



Sample image

## Datasheet

**Article number:** 70012318  
**Designation:** CG4.A291.FS2-V  
**Description:** Schalter  
**Contact development:** A291  
**Face plate engraving:** F056  
**Type of mounting:** FS2-V

|  |
|--|
| Type Size: S00                               |
| Classification Contact: Rigid contact bridge |
| Classification Contact Mat: Silver           |
| Classification Terminal: Screw terminal      |

| IEC 60947-3 EN 60947-3, VDE 0660 Teil 107                         |                          |                           |   |                     |                           |               |
|---|--------------------------|---------------------------|---|---------------------|---------------------------|---------------|
| <b>Rated insulation voltage <math>U_i</math></b>                  |                          |                           |   |                     |                           |               |
|   |                          |                           | Voltage (V) AC / DC   |                     |                           |               |
|   |                          |                           | 440 AC / DC   |                     |                           |               |
| <b>Rated impulse withstand voltage <math>U_{imp}</math></b>       |                          |                           |   |                     |                           |               |
| Voltage (kV)  | Overvoltage category     | Pollution degree          | Supply system   |                     | Function                  |               |
| 4   | III                      | 3                         | Valid for lines with grounded common neutral termination            |                     | switch                    |               |
| <b>Rated uninterrupted current <math>I_u</math>/Ith</b>           |                          |                           |   |                     |                           |               |
| Current (A)   | Ambient temperature (°C) |                           | Peak temperature (°C) additional requirements                       |                     |                           |               |
| 10  | 55                       |                           | 60 Ambient temperature +55°C during 24 hours with peaks up to +60°C |                     |                           |               |
| <b>Conventional enclosed thermal current <math>I_{the}</math></b> |                          |                           |   |                     |                           |               |
| Current (A)   | Ambient temperature (°C) | Peak temperature (°C)     | Additional requirements   |                     | No. of stages (from - to) | Mounting size |
| 10  | 35                       | 40                        | Ambient temperature +35°C during 24 hours with peaks up to +40°C    |                     | --                        | --            |
| <b>Rated operational current <math>I_e</math></b>                 |                          |                           |   |                     |                           |               |
| Utilization category  |                          |                           | Voltage (V)   |                     | Current (A)               |               |
| AC-15   |                          |                           | 110 - 110   |                     | 2,50                      |               |
| AC-15   |                          |                           | 220 - 240   |                     | 2,50                      |               |
| AC-15   |                          |                           | 380 - 440   |                     | 1,50                      |               |
| AC-20A  |                          |                           | 440   |                     | 10                        |               |
| AC-21A  |                          |                           | 440   |                     | 10                        |               |
| AC-22A  |                          |                           | 220 - 440   |                     | 10                        |               |
| <b>Rated operational power</b>                                    |                          |                           |   |                     |                           |               |
| Utilization category  |                          | Voltage (V)               | No. of phases   | No. of poles        | Power (kW)                |               |
| AC-6b   |                          | 380 - 400                 | 3   | 3                   | --                        |               |
| AC-6b   |                          | 220 - 230                 | 1   | 2                   | --                        |               |
| AC-2  |                          | 220 - 240                 | 3   | 3                   | 2,50                      |               |
| AC-2  |                          | 380 - 440                 | 3   | 3                   | 4,50                      |               |
| AC-3  |                          | 220 - 240                 | 3   | 3                   | 1,50                      |               |
| AC-3  |                          | 380 - 440                 | 3   | 3                   | 2,20                      |               |
| AC-3  |                          | 110 - 120                 | 1   | 2                   | 0,30                      |               |
| AC-3  |                          | 220 - 240                 | 1   | 2                   | 0,55                      |               |
| AC-3  |                          | 380 - 440                 | 1   | 2                   | 0,75                      |               |
| AC-4  |                          | 220 - 240                 | 3   | 3                   | 0,37                      |               |
| AC-4  |                          | 380 - 440                 | 3   | 3                   | 0,55                      |               |
| AC-4  |                          | 110 - 120                 | 1   | 2                   | 0,15                      |               |
| AC-4  |                          | 220 - 240                 | 1   | 2                   | 0,25                      |               |
| AC-4  |                          | 380 - 440                 | 1   | 2                   | 0,50                      |               |
| AC-23A  |                          | 220 - 240                 | 3   | 3                   | 1,80                      |               |
| AC-23A  |                          | 380 - 440                 | 3   | 3                   | 3                         |               |
| AC-23A  |                          | 110 - 120                 | 1   | 2                   | 0,37                      |               |
| AC-23A  |                          | 220 - 240                 | 1   | 2                   | 0,75                      |               |
| AC-23A  |                          | 380 - 440                 | 1   | 2                   | 1,10                      |               |
| <b>Max Fuse Rating IEC</b>  |                          |                           |   |                     |                           |               |
| Fuse characteristic   |                          |                           | No. of Fuses  |                     | Current (A)               |               |
| gG  |                          |                           | 1   |                     | 10                        |               |
| <b>Tested AC and DC values</b>                                    |                          |                           |   |                     |                           |               |
| Utilization category / Time constant                              |                          | No. of contacts in series | Off or change-over switch   | Voltage (V) AC / DC |                           | Current (A)   |
| DC-13   |                          | 1                         | ON - OFF  | 24 DC               |                           | 0,80          |
| DC-13   |                          | 1                         | ON - OFF  | 48 DC               |                           | 0,50          |
| DC-13   |                          | 1                         | ON - OFF  | 60 DC               |                           | 0,20          |
| DC-13   |                          | 2                         | ON - OFF  | 48 DC               |                           | 0,80          |

