



Kraus & Naimer
BLUE LINE switchgear

MAINTENANCE SWITCHES FOR EMC-COMPLIANT CONNECTION





Maintenance Switches for

EMC-compliant connection

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors

Content

Please choose the suitable Maintenance Switch due to the power data of your projected drive from the table below.

< Click the page number to get there. >

| Nominal Rating: | | 3 pole Page | 6 pole Page |
|------------------------------|----------------------------------|-------------|-------------|
| Thermal Current I_{the} | Motor Rating AC-23B/A, 3x400V | | |
| 20 A | 5,5 kW | 3 | - |
| 25 A | 7,5 kW | 4 | 10 |
| 32 A | 11 kW | 4 | 10 |
| 40 A | 15 kW | 5 | 11 |
| 63 A | 22 kW | 5 | 11 |
| 80 A | 30 kW | 6 | 12 |
| 100 A | 37 kW | 6 | 12 |
| 125 A | 45 kW | 7 | 13 |
| 160 A | 55 kW | 7 | 13 |
| 200 A | 75 kW | - | 14 |
| 250 A | 90 kW | 8 | - |
| 275 A | 132 kW | - | 14 |
| 315 A | 110 kW | 8 | - |
| 315 A | 132 kW | 9 | - |
| UPGRADE KIT | | 15 | |
| Sales Contact | | 16 | |

Note:

Maintenance Switches for EMC-compliant connection of FU-regulated drives are available either with shield clips (KS- and KL-enclosure) or with clips mounted on DIN-rails (STM-enclosure). These clips are used to continue the cable shield circuit through the enclosure.

The configuration of the Maintenance Switch between FU and motor allows the use as Disconnector up to 400 Hz and as Load Switch at frequencies from 40 Hz to 100 Hz.

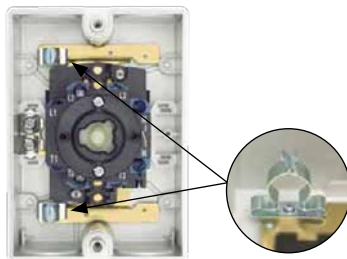
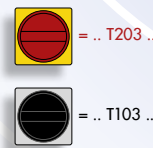
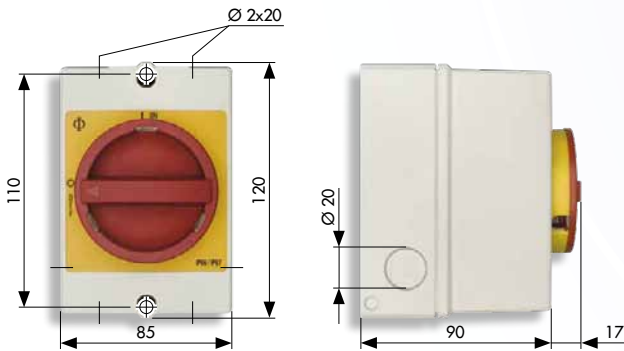
Each Maintenance Switch has as standard 2 auxiliary contacts, 1 NC and 1 NO. Via the NO (20 ms leading) the FU can be switched off before the main contacts of the switch open.

For the rating of the switch please note that the motor may have approx. 10 % higher charging rate due to the higher loss in FU-operation e.g. a motor with 7,5 kW rating the motor current has to be determined with 16,7 A instead of 15,2 A.



Maintenance Switches for
EMC-compliant connection

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|----------------|---|--------|
| PE | L1 L2 L3 13 21 | KG10 | 0,8 Nm |
| PE | T1 T2 T3 14 22 | | |
| External-Ø shield | | Insulation stripping length | |
| 9—11 | | | |

Contact development: 3 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, knock-outs
Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure
With shield clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

