



Contacts: 2, 20 A, 60 °, rear mounting, Basic switch

Part no. **T0-1-91/XZ**  
 Catalog No. **009853**

Similar to illustration

### Delivery program

|   |       |                 |  |
|---|-------|-----------------|--|
| Product range                             |       |                 | Control switches   |
| Part group reference                      |       |                 | T0   |
| Contacts                                  |       |                 | 2  |
| Design                                    |       |                 | rear mounting<br>Basic switch  |
| Contact sequence                          |       |                 |  |
| Switching angle                           |       | °               | 60   |
| Design number                             |       |                 | 91   |
| Front plate no.                           |       |                 |  |
|   |       |                 | <b>FS 614</b>  |
| <b>Motor rating AC-23A, 50 - 60 Hz</b>    |       |                 |  |
| 400 V                                     | P     | kW              | 5.5  |
| Rated uninterrupted current               | $I_u$ | A               | 20   |
| Note on rated uninterrupted current $I_u$ |       |                 | Rated uninterrupted current $I_u$ is specified for max. cross-section. |
| Number of contact units                   |       | contact unit(s) | 1  |

### Technical data

#### General

|                                       |           |      |   |
|---------------------------------------|-----------|------|---|
| Standards                             |           |      | IEC/EN 60947, VDE 0660, IEC/EN 60204<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   |
| Overtoltage 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    | 20   |
| 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  |                 | x I <sub>e</sub>  | 2                              |
| AB 40 % DF  |                 | x I <sub>e</sub>  | 1.6                            |
| AB 60 % DF  |                 | x I <sub>e</sub>  | 1.3                            |
| <b>Short-circuit rating</b>   |                 |                   |                                |
| Fuse  |                 | A gG/gL           | 20                             |
| Rated short-time withstand current (1 s current)                        | I <sub>cw</sub> | A <sub>rms</sub>  | 320                            |
| Note on rated short-time withstand current I <sub>cw</sub>              |                 |                   | Current for a time of 1 second |
| Rated conditional short-circuit current                                 | I <sub>q</sub>  | kA                | 6                              |
| <b>Switching capacity</b>   |                 |                   |                                |
| cos φ rated making capacity as per IEC 60947-3                          |                 | A                 | 130                            |
| <b>Rated breaking capacity cos φ to IEC 60947-3</b>                     |                 |                   |                                |
| 230 V   |                 | A                 | 100                            |
| 400/415 V   |                 | A                 | 110                            |
| 500 V   |                 | A                 | 80                             |
| 690 V   |                 | A                 | 60                             |
| <b>Safe isolation to EN 61140</b>                                       |                 |                   |                                |
| between the contacts  |                 | V AC              | 440                            |
| Current heat loss per contact at I <sub>e</sub>                         |                 | W                 | 0.6                            |
| Current heat loss per auxiliary circuit at I <sub>e</sub> (AC-15/230 V) |                 | CO                | 0.6                            |
| Lifespan, mechanical  | Operations      | x 10 <sup>6</sup> | > 0.4                          |
| Maximum operating frequency   | Operations/h    |                   | 1200                           |
| <b>AC</b>   |                 |                   |                                |
| <b>AC-3</b>   |                 |                   |                                |
| 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                            |
| <b>Rated operational current motor load switch</b>                      |                 |                   |                                |
| 230 V   | I <sub>e</sub>  | A                 | 11.5                           |
| 230 V star-delta  | I <sub>e</sub>  | A                 | 20                             |
| 400V 415 V  | I <sub>e</sub>  | A                 | 11.5                           |
| 400 V star-delta  | I <sub>e</sub>  | A                 | 20                             |
| 500 V   | I <sub>e</sub>  | A                 | 9                              |
| 500 V star-delta  | I <sub>e</sub>  | A                 | 15.6                           |
| 690 V   | I <sub>e</sub>  | A                 | 4.9                            |
| 690 V star-delta  | I <sub>e</sub>  | A                 | 8.5                            |
| <b>AC-21A</b>   |                 |                   |                                |
| <b>Rated operational current switch</b>                                 |                 |                   |                                |
| 440 V   | I <sub>e</sub>  | A                 | 20                             |
| <b>AC-23A</b>   |                 |                   |                                |
| <b>Motor rating AC-23A, 50 - 60 Hz</b>                                  |                 |                   |                                |
| 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                            |
| <b>Rated operational current motor load switch</b>                      |                 |                   |                                |
| 230 V   | I <sub>e</sub>  | A                 | 13.3                           |
| 400 V 415 V   | I <sub>e</sub>  | A                 | 13.3                           |
| 500 V   | I <sub>e</sub>  | A                 | 13.3                           |

