



**Changeoverswitches, T5B, 63 A, rear mounting, 2 contact unit(s),  
Contacts: 4, 90 °, maintained, Without 0 (Off) position, 1-2, Design number  
8221**

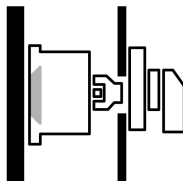
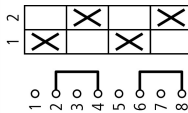
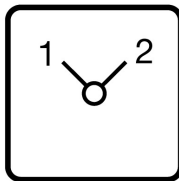


**Part no. T5B-2-8221/Z  
Catalog No. 093044**

**EL-Nummer 0001456933  
(Norway)**

Similar to illustration

## Delivery program

|  |                |                 |   |
|--|----------------|-----------------|---|
| Product range                                      |                |                 | Control switches  |
| Part group reference                               |                |                 | T5B   |
| Basic function                                     |                |                 | Changeoverswitches<br>with black thumb grip and front plate   |
| Contacts   |                |                 | 4   |
| Degree of Protection                               |                |                 | Front IP65  |
| Design   |                |                 | rear mounting<br>   |
| Contact sequence                                   |                |                 |                    |
| Switching angle                                    |                | °               | 90  |
| Switching performance                              |                |                 | maintained<br>Without 0 (Off) position  |
| Design number                                      |                |                 | 8221  |
| Front plate no.                                    |                |                 | <br><b>FS 943</b> |
| front plate  |                |                 | 1-2   |
| <b>Motor rating AC-23A, 50 - 60 Hz</b>             |                |                 |   |
| 400 V  | P              | kW              | 30  |
| Rated uninterrupted current                        | I <sub>u</sub> | A               | 63  |
| Note on rated uninterrupted current I <sub>u</sub> |                |                 | Rated uninterrupted current I <sub>u</sub> is specified for max. cross-section.                       |
| Number of contact units                            |                | contact unit(s) | 2   |

## Technical data

|                     |  |    |  |
|---------------------|--|----|--|
| <b>General</b>      |  |    |  |
| Standards           |  |    | IEC/EN 60947, VDE 0660, IEC/EN 60204, CSA, UL<br>Switch-disconnector according to IEC/EN 60947-3 |
| Climatic proofing   |  |    | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30                   |
| Ambient temperature |  |    |  |
| Open                |  | °C | -25 - +50  |
| Enclosed            |  | °C | -25 - +40  |

|                                       |           |      |             |
|---------------------------------------|-----------|------|-------------|
| Overvoltage category/pollution degree |           |      | III/3       |
| Rated impulse withstand voltage       | $U_{imp}$ | V AC | 6000        |
| Mechanical shock resistance           |           | g    | 15          |
| Mounting position                     |           |      | As required |

## Contacts

|   |          |              |  |
|---|----------|--------------|--|
| Electrical characteristics                          |          |              |  |
| Rated operational voltage                           | $U_e$    | V AC         | 690  |
| Rated uninterrupted current                         | $I_u$    | A            | 63   |
| Note on rated uninterrupted current $I_u$           |          |              | Rated uninterrupted current $I_u$ is specified for max. cross-section. |
| Load rating with intermittent operation, class 12   |          |              |  |
| AB 25 % DF  |          | $\times I_e$ | 2  |
| AB 40 % DF  |          | $\times I_e$ | 1.6  |
| AB 60 % DF  |          | $\times I_e$ | 1.3  |
| Short-circuit rating                                |          |              |  |
| Fuse  |          | A gG/gL      | 80   |
| Rated short-time withstand current (1 s current)    | $I_{cw}$ | $A_{rms}$    | 1300   |
| Note on rated short-time withstand current $I_{cw}$ |          |              | Current for a time of 1 second   |
| Rated conditional short-circuit current             | $I_q$    | kA           | 2  |

