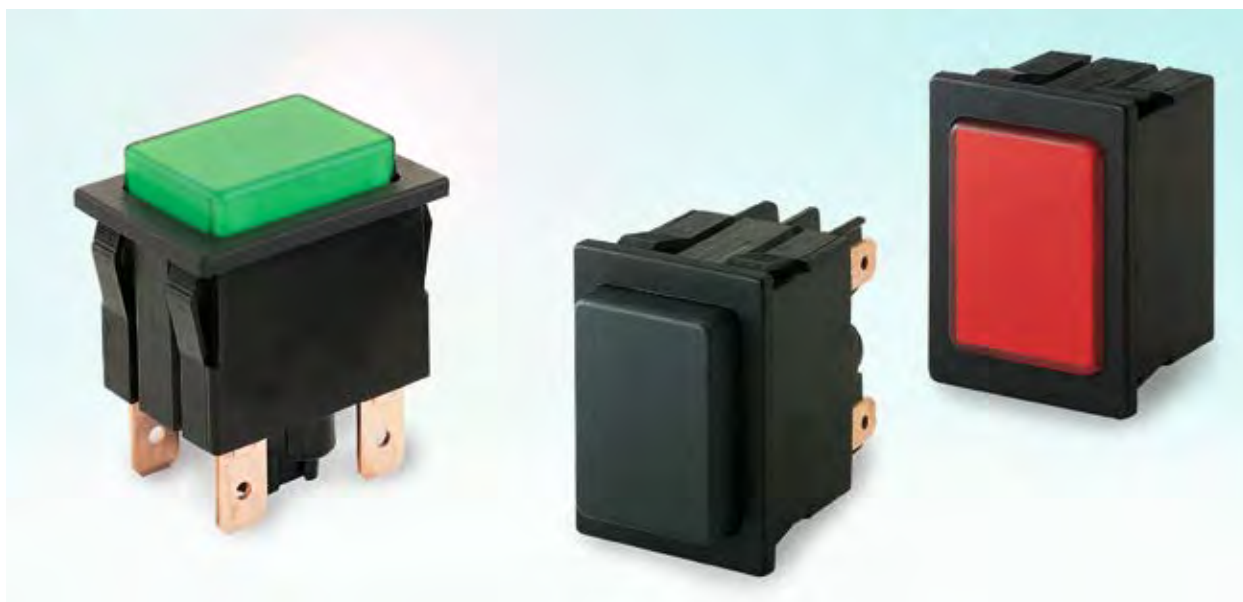


# ➔ SERIES 1660 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC



## PRODUCT FEATURES

- ➔ Illuminated and non-illuminated pushbutton switches
- ➔ Proven jump contact switching system (double interrupting)
- ➔ Opening and closing speed independent of the actuating speed
- ➔ Product-dependent with external lamp terminal

## ON REQUEST


- ➔ Other colors
- ➔ Other printing variants
- ➔ Other terminal types
- ➔ Other lamp variants
- ➔ Cable assembly


|   |   |
|---|---|
| <b>Mechanical life endurance</b>                      | 5E4   |
| <b>Contact resistance (new condition)</b>             | < 100 mOhm (1 A 12 V DC)  |
| <b>Insulation resistance (new condition)</b>          | > 100 MOhm (500 V DC)   |
| <b>Proof tracking</b>                                 | 250 PTI   |
| <b>Protection type</b>                                | IP 40   |
| <b>Ambient temperature</b>                            | terminal side -20 °C ... +85 °C<br>actuating side -20 °C ... +55 °C                     |
| <b>Flammability</b>                                   | UL 94 V-2   |
| <b>Glow wire test temperature</b>                     | 850 °C  |
| <b>Material</b>                                       | actuator<br>housing<br>terminals  |
|   | PC (product-dependent) / PA<br>PA / PA glass fiber-reinforced (product-dependent)<br>Cu |
| <b>Plug force of the terminals</b>                    | ≤ 80 N  |
| <b>Approval marks</b>                                 | UL / VDE / CE (product-dependent) / CCC   |
| <b>Suitable for appliances of protection class II</b> |   |



