



**BKI 104 e**

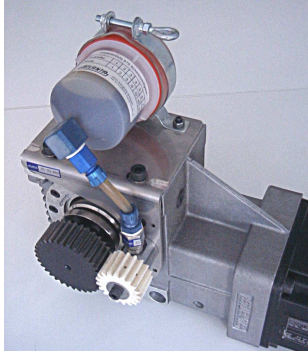
**Operating Instructions**

**4100-001-04/93**

Department	TB / Schell
Rev. index	B
Date	13.04.02010

**Electronically controlled lubricators**  
**475 cm<sup>3</sup> – battery-operated**  
 65 91 007; 65 91 014; 65 91 056; 65 91 069; 65 91 067

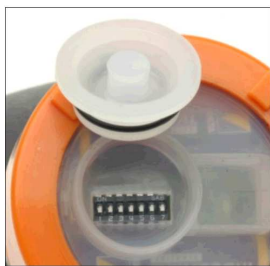
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Name	Schell	20.02.06
released	TB/Lorch	20.02.06



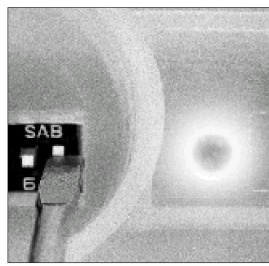
**Features:**

- Precise dosing of lubricant.
- Activation, deactivation, and setting of grease supply via micro-switch.
- Automatic pressure control from 0.2 to 3 bar.
- Non-explosive – Ex protection PTB; BVS and CE tested.
- To be mounted in any position.
- Can be used again and again for many years.
- Refillable.

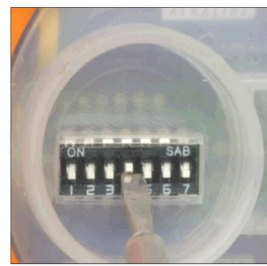
**Start-up with old DIP switch design:**



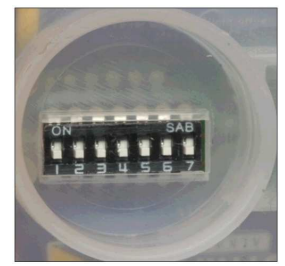
Remove protective lid and switch on lube dispenser



Make DIP switch 7 active. Green LED blinks flashes. Red LED flashes repeatedly 15 times.

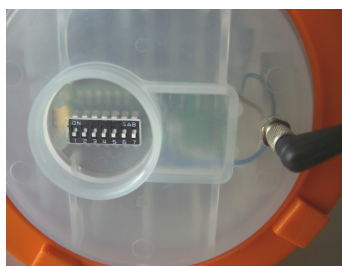


Dosage about dip switch carry out. Green LED flashes everything 30 sec.

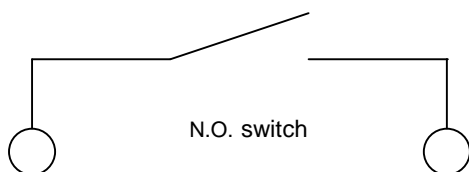


To switch off: turn all switches down

**Synchronisation with machine operating time**



Plug-in type contact cable with screw connection. No external power required.



N.O. switch **white/ blue**  
 Connection for synchronisation with machine operating time via floating contact.

**Advantages:**

Change of lubricating time or combinations of switching times possible (see setting combinations below).

- High reserve capacity:
- Battery capacity approx. = 2600 mA
- Consumption in 1 year: 25 microamperes x 8640 h = 216 mA
- Indicator light: 8 microamperes x 8640 h = 69 mA
- Yearly consumption= 285 mA

**Tip:**

- Before using the lube dispenser for the first time fill the hose with grease and soak the felt gearwheel with grease.
- Visual control of the grease filling at the transparent housing of the lube dispenser. Signal light blinks also when the lube dispenser is empty.
- Optionally available are lube dispensers with emptying monitor.