## Switching capacity

|  |              |               |       |
|--|--------------|---------------|-------|
| cos $\phi$ rated making capacity as per IEC 60947-3            |              | A             | 800   |
| Rated breaking capacity cos $\phi$ to IEC 60947-3              |              | A             |       |
| 230 V  |              | A             | 520   |
| 400/415 V  |              | A             | 600   |
| 500 V  |              | A             | 480   |
| 690 V  |              | A             | 340   |
| Safe isolation to EN 61140                                     |              |               |       |
| between the contacts   |              | V AC          | 440   |
| Current heat loss per contact at $I_e$                         |              | W             | 4.5   |
| Current heat loss per auxiliary circuit at $I_e$ (AC-15/230 V) |              | CO            | 4.5   |
| Lifespan, mechanical   | Operations   | $\times 10^6$ | > 0.5 |
| Maximum operating frequency                                    | Operations/h |               | 1200  |
| AC   |              |               |       |
| AC-3   |              |               |       |
| Rating, motor load switch                                      | P            | kW            |       |
| 220 V 230 V  | P            | kW            | 15    |
| 230 V Star-delta   | P            | kW            | 18.5  |
| 400 V 415 V  | P            | kW            | 22    |
| 400 V Star-delta   | P            | kW            | 30    |
| 500 V  | P            | kW            | 22    |
| 500 V Star-delta   | P            | kW            | 37    |
| 690 V  | P            | kW            | 15    |
| 690 V Star-delta   | P            | kW            | 22    |
| Rated operational current motor load switch                    |              |               |       |
| 230 V  | $I_e$        | A             | 51    |
| 230 V star-delta   | $I_e$        | A             | 63    |
| 400V 415 V   | $I_e$        | A             | 41    |
| 400 V star-delta   | $I_e$        | A             | 63    |
| 500 V  | $I_e$        | A             | 33    |
| 500 V star-delta   | $I_e$        | A             | 57.2  |
| 690 V  | $I_e$        | A             | 17    |
| 690 V star-delta   | $I_e$        | A             | 29.4  |
| AC-21A   |              |               |       |
| Rated operational current switch                               |              |               |       |
| 440 V  | $I_e$        | A             | 63    |

|   |                   |                |  |
|---|-------------------|----------------|--|
| <b>AC-23A</b>                                 |                   |                |  |
| Motor rating AC-23A, 50 - 60 Hz               | P                 | kW             |  |
| 230 V   | P                 | kW             | 18.5   |
| 400 V 415 V                                   | P                 | kW             | 30   |
| 500 V   | P                 | kW             | 22   |
| 690 V   | P                 | kW             | 22   |
| Rated operational current motor load switch   |                   |                |  |
| 230 V   | I <sub>e</sub>    | A              | 63   |
| 400 V 415 V                                   | I <sub>e</sub>    | A              | 63   |
| 500 V   | I <sub>e</sub>    | A              | 33   |
| 690 V   | I <sub>e</sub>    | A              | 23.8   |
| <b>DC</b>                                     |                   |                |  |
| DC-1, Load-break switches L/R = 1 ms          |                   |                |  |
| Rated operational current                     | I <sub>e</sub>    | A              | 63   |
| Voltage per contact pair in series            |                   | V              | 60   |
| DC-23A, motor load switch L/R = 15 ms         |                   |                |  |
| 24 V  |                   |                |  |
| Rated operational current                     | I <sub>e</sub>    | A              | 50   |
| Contacts                                      |                   | Quantity       | 1  |
| 48 V  |                   |                |  |
| Rated operational current                     | I <sub>e</sub>    | A              | 50   |
| Contacts                                      |                   | Quantity       | 2  |
| 60 V  |                   |                |  |
| Rated operational current                     | I <sub>e</sub>    | A              | 50   |
| Contacts                                      |                   | Quantity       | 3  |
| 120 V   |                   |                |  |
| Rated operational current                     | I <sub>e</sub>    | A              | 25   |
| Contacts                                      |                   | Quantity       | 3  |
| 240 V   |                   |                |  |
| Rated operational current                     | I <sub>e</sub>    | A              | 20   |
| Contacts                                      |                   | Quantity       | 6  |
| DC-13, Control switches L/R = 50 ms           |                   |                |  |
| Rated operational current                     | I <sub>e</sub>    | A              | 25   |
| Voltage per contact pair in series            |                   | V              | 24   |
| Control circuit reliability at 24 V DC, 10 mA | Fault probability | H <sub>F</sub> | < 10 <sup>-5</sup> , < 1 failure in 100,000 switching operations |