| Tested AC and DC values              |                           |                           |             |         |             |
|--------------------------------------|---------------------------|---------------------------|-------------|---------|-------------|
| Utilization category / Time constant | No. of contacts in series | Off or change-over switch | Voltage (V) | AC / DC | Current (A) |
| DC-13                                | 2                         | ON - OFF                  | 96          | DC      | 0,50        |
| DC-13                                | 2                         | ON - OFF                  | 120         | DC      | 0,20        |
| DC-13                                | 3                         | ON - OFF                  | 110         | DC      | 1           |
| DC-21A                               | 1                         | ON - OFF                  | 24          | DC      | 10          |
| DC-21A                               | 1                         | ON - OFF                  | 48          | DC      | 6           |
| DC-21A                               | 1                         | ON - OFF                  | 60          | DC      | 5           |
| DC-21A                               | 1                         | ON - OFF                  | 110         | DC      | 4           |
| DC-21A                               | 1                         | ON - OFF                  | 220         | DC      | 0,80        |
| DC-21A                               | 2                         | ON - OFF                  | 48          | DC      | 10          |
| DC-21A                               | 2                         | ON - OFF                  | 96          | DC      | 6           |
| DC-21A                               | 2                         | ON - OFF                  | 120         | DC      | 5           |
| DC-21A                               | 2                         | ON - OFF                  | 220         | DC      | 4           |
| DC-21A                               | 2                         | ON - OFF                  | 440         | DC      | 0,80        |
| DC-21A                               | 3                         | ON - OFF                  | 72          | DC      | 10          |
| DC-21A                               | 3                         | ON - OFF                  | 144         | DC      | 6           |
| DC-21A                               | 3                         | ON - OFF                  | 180         | DC      | 5           |
| DC-21A                               | 3                         | ON - OFF                  | 330         | DC      | 4           |
| DC-21A                               | 3                         | ON - OFF                  | 660         | DC      | 0,80        |
| DC-21A                               | 4                         | ON - OFF                  | 96          | DC      | 10          |
| DC-21A                               | 4                         | ON - OFF                  | 192         | DC      | 6           |
| DC-21A                               | 4                         | ON - OFF                  | 240         | DC      | 5           |
| DC-21A                               | 4                         | ON - OFF                  | 440         | DC      | 4           |
| DC-21A                               | 5                         | ON - OFF                  | 120         | DC      | 10          |
| DC-21A                               | 5                         | ON - OFF                  | 240         | DC      | 6           |
| DC-21A                               | 5                         | ON - OFF                  | 300         | DC      | 5           |
| DC-21A                               | 5                         | ON - OFF                  | 550         | DC      | 4           |
| DC-21A                               | 6                         | ON - OFF                  | 144         | DC      | 10          |
| DC-21A                               | 6                         | ON - OFF                  | 288         | DC      | 6           |
| DC-21A                               | 6                         | ON - OFF                  | 360         | DC      | 5           |
| DC-21A                               | 6                         | ON - OFF                  | 660         | DC      | 4           |
| DC-21A                               | 8                         | ON - OFF                  | 192         | DC      | 10          |
| DC-21A                               | 8                         | ON - OFF                  | 384         | DC      | 6           |
| DC-21A                               | 8                         | ON - OFF                  | 480         | DC      | 5           |
| DC-22A                               | 1                         | ON - OFF                  | 24          | DC      | 8           |
| DC-22A                               | 1                         | ON - OFF                  | 48          | DC      | 5           |
| DC-22A                               | 1                         | ON - OFF                  | 60          | DC      | 4           |
| DC-22A                               | 1                         | ON - OFF                  | 110         | DC      | 1,50        |
| DC-22A                               | 1                         | ON - OFF                  | 220         | DC      | 0,30        |
| DC-22A                               | 2                         | ON - OFF                  | 48          | DC      | 8           |
| DC-22A                               | 2                         | ON - OFF                  | 96          | DC      | 5           |
| DC-22A                               | 2                         | ON - OFF                  | 120         | DC      | 4           |
| DC-22A                               | 2                         | ON - OFF                  | 220         | DC      | 1,50        |
| DC-22A                               | 2                         | ON - OFF                  | 440         | DC      | 0,30        |
| DC-22A                               | 3                         | ON - OFF                  | 72          | DC      | 8           |
| DC-22A                               | 3                         | ON - OFF                  | 144         | DC      | 5           |
| DC-22A                               | 3                         | ON - OFF                  | 180         | DC      | 4           |
| DC-22A                               | 3                         | ON - OFF                  | 330         | DC      | 1,50        |
| DC-22A                               | 3                         | ON - OFF                  | 660         | DC      | 0,30        |
| DC-22A                               | 4                         | ON - OFF                  | 96          | DC      | 8           |
| DC-22A                               | 4                         | ON - OFF                  | 192         | DC      | 5           |
| DC-22A                               | 4                         | ON - OFF                  | 240         | DC      | 4           |
| DC-22A                               | 4                         | ON - OFF                  | 440         | DC      | 1,50        |
| DC-22A                               | 5                         | ON - OFF                  | 120         | DC      | 8           |
| DC-22A                               | 5                         | ON - OFF                  | 240         | DC      | 5           |
| DC-22A                               | 5                         | ON - OFF                  | 300         | DC      | 4           |
| DC-22A                               | 5                         | ON - OFF                  | 550         | DC      | 1,50        |
| DC-22A                               | 6                         | ON - OFF                  | 144         | DC      | 8           |
| DC-22A                               | 6                         | ON - OFF                  | 288         | DC      | 5           |
| DC-22A                               | 6                         | ON - OFF                  | 360         | DC      | 4           |
| DC-22A                               | 6                         | ON - OFF                  | 660         | DC      | 1,50        |
| DC-22A                               | 8                         | ON - OFF                  | 192         | DC      | 8           |
| DC-22A                               | 8                         | ON - OFF                  | 384         | DC      | 5           |
| DC-22A                               | 8                         | ON - OFF                  | 480         | DC      | 4           |
| DC-23A                               | 1                         | ON - OFF                  | 24          | DC      | 7           |
| DC-23A                               | 1                         | ON - OFF                  | 48          | DC      | 4           |
| DC-23A                               | 1                         | ON - OFF                  | 60          | DC      | 3,50        |
| DC-23A                               | 1                         | ON - OFF                  | 110         | DC      | 1           |
| DC-23A                               | 1                         | ON - OFF                  | 220         | DC      | 0,20        |
| DC-23A                               | 2                         | ON - OFF                  | 48          | DC      | 7           |
| DC-23A                               | 2                         | ON - OFF                  | 96          | DC      | 4           |
| DC-23A                               | 2                         | ON - OFF                  | 120         | DC      | 3,50        |
| DC-23A                               | 2                         | ON - OFF                  | 220         | DC      | 1           |
| DC-23A                               | 2                         | ON - OFF                  | 440         | DC      | 0,20        |
| DC-23A                               | 3                         | ON - OFF                  | 72          | DC      | 7           |
| DC-23A                               | 3                         | ON - OFF                  | 144         | DC      | 4           |
| DC-23A                               | 3                         | ON - OFF                  | 180         | DC      | 3,50        |