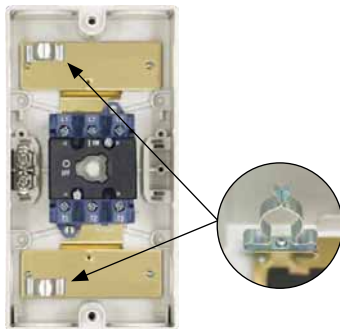
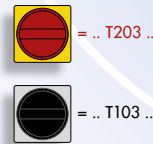
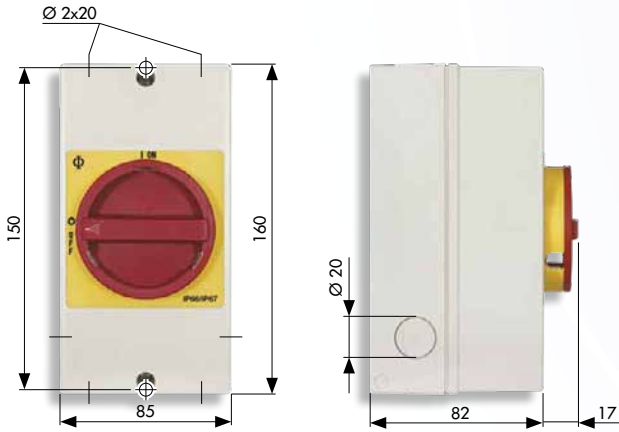
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|------------------------|
| 20 A | 5,5 kW | 120 A | | KG10 T203/D-A076 KS51V |
| | | | | KG10 T103/D-A050 KS51V |

∨ Back to the table of contents ∨



Maintenance Switches for **EMC-compliant connection**

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|----------|---|---------|
| PE | L1 L2 L3 | KG20 | 1,25 Nm |
| PE | T1 T2 T3 | KG32 | 1,25 Nm |
| | L3 13 21 | | |
| | 14 22 | | |
| External-Ø shield | | Insulation stripping length | |
| 12—16 | | | |

Contact development: 3 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
 Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, knock-outs
 Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure
 With shield clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

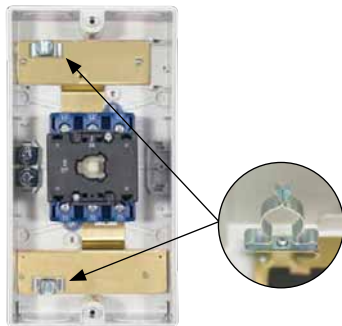
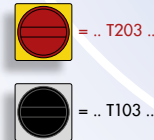
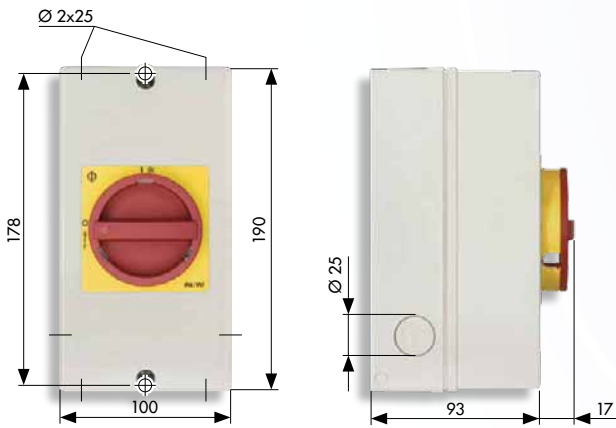
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|------------------------|
| 25 A | 7,5 kW | 180 A | | KG20 T203/D-A159 KL51V |
| | | | | KG20 T103/D-A126 KL51V |
| 32 A | 11 kW | 220 A | | KG32 T203/D-A117 KL51V |
| | | | | KG32 T103/D-A061 KL51V |

[Back to the table of contents](#)



Maintenance Switches for **EMC-compliant connection**

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|----------------|---|---------|
| PE | L1 L2 L3 13 21 | KG41 | 1,80 Nm |
| PE | T1 T2 T3 14 22 | KG64 | 1,80 Nm |
| External-Ø shield | | Insulation stripping length | |
| 12—16 | | | |

Contact development: 3 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, knock-outs
Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure
With shield clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

