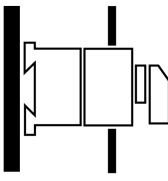
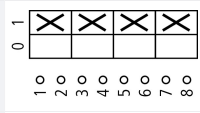
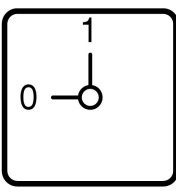




**ON-OFF switches, TM, 10 A, service distribution board mounting, 2 contact unit(s), Contacts: 4, 90 °, maintained, With 0 (Off) position, 0-1, design no. 8293**

**Part no. TM-2-8293/IVS**  
**Catalog No. 225337**

## Delivery program

|   |       |                 |   |
|---|-------|-----------------|---|
| Product range                             |       |                 | Control switches  |
| Part group reference                      |       |                 | TM  |
| Basic function                            |       |                 | ON-OFF switches<br>with black thumb grip and front plate  |
| Contacts                                  |       |                 | 4   |
| Degree of Protection                      |       |                 | Front IP30  |
| Design                                    |       |                 | service distribution board mounting<br> |
| Contact sequence                          |       |                 | <br>1 0 1 0                            |
| Switching angle                           |       | °               | 90  |
| Switching performance                     |       |                 | maintained<br>With 0 (Off) position   |
| Design number                             |       |                 | 8293  |
| Front plate no.                           |       |                 | <br>F 056                             |
| front plate                               |       |                 | 0-1   |
| <b>Motor rating AC-23A, 50 - 60 Hz</b>    |       |                 |   |
| 400 V                                     | P     | kW              | 3   |
| Rated uninterrupted current               | $I_u$ | A               | 10  |
| 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) | 2   |

## Technical data

|                                       |           |      |   |
|---------------------------------------|-----------|------|---|
| <b>General</b>                        |           |      |   |
| Standards                             |           |      | IEC/EN 60947, VDE 0660, CSA, UL<br>Control switch as per IEC/EN 60947-5-1<br>Auxiliary switch as per IEC/EN 60947-5-1 |
| 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   |
| Overvoltage category/pollution degree |           |      | III/3   |
| Rated impulse withstand voltage       | $U_{imp}$ | V AC | 4000  |
| Mounting position                     |           |      | As required   |

## Contacts

|   |       |         |  |
|---|-------|---------|--|
| Electrical characteristics                |       |         |  |
| Rated operational voltage                 | $U_e$ | V AC    | 500  |
| Rated uninterrupted current               | $I_u$ | A       | 10   |
| Note on rated uninterrupted current $I_u$ |       |         | Rated uninterrupted current $I_u$ is specified for max. cross-section. |
| Short-circuit rating                      |       |         |  |
| Fuse                                      |       | A gG/gL | 10   |

## Switching capacity

|  |                   |               |   |
|--|-------------------|---------------|---|
| Safe isolation to EN 61140                                     |                   |               |   |
| Current heat loss per contact at $I_e$                         |                   | W             | 0.15  |
| Current heat loss per auxiliary circuit at $I_e$ (AC-15/230 V) |                   | CO            | 0.15  |
| Lifespan, mechanical   | Operations        | $\times 10^6$ | > 1   |
| Maximum operating frequency                                    | Operations/h      |               | 1200  |
| AC   |                   |               |   |
| AC-23A   |                   |               |   |
| Motor rating AC-23A, 50 - 60 Hz                                | P                 | kW            |   |
| 400 V 415 V  | P                 | kW            | 3   |
| 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                    |  | $\text{mm}^2$ | 1 x 1,5<br>2 x 1,5 |
| Flexible with ferrules to DIN 46228  |  | $\text{mm}^2$ | 1 x 1.0<br>2 x 1.0 |
| Flexible                             |  | $\text{mm}^2$ | 1 x 1.5<br>2 x 1.5 |
| Terminal screw                       |  |               | M2.5               |
| Tightening torque for terminal screw |  | Nm            | 0.4                |