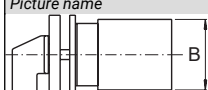
| <b>Tested AC and DC values</b>                            |                           |                           |                                     |                 |   |             |
|---|---------------------------|---------------------------|-------------------------------------|-----------------|---|-------------|
| Utilization category / Time constant                      | No. of contacts in series | Off or change-over switch | Voltage (V) AC / DC                 |                 | Current (A)   |             |
| DC-23A  | 3                         | ON - OFF                  | 330                                 | DC              | 1   |             |
| DC-23A  | 3                         | ON - OFF                  | 660                                 | DC              | 0,20  |             |
| DC-23A  | 4                         | ON - OFF                  | 96                                  | DC              | 7   |             |
| DC-23A  | 4                         | ON - OFF                  | 192                                 | DC              | 4   |             |
| DC-23A  | 4                         | ON - OFF                  | 240                                 | DC              | 3,50  |             |
| DC-23A  | 4                         | ON - OFF                  | 440                                 | DC              | 1   |             |
| DC-23A  | 5                         | ON - OFF                  | 120                                 | DC              | 7   |             |
| DC-23A  | 5                         | ON - OFF                  | 240                                 | DC              | 4   |             |
| DC-23A  | 5                         | ON - OFF                  | 300                                 | DC              | 3,50  |             |
| DC-23A  | 5                         | ON - OFF                  | 550                                 | DC              | 1   |             |
| DC-23A  | 6                         | ON - OFF                  | 144                                 | DC              | 7   |             |
| DC-23A  | 6                         | ON - OFF                  | 288                                 | DC              | 4   |             |
| DC-23A  | 6                         | ON - OFF                  | 360                                 | DC              | 3,50  |             |
| DC-23A  | 6                         | ON - OFF                  | 660                                 | DC              | 1   |             |
| DC-23A  | 8                         | ON - OFF                  | 192                                 | DC              | 7   |             |
| DC-23A  | 8                         | ON - OFF                  | 384                                 | DC              | 4   |             |
| DC-23A  | 8                         | ON - OFF                  | 480                                 | DC              | 3,50  |             |
| <b>Rated conditional short-circuit current</b>            |                           |                           |                                     |                 |   |             |
|   | Current (kA)              | Text                      | cut-off current I <sub>c</sub> (kA) |                 | Durchlassenergie I <sup>2</sup> t (kA <sup>2</sup> s) |             |
|   | 3                         | --                        | 0,82                                |                 | 0,19  |             |
| <b>Rated short-circuit making capacity I<sub>cm</sub></b> |                           |                           |                                     |                 |   |             |
|   |                           |                           |                                     |                 |   | Current (A) |
|   |                           |                           |                                     |                 |   | 200         |
| <b>UL60947-4-1 , UL508</b>                                |                           |                           |                                     |                 |   |             |
| <b>Nominal Voltage</b>                                    |                           |                           |                                     |                 |   |             |
|   |                           |                           | Voltage (V) AC / DC                 |                 |   |             |
|   |                           |                           | 300 AC                              |                 |   |             |
| <b>Rated insulation voltage U<sub>i</sub></b>             |                           |                           |                                     |                 |   |             |
|   |                           |                           | Voltage (V) AC / DC                 |                 |   |             |
|   |                           |                           | 300 AC                              |                 |   |             |
| <b>Rated thermal current</b>                              |                           |                           |                                     |                 |   |             |
|   | Current (A)               | Ambient temperature (°C)  |                                     | Additional Text |   |             |
|   | 10                        | 0 - 40                    |                                     | --              |   |             |
| <b>Horsepower rating</b>                                  |                           |                           |                                     |                 |   |             |
| <i>Across-the-Line Motor Starting</i>                     |                           |                           | Voltage (V)                         | No. of phases   | No. of poles  | Power (HP)  |
| DOL   |                           |                           | 110 - 120                           | 1               | 2   | 0,33        |
| DOL   |                           |                           | 220 - 240                           | 1               | 2   | 0,75        |
| DOL   |                           |                           | 277 - 277                           | 1               | 2   | 0,75        |
| DOL   |                           |                           | 110 - 120                           | 3               | 3   | 0,75        |
| DOL   |                           |                           | 220 - 240                           | 3               | 3   | 1           |
| <b>Pilot duty rating code</b>                             |                           |                           |                                     |                 |   |             |
| Duty Code   |                           |                           |                                     |                 |   |             |
| A300  |                           |                           |                                     |                 |   |             |
| <b>Temp. rating of wire</b>                               |                           |                           |                                     |                 |   |             |
|   | Temperature rating (°C)   |                           | Current (A) Text                    |                 |   |             |
|   | 60 - 75                   |                           | -- --                               |                 |   |             |
| <b>General Use</b>  |                           |                           |                                     |                 |   |             |
| AC / DC   | Voltage (V)               | Current (A)               | No. of phases                       | No. of poles    | No. of contacts in series                             |             |
| AC  | 120                       | 10                        | 1                                   | 1               | 1   |             |
| AC  | 300                       | 10                        | 1                                   | 2               | 1   |             |
| AC  | 300                       | 10                        | 3                                   | 3               | 1   |             |
| <b>CSA</b>  |                           |                           |                                     |                 |   |             |
| <b>Nominal Voltage</b>                                    |                           |                           |                                     |                 |   |             |
|   |                           |                           | Voltage (V) AC / DC                 |                 |   |             |
|   |                           |                           | 300 AC                              |                 |   |             |
| <b>Rated insulation voltage U<sub>i</sub></b>             |                           |                           |                                     |                 |   |             |
|   |                           |                           | Voltage (V) AC / DC                 |                 |   |             |
|   |                           |                           | 300 AC                              |                 |   |             |
| <b>Rated thermal current</b>                              |                           |                           |                                     |                 |   |             |
|   | Current (A)               | Ambient temperature (°C)  |                                     | Additional Text |   |             |
|   | 10                        | 0 - 40                    |                                     | --              |   |             |
| <b>Horsepower rating</b>                                  |                           |                           |                                     |                 |   |             |
| <i>Across-the-Line Motor Starting</i>                     |                           |                           | Voltage (V)                         | No. of phases   | No. of poles  | Power (HP)  |
| DOL   |                           |                           | 110 - 120                           | 1               | 2   | 0,33        |
| DOL   |                           |                           | 220 - 240                           | 1               | 2   | 0,75        |
| DOL   |                           |                           | 277 - 277                           | 1               | 2   | 0,75        |
| DOL   |                           |                           | 110 - 120                           | 3               | 3   | 0,75        |
| DOL   |                           |                           | 220 - 240                           | 3               | 3   | 1           |
| <b>Pilot duty rating code</b>                             |                           |                           |                                     |                 |   |             |
| Duty Code   |                           |                           |                                     |                 |   |             |
| A300  |                           |                           |                                     |                 |   |             |
| <b>Temp. rating of wire</b>                               |                           |                           |                                     |                 |   |             |
|   | Temperature rating (°C)   |                           | Current (A) Text                    |                 |   |             |
|   | 75                        |                           | -- --                               |                 |   |             |
| <b>General Use</b>  |                           |                           |                                     |                 |   |             |
| AC / DC   | Voltage (V)               | Current (A)               | No. of phases                       | No. of poles    | No. of contacts in series                             |             |
| AC  | 120                       | 10                        | 1                                   | 1               | 1   |             |