# SERIES 1660 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC

| <br>single-pole |     | Lighting voltage (V) | Actuator color / printing | Housing color | 16 (4) A 250 V AC 1E4 | 16 (4) A 250 V AC | 12 (4) A 250 V AC 1E4 | 12 A 250 V AC 1/2 HP | 12 A 125 V AC 1/6 HP | Terminal type | Terminal description | Contact distance (mm) | Contact material | Miscellaneous          | Stock version |
|--|-----|----------------------|---------------------------|---------------|-----------------------|-------------------|-----------------------|----------------------|----------------------|---------------|----------------------|-----------------------|------------------|------------------------|---------------|
| <b>ON / OFF switch (SPST)</b>  |     |                      |                           |               |                       |                   |                       |                      |                      |               |                      |                       |                  |                        |               |
| 1662.0201  |     |                      |                           |               | o                     |                   |                       |                      |                      |               | 6.3                  | ≥ 3                   | Ag               |                        |               |
| <b>Normally open contact (SPNO)</b>  |     |                      |                           |               |                       |                   |                       |                      |                      |               |                      |                       |                  |                        |               |
| 1665.3102  | 230 |                      |                           |               | o                     |                   |                       |                      |                      |               | 6.3 / 2 x 4.8        | ≥ 3                   | Ag               | external lamp terminal |               |
| 1662.0101  |     |                      |                           |               | o                     |                   |                       |                      |                      |               | 6.3                  | ≥ 3                   | Ag               |                        | o             |
| <b>Changeover switch (SPDT momentary)</b>  |     |                      |                           |               |                       |                   |                       |                      |                      |               |                      |                       |                  |                        |               |
| 1664.0101  |     |                      |                           |               |                       | o                 |                       |                      |                      |               | 4.8                  | < 3                   | Ag               |                        |               |






| <br>double-pole |     | Lighting voltage (V) | Actuator color / printing | Housing color | 16 (4) A 250 V AC 1E4 | 16 (4) A 250 V AC | 12 (4) A 250 V AC 1E4 | 12 A 250 V AC 1/2 HP | 12 A 125 V AC 1/6 HP | Terminal type | Terminal description | Contact distance (mm) | Contact material | Miscellaneous          | Stock version |
|--|-----|----------------------|---------------------------|---------------|-----------------------|-------------------|-----------------------|----------------------|----------------------|---------------|----------------------|-----------------------|------------------|------------------------|---------------|
| <b>ON / OFF switch (DPST)</b>  |     |                      |                           |               |                       |                   |                       |                      |                      |               |                      |                       |                  |                        |               |
| 1660.0201  | 230 |                      |                           |               | o                     |                   |                       |                      |                      |               | 6.3                  | ≥ 3                   | Ag               |                        | o             |
| 1660.0202  | 230 |                      |                           |               | o                     |                   |                       |                      |                      |               | 6.3                  | ≥ 3                   | Ag               |                        | o             |
| 1660.3202  | 230 |                      |                           |               | o                     |                   |                       |                      |                      |               | 6.3 / 2 x 4.8        | ≥ 3                   | Ag               | external lamp terminal |               |
| 1660.0222  | 110 |                      |                           |               |                       |                   |                       |                      | o                    |               | 6.3                  | ≥ 3                   | Ag               |                        |               |
| 1661.0220  |     |                      |                           |               |                       | o                 | o                     | o                    |                      |               | 6.3                  | ≥ 3                   | Ag               |                        |               |
| <b>Normally open contact (DPNO)</b>  |     |                      |                           |               |                       |                   |                       |                      |                      |               |                      |                       |                  |                        |               |
| 1661.0101  |     |                      |                           |               | o                     |                   |                       |                      |                      |               | 6.3                  | ≥ 3                   | Ag               |                        | o             |
| <b>Changeover switch (DPDT momentary)</b>  |     |                      |                           |               |                       |                   |                       |                      |                      |               |                      |                       |                  |                        |               |
| 1663.0101  |     |                      |                           |               |                       | o                 |                       |                      |                      |               | 4.8                  | < 3                   | Ag               |                        | o             |

ROTARY SWITCHES  
 PUSHBUTTON SWITCHES  
 TOGGLE SWITCHES  
 SLIDE SWITCHES  
 ROTARY SWITCHES  
 FOOT SWITCHES  
 TACT AND KEY SWITCHES  
 SNAP-ACTION SWITCHES  
 MICRO-SIGNAL SWITCHES  
 SENSORS  
 ECO  
 PUSH-IN DRIVE



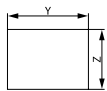
# SERIES 1660 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

