



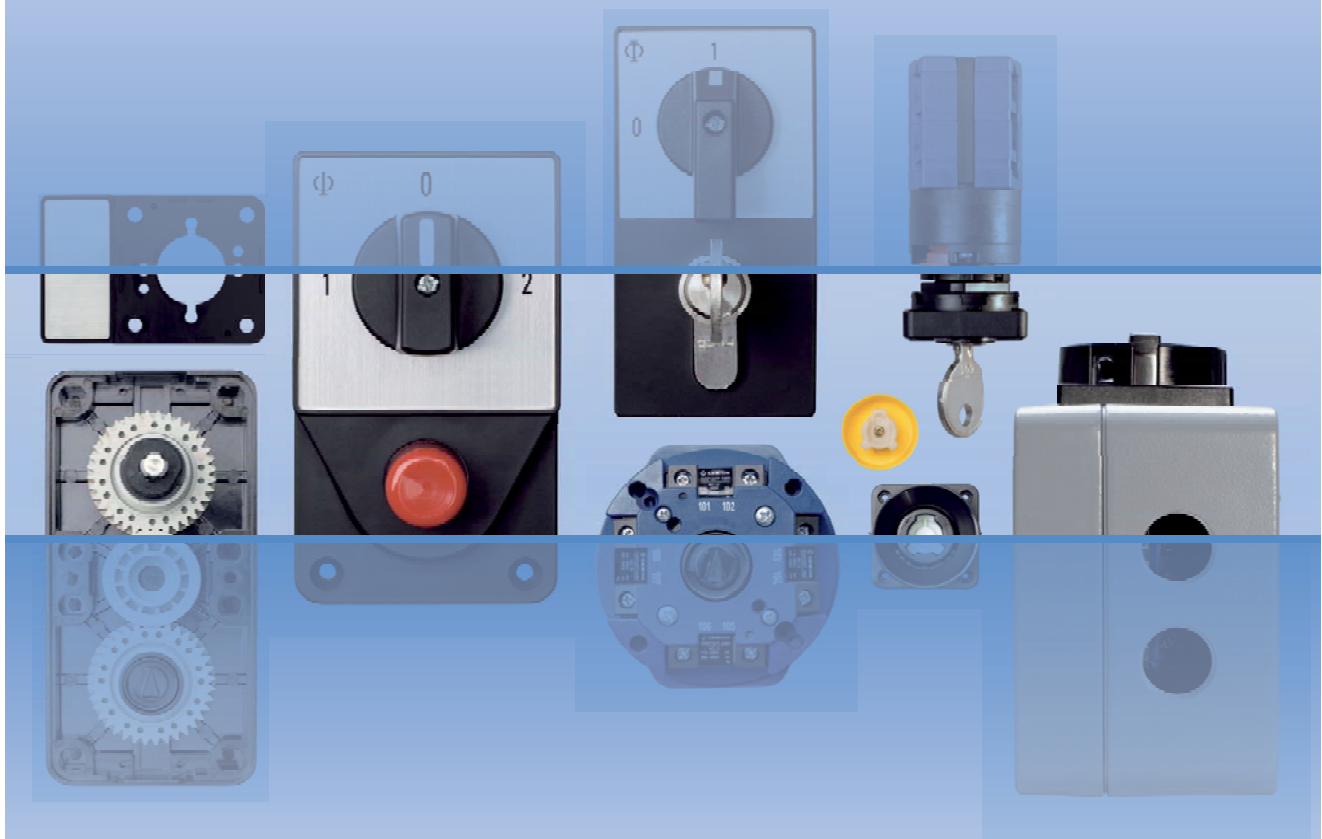
# Kraus & Naimer

BLUE LINE switchgear

since 1907

## Catalog 101 Optional Extras and Enclosures

02/2010



---

# Kraus & Naimer

The development of the Blue Line rotary switch, contactor and motor starter product ranges is based on more than hundred years experience by Kraus & Naimer in the design and manufacture of electrical switchgear. Kraus & Naimer pioneered the introduction of the cam operated rotary switch and continues to be recognized as the world leader in that product field.

## BLUE LINE

Blue Line products are protected by numerous patents throughout the industrial world. They are built to national and international standards and designed to withstand adverse temperatures and climates.

Blue Line products are accepted and universally recognized for their quality and workmanship. They are supported by a worldwide sales and service organization.

The Kraus & Naimer Registered Trademark



WORLDWIDE SYMBOL  
FOR QUALITY SWITCHGEAR

---

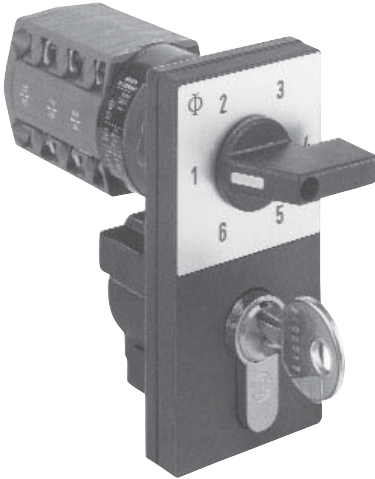
| <b>Contents</b>                           | Description<br>Page | Dimensions<br>Page |
|---|---------------------|--------------------|
| Construction Data                         | 2                   | -                  |
| How to order                              | 3                   | -                  |
| Optional Extras:                          |                     |                    |
| Additional screw terminal for CL switches | 4                   | 40                 |
| Add-on Escutcheon Plates                  | 22                  | 40                 |
| Auxiliary Contacts                        | 8                   | 28                 |
| Bayonet/Switch Coupling                   | 11                  | 33                 |
| Door Clutches                             | 5, 6                | 28, 29             |
| Electromechanical Interlock               | 10                  | 32                 |
| Ground and Neutral Terminal               | 11                  | 34                 |
| Indicator Lamp Devices                    | 6, 7                | 27, 30             |
| Interlock between Switches                | 9                   | 31                 |
| Key-lock Devices                          | 15-19               | 35-38              |
| Motor Drive                               | 14                  | 34                 |
| Padlock Devices                           | 20                  | 38, 39             |
| Position Indicator                        | 8                   | -                  |
| Protective Cover                          | 11                  | -                  |
| Push Button Interlock                     | 10                  | 32                 |
| Push-pull Interlock                       | 9                   | 31                 |
| Ratchet Coupling                          | 13                  | 33                 |
| Shaft Extension                           | 4                   | 27                 |
| Slip Clutch                               | 13                  | 33                 |
| Special Drive Units                       | 12                  | 34                 |
| Spring Return over several Positions      | 13                  | 30                 |
| Stop and Go Device                        | 9                   | 30                 |
| Tandem Drives                             | 11                  | 31                 |
| Terminal Lugs                             | 4                   | -                  |
| Trip Devices                              | 14                  | 33                 |
| Trip Indicator                            | 8                   | -                  |
| Uni-directional Interlock                 | 13                  | -                  |
| Switch Type Variations                    | 21                  | 39, 40             |
| Enclosures                                | 23-26               | 41-43              |
| Blue Line Switchgear:<br>Summary          | 44                  | -                  |

## Construction Data

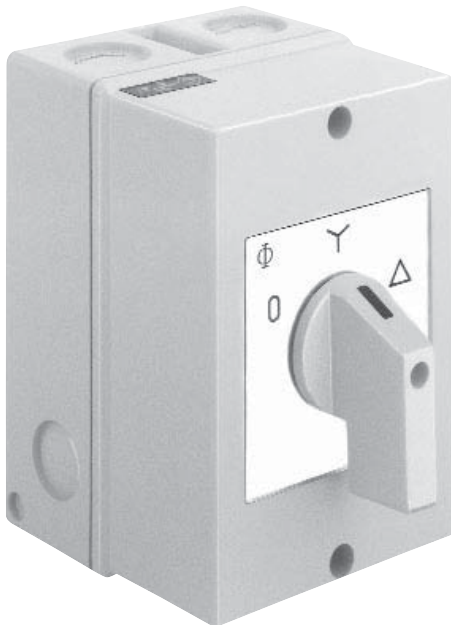
---

The large cam switch line of the A, C, CA, CAD, CG, CH, CHR, CL, D, L and X-series is complemented by a large number of optional extras and enclosures.

This substantial number of optional extras and enclosures is needed in order to meet the requirements of the world market.



One or more optional extras may be used in combination with any one switch provided they are of the same switch size. A few exceptions where this cannot be accomplished are noted on the following tables. In some cases, for technical strength or esthetic reason, it may be desirable that a switch be combined with an optional feature of the next larger switch size. Many options provide for such a possibility.



Enclosures are manufactured from plastic or aluminum material. They offer a high degree of protection (up to IP 66/67) thereby permitting switch operation under adverse environmental conditions. The materials used provide considerable strength and the best possible protection against corrosion. A large number of possibilities exist for combining switches, enclosures and appropriate optional extras.

## How to order

Disconnectors and Main Switches with Optional Extras acc. to IEC 60947-3 see Catalog 500

When ordering Blue Line cam switches with optional extras, the following method of coding is required. Details on the enclosures and optional extras are shown in this catalog.

### 1. Switch Type

See Catalog 100, 110, 120, 130 or 140.

### 2. Switch Function

See Catalog 100, 110, 120, 130 or 140.

### 3. Type of Mounting

See Catalog 100, 110, 120, 130 or 140.

### 4. Enclosures

The assigned code numbers for the various enclosures are shown in this catalog on pages 23-26.

**CA20B**

**A202  
V840F/F**

**PN**

### 5. Optional Extras

Pages 4-22 list optional extras and their coding. A ● indicates the switch sizes in which the optional extra shown is available.

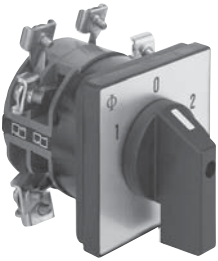
Possible combinations of switches of the same switch size with an optional extra of the next larger switch size are indicated by a ●. Only in this case indicate the next larger switch size in front of the coding.

There are some optional extras in existence which are available in a variety of programs. Additional ordering data may, therefore, be required. In the above case, a color description is required for the cover and handle disc.

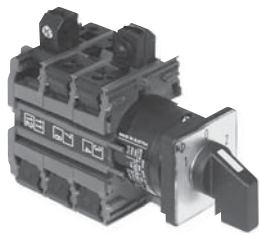
| Switch Types | Size of Mounting | Switch Types | Size of Mounting | Switch Types | Size of Mounting | Switch Types | Size of Mounting | Switch Types | Size of Mounting |
|--------------|------------------|--------------|------------------|--------------|------------------|--------------|------------------|--------------|------------------|
| A11          | S1               | CA25B        | S1               | CHR10B       | S1               | DKR12        | S0               | L2000        | S3               |
| A11C         | S2               | CA40         | S1               | CHR16        | S0               | DH12         | S0               | X200         | S3               |
| A14          | S1               | CA50         | S1               | CHR16B       | S1               | DHR12        | S0               | X400         | S3               |
| A14C         | S2               | CA63         | S1               | CL4          | S00              | DH12B        | S1               | X630         | S3               |
| C80          | S2               | CAD11        | S0               | CL10         | S0               | DHR12B       | S1               |              |                  |
| C125         | S2               | CAD12        | S0               | DK10         | S0               | L350         | S2               |              |                  |
| C315         | S3               | CG4          | S00              | DKR10        | S0               | L351         | S2               |              |                  |
| C316         | S3               | CG4-1        | S00              | DH10         | S0               | L400         | S3               |              |                  |
| CA4          | S00              | CGD4-1       | S00              | DHR10        | S0               | L600         | S3               |              |                  |
| CA4-1        | S00              | CG6          | S00              | DH10B        | S1               | L630         | S2               |              |                  |
| CA10         | S0               | CG8          | S0               | DHR10B       | S1               | L631         | S2               |              |                  |
| CA10R        | S0               | CH6          | S00              | DK11         | S0               | L800         | S3               |              |                  |
| CA10B        | S1               | CH10         | S0               | DKR11        | S0               | L1000        | S2               |              |                  |
| CA11         | S0               | CH10B        | S1               | DH11         | S0               | L1001        | S2               |              |                  |
| CA11B        | S1               | CH16         | S0               | DHR11        | S0               | L1200        | S3               |              |                  |
| CA20         | S0               | CH16B        | S1               | DH11B        | S1               | L1250        | S2               |              |                  |
| CA20B        | S1               | CHR6         | S00              | DHR11B       | S1               | L1251        | S2               |              |                  |
| CA25         | S0               | CHR10        | S0               | DK12         | S0               | L1600        | S3               |              |                  |

| Optional Extras | Code | For Switch Sizes |    |    |    |    |
|-----------------|------|------------------|----|----|----|----|
|                 |      | S00              | S0 | S1 | S2 | S3 |


### Terminal Lugs

|  |   |                    |                    |            |  |  |   |
|--|---|--------------------|--------------------|------------|--|--|---|
|  | <p>For screw with wire clamps</p> <p>Terminal lugs facilitate the connecting of wires in installations where the terminals are not easily accessible.</p> <p>All X switches, L switches and switches type C315/ C316 will be supplied with terminal lugs as standard.</p> | <p><b>M900</b></p> |                    |            | A11                                      | ●  | ● |
|  | <p>Terminal lugs for quick connect termination</p> <p>Each quick connect terminal may accept either one 6,3 mm quick connect lug or two 2,8 mm quick connect lugs.</p> <p>Switch type CA4 only accepts one quick connect lug 2,8 mm.</p>                                  |                    | <p><b>M930</b></p> | <p>CA4</p> | <p>CHR10<br/>CHR16<br/>DH10<br/>DK10</p> | <p>A11<br/>A14<br/>CHR10B<br/>CHR16B<br/>DH10B</p> |   |

### Additional Screw Terminal for CL Switches

|   |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|
|  | <p>For connecting 2 wires per terminal</p> <p>for CL4<br/>for CL10</p> | <p><b>S00 D420 DA</b><br/><b>S0F D120 DA</b></p> |  |  |  |  |  |
|---|--|--|--|--|--|--|--|

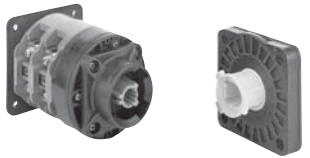

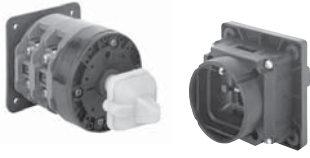


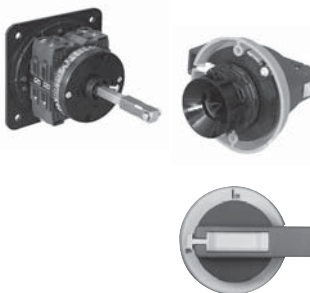
### Shaft Extension

|  |   |  |  |   |   |   |   |
|--|---|--|--|---|---|---|---|
|  | <p>With asymmetric profile</p> <p>Shaft length not adjustable</p> <p>Shaft with unlimited adjustable length with set screw with shear ring</p> <p>Adjustable shaft can be set to the desired length in a pre-mounted switch with VE mounting plate.</p> | <p><b>L100</b></p> <p><b>M004D</b><br/><b>M004</b></p> |  | ● | ● |   |   |
|  | <p>With square profile</p> <p>Shaft length not adjustable</p> <p>Shaft with unlimited adjustable length with set screw with clamping bushing</p>  |  | <p><b>L100A</b></p> <p><b>M004E</b><br/><b>M004A</b></p> |   | ● | ● | ● |
| <p>Ordering data:</p>  | <p>Free shaft length or dimension from mounting surface to cover.</p>   |  |  |   |   |   |   |

<sup>1</sup>The coding of the switch type may change as shown in Catalog 100, 120 and 130, page 4.

| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

### Standard Door Clutch

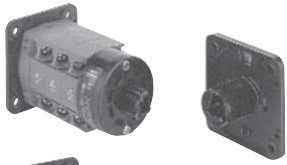
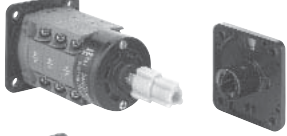
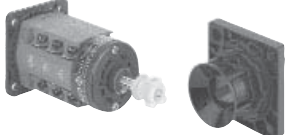
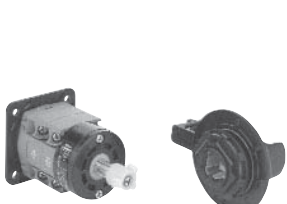


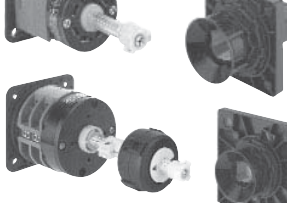
|   |   |  |   |   |   |
|---|---|--|---|---|---|
|    | <p>With profile extension parts</p> <p>Front protection IP 40<br/>Front protection IP 66/67</p>   | <p><b>M280</b><br/><b>M280/.EF</b></p>   | ● | ● | ● |
|    | <p>With shaft extension, shaft with unlimited adjustable length</p> <p>shaft fixation with set screw<br/>Front protection IP 40<br/>Front protection IP 66/67</p> <p>shaft fixation with shear ring<br/>Front protection IP 40<br/>Front protection IP 66/67</p>  | <p><b>M280E</b><br/><b>M280E/.EF</b></p> | ● | ● | ● |
|   | <p>Door clutches M700 ff.<sup>1</sup></p> <p>The M700 ff. is a padlock door clutch and a mechanical interlocking safety device. Using the device the electrical panel may be opened only when the switch is in the OFF position and no padlock is fitted. Note: Only in the ON position can knowledgeable personnel using a simple tool to defeat the interlock. The M700's flexibility allows for successful installation with as much as + or - 5 mm of misalignment between the shaft and door.</p> <p>Handle lockable with padlocks<br/>Protection IP 66</p> <p>The escutcheon plate is available in black, yellow and alu. The handle may be supplied in black and red.</p>            | <p><b>M700/.</b></p>                     | ● | ● | ● |
|  | <p>Standard handle and standard escutcheon plate<br/>Protection IP 65</p>   | <p><b>M701</b></p>                       | ● | ● | ● |
|  | <p>Unlock insert for the M700 ff.</p> <p>To open the door in ON-position. (After the locking has been made inactive, it is necessary to take effective precautions against an opening of the door by unauthorized persons.)</p>   | <p><b>S1D M700 29</b></p>                |   |   |   |
|  | <p>Door clutches M800 ff.<sup>1</sup></p> <p>Door clutch utilizes a simple and robust design and features a compact size. It has an interlock in the ON-position while a padlock can be fitted in the OFF-position. The door clutch may be opened only if the switch is in the OFF-position. In special cases, however, authorized people have a requirement to open the door, even if the switch is in the ON-position. Further characteristics are the single hole mounting with IP 66/67 protection degree, as well as the Accepted Misalignment up to ± 3 mm horizontally and ± 5 mm vertically. Maximum 3 padlocks with a minimum shackle diameter from 5 up to 8 mm are possible.</p> | <p><b>M810/.</b><br/><b>M800/.</b></p>   | ● | ● | ● |
| <p>Ordering data:</p>   | <p>Dimension from face of the switch to the cover or dimension from mounting surface to cover as well as the interlock program and the color selection.</p>   |  |   |   |   |

<sup>1</sup>Additional shaft extension must be specified.





| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

### Simplified Door Clutch

|  |  |   |                |                |                |                |
|--|--|---|----------------|----------------|----------------|----------------|
|    | <p>The simplified door clutches are utilized primarily when the switch is mounted to the bottom of the enclosure and the handle and the escutcheon plate are mounted on the cover.</p> <p>With profile extension parts<br/>Front protection IP 40<br/>Front protection IP 65</p>   | <p><b>M290/A1</b><br/><b>M290/A1.EF</b></p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |
|    | <p>With shaft extension<br/>Front protection IP 40<br/>Front protection IP 65</p>  | <p><b>M290/A3</b><br/><b>M290/A3.EF</b></p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |
|    | <p>Single hole mounting 22 mm, protection IP 66. Additional profile extension parts and shaft extension must be specified.<br/>For shaft extension<br/>For profile extension parts</p>   | <p><b>M295/.A</b><br/><b>M295/.B</b></p>    | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |
|   | <p>With padlock device and single hole mounting 22 mm, protection IP 66. Additional shaft extension must be specified.</p>   | <p><b>V840E</b></p>                         | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |
|  | <p>The cover disc is available in black, yellow and electro-gray. The handle may be supplied in red, black and electro-gray.</p>   | <p><b>V840G</b><br/><b>V840F</b></p>        | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |
|  | <p>For 3 padlocks<br/>For 4 padlocks</p>   | <p><b>V845</b></p>                          | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |
|  | <p>Operation of the locking bar from the front. Available in black, red and electro-gray.</p> <p>Centering aid for simplified door clutches with single hole mounting and shaft extension<br/>Misalignment between the shaft and mounting are compensated in all 4 directions.</p> | <p><b>M600</b></p>                          | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |
| <p>Ordering data:</p>  | <p>Free shaft length or dimension from mounting surface to cover or distance from face of the switch to the cover and color selection.</p>   |   |                |                |                |                |