### Terminal capacities

|                                      |  |                 |                                  |
|--------------------------------------|--|-----------------|----------------------------------|
| Solid or stranded                    |  | mm <sup>2</sup> | 1 x (2,5 - 35)<br>2 x (2,5 - 16) |
| Flexible with ferrules to DIN 46228  |  | mm <sup>2</sup> | 1 x (1 - 25)<br>2 x (1.5 - 10)   |
| Terminal screw                       |  |                 | M6                               |
| Tightening torque for terminal screw |  | Nm              | 4                                |

### Technical safety parameters:

|              |  |  |   |
|--------------|--|--|---|
| <b>Notes</b> |  |  | B10 <sub>d</sub> values as per EN ISO 13849-1, table C1 |
|--------------|--|--|---|

### Rating data for approved types

|                                  |                |      |     |
|----------------------------------|----------------|------|-----|
| <b>Contacts</b>                  |                |      |     |
| Rated operational voltage        | U <sub>e</sub> | V AC | 600 |
| Rated uninterrupted current max. |                |      |     |
| Main conducting paths            |                |      |     |
| General use                      |                | A    | 63  |
| <b>Switching capacity</b>        |                |      |     |
| Maximum motor rating             |                |      |     |
| Single-phase                     |                |      |     |
| 120 V AC                         |                | HP   | 3   |
| 200 V AC                         |                | HP   | 7.5 |

|  |       |              |
|--|-------|--------------|
| 240 V AC                                 | HP    | 10           |
| Three-phase                              |       |              |
| 200 V AC                                 | HP    | 15           |
| 240 V AC                                 | HP    | 15           |
| 480 V AC                                 | HP    | 40           |
| 600 V AC                                 | HP    | 40           |
| Short Circuit Current Rating             | SCCR  |              |
| High fault rating                        | kA    | 10           |
| max. Fuse                                | A     | 100, Class J |
| Terminal capacity                        |       |              |
| Solid or flexible conductor with ferrule | AWG   | 12 - 4       |
| Terminal screw                           |       | M6           |
| Tightening torque                        | lb-in | 35.4         |

