Integrated electronic controls
Type S-EP 4

The electronic control device S-EP 4 is used for the time-dependent or cycle-dependent control of a central lubrication device both for the progressive system (EP pumps) and for the multiple line system (OC pumps).

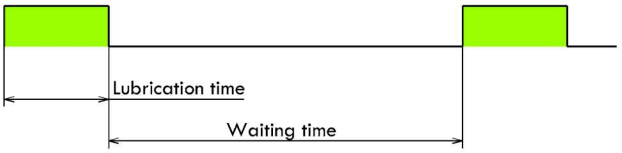
The integrated electronic control S-EP 4 is available with two types of control:

A) Time-program control
B) Time-relay control

The type of control must be indicated with the order.

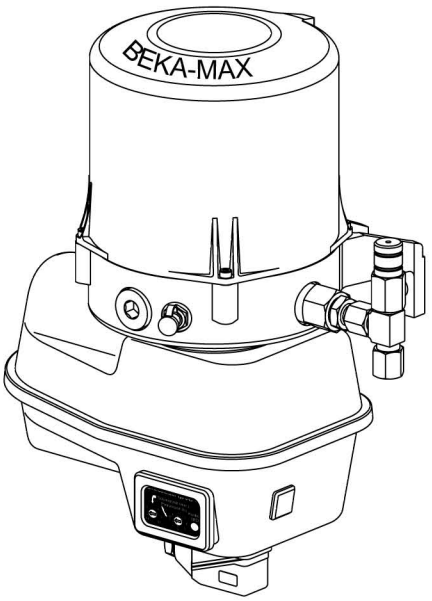
Time-program control:

Operational sequence:
(Lubrication time, waiting time) After turning on the ignition, the yellow LED is illuminated for ca. 2.5 sec. and signals the readiness for operation.

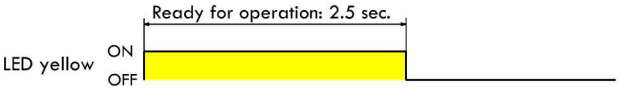


For a functional check an intermediate lubrication must be initiated by operating the pressure switch on the motor casing or dashboard.

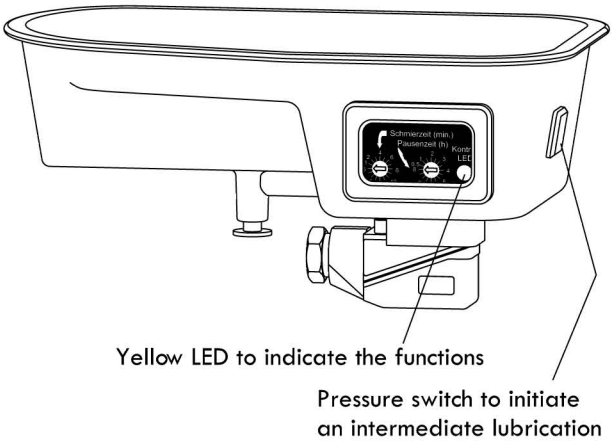
Electropump EP-1 with integrated control



Display of readiness for operation



Integrated electronic control S-EP 4



When operating the pressure switch on the dashboard or the motor casing of the pump, the lubrication cycle is started. When the lubrication cycle is completed, the pump motor is switched off and the waiting time begins. All subsequent lubrications are automatically initiated according to the rhythm of the preset waiting time.

When the ignition is switched off during the waiting or lubrication time sequence, the cycle is stopped and the time stored. When the ignition is switched on again, the operation process will continue on the basis of the stored data from the point, where it has been interrupted before.

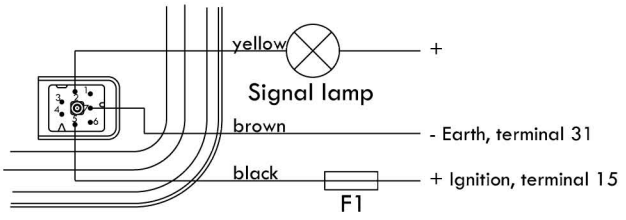
By operating the pressure switch on the motor casing or the dashboard when the ignition is switched on, an intermediate lubrication can be initiated any time.

