



**One-line aggregate
GEI-A**

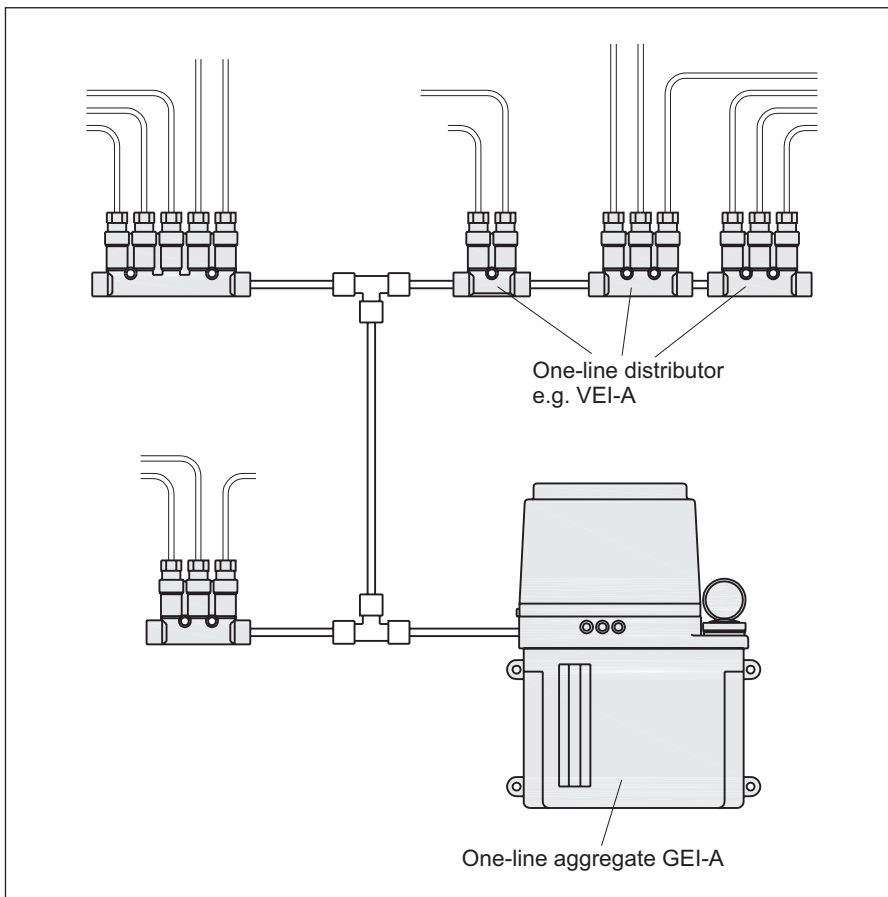
Use:

This aggregate is used as pump in central lubrication systems that are based on the one-line principle.

General construction:

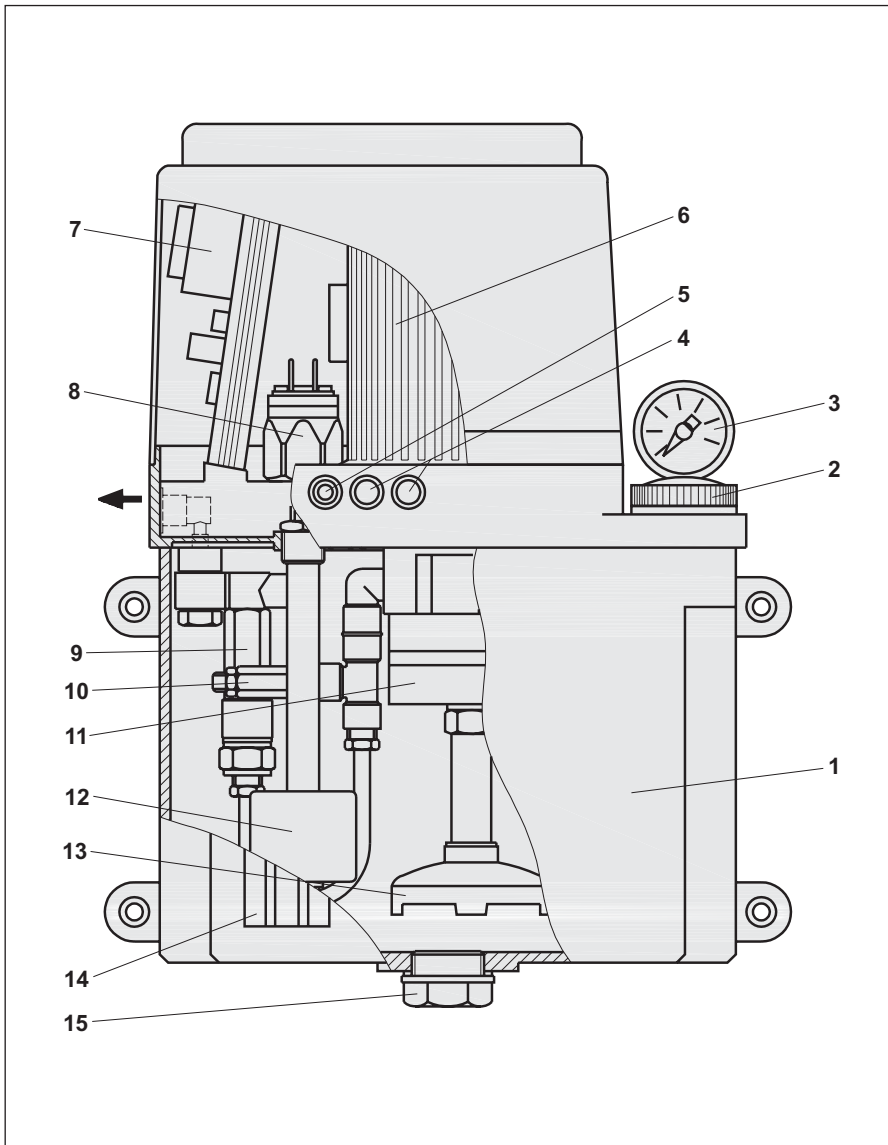
Essentially, the aggregate consists of the reservoir, motor and delivery pump as well as the pressure control and relief valves. Besides, the control unit, monitoring, and auxiliary parts can be used to adapt the aggregate to its environment of use.

Control unit and motor are housed inside the casing.



General technical data:

Delivery volume: 0,2 or 0,5 l/min.
Reservoir sizes: 3, 6 or 10 l
Reservoir material: Steel sheet, aluminium or polyamide (transparent)
Electr. control: optional



Mode of operation:
(by example of control variant "2")

The automatic mode starts with the working time (motor run time). The pump delivers the lubricant to the metering elements. Upon reaching the operating pressure, the residual volume flows through the relief valve back into the reservoir.

A pressure switch is used to monitor delivery pressure.

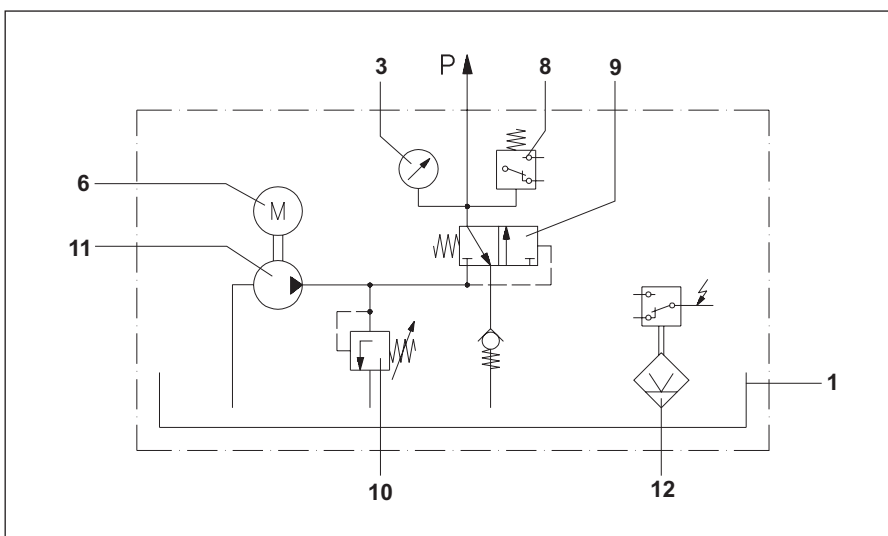
10 seconds after reaching the pressure switch signal, working time ends. The duration of the subsequent off-duty time can be set by means of micro switches.

When off-duty time commences, the main line will be pressure-relieved with the oil in the metering elements being recirculated. Now, a new working cycle can start.