### Indicator Lamp Device (without Lamp)


|  |  |  |                |                |                |                |
|--|--|--|----------------|----------------|----------------|----------------|
|  | <p>With square escutcheon plate</p> <p>With white lamp socket<sup>1</sup><br/>Without lamp socket</p> <p>The lamp socket for switch size S0 had been designed for glowing lamps with socket E10.<br/>For switches size S1, S2 and S3 the sockets are provided for lamps with thread E14.</p> | <p><b>Q200/A1</b><br/><b>Q200/A2</b></p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |
|  | <p>With rectangular escutcheon plate</p> <p>With white lamp socket<sup>1</sup><br/>Without lamp socket</p> <p><sup>1</sup>Additional colors on request.</p>  | <p><b>Q200/B1</b><br/><b>Q200/B2</b></p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> | <p>● ● ● ●</p> |



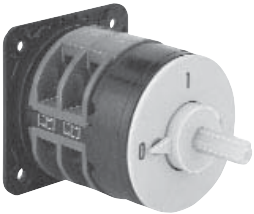


| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |


### Trip Indicator

|  |  |   |   |  |  |
|--|--|---|---|--|--|
|  <p>With square escutcheon plate</p> <p>With rectangular escutcheon plate</p> <p>The trip indicator used on switches with spring return positions. It includes a colored indicator to show the last SR position that handle has been turned. Two possibilities for flag indicator exist:<br/>a) left red - right green<br/>b) left green - right red</p> | <p><b>M120/A</b></p> <p><b>M120/B</b></p>          | ● | ● |  |  |
|  |  | ● | ● |  |  |
| Ordering data:   | The color to appear after left or right operation. |   |   |  |  |

### Position Indicator

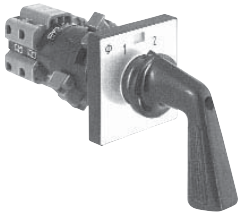

|   |             |  |   |   |   |
|---|-------------|--|---|---|---|
|  <p>The position indicator shows the location of the switch position, even when the panel door is open and the escutcheon plate is not visible.</p> | <b>M150</b> |  | ● | ● | ● |
|---|-------------|--|---|---|---|

### Auxiliary Contacts


|  |  |  |     |      |  |
|--|--|--|-----|------|--|
|  <p>These auxiliary contacts are controlled with a cam which can be programmed. The max. number of the auxiliary contacts for switches of size S1 and S2 is 4 pcs. and for switches of size S3 is 6 pcs.</p> <p>Select between a contact system with a rigid bridge for excellent AC-15 making and breaking capabilities or a H-bridge design with “cross-wire” contacts (sizes S1 and S2) for low voltages and currents. The contact systems with gold contacts or gold-plated contacts allow for use in aggressive environments also.</p> <p>In cases where more than 4 resp. 6 auxiliary contacts are required, an auxiliary switch should be used alternatively.</p> | <b>M510B</b>   |  | A11 | C80  |  |
|  |  |  | A14 | C125 |  |
| Ordering data:   | Quantity and operation of the auxiliary contacts and type of the contact system. |  |     |      |  |

| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

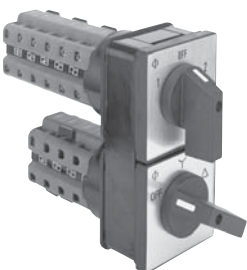
### Push-pull Interlock

|  |   |  |   |   |   |   |
|--|---|--|---|---|---|---|
|   | <p>To pull lateral spring return</p> <p>To pull lateral latching</p> <p>To push lateral spring return</p> <p>To push lateral latching</p>   | <p><b>V110A</b></p> <p><b>V115A</b></p> <p><b>V130A</b></p> <p><b>V135A</b></p>                | ● |   |   |   |
|  | <p>The push-pull device is used to interlock the switch so that the handle can be rotated only when pushed or pulled. The push-pull device can be programmed to allow the interlock to operate only between pre-determined switch positions. Auxiliary contacts can be operated by means of the axial movement of the handle. For switches size S0 the max. number of auxiliary contacts is 2 pieces for all other sizes 8 pieces. In addition switches size S0 can also be combined with a trip indicator.</p> |  |   |   |   |   |
|  | <p>To pull lateral spring return</p> <p>To pull lateral latching</p> <p>To pull and to push lateral spring return</p> <p>To push lateral spring return</p> <p>To push lateral latching</p>  | <p><b>V110</b></p> <p><b>V115</b></p> <p><b>V120</b></p> <p><b>V130</b></p> <p><b>V135</b></p> |   | ● | ● | ● |
|  | <p>The stop and go device prevents a fast switching thru the center OFF position. This is only possible with a 60° switching angle. The stop and go device only becomes activated in the center switch position, in either in both or one direction.</p>  |  |   |   |   |   |
| Ordering data:   | Description of the interlocking program, number and operation of the auxiliary contacts.  |  |   |   |   |   |

### Stop and Go Device

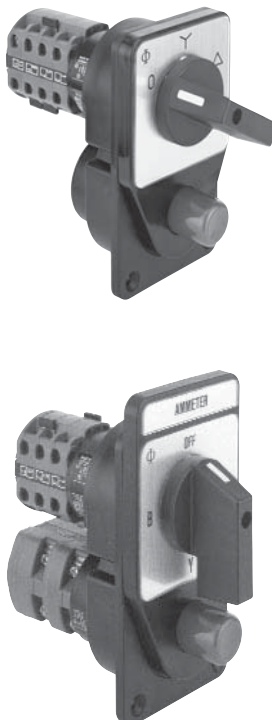
|   |  |                                      |   |  |  |  |
|---|--|--------------------------------------|---|--|--|--|
|  | <p>The stop and go device prevents a fast switching thru the center OFF position. This is only possible with a 60° switching angle. The stop and go device only becomes activated in the center switch position, in either in both or one direction.</p> | <b>V160</b>                          | ● |  |  |  |
|   | Ordering data:   | Operation of the stop and go device. |   |  |  |  |

### Interlock between Switches

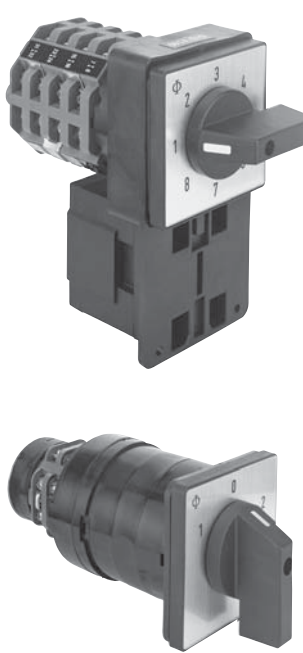
|   |   |               |  |   |   |   |
|---|---|---------------|--|---|---|---|
|  | <p>For 2 switch columns</p> <p>An interlock between 2 or 3 switch columns permits the operation of one switch only when the other switch or switches are located in a pre-determined switching position. For heavy duty service reinforced devices are available.</p> | <b>V600/B</b> |  | ● | ● | ● |
|   | <p>For 3 switch columns</p>   | <b>V600/C</b> |  | ● | ● | ● |
| Ordering data:  | Description of the interlocking program.  |               |  |   |   |   |

| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

### Push Button Interlock


|   |   |   |  |                |   |   |  |
|---|---|---|--|----------------|---|---|--|
|  | <p>With square escutcheon plate</p> <p>Switching only possible if push button is depressed.</p> <p>Switching only possible if push button has been depressed and released.</p> <p>Up to 4 auxiliary contacts can be operated by depressing the push button.</p> | <p><b>V400/A1</b></p> <p><b>V400/A2</b></p> <p><b>V400/B1</b></p> <p><b>V400/B2</b></p> | ●  | ● <sup>1</sup> | ● | ● |  |
|   | <p>With rectangular escutcheon plate</p> <p>Switching only possible if push button is depressed.</p> <p>Switching only possible if push button has been depressed and released.</p>   |   | ●  | ● <sup>1</sup> | ● | ● |  |
|   | <p>Ordering data:</p>   |   | <p>Number and operation of the auxiliary contacts.</p> |                |   |   |  |
|   |   |   |  |                |   |   |  |

### Electromechanical Interlock<sup>2</sup>

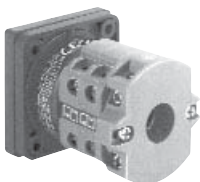
|  |  |                    |   |   |   |   |
|--|--|--------------------|---|---|---|---|
|  | <p>For switches size S1</p> <p>The electromechanical interlock locks the switch in any switching position. The interlock device is operated by energizing or de-energizing the electromechanical system. Adding auxiliary contacts to the switch permits the device to be operated only in pre-determined positions.</p> | <p><b>V140</b></p> |   | ● | ● | ● |
|  | <p>For switches size S2 and S3 or for switches size S1 with DC solenoid</p> <p>Ordering data:</p>  |                    | <p>Advise if the interlock is activated either by energizing or de-energizing of the electrical system. Coil voltage also required.</p> |   |   |   |

| Optional Extras | Code | For Switch Sizes |    |    |    |    |
|-----------------|------|------------------|----|----|----|----|
|                 |      | S00              | S0 | S1 | S2 | S3 |

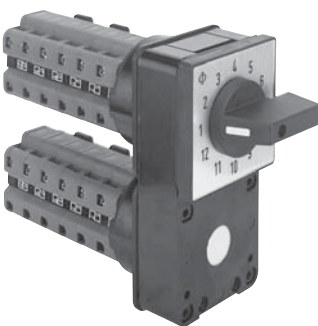
### Protective Cover

|  |             |  |  |  |             |                      |
|--|-------------|--|--|--|-------------|----------------------|
|  <p>The protective cover prevents accidental contact with current-carrying terminals.</p> | <b>M160</b> |  |  |  |             |                      |
|  |             |  |  |  | C80<br>C125 | C315<br>C316<br>L400 |

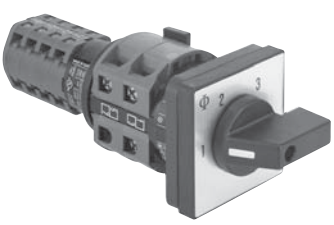
### Ground and Neutral Terminal

|   |                |   |  |  |  |  |
|---|----------------|---|--|--|--|--|
|  <p>Ground terminal</p> <p>Neutral terminal</p> <p>Ground and neutral terminal</p> | <b>H040/E</b>  | ● |  |  |  |  |
|   | <b>H040/N</b>  | ● |  |  |  |  |
|   | <b>H040/NE</b> | ● |  |  |  |  |

### Tandem Drive





|   |               |  |  |   |   |   |
|---|---------------|--|--|---|---|---|
|  <p>For 2 switch columns</p> <p>Two or three switch columns can be operated simultaneously. Special programs are available to reinforce the device for heavyduty applications.</p> <p>For 3 switch columns</p> | <b>M300/B</b> |  |  | ● | ● | ● |
|   | <b>M300/C</b> |  |  | ● | ● | ● |

### Bayonet/Switch Coupling

|  |             |   |   |   |   |   |
|--|-------------|---|---|---|---|---|
|  <p>The device is used to couple switches into one column</p> <p>Switches of the same size</p> <p>Switches of different sizes</p> <p>For use on rear of switch</p> <p>To add some optional extras</p> | <b>M270</b> |   |   | ● | ● | ● |
|  | <b>M275</b> | ● | ● | ● | ● | ● |
|  | <b>P100</b> |   |   | ● | ● | ● |
|  |             |   |   |   |   |   |

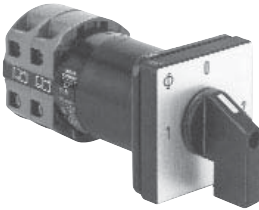
| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

### Special Drives

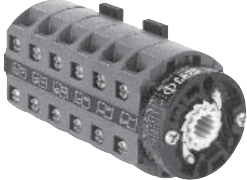
|  |   |                      |          |  |  |  |
|--|---|----------------------|----------|--|--|--|
|    | <p><b>Heavy duty drive unit</b></p> <p>The device is designed to allow customer to couple his own operating device to the switch.</p> | <p><b>G800/A</b></p> | <p>●</p> |  |  |  |
|    | <p><b>Heavy duty drive unit with actuator and roller</b></p>  | <p><b>G800/B</b></p> | <p>●</p> |  |  |  |
|  | <p><b>Double action lever</b></p> <p>Available in white and electro-gray.</p>   | <p><b>G800/C</b></p> | <p>●</p> |  |  |  |
|  | <p><b>Rope operation</b></p> <p>Available for spring return, maintained or stepping operation.</p>                                    | <p><b>G900/B</b></p> | <p>●</p> |  |  |  |

| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

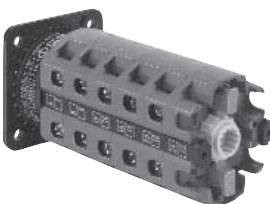
### Spring Return over several Positions

|  |  |                      |                    |     |   |  |
|--|--|----------------------|--------------------|-----|---|--|
|   | <p>Spring return from both sides</p>   | <p><b>M470/A</b></p> | ● ●                | ●   | ● |  |
|  | <p>Spring return from one side</p>   |                      | <p><b>M470</b></p> | ● ● | ● |  |
| <p>Spring return for angular displacement up to 30° can be accomplished by using the latching mechanism only. If a large number of contacts must be opened simultaneously or a total angular displacement is larger than 30° over which the spring return is operational, the switch must use one of the spring return devices.</p> <p>Spring return from both sides can be designed to permit maintained position on each side of center.</p> |  |                      |                    |     |   |  |
| Ordering data:   | For M470, specify spring return from either left or right side and details of maintained positions, if required. |                      |                    |     |   |  |

### Uni-directional Interlock

|   |  |                    |  |   |   |   |
|---|--|--------------------|--|---|---|---|
|  | <p>The uni-directional interlock prevents the switch from being operated counterclockwise. The interlock may be in either all positions or in pre-determined positions only.</p> | <p><b>M400</b></p> | ●  | ● | ● | ● |
|   | Ordering data:   |                    | Specify which positions should be interlocked. |   |   |   |

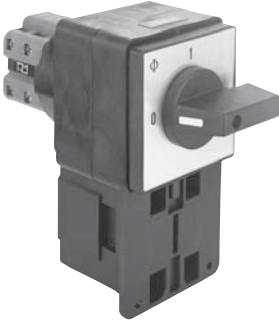
### Slip Clutch and Ratchet Coupling

|   |   |                    |                    |   |                      |  |
|---|---|--------------------|--------------------|---|----------------------|--|
|  | <p>Slip clutch</p> <p>Using the slip clutch, two cam shafts can be coupled in such a way so that the secondary cam shaft will operate only after the primary cam shaft has been moved over a pre-determined angle. This slip clutch allows e. g. the de-energized changing back of switches for pole-changeable motors. Not available for D-switches.</p> | <p><b>M200</b></p> | ●                  | ● |                      |  |
|   | <p>Ratchet coupling</p> <p>A ratchet coupling attaches to the rear of the switch. Additional stages are then attached behind the coupling device which serves to operate that portion of the switch only when the handle is turned counterclockwise. When the handle is turned clockwise, the rear switch portion remains in the same position.</p>       |                    | <p><b>M230</b></p> |   | CA40<br>CA50<br>CA63 |  |

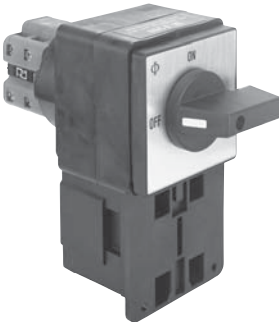


| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

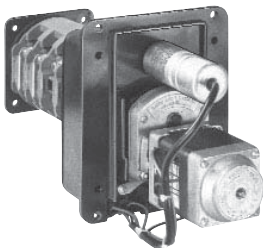
### Electromechanical Trip Device (Undervoltage Release)<sup>1</sup>

|  |   |   |                                     |  |  |  |
|--|---|---|-------------------------------------|--|--|--|
|  | <p>Operating voltage and frequency:</p> <p>AC/50 Hz</p> <p>AC/60 Hz</p> <p>AC/50/60 Hz</p> <p>DC</p> <p>The device includes a magnetic system which releases the switch to the trip position at voltage failure or undervoltage of 70 % of the nominal voltage. The device is trip-free, in that the switch can be operated only when the primary voltage is available. When using DC voltage, an economy resistor must be provided.</p> <p>Switches with integrated undervoltage release are described on page 21.</p> | <p><b>V350/A</b></p> <p><b>V350/B</b></p> <p><b>V350/C</b></p> <p><b>V350/D</b></p> | <p>●</p> <p>●</p> <p>●</p> <p>●</p> |  |  |  |
|  | <p>Ordering data:</p> <p>Operating voltage and frequency for the magnetic system.</p>   |   |                                     |  |  |  |

### Electromechanical Trip Device (Shunt-trip)<sup>1</sup>

|  |  |                      |          |  |  |  |
|--|--|----------------------|----------|--|--|--|
|  | <p>The device permits the switch to be turned to the trip position by remote control. The coil is designed for short-time duty requiring an auxiliary contact in the switch which de-energizes the coil in the trip position.</p> <p>Controlling of the magnetic system:<br/>24 V-440 V/50 Hz, 60 Hz or DC</p> | <p><b>V360/A</b></p> | <p>●</p> |  |  |  |
|  | <p>Ordering data:</p> <p>Operating voltage for the magnetic system.</p>  |                      |          |  |  |  |

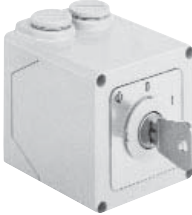

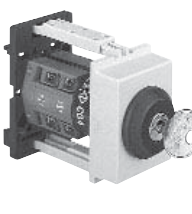
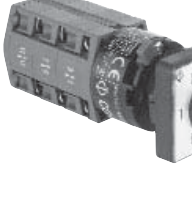
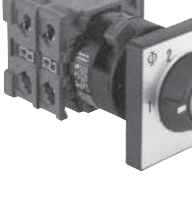



















### Motor Drive<sup>1</sup>

|  |  |                    |          |          |          |  |
|--|--|--------------------|----------|----------|----------|--|
|  | <p>The motor drive consists of an AC motor with condenser, gear train and Geneva gear. This device allows switches to be operated from a remote location. Motor voltages available are 220 V, 50 Hz and 117 V, 60 Hz. A technical data sheet pertaining to the possible control systems is available upon request.</p> | <p><b>R300</b></p> | <p>●</p> | <p>●</p> | <p>●</p> |  |
|--|--|--------------------|----------|----------|----------|--|

<sup>1</sup>Ambient temperature: 35 °C during 24 hours with peaks up to 40 °C.

| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S00              | S0 | S1 | S2 |


