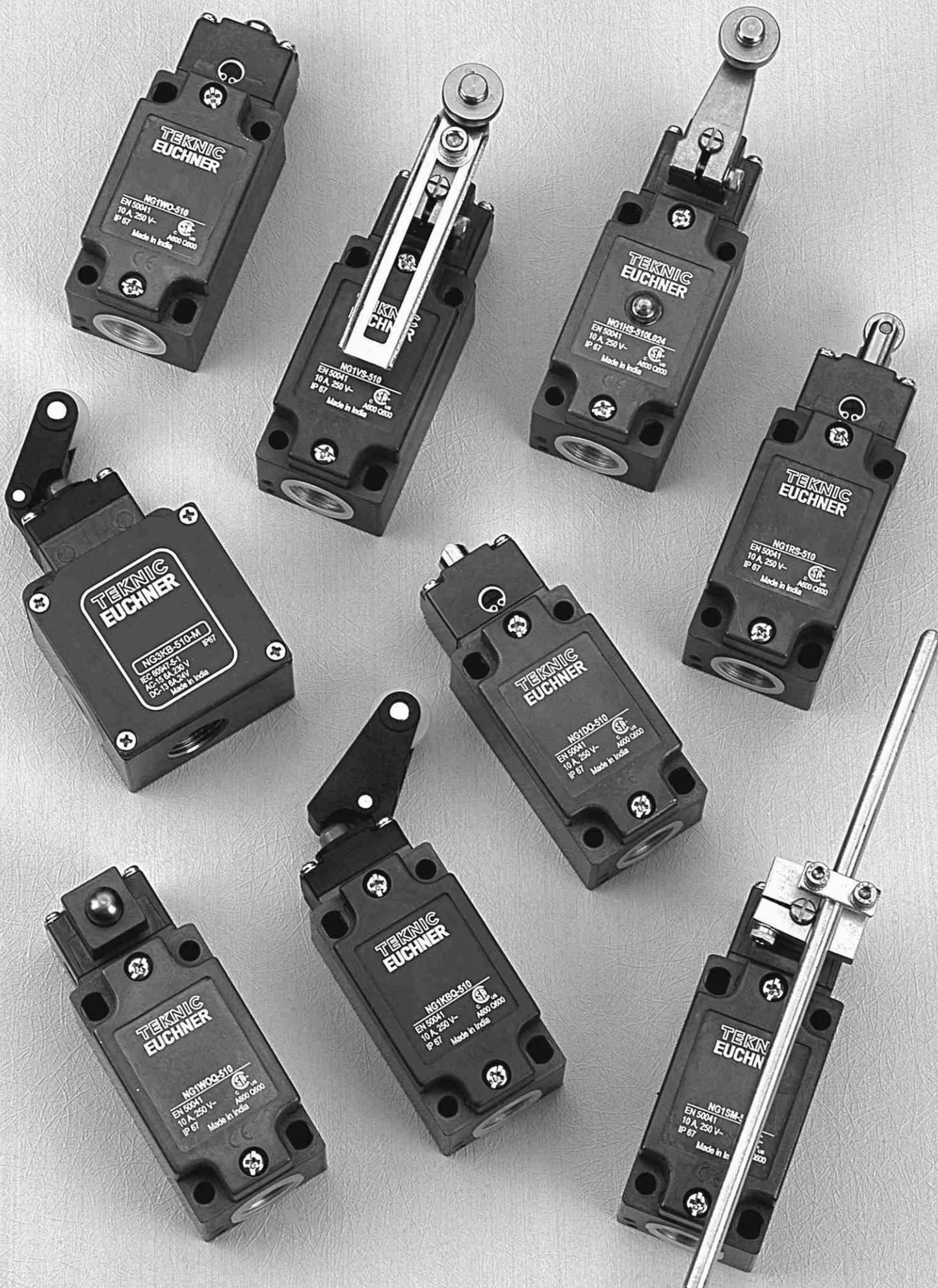


# TEKNIC EUCHNER

CE 

## Single Limit Switches



TEKNIC EUCHNER is a joint venture between EUCHNER Germany and TEKNIC India. EUCHNER was founded in 1940 and TEKNIC in 1970. EUCHNER has been a pioneer in the field of multiple position switches. As early as 1952, the world's first multiple limit switch was produced by EUCHNER.

TEKNIC was started in 1970 and has pioneered the development of high quality electromechanical products ever since 1980. The joint venture TEKNIC EUCHNER was approved by the Government of India in 1989. The joint venture TEKNIC EUCHNER ELECTRONICS PVT LTD, established in Bangalore, with technology transfer from EUCHNER Germany, has started manufacturing a product range to start with inductive proximity switches, single and multiple limit switches with the intention to produce the full range of EUCHNER products. The buzzword is reliability, precision and quality backed by continual testing and maintenance of high quality with the aid of computer controlled inspection systems. The manufacturing facilities of TEKNIC EUCHNER are backed by a competent marketing set up and committed selling partners.



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## The TEKNIC EUCHNER - Limit Switch - Precision, Reliability and Versatility.

The TEKNIC EUCHNER - Limit switch is a versatile unit, according to the EUROPEAN STANDARD EN 50041 with EUCHNER know how and is further developed to produce a perfect universal construction.

Robust construction and the exclusive use of high quality corrosion resistant materials, precision finishing and the high Protection class IP67 to IEC 60529, DIN 40050 are the guarantees for a trouble free and reliable operation under the most arduous conditions.

Lever arm or plunger actuation, 12 different actuator designs, which can be set at 4 X 90° positions about the longitudinal axis and the choice of switching direction setting (with lever arm actuation) offer the user an almost unlimited possibility for individual applications.

### The Limit Switch in Detail - Cross Section of an Excellence in Design.

#### **The Plunger Actuation.**

The plunger actuated versions allow the user a choice of 5 different types. The stainless steel hardened plunger with telescopic action is precisely guided within anodised die-cast light alloy head, and is practically maintenance free. This plain bearing principle which is designed for many millions of operations , and is also incorporated in our precision multiple limit switches , ensures the exceptional reliability of the TEKNIC EUCHNER limit switch. The direction of the actuator head can easily be changed in steps of 90°.

#### **The Diaphragm Seal.**

In switches with plunger actuation , the plunger area is separated from the switch chamber by a diaphragm seal made from NBR elastomer. Due to high demands the seal has a designed minimum life of 30 million operations and is therefore practically indestructable.

The seal is firmly fixed to the plunger and is returned to the free position after each operation , not by the switching element but by the plunger return spring. Any development of pressure due to plunger actuation is eliminated by a relief valve. The switching element is actuated by a metal cap pressed on to the seal. Switching point displacements (a logical consequence due to the high elasticity of the seal) are therefore completely eliminated.

#### **The Lever arm-Actuation.**

Three different levers can be used on the lever arm actuated switches. The stainless steel shaft is precisely guided through a housing.

The numerous adjusting possibilities give great flexibility :

- a) Adjustment of the actuator head around the longitudinal axis is possible in 90° steps
- b) Adjustment of the lever arm in positively fixed positions is possible in 90° steps.
- c) Infinite adjustment of the lever arm within 360°.
- d) Adjustment of switching direction, from the right only, from the left only or from both directions.

#### **The Edge Seal.**

In lever arm actuated switches the actuating mechanism and the switch chamber is protected against ingress of liquids by an edge seal which is made from NBR elastomer and is resistant to all known coolant and lubricating agents.

#### **The Enclosure.**

The anodised die-cast aluminium housing has proved itself highly resistant to corrosion and is unaffected by even the most arduous conditions. Cable connection can be made through TEKNIC EUCHNER Cable glands (Pg 13.5).

#### **The Cable connections.**

Each TEKNIC EUCHNER Limit switch to EN 50041 is tested before dispatch to the customer. It must comply with protection class IP 67. In order to meet this protection class, only high quality TEKNIC EUCHNER cable connectors with captive sealing rings should be used.

#### **Switching elements.**

##### Switching element type ES510.

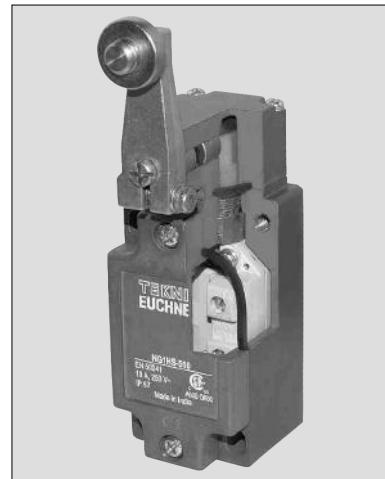
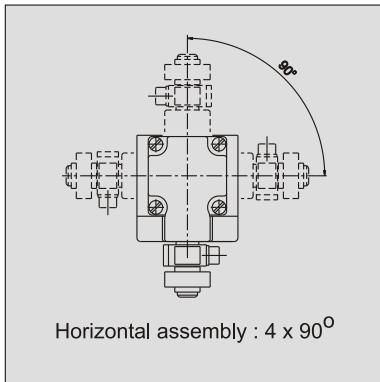
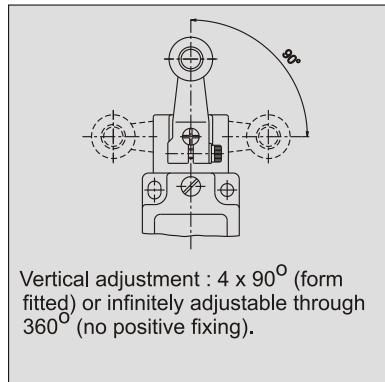
Snap action double gap switching element with one NO contact and one NC contact . Contact gaps 2 x 0.6 mm.

#### **Limit switch with Indicator Lamps.**

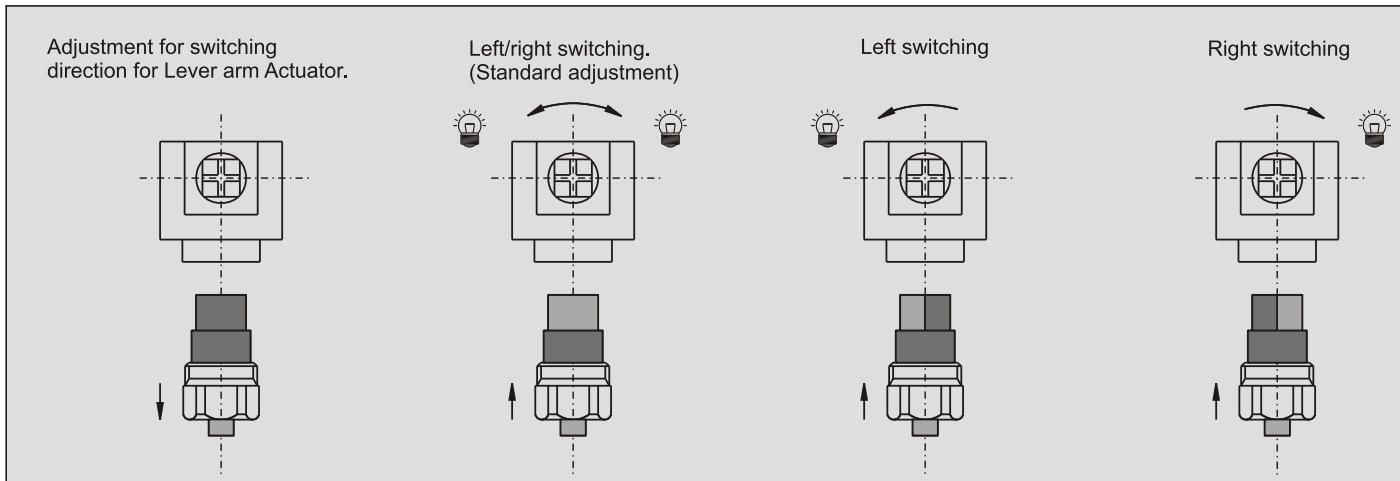
All limit switches can be fitted with indicator lamps at operating voltages of 24 VDC or 220 VAC. The ordering code for limit switches with Indicator Lamps can be found against the ordering codes of individual types.