| General Use |             |             |               |              |                           |
|-------------|-------------|-------------|---------------|--------------|---------------------------|
| AC / DC     | Voltage (V) | Current (A) | No. of phases | No. of poles | No. of contacts in series |
| AC          | 300         | 10          | 1             | 2            | 1                         |
| AC          | 300         | 10          | 3             | 3            | 1                         |

**MASTER DATA**

| Max. number of stages | number of stages | Modul |
|-----------------------|------------------|-------|
|                       | 8                | FL    |

**Switch Measures**







| Picture name   | B  | F  | H  | H1 | H2 | H3 |
|--|----|----|----|----|----|----|
|  | 28 | -- | -- | -- | -- | -- |



**GENERAL TECHNICAL INFORMATION**

| Tightening torque of screws | tightening torque (Nm) | tightening torque (lb-in) |
|-----------------------------|------------------------|---------------------------|
|                             | 0,40                   | 3,50                      |

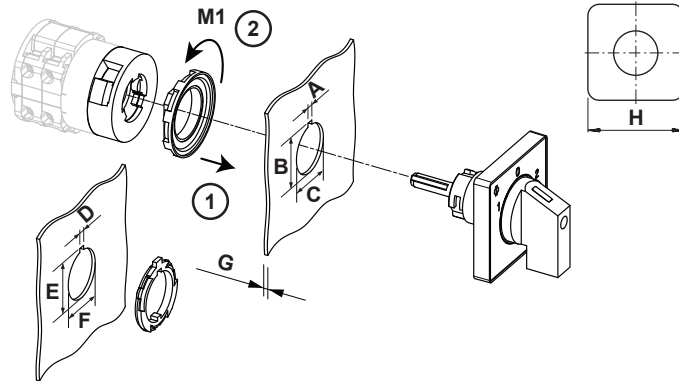
**Tested AC and DC values**

| Utilization category / Time constant | No. of contacts in series | Off or change-over switch | Voltage (V) | AC / DC | Current (A) |
|--------------------------------------|---------------------------|---------------------------|-------------|---------|-------------|
| T≤1ms                                | 1                         | ON - OFF                  | 24          | DC      | 10          |
| T≤1ms                                | 1                         | ON - OFF                  | 48          | DC      | 6           |
| T≤1ms                                | 1                         | ON - OFF                  | 60          | DC      | 2,50        |
| T≤1ms                                | 1                         | ON - OFF                  | 110         | DC      | 0,70        |
| T≤1ms                                | 1                         | ON - OFF                  | 220         | DC      | 0,30        |
| T≤1ms                                | 1                         | ON - OFF                  | 440         | DC      | 0,20        |
| T≤1ms                                | 2                         | ON - OFF                  | 48          | DC      | 10          |
| T≤1ms                                | 2                         | ON - OFF                  | 95          | DC      | 6           |
| T≤1ms                                | 2                         | ON - OFF                  | 120         | DC      | 2,50        |
| T≤1ms                                | 2                         | ON - OFF                  | 220         | DC      | 0,70        |
| T≤1ms                                | 2                         | ON - OFF                  | 440         | DC      | 0,30        |
| T≤1ms                                | 2                         | ON - OFF                  | 660         | DC      | 0,20        |
| T≤1ms                                | 3                         | ON - OFF                  | 70          | DC      | 10          |
| T≤1ms                                | 3                         | ON - OFF                  | 140         | DC      | 6           |
| T≤1ms                                | 3                         | ON - OFF                  | 180         | DC      | 2,50        |
| T≤1ms                                | 3                         | ON - OFF                  | 330         | DC      | 0,70        |
| T≤1ms                                | 3                         | ON - OFF                  | 660         | DC      | 0,30        |
| T≤1ms                                | 4                         | ON - OFF                  | 95          | DC      | 10          |
| T≤1ms                                | 4                         | ON - OFF                  | 190         | DC      | 6           |
| T≤1ms                                | 4                         | ON - OFF                  | 240         | DC      | 2,50        |
| T≤1ms                                | 4                         | ON - OFF                  | 440         | DC      | 0,70        |
| T≤1ms                                | 5                         | ON - OFF                  | 120         | DC      | 10          |
| T≤1ms                                | 5                         | ON - OFF                  | 240         | DC      | 6           |
| T≤1ms                                | 5                         | ON - OFF                  | 300         | DC      | 2,50        |