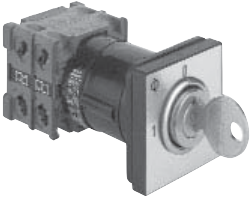

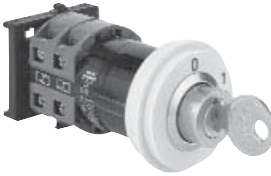












**Key-lock Device** with small Cylinder Lock or Micro-Kaba Lock

|   |  |                       |                                   |                       |                                  |  |
|---|--|-----------------------|-----------------------------------|-----------------------|----------------------------------|--|
|    | <p>For 1 stage switches in PN enclosure</p>  | <p><b>V750/</b></p>   | <p>CA11<br/>CA20</p>              |                       |                                  |  |
|    | <p>For 2 stage switches in PN enclosure</p>  |                       |                                   | <p>CA10-<br/>CA20</p> |                                  |  |
|   | <p>For 1 stage switches with plaster depth trim<br/>(With half-cylinder see page 17)</p>   |                       |                                   | <p>CA10</p>           |                                  |  |
|    | <p>For base mounting with type of mounting VE21</p>  | <p><b>V750D/</b></p>  | <p>CA4<br/>CG4</p>                |                       |                                  |  |
|    | <p>For single hole mounting<br/>combined with 16/22 mm, protection IP 66</p>   |                       | <p><b>V750D/2<sup>1</sup></b></p> |                       | <p>●<br/>●<br/>●</p>             |  |
| <p>With front ring (mounting FS1)<br/>Escutcheon plate 30 x 30 mm (mounting FS2)<br/>Escutcheon plate 30 x 39 mm (mounting FS4)</p>   |  |                       |                                   |                       |                                  |  |
|    | <p>For single hole mounting 22 mm<br/>Protection IP 66</p>   | <p><b>V750D/3</b></p> |                                   |                       | <p>●<br/>●<br/>●<br/>●<br/>●</p> |  |
| <p>With front ring (mounting FT1)<br/>Escutcheon plate 48 x 48 mm (mounting FT2)<br/>Escutcheon plate 64 x 64 mm (mounting FH3)<br/>Escutcheon plate 48 x 59 mm (mounting FT6)<br/>Escutcheon plate 64 x 78,5 mm (mounting FH4)</p> |  |                       |                                   |                       |                                  |  |
| <p>Locking program in which the key can be removed:</p>   | <p>C  G  M  H  P  K <sup>2</sup><br/>D  N  J  Q  S <sup>2</sup></p> |                       |                                   |                       |                                  |  |
|    | <p>For single hole mounting<br/>combined with 16/22 mm, Micro-Kaba lock<br/>Protection IP 66</p>   |                       | <p><b>V750D/1</b></p>             |                       | <p>●<br/>●<br/>●</p>             |  |
| <p>With front ring (mounting FS1)<br/>Escutcheon plate 30 x 30 mm (mounting FS2)<br/>Escutcheon plate 30 x 39 mm (mounting FS4)</p>   |  |                       |                                   |                       |                                  |  |
| <p>Locking program in which the key can be removed:</p>   | <p>A  B  E  F  G  R </p>   |                       |                                   |                       |                                  |  |
| <p>Ordering data:</p>   | <p>Locking program of the key.</p>   |                       |                                   |                       |                                  |  |


<sup>1</sup>At high safety requirements use V750D/1. <sup>2</sup>only for size S0

| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

### Key-lock Device with Kaba Lock

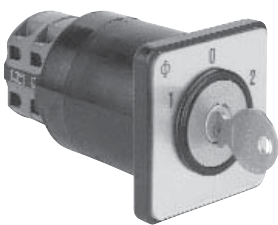
|  |  |                      |   |                      |                      |   |   |  |
|--|--|----------------------|---|----------------------|----------------------|---|---|--|
|    | <p>For single hole mounting 25 mm</p> <p>With front ring (mounting EL)</p>   | <p><b>V750D/</b></p> | ●   |                      |                      |   |   |  |
|    | <p>For four hole panel mounting</p> <p>Escutcheon plate 48 x 48 mm (mounting E)<br/>           Escutcheon plate 64 x 64 mm (mounting EG)<br/>           Escutcheon plate 48 x 60 mm (mounting E)<br/>           Escutcheon plate 64 x 78,8 mm (mounting EG)</p>  |                      | <p><b>V750D/A</b><br/> <b>V750D/A</b><br/> <b>V750D/B</b><br/> <b>V750D/B</b></p> | ●                    | ●                    | ● | ● |  |
|   | <p>For snap-on base mounting on track acc. to EN 50022</p> <p>With escutcheon plate for 45 mm knock-out (mounting VE2)</p>   |                      |   | <p><b>V750D/</b></p> | ●                    |   |   |  |
|  | <p>For snap-on base mounting on track acc. to EN 50022</p> <p>With escutcheon plate for 46 mm knock-out (mounting VE3)</p> <p>Locking program in which the key can be removed:</p> <p>1A  1B  1C  1D  1E  1F  1G </p> <p>2G  2H  2J  2K  2L </p> |                      |   |                      | <p><b>V750D/</b></p> | ● |   |  |
| <p>Ordering data:</p>  | <p>Locking program of the key.</p>   |                      |   |                      |                      |   |   |  |

### Key-lock Device with Profile Cylinder



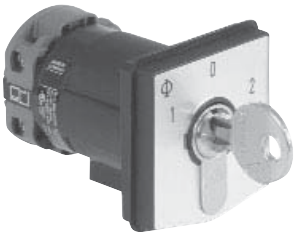
|  |  |                     |   |  |  |  |
|--|--|---------------------|---|--|--|--|
|  | <p>The key-lock device V750E with profile cylinder is furnished with a single hole mounting 22 mm for switches in size S0. The key can be removed in one switch position or for switches with 60° switching angle in up to six switch positions. The device with profile cylinder can be supplied with standard lock cylinders manufactured by CES, BKS or IKON.</p> | <p><b>V750E</b></p> | ● |  |  |  |
|--|--|---------------------|---|--|--|--|

| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

### Key-lock Device with Kaba Lock

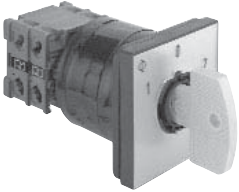


|   |  |                       |   |   |  |  |
|---|--|-----------------------|---|---|--|--|
|  | <p>For single hole mounting 40 mm</p> <p>Escutcheon plate 64 x 64 mm (mounting EL2)<br/>With front ring (mounting EL1)</p> <p>Key can only be removed in the 12 o'clock position.<br/>Central locking systems are available.</p> | <p><b>V750/A1</b></p> | ● | ● |  |  |
|   |  |                       |   |   |  |  |

### Key-lock Device with Half-cylinder Lock

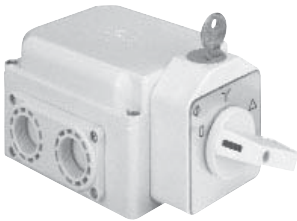
|   |   |                           |      |  |  |  |
|---|---|---------------------------|------|--|--|--|
|   | <p>For switches with plaster depth trim</p> <p>For 1 stage switches in standard flush mounting box<br/>For multiple staged switches in special flush mounting box<br/>Protection IP 42</p> <p>The switch must have an arrested position in 12 o'clock.<br/>The key is only removable in the 12 o'clock position. The max. angular displacement is 2 x 135°.</p> | <p><b>V755.UE1</b></p>    | BA20 |  |  |  |
|   |   |                           |      |  |  |  |
|  | <p>Dust cap for key-lock device<br/>Protection IP 43</p>  | <p><b>S0D V755 12</b></p> |      |  |  |  |
|  | <p>For panel mounting</p> <p>The key is removable in the 12 o'clock position. The max. angular displacement is 2 x 120°.<br/>Protection IP 42<br/>Additional programs with key removable in 2 positions are available on request.</p>   | <p><b>V755.E</b></p>      | ●    |  |  |  |

| Optional Extras | Code | For Switch Sizes |    |    |    |
|-----------------|------|------------------|----|----|----|
|                 |      | S0               | S1 | S2 | S3 |

### Key Handle Device

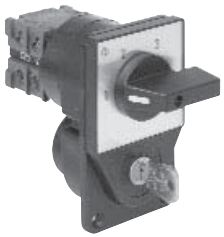
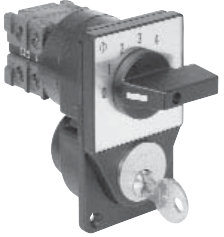
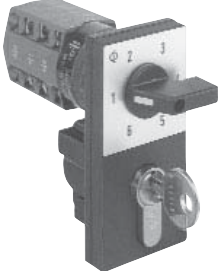
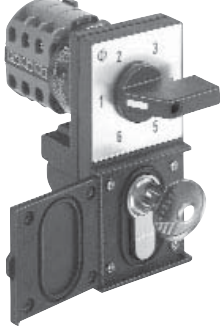
|  |  |             |             |   |   |  |  |
|--|--|-------------|-------------|---|---|--|--|
|  | <p>For four hole panel mounting and switches in enclosure</p> <p>Device</p>  | <b>V900</b> | ●           | ● |   |  |  |
|  |  <p>Handle</p>  |             | <b>V901</b> | ● | ● |  |  |
|  |  <p>Key</p> <p>The device is designed similar to a cylinder lock. It can be programmed to remove the key or the handle only in one, in all or in pre-determined positions. A central lock system is available.</p> <p>Use of the device with switches in PN enclosure is possible only for switches type CA11B and CA20B with up to two stages.</p> |             | <b>V902</b> | ● | ● |  |  |
| <p>Ordering data:</p>  | <p>Handle or key as operator.<br/>Advise position in which the operator is to be removed.</p>  |             |             |   |   |  |  |

### Safety Key-lock Device with separate Drive

|  |   |             |  |   |  |  |
|--|---|-------------|--|---|--|--|
|  | <p>For switches in enclosure</p> <p>Various key positions and locking programs are available. The key may be removed in locked and non-locked positions or in locked positions only. The different locking programs permit locking in one, all or in pre-determined switch positions.</p> | <b>V790</b> |  | ● |  |  |
| <p>Ordering data:</p>  | <p>Advise locking program and positions in which the key can be removed.</p>  |             |  |   |  |  |

|                        |             |                  |    |    |    |
|------------------------|-------------|------------------|----|----|----|
| <b>Optional Extras</b> | <b>Code</b> | For Switch Sizes |    |    |    |
|                        |             | S0               | S1 | S2 | S3 |

**Safety-key-lock Device with separate Drive**


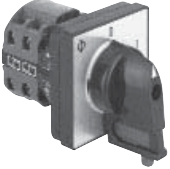
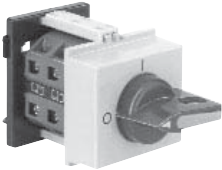
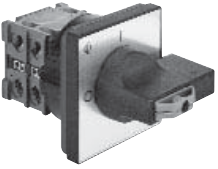
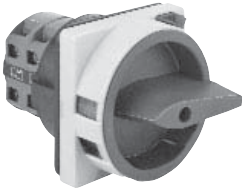





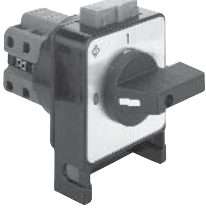
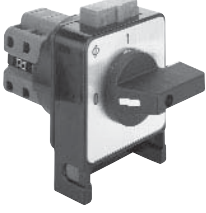

|   |   |                                    |                 |     |   |   |   |
|---|---|------------------------------------|-----------------|-----|---|---|---|
|    | With small cylinder lock  | <b>V760/A.E</b>                    | ● ●             | ●   |   |   |   |
|   | Square escutcheon plate   |                                    | <b>V760/B.E</b> | ● ● | ● |   |   |
|   | Rectangular escutcheon plate  |                                    |                 |     |   |   |   |
|   |  | With commercial half-cylinder lock | <b>V760/A</b>   | ●   | ● | ● | ● |
| Square escutcheon plate   |   | <b>V760/B</b>                      |                 | ●   | ● |   |   |
| Rectangular escutcheon plate  |   |                                    |                 |     |   |   |   |
|   |   | With half-cylinder lock            | <b>V765</b>     | ●   |   |   |   |
|   | Square escutcheon plate   |                                    |                 |     |   |   |   |
|  | With dust cap   |                                    |                 |     |   |   |   |
|   | Protection IP 43  |                                    |                 |     |   |   |   |

Various key positions and locking programs are available.  
Key positions:  
Key can be removed in locked and unlocked positions.  
Key can be removed only in locked positions.  
Locking programs:

| Locking Program No. | Switching Angle | Switch Positions |                          | Size   |
|---------------------|-----------------|------------------|--------------------------|--------|
|                     |                 | To be locked     | Not to be locked         |        |
| 1                   | 30°-90°         | one              | the balance              | S0-S3  |
| 2                   | 20°             | all              | none                     | S1, S3 |
|                     | 30°-90°         |                  |                          | S0-S3  |
| 3                   | 30°-90°         | the balance      | one                      | S1-S3  |
| 4 <sup>1</sup>      | 30°-90°         | one <sup>1</sup> | the balance <sup>1</sup> | S0-S3  |

<sup>1</sup>Locking program 4 permits the locking of the device in any switch position. However, the actual locking becomes effective in a pre-determined switch position only.

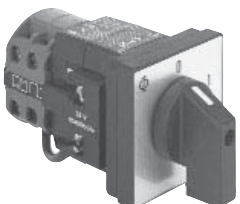
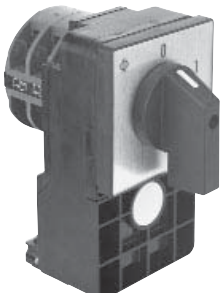
Ordering data: Advise locking program and positions in which the key can be removed.

| Optional Extras  | Code   | For Switch Sizes |    |    |    |    |
|--|--|------------------|----|----|----|----|
|  |  | S00              | S0 | S1 | S2 | S3 |
| <b>Padlock Device</b>  |  |                  |    |    |    |    |
|    | For 1 padlock<br>with lock bow diameter for 4-5,5 mm.<br>The handle may be supplied in black and red.  | <b>V840K</b>     | ●  |    |    |    |
|    | The padlock is an integral part of the switch handle itself and can hold 2 padlocks<br>The lock bar is accessible from the bottom. Handle can be sealed in the locked and unlocked positions. The handle may be supplied in black, red and electro-gray. | <b>V840A</b>     | ●  | ●  |    |    |
|    | For mounting VE2 and VE21 with lock bar accessible from the front. Available in red and electro-gray.  | <b>V840B</b>     | ●  |    |    |    |
|   | For 4 padlocks<br>The lock bar is accessible from the front and may be supplied in black, red and electro-gray.  | <b>V845</b>      | ●  | ●  | ●  | ●  |
|  | Padlock device with integrated F- or B-handle<br>The cover disc is available in black, yellow and electro-gray. The handle may be supplied in black, red and electro-gray.   |                  |    |    |    |    |
|  | For 2 padlocks<br>With F-handle  | <b>V840D</b>     | ●  |    |    |    |
|  | For 3 padlocks<br>With F-handle  | <b>V840G</b>     | ●  | ●  |    |    |
|  | With B-handle  | <b>V840D</b>     |    |    | ●  |    |
|  | For 4 padlocks<br>With F-handle  | <b>V840G/B</b>   | ●  | ●  |    |    |
|  | With B-handle  | <b>V840F/F</b>   | ●  | ●  |    |    |
|  | For 2 padlocks<br>For 3 padlocks<br>For 6 padlocks<br><br>Upon request, the device can be programmed to lock in several switch positions.  | <b>V840F/B</b>   | ●  | ●  |    |    |
|  |  | <b>V850</b>      | ●  | ●  | ●  | ●  |
|  | Padlock device for C switches with base mounting for locking when control cabinet is opened.<br><br>Padlock device with <b>simplified door clutch and single hole mounting</b> see page 6.   | <b>V840VE</b>    |    |    | ●  |    |
| Ordering data:   | Color variation.   |                  |    |    |    |    |

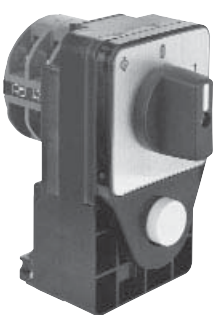


| Switch Type Variations | Suffix Code | For Switch Sizes |    |    |    |
|------------------------|-------------|------------------|----|----|----|
|                        |             | S0               | S1 | S2 | S3 |

**PFR (Power Failure Release)<sup>1</sup>**

|  |   |                 |   |   |  |  |
|--|---|-----------------|---|---|--|--|
|   | <p><b>Size S0</b></p> <p>The magnetic system includes a low hum DC coil with incapsulated diode rectifier (blocking voltage 1000 V) = it, therefore, works independent of frequency. PFR switches are available with 24 V-600 V coils.</p> <p>Available switching detents: 1 x 60° (60° to the right of center OFF), 2 x 60° (60° to the right and left of center OFF), 1 x 60° + 30° (60° plus an additional 30° to the right of OFF).</p>   | <p><b>X</b></p> | CA10-CA20<br>CH10   |   |  |  |
|  | <p><b>Alternatively with trip-free release</b><br/>(Switching angle 1 x 60°)</p> <p>The PFR switch series is designed to provide protection for both machines and machine operators by preventing the equipment (which has been operating) from restarting automatically after a power failure.</p> <p>The device includes a magnetic system which releases the switch (by means of a linear spring return mechanism) to the trip position at voltage failure or undervoltage of 70 % of the nominal voltage.</p> |                 | <p><b>Y</b></p>   | CA10-CA20   |  |  |
|  | <p><b>Size S1</b></p> <p>Operating voltage for the magnetic system:<br/>24 V-500 V/50 Hz<br/>24 V-600 V/60 Hz</p> <p>(Switching angle 1 x 60°)</p>  | <p><b>X</b></p> |   | A11<br>A14<br>CA40 <sup>2</sup><br>CA50 <sup>2</sup><br>CA63 <sup>2</sup> |  |  |
|  | <p>Ordering data:</p>   |                 | <p>Operating voltage for size S0 as well operating voltage and frequency for size S1 for the magnetic system.</p> |   |  |  |



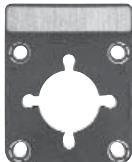
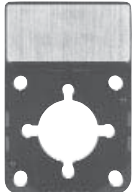


**Lockout-relay<sup>1</sup>**

|   |   |                 |                           |   |  |  |
|---|---|-----------------|---------------------------|---|--|--|
|  | <p><b>With manual release</b></p> <p>The lockout-relay is typically used to remotely switch electrical circuits from one power source to another.</p> <p>The device contains a totally incapsulated coil and linear spring return mechanism which is compressed by manually turning the handle to the ON position (60° to the right of OFF). Once in the ON position, the handle is mechanically locked in place and cannot be manually turned back to OFF. When the coil is energized, however, the unit will automatically spring return to the OFF position.</p> <p>A second version is available with push button manual release for test purposes.</p> <p>Controlling of the magnetic system:<br/>24 V-500 V/50 Hz<br/>24 V-600 V/60 Hz<br/>24 V-125 V DC (magnetic system for voltages above 125 V DC on request)</p> | <p><b>M</b></p> | CA10<br>CG8<br>CH10-CHR16 | A11<br>A14<br>CA40 <sup>2</sup><br>CA50 <sup>2</sup><br>CA63 <sup>2</sup> |  |  |
|   | <p><b>Without manual release</b></p>  |                 | <p><b>L</b></p>           |   |  |  |
| <p>Ordering data:</p>   | <p>Operating voltage and frequency for the magnetic system.</p>   |                 |                           |   |  |  |

<sup>1</sup>Ambient temperature: 35 °C during 24 hours with peaks up to 40 °C. <sup>2</sup>In preparation.

| Optional Extras | Code | For Switch Sizes |    |    |    |    |
|-----------------|------|------------------|----|----|----|----|
|                 |      | S00              | S0 | S1 | S2 | S3 |

### Rectangular Add-on Escutcheon Plates

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| <p>Add-on escutcheon plates for switches with single hole mounting and four hole panel mounting</p> <p>The face plates can be engraved or embossed from the front or alternatively from the back. Face plates in different height are also available. The escutcheon plate frame is black, the face plate brushed aluminum. For switch sizes S0, S1, S2 and S3 yellow face plates are also available.</p> <p>Add-on escutcheon plates with black escutcheon plate frame, face plates brushed aluminum</p> <p>Switches with single hole mounting 22 mm and front ring</p> |   |   |   |   |   |   |
|   | <p>For front inscription</p> <p>For inscription on the back</p> | <p><b>F991/A0B/C-PRD</b></p> <p><b>F991/A0B-PRD</b></p> | ● | ● |   |   |
|  |   |   | ● | ● |   |   |
|    | <p>For front inscription</p> <p>For inscription on the back</p> | <p><b>F991/A0B/C-PRB</b></p> <p><b>F991/A0B-PRB</b></p> | ● | ● |   |   |
|  |   |   | ● | ● |   |   |
|   | <p>For front inscription</p> <p>For inscription on the back</p> | <p><b>F991/A0B/C-PRC</b></p> <p><b>F991/A0B-PRC</b></p> | ● | ● | ● |   |
|  |   |   | ● | ● | ● |   |
|   | <p>For front inscription</p> <p>For inscription on the back</p> | <p><b>F991/A0B/C-PRA</b></p> <p><b>F991/A0B-PRA</b></p> | ● | ● | ● | ● |
|  |   |   | ● | ● | ● | ● |
| <p>Face plates brushed aluminum</p>  |   |   |   |   |   |   |
|   | <p>For front inscription</p> <p>For inscription on the back</p> | <p><b>F991/A00/C-P2B</b></p> <p><b>F991/A00-P2B</b></p> | ● | ● | ● |   |
|  |   |   | ● | ● | ● |   |
|   | <p>For front inscription</p> <p>For inscription on the back</p> | <p><b>F991/A00/C-P2A</b></p> <p><b>F991/A00-P2A</b></p> | ● | ● | ● | ● |
|  |   |   | ● | ● | ● | ● |
| Ordering data:   | Color variation, if differing from the described version.       |   |   |   |   |   |

|                   |             |                  |    |    |    |
|-------------------|-------------|------------------|----|----|----|
| <b>Enclosures</b> | <b>Code</b> | For Switch Sizes |    |    |    |
|                   |             | S00              | S0 | S1 | S2 |

**Plastic Enclosures**

Enclosure series protection IP 66/67, made of strong durable plastic, increased wiring space and cover coupling

KS and KL series  
With high UV-resistance

CS and CL series  
For applications in an aggressive environment, such as oil, chemical substances and grease

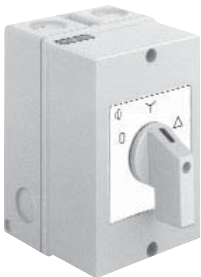
Each enclosure has 2 knock-outs on top and bottom for metric thread according to EN 50262. Standard equipment includes both a ground and neutral terminal. Size S0 enclosures are also available with lateral conduit knock-out and a cover interlock which allows for opening without dismantling the handle. They can also be supplied with a cover locked in 1 position. These enclosures are also available for conduit entries for PG-thread.



