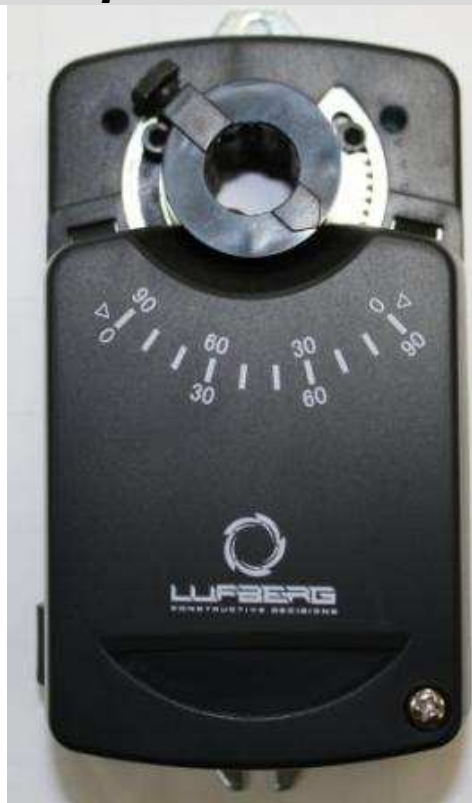


## Actuators for air shutters 4Nm 2-3 points control



- Lufberg presents actuators with torque 4Nm for using in heating, air conditioning and cooling systems.
- High quality level DA04N serie are intended for small and middle size shutters controlling and water shutters also (with special adapter)
- Their small size and clever design guarantee ideal solution for application in small spaces.

### Advantages:

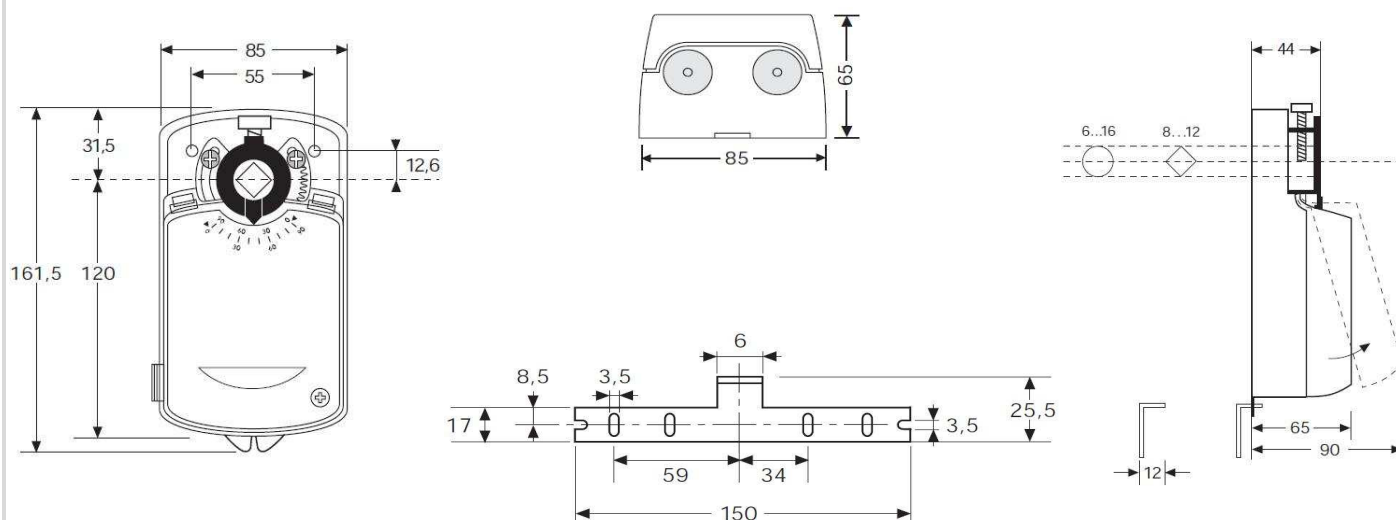
- 2 or 3 points control
- Independent opening time when loaded
- Possibility to connect up to five actuators in parallel connection
- Shaft locking by screw
- Simply application by multi-purpose adaper for:
  - Round bars with diameter 6-16mm;
  - Square bars with diameter 8-12 mm
- Low level of noise in operation
- Mechanical locking of rotation angle
- Outlet of gearing by switch on the cover
- Two auxiliary switches possible
- Low energy intensity in the final position
- Equipped by chock for protection of engine body overturning

