DATASHEET - T0-2-8221/XZ



Changeoverswitches, Contacts: 4, 20 A, 90 $^{\circ}$, rear mounting, Basic switch



Powering Business Worldwide

Part no. T0-2-8221/XZ Catalog No. 011744

EL-Nummer

(Norway)

0001456671

Delivery program

| zonio, program | | | |
|--|----------------|--------------------|--|
| Productrange | | | Control switches |
| Part group reference | | | ТО |
| Basic function | | | Changeoverswitches |
| Contacts | | | 4 |
| Design | | | rear mounting Basic switch |
| Contact sequence | | | - × × × |
| Switching angle | | 0 | 90 |
| Design number | | | 8221 |
| Front plate no. | | | 1 2 FS 943 |
| Motor rating AC-23A, 50 - 60 Hz | | | |
| 400 V | P | kW | 5.5 |
| Rated uninterrupted current | I _u | Α | 20 |
| Note on rated uninterrupted current !u | | | Rated uninterrupted current $\mathbf{I}_{\mathbf{u}}$ is specified for max. cross-section. |
| Number of contact units | | contact unit(s) | 2 |

Technical data

General

| Standards | | | IEC/EN 60947, VDE 0660, IEC/EN 60204 Switch-disconnector according to IEC/EN 60947-3 |
|---------------------------------------|------------------|------|---|
| Climatic proofing | | | Damp heat, constant, to IEC 60068-2-78 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 | | | |

| Electrical characteristics | | | |
|---|----------------|------------------|--|
| Rated operational voltage | U _e | V AC | 690 |
| Rated uninterrupted current | I _u | Α | 20 |
| Note on rated uninterrupted current $\boldsymbol{!}_{\boldsymbol{u}}$ | | | Rated uninterrupted current $\mathbf{I}_{\mathbf{u}}$ is specified for max. cross-section. |
| Load rating with intermittent operation, class 12 | | | |
| AB 25 % DF | | x I _e | 2 |
| AB 40 % DF | | x I _e | 1.6 |