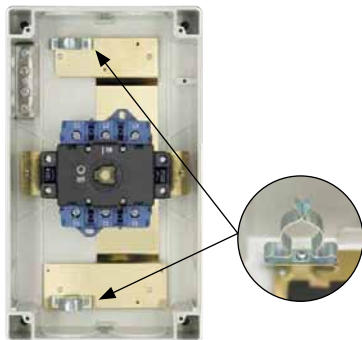
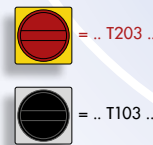
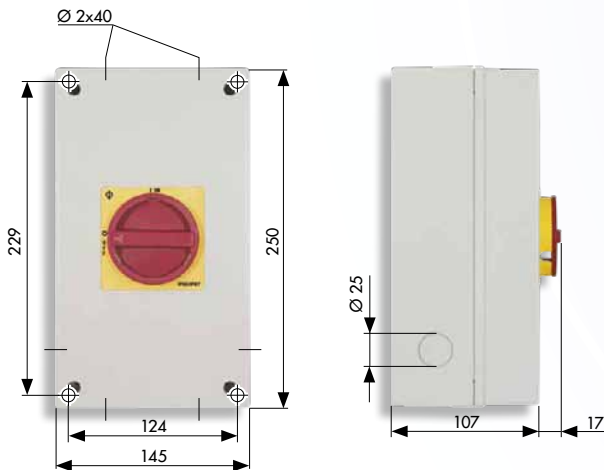
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|------------------------|
| 40 A | 15 kW | 300 A | | KG41 T203/D-A145 KL11V |
| | | | | KG41 T103/D-A087 KL11V |
| 63 A | 22 kW | 350 A | | KG64 T203/D-A173 KL11V |
| | | | | KG64 T103/D-A103 KL11V |

Back to the table of contents >



Maintenance Switches for **EMC-compliant connection**

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|----------------|---|---------|
| PE | L1 L2 L3 13 21 | KG80 | 3,00 Nm |
| PE | T1 T2 T3 14 22 | KG100 | 3,00 Nm |
| External-Ø shield | | Insulation stripping length | |
| 23—29 | | | |

Contact development: 3 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
 Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, knock-outs
 Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure
 With shield clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

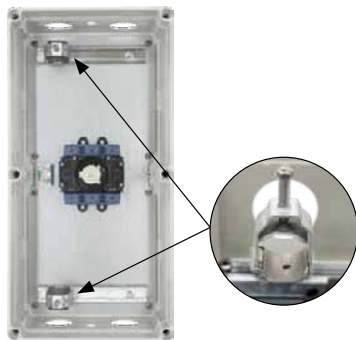
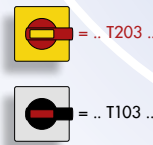
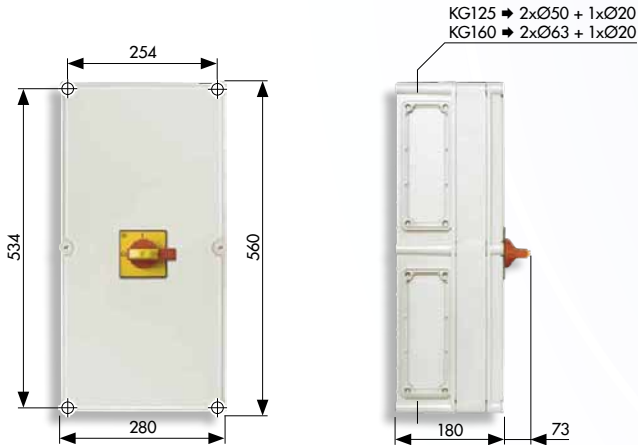
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|-------------------------|
| 80 A | 30 kW | 560 A | | KG80 T203/D-A108 KL71V |
| | | | | KG80 T103/D-A061 KL71V |
| 100 A | 37 kW | 650 A | | KG100 T203/D-A120 KL71V |
| | | | | KG100 T103/D-A068 KL71V |

