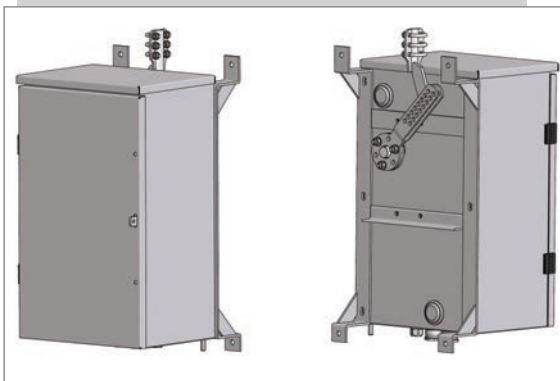


# Operating and Maintenance Instructions

## Outdoor - motor drive

### UM 100



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# 1 Introduction

Thank you for choosing one of our products. We hope it gives you many hours of successful and problem-free operation.

The Outdoor motor drive UM 100 has been specially designed and manufactured to meet your requirements.

Do you have any questions you would like to ask us? We look forward to hearing from you.

[www.driescher.com](http://www.driescher.com)

## 1.1 Notes on this manual

### 1.1.1 General notes

This operating and maintenance manual contains all information and descriptions required to operate the motor drive. This document was created with the utmost care. Any suggestions or comments would be gratefully received.

To make the instructions in this manual easier to follow, the descriptions are accompanied by figures and schematic diagrams of the switching device or its assemblies.

### 1.1.2 Use of symbols / legend

The following symbols are used in this manual in addition to the warning notices outlined in the chapter *Safety*:



**WARNING:** Warns of danger to people. Failure to comply with the warning indicated by this symbol will result in severe injuries.



**CAUTION:** Failure to comply with the warning indicated by this symbol could result in injuries.



**ATTENTION:** Warns of possible material damage or malfunctions. Technical information requiring particular attention.

## 1.2 Product description

### 1.2.1 General

The outdoor motor drive UM 100 is used to actuate (remotely-controlled or manually) outdoor switches in conjunction with a shift linkage. Through the vertical movement of the operating crank, it is generating a stroke of approx. 200 mm, a actuating angle of 90° and an max. rated torque of 700 Nm.

A switching operation takes a few seconds. Several motor and control supply voltages are available 24 - 220 V DC and 125 V AC - 230 V AC. The motor operating time depends on the upcoming torque at the operating shaft.

The mechanical life time is specified with 10.000 switching operations.

In case of a power supply breakdown it is possible to operate by means of an emergency hand crank. A integrated friction clutch protect against possible overload. The door is with a padlock lockable.

! The connecting situation between the UM 100 and the switch is described in the operating manual „shift linkage“.

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1.2.2 Assemblies and functional elements