As soon as the control device is connected for the first time, a lubrication cycle will be initiated.

All control devices have a yellow light-emitting diode, on which the functions are indicated.

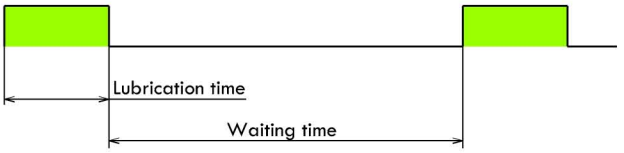
The functions of the light-emitting diode can also be indicated with an external signal lamp on the dashboard.

Cable connection plan for the connection of an external signal lamp:

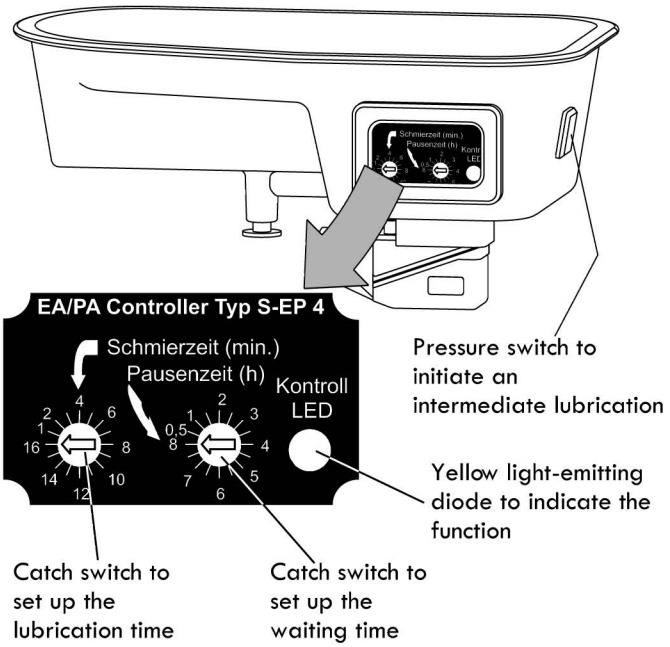


F1 = 6,3 A (5x20) medium inert

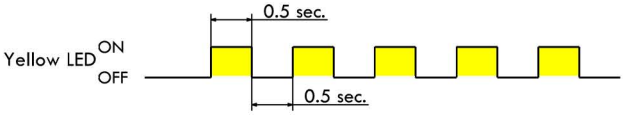
Elapsed time chart



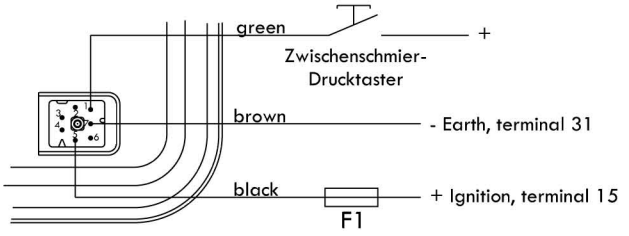
Integrated electronic control S-EP 4



Indication of a lubrication cycle:



Cable connection plan for the connection of an external pressure switch



F1 = 6,3 A (5x20) medium inert

Technical data:

Possible operating voltage:	10 to 60 V
Maximum power load:	I = 6,0 A
Fuse unit (not included in device):	F 6,3 A (5x20) medium inert
Output for signal lamp:	I = 1 A
Temperature range:	- 35°C to +75°C
Protective system:	IP 65

Before the electrical connection:
Observe the voltage of the pump motor.

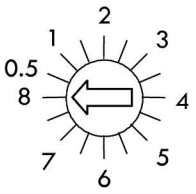
Different non-variable waiting and lubrication time ranges can be set up in the control.