### Selection model table

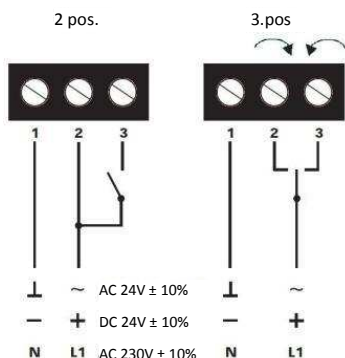
| Torque | Runing time | Shutter´s area         | Voltage   | Auxiliary switches | Model            |
|--------|-------------|------------------------|-----------|--------------------|------------------|
| 4 Nm   | 35sec       | max 0.8 m <sup>2</sup> | 24V AC/DC | No                 | <b>DA04N24</b>   |
|        |             |                        |           | 2 SPDT*            | <b>DA04N24S</b>  |
|        |             |                        | 230V AC   | No                 | <b>DA04N220</b>  |
|        |             |                        |           | 2 SPDT*            | <b>DA04N220S</b> |

\*SPDT (Single-Pole Double-Throw) – monopolar group of switching contacts

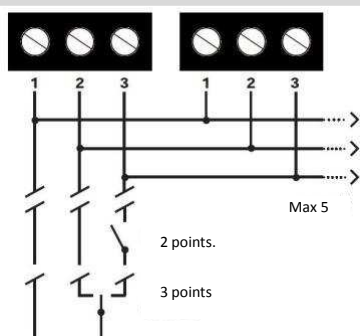
### Dimensions and connecting dimension (mm)



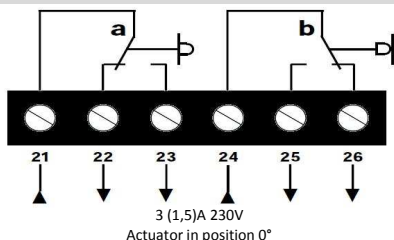
### Wiring diagram



### Parallel connection



### Auxiliary switches



### Technical specification

| Model                                  | DA04N24                           | DA04N220                       |
|--|-----------------------------------|--------------------------------|
| Torque                                 | 4 Nm                              | 4 Nm                           |
| Shutter's area                         | max 0.8 m <sup>2</sup>            | max 0.8 m <sup>2</sup>         |
| Runing time                            | 35 sec                            | 35 sec                         |
| Voltage                                | 24V AC/DC                         | 230V AC                        |
| Frequency                              | 50/60 Hz                          | 50/60 Hz                       |
| Required performance:                  |                                   |                                |
| - turning:                             | 2.5 W                             | 4.1 W                          |
| - extreme points                       | 0.85 W                            | 3.0 W                          |
| Computation power                      | 4.1 VA                            | 5.0 VA                         |
| Weight                                 | 1.0 kg                            | 1.0 kg                         |
| Noise (at work), 1m                    | <45 dB(A)                         | <45 dB(A)                      |
| Turning angle                          | 0~90°<br>(93° mechanically)       | 0~90°<br>(93° mechanically)    |
| Maximal angle rotation                 | 0°~30° and<br>90°~60°             | 0°~30° and 90°~60°             |
| Adjustment of angle                    | 5°~85° (5° step)                  | 5°~85° (5° step)               |
| Control signal                         | 2-3 points                        | 2-3 points                     |
| Feedback signal                        | no                                | no                             |
| Connecting cable                       | 1 m                               | 1 m                            |
| Reqired voltage for auxiliary switches | 3 (1.5)A/230V                     | 3 (1.5)A/230V                  |
| Life cycles                            | 60000 cycles                      | 60000 cycles                   |
| Level of protection                    | IP54                              | IP54                           |
| Protection class                       | III                               | II                             |
| Outside temperature                    | -30~+50 °C                        | -30~+50 °C                     |
| Suitable humidity                      | 5~95%,<br>Without<br>condenastion | 5~95%,<br>Without condenastion |
| Storage temperature                    | -40~+70 °C                        | -40~+70 °C                     |
| Standards                              | CE, ISO9000, GOST                 | CE, ISO9000, GOST              |
| Assembling methods                     | Non specified                     | Non specified                  |



- When torque calculated is necessary to consider the technical information from producer of the air shutter especially voltage, type and place of installation, technical requirements of flowing air.
- Actuator is allowed to be mounded and used with voltage condition only when all requirements mentioned in charter have met.
- Actuator Is allowed to used only with conditions met in the class of protection required by producer.