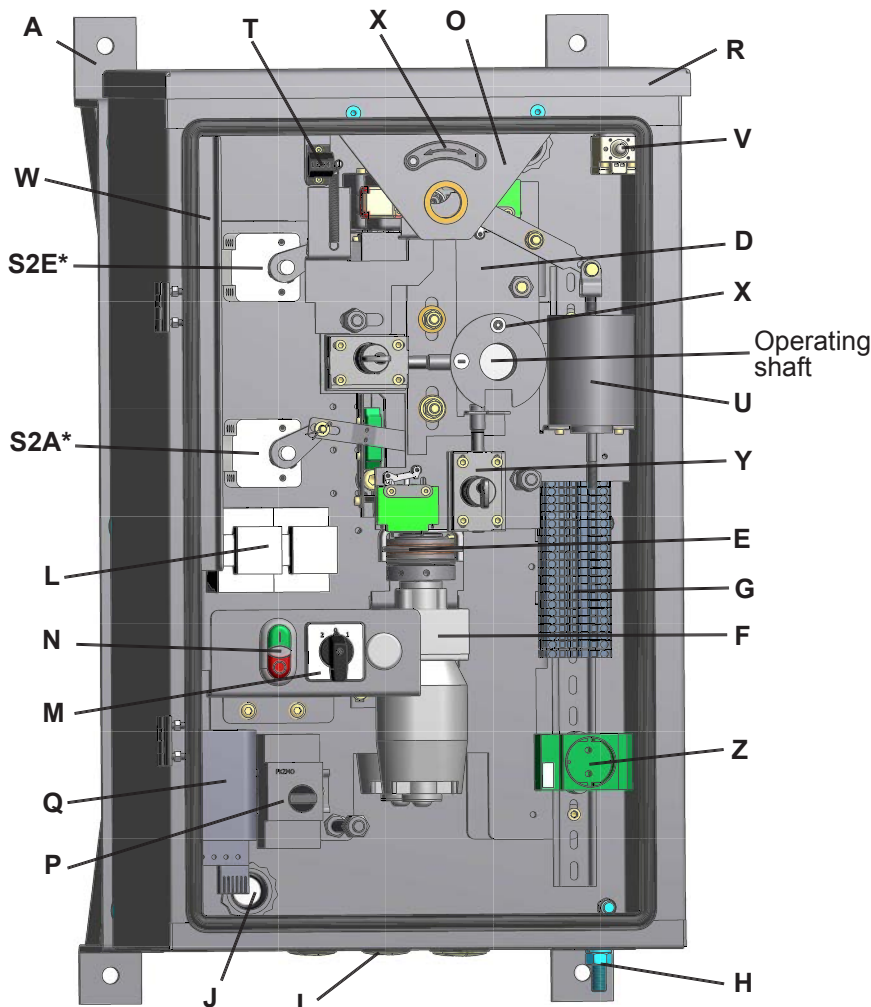


Fig. 1: Motor drive UM 100 without door and cover

- |   |  |      |  |
|---|--|------|--|
| A | Support frame  | O    | Guide plate for inserting on the emergency hand crank with direction indicator X |
| B | Head of clamping rod (for linkage pipe 1"), see Fig. 5 | P    | Protective motor switch <sup>1</sup>   |
| C | Emergency hand crank, see Fig. 5                       | Q    | Thermostat / Heating <sup>1</sup>  |
| D | Main gear box  | R    | Stainless steel housing  |
| E | Friction clutch  | S2A* | Auxiliary switch motor drive „OFF“   |
| F | Motor with gear box                                    | S2E* | Auxiliary switch motor drive „ON“  |
| G | Terminal connections                                   | T    | Counter mechanism <sup>1</sup>   |
| H | Earthing terminal                                      | U    | Magnetic interlocking <sup>1</sup>   |
| I | Cable entry  | V    | Signalling contact door position <sup>1</sup>                                    |
| J | Ventilation  | W    | Lightning <sup>1</sup>   |
| K | Hygrostat <sup>1</sup> (without Fig.)                  | X    | Position indicator ON / OFF  |
| L | Control contactor                                      | Y    | Key interlocking system <sup>1</sup>   |
| M | Change over switch <sup>1</sup> Local / OFF / Remote   | Z    | Socket outlet <sup>1</sup>   |
| N | Push button on-site <sup>1</sup> ON / OFF              |      |  |

<sup>1</sup> as option

\* corresponding for sense of rotation "B" (reverse for sense of rotation "A")

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## 2 Safety

### 2.1 Intended use / Warranty

The motor drive is intended for use according to the operating conditions described in the 7 *Technical data* section.

Any use other than what is outlined in this section is classed as an unintended use. It is prohibited to use the product in hazardous area.

Any use other than what is outlined in this section is classed as an unintended use.

Any of the following carried out without explicit written approval from the manufacturer can lead to the warranty being rendered null and void:

- modifications or extensions
- use of non-original spare parts
- repairs carried out by companies or persons not authorised by the manufacturer.

### 2.2 Personnel selection and necessary qualifications

Persons working with the switching device must

- be at least 18 years of age
- have the appropriate expertise for the respective activities
- be familiar and follow the current valid rules and safety regulations

The owner decides on the necessary qualifications for

- operating personnel
- maintenance personnel
- repair personnel

The owner must ensure that only authorised personnel work on the switching device.

Personnel learning to use or being introduced to the device, or operating the device as part of training, may only work on the switching device when supervised by an experienced member of staff.

All work on the motor drive may only be carried out by trained qualified personnel (DIN VDE 0105-100) and in compliance with all valid regulations specified in the accident prevention regulations (UVVen).