## Rating data for approved types

|  |       |       |       |
|--|-------|-------|-------|
| Contacts                                 |       |       |       |
| Rated operational voltage                | $U_e$ | V AC  | 300   |
| Rated uninterrupted current max.         |       |       |       |
| Main conducting paths                    |       |       |       |
| General use                              |       | A     | 10    |
| Auxiliary contacts                       |       |       |       |
| General Use                              | $I_U$ | A     | 10    |
| Pilot Duty                               |       |       | A 300 |
| Switching capacity                       |       |       |       |
| Maximum motor rating                     |       |       |       |
| Single-phase                             |       |       |       |
| 120 V AC                                 |       | HP    | 0.33  |
| 240 V AC                                 |       | HP    | 0.75  |
| 277 V AC                                 |       | HP    | 0.75  |
| Three-phase                              |       |       |       |
| 120 V AC                                 |       | HP    | 0.75  |
| 240 V AC                                 |       | HP    | 1     |
| Terminal capacity                        |       |       |       |
| Solid or flexible conductor with ferrule |       | AWG   | 14    |
| Terminal screw                           |       |       | M2.5  |
| Tightening torque                        |       | lb-in | 3.5   |

## Design verification as per IEC/EN 61439

|  |           |   |      |
|--|-----------|---|------|
| Technical data for design verification                   |           |   |      |
| Rated operational current for specified heat dissipation | $I_n$     | A | 10   |
| Heat dissipation per pole, current-dependent             | $P_{vid}$ | W | 0.15 |
| 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   |            |    | Meets the product standard's requirements.   |
| 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

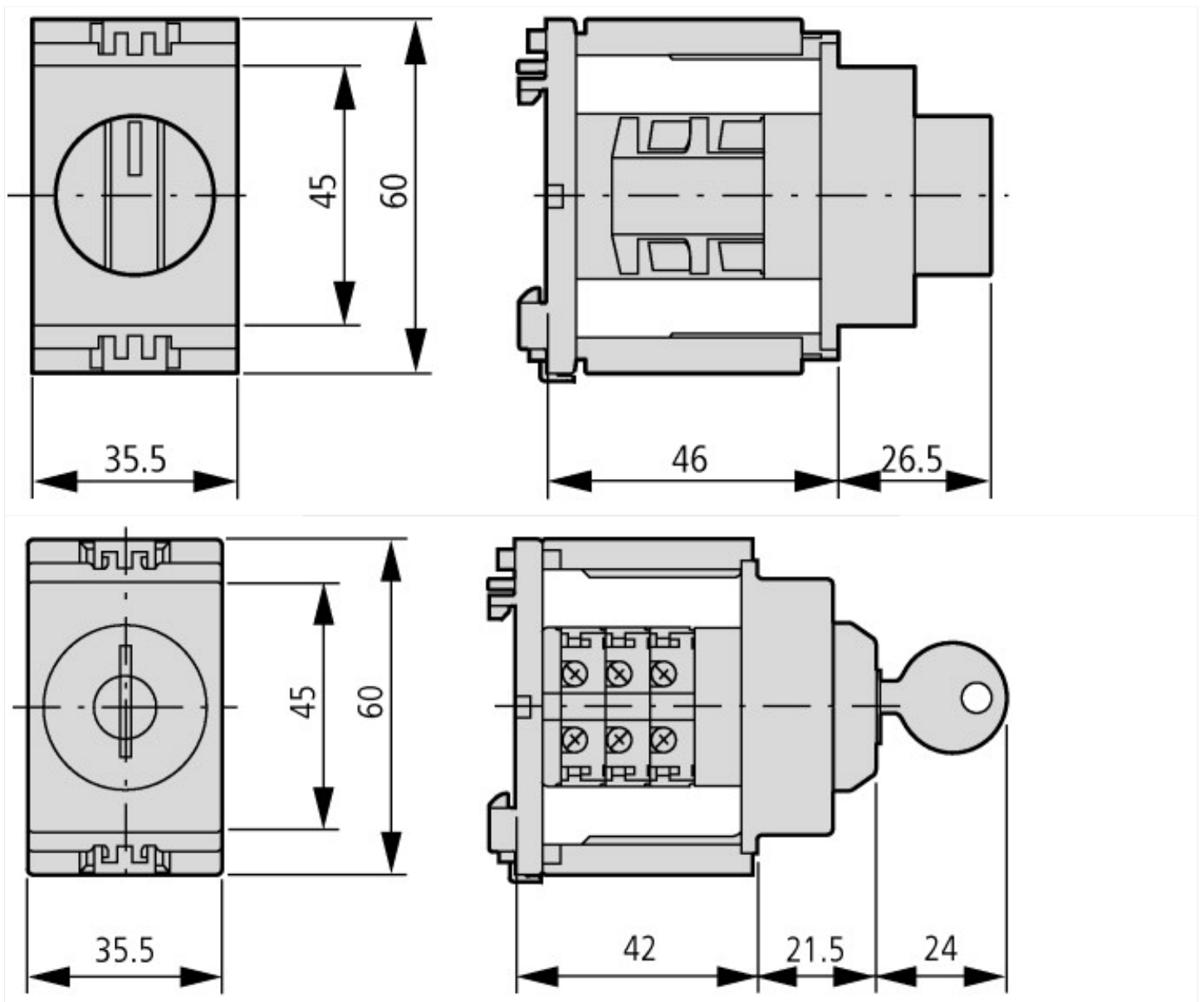
|  |  |    |           |
|--|--|----|-----------|
| Low-voltage industrial components (EG000017) / Switch disconnecter (EC000216)  |  |    |           |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Switch disconnecter (ec@ss10.0.1-27-37-14-03 [AKF060013]) |  |    |           |
| Version as main switch   |  |    | No        |
| Version as maintenance-/service switch   |  |    | No        |
| Version as safety switch   |  |    | No        |
| Version as emergency stop installation   |  |    | No        |
| Version as reversing switch  |  |    | No        |
| Number of switches   |  |    | 1         |
| Max. rated operation voltage $U_e$ AC  |  | V  | 500       |
| Rated operating voltage  |  | V  | 500 - 500 |
| Rated permanent current $I_u$  |  | A  | 10        |
| Rated permanent current at AC-23, 400 V  |  | A  | 6.6       |
| Rated permanent current at AC-21, 400 V  |  | A  | 0         |
| Rated operation power at AC-3, 400 V   |  | kW | 0         |
| Rated short-time withstand current $I_{cw}$  |  | kA | 0         |
| Rated operation power at AC-23, 400 V  |  | kW | 0         |
| Switching power at 400 V   |  | kW | 0         |
| Conditioned rated short-circuit current $I_q$  |  | kA | 0         |
| Number of poles  |  |    | 4         |
| 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         |
| Motor drive optional   |  |    | No        |