### Auxiliary switches regulation and adjustment of rotated direction

Indicate of angle position can be changed by switches **a + b** as needed

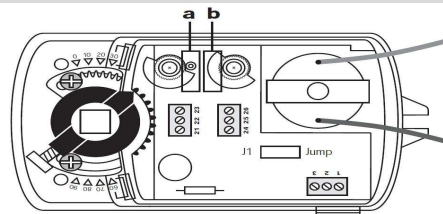
Deatful adjustment:

Switch **a** -> 10° Switch **b** -> 80°

Direction of rotation can be changed by **J1** conector

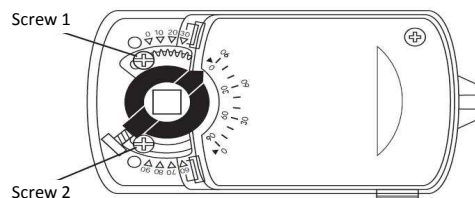
Deatful adjustment:

- Anti-clockwise.



### Regulation of the rotation angle boundaries

Working range 90° can be reduced to 30° per end position by screws 1 and 2.



## Actuators for air shutters 8Nm, 16Nm, 24Nm 2-3 points control



- Lufberg presents actuators with torque 8Nm, 16Nm, 24Nm for using in heating, air conditioning and cooling systems.
- High quality level DA08N, DA16N, DA24N serie are intended for small and middle size shutters controlling and water shutters also (with special adapter)

### Advantages:

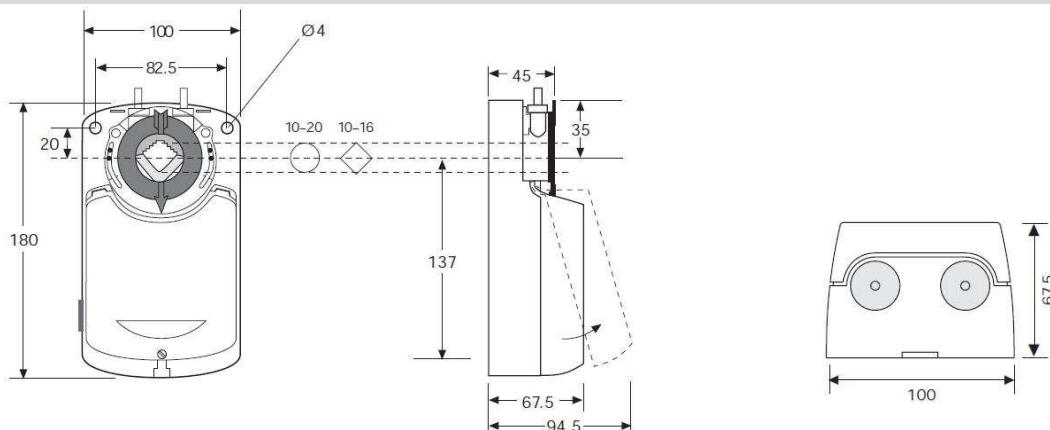
- 2 or 3 points control
- Independent opening time when loaded
- Possibility to connect up to five actuators in parallel connection
- Multi-purpose adapter for direct mounting
- Simply application by multi-purpose adapter for:
  - Round bars with diameter 10 - 20 mm;
  - Square bars with diameter 10 - 16 mm.
- Low level of noise in operation
- Selection of the rotation
- Mechanical locking of rotation angle
- Outlet of gearing by switch on the cover
- Two auxiliary switches possible
- Low energy intensity in the final position
- Equipped by chock for protection of engine body overturning

### Selection model table

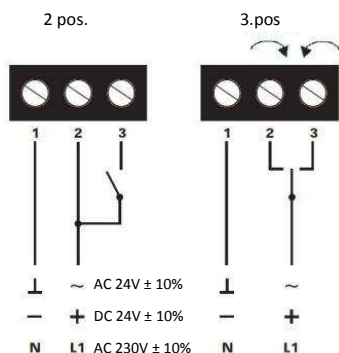
| Torque | Runing time | Shutter ´s area       | Voltage   | Auxiliary switches | Model                               |
|--------|-------------|-----------------------|-----------|--------------------|-------------------------------------|
| 8 Nm   | 30sec       | max 1.5m <sup>2</sup> | 24V AC/DC | no<br>2 SPDT*      | <b>DA08N24</b><br><b>DA08N24S</b>   |
|        |             |                       | 230V AC   | no<br>2 SPDT*      | <b>DA08N220</b><br><b>DA08N220S</b> |
| 16 Nm  | 80sec       | max 3.0m <sup>2</sup> | 24V AC/DC | no<br>2 SPDT*      | <b>DA16N24</b><br><b>DA16N24S</b>   |
|        |             |                       | 230V AC   | no<br>2 SPDT*      | <b>DA16N220</b><br><b>DA16N220S</b> |
| 24 Nm  | 125sec      | max 4.5m <sup>2</sup> | 24V AC/DC | no<br>2 SPDT*      | <b>DA24N24</b><br><b>DA24N24S</b>   |
|        |             |                       | 230V AC   | no<br>2 SPDT*      | <b>DA24N220</b><br><b>DA24N220S</b> |