## Design verification as per IEC/EN 61439

|  |            |    |  |
|--|------------|----|--|
| Technical data for design verification   |            |    |  |
| Rated operational current for specified heat dissipation   | $I_n$      | A  | 63   |
| Heat dissipation per pole, current-dependent   | $P_{vid}$  | W  | 4.5  |
| Equipment heat dissipation, current-dependent  | $P_{vid}$  | W  | 0  |
| Static heat dissipation, non-current-dependent   | $P_{vs}$   | W  | 0  |
| Heat dissipation capacity  | $P_{diss}$ | W  | 0  |
| Operating ambient temperature min.   |            | °C | -25  |
| Operating ambient temperature max.   |            | °C | 50   |
| IEC/EN 61439 design verification   |            |    |  |
| 10.2 Strength of materials and parts   |            |    |  |
| 10.2.2 Corrosion resistance  |            |    | Meets the product standard's requirements.   |
| 10.2.3.1 Verification of thermal stability of enclosures   |            |    | Meets the product standard's requirements.   |
| 10.2.3.2 Verification of resistance of insulating materials to normal heat   |            |    | Meets the product standard's requirements.   |
| 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects |            |    | Meets the product standard's requirements.   |
| 10.2.4 Resistance to ultra-violet (UV) radiation   |            |    | UV resistance only in connection with protective shield.   |
| 10.2.5 Lifting   |            |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.2.6 Mechanical impact   |            |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.2.7 Inscriptions  |            |    | Meets the product standard's requirements.   |
| 10.3 Degree of protection of ASSEMBLIES  |            |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.4 Clearances and creepage distances   |            |    | Meets the product standard's requirements.   |
| 10.5 Protection against electric shock   |            |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.6 Incorporation of switching devices and components   |            |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.7 Internal electrical circuits and connections  |            |    | Is the panel builder's responsibility.   |
| 10.8 Connections for external conductors   |            |    | Is the panel builder's responsibility.   |
| 10.9 Insulation properties   |            |    |  |
| 10.9.2 Power-frequency electric strength   |            |    | Is the panel builder's responsibility.   |
| 10.9.3 Impulse withstand voltage   |            |    | Is the panel builder's responsibility.   |
| 10.9.4 Testing of enclosures made of insulating material   |            |    | Is the panel builder's responsibility.   |
| 10.10 Temperature rise   |            |    | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| 10.11 Short-circuit rating   |            |    | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| 10.12 Electromagnetic compatibility  |            |    | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| 10.13 Mechanical function  |            |    | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |

## Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Off-load switch (EC001105)

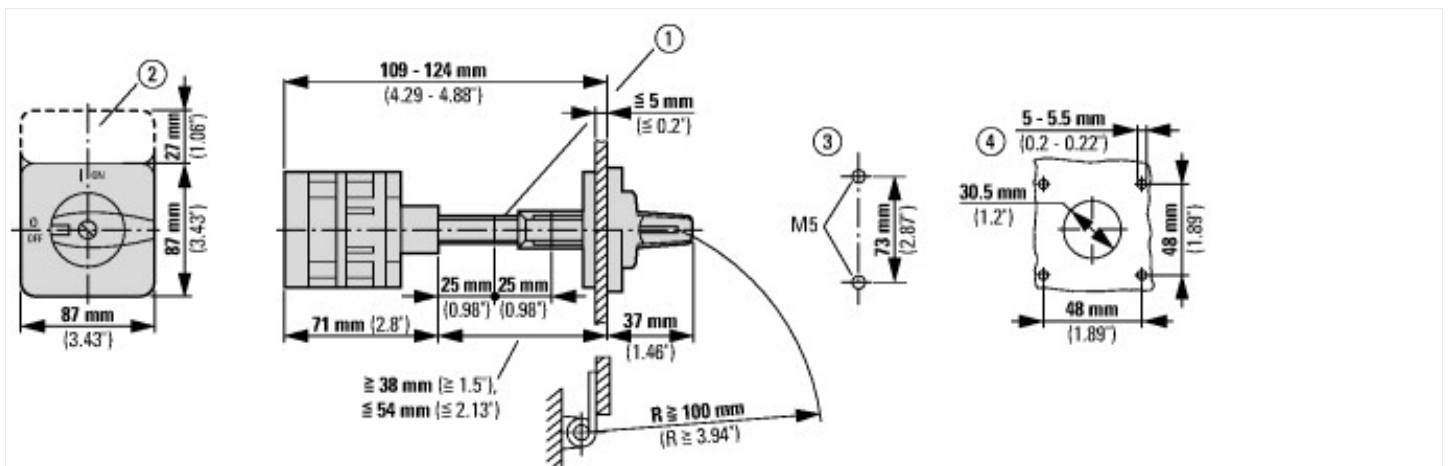
Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Changeover switch (ecl@ss10.0.1-27-37-14-05 [AKF062013])