Back to the table of contents >



Maintenance Switches for **EMC-compliant connection**

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|----------------|---|-------|
| PE | L1 L2 L3 13 21 | KG125 | 14 Nm |
| PE | T1 T2 T3 14 22 | KG160 | 14 Nm |
| External-Ø shield | | Insulation stripping length | |
| 34—40 | | | |

Contact development: 3 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
 Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure with on DIN-rails mounted clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

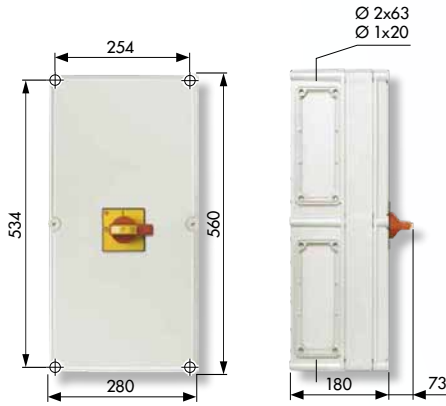
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|-----------------------|
| 125 A | 45 kW | 750 A | | KG125 T203/D-A082 STM |
| | | | | KG125 T103/D-A070 STM |
| 160 A | 55 kW | 850 A | | KG160 T203/D-A077 STM |
| | | | | KG160 T103/D-A066 STM |

Back to the table of contents ^

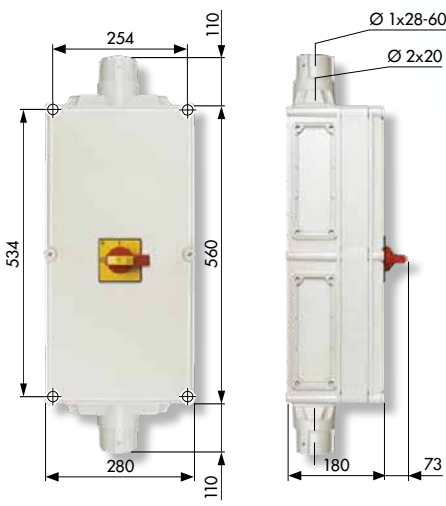
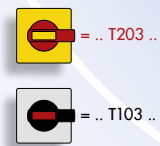


Maintenance Switches for
EMC-compliant connection

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



KG250



KG315

| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|----------------|---|----------------|
| PE | L1 L2 L3 13 21 | KG250 KG315 | 16 Nm 16 Nm |
| PE | T1 T2 T3 14 22 | | |
| External-Ø shield | | Insulation stripping length | |
| KG250 | 34—40 | | |
| KG315 | 46—52 | | |

Back to the table of contents ^

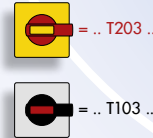
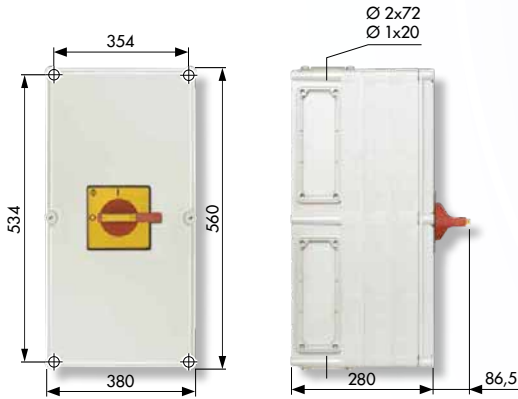
Contact development: 3 pole with auxiliary contacts 1NC/1NO (leading off)

| General Data | | | | |
|--|--|------------------------------|---------------------------|------------------------------|
| Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107 | | | | |
| Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C | | | | |
| Equipment | | | | |
| Plastic enclosure, protection IP 66/67, Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure with on DIN-rails mounted clips for use to continue the cable shield circuit through the enclosure | | | | |
| Rated Data / Order Number | | | | |
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
| 250 A | 90 kW | 1380 A | | <i>KG250 T203/D-A075 STM</i> |
| | | | | <i>KG250 T103/D-A073 STM</i> |
| 315 A | 110 kW | 1650 A | | <i>KG315 T203/D-A034 STM</i> |
| | | | | <i>KG315 T103/D-A043 STM</i> |