Setting of parameters:

Waiting time:

0.5 h to 8

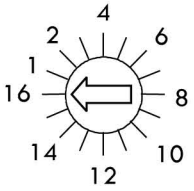
Set-up of waiting time:
(16 catches, 0.5 h each)



Lubrication time:

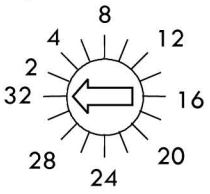
Time range I: 1 min. to 16 min.

Set-up of lubrication time, time range I:
(16 catches, 1 min. each)



Time range II: 2 min. to 32 min.

Set-up of lubrication time, time range II:
(16 catches, 2 min. each)



For time adjustment remove the red frame with a flat screwdriver and loosen the four cross-recessed screws. Subsequently, the transparent cover can be removed. If the cover is not closed properly, water enters into the control and it will be destroyed. In this case the guarantee will become void.

Please indicate the desired time range when ordering.

S-EP 4
Time-relay control

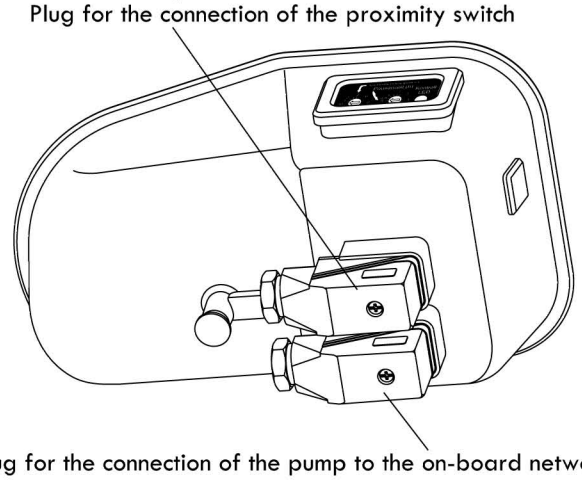
The control device S-EP 4 can also be used for the monitoring of progressive devices. In this case a proximity switch is attached to the progressive distributor, which converts the piston strokes in electrical signals and transmits them to the control device S-EP 4.

The control device has a built-in catch switch with 16 catches where the number of piston strokes required can be set.

The control device has a check time of 4 min. and 20 sec., i.e. each piston stroke of the progressive distributor must be completed within 4 min. and 20 sec. If this is not the case, the control indicates a malfunction, i.e. the yellow light-emitting diode starts flashing.

Lower motor protection casing of the EP-1 with integrated electronic control S-EP 4 equipped for the connection of the proximity switch.
(View from below)

Plug for the connection of the proximity switch



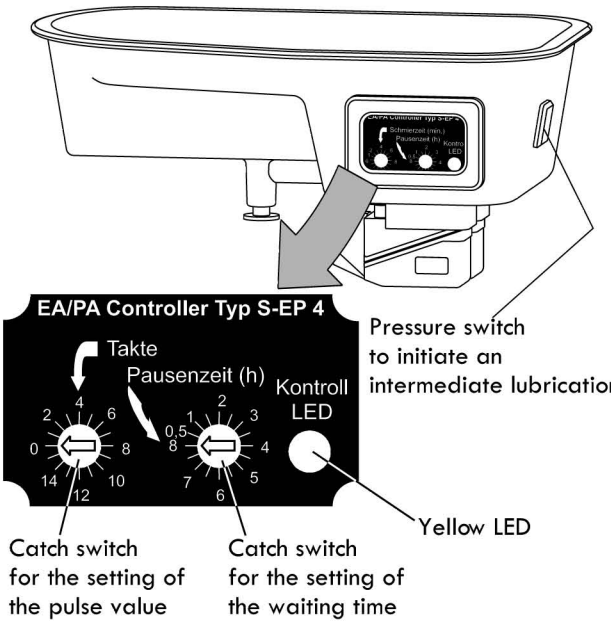
Plug for the connection of the pump to the on-board network

Technical Data:

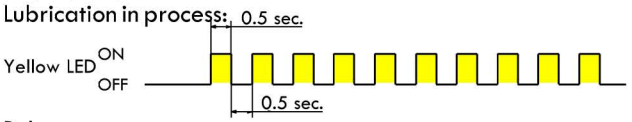
Possible voltage:	10 to 60 V DC
Connection method:	PNP contact
Power rating:	200 mA
Connection:	M12x1 plug-in
Function display:	LED yaune
Housing material:	stainless steel
Protection type:	IP 67
Ambient temperature range:	-40°C to +80°C

Before the elctrical connection:
Observe the voltage of the pump motor.