TO 16 (4) A 250 V AC

|   |                      |   |               |                       |                   |                       |                      |                      |   |                      |                       |                  |               |               |
|---|----------------------|---|---------------|-----------------------|-------------------|-----------------------|----------------------|----------------------|---|----------------------|-----------------------|------------------|---------------|---------------|
| <br>Lamp | Lighting voltage (V) | Actuator color / printing   | Housing color | 16 (4) A 250 V AC 1E4 | 16 (4) A 250 V AC | 12 (4) A 250 V AC 1E4 | 12 A 250 V AC 1/2 HP | 12 A 125 V AC 1/6 HP | Terminal type   | Terminal description | Contact distance (mm) | Contact material | Miscellaneous | Stock version |
|   | Lamp                 |   |               |                       |                   |                       |                      |                      |   |                      |                       |                  |               |               |
| 1667.0101   | 230                  |  |               |                       |                   |                       |                      |                      |  | 6.3                  |                       |                  |               |               |
| 1667.0102   | 230                  |  |               |                       |                   |                       |                      |                      |  | 6.3                  |                       |                  |               |               |

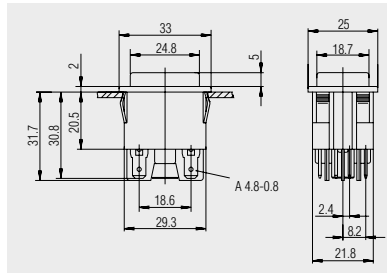



Basic types 1660, 1661 and 1663 double-pole illuminated / non-illuminated

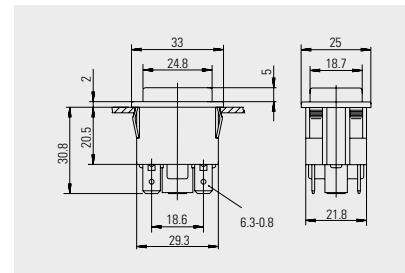



X = Wall thickness

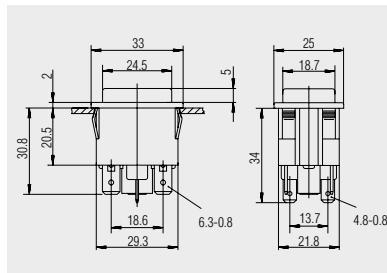
| x            | y                    | z                    |
|--------------|----------------------|----------------------|
| 0.75 ... 1.0 | 30 <sup>+0.1</sup>   | 22.2 <sup>+0.2</sup> |
| 1.0 ... 1.5  | 30.2 <sup>+0.1</sup> | 22.2 <sup>+0.2</sup> |
| 1.5 ... 3.0  | 30.4 <sup>+0.1</sup> | 22.2 <sup>+0.2</sup> |




 Quick-connect terminal 4.8 x 0.8



 Quick-connect terminal 6.3 x 0.8



 Quick-connect terminal 6.3 x 0.8 / 2 x 4.8 x 0.8 with external lamp terminal

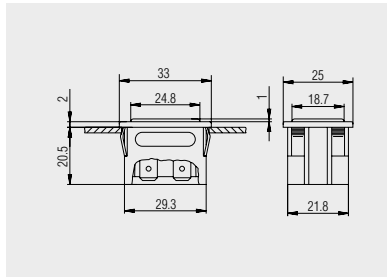


# SERIES 1660 - SINGLE AND DOUBLE-POLE PUSHBUTTON SWITCHES

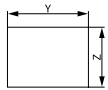
TO 16 (4) A 250 V AC



Basic type 1667 lamp



Quick-connect terminal 6.3 x 0.8

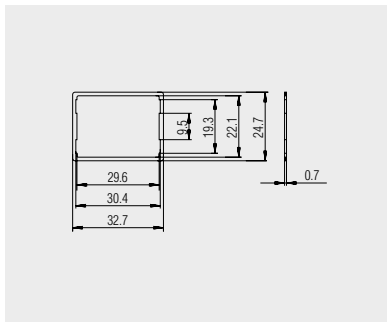


X = Wall thickness

| x            | y                    | z                    |
|--------------|----------------------|----------------------|
| 0.75 ... 1.0 | 30 <sup>+0.1</sup>   | 22.2 <sup>+0.2</sup> |
| 1.0 ... 1.5  | 30.2 <sup>+0.1</sup> | 22.2 <sup>+0.2</sup> |
| 1.5 ... 3.0  | 30.4 <sup>+0.1</sup> | 22.2 <sup>+0.2</sup> |



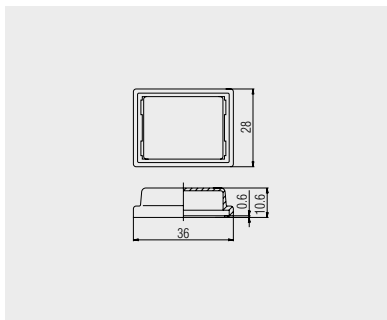
Gasket  
340.040.011



Gasket made of EPDM black for sealing between switch and appliance for increased dust and water protection