### 2.3 Organisational safety

The owner must ensure that this operating and maintenance manual is always in the immediate vicinity of the persons responsible for assembling, operating and carrying out maintenance work on the motor drive.

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## 2.4 Dangers caused by the motor drive

The possible danger sources of the motor drive are outlined below. Thorough introductory sessions and training for operators help minimise the danger to both people and equipment. Carrying out regular checks on the knowledge levels and compliance with safety regulations contributes significantly to accident-free operation over the long term.

### 2.4.1 Danger due to moving parts



**WARNING:** The motor drive has moving components, some of which can be moved remotely (electrical and/or mechanically) with significant force. Touching these parts poses a risk of personal injury or material damage.



Before starting work, it is important to ensure that there is no danger from moving part.

During maintenance work, components moved electromechanically must be shut down by switching OFF the operating voltage.

### 2.4.2 Danger due to electrical supply voltage



**WARNING:** When operating electrical switching devices, components in the immediate vicinity are supplied with dangerous voltage. Touching these parts poses a risk of personal injury or material damage.



The danger zone of the switching device may only be accessed by persons who are aware of the electrical dangers thanks to specialist training, knowledge and experience and can implement the necessary occupational health and safety measures.

Other people may only enter the danger zone when accompanied by the persons listed above.

### 2.4.3 Danger due to falling emergency hand crank



**CAUTION:** If the emergency hand crank is not pressed against the spring pressure onto the emergency hand crank connection, it falls down and could cause personal injury or material damage. To help prevent personal injury and material damage, the emergency hand crank must be removed from the emergency hand crank connection after every use.

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## 2.5 Safety installations

For the protection of both personnel and the product, safety installation help prevent accidents or material damage caused by moving parts and assemblies.

The operator must ensure that trained personnel

- check all safety installations regularly.
- remove any problems on the safety installations immediately.
- secure the switching device against being switched ON if not all safety installations are present and working.

### 2.5.1 Elektrical safety installations

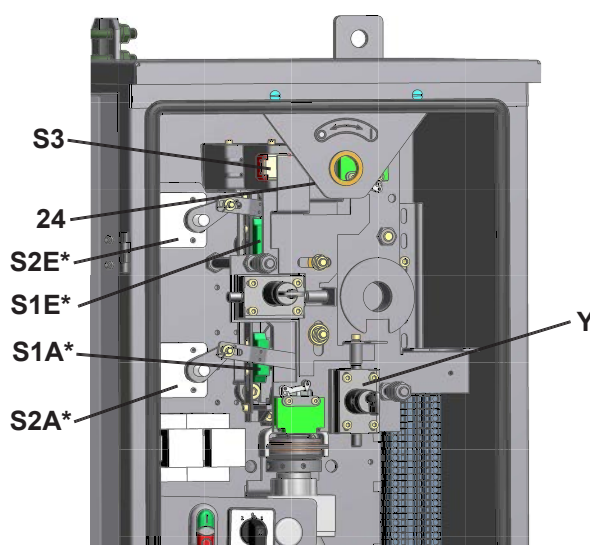


Fig. 2

<u>Component / Assembly</u>	<u>Function</u>
S1E*	Contact switch „ON“
S1A*	Contact switch „OFF“
S2E*	Auxiliary switch „ON“
S2A*	Auxiliary switch „OFF“
S3	Emergency hand crank safety switch
* corresponding for sense of rotation "B" (reverse for sense of rotation "A")	

### 2.5.2 Mechanical safety installations

<u>Component / Assembly</u>	<u>Function</u>
Y	Key interlocking system <sup>1</sup>
24	Emergency hand crank pressing-off fixture
<sup>1</sup> as option	



## 2.6 Checking the safety installations

### 2.6.1 Checking the electrical safety installations

#### S3 emergency hand crank switch (Fig. 2, 3, 4 and 8)

- Disconnect the switch cables from the power supply.
- Move the sliding sleeve (24) on the emergency hand crank connection against the spring pressure and hold, the safety switch (S3) switches.
- Apply the switch signal on the switching device (change the switch position), the motor drive must not start.
- Switch off the switch signal.
- Release the sliding sleeve (24), it moves into its start position with the help of the springs
- Apply the switch signal on the motor drive (change the switch position), the motor drive must start up.