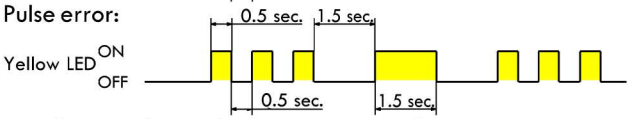
Integrated electronic control S-EP 4



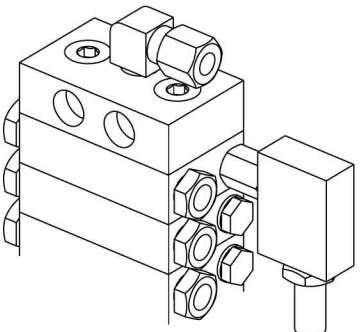
Display of yellow LED:
Lubrication in process:



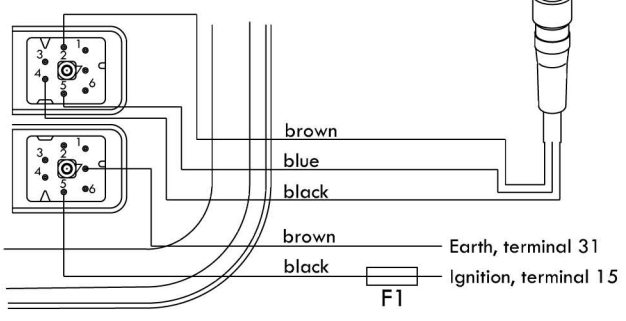
Pulse error:



Distributor with attached proximity switch:



Cable connecting plan:



F1 = 6,3 A (5x20) medium inert

S-EP 4
Special type grease level control

Grease pumps can also be equipped with a grease level control. Therefore, a capacitive proximity switch is built into the pump tank, which sends a signal to the control S-EP 4 in case of a low grease level.

Technical Data:

Possible operating voltage:		10 to 60 V DC
Switching type:		PNP-contact
Switching current:	at 70°C:	250 mA
Current consumption:	without load:	<20 mA
Protection class:	Switch:	IP 67
Ambient temperature range:		-25°C to +70°C
Connection:	Compact plug connector on container	
Protection class:	Plug:	IP 65
Pole allocation:	No. 1 = 10 to 30 V DC	
	No. 2 = Ground	
	No. 3 = NC contact	
	⏚ = vacant	

Before the electrical connection:
Observe the voltage of the pump motor.

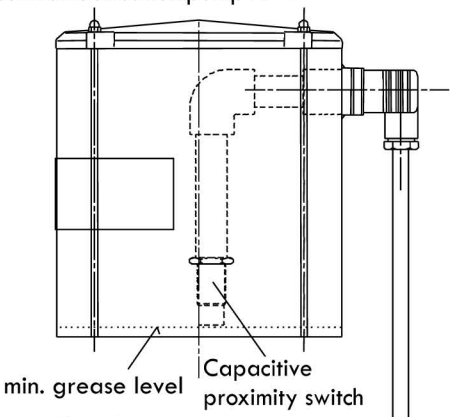
If the grease level is too low, the control analyses the signal received and the yellow light-emitting diode is flashing slowly.
To avoid that air is pumped into the system, the pump turns off when the grease tank is identified as being empty for more than 10 sec. As soon as the tank is filled again, a lubrication command can be given by operating the push button for intermediate lubrications.

The connection of the grease level control to the integrated electronic control S-EP 4 requires a second plug on the lower open channel of the motor.