Maintenance Switches for **EMC-compliant connection**



Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | Recommended tightening torque for terminal screws |
|--|---|
| <pre> PE L1 L2 L3 103 101 PE T1 T2 T3 104 102 </pre> | C316 14 Nm |
| External-Ø shield | Connecting bolts |
| C316 46—52 | M12 |

Back to the table of contents

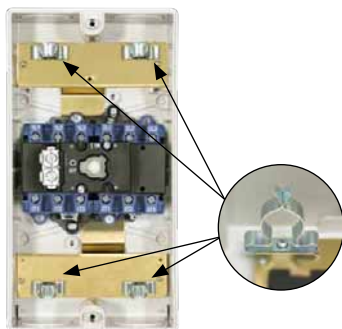
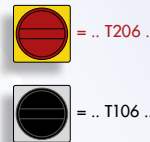
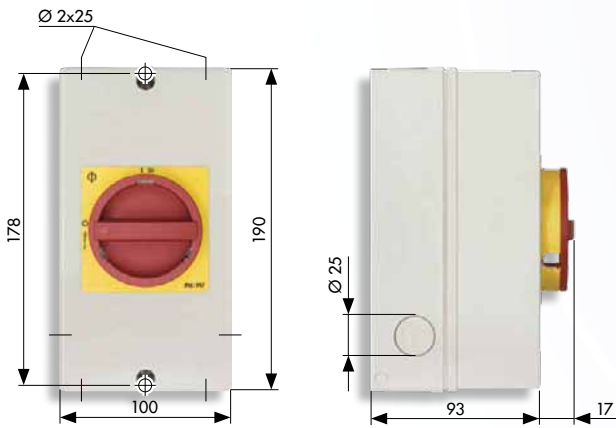
Contact development: 3 pole with auxiliary contacts 1NC/1NO (leading off)

| General Data | | | | |
|--|--|------------------------------|--|--|
| Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107 | | | | |
| Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C | | | | |
| Equipment | | | | |
| Plastic enclosure, protection IP 66/67, Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure with on DIN-rails mounted clips for use to continue the cable shield circuit through the enclosure | | | | |
| Rated Data / Order Number | | | | |
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
| 315 A | 132 kW | 2000 A |   | C316 T203/D-A037 STM C316 T103/D-A025 STM |



Maintenance Switches for **EMC-compliant connection**

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|-------------------------------|---|---------|
| PE | 1L1 1L2 1L3 2L1 2L2 2L3 13 21 | KG20B | 1,25 Nm |
| PE | 1T1 1T2 1T3 2T1 2T2 2T3 14 22 | KG32B | 1,25 Nm |
| External-Ø shield | | Insulation stripping length | |
| 12—16 | | | |

Contact development: 6 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
 Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, knock-outs
 Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure
 With shield clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

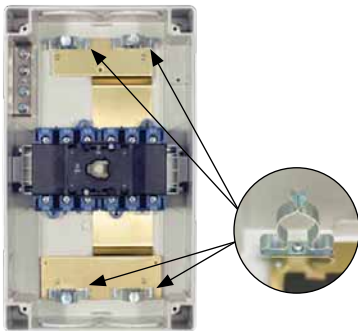
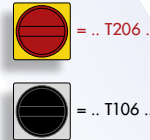
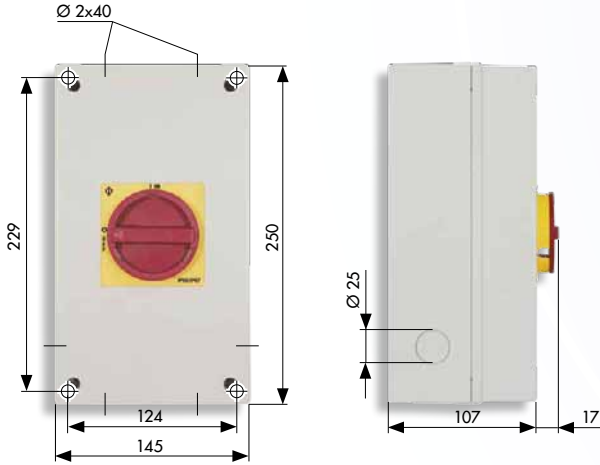
| Thermal Current I _{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|-------------------------------------|--|------------------------------|---------------------------|-------------------------|
| 25 A | 7,5 kW | 180 A | | KG20B T206/D-A059 KL11V |
| | | | | KG20B T106/D-A046 KL11V |
| 32 A | 11 kW | 220 A | | KG32B T206/D-A054 KL11V |
| | | | | KG32B T106/D-A040 KL11V |