| T≤1ms                                | 5                         | ON - OFF                  | 550         | DC      | 0,70        |
| T≤1ms                                | 6                         | ON - OFF                  | 145         | DC      | 10          |
| T≤1ms                                | 6                         | ON - OFF                  | 290         | DC      | 6           |
| T≤1ms                                | 6                         | ON - OFF                  | 360         | DC      | 2,50        |
| T≤1ms                                | 6                         | ON - OFF                  | 660         | DC      | 0,70        |
| T≤1ms                                | 8                         | ON - OFF                  | 190         | DC      | 10          |
| T≤1ms                                | 8                         | ON - OFF                  | 350         | DC      | 6           |
| T≤1ms                                | 8                         | ON - OFF                  | 450         | DC      | 2,50        |
| T=50ms                               | 1                         | ON - OFF                  | 24          | DC      | 6           |
| T=50ms                               | 1                         | ON - OFF                  | 30          | DC      | 3           |
| T=50ms                               | 1                         | ON - OFF                  | 48          | DC      | 1           |
| T=50ms                               | 1                         | ON - OFF                  | 60          | DC      | 0,70        |
| T=50ms                               | 1                         | ON - OFF                  | 110         | DC      | 0,30        |
| T=50ms                               | 2                         | ON - OFF                  | 48          | DC      | 6           |
| T=50ms                               | 2                         | ON - OFF                  | 60          | DC      | 3           |
| T=50ms                               | 2                         | ON - OFF                  | 95          | DC      | 1           |
| T=50ms                               | 2                         | ON - OFF                  | 120         | DC      | 0,70        |
| T=50ms                               | 2                         | ON - OFF                  | 220         | DC      | 0,30        |
| T=50ms                               | 3                         | ON - OFF                  | 70          | DC      | 6           |
| T=50ms                               | 3                         | ON - OFF                  | 90          | DC      | 3           |
| T=50ms                               | 3                         | ON - OFF                  | 140         | DC      | 1           |
| T=50ms                               | 3                         | ON - OFF                  | 180         | DC      | 0,70        |
| T=50ms                               | 3                         | ON - OFF                  | 330         | DC      | 0,30        |
| T=50ms                               | 4                         | ON - OFF                  | 95          | DC      | 6           |
| T=50ms                               | 4                         | ON - OFF                  | 120         | DC      | 3           |
| T=50ms                               | 4                         | ON - OFF                  | 190         | DC      | 1           |
| T=50ms                               | 4                         | ON - OFF                  | 240         | DC      | 0,70        |
| T=50ms                               | 4                         | ON - OFF                  | 440         | DC      | 0,30        |
| T=50ms                               | 5                         | ON - OFF                  | 120         | DC      | 6           |
| T=50ms                               | 5                         | ON - OFF                  | 150         | DC      | 3           |
| T=50ms                               | 5                         | ON - OFF                  | 240         | DC      | 1           |
| T=50ms                               | 5                         | ON - OFF                  | 300         | DC      | 0,70        |
| T=50ms                               | 5                         | ON - OFF                  | 550         | DC      | 0,30        |
| T=50ms                               | 6                         | ON - OFF                  | 145         | DC      | 6           |