| A 6 8 5 0 F Short-circuit rating Fise | |
|--|--|
| Fuse A 60/04 20 Rated short-time withstand current I is current Icw Arms 20 Note on rated short-time withstand current I cow Iq No. 20 Switching capacity 3 A 30 Switching capacity as per IEC 60947-3 A 30 30 Rated breaking capacity case yo IEC 60947-3 A 100 40 400/415 V A 100 40 609 V A 10 40 609 V A 10 40 Current heat loss per contact at I ₀ VAC 440 Current heat loss per contact at I ₀ (AC-15/230 V) YAC 40 Maximum operating frequency Operations 100 A AG-3 Reting, motor load switch P KW 5 Reting, motor load switch P KW 5 AG-3 AS 5 5 Reting, motor load switch P KW 5 Qui y 20 y 20 y 10 P KW 5 | |
| Rated short-time withstand current (low I _{cov} A _{max} 20 Nate on rated short-time withstand current (low) Iq x Current for a time of 1 second Rated conditional short-circuit current Iq x X Switching capacity See rated making capacity as per IEC 60947-3 A 130 220 V A 10 400415 V A 10 550 V B A 10 650 V A 10 4 650 V B A 10 Current beat loss per contact st VAC 40 Current beat loss per contact at I ₀ Operations VAC 40 Maximum operating frequency Operations YAC 40 AC-3 T 10 10 Rating, motor load switch P KW 5 AC 20 V Sur-delta P | |
| Note on rated short-time withstand current (cw Iq NA 6 Rated conditional short-circuit current Iq NA 6 Switching capacity sper IEC 60947-3 A 130 Rated breaking capacity as per IEC 60947-3 A 100 400415 V A 110 500 V A 60 Current heat loss per contact at I ₀ VX A Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) C 0 Maximum operating frequency Operations x 10 ⁸ > 0.4 AC-3 1 200 2 AC-3 2 2 2 2 2 2 2 2 2 2 | |
| Rated conditional short-circuit current Iq KA E | |
| Switching capacity cos or rated making capacity as per IEC 60947-3 A 130 Rated breaking capacity cos o to IEC 60947-3 A 100 400415 V A 110 500 V B A 80 680 V B B B Safe isolation to EN 61140 VAC 440 B between the contacts VAC 440 B Current heat loss per contact at I ₀ VAC 440 B Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) C 0 0 Maximum operating frequency Operations x 1g8 > 0.4 Maximum operating frequency Operations/* x 1g8 > 0.4 AC-3 Bating, motor load switch P kW 5.5 230 V Star-delta P kW 5.5 400 V Star-delta P kW 5.5 500 V Star-delta P kW 5.5 680 V P kW 5.5 680 V Star-delta < | |
| ccs or rated making capacity as per IEC 60947-3 A 30 Rate breaking capacity cos q to IEC 60947-3 A 100 400415 V A 10 500 V A 80 690 V A 80 Safe isolation to EN 61140 V V between the contacts V V 40 Current heat loss per contact at I ₀ V V 0 Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) Operations X 16° >0 AC-3 S V V 0 Basing, motor load switch P WW 5 0 AC-3 S V V 5 AC-3 Solv Var-delta P WW 5 5 AC-3 Solv Var-delta P WW 5 5 Bool V Star-delta | |
| Rated breaking capacity cos φ to IEC 60947-3 A 100 220 V 400415 V A 110 500 V A 80 690 V A 60 Safe isolation to EN 61140 V C between the contacts VAC 440 Current heat loss per contact at I ₀ W 0.6 Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) CO 0.6 Lifespan, mechanical Operations, h 1200 AC-3 Rating, motor load switch P kW 3 2 230 V 230 V P kW 3.5 4 000 V 315 V P kW 5.5 4 000 V 51ar-delta P kW 5.5 500 V P kW 5.5 500 V Star-delta P kW 7.5 690 V Star-delta P kW 5.5 690 V Star-delta P kW 5.5 690 V Star-delta P kW 5.5 690 V Star-delta P <td></td> | |
| 230 V | |
| A00/415 \ | |
| Solicy S | |
| Egg | |
| Safe isolation to EN 61140 VAC 440 between the contacts VAC 440 Current heat loss per contact at I _e VAC 0.6 Current heat loss per auxiliary circuit at I _e (AC-15/230 V) Operations/ x 10 ⁶ > 0.4 Maximum operating frequency Operations/ 1200 AC-3 AC-3 AC-3 AC-3 AC-3 Rating, motor load switch P kW 3 AC-3 220 V 230 V P kW 5.5 AC-3 400 V 415 V P kW 5.5 AC-3 400 V 5tar-delta P kW 7.5 AC-3 500 V P kW 7.5 AC-3 | |
| between the contacts V AC 440 Current heat loss per contact at I _θ W 0.6 Current heat loss per auxiliary circuit at I _θ (AC-15/230 V) CO 0.6 Lifespan, mechanical Operations x 10 ⁶ > 0.4 Maximum operating frequency Operations x 10 ⁶ > 0.4 AC-3 I 200 AC-3 V W I 200 AC-3 V W I W 220 V 230 V P kW 3 230 V Star-delta P kW 3.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 500 V Star-delta P kW 7.5 690 V Star-delta P kW 7.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch I _e A 11.5 230 V | |
| Current heat loss per contact at I ₀ W 0.6 Current heat loss per auxiliary circuit at I ₀ (AC-15/230 V) CO 0.6 Lifespan, mechanical Operations/x x 10 ⁶ > 0.4 Maximum operating frequency Operations/x 1200 AC-3 Value 1200 Rating, motor load switch P kW 3 220 V 230 V P kW 3 230 V Star-delta P kW 5.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 690 V P kW 7.5 690 V P kW 7.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch I ₀ A 11.5 230 V star-delta I ₀ A 11.5 400 V 415 V I ₀ A 20 | |
| Current heat loss per auxiliary circuit at I _e (AC-15/230 V) CO 0.6 Lifespan, mechanical Operations x 10.6 > 0.4 Maximum operating frequency Operations/h 1200 AC-3 Taxing, motor load switch P kW 220 V 230 V P kW 3 230 V Star-delta P kW 5.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 5.5 500 V Star-delta P kW 7.5 690 V Star-delta P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch I _e A 11.5 230 V star-delta I _e A 20 400 V 415 V I _e A 20 400 V 5tar-delta I _e A 20 | |
| Lifespan, mechanical Operations / Maximum operating frequency Value 200 AC-3 Rating, motor load switch P kW 220 V 230 V P kW 3 230 V Star-delta P kW 5.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 500 V Star-delta P kW 7.5 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 4 230 V star-delta Ie A 11.5 230 V star-delta Ie A 20 400 V 415 V Ie A 20 | |
| Maximum operating frequency Operations/h 1200 AC-3 Rating, motor load switch P kW 220 V 230 V P kW 3 230 V Star-delta P kW 5.5 400 V 415 V P kW 7.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V 415 V Ie A 11.5 400 V 5tar-delta Ie A 11.5 400 V 5tar-delta <t< td=""><td></td></t<> | |
| Maximum operating frequency Operations/h 1200 AC-3 Rating, motor load switch P kW 220 V 230 V P kW 3 230 V Star-delta P kW 5.5 400 V 415 V P kW 7.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V 415 V Ie A 11.5 400 V 5tar-delta Ie A 11.5 400 V 5tar-delta <t< td=""><td></td></t<> | |
| AC AC-3 Rating, motor load switch P kW 220 V 230 V P kW 3 230 V Star-delta P kW 5.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V star-delta Ie A 20 400 V 415 V Ie A 11.5 400 V star-delta Ie A 20 | |
| AC-3 Rating, motor load switch P kW 220 V 230 V P kW 3 230 V Star-delta P kW 5.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 7.5 500 V P kW 5.5 500 V Star-delta P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V 415 V Ie A 11.5 400 V star-delta Ie A 11.5 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20 | |
| Rating, motor load switch P kW 220 V 230 V P kW 3 230 V Star-delta P kW 5.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 500 V Star-delta P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V 415 V Ie A 11.5 400 V star-delta Ie A 11.5 400 V star-delta Ie A 11.5 | |
| 220 V 230 V 230 V Star-delta P | |
| 230 V Star-delta P kW 5.5 400 V 415 V P kW 5.5 400 V Star-delta P kW 7.5 500 V P kW 7.5 500 V Star-delta P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch | |
| 400 V 415 V P KW 5.5 400 V Star-delta P KW 7.5 500 V P KW 5.5 500 V Star-delta P KW 7.5 690 V P KW 4 690 V Star-delta P KW 5.5 Rated operational current motor load switch 230 V le A 11.5 230 V star-delta le A 20 400 V star-delta le A 20 | |
| 400 V Star-delta P kW 7.5 500 V P kW 5.5 500 V Star-delta P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch 230 V I _e A 11.5 230 V star-delta I _e A 20 400 V Star-delta I _e A 20 | |
| 500 V P kW 5.5 500 V Star-delta P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Star-delta Ie A 20 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20 | |
| 500 V Star-delta P kW 7.5 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20 | |
| 690 V P kW 4 690 V Star-delta P kW 5.5 Rated operational current motor load switch Ie A 11.5 230 V Ie A 20 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20 | |
| 690 V Star-delta P kW 5.5 Rated operational current motor load switch 230 V I _e A 11.5 230 V star-delta I _e A 20 400 V 415 V I _e A 11.5 400 V star-delta I _e A 20 | |
| Rated operational current motor load switch Ie A 11.5 230 V star-delta Ie A 20 400 V star-delta Ie A 11.5 400 V star-delta Ie A 20 | |
| 230 V I _e A 11.5 230 V star-delta I _e A 20 400V 415 V I _e A 11.5 400 V star-delta I _e A 20 | |
| 230 V star-delta | |
| 400V 415 V | |
| 400 V star-delta I _e A 20 | |
| · · · · · · · · · · · · · · · · · · · | |
| | |
| 500 V I _e A 9 | |
| 500 V star-delta I _e A 15.6 | |
| 690 V I _e A 4.9 | |
| 690 V star-delta I _e A 8.5 | |
| AC-21A | |
| Rated operational current switch | |
| 440 V I _e A 20 | |
| AC-23A | |
| Motor rating AC-23A, 50 - 60 Hz P kW | |
| 230 V P kW 3 | |
| 400 V 415 V P kW 5.5 | |
| 500 V P kW 7.5 | |
| 690 V P kW 5.5 | |
| Rated operational current motor load switch | |
| | |
| | |
| 400 V 415 V I _e A 13.3 | |
| 500 V I _e A 13.3 | |
| 690 V I _e A 7.6 | |
| DC C | |