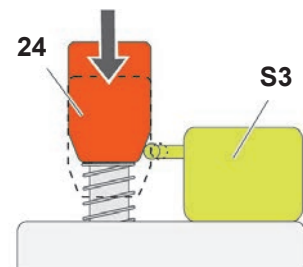


Fig. 3

#### S2A and S2E auxiliary switches (Fig. 2)

Proceed as described under *Functional check, auxiliary switches* (see 4.2.4).

### 2.6.2 Checking the mechanical safety installations

#### Emergency hand crank pressing-off fixture (Fig. 2, 3, 4 and 8)

If the inserted emergency hand crank (C) is released, it is pressed off the emergency hand crank connection by the sliding sleeve (24) via spring pressure (10).

Ensure that the emergency hand crank cannot be left inserted on the emergency hand crank connection.

#### Key interlocking system (Y) (Fig. 2)

Observe customer-specific requirements.

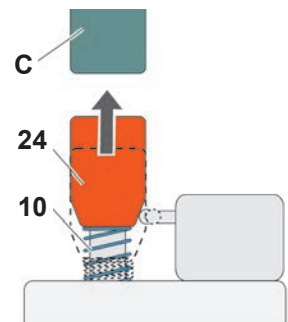


Fig. 4

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### 3 Operating elements

- Guide plate (O) for inserting on the emergency hand crank (C)
- Push button on-site<sup>1</sup> ON / OFF (N)
- Change over switch<sup>1</sup> Local / OFF / Remote (M)