## Adjustment Options

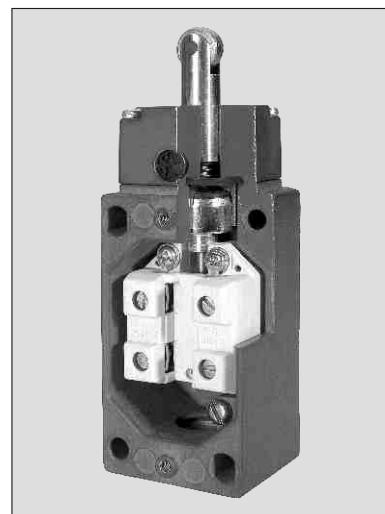
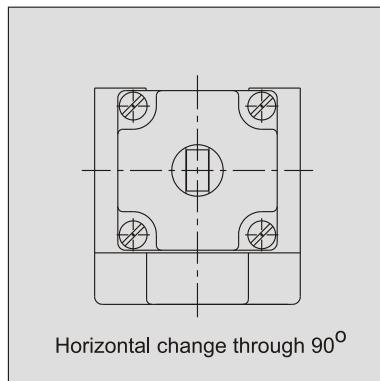
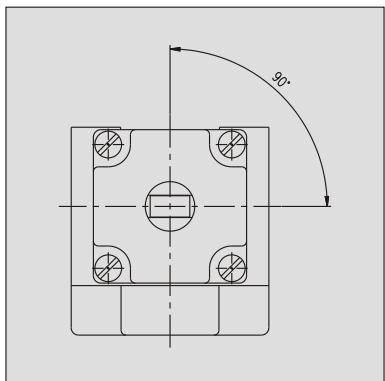
### Adjustment Variations for Lever arm switches



### Adjustment of Switching Direction



### Assembly Variations for Plunger type switches

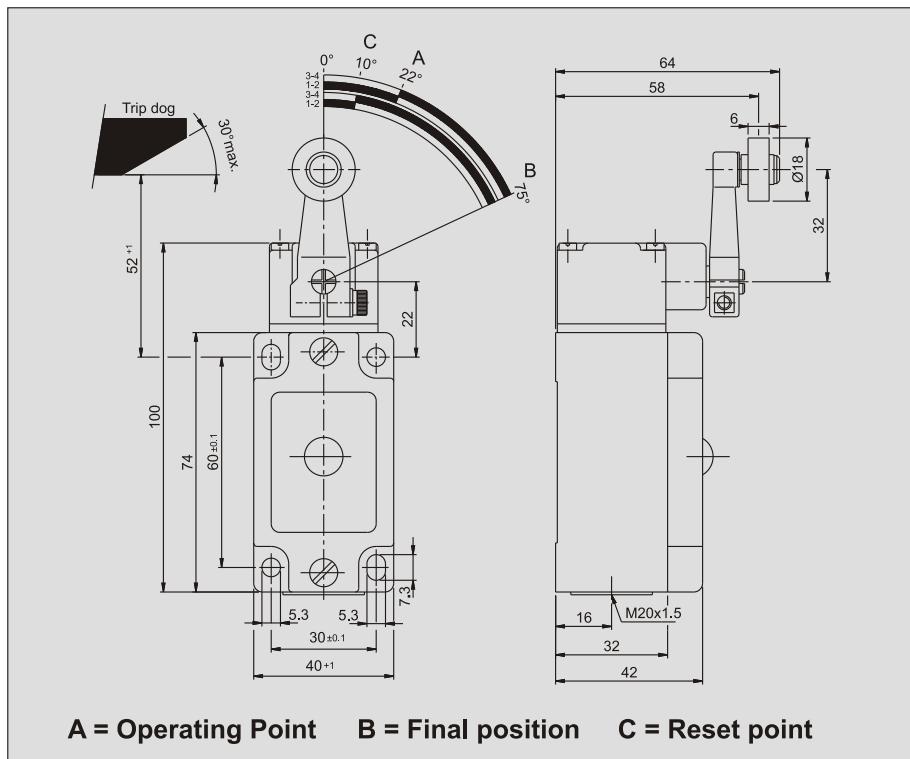


Limit switch with Lever Arm Actuation.

HB (Plastic Roller)

HS (Steel Roller)

Approvals :

**Dimensional Details**

| Parameters                                      | Value  |   | Unit              |
|---|--|---|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |   |                   |
| Degree of protection according to IEC 60529     | IP67   |   |                   |
| Installation position                           | Optional   |   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |   |                   |
| Ambient temperature                             | -25 to +80   |   | °C                |
| Switching Element                               | ES 510   | SK 3131 H                                   |                   |
| Contact Element                                 | 1NO + 1NC  | 2NO + 2NC                                   |                   |
| Switching Principle                             | Snap action  | Slow action                                 |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | 2 x 2                                       | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |   |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |   |                   |
| Cable cross section , maximum                   | 2 x 1.5  |   | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V le 6A ,<br>DC-13 Ue 24V le 6A              | AC-15 Ue 230V le 4A ,<br>DC-13 Ue 24V le 4A |                   |
| Rated Insulation Voltage Ui                     | 250  |   | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  |   | kV                |
| Switching Voltage , minimum                     | 12   |   | VDC               |
| Switching current min at 12 VDC                 | 10   |   | mA                |
| Contact closing time                            | <4   |   | ms                |
| Contact bounce time                             | <3   |   | ms                |
| Short Circuit Protection (fuse)                 | 10   | 4   | A                 |
| Actuator  | HB   | HS  |                   |
| Approach speed , max.                           | 300  | 60  | m/min             |
| Approach speed , min.                           | 0.1  |   | m/min             |
| Pretravel before switch point                   | 22   |   | °                 |
| Operating Point reproducibility                 | ±0.25  |   | °                 |
| Movement Differential                           | 12   |   | °                 |
| Operating Force                                 | 10   |   | N                 |
| Switching Frequency max                         | 600  |   | min <sup>-1</sup> |

**Ordering Table :**

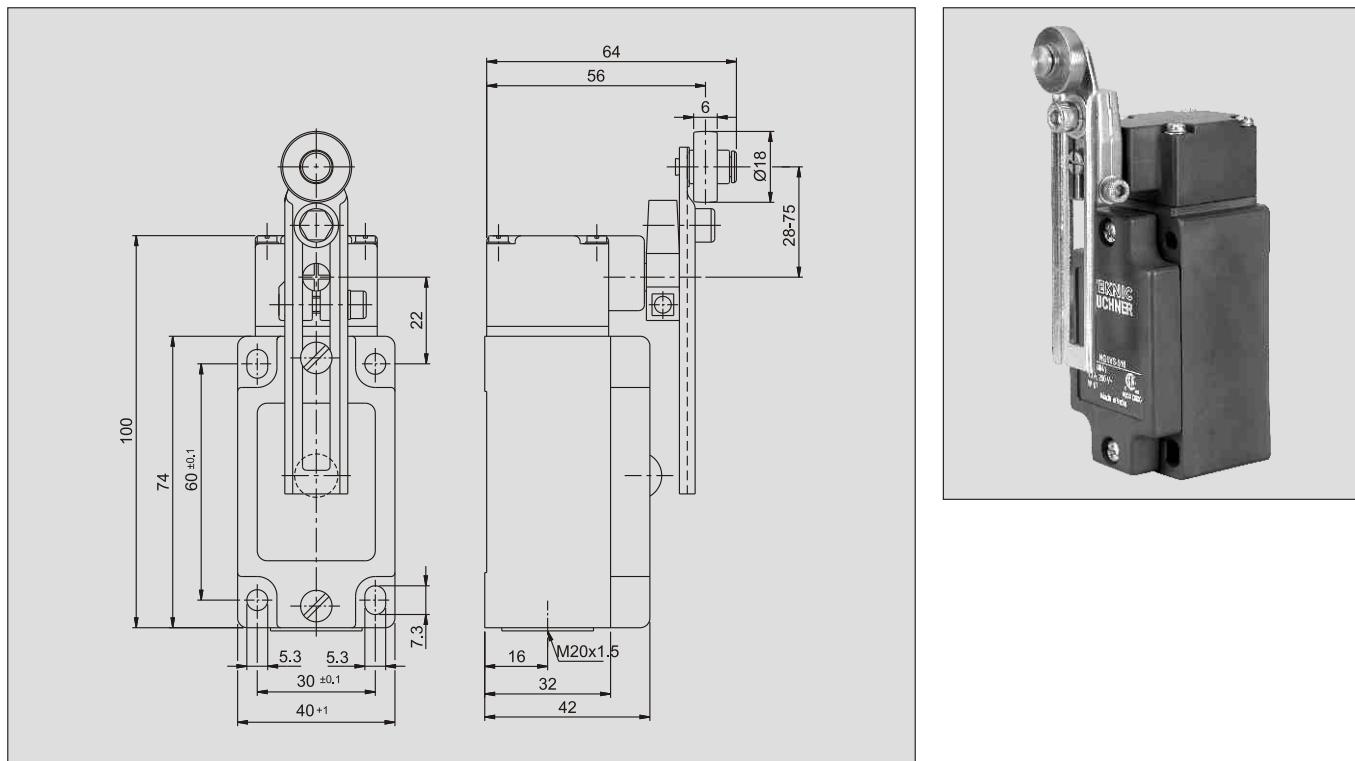
|     |    |         | Without LED  | With LED 24 V DC | With LED 220 V AC |
|-----|----|---------|--------------|------------------|-------------------|
| NG1 | HB | ES-510  | NG1HB-510-M  | NG1HB-510L024-M  | NG1HB-510L220-M   |
| NZ1 |    | SK-3131 | NZ1HB-3131-M | -                | -                 |
| NG1 | HS | ES-510  | NG1HS-510-M  | NG1HS-510L024-M  | NG1HS-510L220-M   |
| NZ1 |    | SK-3131 | NZ1HS-3131-M | -                | -                 |

Limit switch with Adjustable Lever Arm Actuation.

VB (Plastic Roller)

VS (Steel Roller)

Approvals :

**Dimensional Details**

| Parameters                                      | Value  |   | Unit              |
|---|--|---|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |   |                   |
| Degree of protection according to IEC 60529     | IP67   |   |                   |
| Installation position                           | Optional   |   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |   |                   |
| Ambient temperature                             | -25 to +80   |   | °C                |
| Switching Element                               | ES 510   | SK 3131 H                                   |                   |
| Contact Element                                 | 1NO + 1NC  | 2NO + 2NC                                   |                   |
| Switching Principle                             | Snap action  | Slow action                                 |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | 2 x 2                                       | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |   |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |   |                   |
| Cable cross section , maximum                   | 2 x 1.5  |   | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V le 6A ,<br>DC-13 Ue 24V le 6A              | AC-15 Ue 230V le 4A ,<br>DC-13 Ue 24V le 4A |                   |
| Rated Insulation Voltage Ui                     | 250  |   | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  |   | kV                |
| Switching Voltage , minimum                     | 12   |   | VDC               |
| Switching current min at 12 VDC                 | 10   |   | mA                |
| Contact closing time                            | <4   |   | ms                |
| Contact bounce time                             | <3   |   | ms                |
| Short Circuit Protection (fuse)                 | 10   | 4   | A                 |
| Actuator  | VB   | VS  |                   |
| Approach speed , max.                           | 120  | 30  | m/min             |
| Approach speed , min.                           | 0.5  |   | m/min             |
| Pretravel before switch point                   | 22   |   | °                 |
| Operating Point reproducibility                 | ±0.25  |   | °                 |
| Movement Differential                           | 12   |   | °                 |
| Operating Force                                 | -  |   | N                 |
| Switching Frequency max                         | 300  |   | min <sup>-1</sup> |

**Ordering Table :**

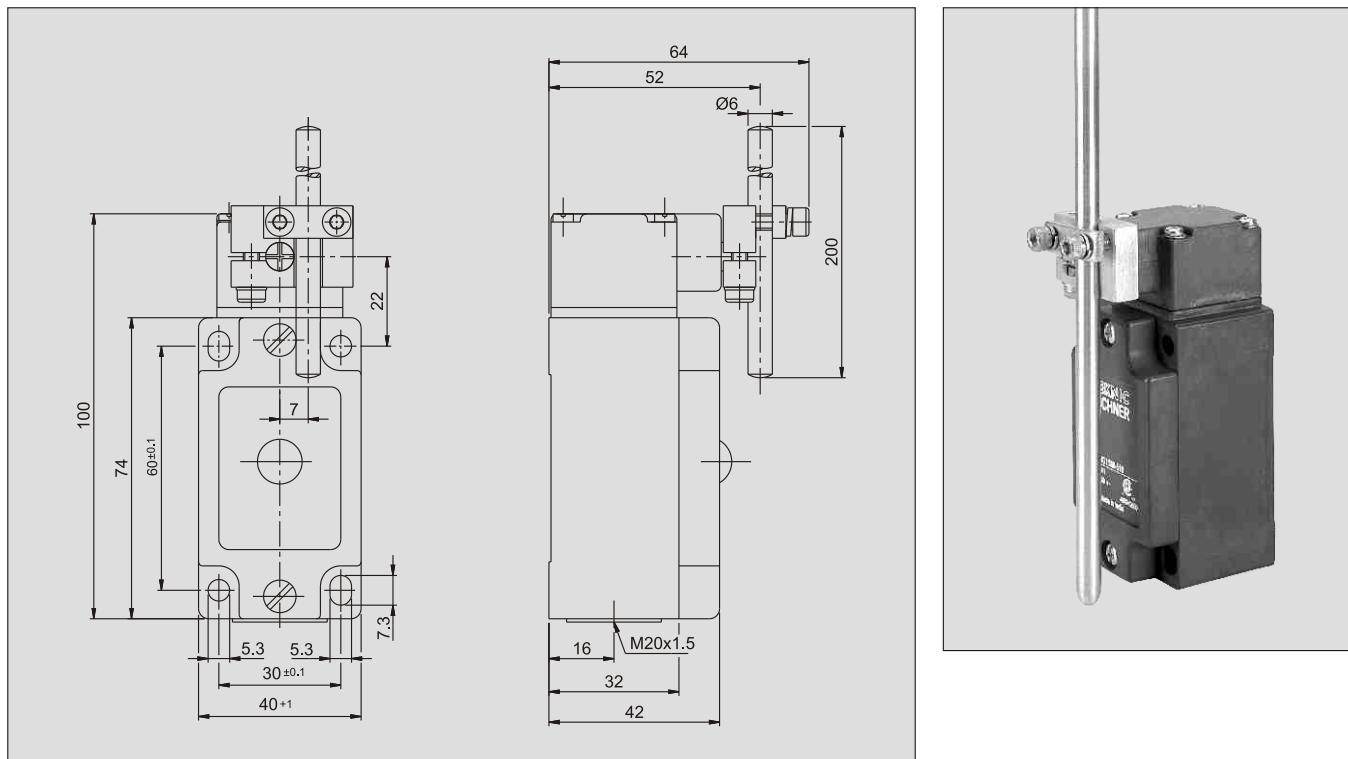
|     |    |         | Without LED  | With LED 24 V DC | With LED 220 V AC |
|-----|----|---------|--------------|------------------|-------------------|
| NG1 | VB | ES-510  | NG1VB-510-M  | NG1VB-510L024-M  | NG1VB-510L220-M   |
| NZ1 |    | SK-3131 | NZ1VB-3131-M | -                | -                 |
| NG1 | VS | ES-510  | NG1VS-510-M  | NG1VS-510L024-M  | NG1VS-510L220-M   |
| NZ1 |    | SK-3131 | NZ1VS-3131-M | -                | -                 |