If, within 120 seconds after commencement of working time, the pressure switch releases no signal, working time will be discontinued. Concurrently, the red signal lamp will indicate the presence of a fault.

Item: Designation:

- 1 - Reservoir
- 2 - Filling cover with vent
- 3 - Gauge
- 4 - Signal lamps
- 5 - Push button
- 6 - Motor
- 7 - Electric control
- 8 - Pressure switch
- 9 - Relief valve
- 10 - Pressure control valve
- 11 - Gear pump
- 12 - Filling level switch
- 13 - Suction filter
- 14 - Filling level indicator
- 15 - Oil-discharge screw



- Subject to modifications -



Control:

General:

- When voltage is applied, the GREEN signal lamp lights up and remains switched-on throughout operation. In case of any fault, the RED signal lamp will light up.
- Upon one-line aggregate switch-on, a lubrication cycle (pre-lubrication) will be carried out.
- Working time should not exceed 5 minutes. Off-duty time must be at least double as long as working time.
- In case of need, the push-button can be pressed in order to effect intermediate lubrication. Upon push-button release, lubrication cycle will start.

Control versions:

Version "0" (without control)
(GEI-A / 0 / .. / ..)

The pump's working and off-duty times are determined by the machine's control unit. Control signals are evaluated externally. Aggregates without control units are not fitted with signal lamps. For monitoring, the aggregate can be equipped with

- Level switch
- Gauge
- Pressure switch.

Switching diagram:

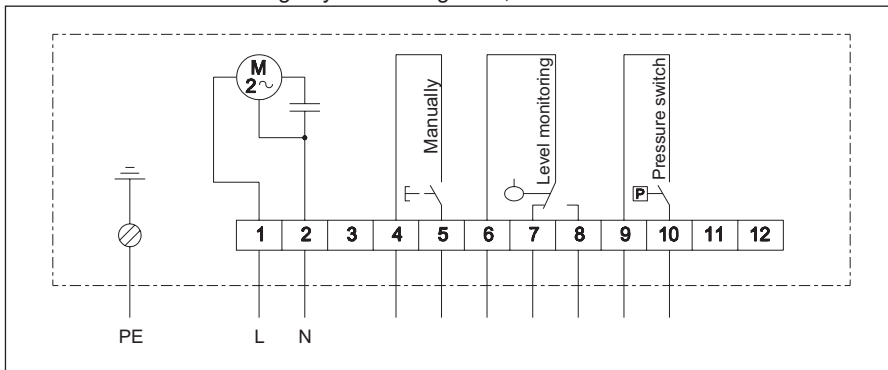
Note:
All contacts in this switching diagram are shown in off-duty condition. For electric level monitoring (reservoir without oil), the minimum-contact is activated by means of the float.

- Level monitoring ⇒ Reservoir without oil
- Pressure switch ⇒ Circulation without pressure
- Push button ⇒ without actuation

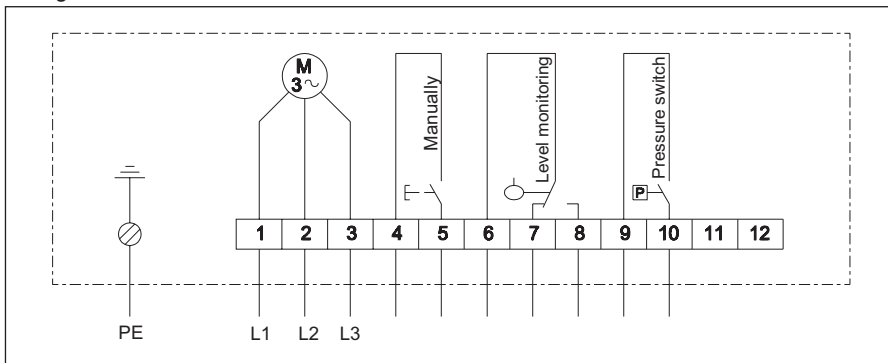
- Subject to modifications -

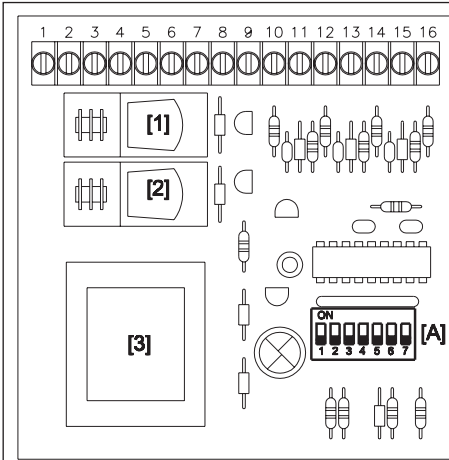
Electric connection diagram:
Voltage 115VAC and 230VAC:

CAUTION!!! Before starting any connecting work, turn main switch off.



