

# Rotary Cam Switches

## Rated data

| Rated data                                                       |            |                    | P110                                                                     | M220<br>P220 | M221*<br>P221* | P225 | M225<br>P226* | T225 | S432            | S440            | S606            | S608             | S612             | S825             |
|------------------------------------------------------------------|------------|--------------------|--------------------------------------------------------------------------|--------------|----------------|------|---------------|------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| Operational voltage $U_e$ (V AC)                                 |            |                    | 440                                                                      | 690          | 690            | 690  | 690           | 690  | 690             | 690             | 690             | 690              | 690              | 690              |
| Impulse withstand voltage $U_{imp}$ (kV)                         |            |                    | 4                                                                        | 4            | 4              | 6    | 6             | 6    | 6               | 6               | 6               | 6                | 6                | 6                |
| Overvoltage category                                             |            |                    | III                                                                      | III          | III            | III  | III           | III  | III             | III             | III             | III              | III              | III              |
| Pollution degree                                                 |            |                    | 3                                                                        | 3            | 3              | 3    | 3             | 3    | 3               | 3               | 3               | 3                | 3                | 3                |
| Uninterrupted current $I_u / I_{th} / I_{the}$ (A)               |            |                    | 10                                                                       | 20           | 20             | 25   | 25            | 32   | 50              | 63              | 80              | 100              | 160              | 315              |
| Load carrying capacity in intermittend operation (class 12) (AB) |            |                    | DF: 60% = $1.3 \times I_e / 40\% = 1.6 \times I_e / 25\% = 2 \times I_e$ |              |                |      |               |      |                 |                 |                 |                  |                  |                  |
| Breaking capacity                                                | 220–240V   | (A)                | 90                                                                       | 180          | 180            | 255  | 255           | 370  | 520             | 550             | 600             | 700              | 900              | 1800             |
|                                                                  | 380–440V   | (A)                | 70                                                                       | 150          | 150            | 230  | 230           | 300  | 430             | 500             | 550             | 600              | 850              | 1650             |
|                                                                  | 500–690V   | (A)                | —                                                                        | 90           | 90             | 270  | 270           | 210  | 280             | 380             | 420             | 450              | 340              | 350              |
| short-circuit rating (max. fuse) (gL)                            |            |                    | 10                                                                       | 20           | 20             | 25   | 25            | 32   | 50              | 63              | 80              | 100              | 160              | 315              |
| Conditional short-circuit current ( $kA_{eff}$ )                 |            |                    | 3                                                                        | 10           | 10             | 10   | 10            | 15   | 20              | 20              | 25              | 25               | 25               | 25               |
| Isolating characteristics (to EN 60947) (up to ... V AC)         |            |                    | 480                                                                      | 480          | 480            | 690  | 690           | 690  | 690             | 690             | 690             | 690              | 690              | 690              |
| Switching angle                                                  |            |                    | 30° / 45° / 60° / 90°                                                    |              |                |      |               |      |                 |                 |                 |                  |                  |                  |
| Contacts (Current paths) (max.)                                  |            |                    | 16                                                                       | 24           | 24             | 24   | 24            | 24   | 24              | 24              | 24              | 24               | 24               | 24               |
| Current heat loss per contact at $I_u$ (W)                       |            |                    | 0.3                                                                      | 0.65         | 0.65           | 0.75 | 0.75          | 1    | 3               | 3.5             | 4               | 5                | 11               | 28.5             |
| Terminal capacity                                                |            |                    |                                                                          |              |                |      |               |      |                 |                 |                 |                  |                  |                  |
| solid or stranded                                                | min.       | (mm <sup>2</sup> ) | 0.75                                                                     | 1            | 1              | 1.5  | 1.5           | 2.5  | 2.5             | 4               | 6               | 10               | 10               | 185 <sup>1</sup> |
|                                                                  | max.       | (mm <sup>2</sup> ) | 1.5                                                                      | 2.5          | 2.5            | 4    | 4             | 6    | 10              | 16              | 25              | 35               | 70               | 185 <sup>1</sup> |
| flexible or multiwire (including ferrule)                        | min.       | (mm <sup>2</sup> ) | 0.75                                                                     | 1            | 1              | 1.5  | 1.5           | 1.5  | 2.5             | 2.5             | 6               | 10               | 10               | 185 <sup>1</sup> |
|                                                                  | max.       | (mm <sup>2</sup> ) | 1.5                                                                      | 2.5          | 2.5            | 2.5  | 2.5           | 4    | 6               | 10              | 16              | 25               | 50               | 185 <sup>1</sup> |
| American Wire Gauge (AWG)                                        |            |                    | 16                                                                       | 12           | 12             | 10   | 10            | 10   | 6               | 4               | 4               | 1/0              | 2/0              | 350MCM           |
| Thread dimensions for terminal screw                             |            |                    | M2.5                                                                     | M3           | M3             | M3.5 | M3.5          | M4   | M5              | M5              | 2×M4            | 2×M5             | 2×M6             | M12              |