\*SPDT (Single-Pole Double-Throw) – monopolar group of switching contacts

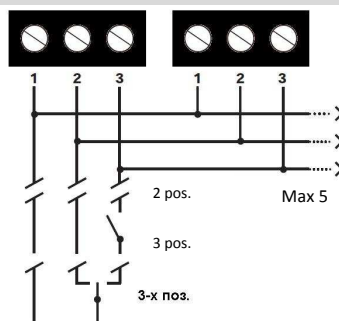
### Dimensions and connecting dimension (mm)



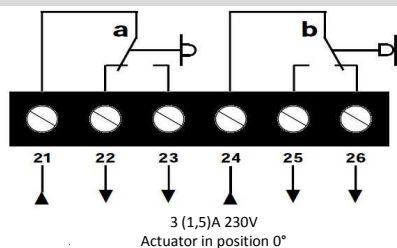
### Wiring diagram



### Parallel connection



### Auxiliary switches



### Technical specification

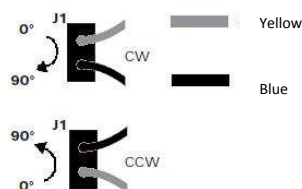
| Model                                  | DA..N24P  | DA..N24I   |
|--|---|--|
| Torque                                 | 10 Nm/16Nm/24Nm   | 10 Nm/16Nm/24Nm  |
| Shutter 's area                        | 1.5m <sup>2</sup> /3.0m <sup>2</sup> /4.5m <sup>2</sup> | 1.5m <sup>2</sup> /3.0m <sup>2</sup> /4.5 <sup>2</sup> |
| Runing time                            | 30/80/125   | 30/80/125  |
| Voltage                                | 24V AC/DC   | 230V AC  |
| Frequency                              | 50/60 Hz  | 50/60 Hz   |
| Required performance:                  |   |  |
| - turning                              | 3.9 W   | 4.8 W  |
| - extreme points                       | 0.4 W   | 1.2 W  |
| Computation power                      | 6.5 VA  | 6.5 VA   |
| Weight                                 | 1.26 kg   | 1.26 kg  |
| Noise (at work), 1m                    | <45 dB(A)   | <45 dB(A)  |
| Turning angle                          | 0~95°<br>(93° mechanically)                             | 0~95°<br>(93° mechanically)                            |
| Adjustment of angle                    | 5°~85° (5° step)  | 5°~85° (5° step)                                       |
| Control signal                         | 2-3 points  | 2-3 points   |
| Feedback signal                        | no  | no   |
| Connecting cable                       | 1 m   | 1 m  |
| Reqired voltage for auxiliary switches | 3 (1.5)A/230V   | 3 (1.5)A/230V  |
| Life cycles                            | 60000 cycles  | 60000 cycles   |
| Level of protection                    | IP54  | IP54   |
| Protection class                       | III   | II   |
| Outside temperature                    | -30~+50 °C  | -30~+50 °C   |
| Suitable humidity                      | 5~95%,<br>Without condenastion                          | 5~95%,<br>Without condensation                         |
| Storage temperature                    | -40~+70 °C  | -40~+70 °C   |
| Standards                              | CE, ISO9000, GOST                                       | CE, ISO9000, GOST                                      |
| Assembling methods                     | Non specified   | Non specified  |



- When torque calculated is necessary to consider the technical information from producer of the air shutter especially voltage, type and place of installation, technical requirements of flowing air.
- Actuator is allowed to be mound and used with voltage condition only when all requirements mentioned in charter have met.
- Actuator Is allowed to used only with conditions met in the class of protection required by producer

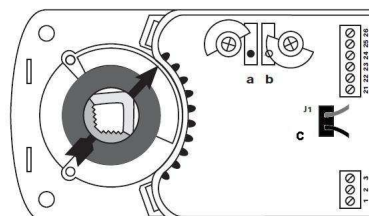
### Selection of the rotation

Direction of rotation can be changed by connector J1  
Deatful adjustment:  
- clockwise.

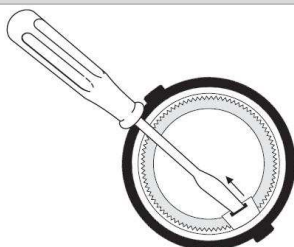


### Regulation of the auwiliary switches

Indication of angle position can be changed by two auxiliary switches a and b  
Deatful adjustment:  
Switch a - 10° switch b - 80°



### Releasing the adapter



### Change of the angle of rotation