# ATLANTA

## Operating Instructions

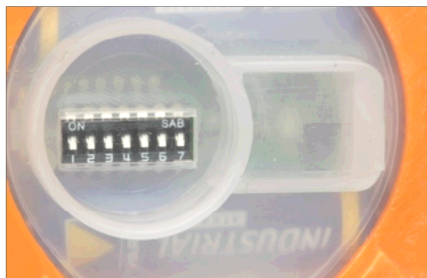
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#### Pressure build-up times:

The batteries need a certain time to build up the pressure. They induce an electro-pneumatic reaction in the built-in nitrogen chamber and transmit the pressure to the piston via a bellows. This chamber has to be replaced at the end of the lubricating time.



Simply set the desired operating time and mount it. The resulting pressure build-up times are then as follows:

Setting time in months	1	2	3	6	12	18
DIP switch	1	2	3	4	5	6
Pressure build-up time in days	1	2	3	6	10	14

Lubrication starts after the appropriate pressure build-up. The pressure remains built-up even if the lubricator is switched off for some time. Therefore lubrication begins immediately after switching on the lubricator again because the pressure remains built-up.

#### Immediate lubrication and safety check

Set all switches to the "on" position. Pressure build-up time approx. 6 – 8 hours. Then reset all switches and set the desired operating time. The signal light blinks.

Visual control of the pressure build-up by marking the filling state at the transparent housing. Depending upon the dosage chosen the piston in the lube dispenser should move downward from the marking for more or less time during the pressure build-up.

#### Important information!

Ambient temperature max. -20°C to max. +50°C. Avoid electrostatic charging of the lube dispenser (e.g. due to friction with cloth or strong air currents).

#### Setting combinations for lube dispensers

DIP switch position	Daily amount of lubricant	Lubricating times of lubricator
7 = switch for "ON". Green LED blinks flashes. Red LED flashes repeatedly 15 times.		
6	0.60 cm <sup>3</sup>	18 months
5	1.20 cm <sup>3</sup>	12 months
4	2.50 cm <sup>3</sup>	6 months
3	4,50 cm <sup>3</sup>	3 months
2	7.50 cm <sup>3</sup>	2 months
1	14.00 cm <sup>3</sup>	1 month
All switches activated	34.00 cm <sup>3</sup>	14 days
Combinations:		
5 + 4	3.50 cm <sup>3</sup>	121 days
5 + 4 + 3	8.50 cm <sup>3</sup>	51 days
5 + 4 + 3 + 2	15.80 cm <sup>3</sup>	27 days
5 + 4 + 3 + 2 + 1	30,50 cm <sup>3</sup>	14.5 days
5 + 3 + 2	13.40 cm <sup>3</sup>	28 days
5 + 3	6.00 cm <sup>3</sup>	71 days
5 + 3 + 2 + 1	28.00 cm <sup>3</sup>	16 days
5 + 2	8.50 cm <sup>3</sup>	52 days
5 + 2 + 1	23.10 cm <sup>3</sup>	19 days
4 + 3	7.30 cm <sup>3</sup>	57 days
4 + 2	9.10 cm <sup>3</sup>	45 days
4 + 1	16.80 cm <sup>3</sup>	24 days
4 + 3 + 2	14.50 cm <sup>3</sup>	30 days
4 + 3 + 2 + 1	30.00 cm <sup>3</sup>	15 days
3 + 2	12.20 cm <sup>3</sup>	35 days
3 + 2 + 1	26.80 cm <sup>3</sup>	17 days
3 + 1	19.50 cm <sup>3</sup>	23,5 days
2 + 1	22.00 cm <sup>3</sup>	20 days

#### Technical tips:

Extension with hose or tube is possible up to approx. 1.5 m for grease lubrication and 5 m with oil lubrication. In this case the lubrication charts do not apply because the viscosity of the lubricant and the length of the hose influence the flow behaviour of the lubricant. Mind the correction factors below. There is less resistance in case of oil filling; therefore we recommend to use a check valve with 0.2 bars. The lube dispenser lubricates constantly, i.e. no impulse lubrication.

#### Technical data:

Supply voltage (2 x 1.5V) 3V  
 4 batteries: 2 each parallel connection  
 BSV 03 ATEX E 223  
 Standard type: Varta Electric Power 8008 für Groups I and IIC T 3  
 Special type: Varta Industrial Mignon / AA für Groups I and IIC T 4  
 II 2G EEx ib IIC T4/T3  
 I M2 EEx ib I



No Ex protection is provided for lube dispensers with synchronization.