| Terminal tightening torque                                       | min.       | (Nm)               | 0.4                                                                      | 0.5          | 0.5            | 0.8  | 0.8           | 1.2  | 2               | 2               | 1.2             | 2                | 2.5              | 14               |
|                                                                  | max.       | (Nm)               | 0.6                                                                      | 1            | 1              | 1.5  | 1.5           | 2.5  | 4               | 4               | 2.5             | 4                | 6                | 25               |
| Operational current $I_e$                                        |            |                    |                                                                          |              |                |      |               |      |                 |                 |                 |                  |                  |                  |
| AC-21A                                                           |            | (A)                | 10                                                                       | 20           | 20             | 25   | 25            | 32   | 50              | 63              | 80              | 100              | 160              | 315              |
|                                                                  | 220–500V   | (A)                | 10                                                                       | 20           | 20             | 25   | 25            | 32   | 50              | 63              | 80              | 100              | 160              | 315              |
| AC-22A                                                           | 660–690V   | (A)                | —                                                                        | 20           | 20             | 25   | 25            | 32   | 50              | 60              | 80              | 80               | 125              | 125              |
|                                                                  | 440V       | (A)                | 6                                                                        | 16           | 16             | 22   | 22            | 30   | 44              | 50              | 65              | 80               | 120              | 285              |
| cUL General Use                                                  | 300V AC    | (A)                | 10                                                                       | 20           | 20             | 25   | 25            | 35   | 55 <sup>1</sup> | 70 <sup>1</sup> | 95 <sup>1</sup> | 110 <sup>1</sup> | 175 <sup>1</sup> | 240              |
|                                                                  | 600V AC    | (A)                | —                                                                        | —            | 20             | —    | 25            | 35   | 55 <sup>1</sup> | 70 <sup>1</sup> | 95 <sup>1</sup> | 110 <sup>1</sup> | 175 <sup>1</sup> | 240              |
| Operational power 50–60 Hz (3 phase)                             |            |                    |                                                                          |              |                |      |               |      |                 |                 |                 |                  |                  |                  |
| AC-23A                                                           | 220–240V   | (kW)               | 1.8                                                                      | 4            | 4              | 5.5  | 5.5           | 7.5  | 11              | 15              | 30              | 30               | 37               | 75               |
|                                                                  | 380–440V   | (kW)               | 3                                                                        | 7.5          | 7.5            | 11   | 11            | 15   | 22              | 30              | 45              | 55               | 75               | 132              |
|                                                                  | 500V       | (kW)               | —                                                                        | 7.5          | 7.5            | 11   | 11            | 15   | 30              | 45              | 55              | 55               | 90               | 132              |
|                                                                  | 660–690V   | (kW)               | —                                                                        | 7.5          | 7.5            | 11   | 11            | 15   | 30              | 37              | 45              | 45               | 55               | 55               |
| AC-3                                                             | 220–240V   | (kW)               | 1.5                                                                      | 3            | 3              | 4    | 4             | 5.5  | 11              | 15              | 15              | 22               | 22               | 37               |
|                                                                  | 380–440V   | (kW)               | 2.2                                                                      | 5.5          | 5.5            | 7.5  | 7.5           | 11   | 22              | 30              | 30              | 37               | 45               | 55               |
|                                                                  | 500V       | (kW)               | —                                                                        | 5.5          | 5.5            | 7.5  | 7.5           | 11   | 22              | 30              | 30              | 37               | 45               | 55               |
|                                                                  | 660–690V   | (kW)               | —                                                                        | 5.5          | 5.5            | 7.5  | 7.5           | 11   | 22              | 30              | 30              | 37               | 45               | 55               |
| cUL                                                              | 110–120VAC | (HP)               | 0.5                                                                      | 1            | 1              | 1.5  | 1.5           | 3    | 5               | 7.5             | 10              | 10               | 15               | 25               |
|                                                                  | 208VAC     | (HP)               | 0.5                                                                      | 2            | 2              | 5    | 5             | 7.5  | 7.5             | 7.5             | 10              | 15               | 15               | 30               |
|                                                                  | 220–240VAC | (HP)               | 0.5                                                                      | 2            | 2              | 5    | 5             | 7.5  | 10              | 15              | 15              | 15               | 15               | 30               |
|                                                                  | 440–480VAC | (HP)               | —                                                                        | —            | 5              | —    | 10            | 10   | 20              | 30              | 30              | 30               | 40               | 50               |
|                                                                  | 550–600VAC | (HP)               | —                                                                        | —            | 5              | —    | 10            | 10   | 25              | 40              | 50              | 50               | 50               | 50               |