Limit switch with Pivot Arm Actuation.  
SM (Aluminium Rod)

Approvals :



### Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | kV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| <b>Actuator</b>                                 | <b>SM</b>  |                   |
| Approach speed , max.                           | 60   | m/min             |
| Approach speed , min.                           | 0.5  | m/min             |
| Pretravel before switch point                   | 22   | °                 |
| Operating Point reproducibility                 | ±1.0   | °                 |
| Movement Differential                           | 12   | °                 |
| Operating Force                                 | -  | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

### Ordering Table :

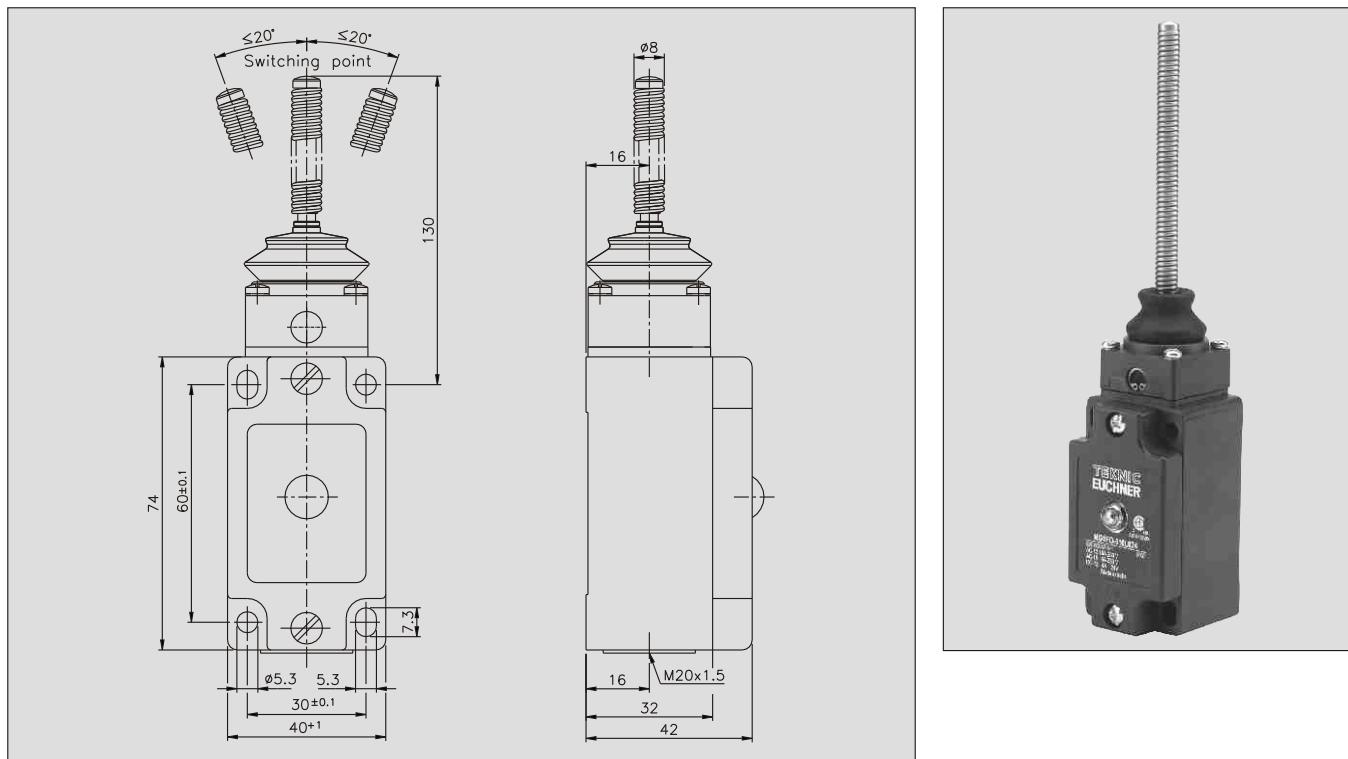
|     | Without LED | With LED 24 V DC | With LED 220 V AC                                 |
|-----|-------------|------------------|---|
| NG1 | SM          | ES-510           | NG1SM-510-M<br>NG1SM-510L024-M<br>NG1SM-510L220-M |

Limit switch with Pivot Arm Actuation.  
FO (Spring Rod)

Approvals :



## Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | kV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| <b>Actuator</b>                                 | <b>FO</b>  |                   |
| Approach speed , max.                           | 20   | m/min             |
| Approach speed , min.                           | 0.5  | m/min             |
| Pretravel before switch point                   | 22   | °                 |
| Operating Point reproducibility                 | -  | °                 |
| Movement Differential                           | 12   | °                 |
| Operating Force                                 | 5  | N                 |
| Switching Frequency max                         | 100  | min <sup>-1</sup> |

## Ordering Table :

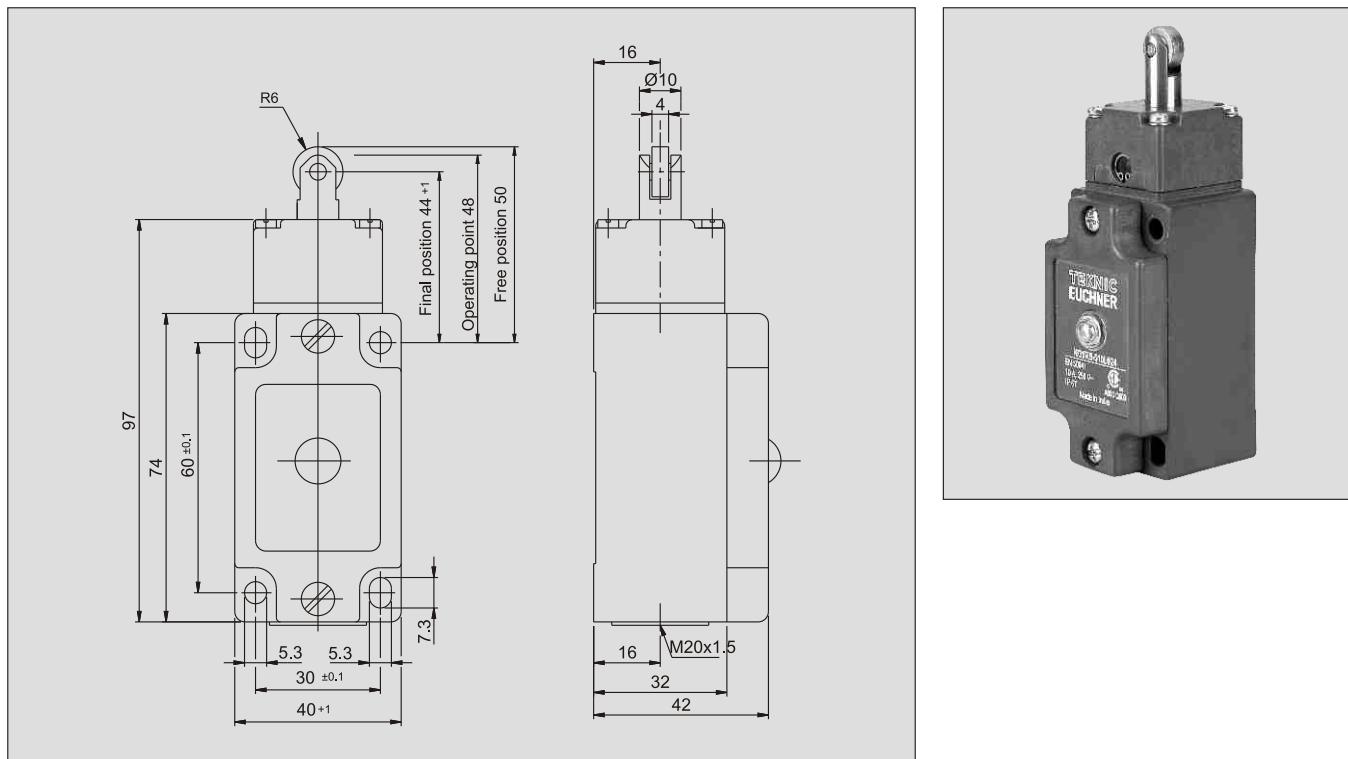
|     | Without LED  | With LED 24 V DC               | With LED 220 V AC |
|-----|--------------|--------------------------------|-------------------|
| NG1 | FO<br>ES-510 | NG1FO-510-M<br>NG1FO-510L024-M | NG1FO-510L220-M   |

Limit switch with Plunger Actuation.

RG (Plastic Roller)

RS (Steel Roller)

Approvals :

**Dimensional Details**

| Parameters                                      | Value  |   | Unit              |
|---|--|---|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |   |                   |
| Degree of protection according to IEC 60529     | IP67   |   |                   |
| Installation position                           | Optional   |   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |   |                   |
| Ambient temperature                             | -25 to +80   |   | °C                |
| Switching Element                               | ES 510   | SK 3131 H                                   |                   |
| Contact Element                                 | 1NO + 1NC  | 2NO + 2NC                                   |                   |
| Switching Principle                             | Snap action  | Slow action                                 |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | 2 x 2                                       | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |   |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |   |                   |
| Cable cross section , maximum                   | 2 x 1.5  |   | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V le 6A ,<br>DC-13 Ue 24V le 6A              | AC-15 Ue 230V le 4A ,<br>DC-13 Ue 24V le 4A |                   |
| Rated Insulation Voltage Ui                     | 250  |   | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  |   | kV                |
| Switching Voltage , minimum                     | 12   |   | VDC               |
| Switching current min at 12 VDC                 | 10   |   | mA                |
| Contact closing time                            | <4   |   | ms                |
| Contact bounce time                             | <3   |   | ms                |
| Short Circuit Protection (fuse)                 | 10   | 4   | A                 |
| Actuator  | RG   | RS  |                   |
| Approach speed , max.                           | 20   | 20  | m/min             |
| Approach speed , min.                           | 0.01   |   | m/min             |
| Pretravel before switch point                   | 2  |   | °                 |
| Operating Point reproducibility                 | ±0.1   |   | °                 |
| Movement Differential                           | 0.7  |   | °                 |
| Operating Force                                 | 15   |   | N                 |
| Switching Frequency max                         | 300  |   | min <sup>-1</sup> |

**Ordering Table :**

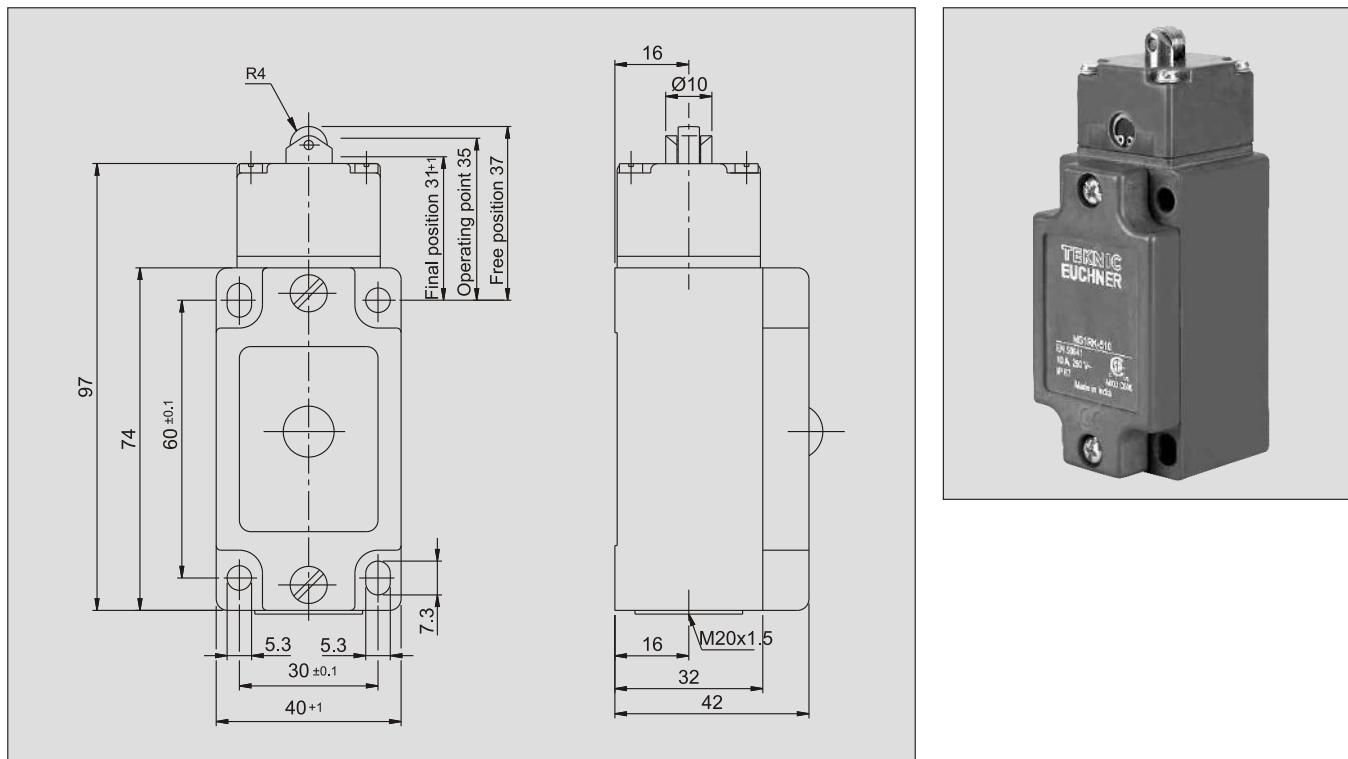
|     |    |         | Without LED  | With LED 24 V DC | With LED 220 V AC |
|-----|----|---------|--------------|------------------|-------------------|
| NG1 | RG | ES-510  | NG1RG-510-M  | NG1RG-510L024-M  | NG1RG-510L220-M   |
| NZ1 |    | SK-3131 | NZ1RG-3131-M | -                | -                 |
| NG1 | RS | ES-510  | NG1RS-510-M  | NG1RS-510L024-M  | NG1RS-510L220-M   |
| NZ1 |    | SK-3131 | NZ1RS-3131-M | -                | -                 |