The following switch types can be mounted:

| Switch type | Max. no. of stages |
|-------------|--------------------|
| CA4         | 3                  |
| CG4         | 2                  |
| CG6         | 2                  |

**KS3  
CS3**



Without cover interlock

**KS50  
CS50**



With cover interlock (the enclosure can only be opened at 9 o'clock position)

**KS51  
CS51**



With cover interlock (the enclosure can only be opened at 12 o'clock position)

**KS52  
CS52**



The following switch types can be mounted:

| Switch type           | Max. no. of stages |
|-----------------------|--------------------|
| CA10                  | 6                  |
| CA11, CA20            | 5                  |
| CA25, CG8, CH10-CHR16 | 4                  |

Without cover interlock

**KL50  
CL50**



With cover interlock (the enclosure can only be opened at 9 o'clock position)

**KL51  
CL51**



With cover interlock (the enclosure can only be opened at 12 o'clock position)

**KL52  
CL52**




The following switch types can be mounted:

| Switch type     | Max. no. of stages |
|-----------------|--------------------|
| CA10            | 3                  |
| CA11            | 2                  |
| CA20, CA25, CG8 | 2                  |
| CH10-CHR16      | 2                  |



|                   |             |                  |    |    |    |
|-------------------|-------------|------------------|----|----|----|
| <b>Enclosures</b> | <b>Code</b> | For Switch Sizes |    |    |    |
|                   |             | S0               | S1 | S2 | S3 |

**Standard Enclosures**

|    | <p>Plastic Enclosures<br/>Protection IP 54</p>        | <p><b>ST1 N100</b></p>   | <p>CA40<br/>CA50<br/>CA63</p> | <p>CA40 C80<br/>CA50 C125<br/>CA63</p> |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
|--|---|--|-------------------------------|--|-------------|-----------------------|------------|---------------------|---|---------------------|------------------|---------------------|----------|------------------|---|--------------|------------------|--------------|----------|-------------|---------|-------------|------|------------|----------|
|  | <p>With low cover</p>                                 |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
|  | <p>With high cover</p>                                | <p><b>ST1 N200</b></p>   |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| <p>Enclosures are available with the following conduit entries which are arranged in top and bottom:</p>   |   |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| <table border="1"> <thead> <tr> <th>Code</th> <th>Type of conduit entry</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>2 x PG29 + 1 x PG11</td> </tr> <tr> <td>E</td> <td>2 x PG21 + 1 x PG11</td> </tr> <tr> <td>F</td> <td>2 x PG16 + 1 x PG11</td> </tr> <tr> <td>M</td> <td>2 x 1" NPT</td> </tr> <tr> <td>N</td> <td>2 x 3/4" NPT</td> </tr> <tr> <td>P</td> <td>2 x 1/2" NPT</td> </tr> <tr> <td>U</td> <td>2 x ISO M20</td> </tr> <tr> <td>V</td> <td>2 x ISO M25</td> </tr> <tr> <td>W</td> <td>2 x 1" BSI</td> </tr> </tbody> </table> |   |  |                               |  | Code        | Type of conduit entry | D          | 2 x PG29 + 1 x PG11 | E | 2 x PG21 + 1 x PG11 | F                | 2 x PG16 + 1 x PG11 | M        | 2 x 1" NPT       | N | 2 x 3/4" NPT | P                | 2 x 1/2" NPT | U        | 2 x ISO M20 | V       | 2 x ISO M25 | W    | 2 x 1" BSI |          |
| Code   | Type of conduit entry                                 |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| D  | 2 x PG29 + 1 x PG11                                   |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| E  | 2 x PG21 + 1 x PG11                                   |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| F  | 2 x PG16 + 1 x PG11                                   |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| M  | 2 x 1" NPT  |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| N  | 2 x 3/4" NPT  |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| P  | 2 x 1/2" NPT  |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| U  | 2 x ISO M20   |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| V  | 2 x ISO M25   |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| W  | 2 x 1" BSI  |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| <p>Any one of a variety of switches with different amperage ratings and numbers of stages can be installed in the same type of enclosure. Different kits are, therefore, required to accomplish this.</p>  |   |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| <p>Kits:</p>   |   |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| <table border="1"> <thead> <tr> <th>Switch type</th> <th>No. of stages</th> <th>Enclosures</th> </tr> </thead> <tbody> <tr> <td>CA40, CA50, CA63</td> <td>1</td> <td>ST1 N100</td> </tr> <tr> <td>CA40, CA50, CA63</td> <td>2</td> <td>ST1 N200</td> </tr> <tr> <td>CA40, CA50, CA63</td> <td>3</td> <td>ST1 N200</td> </tr> <tr> <td>CA40, CA50, CA63</td> <td>4</td> <td>ST1 N200</td> </tr> <tr> <td>C80</td> <td>1 and 2</td> <td>ST1 N200</td> </tr> <tr> <td>C125</td> <td>1</td> <td>ST1 N200</td> </tr> </tbody> </table>                |   |  |                               |  | Switch type | No. of stages         | Enclosures | CA40, CA50, CA63    | 1 | ST1 N100            | CA40, CA50, CA63 | 2                   | ST1 N200 | CA40, CA50, CA63 | 3 | ST1 N200     | CA40, CA50, CA63 | 4            | ST1 N200 | C80         | 1 and 2 | ST1 N200    | C125 | 1          | ST1 N200 |
| Switch type  | No. of stages   | Enclosures   |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| CA40, CA50, CA63   | 1   | ST1 N100   |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| CA40, CA50, CA63   | 2   | ST1 N200   |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| CA40, CA50, CA63   | 3   | ST1 N200   |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| CA40, CA50, CA63   | 4   | ST1 N200   |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| C80  | 1 and 2   | ST1 N200   |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| C125   | 1   | ST1 N200   |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
| <p>Ordering data:</p>  | <p>Code for the type of conduit entries required.</p> |  |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |
|  |   | <p><b>ST1 A013A</b><br/><b>ST1 A013B</b><br/><b>ST1 A013A</b><br/><b>ST1 A013D</b><br/><b>ST1 A011B</b><br/><b>ST1 A011A</b></p> |                               |  |             |                       |            |                     |   |                     |                  |                     |          |                  |   |              |                  |              |          |             |         |             |      |            |          |

|                   |             |                  |    |    |    |
|-------------------|-------------|------------------|----|----|----|
| <b>Enclosures</b> | <b>Code</b> | For Switch Sizes |    |    |    |
|                   |             | S0               | S1 | S2 | S3 |

**Plastic Enclosures (Front Drive)**



Protection IP 65

Conduit entries with PG-thread

Conduit entries with metric ISO-thread

Conduit entries with NPT-thread

Conduit entries with BSI-thread

The following switch types can be mounted:

| Switch type   | Max. no. of stages |
|---|--------------------|
| A11, A14  | 6                  |
| CA10, CA11, CA20, CA25,<br>CA10B <sup>1</sup> , CA11B, CA20B,<br>CH10, CH16 | 4                  |
| CA40, CA50, CA63  | 6                  |

**PF**

● ●

**PF1**

● CA10B  
CA11B  
CA20B

**PF4**

CA40  
CA50  
CA63

**PF2**

●

**PF3**

●



Protection IP 42

Conduit entries with PG-thread

Conduit entries with metric ISO-thread

Conduit entries with NPT-thread

Conduit entries with BSI-thread

The following switch types can be mounted:

| Switch type   | Max. no. of stages |
|---|--------------------|
| A11, A14  | 6                  |
| CA10, CA11, CA20, CA25,<br>CA10B <sup>1</sup> , CA11B, CA20B,<br>CH10, CH16 | 4                  |
| CA40, CA50, CA63  | 6                  |

**PN**

● ●

**PN1**

● CA10B  
CA11B  
CA20B

**PN4**

CA40  
CA50  
CA63

**PN2**

●

**PN3**

●




A lamp can be installed on request.

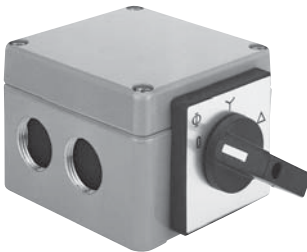
<sup>1</sup>Only for 4 stages.

| Enclosures | Code | For Switch Sizes |    |    |    |
|------------|------|------------------|----|----|----|
|            |      | S0               | S1 | S2 | S3 |

### Plastic Enclosures (Lateral Drive)

|    | Protection IP 44                       | <b>PK</b><br><br><b>PK1</b><br><br><b>PK2</b><br><br><b>PK3</b><br><br><b>PK9</b> |                    |     |    |             |    |                          |    |                     |    |  |  |  |  |
|--|--|---|--------------------|-----|----|-------------|----|--------------------------|----|---------------------|----|--|--|--|--|
|  | Conduit entries with PG-thread         |   | ●                  | ●   |    |             |    |                          |    |                     |    |  |  |  |  |
|  | Conduit entries with metric ISO-thread |   | ●                  | ●   |    |             |    |                          |    |                     |    |  |  |  |  |
|  | Conduit entries with NPT-thread        |   | ●                  | ●   |    |             |    |                          |    |                     |    |  |  |  |  |
|  | Conduit entries with BSI-thread        |   | ●                  | ●   |    |             |    |                          |    |                     |    |  |  |  |  |
|  | Conduit entries without thread         |   | ●                  | ●   |    |             |    |                          |    |                     |    |  |  |  |  |
| <p>The following switch types can be mounted:</p> <table border="1"> <thead> <tr> <th>Switch type</th> <th>Max. no. of stages</th> </tr> </thead> <tbody> <tr> <td>A11</td> <td>12</td> </tr> <tr> <td>CA10, CA10R</td> <td>12</td> </tr> <tr> <td>CA11, CA20, CAD11, CAD12</td> <td>12</td> </tr> <tr> <td>CA10B, CA11B, CA20B</td> <td>12</td> </tr> </tbody> </table> |  | Switch type   | Max. no. of stages | A11 | 12 | CA10, CA10R | 12 | CA11, CA20, CAD11, CAD12 | 12 | CA10B, CA11B, CA20B | 12 |  |  |  |  |
| Switch type  | Max. no. of stages                     |   |                    |     |    |             |    |                          |    |                     |    |  |  |  |  |
| A11  | 12                                     |   |                    |     |    |             |    |                          |    |                     |    |  |  |  |  |
| CA10, CA10R  | 12                                     |   |                    |     |    |             |    |                          |    |                     |    |  |  |  |  |
| CA11, CA20, CAD11, CAD12   | 12                                     |   |                    |     |    |             |    |                          |    |                     |    |  |  |  |  |
| CA10B, CA11B, CA20B  | 12                                     |   |                    |     |    |             |    |                          |    |                     |    |  |  |  |  |

### Aluminum Enclosures

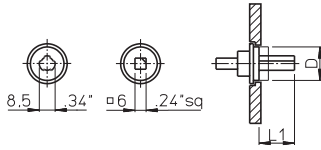
|   | Protection IP 65                       | <b>GK</b><br><br><b>GK1</b><br><br><b>GK9</b> |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
|---|--|---|--------------------|----------|----|-------------|---|------|---|------|---|-------|----|-------|----|-------|----|-------|---|------------------|----|--|--|--|--|
|   | Conduit entries with PG-thread         |   | ●                  | ●        |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
|   | Conduit entries with metric ISO-thread |   | ●                  | ●        |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
|   | Without conduit entries                |   | ●                  | ●        |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| <p>The following switch types can be mounted:</p> <table border="1"> <thead> <tr> <th>Switch type</th> <th>Max. no. of stages</th> </tr> </thead> <tbody> <tr> <td>A11, A14</td> <td>10</td> </tr> <tr> <td>CA10, CA10R</td> <td>3</td> </tr> <tr> <td>CA11</td> <td>2</td> </tr> <tr> <td>CA20</td> <td>2</td> </tr> <tr> <td>CA10B</td> <td>12</td> </tr> <tr> <td>CA11B</td> <td>10</td> </tr> <tr> <td>CA20B</td> <td>10</td> </tr> <tr> <td>CA25B</td> <td>9</td> </tr> <tr> <td>CA40, CA50, CA63</td> <td>10</td> </tr> </tbody> </table> |  | Switch type                                   | Max. no. of stages | A11, A14 | 10 | CA10, CA10R | 3 | CA11 | 2 | CA20 | 2 | CA10B | 12 | CA11B | 10 | CA20B | 10 | CA25B | 9 | CA40, CA50, CA63 | 10 |  |  |  |  |
| Switch type   | Max. no. of stages                     |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| A11, A14  | 10                                     |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| CA10, CA10R   | 3                                      |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| CA11  | 2                                      |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| CA20  | 2                                      |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| CA10B   | 12                                     |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| CA11B   | 10                                     |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| CA20B   | 10                                     |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| CA25B   | 9                                      |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| CA40, CA50, CA63  | 10                                     |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |
| Additional conduit entries on request.  |  |   |                    |          |    |             |   |      |   |      |   |       |    |       |    |       |    |       |   |                  |    |  |  |  |  |

# Optional Extras

**Dimensions** mm  
inch

## Shaft Extension

### L100, L100A

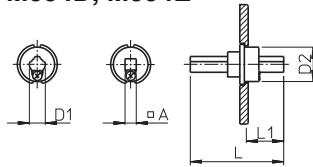


L1 = Free shaft length

| Size   | L1         | L1         | L1         | L1         | L1         | L1         | L1         | L1         | L1          |
|--------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| S0, S1 | 19<br>.75  | 23<br>.91  | 27<br>1.06 | 32<br>1.26 | 37<br>1.46 | 42<br>1.65 | 47<br>1.85 | 52<br>2.05 | 57<br>2.24  |
| S0, S1 | 62<br>2.44 | 67<br>2.64 | 72<br>2.83 | 77<br>3.03 | 82<br>3.23 | 87<br>3.43 | 92<br>3.62 | 97<br>3.82 | 102<br>4.02 |

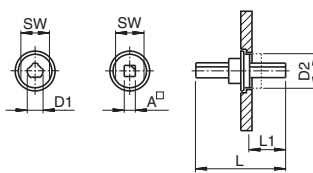
| Size | D           |
|------|-------------|
| S0   | 13,8<br>.54 |
| S1   | 18,5<br>.73 |

### M004D, M004E



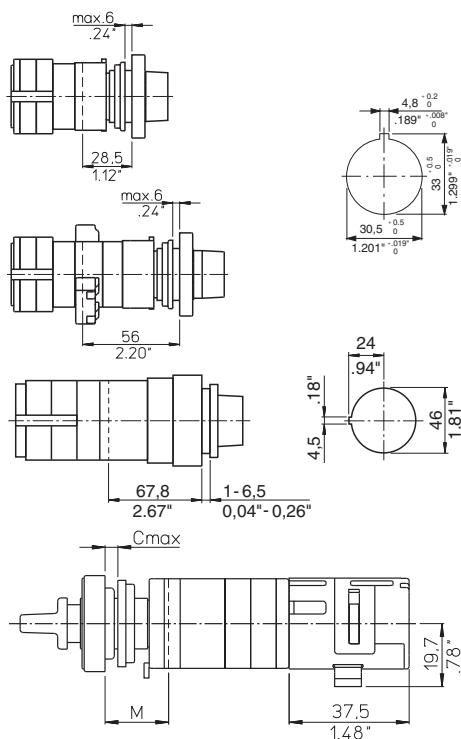
L = Shaft length  
L1 = Free shaft length max.  
1 = Only for square shaft

### M004, M004A



| Size | L <sup>1</sup> | L1 <sup>1</sup> | L           | L1         | L           | L1          | L           | L1          | L           | L1          | D1          | D2           | A         | SW         |
|------|----------------|-----------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-----------|------------|
| S0   |                |                 | 60<br>2.36  | 40<br>1.57 | 80<br>3.15  | 60<br>2.36  | 100<br>3.94 | 80<br>3.15  | 120<br>4.72 | 100<br>3.94 | 6<br>.24    | 13,8<br>.54  |           | 12<br>.47  |
| S1   | 56,5<br>2.22   | 20<br>.79       | 70<br>2.76  | 40<br>1.57 | 90<br>3.54  | 60<br>2.36  | 110<br>4.33 | 80<br>3.15  | 130<br>5.12 | 100<br>3.94 | 8,5<br>.34  | 18,5<br>.73  | 6<br>.24  | 16<br>.63  |
| S2   | 70<br>2.76     | 40<br>1.57      | 100<br>3.94 | 70<br>2.76 | 130<br>5.12 | 100<br>3.94 | 160<br>6.30 | 130<br>5.12 | 190<br>7.48 | 160<br>6.30 | 11,2<br>.44 | 24,6<br>.97  | 8<br>.32  | 22<br>.87  |
| S3   | 95<br>3.74     | 40<br>1.57      | 130<br>5.12 | 75<br>2.95 | 165<br>6.50 | 110<br>4.33 | 200<br>7.87 | 145<br>5.71 | 235<br>9.25 | 180<br>7.09 | 14<br>.55   | 35,1<br>1.38 | 10<br>.39 | 39<br>1.18 |

## Control and Indicator Device without Lamps



**Q110** Escutcheon plates

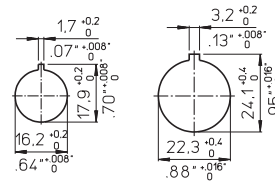
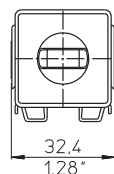
- 48,0 x 48,0 mm
- 48,0 x 60,0 mm
- 64,0 x 64,0 mm
- 64,0 x 79,0 mm