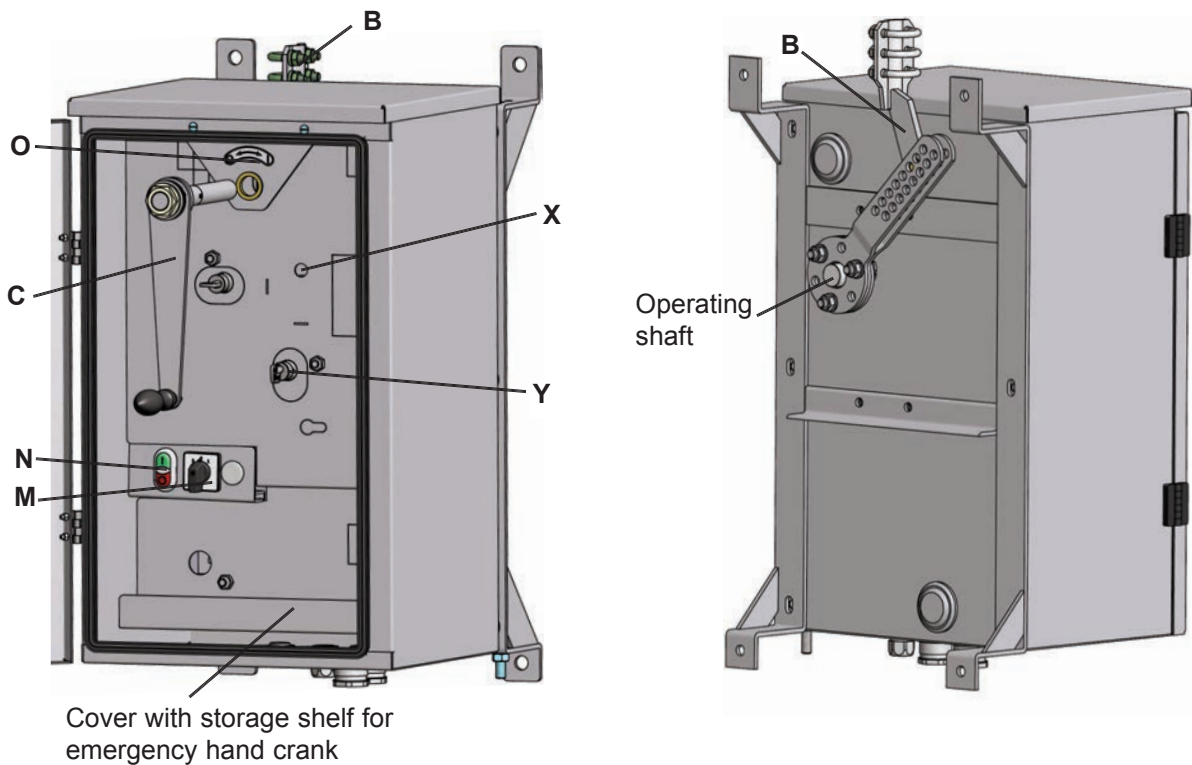


Fig. 5: Motor drive UM 100 without door and back view

- B Head of clamping rod (for linkage pipe 1"), Connection to the shift linkage  
 C Emergency hand crank  
 M Change over switch<sup>1</sup> Local / OFF / Remote  
 N Push button on-site<sup>1</sup> ON / OFF  
 O Guide plate for inserting on the emergency hand crank (C) with direction indicator  
 X Position indicator ON / OFF  
 Y Key interlocking system<sup>1</sup>

<sup>1</sup> as option

## 4 Commissioning

### 4.1 Transport and storage

Once you have received the delivery please carefully unpack the motor drive and check for any transportation damage. Should you determine any damage please report this immediately and indicate the carrier.

After unpacking, clean the motor drive and accessories to remove any contamination from packing material and protect against moisture and contamination prior to installation. To transport the motor drive only hold at the frame (A). Thoroughly clean the motor drive prior to putting into operation to remove dust with a clean dry cloth. Until they have been placed, keep the motor drive in a dry place and protected against the elements. The motor drive has to be stored vertical in mounting position.

### 4.2 Mounting the motor drive

#### 4.2.1 Attachment

➔ **ATTENTION:** We recommend carrying out the assembly on a precisely aligned assembly system. Stresses on the motor drive can lead to malfunctions. It is recommended to use 4 pcs. minimum M10 for tightening on the aligned assembly system (A). Use the intended fastening bores (x). The motor drive is intended for vertical mounting position.  
**Tightening torque mind. 32 Nm.**

#### 4.2.2 Establishing the earth potential connection

Connect the cable to the earth potential (H) to the screw connection M12.  
**Tightening torque: 75 Nm.**

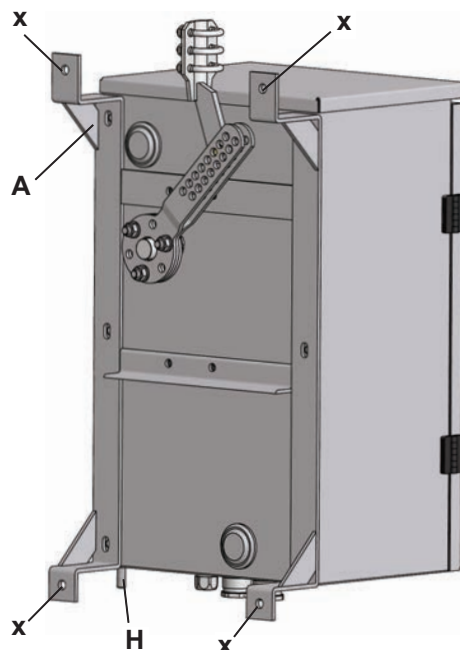


Fig. 6



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### 4.2.3 Connecting the motor drive and auxiliary switches

- Establish the motor drive power supply on the terminal connections (G\*).

**ATTENTION:** The electrical connection cables must be laid in such a way that damage by crushing, bending or pulling is excluded.

\* In accordance with the enclosed circuit diagram  
*Circuit diagramm, sample, chapter 9*

➔ **ATTENTION:** We recommend monitoring the switch operating time via the operator control.  
The max. operating time should be less than 15 seconds between switch position ON and OFF.

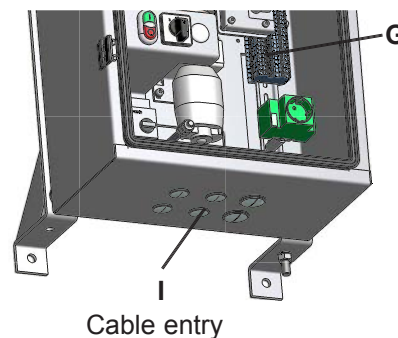


Fig. 7

### 4.2.4 Functional check

#### Carrying out test switches

Carry out 5 test switching cycles with the power supply disconnected.