Limit switch with Plunger Actuation.  
RK (Roller Plunger with small Steel roller)

Approvals :



## Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| <b>Actuator</b>                                 | <b>RK</b>  |                   |
| Approach speed , max.                           | 80   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 2  | mm                |
| Operating Point reproducibility                 | ±0.01  | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

## Ordering Table :

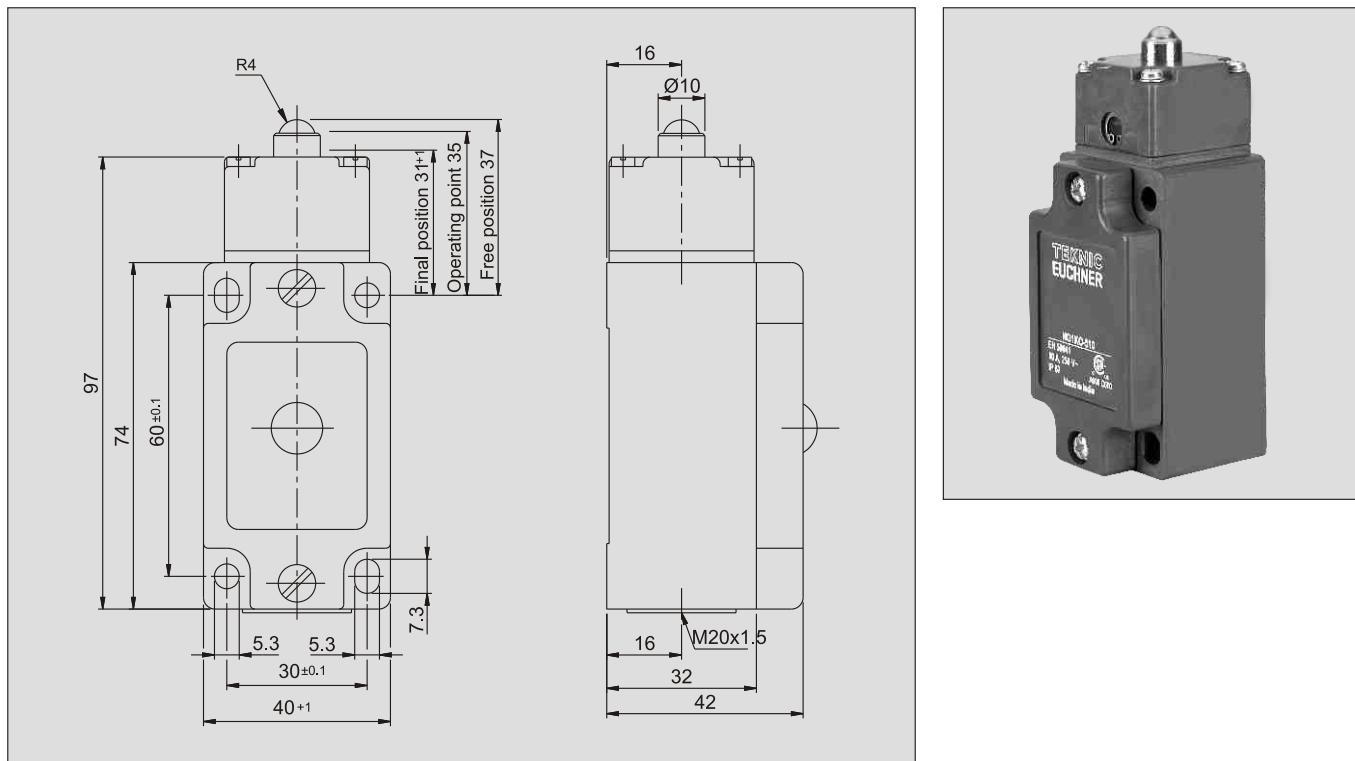
|     | Without LED | With LED 24 V DC | With LED 220 V AC                                 |
|-----|-------------|------------------|---|
| NG1 | RK          | ES-510           | NG1RK-510-M<br>NG1RK-510L024-M<br>NG1RK-510L220-M |

Limit switch with Plunger Actuation.  
KO (Ball Plunger)

Approvals :



## Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| <b>Actuator</b>                                 | <b>KO</b>  |                   |
| Approach speed , max.                           | 10   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 2  | mm                |
| Operating Point reproducibility                 | ±0.01  | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

## Ordering Table :

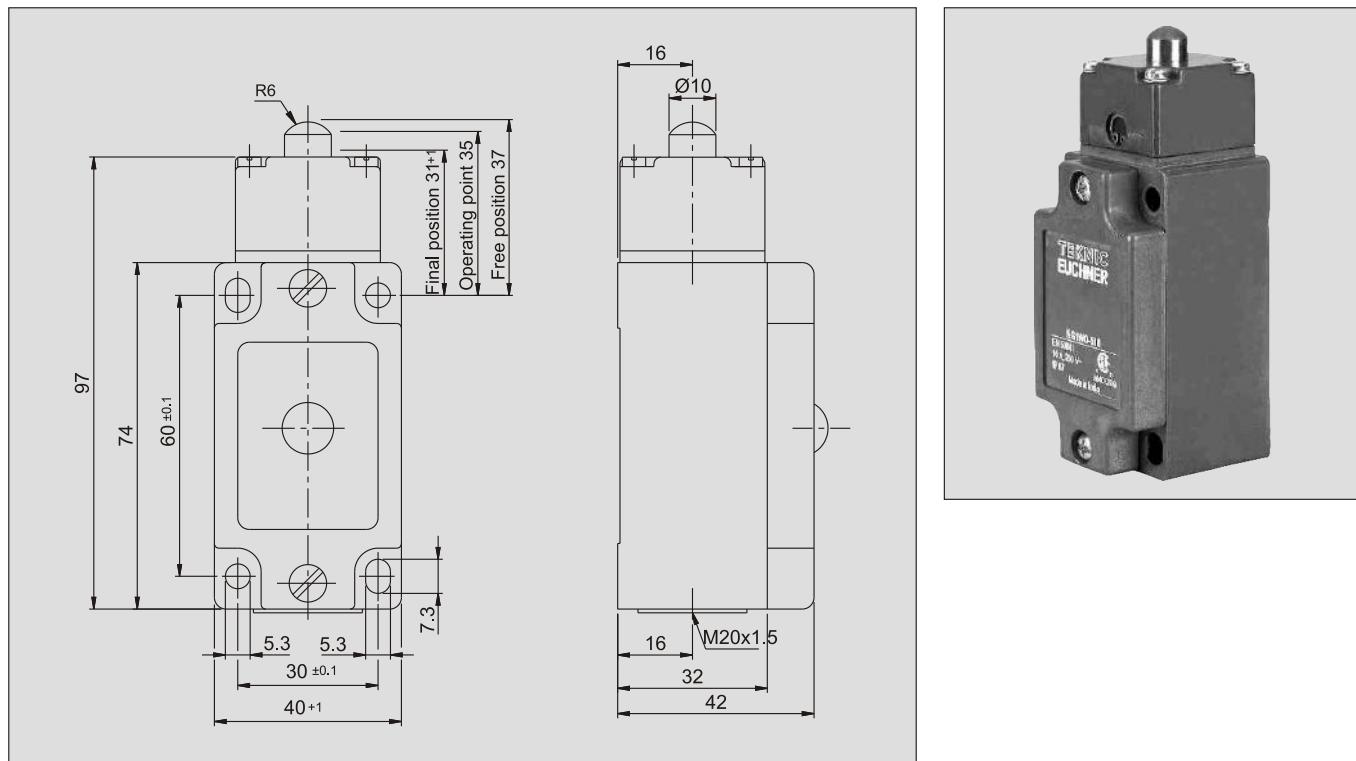
|     |    | Without LED | With LED 24 V DC | With LED 220 V AC |
|-----|----|-------------|------------------|-------------------|
| NG1 | KO | ES-510      | NG1KO-510-M      | NG1KO-510L024-M   |

Limit switch with Plunger Actuation.  
WO (Dome Plunger)

Approvals :



## Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| <b>Actuator</b>                                 | <b>WO</b>  |                   |
| Approach speed , max.                           | 10   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 2  | mm                |
| Operating Point reproducibility                 | ±0.002   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

## Ordering Table :

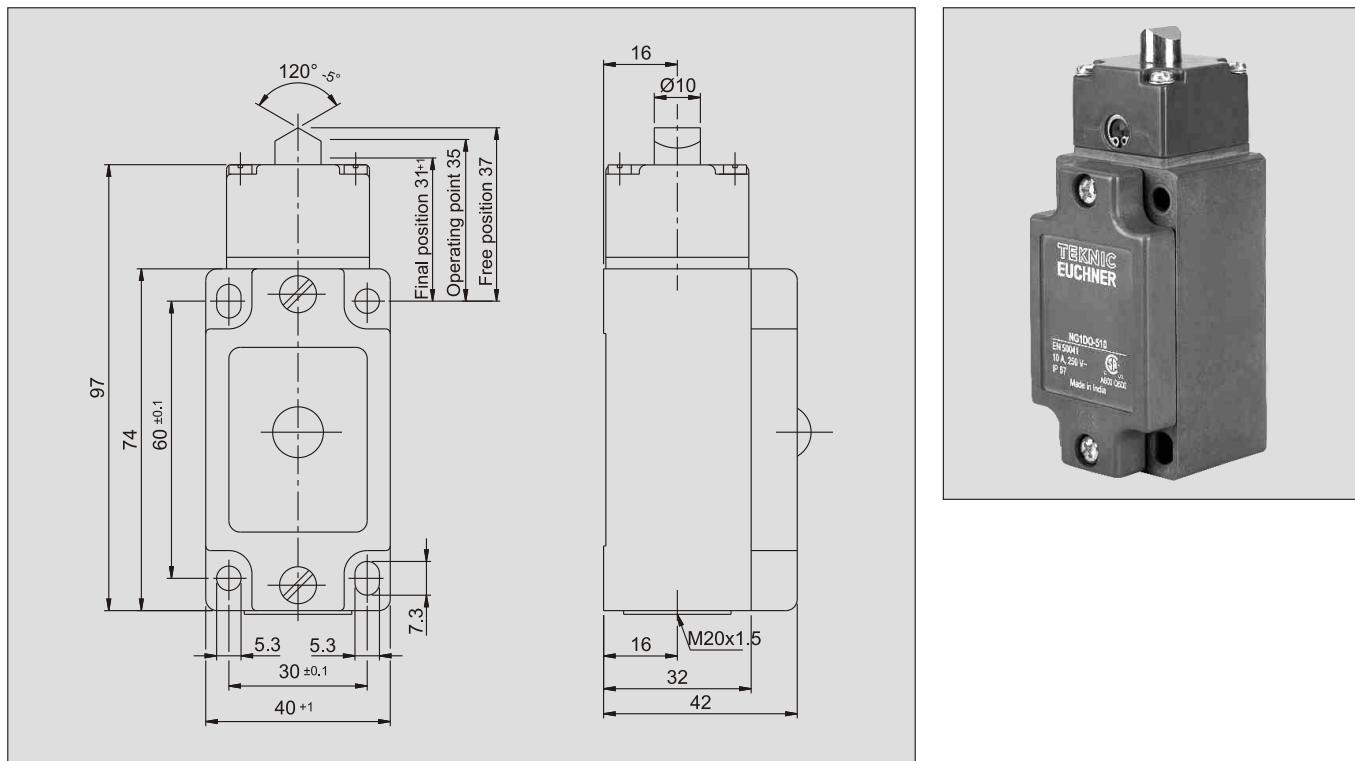
|     | Without LED | With LED 24 V DC | With LED 220 V AC                           |
|-----|-------------|------------------|---|
| NG1 | WO          | ES-510           | NG1WO-510-M NG1WO-510L024-M NG1WO-510L220-M |

Limit switch with Plunger Actuation.  
DO (Chisel Plunger)

Approvals :



## Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| <b>Actuator</b>                                 | <b>DO</b>  |                   |
| Approach speed , max.                           | 10   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 2  | mm                |
| Operating Point reproducibility                 | ±0.002   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