[Back to the table of contents](#)



Maintenance Switches for **EMC-compliant connection**

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|-------------------------------|---|---------|
| PE | 1L1 1L2 1L3 2L1 2L2 2L3 13 21 | KG41B | 1,80 Nm |
| PE | 1T1 1T2 1T3 2T1 2T2 2T3 14 22 | KG64B | 1,80 Nm |
| External-Ø shield | | Insulation stripping length | |
| 23—29 | | | |

Contact development: 6 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
 Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, knock-outs
 Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure
 With shield clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

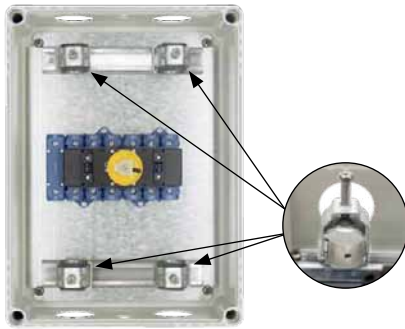
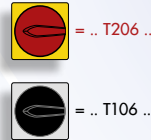
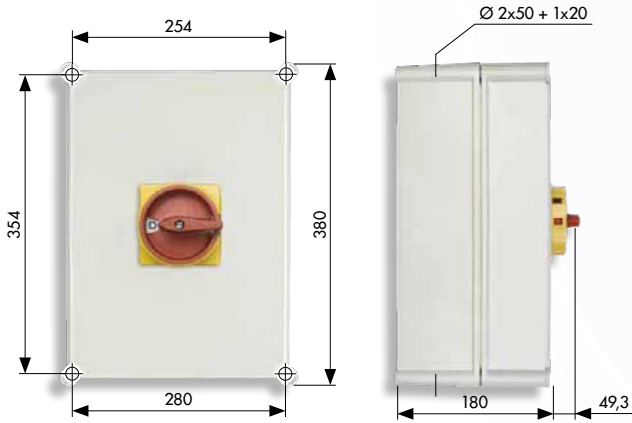
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|-------------------------|
| 40 A | 15 kW | 300 A | | KG41B T206/D-A052 KL71V |
| | | | | KG41B T106/D-A032 KL71V |
| 63 A | 22 kW | 350 A | | KG64B T206/D-A066 KL71V |
| | | | | KG64B T106/D-A038 KL71V |

[Back to the table of contents](#)



Maintenance Switches for **EMC-compliant connection**

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|-------------------------------|---|------|
| PE | 1L1 1L2 1L3 2L1 2L2 2L3 13 21 | KG80C | 3 Nm |
| PE | 1T1 1T2 1T3 2T1 2T2 2T3 14 22 | KG100C | 3 Nm |
| External-Ø shield | | Insulation stripping length | |
| 28—34 | | | |

Contact development: 6 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
 Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure with on DIN-rails mounted clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