**Q110/F**

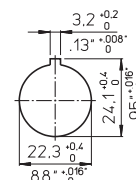
**Q100/A**

- Escutcheon plate
- 51,8 x 51,8 mm

**Q100B**



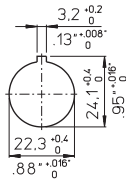
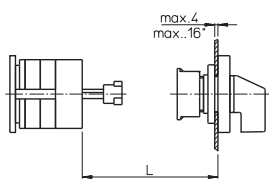
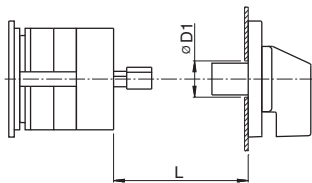
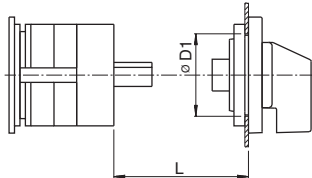
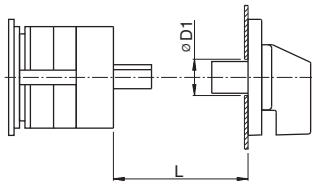
Without interlock  
M = 17,7 C = 5  
.70 .20



With interlock  
M = 19,5 C = 6,5  
.77 .26



Simplified Door Clutch



**M290/A1** L = Shaft length at (number of profile extension parts)

| Size   | L (0) |      | L (1) |      | L (2) |      | L (3) |      | L (4) |      | L (5) |      | L (6) |      | D1   |
|--------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|------|
| S0     | 10    | 15   | 15    | 20   | 20    | 25   | 25    | 40   | 40    | 55   | 55    | 70   | 70    | 85   | 18   |
|        | .39   | .59  | .59   | .79  | .79   | .98  | .98   | 1.57 | 1.57  | 2.17 | 2.17  | 2.76 | 2.76  | 3.35 | .71  |
| S1     | 10    | 15   | 25    | 30   | 40    | 45   |       |      |       |      |       |      |       |      | 18   |
|        | .39   | .59  | .98   | 1.18 | 1.57  | 1.77 |       |      |       |      |       |      |       |      | .71  |
| S2, S3 | 36    | 51   | 51    | 66   | 66    | 71   | 71    | 86   | 86    | 91   | 91    | 106  |       |      | 45   |
|        | 1.42  | 2.01 | 2.01  | 2.60 | 2.60  | 2.80 | 2.80  | 3.39 | 3.39  | 3.58 | 3.58  | 4.17 |       |      | 1.77 |

**M290/A1.EF** L = Shaft length at (number of profile extension parts)

| Size | L (0) |      | L (1) |      | L (2) |      | L (3) |      | L (4) |      | L (5) |      | L (6) |      | D1   |
|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|------|
| S0   | 9     | 14   | 14    | 19   | 19    | 24   | 24    | 39   | 39    | 54   | 54    | 69   | 69    | 84   | 22   |
|      | .35   | .55  | .55   | .75  | .75   | .94  | .94   | 1.54 | 1.54  | 2.13 | 2.13  | 2.72 | 2.72  | 3.31 | .87  |
| S1   | 9     | 14   | 14    | 19   | 19    | 24   | 24    | 39   | 39    | 54   | 54    | 69   | 69    | 84   | 45.6 |
|      | .35   | .55  | .55   | .75  | .75   | .94  | .94   | 1.54 | 1.54  | 2.13 | 2.13  | 2.72 | 2.72  | 3.31 | 1.80 |
| S2   | 31    | 40   | 38.5  | 47.5 | 46    | 55   | 53.5  | 62.5 | 61    | 70   |       |      |       |      | 45.6 |
|      | 1.22  | 1.57 | 1.52  | 1.87 | 1.81  | 2.17 | 2.11  | 2.46 | 2.40  | 2.76 |       |      |       |      | 1.80 |

**M290/A3, M290/A3.EF** L = Shaft length

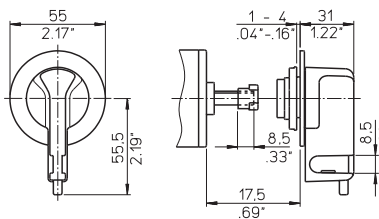
| Size | L    |      | L    |      | L    |      | L    |      | L    |      | L |  | L |  | D1 <sup>1</sup> |
|------|------|------|------|------|------|------|------|------|------|------|---|--|---|--|-----------------|
| S0   | 37   | 57   | 57   | 77   | 77   | 97   | 97   | 117  |      |      |   |  |   |  | 18              |
|      | 1.46 | 2.24 | 2.24 | 3.03 | 3.03 | 3.82 | 3.82 | 4.61 |      |      |   |  |   |  | .71             |
| S1   | 28   | 55   | 55   | 75   | 75   | 95   | 95   | 115  |      |      |   |  |   |  | 18              |
|      | 1.10 | 2.17 | 2.17 | 2.95 | 2.95 | 3.74 | 3.74 | 4.53 |      |      |   |  |   |  | .71             |
| S2   | 40   | 65   | 65   | 95   | 95   | 125  | 125  | 155  | 155  | 185  |   |  |   |  | 45              |
|      | 1.57 | 2.56 | 2.56 | 3.74 | 3.74 | 4.92 | 4.92 | 6.10 | 6.10 | 7.28 |   |  |   |  | 1.77            |
| S3   | 45   | 65   | 65   | 100  | 100  | 135  | 135  | 170  | 170  | 205  |   |  |   |  | 45              |
|      | 1.77 | 2.56 | 2.56 | 3.94 | 3.94 | 5.31 | 5.31 | 6.69 | 6.69 | 8.07 |   |  |   |  | 1.77            |

<sup>1</sup>For S0 M290/A3.EF: 22/.87, for S1 M290/A3.EF/1: 45.6/1.80

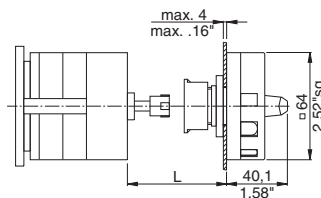
**M295**

|        |       | L    |      |
|--------|-------|------|------|
|        |       | min. | max. |
| M295/A | S0/S1 | 27   | 112  |
|        |       | 1.06 | 4.41 |
| M295/B | S0/S1 | 25   | 90   |
|        |       | .98  | 3.54 |

**V840E**

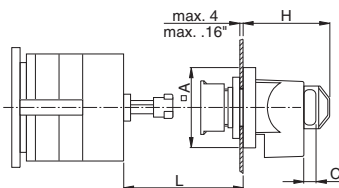


**V840F/V840G**



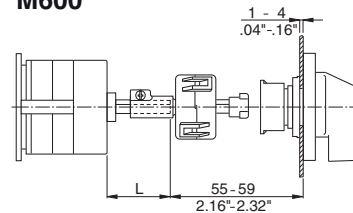
| Size | L    |      |
|------|------|------|
|      | min. | max. |
| S0   | 30   | 55   |
|      | 1.18 | 2.17 |
| S1   | 28   | 55   |
|      | 1.10 | 2.17 |

**V845**



| Size | A    | C   | H    | L    |      |
|------|------|-----|------|------|------|
|      |      |     |      | min. | max. |
| S0   | 48   | 7.2 | 52   | 30   | 55   |
|      | 1.89 | .28 | 2.05 | 1.18 | 2.17 |
| S1   | 64   | 8.1 | 58   | 28   | 55   |
|      | 2.52 | .32 | 2.28 | 1.10 | 2.17 |

**M600**

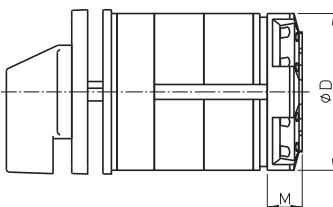


L see L100, M004D, M004, page 27.

Auxiliary Contacts

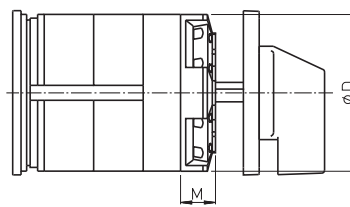
**M510B**

E mounting



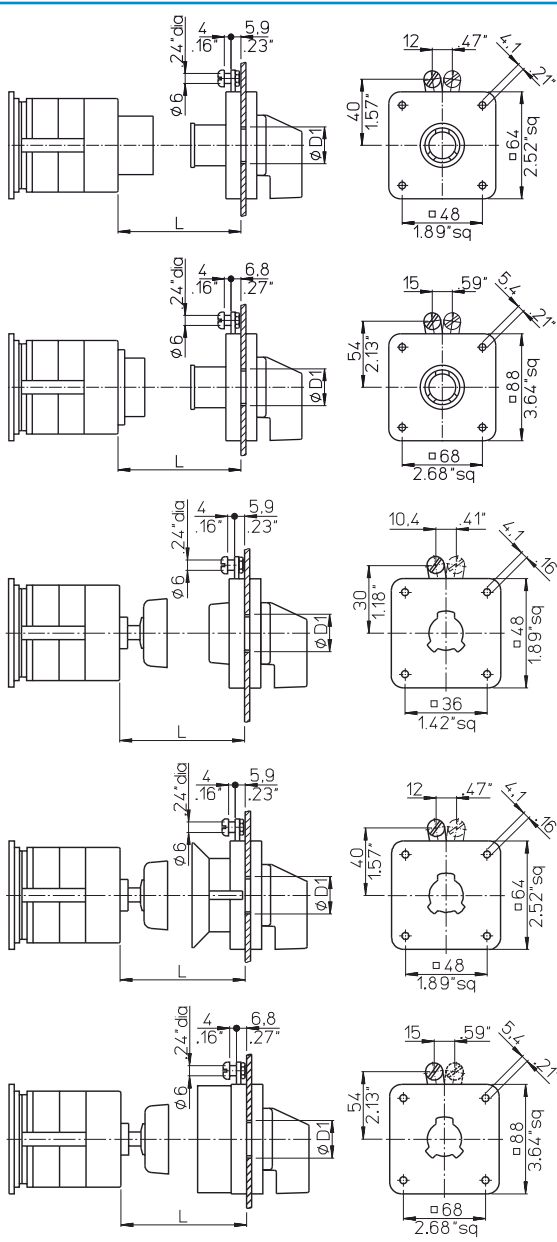
| Size | M    | D    |
|------|------|------|
| S1   | .16  | .64  |
|      | .63  | 2.52 |
| S2   | 18.7 | 84   |
|      | .74  | 3.31 |
| S3   | 17   | 128  |
|      | .67  | 5.04 |

VE mounting



| Size | M    | D    |
|------|------|------|
| S1   | 11.5 | 64   |
|      | .45  | 2.52 |
| S2   | 11.7 | 84   |
|      | .46  | 3.31 |
| S3   | 8    | 128  |
|      | .31  | 5.04 |

Standard Door Clutch



**M280, M280/EF**

For switches of size S1

L = Shaft length

| Size | L    | L    | L    | L    | L    | L    | L    | D1   |
|------|------|------|------|------|------|------|------|------|
| S1   | 34   | 49   | 49   | 64   | 64   | 79   | 79   | 94   |
|      | 1.34 | 1.93 | 1.93 | 2.52 | 2.52 | 3.11 | 3.11 | 3.70 |
| S2   | 40   | 55   | 55   | 70   | 70   | 85   | 85   | 100  |
|      | 1.57 | 2.17 | 2.17 | 2.76 | 2.76 | 3.35 | 3.35 | 3.94 |
| S3   | 40   | 55   | 55   | 70   | 70   | 85   | 85   | 100  |
|      | 1.57 | 2.17 | 2.17 | 2.76 | 2.76 | 3.35 | 3.35 | 3.94 |

For switches of size S2 and S3

**M280D, M280D/EF, M280E, M280E/EF**

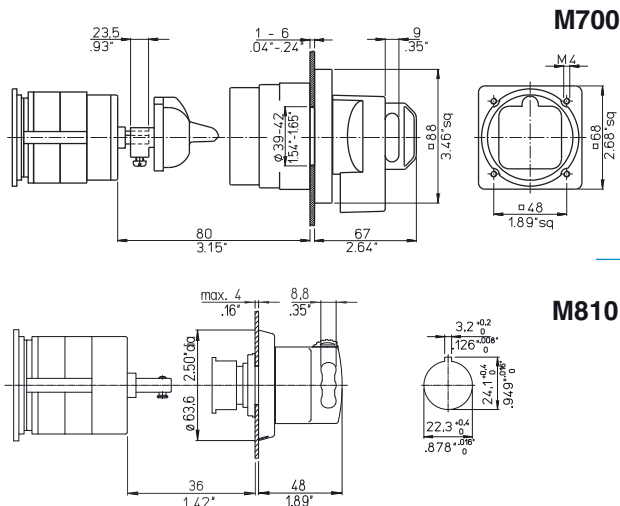
For switches of size S0

For switches of size S1 and S0

For switches of size S2 and S3

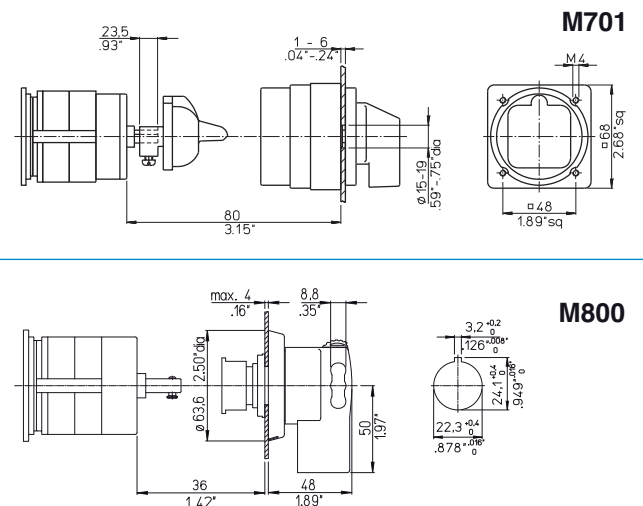
L = Shaft length

| Size | L    | L    | L    | L    | L    | L    | L    | D1   |
|------|------|------|------|------|------|------|------|------|
| S0   | 36   | 55   | 56   | 75   | 76   | 95   | 96   | 116  |
|      | 1.42 | 2.17 | 2.20 | 2.95 | 2.99 | 3.74 | 3.78 | 4.57 |
| S0 ● | 36   | 55   | 56   | 75   | 76   | 95   | 96   | 116  |
|      | 1.42 | 2.17 | 2.20 | 2.95 | 2.99 | 3.74 | 3.78 | 4.57 |
| S1   | 32   | 57   | 58   | 77   | 78   | 97   | 98   | 118  |
|      | 1.26 | 2.24 | 2.28 | 3.03 | 3.07 | 3.82 | 3.86 | 4.65 |
| S2   | 60   | 90   | 90   | 120  | 120  | 150  | 150  | 180  |
|      | 2.36 | 3.54 | 3.54 | 4.72 | 4.72 | 5.91 | 5.91 | 7.09 |
| S3   | 60   | 95   | 95   | 130  | 130  | 165  | 165  | 200  |
|      | 2.36 | 3.74 | 3.74 | 5.12 | 5.12 | 6.50 | 6.50 | 7.87 |



**M700**

**M810**



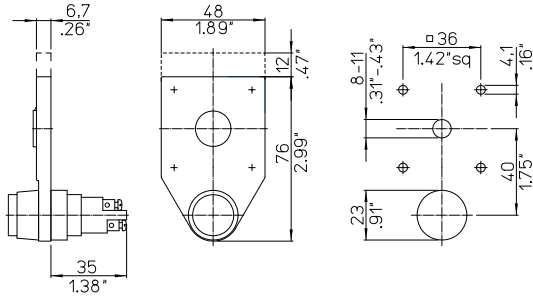
**M701**

**M800**

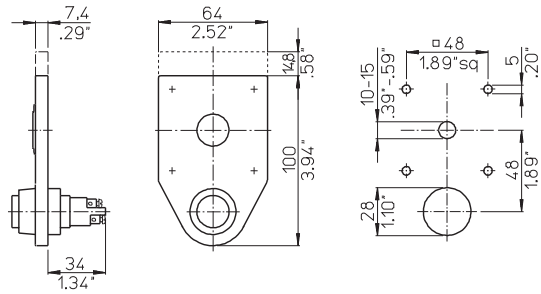
Indicator Lamp Device

Q200/A1, Q200/A2, Q200/B1, Q200/B2

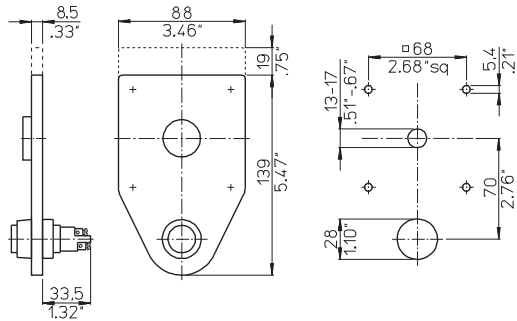
For switches of size S0



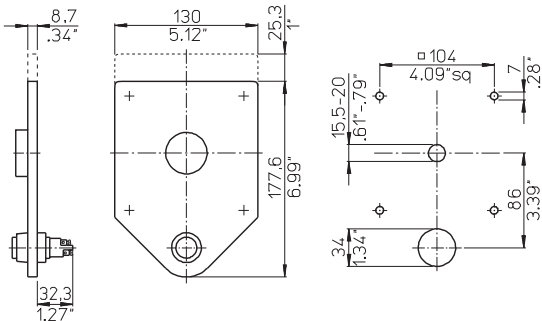
For switches of size S1



For switches of size S2

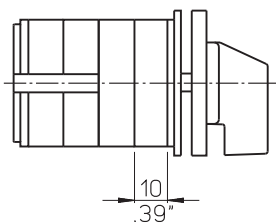


For switches of size S3



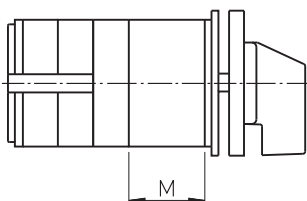
Stop and Go Device

V160



Spring Return over several Positions

M470/A, M470



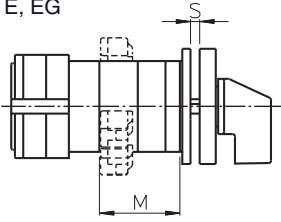
| Size              | M470/A<br>M  | M470<br>M    |
|-------------------|--------------|--------------|
| S0 ●              | 33,3<br>1.31 | 33,3<br>1.31 |
| S0 <sup>1</sup> ● | 40,3<br>1.59 | 29,2<br>1.15 |
| S1 <sup>1</sup>   | 33,3<br>1.31 | 22,2<br>.87  |
| S2                | 75<br>2.95   |              |

<sup>1</sup> shaft hole 18,5 mm/.73 inch

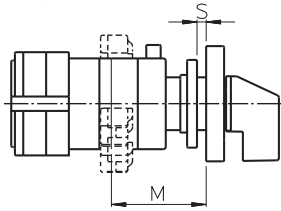
Push-pull Interlock

V110A, V115A, V130A, V135A

E, EG



FT2, FH3

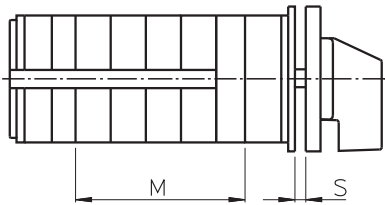


M = Additional length of the switch

| Mounting   | E <sup>1</sup> |                | EG <sup>2</sup> |                | FT2            |                | FH3            |                |
|------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|
|            | V110A<br>V130A | V115A<br>V135A | V110A<br>V130A  | V115A<br>V135A | V110A<br>V130A | V115A<br>V135A | V110A<br>V130A | V115A<br>V135A |
| M w/o a/c  | 17,5<br>.69    | 33,5<br>1.32   | 24,5<br>.96     | 40,5<br>1.59   | 24,0<br>.94    | 40,0<br>1.57   | 31,0<br>1.22   | 47,0<br>1.85   |
| M with a/c | 33,5<br>1.32   | 33,5<br>1.32   | 40,5<br>1.59    | 40,5<br>1.59   | 40,0<br>1.57   | 40,0<br>1.57   | 47,0<br>1.85   | 47,0<br>1.85   |
| S          | 1-4<br>.04-.16 | 1-4<br>.04-.16 | 1-4<br>.04-.16  | 1-2<br>.04-.08 | 1-6<br>.04-.24 | 1-6<br>.04-.24 | 1-6<br>.04-.24 | 1-6<br>.04-.24 |

<sup>1</sup>shaft hole 15-19 mm/.59-.75 inch  
<sup>2</sup>shaft hole 19-22 mm/.75-.87 inch