## Ordering Table :

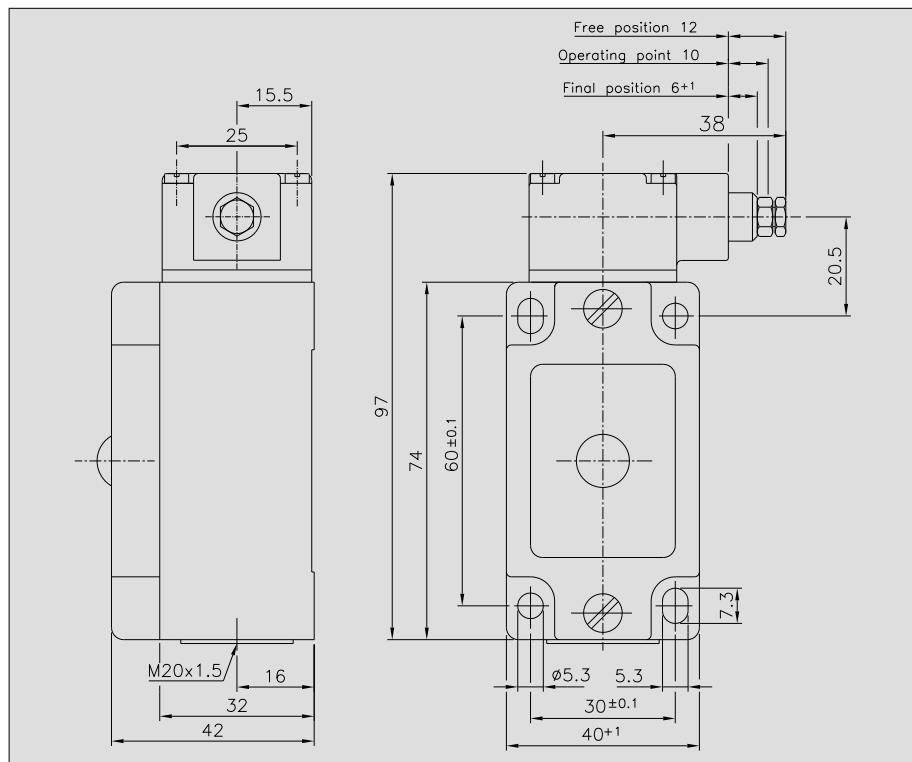
|     |    | Without LED | With LED 24 V DC | With LED 220 V AC |
|-----|----|-------------|------------------|-------------------|
| NG1 | DO | ES-510      | NG1DO-510-M      | NG1DO-510L024-M   |

Limit switch with Side Plunger Actuation.  
SQ (Adjustable Screw Plunger Side Actuation)

Approvals :



## Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| <b>Actuator</b>                                 | <b>SQ</b>  |                   |
| Approach speed , max.                           | 5  | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 2  | mm                |
| Operating Point reproducibility                 | ±0.1   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 100  | min <sup>-1</sup> |

## Ordering Table :

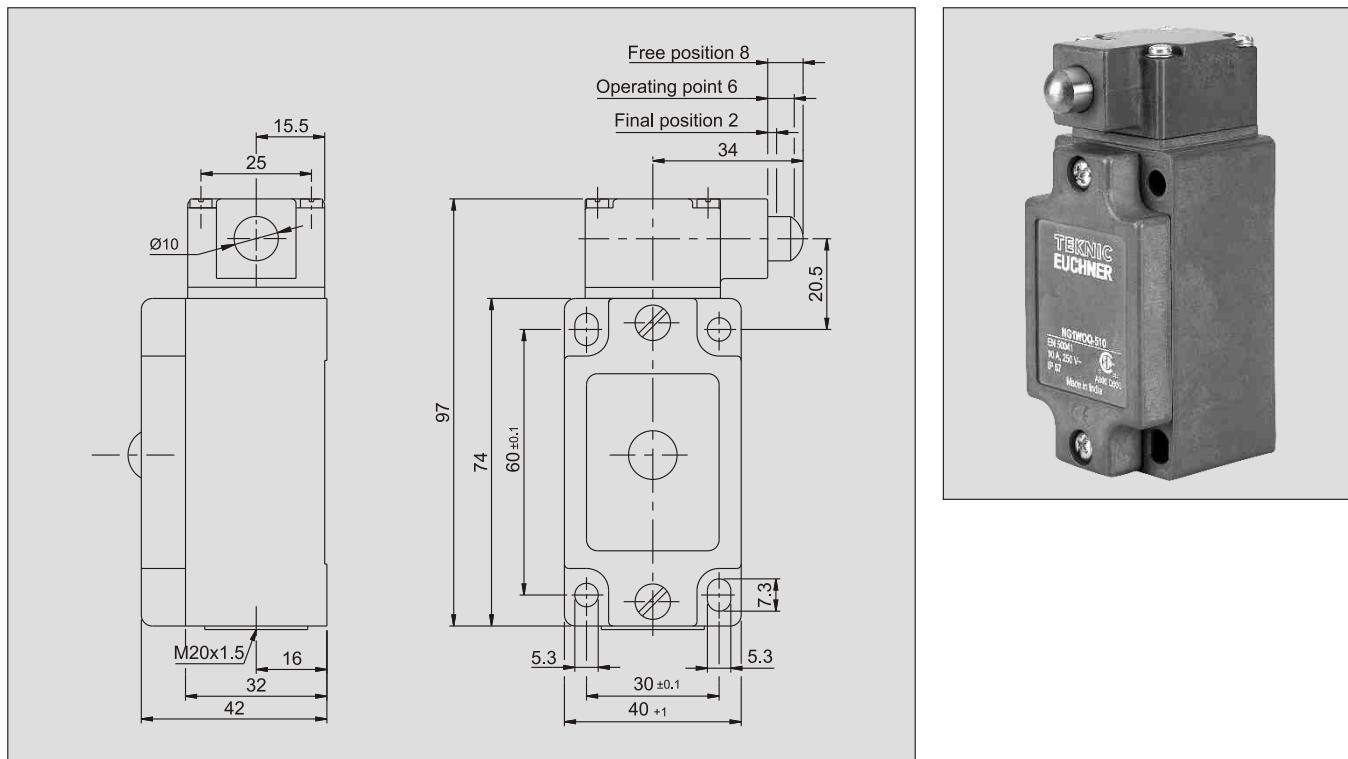
|     |    | Without LED | With LED 24 V DC | With LED 220 V AC |
|-----|----|-------------|------------------|-------------------|
| NG1 | SQ | ES-510      | NG1SQ-510-M      | NG1SQ-510L024-M   |

Limit switch with Side Plunger Actuation.  
WOQ (Dome Plunger Side Actuation)

#### Approvals :



## Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| Actuator  | WOQ  |                   |
| Approach speed , max.                           | 10   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 2  | mm                |
| Operating Point reproducibility                 | ±0.1   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

## **Ordering Table :**

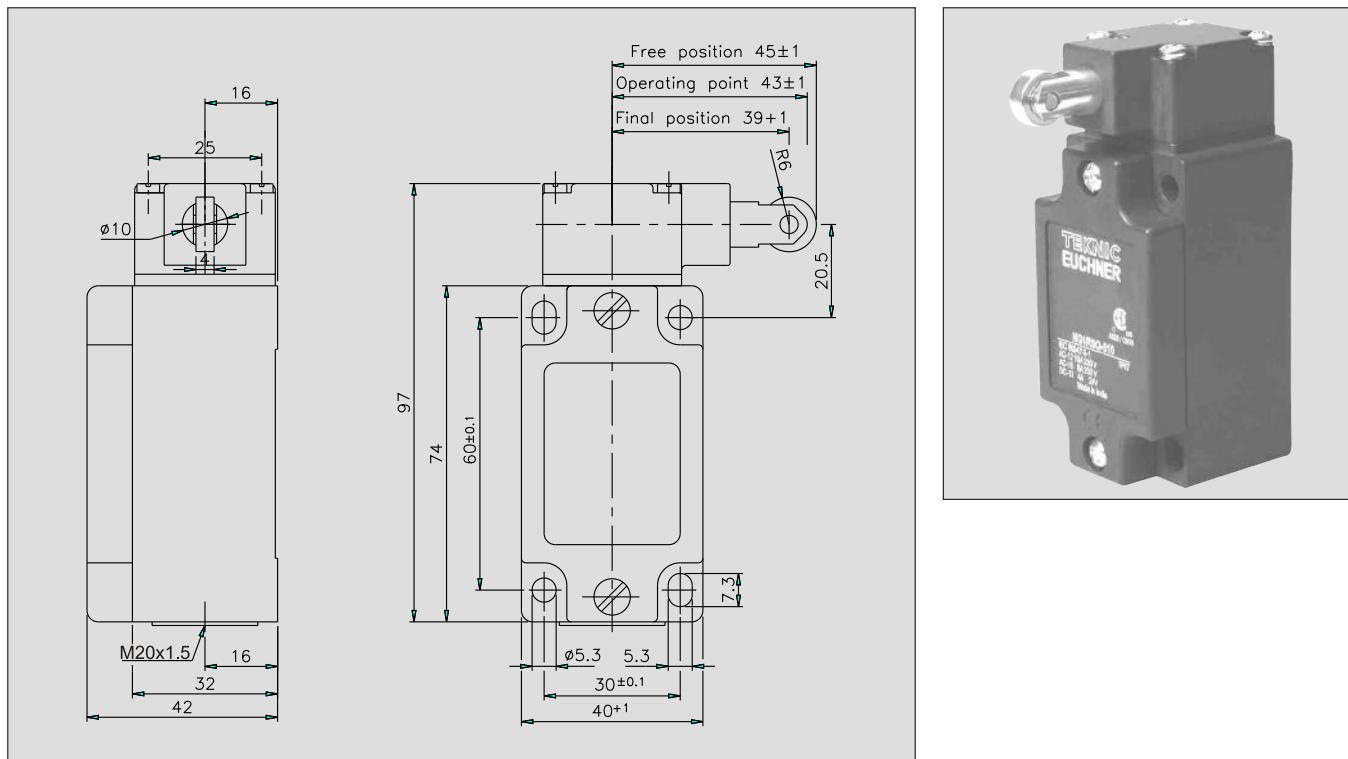
| Ordering Table : |     |        | Without LED  | With LED 24 V DC | With LED 220 V AC |
|------------------|-----|--------|--------------|------------------|-------------------|
| NG1              | WOQ | ES-510 | NG1WOQ-510-M | NG1WOQ-510L024-M | NG1WOQ-510L220-M  |

Limit switch with Side Roller Plunger Actuation.  
RSQ (Roller Plunger Side Actuation)

#### Approvals :



## Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| Actuator  | RSQ  |                   |
| Approach speed , max.                           | 10   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 2  | mm                |
| Operating Point reproducibility                 | ±0.1   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

## **Ordering Table :**

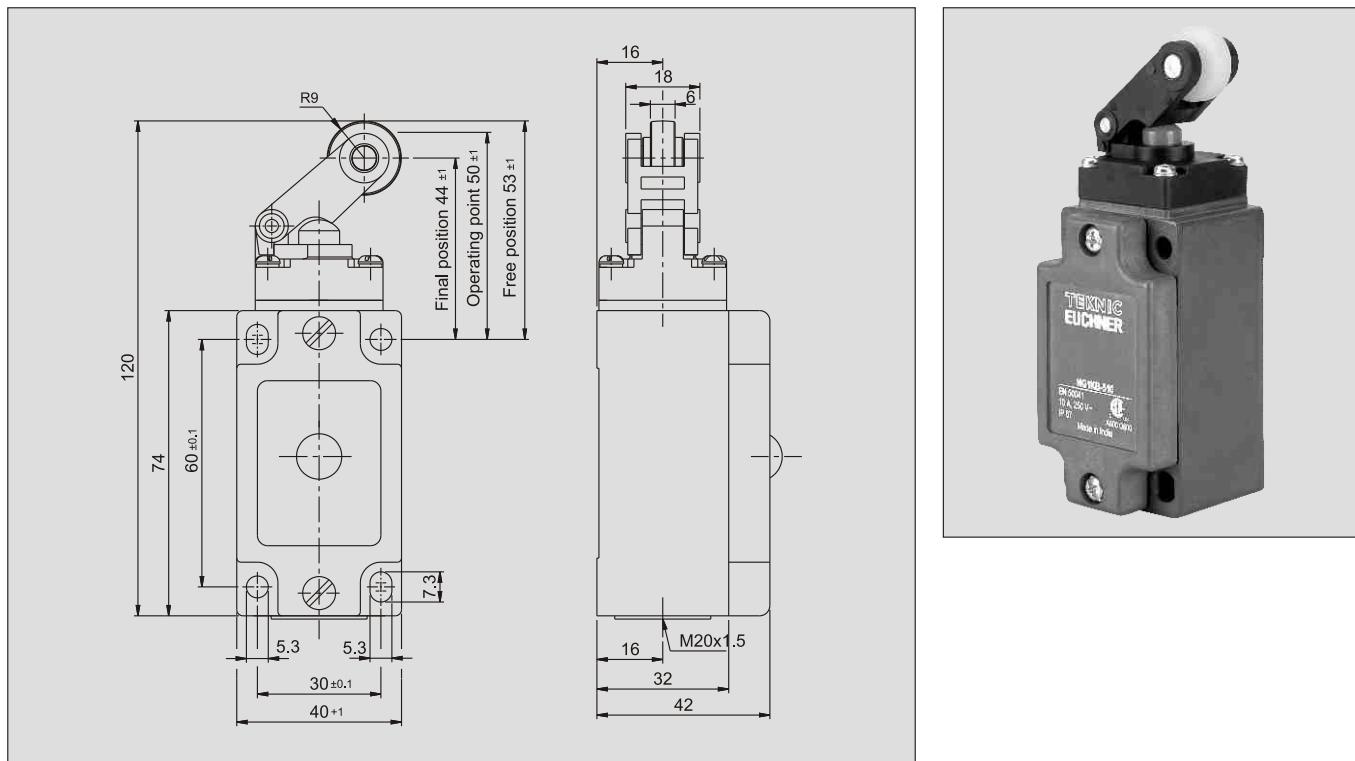
| Ordering Table : |     |        | Without LED  | With LED 24 V DC | With LED 220 V AC |
|------------------|-----|--------|--------------|------------------|-------------------|
| NG1              | RSQ | ES-510 | NG1RSQ-510-M | NG1RSQ-510L024-M | NG1RSQ-510L220-M  |

Limit switch with Roller Arm.  
KB (Plastic Roller Arm)

Approvals :



### Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V le 6A , DC-13 Ue 24V le 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| Actuator  | KB   |                   |
| Actuator Material                               | Glass reinforced Nylon 66                                |                   |
| Approach speed , max.                           | 20   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 3  | mm                |
| Operating Point reproducibility                 | ±0.1   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

### Ordering Table :

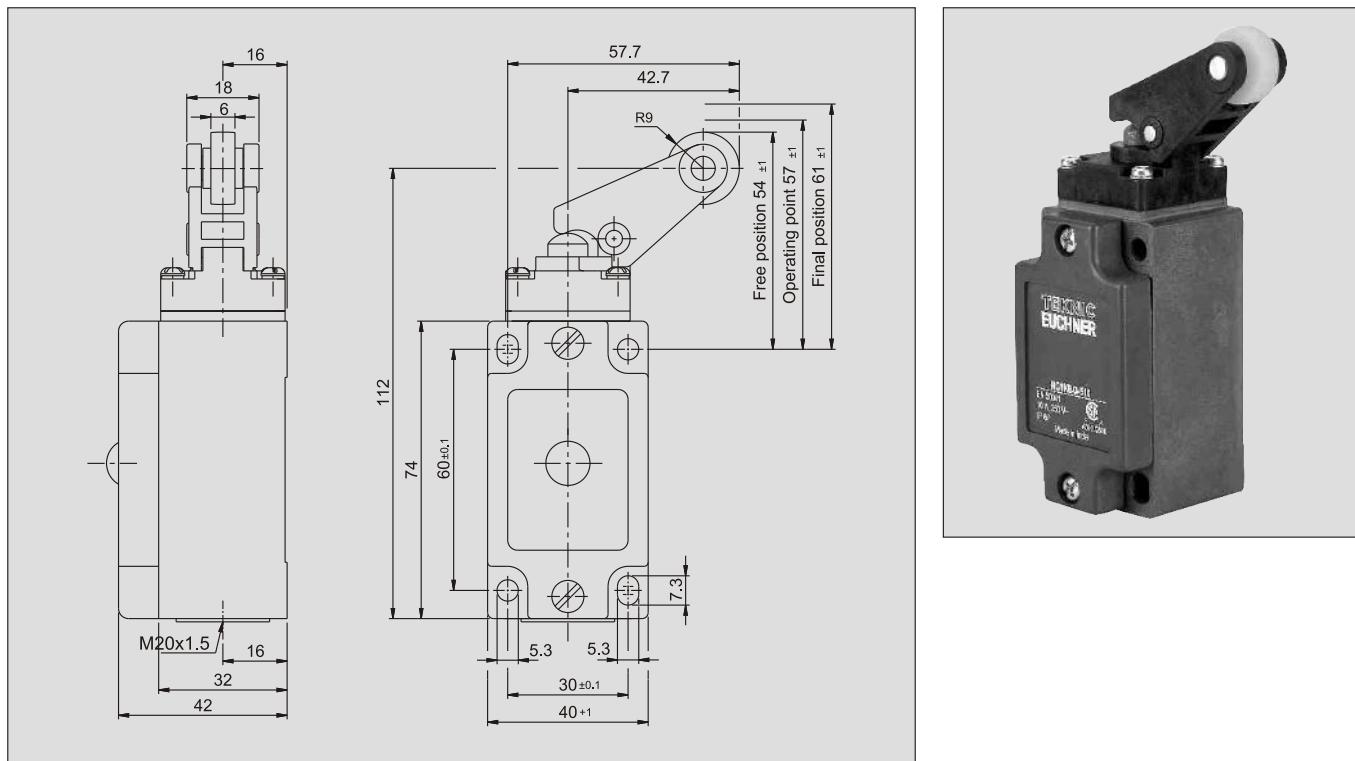
|     |    | Without LED | With LED 24 V DC | With LED 220 V AC |
|-----|----|-------------|------------------|-------------------|
| NG1 | KB | ES-510      | NG1KB-510-M      | NG1KB-510L024-M   |

Limit switch with Angular Roller Arm.  
KBQ (Angular Plastic Roller Arm)

Approvals :



### Dimensional Details



| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V le 6A , DC-13 Ue 24V le 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| Actuator  | KBQ  |                   |
| Actuator Material                               | Glass reinforced Nylon 66                                |                   |
| Approach speed , max.                           | 20   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 3  | mm                |
| Operating Point reproducibility                 | ±0.1   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

### Ordering Table :

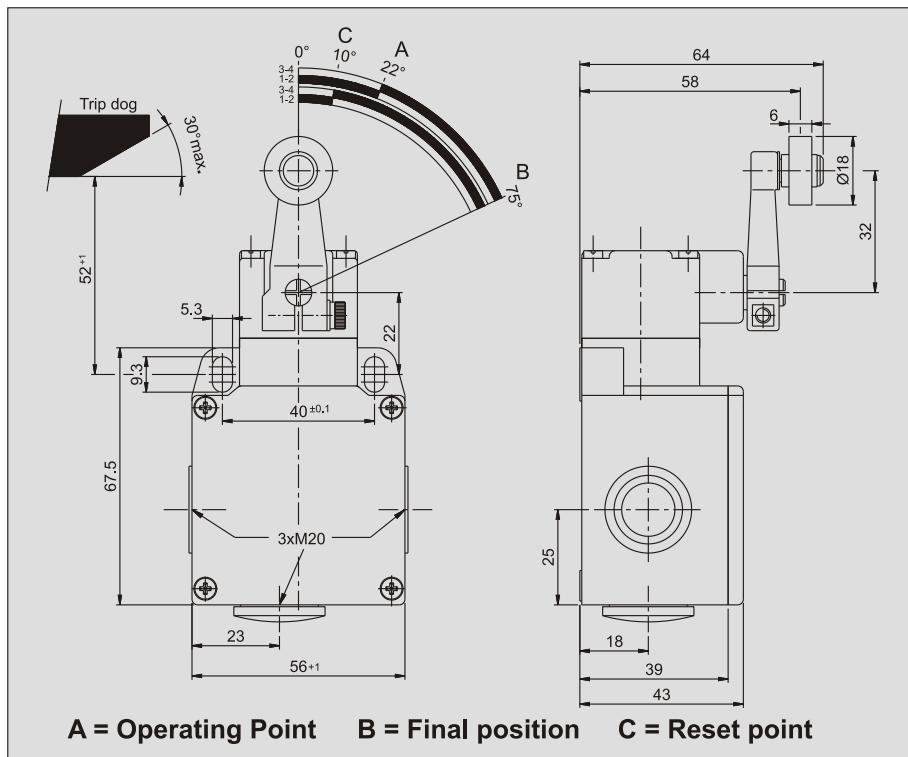
|     |     |        | Without LED  | With LED 24 V DC | With LED 220 V AC |
|-----|-----|--------|--------------|------------------|-------------------|
| NG1 | KBQ | ES-510 | NG1KBQ-510-M | NG1KBQ-510L024-M | NG1KBQ-510L220-M  |

Limit switch with Wide Housing & Lever Arm Actuation.

HB (Plastic Roller)

HS (Steel Roller)

### Dimensional Details



| Parameters                                      | Value  |    | Unit              |
|---|--|----|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |    |                   |
| Degree of protection according to IEC 60529     | IP67   |    |                   |
| Installation position                           | Optional   |    |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |    |                   |
| Ambient temperature                             | -25 to +80   |    | °C                |
| Switching Element                               | ES 510   |    |                   |
| Contact Element                                 | 1NO + 1NC  |    |                   |
| Switching Principle                             | Snap action  |    |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  |    | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |    |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |    |                   |
| Cable cross section , maximum                   | 2 x 1.5  |    | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |    |                   |
| Rated Insulation Voltage Ui                     | 250  |    | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  |    | kV                |
| Switching Voltage , minimum                     | 12   |    | VDC               |
| Switching current min at 12 VDC                 | 10   |    | mA                |
| Contact closing time                            | <4   |    | ms                |
| Contact bounce time                             | <3   |    | ms                |
| Short Circuit Protection (fuse)                 | 10   |    | A                 |
| Actuator  | HB   | HS |                   |
| Approach speed , max.                           | 300  | 60 | m/min             |
| Approach speed , min.                           | 0.1  |    | m/min             |
| Pretravel before switch point                   | 22   |    | °                 |
| Operating Point reproducibility                 | ±0.25  |    | °                 |
| Movement Differential                           | 12   |    | °                 |
| Operating Force                                 | 10   |    | N                 |
| Switching Frequency max                         | 600  |    | min <sup>-1</sup> |

### Ordering Table :

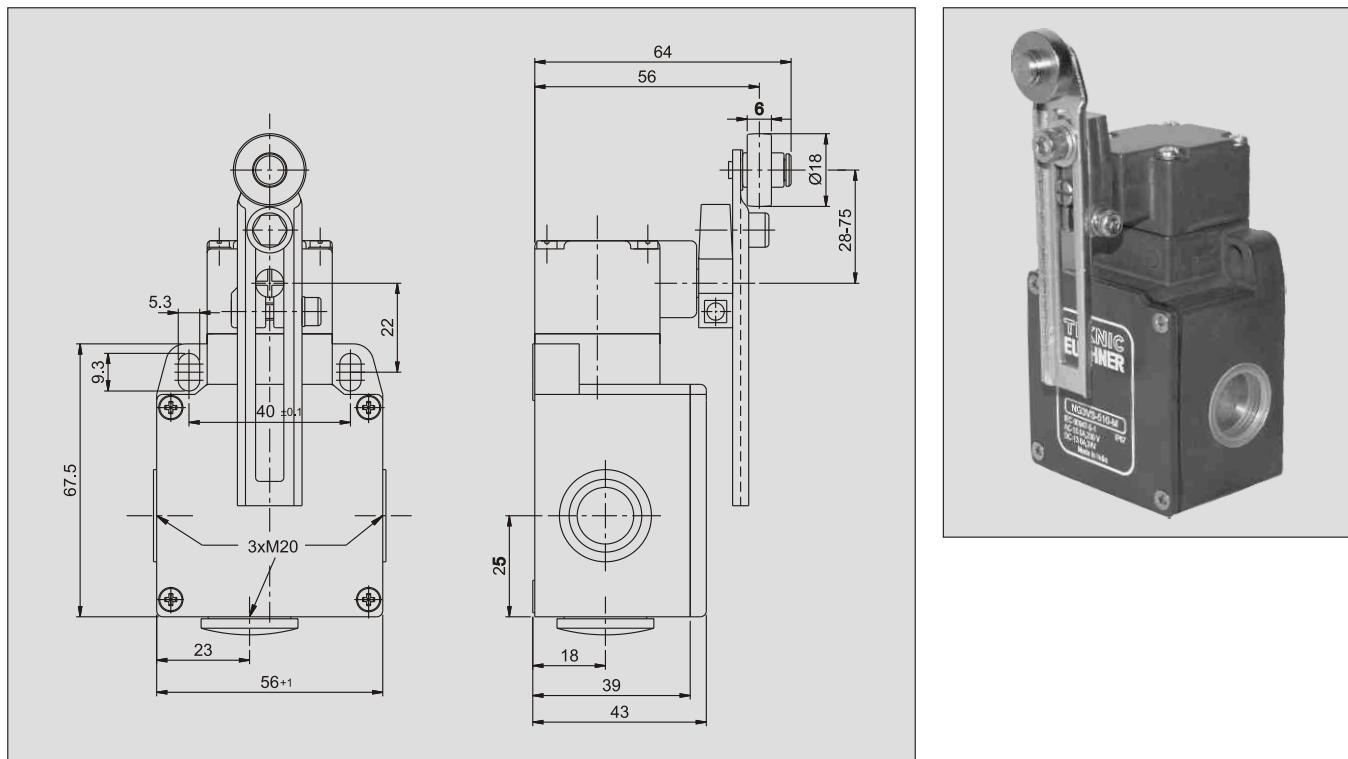
| NG3 | HB | ES-510 | Without LED | With LED 24 V DC | With LED 220 V AC |
|-----|----|--------|-------------|------------------|-------------------|
|     |    |        | NG3HB-510-M | -                | -                 |
|     | HS |        | NG3HS-510-M | -                | -                 |

Limit switch with Wide Housing & Adjustable Lever Arm Actuation.