Voltage 230/400/460VAC:





[A] = Switch off-duty time
 [1] = Relay 1 (alarm)
 [2] = Relay 2 (motor)
 [3] = Transformer

Control "2" (time control)
 (GEI-A / 2 / .. / ..)

General:

Off-duty time: programmable
 Working time: Pressure switch signal +10 seconds.
 Working time depends on metering volumes and number of lubrication points. When 120 seconds of working time are exceeded, a fault will be indicated.

Fault: see "monitoring"

Setting the off-duty time:

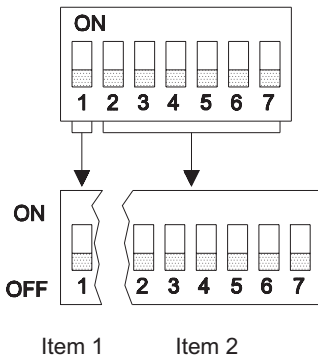
Microswitch 1 (item 1) is used to determine as to whether off-duty time is to be expressed in hours or minutes.

Switch 1 ON = hours
 Switch 1 OFF = minutes

Microswitches 2 to 7 (item 2) are used to set the off-duty time, whilst values of the various switches are aggregated.

- 2 ON = 32 (hours or minutes)
- 3 ON = 16 (hours or minutes)
- 4 ON = 8 (hours or minutes)
- 5 ON = 4 (hours or minutes)
- 6 ON = 2 (hours or minutes)
- 7 ON = 1 (hours or minutes)

Off-duty time:



Example 1:
 Lubrication cycle every 15 minutes:
 Switch 1 OFF = minutes
 $15 = 8 + 4 + 2 + 1$
 Switch position 4 - 5 - 6 - 7 ON

Example 2:
 Lubrication cycle every 2 hours:
 Switch 1 ON = hours
 Switch position 6 ON

Fault indication:

Indication:	possible cause:	Remedy:
Red signal lamps lights	- minimum oil filling level in reservoir	- Refill reservoir and actuate push-button
	- Within 120 seconds of pump operation, the pressure switch did not acknowledge any pressure build-up	- Check for leakage in lubricant circulation - Check pressure switch

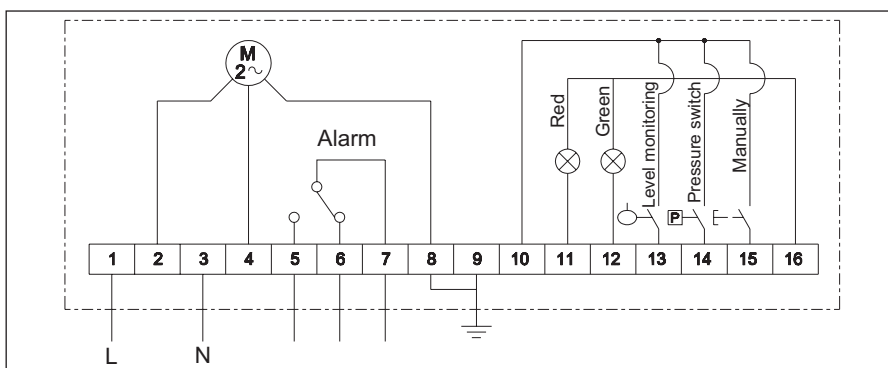
Monitoring:

In case of faultless operation, relay 1 is picked up. If any fault occurs, relay 1 will be released. At the same time, the red signal lamp will light up, thus indicating the fault. At the terminal strip, the connection between terminals 5 and 7 will be disconnected, while terminals 6 and 7 will close. These contacts are used for external evaluation of fault messages.

The following items are monitored:
 - minimum oil filling level
 - Pressure switch function

Electric connection diagram:

CAUTION!!! Before starting any connecting work, turn main switch off.