V110, V115, V130, V135

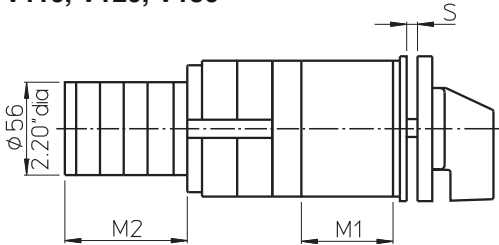


M = Additional length of the switch

| Size            | No. of auxiliary contacts |                   |                   |                   | S                 |
|-----------------|---------------------------|-------------------|-------------------|-------------------|-------------------|
|                 | 0-2                       | 3+4               | 5+6               | 7+8               |                   |
| S1 <sup>1</sup> | M<br>39,9<br>1.57         | M<br>57,4<br>2.26 | M<br>74,9<br>2.95 | M<br>92,4<br>3.64 | S<br>0-4<br>0-.16 |
| S1              | M<br>29,5<br>1.16         | M<br>47<br>1.85   | M<br>64,5<br>2.54 | M<br>82<br>3.23   | S<br>0-4<br>0-.16 |

<sup>1</sup>For switch type CA..B, CH..B, CG..B, DH..B

V110, V120, V130



M1 = Additional length of the switch

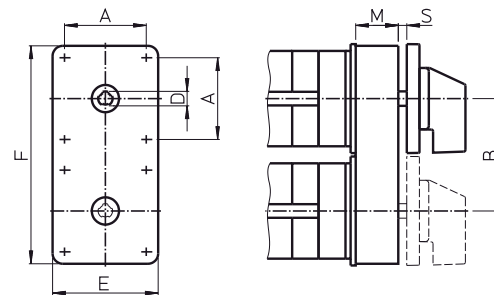
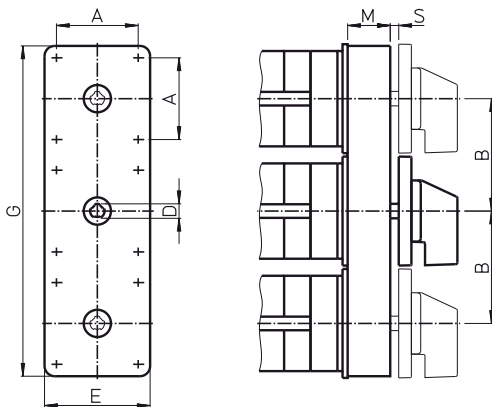
M2 = Additional length of the auxiliary switch

| Size            | No. of auxiliary contacts |                        |                        |                        |                        | S                   |
|-----------------|---------------------------|------------------------|------------------------|------------------------|------------------------|---------------------|
|                 | 0                         | 1+2                    | 3+4                    | 5+6                    | 7+8                    |                     |
| S1 <sup>1</sup> | M1<br>51,7<br>2.04        | M1+M2<br>101,4<br>3.99 | M1+M2<br>120,4<br>4.74 | M1+M2<br>139,4<br>5.49 | M1+M2<br>158,4<br>6.24 | S<br>0-4,5<br>0-.18 |
| S2              | M1<br>69<br>2.72          | M1+M2<br>127,6<br>5.02 | M1+M2<br>146,6<br>5.77 | M1+M2<br>165,6<br>6.52 | M1+M2<br>184,6<br>7.27 | S<br>0-5,5<br>0-.22 |
| S3              | M1<br>85<br>3.35          | M1+M2<br>151,6<br>5.96 | M1+M2<br>170,5<br>6.71 | M1+M2<br>189,5<br>7.46 | M1+M2<br>208,5<br>8.21 | S<br>0-7<br>0-.28   |

<sup>1</sup>Only for V120

Interlock between Switches and Tandem Drive

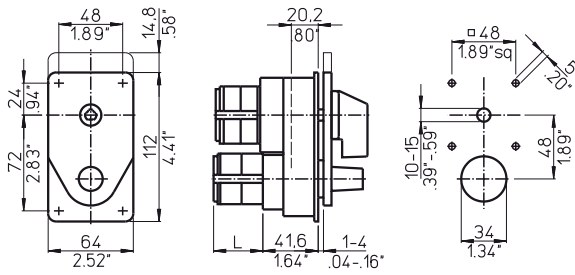
V600/B, V600/C, M300/B, M300/C



| Size | A          | B           | D           | E           | F            | G            | M          | S                  |
|------|------------|-------------|-------------|-------------|--------------|--------------|------------|--------------------|
| S1   | 48<br>1.89 | 66<br>2.60  | 8,5<br>.34  | 62<br>2.44  | 128<br>5.04  | 194<br>7.64  | 25<br>.98  | 1,4-4,5<br>.06-.18 |
| S2   | 68<br>2.68 | 93<br>3.66  | 11,2<br>.44 | 92<br>3.62  | 183<br>7.20  | 276<br>10.87 | 30<br>1.18 | 1,5-7,0<br>.06-.28 |
| S3   | 88<br>3.46 | 144<br>5.67 | 14<br>.55   | 130<br>5.13 | 274<br>10.79 | 418<br>16.48 | 24<br>.94  | 1,5-8,3<br>.06-.33 |

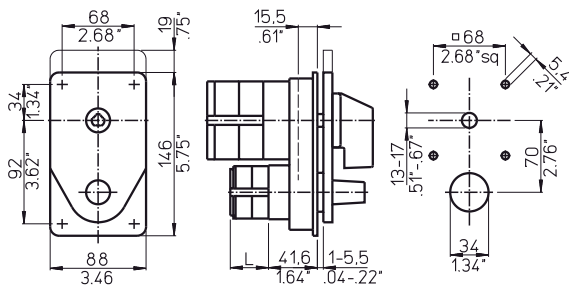
Push Button Interlock

V400/A1, V400/A2, V400/B1, V400/B2

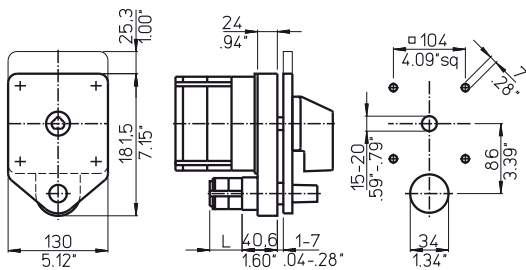


For switches of size S0 and S1

| L | No. of auxiliary contacts |      |
|---|---------------------------|------|
|   | 2                         | 4    |
|   | 24,5                      | 42   |
|   | .96                       | 1.65 |



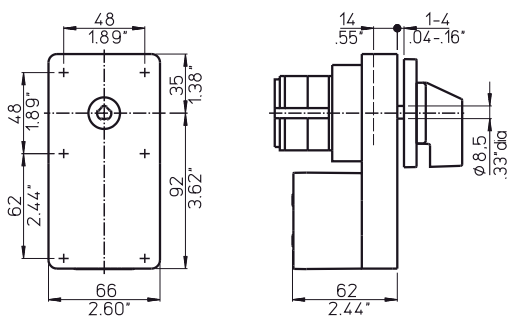
For switches of size S2



For switches of size S3

Electromechanical Interlock

V140



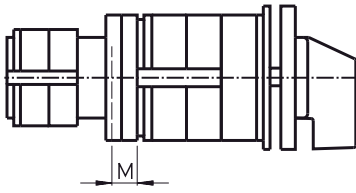
For switches of size S1

For switches of size S1, S2 and S3

M1 = Additional length for the interlock  
M2 = Additional length for the coupling pieces of the solenoid  
Additional length for the solenoid upon request.

| Size | M1 + M2       | S              |
|------|---------------|----------------|
| S1   | 56<br>2.20    | 0-4<br>0-.16   |
| S2   | 102<br>4.02   | 0-5.5<br>0-.22 |
| S3   | 111,1<br>4.37 | 0-7<br>0-.28   |

Bayonet/Switch Coupling

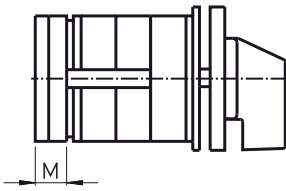


M270

| Size        | Coupled switch |             |              |
|-------------|----------------|-------------|--------------|
|             | S1             | S2          | S3           |
| Main switch | M              | M           | M            |
| S1          | 9,8<br>.39     |             |              |
| S2          |                | 12,9<br>.51 |              |
| S3          |                |             | 32,9<br>1.30 |

M275

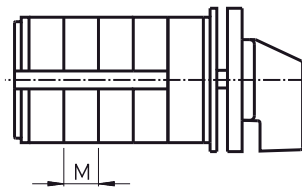
| Size        | Coupled switch |             |             |             |
|-------------|----------------|-------------|-------------|-------------|
|             | S00            | S0          | S1          | S2          |
| Main switch | M              | M           | M           | M           |
| S0          | 0<br>0         | 5,5<br>.22  |             |             |
| S1          | 1,3<br>.05     | 0,8<br>.03  |             |             |
| S2          | 10,2<br>.40    | 4,4<br>.17  | 2,9<br>.11  |             |
| S3          | 12,7<br>.50    | 12,2<br>.48 | 11,4<br>.45 | 11,4<br>.45 |



P100

| Size | M            |
|------|--------------|
| S1   | 14,3<br>.56  |
| S2   | 19<br>.75    |
| S3   | 35,4<br>1.39 |

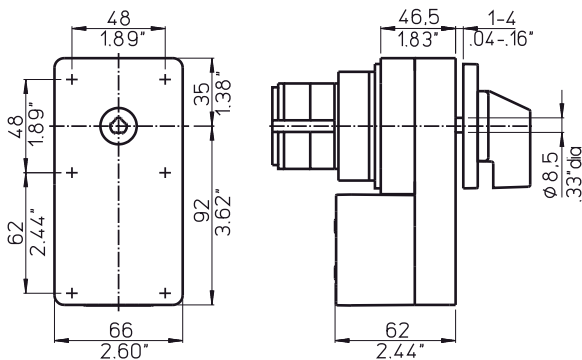
Slip Clutch and Ratchet Coupling



M200, M230

M = One switch stage

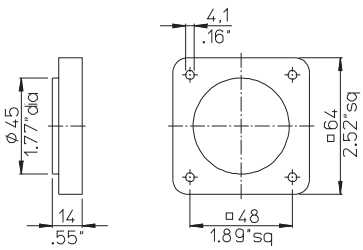
Electromechanical Trip Device (Undervoltage Release and Shunt-trip)



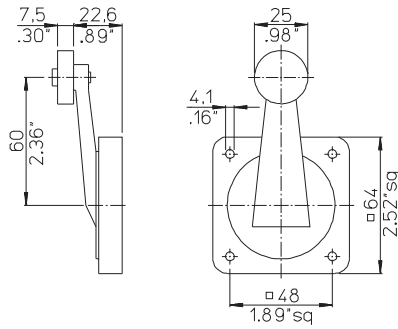
V350/A, V350/B, V350/D  
V360/A, V360/B, V360/D

Special Drive Units

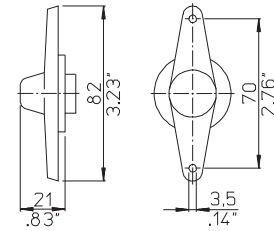
G800/A



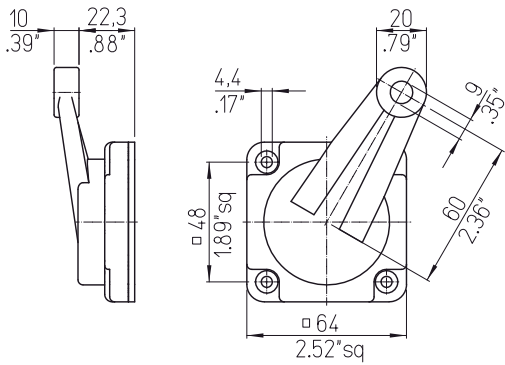
G800/B



G800/C

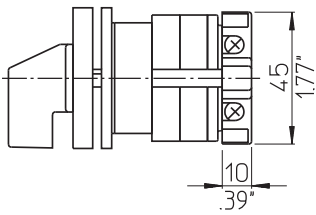


G900/B



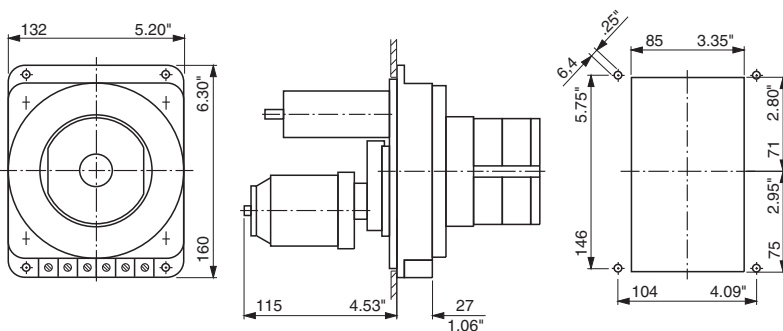
Ground and Neutral Terminal

H040/E, H040/N, H040/NE



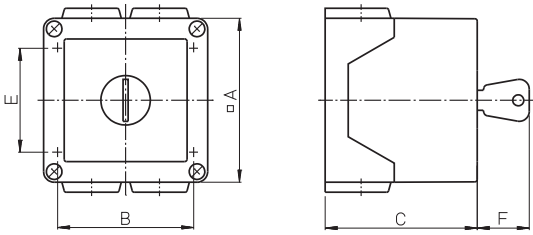
Motor Drive

R300





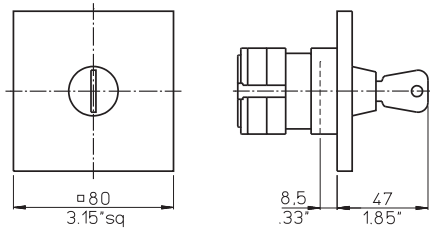
Key-lock Device with small Cylinder Lock



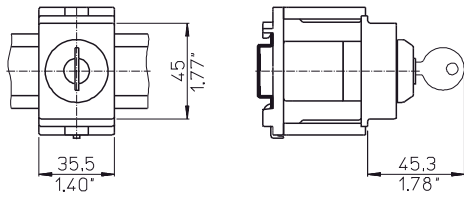
V750

| Switch type | No. of stages | A          | B          | C            | E          | F          | Conduit entries 4 x |     |      |      |
|-------------|---------------|------------|------------|--------------|------------|------------|---------------------|-----|------|------|
|             |               |            |            |              |            |            | PG                  | ISO | NPT  | BSI  |
| CA10        | 2             | 64<br>2.52 | 50<br>1.97 | 68,8<br>2.71 | 36<br>1.42 | 26<br>1.02 | 11                  | 20  | -    | -    |
| CA11, CA20  | 1 + 2         | 82<br>3.23 | 68<br>2.68 | 75,5<br>2.97 | 52<br>2.05 | 29<br>1.14 | 16                  | 20  | 1/2" | 3/4" |

For 1 stage CA10 switches with plaster depth trim

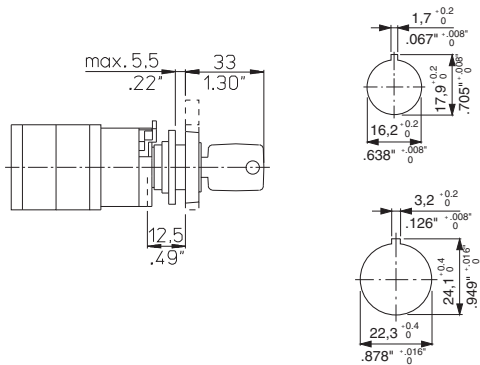


For base mounting with type of mounting VE21



V750D/1 and V750D/2

For single hole mounting combined with 16/22 mm



Front ring 29,5 mm Ø (mounting FS1)

Escutcheon plates

30 x 30 mm

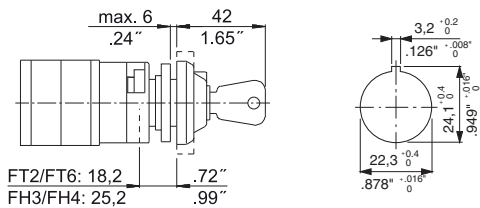
(mounting FS2)

30 x 39 mm

(mounting FS4)

V750D/3

For single hole mounting 22 mm



Front ring 39 mm Ø (mounting FT1)

Escutcheon plate

48 x 48 mm

(mounting FT2)

64 x 64 mm

(mounting FH3)

48 x 59 mm

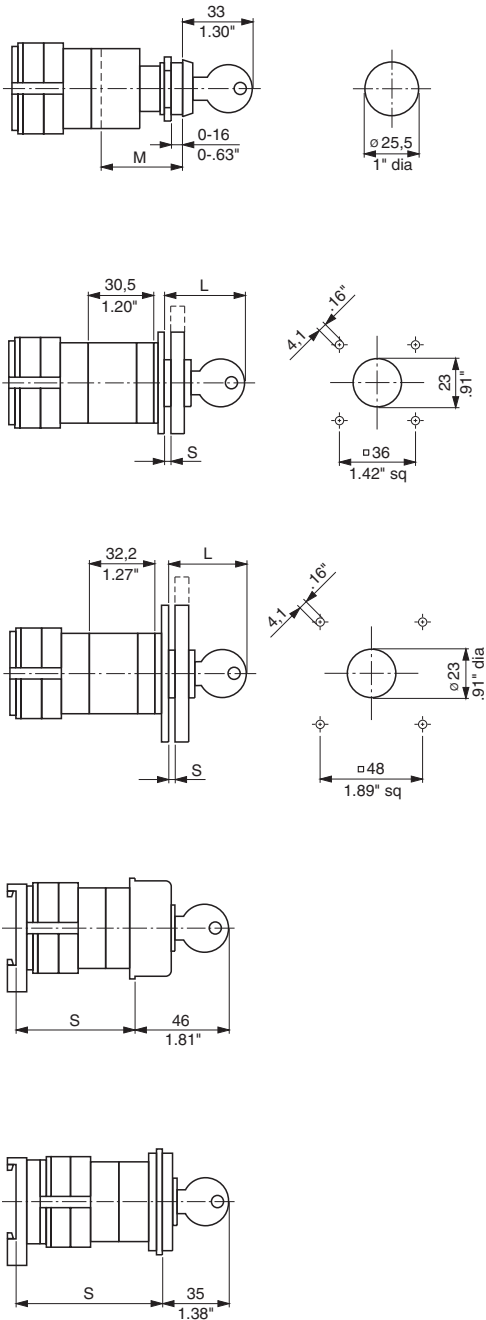
(mounting FT6)

64 x 78,5 mm

(mounting FH4)

FT2/FT6: 18,2  
FH3/FH4: 25,2

Key-lock Device with Kaba Lock



V750D

With front ring (mounting EL)

| Locking program | M            |
|-----------------|--------------|
| 1A-1G           | 37,2<br>1.46 |
| 2G-2L           | 47,2<br>1.86 |

V750D/A, V750D/B

Escutcheon plates

48 x 48 mm (mounting E)

48 x 60 mm (mounting E)

| Locking program | S                 | L            |
|-----------------|-------------------|--------------|
| 1A-1G           | 1-3,5<br>.04-.14  | 40,3<br>1.59 |
| 2G-2L           | 1-12,5<br>.04-.49 | 49,3<br>1.94 |

V750D/A, V750D/B

Escutcheon plates

64 x 64 mm (mounting EG)

64 x 78,8 mm (mounting EG)

| Locking program | S                 | L            |
|-----------------|-------------------|--------------|
| 1A-1G           | 1-3,5<br>.04-.14  | 39,8<br>1.57 |
| 2G-2L           | 1-12,5<br>.04-.49 | 48,8<br>1.92 |

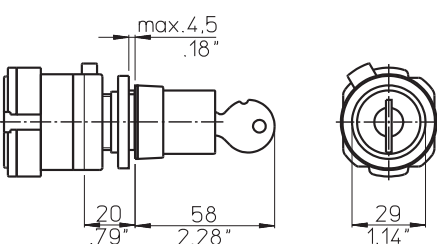
V750D (mounting VE2)

| Max. no. of stages | CA10 | CA11 | CA20 | CG8 | CH10 |
|--------------------|------|------|------|-----|------|
| S = 50 mm<br>1.97" | 1    | -    | -    | -   | -    |
| 61 mm<br>2.40"     | 2    | 1    | 1    | 1   | 1    |
| 67 mm<br>2.64"     | -    | 2    | 2    | -   | -    |
| 69 mm<br>2.72"     | 3    | 2    | 2    | -   | -    |