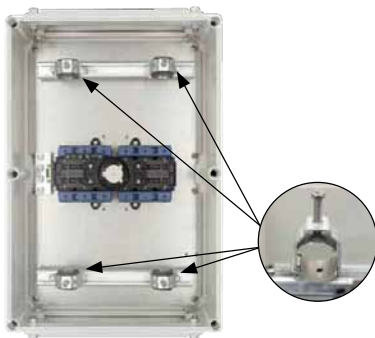
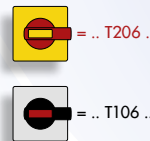
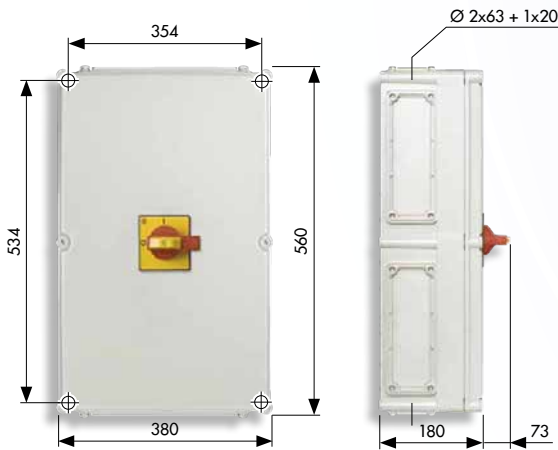
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|------------------------|
| 80 A | 30 kW | 560 A | | KG80C T206/D-A070 STM |
| | | | | KG80C T106/D-A055 STM |
| 100 A | 37 kW | 650 A | | KG100C T206/D-A060 STM |
| | | | | KG100C T106/D-A049 STM |

Back to the table of contents ^



Maintenance Switches for **EMC-compliant connection**

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|-------------------------------|---|-------|
| PE | 1L1 1L2 1L3 2L1 2L2 2L3 13 21 | KG125 | 14 Nm |
| PE | 1T1 1T2 1T3 2T1 2T2 2T3 14 22 | KG160 | 14 Nm |
| External-Ø shield | | Insulation stripping length | |
| 34—40 | | | |

Contact development: 6 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
 Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure with on DIN-rails mounted clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

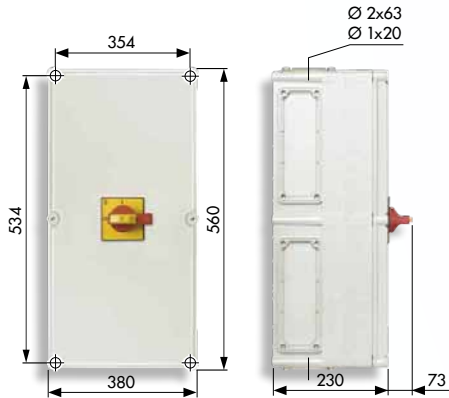
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|-----------------------|
| 125 A | 45 kW | 750 A | | KG125 T206/D-A020 STM |
| | | | | KG125 T106/D-A031 STM |
| 160 A | 55 kW | 850 A | | KG160 T206/D-A040 STM |
| | | | | KG160 T106/D-A024 STM |

Back to the table of contents >

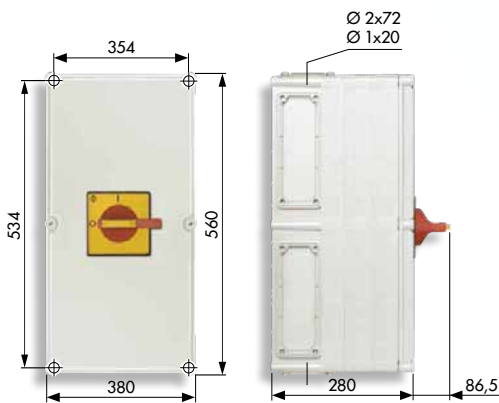
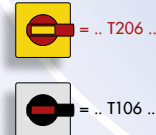


Maintenance Switches for EMC-compliant connection

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors



C200-4



C316



| Connection diagram | | Recommended tightening torque for terminal screws | |
|--------------------|----------------|---|---------------|
| | | C200-4 C316 | 8 Nm 14 Nm |
| External-Ø shield | | Connecting bolts | |
| C200-4 C316 | 34—40 46—52 | C200-4 C316 | M8 M12 |