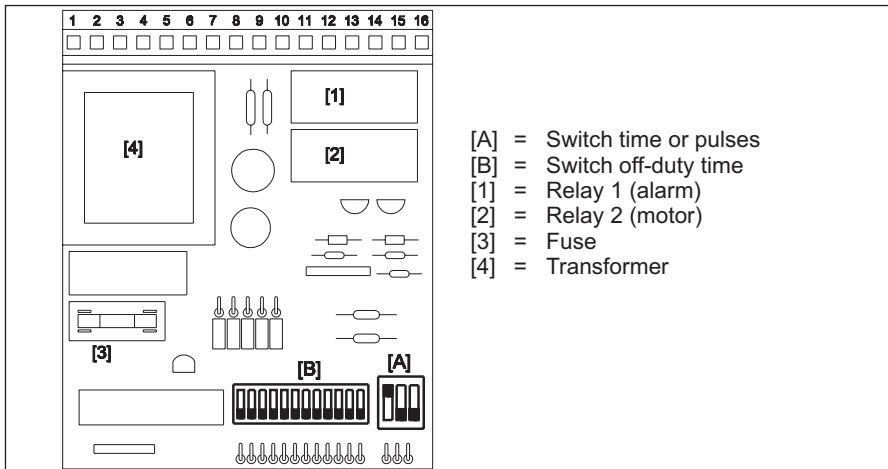
Switching diagram:

Note:

All contacts in this switching diagram are shown in off-duty condition. For electric level monitoring (reservoir without oil), the minimum-contact is activated by means of the float.

- Level monitoring ⇒ Reservoir without oil
- Pressure switch ⇒ Circulation without pressure
- Push button ⇒ without actuation

- Subject to modifications -



Control "7" (time and pulse control)
(GEI-A / 7 / .. / ..)

General:

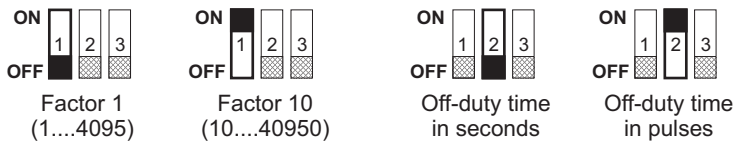
Off-duty time:
Time or number of pulses can be programmed optionally.

Working time:
Pressure switch signal +10 seconds.

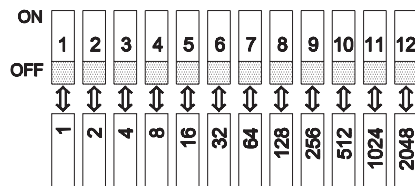
Working time depends on metering volumes and number of lubrication points. When 120 seconds of working time are exceeded, a fault will be indicated.

Fault: see "monitoring"

Switch [A]:



Switch [B]:



Setting the off-duty time:

Microswitch [A1] is used to determine as to whether off-duty time is to be stated by factor 1 (1...4095) or factor 10 (10...40950). Switch [A2] is used to specify the off-duty time in seconds or pulses.

Switches [B1] to [B12] serve to set the off-duty time, whilst values of the various switches are aggregated.

Application example:
 1 lubrication cycle per hour:
 1 hour = 60 minutes = 3600 seconds
 Put switch [A1] into position OFF (1-4095)
 Put switch [A2] into position OFF (seconds)
 Switch [B]: 3600 = 2048+1024+512+16
 Put switch elements 12-11-10-5 into position ON

Fault indication:

Indication:	possible cause:	Remedy:
Red signal lamp lights	- minimum oil filling level in reservoir - Fuse [3] faulty - General fault in control unit	- Refill reservoir and actuate push-button - Replace fuse - Replace control card
Red signal lamp flashes steadily	- Within 120 seconds of pump operation, the pressure switch did not acknowledge any pressure build-up	- Check for leakage in lubricant circulation - Check pressure switch
Red signal lamp flashes quickly twice	- Pressure switch does not signalise any pressure relief at pump standstill	- Check both pressure switch and pressure relief valve
Red signal lamp flashes quickly three times	- Switching [A] or [B] may be programmed wrongly	- Correct programming and actuate push-button

Monitoring:

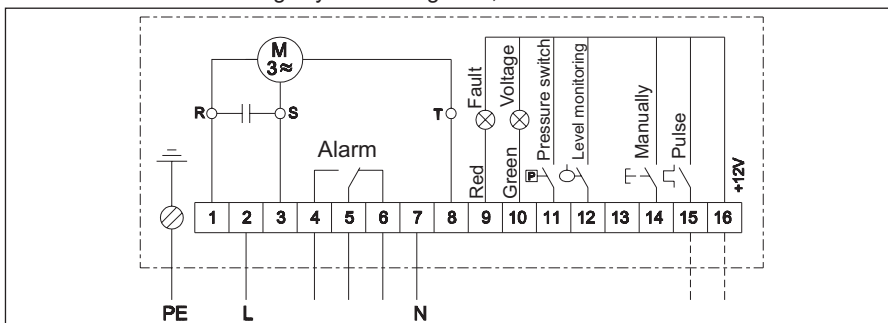
In case of faultless operation, relay 1 is picked up. If any fault occurs, relay 1 will be released. At the same time, the red signal lamp will light up, thus indicating the fault. At the terminal strip, the connection between terminals 4 and 5 will be disconnected, while terminals 5 and 6 will close. These contacts are used for external evaluation of fault messages.

The following items are monitored:

- minimum oil filling level
- Pressure switch function
- Programming at switches [A] and [B]

Electric connection diagram:

CAUTION!!! Before starting any connecting work, turn main switch off.



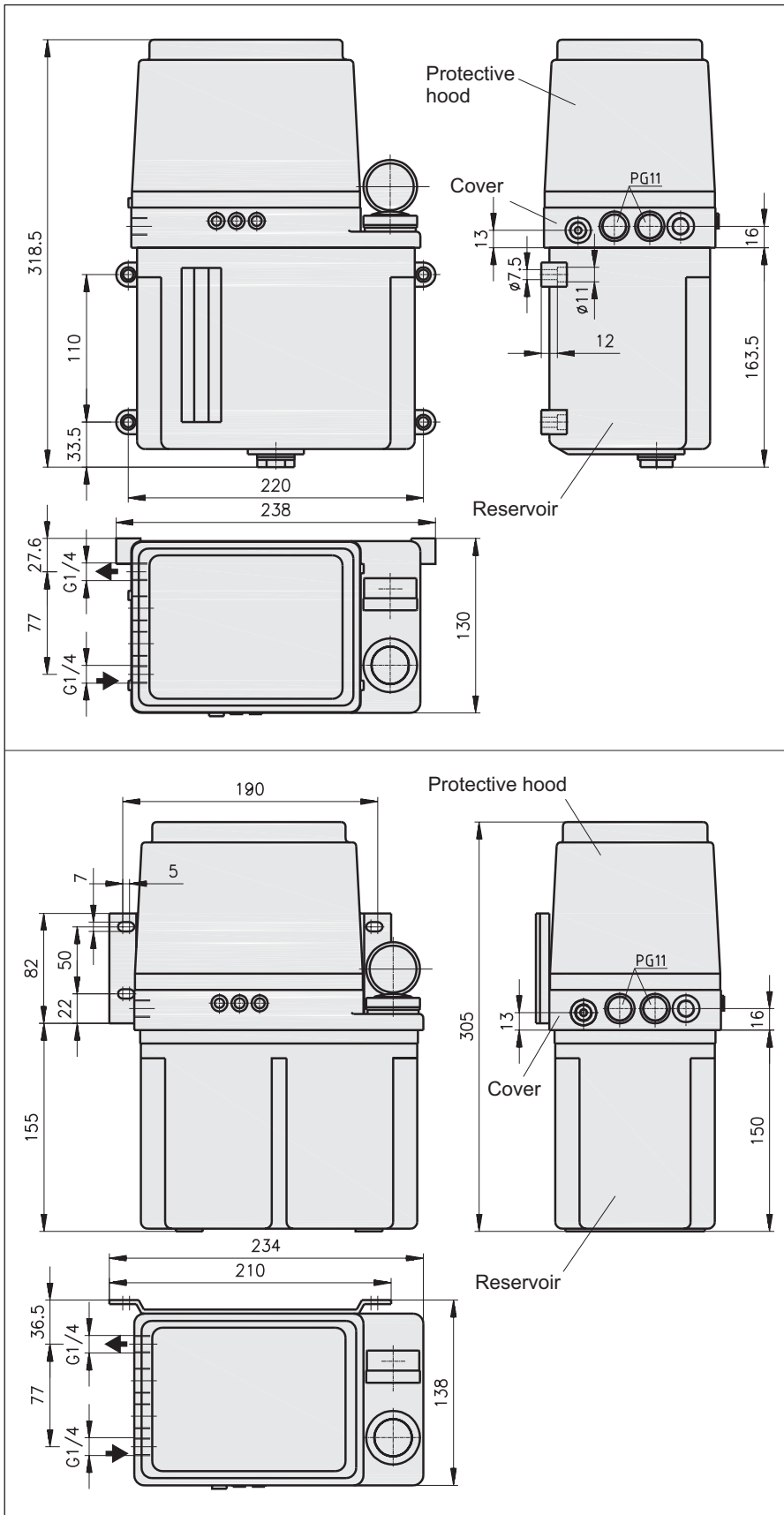
Switching diagram:

Note:

All contacts in this switching diagram are shown in off-duty condition. For electric level monitoring (reservoir without oil), the minimum-contact is activated by means of the float.

- Level monitoring ⇒ Reservoir without oil
- Pressure switch ⇒ Circulation without pressure
- Push button ⇒ without actuation

- Subject to modifications -



Reservoir versions:

Reservoir 3l / Al parameter "10"
(GEI-A / ... / 10 / ...)

Reservoir capacity:	3 l
Material	
Reservoir:	Aluminium
Cover:	Aluminium
Protective hood:	Polyamide

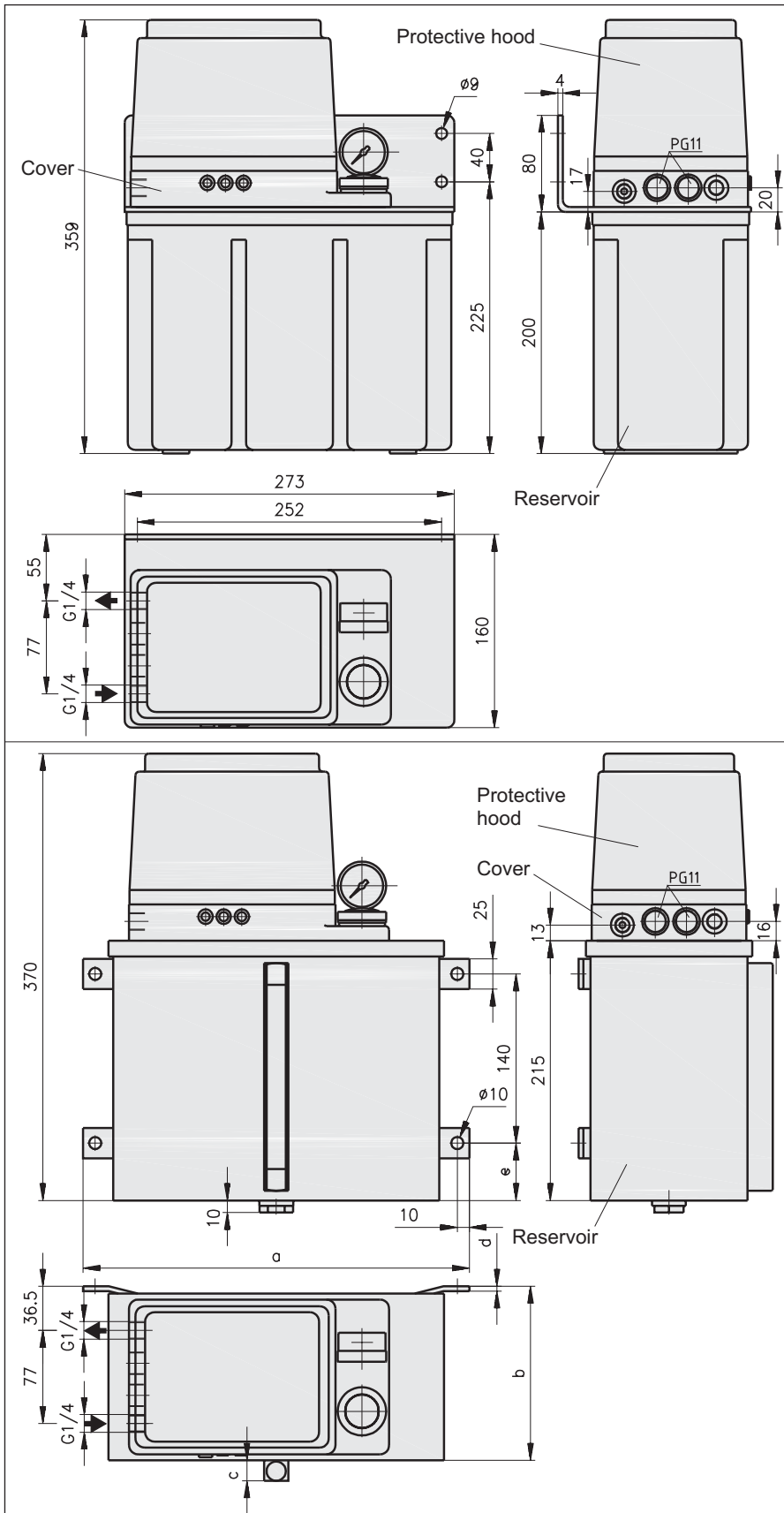
Reservoir 3l / PA parameter "11"
(GEI-A / ... / 11 / ...)