\* use this version for 600V AC UL/CSA application

<sup>1</sup> with terminal extensions for cable lug connection

## Rated data

| Rated data (auxiliary contacts)                |                      |                    | P110 | M220<br>P220 | M221*<br>P221* | P225 | M225<br>P226* | T225 | S432 | S440 | S606 | S608 | S612 | S825             |
|------------------------------------------------|----------------------|--------------------|------|--------------|----------------|------|---------------|------|------|------|------|------|------|------------------|
| Operational voltage $U_e$                      | (V AC)               |                    | 440  | 500          | 500            | 500  | 500           | 500  | 500  | 500  | 500  | 500  | 500  | 500              |
| Uninterrupted current $I_u / I_{th} / I_{the}$ | (A)                  |                    | 10   | 20           | 20             | 25   | 25            | 32   | 50   | 63   | 80   | 100  | 160  | 315              |
| Operational current $I_e$                      |                      |                    |      |              |                |      |               |      |      |      |      |      |      |                  |
| AC-21A                                         | (A)                  |                    | 10   | 20           | 20             | 25   | 25            | 32   | 50   | 63   | 80   | 100  | 160  | 315              |
|                                                | 110–240V             | (A)                | 2.5  | 6            | 6              | 6    | 6             | 14   | 16   | 16   | 16   | 16   | 16   | 16               |
| AC-15                                          | 380–440V             | (A)                | 1.5  | 4            | 4              | 5    | 5             | 6    | 7    | 7    | 7    | 7    | 7    | 7                |
|                                                | 500V                 | (A)                | 0.8  | 2            | 2              | 2.5  | 2.5           | 3    | 3.5  | 3.5  | 3.5  | 3.5  | 3.5  | 3.5              |
| cUL General Use                                | 600V AC              | (A)                | —    | —            | 20             | —    | 25            | 35   | 55   | 70   | 70   | 110  | 175  | 240              |
| Heavy Pilot Duty                               |                      |                    | B300 | A300         | A600           | A300 | A600          | A600 | A600 | A600 | A600 | A600 | A600 | A600             |
| Short-circuit rating (max. fuse)               | (gL)                 |                    | 10   | 20           | 20             | 25   | 25            | 32   | 50   | 63   | 80   | 100  | 160  | 315              |
| Conditional short-circuit current              | (kA <sub>eff</sub> ) |                    | 3    | 10           | 10             | 10   | 10            | 15   | 20   | 20   | 25   | 25   | 25   | 25               |
| Terminal capacity                              |                      |                    |      |              |                |      |               |      |      |      |      |      |      |                  |
| flexible or multiwire                          | min.                 | (mm <sup>2</sup> ) | 0.75 | 1            | 1              | 1.5  | 1.5           | 1.5  | 2.5  | 2.5  | 6    | 10   | 10   | 185 <sup>1</sup> |
| (including ferrule)                            | max.                 | (mm <sup>2</sup> ) | 2.5  | 2.5          | 2.5            | 2.5  | 2.5           | 2.5  | 2.5  | 2.5  | 2.5  | 2.5  | 2.5  | 2.5              |
| American Wire Gauge                            | (AWG)                |                    | 16   | 12           | 12             | 10   | 10            | 10   | 6    | 4    | 4    | 1/0  | 2/0  | 350MCM           |