Back to the table of contents ^

Contact development: 6 pole with auxiliary contacts 1NC/1NO (leading off)

General Data

Switch Disconnectors according to EN 60947-3 and VDE 0660 part 107
Ambient temperature (enclosed): 35 °C during 24 hours with peaks up to 40 °C

Equipment

Plastic enclosure, protection IP 66/67, Handle in the OFF-position lockable with padlocks, special safety interlocked covers with enclosure with on DIN-rails mounted clips for use to continue the cable shield circuit through the enclosure

Rated Data / Order Number

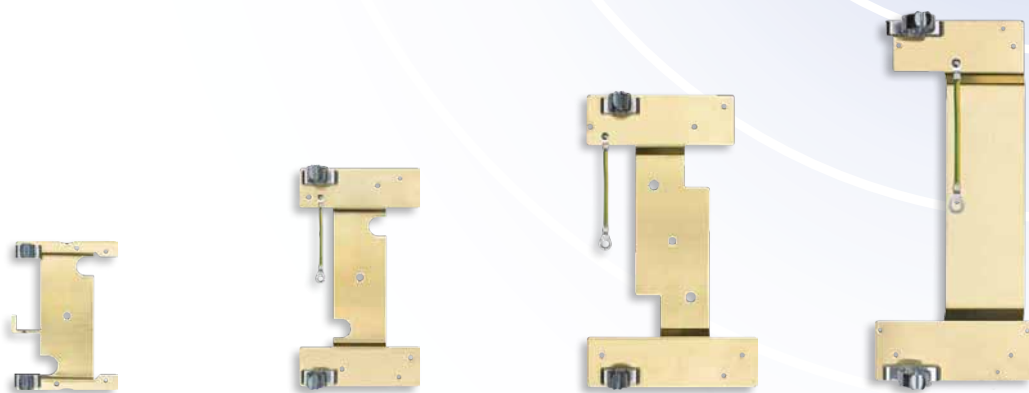
| Thermal Current I_{the} | Utilization Category AC-23 B/A, 3x400 V | Breaking Capacity 3x400 V | Color Handle / Backing | Order Number |
|------------------------------|--|------------------------------|---------------------------|------------------------|
| 200 A | 75 kW | 1300 A | | C200-4 T206/D-A001 STM |
| | | | | C200-4 T106/D-A001 STM |
| 275 A | 132 kW | 2000 A | | C316 T206/D-A050 STM |
| | | | | C316 T106/D-A033 STM |



Maintenance Switches for
EMC-compliant connection

Maintenance Switches and Safety Switches according to IEC 60204 and VDE 0113 for EMC-compliant connection of frequency regulated motors

Shield wheeling kits



Standard KS- KL-Enclosure

| | | | | |
|----------------------|--------------------|--------------------|--------------------|--------------------|
| Dimensions enclosure | 85 x 120 | 85 x 160 | 100 x 190 | 145 x 250 |
| External-Ø shield | 9—11 | 12—16 | 12—16 | 23—29 |
| Order Number | <i>S0E T400 MA</i> | <i>K0B T400 MA</i> | <i>K1B T400 MA</i> | <i>K2B T400 MA</i> |

Shielding clamp suitable for double side connecting. Scope of delivery: panel sheet, 2 shielding clamps, mounting screws

Shield wheeling kit available for 3 pole switches up to KG100.... And 6 pole switches up to KG64. All relevant catalogue listed repair switches can be upgraded with shield wheeling kits. The switch body has to be demounted first before mounting the shield wheeling.

Shielding clamp (separate)



| | | | |
|-------------------|--------------------|--------------------|--------------------|
| External-Ø shield | 9—11 | 12—16 | 23—29 |
| Order Number | <i>K1B T400 KB</i> | <i>K1B T400 KC</i> | <i>K1B T400 KE</i> |

∨ Back to the table of contents ^



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