VB (Plastic Roller)

VS (Steel Roller)

### Dimensional Details



| Parameters                                      | Value  |    | Unit              |
|---|--|----|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |    |                   |
| Degree of protection according to IEC 60529     | IP67   |    |                   |
| Installation position                           | Optional   |    |                   |
| Mechanical service life                         | $30 \times 10^6$ switching cycles                        |    |                   |
| Ambient temperature                             | -25 to +80   |    | °C                |
| Switching Element                               | ES 510   |    |                   |
| Contact Element                                 | 1NO + 1NC  |    |                   |
| Switching Principle                             | Snap action  |    |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  |    | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |    |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |    |                   |
| Cable cross section , maximum                   | 2 x 1.5  |    | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |    |                   |
| Rated Insulation Voltage Ui                     | 250  |    | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  |    | kV                |
| Switching Voltage , minimum                     | 12   |    | VDC               |
| Switching current min at 12 VDC                 | 10   |    | mA                |
| Contact closing time                            | <4   |    | ms                |
| Contact bounce time                             | <3   |    | ms                |
| Short Circuit Protection (fuse)                 | 10   |    | A                 |
| Actuator  | VB   | VS |                   |
| Approach speed , max.                           | 120  | 30 | m/min             |
| Approach speed , min.                           | 0.5  |    | m/min             |
| Pretravel before switch point                   | 22   |    | °                 |
| Operating Point reproducibility                 | ±0.25  |    | °                 |
| Movement Differential                           | 12   |    | °                 |
| Operating Force                                 | -  |    | N                 |
| Switching Frequency max                         | 300  |    | min <sup>-1</sup> |

### Ordering Table :

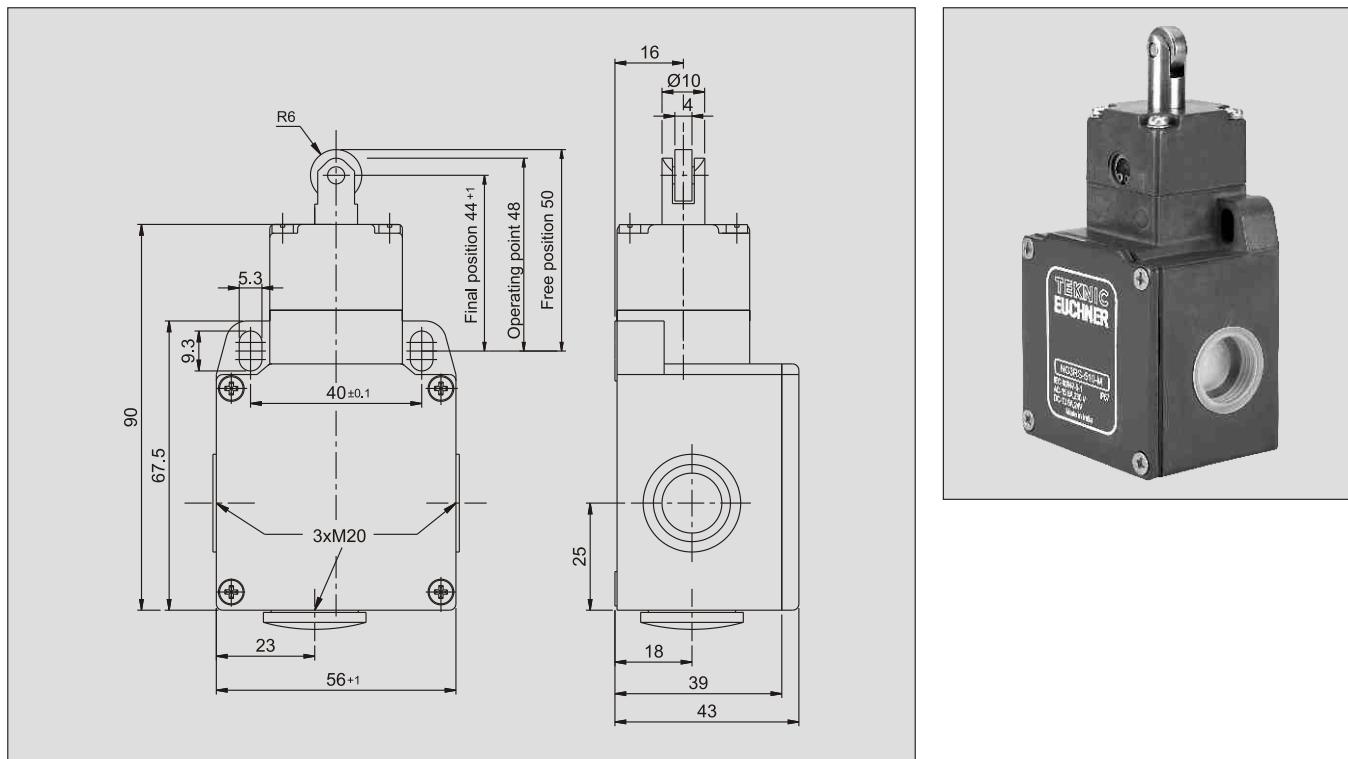
| NG3 | VB | ES-510 | Without LED | With LED 24 V DC | With LED 220 V AC |
|-----|----|--------|-------------|------------------|-------------------|
|     |    |        | NG3VB-510-M | -                | -                 |
|     | VS |        | NG3VS-510-M | -                | -                 |

Limit switch with wide housing & Plunger Actuation.

RG (Plastic Roller)

RS (Steel Roller)

### Dimensional Details



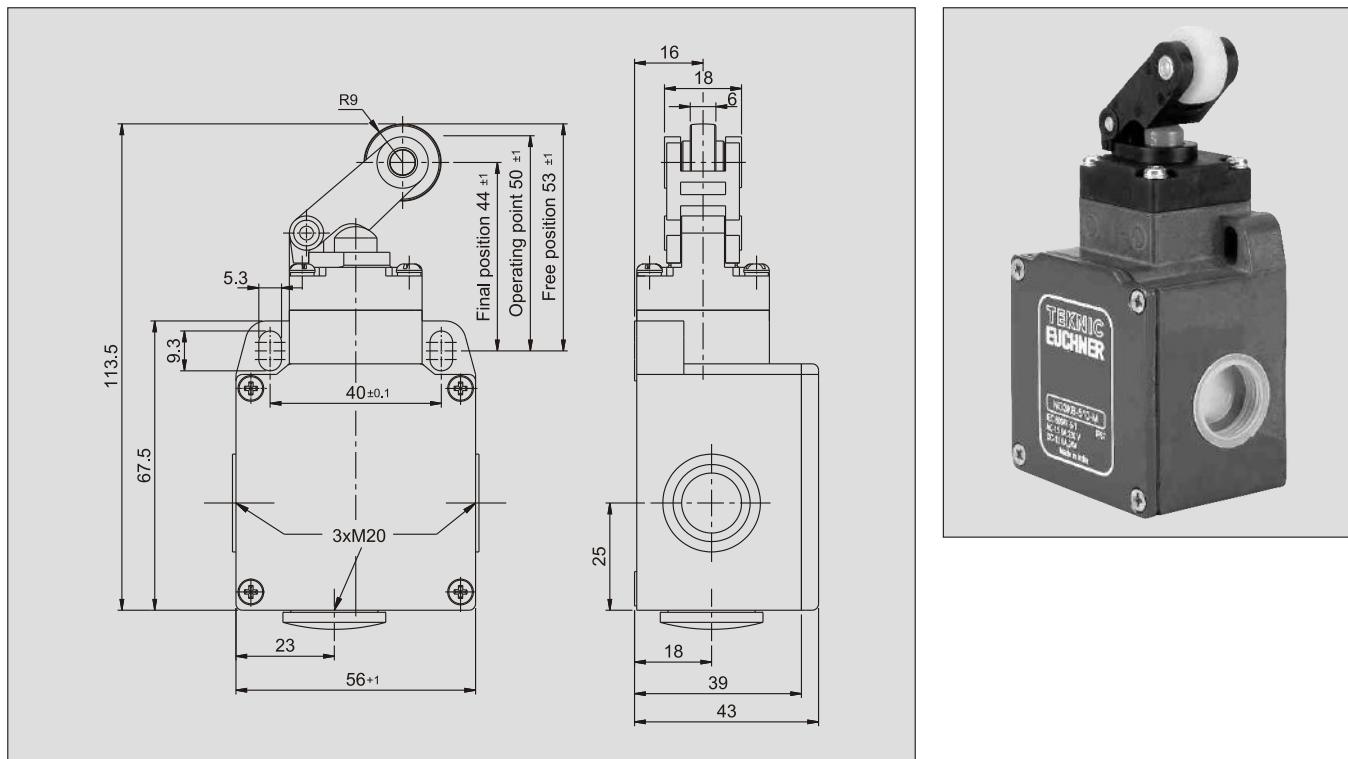
| Parameters                                      | Value  |    | Unit              |
|---|--|----|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |    |                   |
| Degree of protection according to IEC 60529     | IP67   |    |                   |
| Installation position                           | Optional   |    |                   |
| Mechanical service life                         | $30 \times 10^6$ switching cycles                        |    |                   |
| Ambient temperature                             | -25 to +80   |    | °C                |
| Switching Element                               | ES 510   |    |                   |
| Contact Element                                 | 1NO + 1NC  |    |                   |
| Switching Principle                             | Snap action  |    |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  |    | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |    |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |    |                   |
| Cable cross section , maximum                   | 2 x 1.5  |    | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V le 6A , DC-13 Ue 24V le 6A                 |    |                   |
| Rated Insulation Voltage Ui                     | 250  |    | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  |    | KV                |
| Switching Voltage , minimum                     | 12   |    | VDC               |
| Switching current min at 12 VDC                 | 10   |    | mA                |
| Contact closing time                            | <4   |    | ms                |
| Contact bounce time                             | <3   |    | ms                |
| Short Circuit Protection (fuse)                 | 10   |    | A                 |
| Actuator  | RG   | RS |                   |
| Approach speed , max.                           | 20   | 20 | m/min             |
| Approach speed , min.                           | 0.01   |    | m/min             |
| Pretravel before switch point                   | 2  |    | mm                |
| Operating Point reproducibility                 | ± 0.1  |    | mm                |
| Movement Differential                           | 0.7  |    | mm                |
| Operating Force                                 | 15   |    | N                 |
| Switching Frequency max                         | 300  |    | min <sup>-1</sup> |

### Ordering Table :

| NG3 | RG | ES-510 | Without LED | With LED 24 V DC | With LED 220 V AC |
|-----|----|--------|-------------|------------------|-------------------|
|     |    |        | NG3RG-510-M | -                | -                 |
|     | RS |        | NG3RS-510-M | -                | -                 |

Limit switch with wide housing & Roller Arm.  
KB (Plastic Roller Arm)

### Dimensional Details



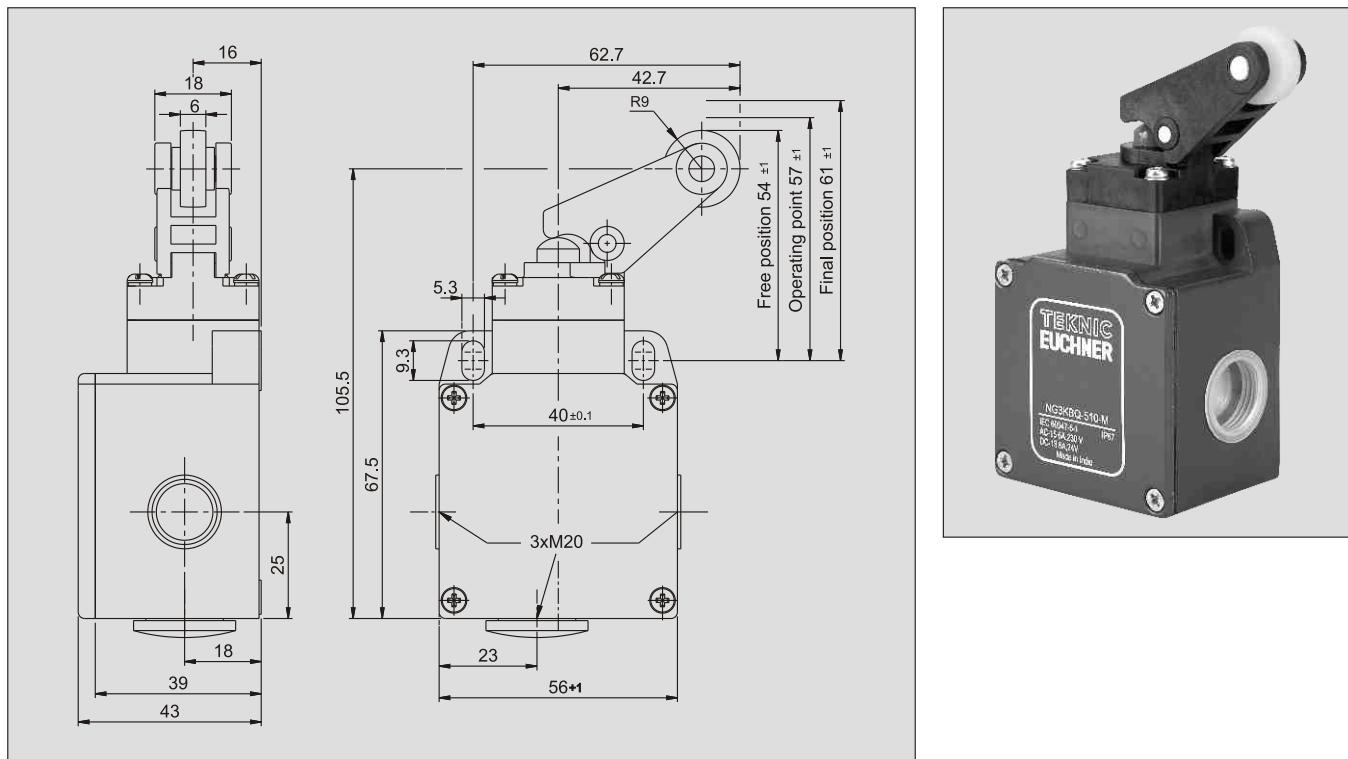
| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | KV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| Actuator  | KB   |                   |
| Actuator Material                               | Glass reinforced Nylon 66                                |                   |
| Approach speed , max.                           | 20   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 3  | mm                |
| Operating Point reproducibility                 | ±0.1   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

### Ordering Table :

| Without LED   | With LED 24 V DC | With LED 220 V AC |
|---------------|------------------|-------------------|
| NG3 KB ES-510 | NG3KB-510-M      | -                 |

Limit switch with wide housing & Angular Roller Arm.  
KBQ (Angular Plastic Roller Arm)