- Carry out a functional check by using the emergency hand crank to move the motor drive several times from switch position ON to its switch position OFF and back again. The drive components must reach their relevant end positions without problems and free from play

#### Checking the auxiliary switches (S2A/S2E)

- Have the emergency hand crank ready.
- Bring the motor drive in a position between the two switching positions ON and OFF (approx. half way).
- Bring the motor drive in switch position ON. The ON contact of the auxiliary switch to be checked must be switched.
- Move the motor drive towards switch position OFF. The OFF contact of the auxiliary switch to be checked must be switched

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## 5 Operation

### 5.1 Work station

The owner must ensure that the work station complies with all valid regulations and has sufficient lighting.

### 5.2 Visual check



**WARNING:** Missing or loose components could result in personal injury or material damage. Check that all mechanical components are complete and secured in place.

If faulty or loose mounting parts are detected on the switching device, it may only be commissioned again after it has been repaired by an expert.

A check must be carried out to ensure that the safety installations are complete and functional (see 2.5) prior to commissioning.

#### 5.2.1 Commissioning

Once the entire assembly and successful functional check are complete, the motor drive is ready for use.

#### 5.2.2 Temporary decommissioning

The automatic switch function of the motor drive can be decommissioned by disconnecting the power supply. Operation via the emergency hand crank is still possible.

#### 5.2.3 Decommissioning

The motor drive can be decommissioned by disconnecting the power supply and all switch connections (switch cables and wires to the auxiliary switch).

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## 6 Maintenance

### 6.1 Maintenance intervals

Interval	Action
Annual	Visual check, inspection <ul style="list-style-type: none"> <li>• Remove soiling</li> <li>• General control of external damage.</li> <li>• Interior control of traces of corrosion.</li> <li>• Operability of the ventilation openings (J).</li> <li>• Control at ingress of humidity, small animals and so on</li> <li>• Complete control of the output crank (B) inclusive head of the clamping rod</li> <li>• Tightening check of the fasteners, motor drive attachments, shift linkage (e.g. split, pins, nuts,..)</li> </ul>
AFTER 10.000 switching cycles or 10 years	<ul style="list-style-type: none"> <li>• Activities as described under <i>annual</i>.</li> <li>• Lubricate the following components of the motor drive with the lubricant Isoflex NBU<sup>1</sup> (see 7.1) so that the interacting components are sufficiently lubricated:                             <ul style="list-style-type: none"> <li>• Guide rollers (15) on both sides, driver pin (21) inclusive guide rails (16) on both sides and connecting fork (17)</li> <li>• Ball and screw spindle drive (18) and both rolling-contact bearing (19)</li> <li>• Bevel gearing (20) and shifting sleeve (10) at the emergency manual drive (it is necessary to remove the covering (25))</li> <li>• All moveable parts</li> <li>• Function control of the pilot switches (S1A and S1E, see Fig. 1), protective motor switch (P), emergency switch (S3, see Fig. 8), heating and thermostat (Q)</li> <li>• Carry out a functional check (see 4.2.4).</li> </ul> </li> </ul> <p><b>Attention:</b> For the friction clutch (22) to work properly, it must not come into contact with lubricant.</p>
10.000 switching cycles	<ul style="list-style-type: none"> <li>• Maximum of mechanical life</li> </ul>

<sup>1</sup> See lubricants under 7.1 Technical data.