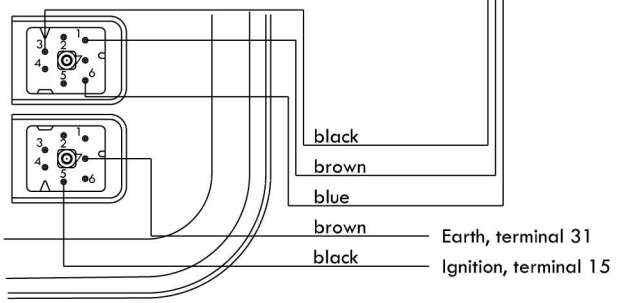
The requirement of a connection of a grease level control must be indicated when ordering.

The grease level control can be connected both to time-program and time-relay controls.

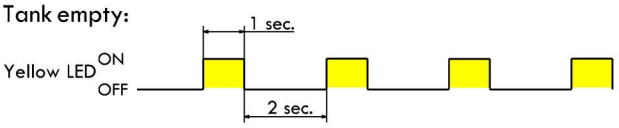
Grease level control built into a 2.5 kgs storage tank of a grease central lubrication pump EP-1



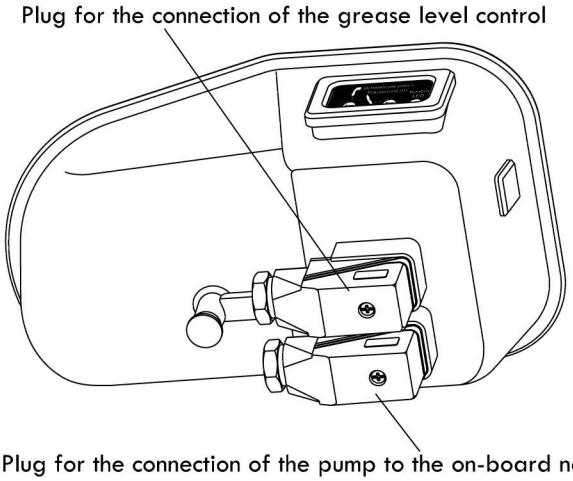
Cable connecting plan



Display of the yellow LED:
Tank empty:



Lower open channel of the motor of the electropump EP-1 with integrated electronic control S-EP 4 equipped for the connection of a grease level control.
(View from below)



S-EP 4
Special type centralized alarm

A centralized alarm can be connected to the integrated electronic control S-EP 4, i.e. interference signals shown on the LED as flashing signals are converted into a permanent interference signal and emitted via an additional cable. The connection must be indicated when ordering.

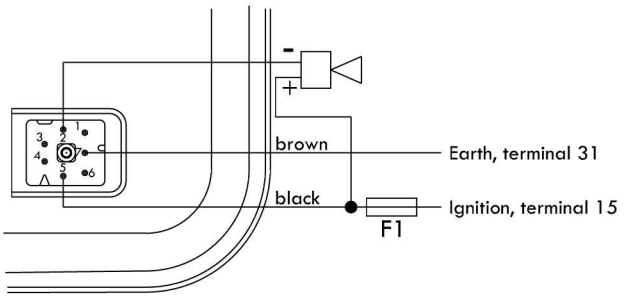
With an extraneous lamp or an audible alarm a permanent signal is emitted as soon as there is an error, i.e. an extraneous lamp built in e.g. the driver's cab would permanently be emitting light or a permanent audible alarm signal would be heard until the error is eliminated.

Lamp, audible alarm and cable are not included in the scope of supply.

Technical data:

Output permanent alarm	1 A

Cable connection plan:
Potential linked + switched (Standard)