| Tested AC and DC values                           |                           |   |                  |  |  |   |       |               |              |
|---|---------------------------|---|------------------|--|--|---|-------|---------------|--------------|
| Utilization category / Time constant              | No. of contacts in series | Off or change-over switch   | Voltage (V)      |  | AC / DC  | Current (A)   |       |               |              |
| T=50ms  | 6                         | ON - OFF  | 180              |  | DC   | 3   |       |               |              |
| T=50ms  | 6                         | ON - OFF  | 290              |  | DC   | 1   |       |               |              |
| T=50ms  | 6                         | ON - OFF  | 360              |  | DC   | 0,70  |       |               |              |
| T=50ms  | 6                         | ON - OFF  | 660              |  | DC   | 0,30  |       |               |              |
| T=50ms  | 8                         | ON - OFF  | 190              |  | DC   | 6   |       |               |              |
| T=50ms  | 8                         | ON - OFF  | 240              |  | DC   | 3   |       |               |              |
| T=50ms  | 8                         | ON - OFF  | 350              |  | DC   | 1   |       |               |              |
| T=50ms  | 8                         | ON - OFF  | 450              |  | DC   | 0,70  |       |               |              |
| Stripping length                                  |                           |   |                  |  |  |   |       |               |              |
| Length (mm) --                                    |                           |   |                  |  |  |   |       |               |              |
| 6 STRIPPINGLENGTH                                 |                           |   |                  |  |  |   |       |               |              |
| Minimal ratings (voltage/current)                 |                           |   |                  |  |  |   |       |               |              |
| Voltage (V)                                       | Current (mA)              | Environment conditions  |                  | Environment conditions 2   |  | Environment conditions 3  |       |               |              |
| 20  | 5                         | Ambient air must be free of particular contamination with sulfur and/or sulfurous components such as H2S etc. |                  | In case extraordinary contamination with dust is expected an adequate dust protection is required. |  | --  |       |               |              |
| Rated short-time withstand current Icw            |                           |   |                  |  |  |   |       |               |              |
| Time (s)  |                           |   |                  |  |  |   |       |               |              |
| 1   |                           |   |                  |  |  |   |       |               |              |
| Current (A)<br>90                                 |                           |   |                  |  |  |   |       |               |              |
| Size of conductor                                 |                           |   |                  |  |  |   |       |               |              |
| composition of conductor                          | Min. / Max. value         | No. of conductor per terminal   |                  | Cross section (mm <sup>2</sup> ) or (AWG/kcmil)  |  | Material of the wire  |       |               |              |
| solid wire  | Min.                      | 1   |                  | 0.5mm <sup>2</sup>   |  | Copper  |       |               |              |
| solid wire  | Min.                      | 2   |                  | 0.5mm <sup>2</sup>   |  | Copper  |       |               |              |
| flexible wire                                     | Min.                      | 1   |                  | 0.75mm <sup>2</sup>  |  | Copper  |       |               |              |
| flexible wire                                     | Min.                      | 2   |                  | 0.75mm <sup>2</sup>  |  | Copper  |       |               |              |
| flexible wire                                     | Max.                      | 2   |                  | AWG 16   |  | Copper  |       |               |              |
| flexible wire                                     | Max.                      | 2   |                  | 1.5mm <sup>2</sup>   |  | Copper  |       |               |              |
| Single-core or stranded wire                      | Max.                      | 2   |                  | AWG 14   |  | Copper  |       |               |              |
| Single-core or stranded wire                      | Max.                      | 2   |                  | 1.5mm <sup>2</sup>   |  | Copper  |       |               |              |
| flexible wire with ferrule according to DIN 46228 | Max.                      | 2   |                  | 1mm <sup>2</sup>   |  | Copper  |       |               |              |
| flexible wire with ferrule according to DIN 46228 | Min.                      | 1   |                  | 0.5mm <sup>2</sup>   |  | Copper  |       |               |              |
| flexible wire with ferrule according to DIN 46228 | Min.                      | 2   |                  | 0.5mm <sup>2</sup>   |  | Copper  |       |               |              |
| Approbations                                      |                           |   |                  |  |  |   |       |               |              |
| Specification                                     |                           |   |                  |  |  | Marking   |       |               |              |
| EAC   |                           |   |                  |  |  |  |       |               |              |
| CE marking  |                           |   |                  |  |  |  |       |               |              |
| UK Directives                                     |                           |   |                  |  |  |  |       |               |              |
| IEC 60947-3; EN 60947-3; VDE 0660 Teil107         |                           |   |                  |  |  | IEC 60947-3<br>EN 60947-3   |       |               |              |
| UL 60947-4-1; CSA C22.2 No. 60947-4-1             |                           |   |                  |  |  |  |       |               |              |
| CSA C.22.2 No.14                                  |                           |   |                  |  |  |  |       |               |              |
| GB/T14048.3                                       |                           |   |                  |  |  |  |       |               |              |
| Power loss per pole                               |                           |   |                  |  |  |   |       |               |              |
| Power (W)<br>0,40                                 |                           |   |                  |  |  |   |       |               |              |
| Mechanical life                                   |                           |   |                  |  |  |   |       |               |              |
| No. of operations                                 | Ambient temperature (°C)  |   | Number of stages |  | Limitations  |   |       |               |              |
| 1000000   | -5 - 55                   |   |                  |  | Valid for manual operation. Valid for switches without optional extras. The value refers to the mechanics of the device, for lifetime of the electrical contacts please refer to "electrical life values". |   |       |               |              |
| 150000  | -25 - 55                  |   |                  |  | Valid for manual operation. Valid for switches without optional extras. The value refers to the mechanics of the device, for lifetime of the electrical contacts please refer to "electrical life values". |   |       |               |              |
| Electrical life (B10-Value)                       |                           |   |                  |  |  |   |       |               |              |
| Utilization category                              | cos(φ)                    | Time constant (ms)  | Voltage (V)      | Current (A)  | No. of operations  | number of series contacts   | AC/DC | No. of phases | No. of poles |
| --  | 0,59                      | --  | 122              | 10   | 50000  | 1   | AC    | 1             | 1            |
| --  | 0,59                      | --  | 220              | 5  | 150000   | 1   | AC    | 1             | 1            |
| --  | 0,59                      | --  | 220              | 10   | 25000  | 1   | AC    | 1             | 1            |
| --  | 0,95                      | --  | 220              | 10   | 25000  | 1   | AC    | 1             | 1            |
| --  | 0,65                      | --  | 380              | 5  | 100000   | 1   | AC    | 1             | 1            |
| AC-3  | --                        | --  | 440              | 7  | 150000   | 1   | AC    | 3             | 3            |