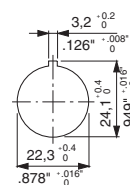
V750D (mounting VE3)

| Max. no. of stages | CA10 | CA11 | CA20 | CG8 |
|--------------------|------|------|------|-----|
| S = 67 mm<br>2.64" | 1    | 1    | 1    | -   |
| 69 mm<br>2.72"     | 1    | 1    | 1    | 1   |

Key-lock Device with Profile Cylinder



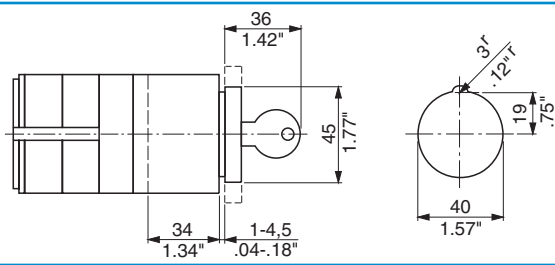
V750E



## Optional Extras

**Dimensions** mm  
inch

### Key-lock Device with Kaba Lock

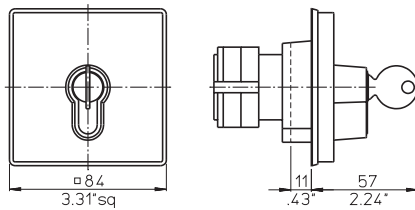


#### V750/A1

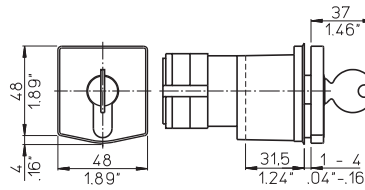
With escutcheon plate 64 x 64 mm (mounting EL2)  
With front ring (mounting EL1)

### Key-lock Device with Half-cylinder Lock

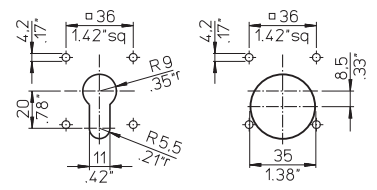
#### V755.UE1



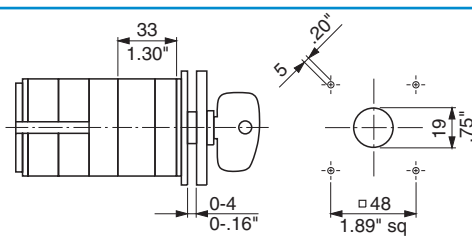
#### V755.E



#### Different drilling plans

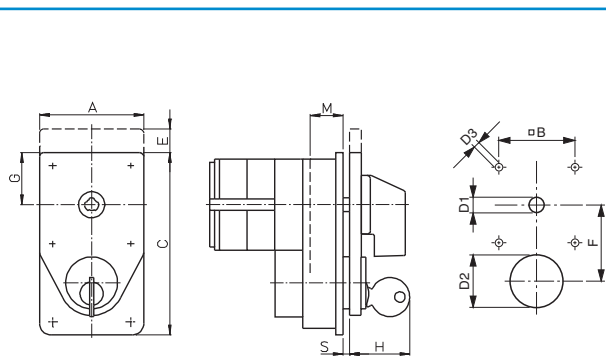


### Key Handle Device



#### V900

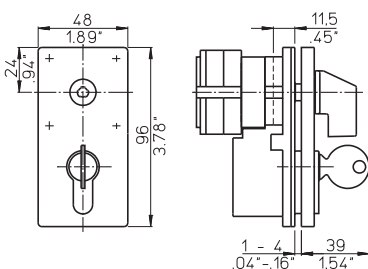
### Safety Key-lock Device with separate Drive



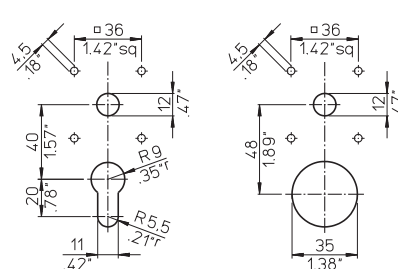
#### V760/A.E, V760/B.E, V760/A, V760/B

| Size of the optional extra | A            | B           | C             | E           | F           | G                |
|----------------------------|--------------|-------------|---------------|-------------|-------------|------------------|
| S0                         | 48<br>1.89   | 36<br>1.42  | 82<br>3.23    | 12<br>.47   | 40<br>1.57  | 24<br>.94        |
| S1                         | 64<br>2.52   | 48<br>1.89  | 112<br>4.41   | 14.8<br>.58 | 48<br>1.89  | 32<br>1.26       |
| S2                         | 88<br>3.46   | 68<br>2.68  | 146<br>5.75   | —           | 70<br>2.76  | 44<br>1.73       |
| S3                         | 130<br>5.12  | 104<br>4.09 | 181.5<br>7.15 | —           | 86<br>3.39  | 65<br>2.56       |
|                            | H            | D1          | D2            | D3          | M           | S                |
| S0                         | 31<br>1.22   | 8.5<br>.33  | 20<br>.79     | 5<br>.20    | 9.5<br>.37  | 1.4<br>.04-.16   |
| S1                         | 34.5<br>1.36 | 10<br>.39   | 34<br>1.34    | 5<br>.20    | 20.2<br>.80 | 1.4<br>.04-.16   |
| S2                         | 35.5<br>1.40 | 12<br>.47   | 34<br>1.34    | 5.4<br>.21  | 15.5<br>.61 | 1-5.5<br>.04-.22 |
| S3                         | 36.5<br>1.44 | 15<br>.59   | 34<br>1.34    | 7<br>.28    | 24<br>.94   | 1-7<br>.04-.28   |

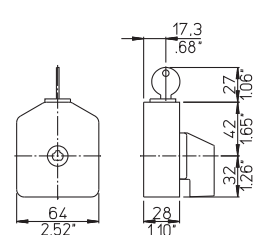
#### V765



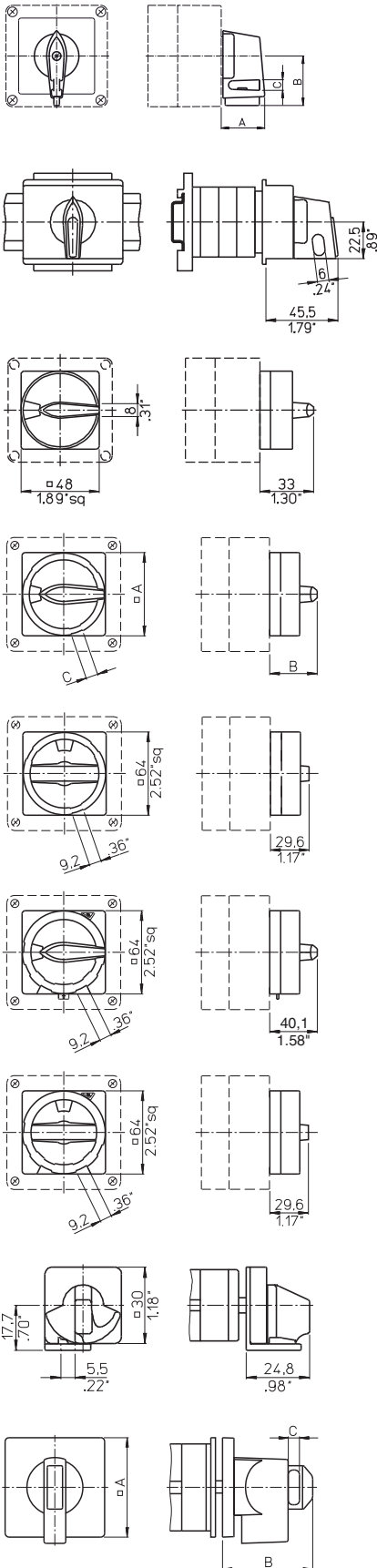
#### Different drilling plans



#### V790



Padlock Device



**V840A**

For 2 padlocks

| Size | A            | B            | C        |
|------|--------------|--------------|----------|
| S0   | 27.7<br>1.07 | 31.5<br>1.24 | 5<br>.20 |
| S1   | 35<br>1.38   | 40<br>1.57   | 7<br>.28 |

**V840B**

For 2 padlocks

**V840D**

For 2 padlocks

**V840G, V840D**

For 3 padlocks

|       | A          | B            | C          |
|-------|------------|--------------|------------|
| V840G | 64<br>2.52 | 40.1<br>1.58 | 9.2<br>.36 |
| V840D | 88<br>3.46 | 49.3<br>1.94 | 10<br>.39  |

**V840G/B**

For 3 padlocks

**V840F/F**

For 4 padlocks

**V840F/B**

For 4 padlocks

**V840K**

For 1 padlock

**V845**

| Size | A           | B            | C          |
|------|-------------|--------------|------------|
| S0   | 48<br>1.89  | 51<br>2.01   | 7.2<br>.28 |
| S1   | 64<br>2.52  | 58<br>2.28   | 8.1<br>.32 |
| S2   | 88<br>3.46  | 73<br>2.87   | 9<br>.35   |
| S3   | 130<br>5.12 | 86.5<br>3.41 | 9.2<br>.36 |

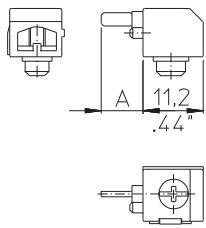
Padlock Device

|  |                       |
|--|-----------------------|
|  | <p>V840VE</p>         |
|  | <p>V850</p>           |
|  | <p>For 2 padlocks</p> |
|  | <p>For 3 padlocks</p> |
|  | <p>For 6 padlocks</p> |

PFR (Power Failure Release)

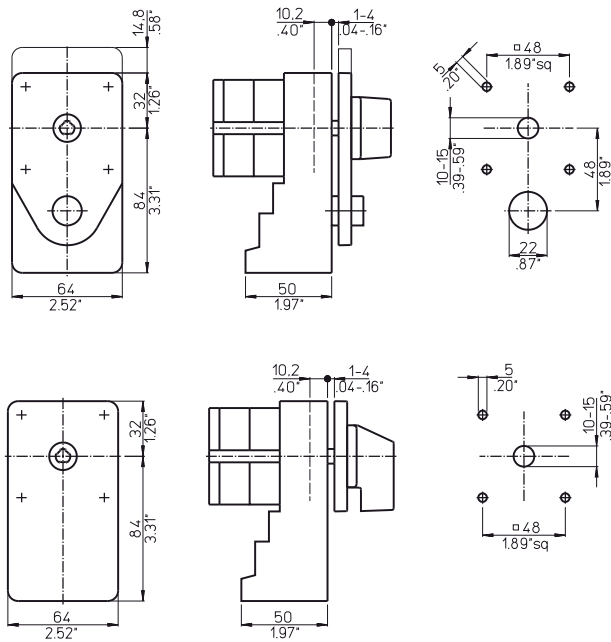
|      |  |      |      |     |
|------|--|------|------|-----|
|      | <p>Size S0</p>   |      |      |     |
|      | <p>Without trip-free release</p>   |      |      |     |
|      | <table border="1"> <tr> <td>M</td> </tr> <tr> <td>23.3</td> </tr> <tr> <td>.92</td> </tr> </table> | M    | 23.3 | .92 |
| M    |  |      |      |     |
| 23.3 |  |      |      |     |
| .92  |  |      |      |     |
|      | <p>With trip-free release</p>  |      |      |     |
|      | <table border="1"> <tr> <td>31.5</td> </tr> <tr> <td>1.24</td> </tr> </table>                      | 31.5 | 1.24 |     |
| 31.5 |  |      |      |     |
| 1.24 |  |      |      |     |
|      | <p>Size S1</p>   |      |      |     |

Additional Screw Terminal for CL Switches



|      | A           |
|------|-------------|
| CL4  | 7,8<br>.31  |
| CL10 | 10,8<br>.43 |

Lockout-relays

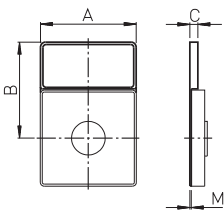


With manual release

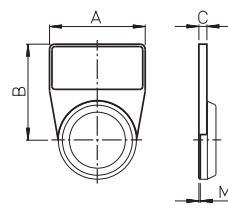
Without manual release

Rectangular Add-on Escutcheon Plates

PRA



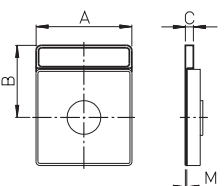
PRB



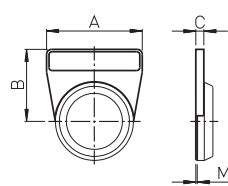
F991/...-..., F991/.../C-...

|   | PRA          |              |              |              |               | PRB          |              |
|---|--------------|--------------|--------------|--------------|---------------|--------------|--------------|
|   | S00          | S0           | S1           | S2           | S3            | S00          | S0           |
| A | 29,5<br>1.16 | 47,8<br>1.88 | 63,8<br>2.51 | 87,8<br>3.46 | 129,8<br>5.11 | 29,5<br>1.16 | 47,8<br>1.88 |
| B | 35<br>1.38   | 48<br>1.89   | 60<br>2.36   | 80<br>3.15   | 115<br>4.53   | 35<br>1.38   | 48<br>1.89   |
| C | 4<br>.16     | 4<br>.16     | 5<br>.20     | 6<br>.24     | 7<br>.28      | 4<br>.16     | 4<br>.16     |
| M | 0,7<br>.03   | 0,7<br>.03   | 0,8<br>.03   | 1<br>.04     | 1,2<br>.05    | 0,7<br>.03   | 0,7<br>.03   |

PRC

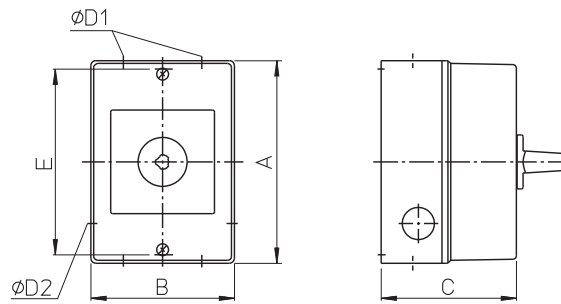


PRD



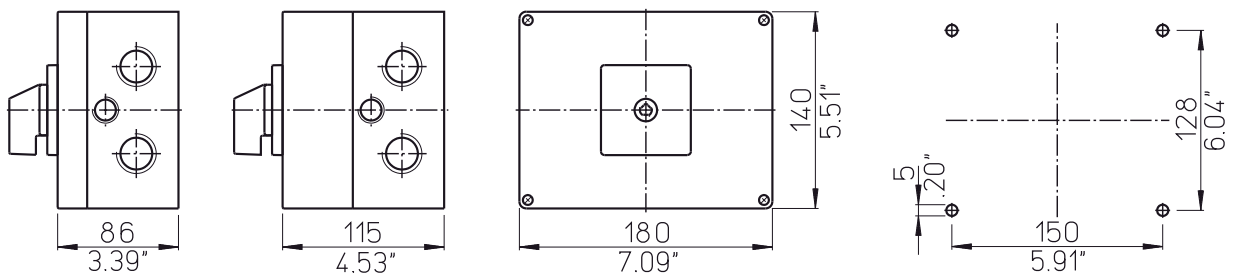
|   | PRC          |              |              | PRD          |              |
|---|--------------|--------------|--------------|--------------|--------------|
|   | S00          | S0           | S1           | S00          | S0           |
| A | 29,5<br>1.16 | 47,8<br>1.88 | 63,8<br>2.51 | 29,5<br>1.16 | 47,8<br>1.88 |
| B | 25,5<br>.98  | 36<br>1.42   | 47<br>1.85   | 25,5<br>.98  | 36<br>1.42   |
| C | 4<br>.16     | 4<br>.16     | 5<br>.20     | 4<br>.16     | 4<br>.16     |
| M | 0,7<br>.03   | 0,7<br>.03   | 0,8<br>.03   | 0,7<br>.03   | 0,7<br>.03   |

Plastic Enclosures



| Mounting                             | Switch type           | Max. no. of stages | A    | B    | C    | Conduit entries |        |      |
|--------------------------------------|-----------------------|--------------------|------|------|------|-----------------|--------|------|
|                                      |                       |                    |      |      |      | 4 x D1          | 2 x D2 | E    |
| KS3<br>CS3                           | CA4                   | 2                  | 90   | 70   | 60   | 16              | -      | 82   |
|                                      | CG4                   | 1                  | 3.54 | 2.76 | 2.36 | .63             | -      | 3.23 |
|                                      | CA4                   | 3                  |      |      |      |                 |        |      |
|                                      | CG4                   | 2                  | 90   | 70   | 77   | 16              | -      | 82   |
| KS50, KS51, KS52<br>CS50, CS51, CS52 | CG6                   | 2                  | 3.54 | 2.76 | 3.03 | .63             | -      | 3.23 |
|                                      | CA10                  | 4                  |      |      |      |                 |        |      |
|                                      | CA11                  | 3                  |      |      |      |                 |        |      |
|                                      | CA20, CA25, CG8       | 2                  | 120  | 85   | 80   | 20              | 20     | 110  |
|                                      | CH10-CHR16            | 2                  | 4.72 | 3.35 | 3.15 | .79             | .79    | 4.33 |
|                                      | CA10                  | 6                  |      |      |      |                 |        |      |
| KL50, KL51, KL52<br>CL50, CL51, CL52 | CA11, CA20            | 5                  | 120  | 85   | 106  | 20              | 20     | 110  |
|                                      | CA25, CG8, CH10-CHR16 | 4                  | 4.72 | 3.35 | 4.17 | .79             | .79    | 4.33 |
|                                      | CA10                  | 3                  |      |      |      |                 |        |      |
|                                      | CA11, CA20, CA25, CG8 | 2                  | 160  | 85   | 80   | 20              | 20     | 150  |
|                                      | CH10-CHR16            | 2                  | 6.30 | 3.35 | 3.15 | .79             | .79    | 5.91 |

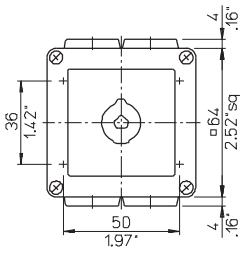
Standard Enclosures



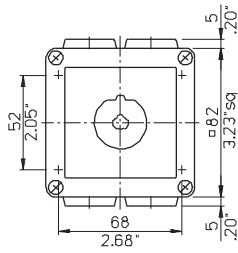
ST1N100

ST1N200

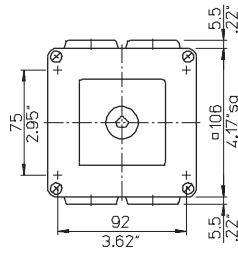
Plastic Enclosures (Front Drive)



