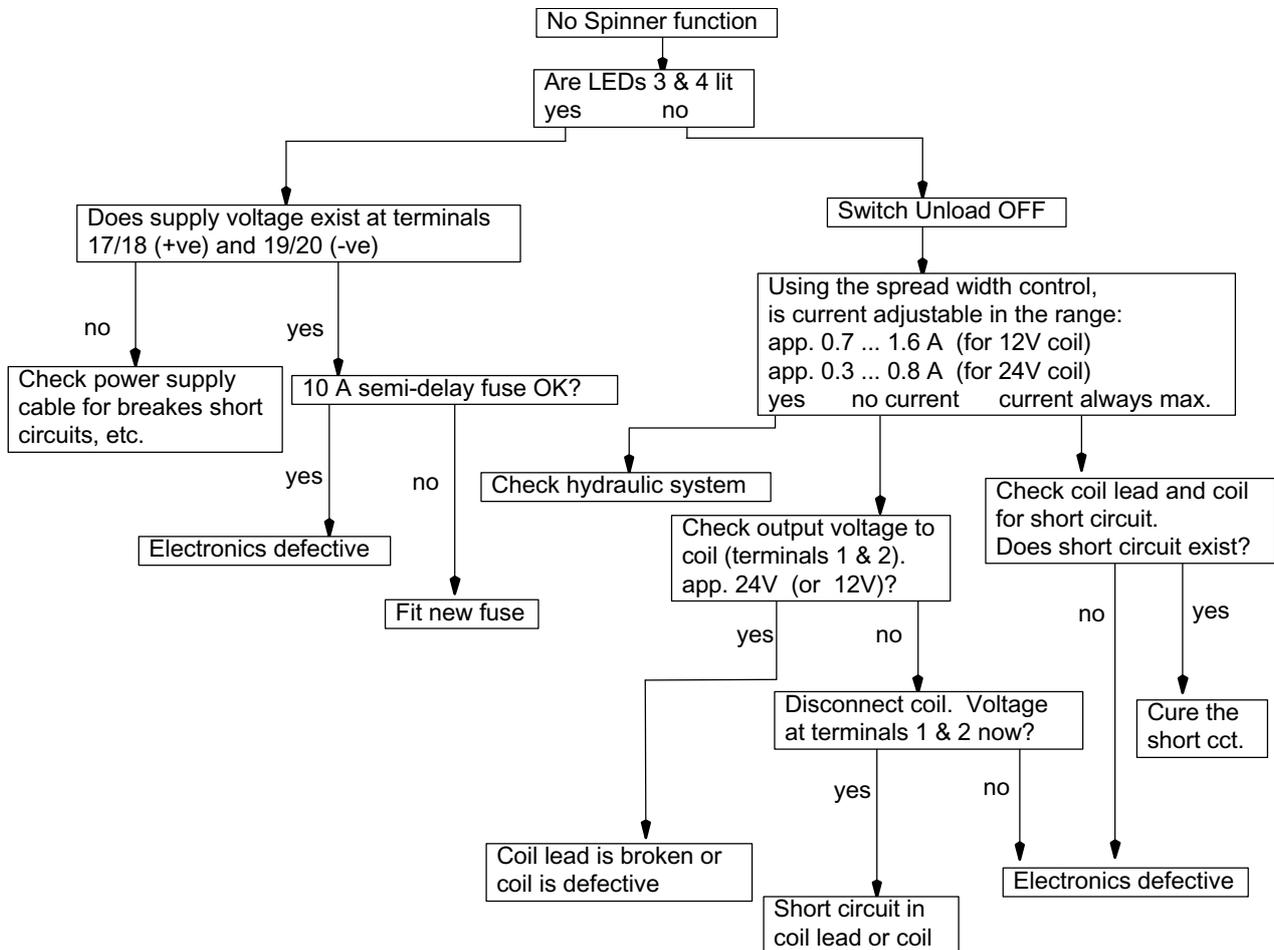
For a description of these accessories, see data sheet P70010, "Electronic Accessories".

8 Special models

The controller can be supplied with a different front plate. This can feature other scale divisions and/or a company logo or can be in a different language.

9 Fault finding

9.1 Fault finding - Spinner



9.2 Fault finding - Auger/belt