|   |    |                  |
|---|----|------------------|
| Model   |    | Reverser         |
| Number of poles   |    | 2                |
| With 0 (off) position                                   |    | No               |
| With retraction in 0-position                           |    | No               |
| Rated permanent current I <sub>u</sub>                  | A  | 63               |
| Rated operation current I <sub>e</sub> at AC-3, 400 V   | A  | 41               |
| Rated operation power at AC-3, 400 V                    | kW | 22               |
| Degree of protection (IP), front side                   |    | IP65             |
| Degree of protection (NEMA), front side                 |    | 12               |
| Number of auxiliary contacts as normally closed contact |    | 0                |
| Number of auxiliary contacts as normally open contact   |    | 0                |
| Number of auxiliary contacts as change-over contact     |    | 0                |
| Suitable for ground mounting                            |    | Yes              |
| Suitable for front mounting 4-hole                      |    | No               |
| Suitable for distribution board installation            |    | No               |
| Suitable for intermediate mounting                      |    | Yes              |
| Complete device in housing                              |    | No               |
| Material housing  |    | Plastic          |
| Type of control element                                 |    | Toggle           |
| Type of electrical connection of main circuit           |    | Screw connection |

## Approvals

|                             |  |  |
|-----------------------------|--|--|
| Product Standards           |  | UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; CSA-C22.2 No. 94; IEC/EN 60947-3; CE marking |
| UL File No.                 |  | E36332   |
| UL Category Control No.     |  | NLRV   |
| CSA File No.                |  | 12528  |
| CSA Class No.               |  | 3211-05  |
| North America Certification |  | UL listed, CSA certified   |
| Suitable for                |  | Branch circuits, suitable as motor disconnect  |
| Degree of Protection        |  | IEC: IP65; UL/CSA Type 1, 12   |

## Dimensions



- ① Shaft extension with ZAV-P3 possible, max. 4 x 25 = 100 mm
  - ② ZFS-... Label mount not included as standard
  - ③ Drilling dimensions base
  - ④ Drilling dimensions door
- Cam switches T5B and T5 are same size, only their contacts are different

## Assets (links)

### Declaration of CE Conformity

00003073

### Instruction Leaflets

IL03801009Z2018\_05

## Additional product information (links)

### IL03801009Z (AWA1150-1692) Cam switch: switch-disconnector

|  |   |
|--|---|
| IL03801009Z (AWA1150-1692) Cam switch: switch-disconnector   | <a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03801009Z2018_05.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03801009Z2018_05.pdf</a>                           |
| Display flip catalog page.                                   | <a href="http://ecat.moeller.net/flip-cat/?edition=K115A&amp;startpage=134">http://ecat.moeller.net/flip-cat/?edition=K115A&amp;startpage=134</a>   |
| Technical overview cam switch, switch-disconnector           | <a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.2">http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.2</a>                                     |
| System overview cam switch T                                 | <a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.4">http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.4</a>                                     |
| System overview switch-disconnector P                        | <a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.6">http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.6</a>                                     |
| Key to part numbers Cam switch                               | <a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.8">http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.8</a>                                     |
| Key to part numbers Switch-disconnector                      | <a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.8">http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&amp;startpage=4.8</a>                                     |
| Switches for ATEX  | <a href="http://www.coopercrouse-hinds.eu/en/products/25-ex-safety-and-main-current-switches.html">http://www.coopercrouse-hinds.eu/en/products/25-ex-safety-and-main-current-switches.html</a> |
| Ordering form for SOND switches and SOND front plates(DE_EN) | <a href="ftp://ftp.moeller.net/DOCUMENTATION/PDF/MZ008005ZU_Orderform_Customized_Switch.pdf">ftp://ftp.moeller.net/DOCUMENTATION/PDF/MZ008005ZU_Orderform_Customized_Switch.pdf</a>             |
| Ordering form for SOND switches and SOND front plates(DE_EN) | <a href="ftp://ftp.moeller.net/DOCUMENTATION/PDF/MZ008006ZU_Orderform_Customized_Switch.pdf">ftp://ftp.moeller.net/DOCUMENTATION/PDF/MZ008006ZU_Orderform_Customized_Switch.pdf</a>             |