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#### Correction factors for lubricant dosage:

Tube/hose length mm	Synchronous operation with machine $f_{sy}$	Tube/ hose connecting set $f_{SR}$
<200	1.25	1
>200	1.25	1.16

If not synchronised with the machine operating time (in the case of continuous lubrication), only the factor  $f_{SR}$  will be considered.

#### Temperature factor $f_T$ :

Temperature range	Microlube GB O	Structovis AHD
-20 ...+15°C	2	1,5
+15 ...+35°C	1	1
+35 ...+50°C	0.5	0.7

#### Note:

The correction factors are based upon experience values determined by experiments. If required and/or for specific applications they should be verified and adapted as necessary.

#### Example:

A toothed-rack gear unit  $m=5$  with a travelling speed of  $v=2.5\text{m/s}$  shall be lubricated with an electronically controlled lube dispenser via a felt gearwheel with Klüber Structovis AHD. The following parameters are to be considered:

- The grease supply from the lube dispenser to the felt gearwheel runs through a hose which is 600 mm long.
- The lube dispenser shall be synchronised with the machine.
- Ambient temperature 10°C.

According to the grease dosage diagram for felt-wheel lubrication (catalogue Servo-drive Systems)<sup>3</sup> the dosage for this type of drive is approx. 1.25 cm<sup>3</sup> of grease.

The actually needed amount of lubricant, if the described parameters are considered, can be calculated as follows:

$$1.25 \times 1.16 \times 1.25 \times 1.5 = 2.72 \text{ cm}^3$$

In the chart „setting combinations for lube dispensers“ the lubricant quantity of 2.72 cm<sup>3</sup>, corresponds to the DIP-switch position 4.



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### Technical description for the emptying monitor (magnetic-field sensor): valid only for 65 91 056



<b>Technical data for BMF 305 magnetic-field sensor (PNP N.O. switch)</b>	
<b>Specifications</b>	
Rated field strength H <sub>n</sub>	1 1.2kA/m I
Assured field strength H <sub>a</sub>	> 1 2 kA/m I
Hysteresis H	< 45% of H <sub>n</sub>
Temperature drift of switching point	< 0.3 %/°C
Ambient temperature T <sub>a</sub>	-25...+70 °C
Utilisation category	DC 13
<b>Electrical data</b>	
Operating voltage U <sub>B</sub>	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub> < 100 mA	< 3.1 V
Rated insulation voltage U <sub>i</sub>	75 V DC
Rated operating current I <sub>e</sub>	200 mA
No-load current I <sub>o</sub> damped/undamped	< 30 mA/<10 mA
Cut-off current I <sub>r</sub>	< 80 µA
Protected against polarity reversal	yes
Short-circuit protected	yes
Permissible load capacitance	< 1 µF
<b>Mechanical data</b>	
Type of protection acc. to IEC 529	IP 67
Material of housing	LCP
Type of connection	cable
Number of conductors x conductor cross-section	3 x 0.14 mm <sup>2</sup>

As soon as the remaining quantity of lubricant is approx. 5 % the magnetic-field sensor emits a signal - both electric and visual via an incorporated LED. The magnetic-field sensor recognizes the position of the piston and transmits the signal "empty" (approx. 5% grease or oil reserve until the lubricator will be completely empty) of the electronic lube dispenser to a signal transmitter (e.g. signal lamp, loudspeaker) or to the control.

#### Installation instruction / pin assignment for the magnetic-field sensor:

Pin	Colour	Connection
Bu	blue	- (negative) supply voltage, 10-30 V DC (DC voltage)
Bn	brown	+ (positive) supply voltage, 10-30 V DC (DC voltage)
Bk	black	output (positive)

#### Note:

It is, for example, possible to connect a lamp or a relay winding between pin bk (black) and pin bu (blue). When the switch is closed (yellow LED flashes) the "+" (positive) signal of the supply voltage is connected with pin bk (black); max. possible current of 200 mA at 30 V supply voltage. In this case, for example, the lamp or the relay winding between pin bk (black) and pin bu (blue) would be live making the lamp flash or the relay close. When connecting a relay, it is advisable to provide a protective diode above the relay winding so that the inductive voltage induced in the relay in the dropout mode will be short-circuited thus protecting the switch.