### Dimensional Details

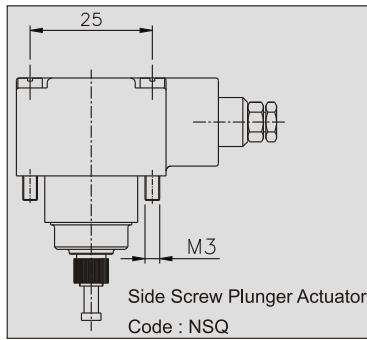
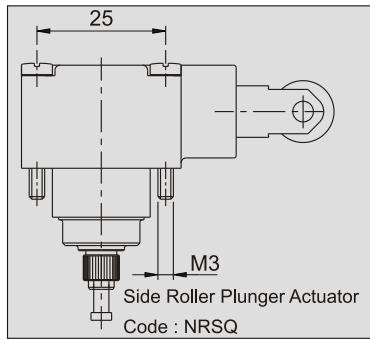
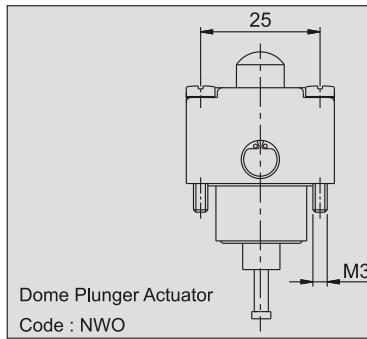
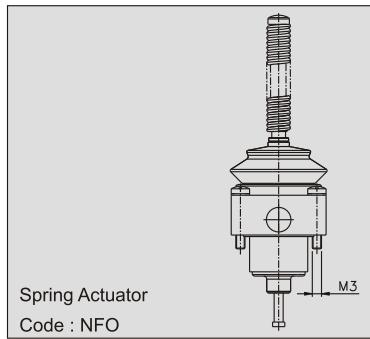
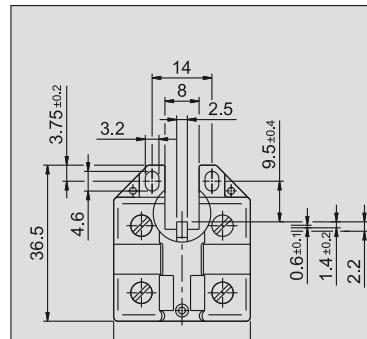
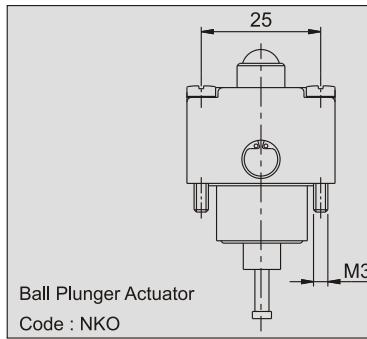
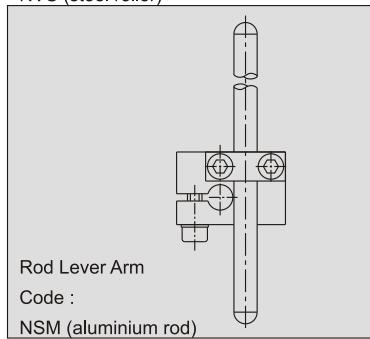
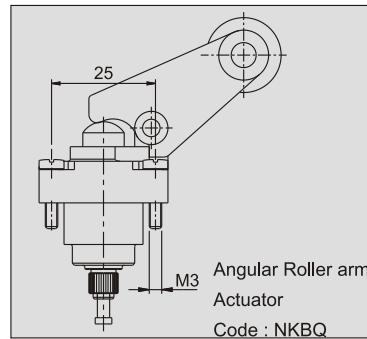
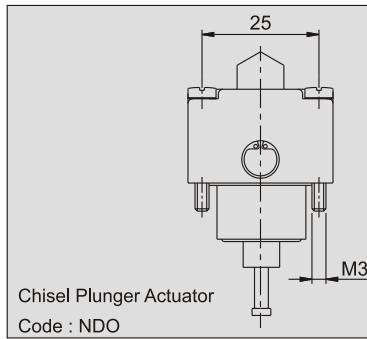
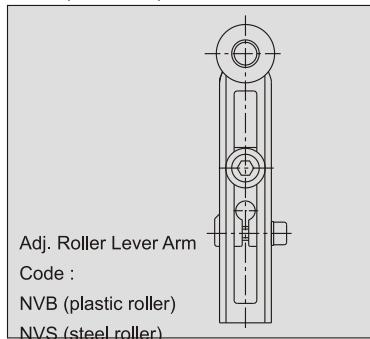
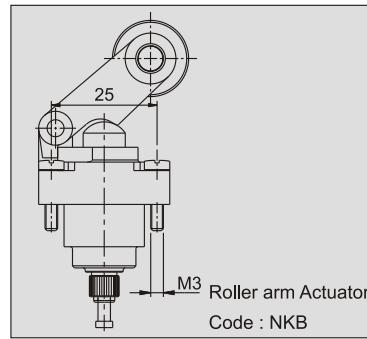
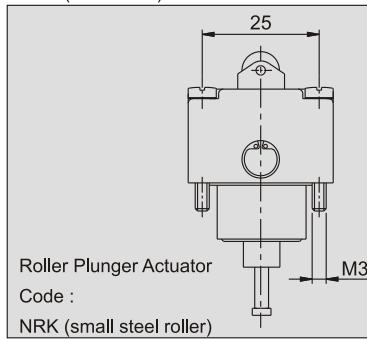
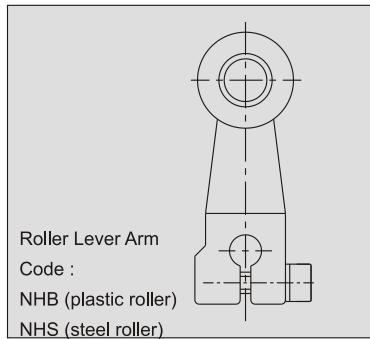
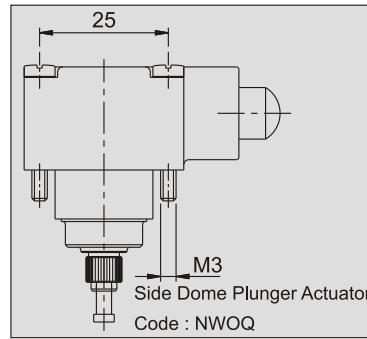
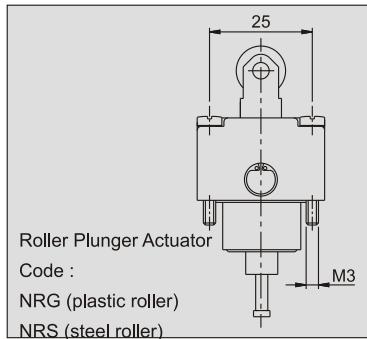
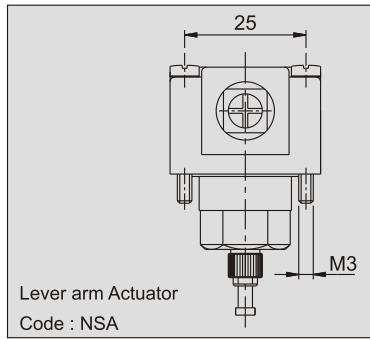


| Parameters                                      | Value  | Unit              |
|---|--|-------------------|
| Housing Material                                | Anodised die-cast alloy                                  |                   |
| Degree of protection according to IEC 60529     | IP67   |                   |
| Installation position                           | Optional   |                   |
| Mechanical service life                         | 30x10 <sup>6</sup> switching cycles                      |                   |
| Ambient temperature                             | -25 to +80   | °C                |
| Switching Element                               | ES 510   |                   |
| Contact Element                                 | 1NO + 1NC  |                   |
| Switching Principle                             | Snap action  |                   |
| Contact gap according to VDE 0660               | 2 x 0.5  | mm                |
| Contact material                                | Silver alloy AgNi10, gold flashed                        |                   |
| Connection type                                 | Captive screw terminals with self lifting clamping discs |                   |
| Cable cross section , maximum                   | 2 x 1.5  | mm <sup>2</sup>   |
| Utilization category according to IEC 60947-5-1 | AC-15 Ue 230V Ie 6A , DC-13 Ue 24V Ie 6A                 |                   |
| Rated Insulation Voltage Ui                     | 250  | V                 |
| Rated Impulse Withstand Voltage Uimp            | 2.5  | kV                |
| Switching Voltage , minimum                     | 12   | VDC               |
| Switching current min at 12 VDC                 | 10   | mA                |
| Contact closing time                            | <4   | ms                |
| Contact bounce time                             | <3   | ms                |
| Short Circuit Protection (fuse)                 | 10   | A                 |
| <b>Actuator</b>                                 | <b>KBQ</b>   |                   |
| Actuator Material                               | Glass reinforced Nylon 66                                |                   |
| Approach speed , max.                           | 20   | m/min             |
| Approach speed , min.                           | 0.01   | m/min             |
| Pretravel before switch point                   | 3  | mm                |
| Operating Point reproducibility                 | ±0.1   | mm                |
| Movement Differential                           | 0.7  | mm                |
| Operating Force                                 | 15   | N                 |
| Switching Frequency max                         | 300  | min <sup>-1</sup> |

### Ordering Table :

|     |     | Without LED | With LED 24 V DC | With LED 220 V AC |
|-----|-----|-------------|------------------|-------------------|
| NG3 | KBQ | ES-510      | NG3KBQ-510-M     | -                 |

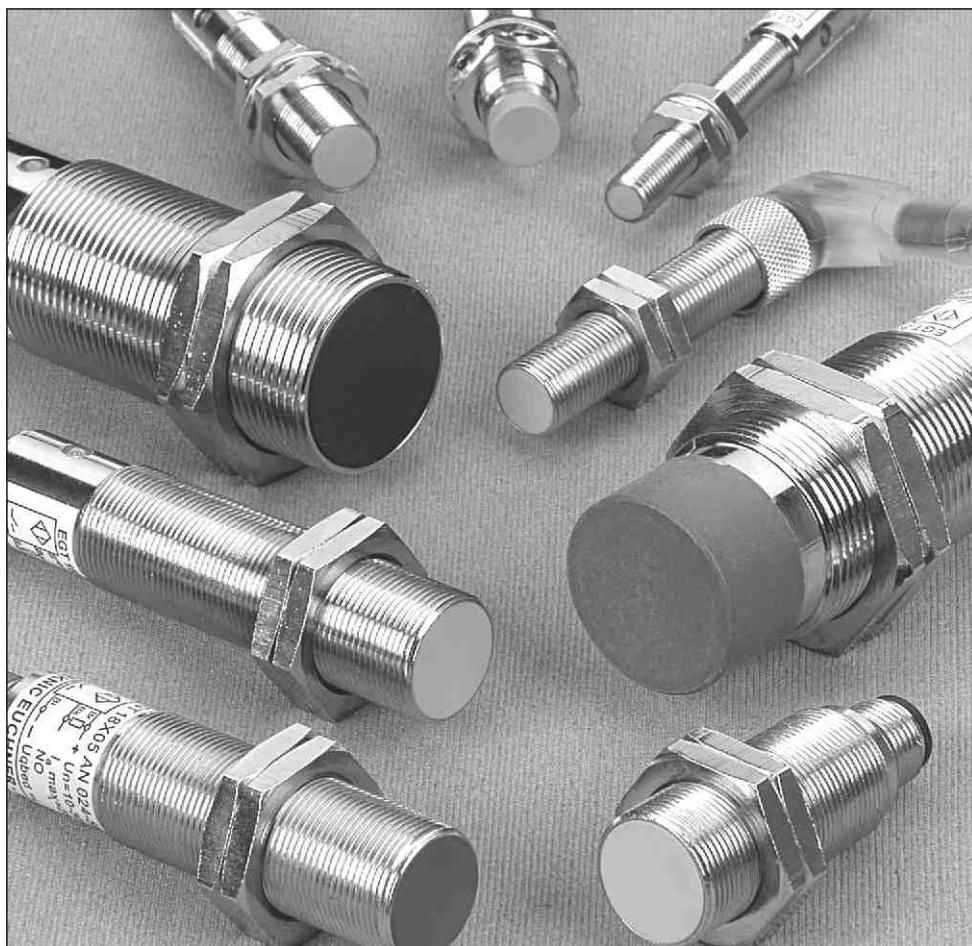
## Accessories



## Products from TEKNIC EUCHNER, INDIA



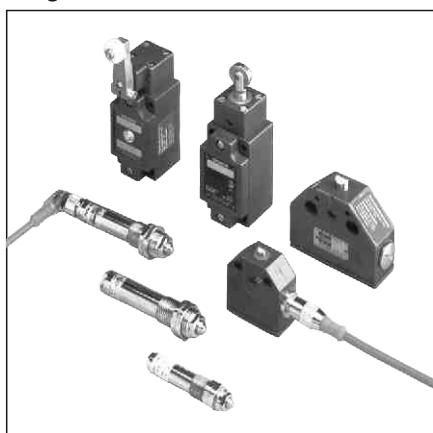
**Multiple Limit Switches**



**Inductive Proximity Switches**

## Products from EUCHNER, GERMANY

### Precision Single-hole fixing / Single Limit Switches



Control & positioning Switches.

### Precision Single / Multiple Limit Switches



Switches used for positioning & control of machines & Industrial Installation.

### Angular Position Transducers



Precise digital positioning devices for detecting rotary / linear displacement. Both absolute as well as incremental type of transducers available.

### Safety Switches Category II TZ & NZ



Safety devices for monitoring moveable guards on CNC machine tools.

### Safety Switches Category II TP & NP



Safety devices in plastic construction for monitoring moveable guards on CNC machine tools,

### Enabling Switches



Manually operated control devices for use in hazardous areas of machine & equipment.

### Joysticks



Switches used to control circuits in machines & equipment with commands to operate in several directions.

### Handwheels



Electronic HKD Handwheel devices, with universal pulse generator for manual positioning of axis.

### Hand-held Controllers



Controllers used to make machine operations easier & safer with handwheels.

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