\* use this version for 600V AC UL/CSA application      <sup>1</sup> with terminal extensions for cable lug connection

## General

| General                     |               |  | P110                                                                                 | M220<br>P220     | M221*<br>P221*   | P225             | M225<br>P226*    | T225             | S432             | S440             | S606             | S608             | S612             | S825             |
|-----------------------------|---------------|--|--------------------------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Standards                   |               |  | IEC 60947 / EN 60947 / IEC 60204 / UL 60947-1 / CSA 22.2, No. 14 / VDE 0660 Teil 107 |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Mechanical lifespan         |               |  | ≥10 <sup>6</sup>                                                                     | ≥10 <sup>6</sup> | ≥10 <sup>6</sup> | ≥10 <sup>6</sup> | ≥10 <sup>6</sup> | ≥10 <sup>6</sup> | ≥10 <sup>6</sup> | ≥10 <sup>6</sup> | ≥10 <sup>5</sup> | ≥10 <sup>5</sup> | ≥10 <sup>5</sup> | ≥10 <sup>5</sup> |
| Max. operating frequency/h  |               |  | 50                                                                                   | 50               | 50               | 50               | 50               | 50               | 50               | 50               | 50               | 50               | 50               | 50               |
| Climatic resistance         | constant      |  | to IEC 60068-2-78                                                                    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| (damp heat)                 | cyclic        |  | to IEC 60068-2-30                                                                    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Ambient temperature         | open (°C)     |  | –25 / +50                                                                            |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| (min. / max.)               | enclosed (°C) |  | –25 / +40                                                                            |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Mounting position           |               |  | as required                                                                          |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Mechanical shock resistance | (g)           |  | ≥10                                                                                  | ≥10              | ≥10              | ≥10              | ≥10              | ≥10              | ≥10              | ≥10              | ≥10              | ≥10              | ≥10              | ≥10              |
| (shock duration 20 ms)      |               |  |                                                                                      |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Rated frequency             | (Hz)          |  | 50 to 60 (other frequencies on request)                                              |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |

\* use this version for 600V AC UL/CSA application

## Conformity

Sälzer Electric Rotary Cam Switches are conform to the regulations of 'Directive 2014/35/EU on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits', specified as Low Voltage Directive (LVD).

The conformity is proved by the complete compliance of the harmonized european standards EN 60947-1, EN 60947-3, EN 60947-5-1, EN 60204-1. Rotary Cam Switches from Sälzer are approved according to ANSI/UL 60947-1 and ANSI/UL 60947-4-1A.

Sälzer Electric products are developed, manufactured and tested according to the UL, IEC and EN standards. The markings on all our products prove the conformity to the directives.

The latest information concerning the regulatory requirements (LVD, RoHS, REACH) can be found on our website.