|   |                   |          |   |
|---|-------------------|----------|---|
| 690 V   | $I_e$             | A        | 7.6   |
| DC  |                   |          |   |
| DC-1, Load-break switches L/R = 1 ms          |                   |          |   |
| Rated operational current                     | $I_e$             | A        | 10  |
| Voltage per contact pair in series            |                   | V        | 60  |
| DC-21A  |                   |          |   |
| Rated operational current                     | $I_e$             | A        | 1   |
| Contacts                                      |                   | Quantity | 1   |
| DC-23A, motor load switch L/R = 15 ms         |                   |          |   |
| 24 V  |                   |          |   |
| Rated operational current                     | $I_e$             | A        | 10  |
| Contacts                                      |                   | Quantity | 1   |
| 48 V  |                   |          |   |
| Rated operational current                     | $I_e$             | A        | 10  |
| Contacts                                      |                   | Quantity | 2   |
| 60 V  |                   |          |   |
| Rated operational current                     | $I_e$             | A        | 10  |
| Contacts                                      |                   | Quantity | 3   |
| 120 V   |                   |          |   |
| Rated operational current                     | $I_e$             | A        | 5   |
| Contacts                                      |                   | Quantity | 3   |
| 240 V   |                   |          |   |
| Rated operational current                     | $I_e$             | A        | 5   |
| Contacts                                      |                   | Quantity | 5   |
| DC-13, Control switches L/R = 50 ms           |                   |          |   |
| Rated operational current                     | $I_e$             | A        | 10  |
| Voltage per contact pair in series            |                   | V        | 32  |
| Control circuit reliability at 24 V DC, 10 mA | Fault probability | $H_F$    | $< 10^{-5}$ , $< 1$ failure in 100,000 switching operations |

### Terminal capacities

|                                      |  |                 |                                      |
|--------------------------------------|--|-----------------|--------------------------------------|
| Solid or stranded                    |  | mm <sup>2</sup> | 1 x (1 - 2,5)<br>2 x (1 - 2,5)       |
| Flexible with ferrules to DIN 46228  |  | mm <sup>2</sup> | 1 x (0.75 - 2.5)<br>2 x (0.75 - 2.5) |
| Terminal screw                       |  |                 | M3.5                                 |
| Tightening torque for terminal screw |  | Nm              | 1                                    |

### Technical safety parameters:

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

### Rating data for approved types

|                   |  |  |      |
|-------------------|--|--|------|
| Terminal capacity |  |  |      |
| Terminal screw    |  |  | M3.5 |

## Design verification as per IEC/EN 61439

|  |            |    |  |
|--|------------|----|--|
| Technical data for design verification                                     |            |    |  |
| Rated operational current for specified heat dissipation                   | $I_n$      | A  | 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   |    | 1                |
| With 0 (off) position                                   |    | Yes              |
| With retraction in 0-position                           |    | No               |
| Rated permanent current I <sub>u</sub>                  | A  | 20               |
| Rated operation current I <sub>e</sub> at AC-3, 400 V   | A  | 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

## Additional product information (links)

|  |   |
|--|---|
| Display flip catalog page.                                   | <a href="http://ecat.moeller.net/flip-cat/?edition=K115A&amp;startpage=71">http://ecat.moeller.net/flip-cat/?edition=K115A&amp;startpage=71</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> |