| DC-1, Load-break switches L/R = 1 ms | | | |
|---|-------------------|-----------------|---|
| Rated operational current | l _e | Α | 10 |
| Voltage per contact pair in series | | V | 60 |
| DC-21A | I _e | Α | |
| Rated operational current | I _e | Α | 1 |
| Contacts | | Quantity | 1 |
| DC-23A, motor load switch L/R = 15 ms | | | |
| 24 V | | | |
| Rated operational current | I _e | Α | 10 |
| Contacts | | Quantity | 1 |
| 48 V | | | |
| Rated operational current | I _e | Α | 10 |
| Contacts | | Quantity | 2 |
| 60 V | | | |
| Rated operational current | I _e | Α | 10 |
| Contacts | | Quantity | 3 |
| 120 V | | | |
| Rated operational current | I _e | Α | 5 |
| Contacts | | Quantity | 3 |
| 240 V | | | |
| Rated operational current | I _e | Α | 5 |
| Contacts | | Quantity | 5 |
| DC-13, Control switches L/R = 50 ms | | | |
| Rated operational current | l _e | Α | 10 |
| Voltage per contact pair in series | | V | 32 |
| Control circuit reliability at 24 V DC, 10 mA | Fault probability | H _F | < 10 ⁻⁵ , < 1 fault in 100000 operations |
| Terminal capacities | | | |
| Solid or stranded | | mm ² | 1 x (1 - 2,5) 2 x (1 - 2,5) |
| Flexible with ferrules to DIN 46228 | | mm ² | 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) |
| Terminal screw | | | M3.5 |
| Tightening torque for terminal screw | | Nm | 1 |
| Technical safety parameters: | | | |
| Notes | | | B10 _d values as per EN ISO 13849-1, table C1 |
| Rating data for approved types | | | |
| Terminal capacity | | | |
| Torminal corow | | | M2 F |

M3.5 Terminal screw

Design verification as per IEC/EN 61439

| Technical data for design verification | | | |
|--|-------------------|----|--|
| Rated operational current for specified heat dissipation | In | Α | 20 |
| Heat dissipation per pole, current-dependent | P _{vid} | W | 0.6 |
| 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 lu | Α | 20 |
| Rated operation current le at AC-3, 400 V | Α | 11.5 |
| Rated operation power at AC-3, 400 V | kW | 4 |
| Degree of protection (IP), front side | | IP65 |
| Degree of protection (NEMA), front side | | Other |
| 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 | | Other |
| Type of electrical connection of main circuit | | Screw connection |

Assets (links)

Declaration of CE Conformity 00003075