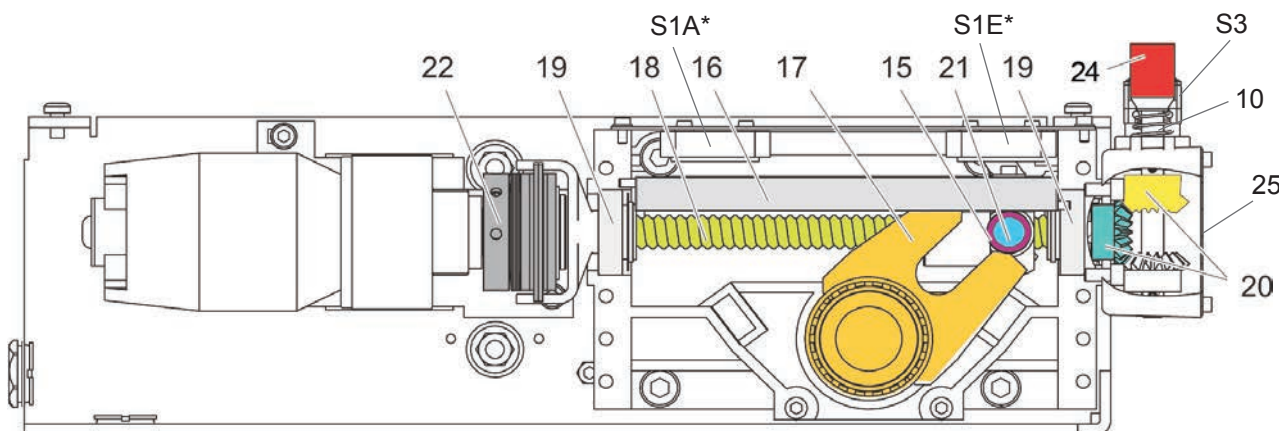


Fig. 8

\* corresponding for sense of rotation "B"  
(reverse for sense of rotation "A")



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## 6.2 Service address

Our specialist personnel can be contacted by telephone in the event of faults or to answer any questions you may have with regard to the compatibility, assembly or maintenance, including outside business hours.

Please always provide the information on the identification plates.

Phone: +49 8761 681-0  
E-mail : [service@driescher.de](mailto:service@driescher.de)  
Internet [www.driescher.de](http://www.driescher.de)

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## 7 Technical data

### General

Dimensions (ca. LxWxH in mm)	796 x 434 x 526
Weight	ca. 50 kg
Rated power supply voltage (U <sub>a</sub> )	24 VDC - 230 VAC
Rated motor output	500 W
Maximum tightening torque	700 Nm
Degree of protection	up to IP 65
Mechanical life time	10.000 switching cycles
Operating movement	90°
Operating time (load-dependent)	max. 6 sec.
Emergency hand crank	yes

### Ambient operating conditions in accordance with EN 62271-1

Temperature range	-25° to +55°
Altitude of installation site	max. 1000m above sea level
Wind speed	max. 34 m/s
Pollution degree, acc. to table 1 IEC 60815	II (medium)
Solar radiation	1000 W/m <sup>2</sup>

### Storage conditions

Storage conditions	dry and dust-free -30° up to +60° Celsius vertical in mounting situation
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## 7.1 Required Lubricants

Order no.: <sup>1</sup>	Lubricant name / Type	Manufacturer
1-49007015	Isoplex NBU 15	Klüber Lubrication