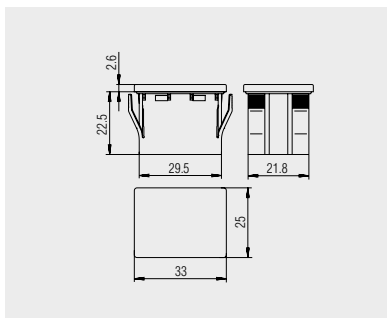
Protection cap  
203.201.011



Transparent PVC-protection cap for switches of the basic types 1660, 1662, 1663, 1664, 1665 and 1667. Serves as dust and water protection of the actuation side.



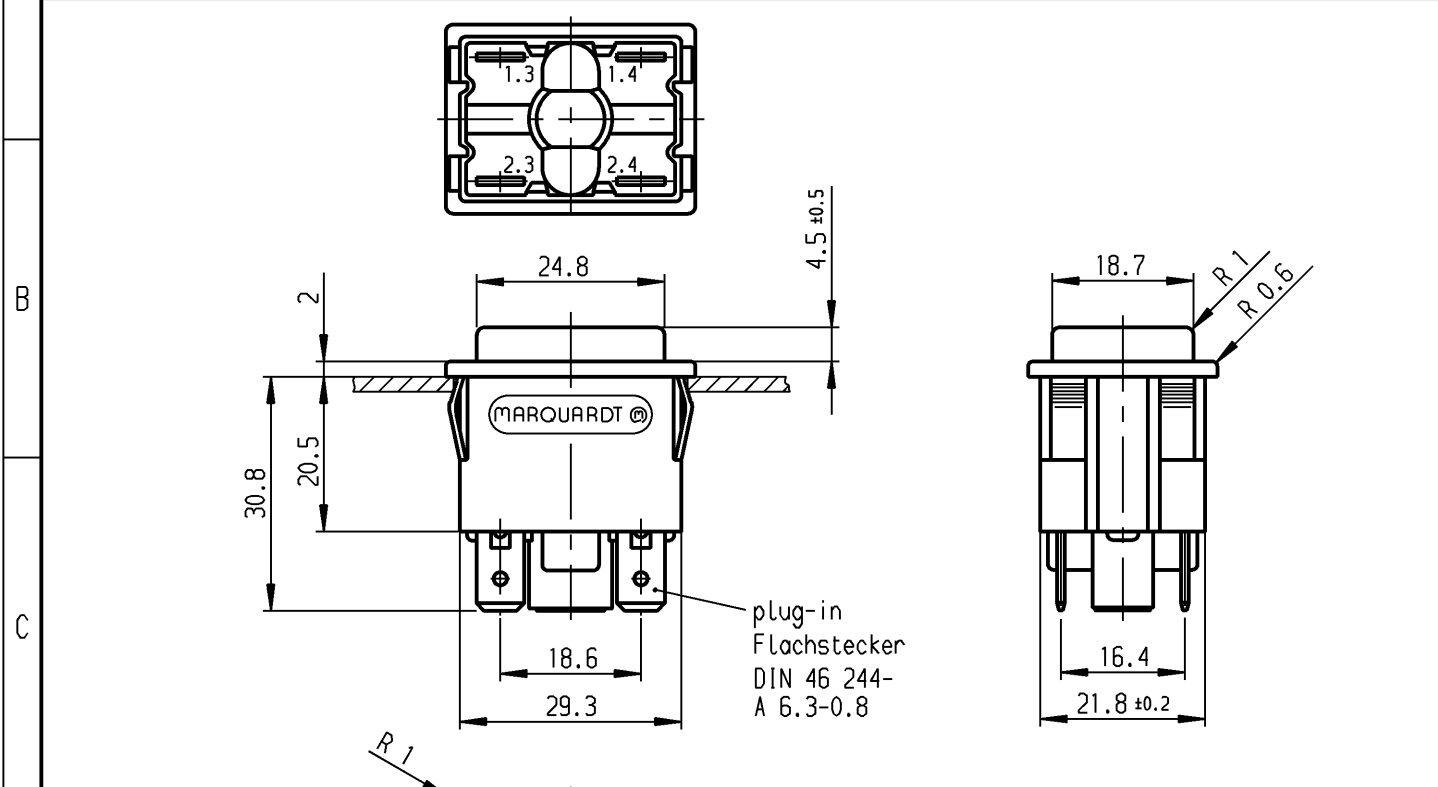
Dummy piece  
203.028.013



Dummy piece for size of basic type 1667 made of PA with housing and cover in black and with mounted gasket (340.040.011) for dust and water protection.