Reservoir capacity:	3 l
Material	
Reservoir:	Polyamide (transparent)
Cover:	Aluminium
Protective hood:	Polyamide

- Subject to modifications -



- Subject to modifications -



Reservoir 6l / PA parameter "21"
(GEI-A/.../21/...)

Reservoir capacity: 6 l

Material

Reservoir: Polyamide (transparent)
Cover: Aluminium
Protective hood: Polyamide

Reservoir 6l / St parameter "22"
(GEI-A/.../22/...)

Reservoir capacity: 6 l

Material

Reservoir: Steel sheet
Cover: Aluminium
Protective hood: Polyamide

Reservoir 10l / St parameter "32"
(GEI-A/.../32/...)

Reservoir capacity: 10 l

Material

Reservoir: Steel sheet
Cover: Aluminium
Protective hood: Polyamide

Reservoir	a	b	c	d	e
6l / St	320	161	17	4	47,5
10l / St	425	177	11	7	45



Technical data:

Gear pump:

Delivery volume: 0,2 or 0,5 l/min
 Medium: Mineral oil, synthetic oil
 Operating viscosity
 at 0,2 l/min: 50 ... 2000 mm²/s
 at 0,5 l/min: 50 ... 1000 mm²/s
 Operating pressure at max.: 25 bar

Reservoir:

Capacity: 3, 6 or 10 l
 Material: Steel sheet, aluminium, polyamide (PA)
 Oil temperature: 0 ... +60 °C
 Ambient temperature: 0 ... +40 °C

Motor:

Turn-on time at max.: 5 min
 Turn-off time at min.: double the turn-on time
 Starting frequency at max.: 30/hour
 Voltage and frequency
 single-phase: 115VAC 50/60Hz 0,6A
 230VAC 50/60Hz 0,3A
 three-phase: 230/400V 50/60Hz 0,5/0,3A
 Power: 0,07 kW
 Speed
 at 50 Hz: 2800 U/min
 at 60 Hz: 3200 U/min

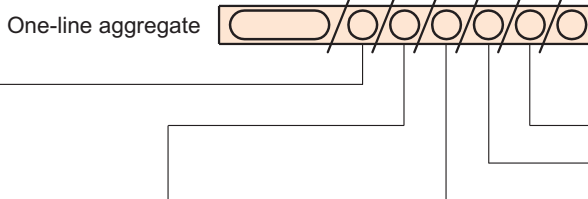
Level switch:

Electrical data at max.: 42VAC; 0,7A; 50VA

Pressure switch:

Electrical data at max.: 42V; 30VA

Purchase-designation:



Control	Auxiliaries	Reservoir	Delivery volume	Voltage
without ①	without ①	3l Aluminium ⑩	0,2 l/min. ②	115V Alternating current ①
	Push-button ①	3l Polyamide ⑪		230V Alternating current ②
	Push-button level switch ②			230/400V Three-phase current ③
	Push-button level switch gauge ③	6l Polyamide ⑳	0,5 l/min. ⑤	230/400V Three-phase current ③
Time control ②	Push-button level switch gauge pressure switch ④	6l Steel sheet ㉒	0,2 l/min. ②	115V Alternating current ①
		10l Steel sheet ㉓		230V Alternating current ②
		Time and pulse control ⑦		

Purchase-example:

One-line aggregate GEI-A without control, with push-button and level switch, 6l reservoir made of steel sheet, delivery volume 0,2 l/min, voltage 230V.

Purchase-designation:

GEI-A/0/2/22/2/2/0

- Subject to modifications -