<sup>1</sup> At Firma DRIESCHER



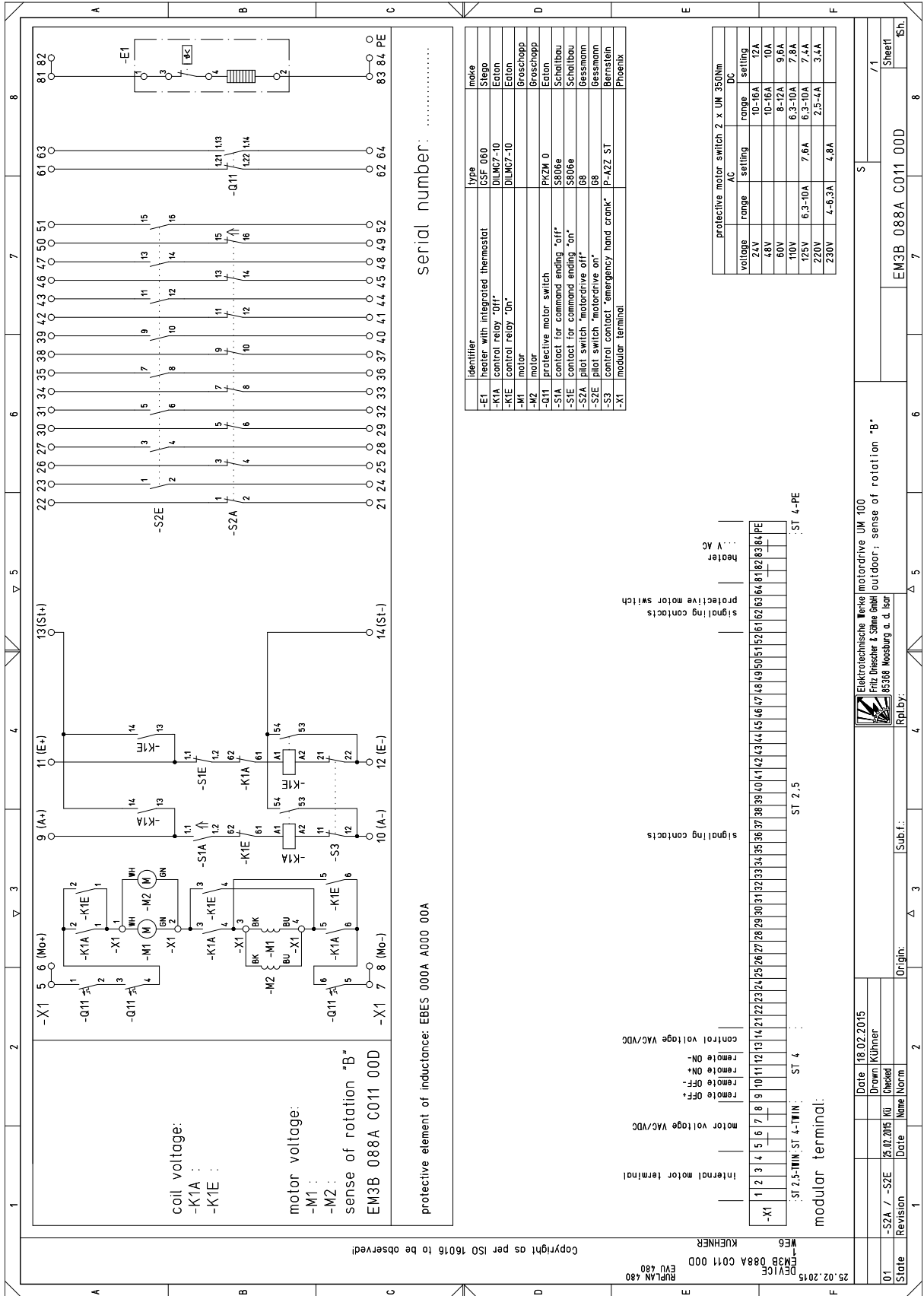
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## 8 Disposal



The switching device must be dismantled by qualified personnel.  
It must be disposed of in an environmentally-friendly manner. Electrical components must not be disposed of as household waste. 2002/96/EC(WEEE)

### 9 Circuit diagram - sample



# 10 Drawing - sample

max. cable entry:  
4x M25  
2x M32

157  
60,60  
189  
60

434  
384  
710  
796  
750  
50

for padlock  
( $\varnothing 6,9$  and  $\varnothing 9,4$ )

earthing connection M12

enclose material: stainless steel

degree of protection:  
standard IP55  
optional IP65

sense of rotation:  
A: clamping rod is at the bottom in position ON  
B: clamping rod is at the top in position ON

stroke at 90° actuating (45°/45°):  
min.: 177 mm  
max.: 261 mm

55  
180  
124  
235  
min. 125  
max. 184.5

(emergency) hand-crank (only useable by open door)

tightening torque M10 for clamping rod mounting: min 32Nm

clamping rod for pipe  $\varnothing$  ca. 33 mm

382  
505  
ca. 526

( 1 : 20 )

Sheet 02  
Pos. 001  
DIN A

3 115987-001-02 b

Orderer: - Commission: -

Mod.	b	09.07.2014	Fischer	A.M.N. 27.05.2014 FIS059 new version part	This drawing is under reservation of all rights legal protected and neither permitted to become manifolded nor to become accessible to third persons particularly competitors.
Mod.	a	17.03.2014	Heindl	updated	
Index		Date	Name	Mode of alternation	
Official in charge		05.06.2014	Fischer	Developped from:	
Examined		10.07.2014	Scharlach	Replacement for:	
Norm				Replaced by:	
Scale 1:	motor drive UM100				
1 : 10	rated torque M <sub>d</sub> =700 Nm, T = 382 mm				
Scale 2:	operating crank adjustable 15°				

**Driescher Moosburg**  
Elektrotechnische Werke  
Fritz Driescher & Söhne GmbH  
95888 Moosburg / Isar

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## Notes

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