ROCKER SWITCHES  
PUSHBUTTON SWITCHES  
TOGGLE SWITCHES  
SLIDE SWITCHES  
ROTARY SWITCHES  
FOOT SWITCHES  
TACT AND KEY SWITCHES  
SMAP-ACTION SWITCHES  
MICRO-SIGNAL SWITCHES  
SENSORS  
ECO  
PUSH N' DRIVE

|   |                             |                                      |                                      |
|---|-----------------------------|--------------------------------------|--------------------------------------|
| 1   | 2                           | 3                                    | 4                                    |
| recommended cut-out for snap-in fixing<br>( edge opposite to snap-in direction )<br>Empfohlener Ausschnitt für Rastbefestigung<br>( Grat gegenüber Bestückungsseite ) | wall thickness<br>Wanddicke | length of cut-out<br>Ausschnittlänge | width of cut-out<br>Ausschnittbreite |
|   | 0.75 to / bis 1             | 30 +0.1                              | 22.2 +0.2                            |
|   | >1 to / bis 1.5             | 30.2 +0.1                            | 22.2 +0.2                            |
|   | >1.5 to / bis 3             | 30.4 +0.1                            | 22.2 +0.2                            |



**Marking Aufschrift**  
 MARQUARDT ©  
 1661.  
 16(4)/250~ T85/55

12 A 125-250 V AC  
 1/6 HP 125 V AC  
 1/2 HP 250 V AC  
 R 84

1.4 — 1.3  
 2.4 — 2.3

**DPST**  
**Ausschalter 2-polig**  
 total travel 4 ±0.4  
 Gesamtweg  
 suitable for appliances of class II  
 Für Geräte der Klasse II geeignet.

date code of manufacture:  
 year/week acc. to DIN EN 60062  
 Herstelljahr/-woche nach DIN EN 60062

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|   |  |  |  |   |  |                           |  |                           |  |                         |  |   |  |
|---|--|--|--|---|--|---------------------------|--|---------------------------|--|-------------------------|--|---|--|
| Für Form und Lage<br>FOR SHAPE AND LOC. |  | Allgemeintoleranzen<br>UNTOLERANCED DIMENSIONS |  | Pause<br>COPY                                 |  | Blatt<br>SHEET            |  | Typ                       |  | Zeichn./DRAWING NO.     |  | Index                                     |  |
| Für Winkel<br>FOR ANGLE ± 2°            |  | PROJECTION                                     |  | Abmasse und Nennmassbereiche<br>Angaben in mm |  | Original<br>DIN           |  | Maßstab<br>SCALE          |  | K                       |  | 1661.0220                                 |  |
| 1:1                                     |  | ALL DIMENSIONS ARE IN MILLIMETRES              |  | Laengen<br>LENGTH                             |  | A4                        |  | 1:1                       |  | Appliance Switch        |  | Geräteschalter                            |  |
| c 26325 30.09.98 bb                     |  | g  |  | Radien<br>RADII                               |  | 0 10 20 30 mm             |  | CAD Medusa                |  | Z                       |  | MARQUARDT                                 |  |
| b 18557 12.04.88 pa                     |  | f  |  | >0-6 ± 0.2                                    |  | gez./DRAWN BY 30.09.98 bb |  | Ersatz für/REPLACEMENT OF |  | Zchnng.gL.Nr.v.12.12.84 |  | Marquardt GmbH, D-78604 Rietheim-Weilheim |  |
| a                                       |  | e 32547 23.05.02 sig                           |  | >6-15 ± 0.4                                   |  | gepr./CHECKED BY          |  |                           |  |                         |  |   |  |
| Ausg. ISSUE                             |  | Änderung REVISION                              |  | gez. DRAWN BY                                 |  | Ausg. ISSUE               |  | Änderung REVISION         |  | gez. DRAWN BY           |  |   |  |
|   |  | d 28075 12.10.99 mut                           |  | >15-30 ± 0.4                                  |  |                           |  |                           |  |                         |  |   |  |
|   |  |  |  | >30-70 ± 0.6                                  |  |                           |  |                           |  |                         |  |   |  |
|   |  |  |  | >70-120 ±                                     |  |                           |  |                           |  |                         |  |   |  |
|   |  |  |  | >120-200 ±                                    |  |                           |  |                           |  |                         |  |   |  |