| Electrical life (B10-Value)   |        |                    |             |             |   |                           |       |               |               |                       |
|---|--------|--------------------|-------------|-------------|---|---------------------------|-------|---------------|---------------|-----------------------|
| Utilization category  | cos(φ) | Time constant (ms) | Voltage (V) | Current (A) | No. of operations   | number of series contacts | AC/DC | No. of phases | No. of poles  |                       |
| AC-23   | --     | --                 | 440         | 10          | 25000   | 1                         | AC    | 3             | 3             |                       |
| --  | --     | 1                  | 24          | 10          | 140000  | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 1                  | 48          | 6           | 50000   | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 1                  | 60          | 2,50        | 200000  | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 1                  | 110         | 0,70        | 100000  | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 1                  | 220         | 0,30        | 200000  | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 48                 | 24          | 0,25        | 400000  | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 50                 | 24          | 0,50        | 100000  | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 50                 | 24          | 1           | 50000   | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 50                 | 24          | 6           | 10000   | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 50                 | 30          | 3           | 20000   | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 50                 | 48          | 1           | 50000   | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 50                 | 110         | 0,30        | 75000   | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 50                 | 110         | 0,50        | 50000   | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 53                 | 110         | 0,10        | 200000  | 1                         | DC    | 1             | 1             |                       |
| --  | --     | 55                 | 110         | 1           | 25000   | 1                         | DC    | 1             | 1             |                       |
| <b>Recommended screw driver</b>   |        |                    |             |             |   |                           |       |               |               |                       |
| Type of screw driver  |        |                    |             |             | Value   |                           |       |               |               |                       |
| Cross Screwdriver   |        |                    |             |             | PH1   |                           |       |               |               |                       |
| Flat blade  |        |                    |             |             | 0,6x3,5   |                           |       |               |               |                       |
| <b>Degree of protection</b>   |        |                    |             |             |   |                           |       |               |               |                       |
| IP - Code switch terminal   |        |                    |             |             |   |                           |       |               |               |                       |
| IP20  |        |                    |             |             |   |                           |       |               |               |                       |
| <b>Conditions during transport and storing</b>  |        |                    |             |             |   |                           |       |               |               |                       |
| Minimum temperature (°C)  |        |                    |             |             | Maximum temperature (°C) additional requirements                |                           |       |               |               |                       |
| -40   |        |                    |             |             | 85 In case of temperatures below -5°C no shock load permissible |                           |       |               |               |                       |
| <b>Shock / Vibration</b>  |        |                    |             |             |   |                           |       |               |               |                       |
| Type of oscillation   |        |                    |             |             | Values  |                           |       |               |               |                       |
| Resistance to shock   |        |                    |             |             | min. 5g, 30ms   |                           |       |               |               |                       |
| <b>General Information</b>  |        |                    |             |             |   |                           |       |               |               |                       |
| Text  |        |                    |             |             |   |                           |       |               |               |                       |
| <ul style="list-style-type: none"> <li>- Do not lubricate or treat contacts.</li> <li>- Switches may only be mounted, connected and set into operation by qualified persons according to the accepted rules of technology.</li> <li>- Use copper wire only. Do not coat the wire end with tin.</li> <li>- Terminals with factory fitted jumper links are tightened during production. Take care during installation to ensure factory fitted links are not lost by undoing both sides of linked terminals. After wiring, all terminal screws must be tightened to recommended torque specifications.</li> <li>- After installation of the switches the spacings between the terminals must be sufficient to fulfill the requirement of the applicable standards.</li> </ul> |        |                    |             |             |   |                           |       |               |               |                       |
| <b>Creepage distance</b>  |        |                    |             |             |   |                           |       |               |               |                       |
|   |        |                    |             |             |   |                           |       |               | Distance (mm) |                       |
|   |        |                    |             |             |   |                           |       |               | 6,35          |                       |
| <b>Clearance</b>  |        |                    |             |             |   |                           |       |               |               |                       |
|   |        |                    |             |             |   |                           |       |               | Distance (mm) |                       |
|   |        |                    |             |             |   |                           |       |               | 6,35          |                       |
| <b>Distance of stages</b>   |        |                    |             |             |   |                           |       |               |               |                       |
|   |        |                    |             |             |   |                           |       |               | Distance (mm) |                       |
|   |        |                    |             |             |   |                           |       |               | 12            |                       |
| <b>Operating temperature</b>  |        |                    |             |             |   |                           |       |               |               |                       |
|   |        |                    |             |             | Min. Temperature [°C]   |                           |       |               |               | Max. Temperature [°C] |
|   |        |                    |             |             | -25   |                           |       |               |               | 60                    |
| <b>Waste Electrical &amp; Electronic Equipment (WEEE)</b>   |        |                    |             |             |   |                           |       |               |               |                       |
| Picture name Description  |        |                    |             |             |   |                           |       |               |               |                       |
|   |        |                    |             |             |   |                           |       |               |               |                       |
| <p>Do not throw in the trash as care must be taken to ensure environmentally sound disposal and recycling. Please either use an environmentally friendly waste disposal company; return to the supplier for disposal; or return direct to the manufacturer, Kraus &amp; Naimer. You can find local Kraus &amp; Naimer offices at <a href="http://www.krausnaimer.com">www.krausnaimer.com</a></p>   |        |                    |             |             |   |                           |       |               |               |                       |
| <b>Proposition 65</b>   |        |                    |             |             |   |                           |       |               |               |                       |
| Picture name Description  |        |                    |             |             |   |                           |       |               |               |                       |
|   |        |                    |             |             |   |                           |       |               |               |                       |
| <p>WARNING: This product can expose you to chemicals including nickel and lead, which is known to the State of California to cause cancer. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>.</p>   |        |                    |             |             |   |                           |       |               |               |                       |