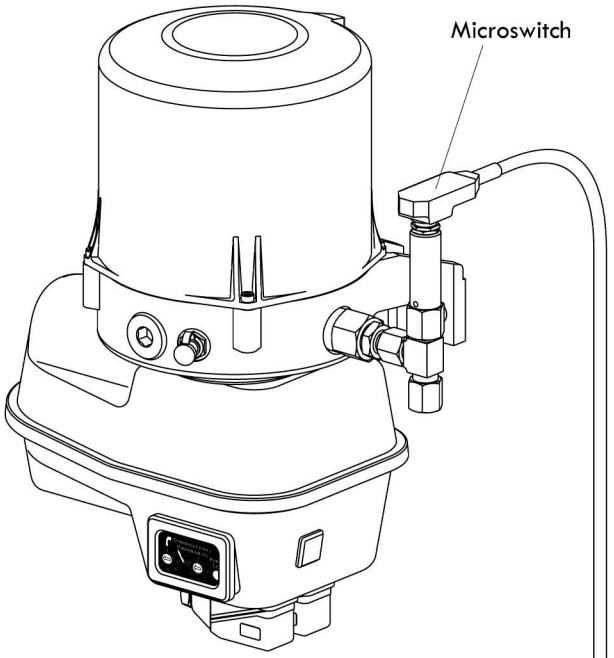


F1 = 6,3 A (5x20) medium inert

S-EP 4
Special type pressure relief valve with microswitch

The maximum working pressure of the progressive central lubrication device can be monitored with the integrated control device S-EP 4.
To achieve this, a microswitch is fitted at the pressure relief valve of the pump element. In the case of a system malfunction e.g. caused by the blockage of a lubrication area, a pressure of over 250 bar is built up.
A microswitch is operated via the pressure relief valve and a signal is transmitted to the control. Subsequently, the pump is turned off and the flashing of the yellow LED or the flashing of the extraneous signal 2 sec. on and 4 sec. off indicates the malfunction.

Pressure relief valve with microswitch on the pump element, installed in an electropump EP-1:



Technical date of the microswitch:

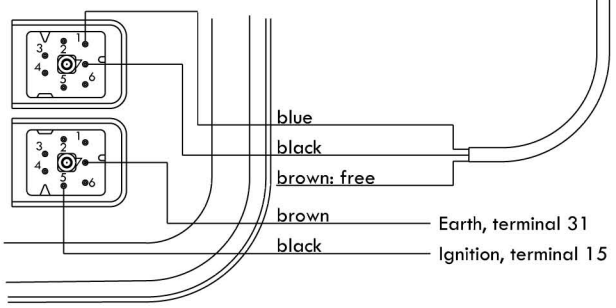
Possible operating voltage:	10 to 60 V DC
Maximum current load:	I = 4 A
Rated operating current:	1 A
Contact type:	1 changeover switch
Service life:	>3x106switching cycles
Temperature range:	-30°C to +80°C
Protection class:	IP 65

Before the electrical connection:
Observe the voltage of the pump motor.

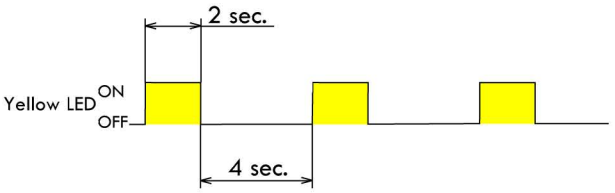
The installation of a pressure relief valve with microswitch must be indicated when ordering.

A pressure relief valve with microswitch cannot be subsequently connected to a control, which is operated as a time-program control, as this would require a second plug at the lower open channel of the motor.