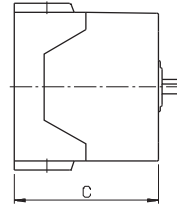
For switch type  
CA10



For switch type  
CA11, CA20, CA10B,  
CA11B, CA20B, CH10,  
CH16, CA25



For switch type  
A11, A14, CA40, CA50,  
CA63

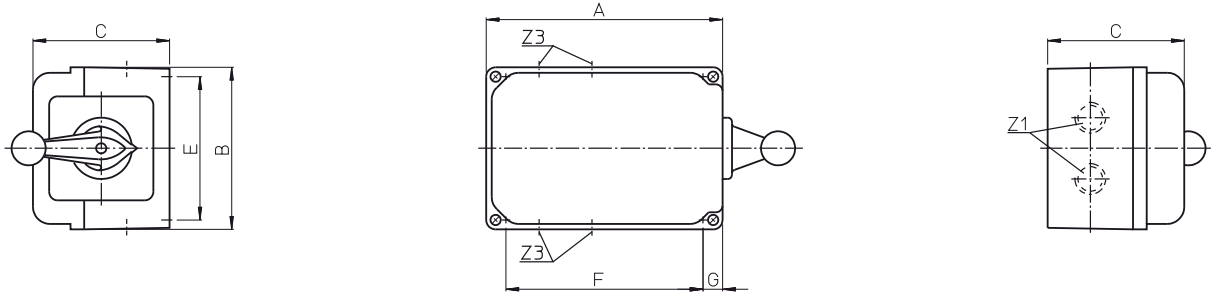


| Switch type                        | No. of stages      | PN.          |               | Conduit entries 4 x |     |      |      |
|------------------------------------|--------------------|--------------|---------------|---------------------|-----|------|------|
|                                    |                    | C            | C             | PG                  | ISO | NPT  | BSI  |
| A11, A14                           | 1                  | 67,5<br>2.66 | 73<br>2.87    | 21                  | M25 | 3/4" | 1"   |
|                                    | 2 + 3              | 89<br>3.50   | 94,5<br>3.72  |                     |     |      |      |
|                                    | 4-6                | 132<br>5.20  | 137,5<br>5.41 |                     |     |      |      |
| CA10                               | 1                  | 36,6<br>1.43 | 41,3<br>1.63  | 11                  | M20 | -    | -    |
|                                    | 2                  | 45,8<br>1.80 | 50,8<br>2.00  |                     |     |      |      |
|                                    | 3                  | 55,3<br>2.18 | 60,3<br>2.37  |                     |     |      |      |
|                                    | 4                  | 64,8<br>2.55 | 69,8<br>2.75  |                     |     |      |      |
| CA11, CA20, CA11B,<br>CA20B        | 1 + 2              | 59,7<br>2.35 | 64,7<br>2.55  | 16                  | M20 | 1/2" | 3/4" |
| CA11, CA20, CA10B, CA11B,<br>CA20B | 3 + 4 <sup>1</sup> | 85,1<br>3.35 | 90,1<br>3.55  | 16                  | M20 | 1/2" | 3/4" |
| CH10, CH16                         | 1                  | 59,7<br>2.35 | 64,7<br>2.55  | 16                  | M20 | 1/2" | 3/4" |
|                                    | 2 + 3              | 85,1<br>3.35 | 90,1<br>3.55  |                     |     |      |      |
|                                    | 4                  | 93<br>3.66   | 98<br>3.86    |                     |     |      |      |
| CA25                               | 1 + 2              | 59,7<br>2.35 | 64,7<br>2.55  | 16                  | M20 | 1/2" | 3/4" |
|                                    | 3                  | 85,1<br>3.35 | 90,1<br>3.55  |                     |     |      |      |
|                                    | 4                  | 93<br>3.66   | 98<br>3.86    |                     |     |      |      |
| CA40, CA50, CA63                   | 1                  | 67,5<br>2.66 | 73<br>2.87    | 21                  | M25 | 3/4" | 1"   |
|                                    | 2 + 3              | 89<br>3.50   | 94,5<br>3.72  |                     |     |      |      |
|                                    | 4 - 6              | 132<br>5.20  | 137,5<br>5.41 |                     |     |      |      |

<sup>1</sup>CA10B only for 4 stages

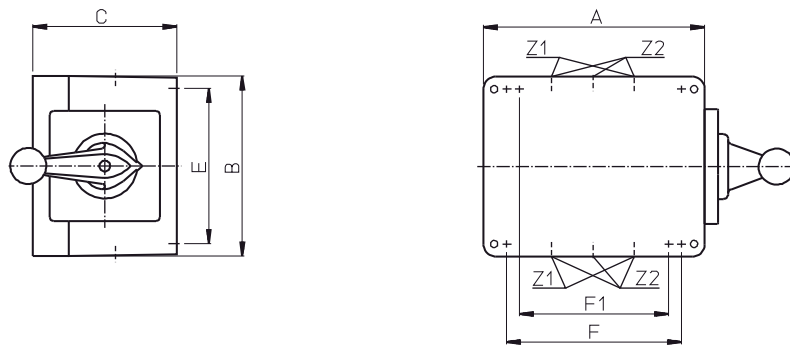


**Plastic Enclosures (Lateral Drive)**



| Switch type   | Max. no. of stages | A           | B          | C          | E          | F           | G         | Conduit entries |    |    |     |      |      |
|---|--------------------|-------------|------------|------------|------------|-------------|-----------|-----------------|----|----|-----|------|------|
|   |                    |             |            |            |            |             |           | Z1              | Z3 | PG | ISO | NPT  | BSI  |
| CA10, CA10R, CAD11, CAD12, CA10B<br>A11, CA11, CA20, CA11B, CA20B   | 4<br>3             | 92<br>3.62  | 90<br>3.54 | 75<br>2.95 | 80<br>3.15 | 68<br>2.68  | 12<br>.47 | ●               | -  | 16 | M25 | 3/4" | 3/4" |
| CA10, CA10R, CAD11, CAD12<br>CA10B<br>A11, CA11, CA20, CA11B, CA20B | 7<br>6<br>5        | 115<br>4.53 | 90<br>3.54 | 75<br>2.95 | 80<br>3.15 | 91<br>3.58  | 12<br>.47 | -               | ●  | 16 | M25 | 3/4" | 3/4" |
| CA10, CA10R, CAD11, CAD12<br>CA10B<br>A11, CA11, CA20, CA11B, CA20B | 10<br>9<br>7       | 140<br>5.51 | 90<br>3.54 | 75<br>2.95 | 80<br>3.15 | 116<br>4.57 | 12<br>.47 | -               | ●  | 16 | M25 | 3/4" | 3/4" |
| CA10, CA10R, CAD11, CAD12, CA10B<br>A11, CA11, CA20, CA11B, CA20B   | 12<br>9            | 165<br>6.50 | 90<br>3.54 | 75<br>2.95 | 80<br>3.15 | 141<br>5.55 | 12<br>.47 | -               | ●  | 16 | M25 | 3/4" | 3/4" |
| A11, CA11, CA20, CA11B, CA20B                                       | 11                 | 190<br>7.48 | 90<br>3.54 | 75<br>2.95 | 80<br>3.15 | 166<br>6.54 | 12<br>.47 | -               | ●  | 16 | M25 | 3/4" | 3/4" |
| A11, CA11, CA20, CA11B, CA20B                                       | 12                 | 215<br>8.46 | 90<br>3.54 | 75<br>2.95 | 80<br>3.15 | 191<br>7.52 | 12<br>.47 | -               | ●  | 16 | M25 | 3/4" | 3/4" |

**Aluminum Enclosures**



| Switch types   | No. of stages             | A           | B           | C          | E           | F           | F1         | Conduit entries |    |      |     |
|--|---------------------------|-------------|-------------|------------|-------------|-------------|------------|-----------------|----|------|-----|
|  |                           |             |             |            |             |             |            | Z1              | Z2 | PG   | ISO |
| CA10, CA10R<br>CA11, CA20                                      | 3<br>2                    | 80<br>3.15  | 75<br>2.95  | 57<br>2.24 | 63<br>2.48  | -           | 52<br>2.05 | ●               | -  | 13,5 | M20 |
| CA10B<br>CA11B, CA20B<br>CA25B                                 | 4<br>3<br>2               | 100<br>3.94 | 100<br>3.94 | 80<br>3.15 | 86<br>3.39  | 66<br>2.60  | -          | ●               | -  | 16   | M20 |
| A11, A14<br>CA10B<br>CA11B<br>CA20B, CA25B<br>CA40, CA50, CA63 | 5<br>7<br>6<br>5<br>5     | 140<br>5.51 | 140<br>5.51 | 90<br>3.54 | 120<br>4.72 | 93<br>3.66  | -          | ●               | -  | 21   | M25 |
| A11, A14<br>CA10B<br>CA11B, CA20B<br>CA25B<br>CA40, CA50, CA63 | 10<br>12<br>10<br>9<br>10 | 200<br>7.87 | 140<br>5.51 | 90<br>3.54 | 93<br>3.66  | 180<br>7.09 | -          | -               | ●  | 21   | M25 |

---

# The Range of “Blue Line” Switchgear

Technical literature covering the following products is available on request.

|  | <b>Catalog<br/>Number</b> |
|--|---------------------------|
| <b>Main Switches and Main Switches with Emergency Function 16 A-315 A<br/>Maintenance Switches 20 A-315 A<br/>Switch Disconnectors 20 A-315 A</b><br>According to IEC 60947-3, EN 60947-3, VDE 0660 part 107, IEC 60204, EN 60204 and VDE 0113   | <b>500</b>                |
| <b>CL Switches 10 A-20 A<br/>C, CA and CAD Switches 10 A-315 A and L Switches 350 A-2400 A</b><br>C, CA and CAD switches are designed for universal application. They are recommended for instrument, isolator, double-throw and motor control.<br>L switches are designed for load and off-load applications. They are used to switch resistive or low inductive loads.   | <b>100</b>                |
| <b>Optional Extras and Enclosures</b><br>The complete product line, a large number of optional extras is available, including door interlocks, push-pull devices, cylinder and padlock attachments, control and indicator devices, AC motor drives, as well as enclosures, both insulated and metal.   | <b>101</b>                |
| <b>A and AD Switches 6 A-25 A</b><br>A and AD switches have 4 contacts in each switching stage. These switches provide an extensive range of switch functions and require a minimum mounting depth. Up to 24 switching positions are possible, with availability of 48 contacts per 12 stage switch column.  | <b>110</b>                |
| <b>CG, CH and CHR Switches 10 A-25 A</b><br>Ultra compact CG, CH and CHR switches are ideally suited for control and instrumentation applications. Switch terminals are “finger-proof” and conveniently accessible for wiring and are delivered open. All CG4 switches offer specially designed gold plated contacts or H-bridges with “cross-wire” contact systems, which facilitates their use in electronic circuitry and chemically aggressive environments.   | <b>120</b>                |
| <b>DH, DHR, DK and DKR Switches 6 A-16 A</b><br>DH, DHR, DK and DKR switches incorporate unique corrosion resistant contacts that permit operation on system voltage as low as 1 V. They have fully enclosed and protected contacts which can be operated either by rotary and/or lateral handle movement. D switches are used in calibration and semiconductor circuits. They are also used for relay and contactor control.  | <b>130</b>                |
| <b>X Switches 200 A-630 A</b><br>X switches can be applied for load, tap and gang switching duties. They incorporate 6 contacts in each switching stage. Their compact design provides a minimum length dimension for mounting purposes.   | <b>140</b>                |
| <b>KG Switches 20 A-315 A and KH and KHR Switches 16 A-80 A</b><br>KG, KH and KHR switches are excellent circuit interruptors. They have high through fault and fault making capacities and are especially designed for use as isolators and safety switches for machine tools, distribution panels and switchboards. KG ON/OFF switches offer unusually high dimensioned air and creepage distances between terminals which are designed for time saving “straight-line” wiring. ON/OFF switches are available with up to 8 poles and double-throw switches are available with up to 4 poles. | <b>150</b>                |
| <b>Contactors 16 A-115 A and Motor Starters 1,1 kW-55 kW</b><br>These include control relays, motor contactors, two and four pole output contactors, heating contactors, thermal overload relays.  | <b>200</b>                |
| <b>Push Buttons and Pilot Lights, 22,5 mm Ø</b><br>A complete range of state-of-the-art push buttons and pilot lights represent an ideal combination of functional security and economical efficiency in a modular design.   | <b>302</b>                |

## SALES AND SERVICE ORGANIZATION

---

### Australia

Kraus & Naimer Pty. Ltd.  
379 Liverpool Road, ASHFIELD, N.S.W. 2131  
Tel: +61 2 9797-7333, Fax: 0092  
salesaus@krausnaimer.com

### Austria

Kraus & Naimer GmbH  
Schumanngasse 35, Postfach 431  
A-1181 WIEN  
Tel: +43 1 404 06-0, Fax: 404 06-190  
aso@krausnaimer.com

### Belgium, Luxembourg

Kraus & Naimer B.V.  
Ikaros Business Park  
Ikaroslaan 2  
B-1930 ZAVENTHEM  
Tel: +32 2 757-0141, Fax: 1640  
sales.be@krausnaimer.com

### Brazil

Central and South America  
Kraus & Naimer Ind. Com. Ltda.  
Rua Santa Monica, 1061  
Parque Industrial San Jose  
06715-865 Cotia - SP  
Tel: +55 11 2198-1288, Fax: 1251  
knbrasil@krausnaimer.com.br

### Canada

Kraus & Naimer Ltd.  
219 Connie Crescent, Unit 13A  
CONCORD, Ontario, L4K 1L4  
Tel: +1 905 738-1666, Fax: 9327  
salescan@krausnaimer.com

### Cyprus

ELECTROMATIC CONSTRUCTIONS LTD.  
72, Evagoras Pallikarides Str., CY-2235 LATSIA-Nicosia  
P. O. Box 12630, CY-2251 LATSIA-Nicosia  
Tel: +357 2 48 41 41, Fax: 48 57 47

### Czech Republic

OBZOR, výrobní družstvo Zlín  
Na Slanici 378  
CZ-76413 ZLÍN  
Tel: +420 57 7195-111/-153 (Techn. Supp.)  
Fax: +420 57 7195-152/-138  
ots@obzor.cz

### Denmark

THIIM A/S  
Transformervej 31  
DK-2730 HERLEV  
Tel: +45 4485 8000, Fax: 8005  
thiim@thiim.com

### Finland

Kraus & Naimer Oy  
Karitie 7  
FIN-01530 VANTAA  
Tel: +358 9 825-424-0, Fax: 424-10  
myynti@krausnaimer.com

### France

Kraus & Naimer s.a.s.  
33, rue Bobillot  
F-75013 PARIS  
Tel: +33 1 58 40 80 80, Fax: 45 80 91 19  
ventes@krausnaimer.com

### Germany

Kraus & Naimer GmbH  
Wikingerstraße 20-28, D-76189 KARLSRUHE  
Postfach 10 01 24, D-76231 KARLSRUHE  
Tel: +49 721 59 88-0, Fax: 59 28 28  
sales.ger@krausnaimer.com

### Great Britain

Kraus & Naimer Ltd.  
115 London Road  
NEWBURY/BERKSHIRE RG14 2AH  
Tel: +44 1635 262626, Fax: 37807  
sales-uk@krausnaimer.com

### Greece

KALAMARAKIS-SAPOUNAS S. A.  
Ionias & Neromilou Str., P. O. Box 46566  
GR-13671 ACHARNES/ATHENS  
Tel: +30 2 10 240-6000-6, Fax: 240-6007  
kalamarakis.sapounas@ksa.gr

### Hungary

GANZ, Schalter- u. Gerätefabrik  
X. Kőbányai út 41/c, Postfach 87  
H-1475 BUDAPEST  
Tel: +36 1 261-5479, Fax: 4685  
ganzkk@ganzkk.hu

### Iceland

BRAEDURNIR ORMSSON EHF  
Lágmúli 6-9, P. O. Box 8670  
REYKJAVIK  
Tel: +354 530-28 00, Fax: 28 10  
skuli@ormsson.is

### India

Liaison Office, Kraus & Naimer Pte. Ltd.  
10B, 1st Floor, Infinity,  
Ashar Commercial Complex, Gladly Alwares Road  
Off Pokhran Road no. 2,  
THANE (W) 400 610  
Tel: +91 22 66716451, Fax: 66716451  
india@krausnaimer.com

### Republic of Ireland

Kraus & Naimer Ltd.  
Bay 145, Shannon Free Zone  
SHANNON, Co. Clare  
Tel: +353 61 704700, Fax: 471084  
sales-ie@krausnaimer.com

### Italy

Kraus & Naimer s.r.l.  
Via Terracini, 9  
I-24047 TREVIGLIO (BG)  
Tel: +39 0363-30 11 12, Fax: 30 21 13  
sales-ita@krausnaimer.com

### Japan

Kraus & Naimer Ltd.  
Yoshiwada Building 2F  
1-11-6 Hamamatsucho  
Minato-Ku, TOKYO 105-0013  
Tel: +81 3 3436-6151, Fax: 6325  
sales-jpn@krausnaimer.com

### Mexico

JC Ingeniería y Control, SA de CV.  
Ángel Gaviño 30,  
C. Satélite, C. Medicos,  
Naucalpan Edo. de Mexico, C.P. 53100  
Tel. (+52 55) 55 62 75 77, Fax. 55 62 04 34  
ventas@jcingeneriaycontrol.com

### Middle East - UAE

Branch Office, Kraus & Naimer Pte. Ltd.  
SAIF Zone, P. O. Box 121607,  
Sharjah, UAE  
Tel: +971 6 557 8886  
Fax: +971 6 557 8088  
uae@krausnaimer.com

### Netherlands

Kraus & Naimer B.V.  
Wegtersweg 38-40, Postbus 199  
NL-7556 BR HENGELO (Ov.)  
Tel: +31 74 291-9441, Fax: 8380  
sales.nl@krausnaimer.com

### New Zealand

Kraus & Naimer Ltd.  
42 Miramar Avenue, WELLINGTON 6022  
P. O. Box 15-009, WELLINGTON 6243  
Tel: +64 4 380-9888, Fax: 9877  
sales-nz@krausnaimer.com

### Norway

Kraus & Naimer AS  
Hjalmar Brantings vei 8, P. O. Box 21, Økern  
N-0508 OSLO  
Tel: +47 22 64 44 20, Fax: 65 39 49  
ordre.no@krausnaimer.com

### Poland

ASTAT sp. z o.o.  
ul. Dąbrowskiego 461  
PL-60451 POZNAN  
Tel: +48 61 848-8871/72, Fax: 8276  
info@astat.com.pl

### Portugal

ELECTRICOL-DAMAS, FERREIRA & DAMASCENO, LDA.  
Apartado 1063, S. Ant. Cavaleiros  
P-2670 LOURES  
Tel: +351 21 989-8939, Fax: 988-6464  
Im.emertex@electricol.pt

### Singapore

Kraus & Naimer Pte. Ltd.  
Blk 115A, Commonwealth Drive  
#03-17/23  
SINGAPORE 149 596  
Tel: +65 6473-8166, Fax: 8643  
sgp@krausnaimer.com

### Slovenia

SCHRACK Technik d.o.o.  
Pameče 175  
SI-2380 Slovenj Gradec  
Tel: +386 2 883 92 00, Fax: +386 2 884 34 71  
m.abeln@schrack.si

### Republic of South Africa

Kraus & Naimer Pty. Ltd.  
7 Village Crescent, Linbro Village  
Linbro Business Park, SANDTON 2065  
P. O. Box 511, KELVIN 2054  
Tel: +27 11 608-6060, Fax: 608-2874  
salesZAF@krausnaimer.com

### Spain

HAZEMEYER HES. S.L.  
Pol. Ind. Gaserans  
Sector 3, Parcela 7B  
17451 SANT FELIU DE BUIXALLEU (GIRONA)  
Tel: +34 972 87-4450, Fax: 87-4402  
hazemeyer@grupo-hes.net

### Sweden

Kraus & Naimer AB  
Dr. Widerströms Gata 11, FRUÅNGEN  
Box 42097, S-126 14 STOCKHOLM  
Tel: +46 8 97 00 80, Fax: 97 87 33  
order.se@krausnaimer.com

### Switzerland

AWAG Elektrotechnik AG  
Sandbühlstraße 2, Postfach  
CH-8604 VOLKETSCHWIL  
Tel: +41 44 908 19 19, Fax: 19 99  
info@awag.ch, www.awag.ch

### Turkey

KARDEŞ ELEKTRİK SANAYİ VE TİCARET ANONİM ŞİRKETİ  
Beşyol, Eski Londra Asfaltı-6  
TR-34295 İSTANBUL-Sefaköy  
Tel: +90 212 624-9204, Fax: 592-4810  
info@unalkardes.com.tr

### USA

Kraus & Naimer Inc.  
760 New Brunswick Road  
SOMERSET, NJ 08873  
Tel: +1 732 560-1240, Fax: 8823  
salesusa@krausnaimer.com



**Kraus & Naimer**

BLUE LINE switchgear



**YOUR SALES CONTACT**



**Kraus & Naimer** Produktion GmbH

A-1181 Wien · Schumannngasse 31-39 · PF 0046  
Telefon: +43 1 404 06 · Telefax: +43 1 404 06 255  
knw@krausnaimer.com · www.krausnaimer.com  
124765 d · UID-Nr. ATU 14707101