|   |  |
|---|--|
| Motor drive integrated                        | No                                       |
| Voltage release optional                      | No                                       |
| Device construction                           | Built-in device fixed built-in technique |
| Suitable for ground mounting                  | Yes                                      |
| Suitable for front mounting 4-hole            | No                                       |
| Suitable for front mounting centre            | No                                       |
| Suitable for distribution board installation  | Yes                                      |
| Suitable for intermediate mounting            | No                                       |
| Colour control element                        | Black                                    |
| Type of control element                       | Toggle                                   |
| Interlockable                                 | No                                       |
| Type of electrical connection of main circuit | Screw connection                         |
| Degree of protection (IP), front side         | IP30                                     |
| Degree of protection (NEMA)                   | Other                                    |

## Approvals

|                             |   |
|-----------------------------|---|
| Product Standards           | UL 508; CSA-C22.2 No. 14-05; CSA-C22.2 No. 94; IEC/EN 60947-3; CE marking |
| UL File No.                 | E36332  |
| UL Category Control No.     | NLRV  |
| CSA File No.                | UL report applies to both US and Canada                                   |
| North America Certification | UL listed, certified by UL for use in Canada                              |
| Degree of Protection        | IEC: IP30; UL/CSA Type: –   |

## Dimensions



## Additional product information (links)

|  |   |
|--|---|
| Display flip catalog page.                         | <a href="http://ecat.moeller.net/flip-cat/?edition=K115A&amp;startpage=130">http://ecat.moeller.net/flip-cat/?edition=K115A&amp;startpage=130</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> |