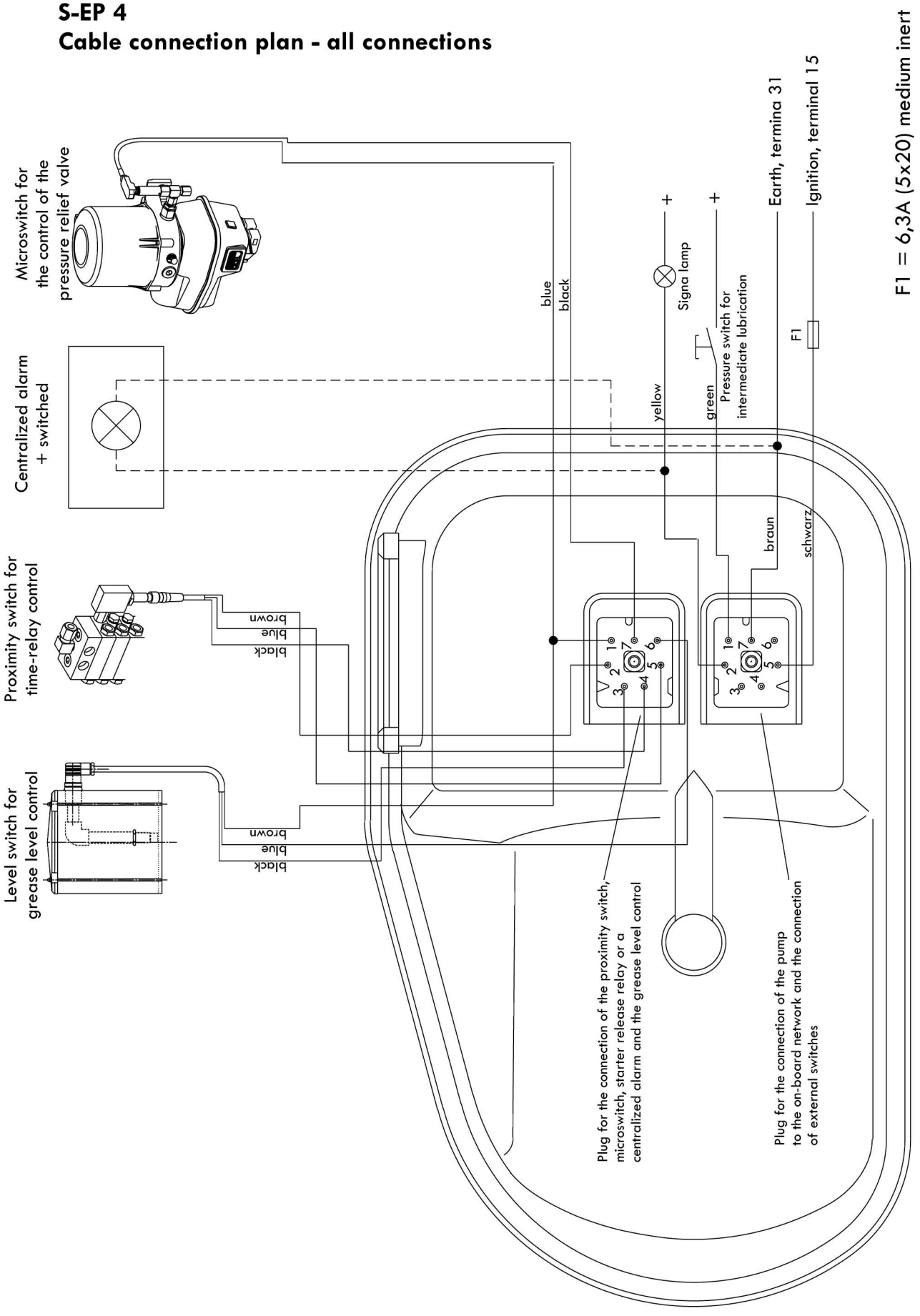
Cable connection plan for the connection of a microswitch to the integrated control S-EP 4:



Display of the yellow LED:



S-EP 4
Cable connection plan - all connections



S-EP 4
Order code EP-1

Type-No. **2147 . 2 . 1 . 1 . 2 . 1 . 00**

Motor voltage	12 V	24 V
Value	1	2

Type of outlet	Number of outlets		
	1	2	3
PE-120	1	2	3
PE-120V	4	5	6

Tank size (kg)	1,9	2,5	4	8 (2 Parts)	8 (1 Part)
Value	5	1	2	3	8

Lubrication time		
Time range 1	1 min. to 16 min.	1
Time range 2	2 min. to 32 min.	2

Switch for intermediate lubrication	Yes	No
Value	1	0

Special type	00
	04
	05

Special types:
04 = grease level control as per drawing No. AZ-2205.5 electric connected at control unit
05 = grease level control as per drawing no. AZ-2205.5 not connected at control unit

Order code integrated control S-EP 4
for EP-1 and OC-1

Type-No. **2147 . 9000 . 2 . 1. 00**

Lubrication time		
Time range I	1 min. to 16 min.	1
Time range II	2 min. to 32 min.	2

Switch for intermediate lubrication	yes	no
Value	1	0

Special type	00