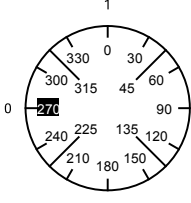
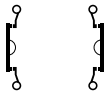
Mounting-FS2-V



|                      |   |                   |
|----------------------|---|-------------------|
| IP - Code front side |   | IP66, IP67, IP69k |
| Stages               |   | 1,00 - 8,00       |
| A                    | H | 1,70 mm           |
| A+_tol.              | H | 0,20 mm           |
| A-_tol.              | H | 0,00 mm           |
| B                    | H | 17,90 mm          |
| B+_tol.              | H | 0,20 mm           |
| B-_tol.              | H | 0,00 mm           |
| C                    | Ø | 16,20 mm          |
| C+_tol.              | Ø | 0,20 mm           |
| C-_tol.              | Ø | 0,00 mm           |
| D                    | H | 3,20 mm           |
| D+_tol.              | H | 0,20 mm           |
| D-_tol.              | H | 0,00 mm           |
| E                    | H | 24,10 mm          |
| E+_tol.              | H | 0,40 mm           |
| E-_tol.              | H | 0,00 mm           |
| F                    | Ø | 22,30 mm          |
| F+_tol.              | Ø | 0,40 mm           |
| F-_tol.              | Ø | 0,00 mm           |
| G                    | H | <= 5,00 mm        |
| H                    | H | 30,00 mm          |
| M1                   | ↺ | 0,70 Nm           |

## Wiring diagram

CG4.A291.FS2-V

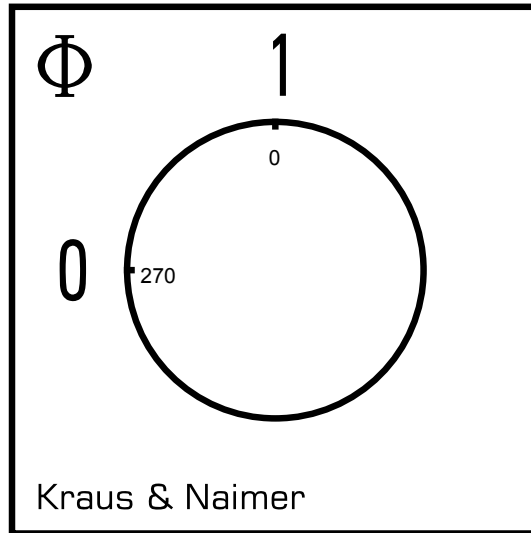
|  Kraus & Naimer         |  | CG4   |   | A291 |   | Page 1 of 1 |    |    |    |    |    |    |    |
|--|--|---|---|------|---|-------------|----|----|----|----|----|----|----|
|  |  | Face Plate  |   |      |   |             |    |    |    |    |    |    |    |
|                         |  | 1   | 3 | 5    | 7 | 9           | 11 | 13 | 15 | 17 | 19 | 21 | 23 |
|  |  |  |   |      |   |             |    |    |    |    |    |    |    |
| Switching Angle <input type="text" value="90"/><br>Total switching Angle <input type="text" value="90"/> |  | 2   | 4 | 6    | 8 | 10          | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 0  |  | 270   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 285   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 300   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 315   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 330   | ■ | ■    |   |             |    |    |    |    |    |    |    |
|  |  | 345   |   |      |   |             |    |    |    |    |    |    |    |
| 1  |  | 0   | ■ | ■    |   |             |    |    |    |    |    |    |    |
|  |  | 15  |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 30  |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 45  |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 60  |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 75  |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 90  |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 105   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 120   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 135   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 150   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 165   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 180   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 195   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 210   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 225   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 240   |   |      |   |             |    |    |    |    |    |    |    |
|  |  | 255   |   |      |   |             |    |    |    |    |    |    |    |

Version: 95



**Face plate**

S00.F056/A10.E1



## HANDLES

**Designation:** S00.G251  
**Handle colour:** "1" black

