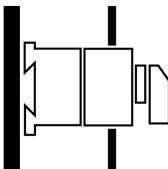
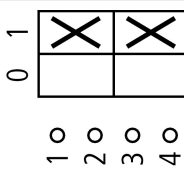
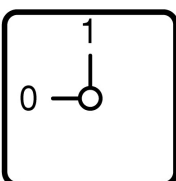




**ON-OFF switches, TM, 10 A, service distribution board mounting, 1 contact unit(s), Contacts: 2, 90 °, maintained, With 0 (Off) position, 0-1, Design number 8291**

**Part no. TM-1-8291/IVS**  
**Catalog No. 225335**

## Delivery program

|  |                |                 |  |
|--|----------------|-----------------|--|
| Product range                                      |                |                 | Control switches   |
| Part group reference                               |                |                 | TM   |
| Basic function                                     |                |                 | ON-OFF switches  |
|  |                |                 | with black thumb grip and front plate  |
| Contacts   |                |                 | 2  |
| Degree of Protection                               |                |                 | Front IP30   |
| Design   |                |                 | service distribution board mounting  |
|  |                |                 |                    |
| Contact sequence                                   |                |                 |                   |
| Switching angle                                    |                | °               | 90   |
| Switching performance                              |                |                 | maintained<br>With 0 (Off) position  |
| Design number                                      |                |                 | 8291   |
| Front plate no.                                    |                |                 | <br><b>F 056</b> |
| front plate  |                |                 | 0-1  |
| <b>Motor rating AC-23A, 50 - 60 Hz</b>             |                |                 |  |
| 400 V  | P              | kW              | 3  |
| Rated uninterrupted current                        | I <sub>u</sub> | A               | 10   |
| 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) | 1  |

## Technical data

|                                       |  |    |   |
|---------------------------------------|--|----|---|
| 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 <sub>imp</sub> | V AC | 4000        |
| Mounting position               |                  |      | As required |

Contacts

|  |                |         |   |
|--|----------------|---------|---|
| Electrical characteristics                         |                |         |   |
| Rated operational voltage                          | U <sub>e</sub> | V AC    | 500   |
| Rated uninterrupted current                        | I <sub>u</sub> | A       | 10  |
| Note on rated uninterrupted current I <sub>u</sub> |                |         | Rated uninterrupted current I <sub>u</sub> 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 <sub>ø</sub>                         |                   | W                 | 0.15   |
| Current heat loss per auxiliary circuit at I <sub>ø</sub> (AC-15/230 V) |                   | CO                | 0.15   |
| Lifespan, mechanical  | Operations        | x 10 <sup>6</sup> | > 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 <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 1,5<br>2 x 1,5 |
| Flexible with ferrules to DIN 46228  |  | mm <sup>2</sup> | 1 x 1.0<br>2 x 1.0 |
| Flexible                             |  | mm <sup>2</sup> | 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 <sub>e</sub> | V AC  | 300   |
| Rated uninterrupted current max.         |                |       |       |
| Main conducting paths                    |                |       |       |
| General use                              |                | A     | 10    |
| Auxiliary contacts                       |                |       |       |
| General Use                              | I <sub>U</sub> | 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 <sub>n</sub>   | A | 10   |
| Heat dissipation per pole, current-dependent             | P <sub>vid</sub> | W | 0.15 |

|  |                   |    |  |
|--|-------------------|----|--|
| Equipment heat dissipation, current-dependent  | P <sub>vid</sub>  | W  | 0  |
| Static heat dissipation, non-current-dependent   | P <sub>vs</sub>   | W  | 0  |
| Heat dissipation capacity  | P <sub>diss</sub> | 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

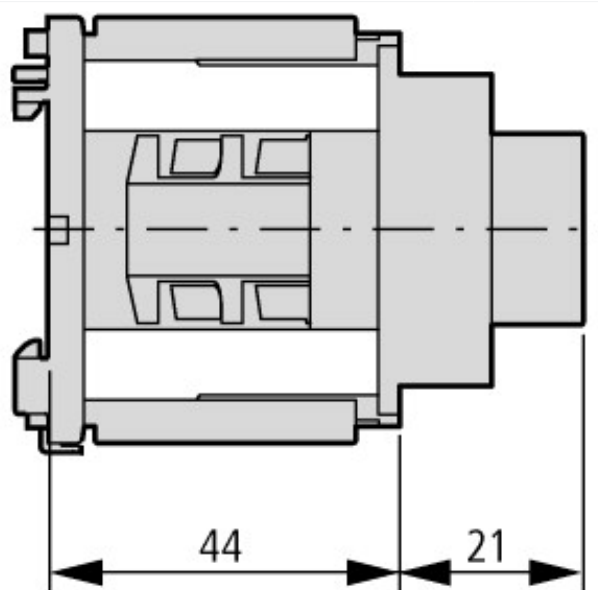
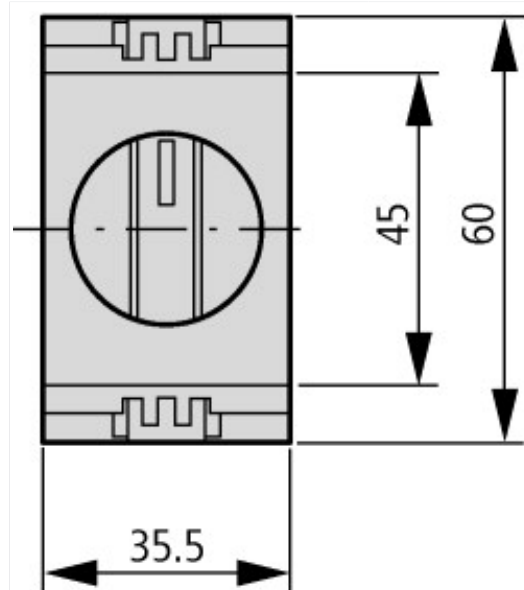
|   |  |    |           |
|---|--|----|-----------|
| Low-voltage industrial components (EG000017) / Switch disconnecter (EC000216)   |  |    |           |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / 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 <sub>e</sub> AC  |  | V  | 500       |
| Rated operating voltage   |  | V  | 500 - 500 |
| Rated permanent current I <sub>u</sub>  |  | A  | 10        |
| Rated permanent current at AC-23, 400 V   |  | A  |           |
| 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 <sub>cw</sub>  |  | 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 <sub>q</sub>  |  | kA | 0         |
| Number of poles   |  |    | 2         |
| Number of auxiliary contacts as normally closed contact   |  |    | 0         |

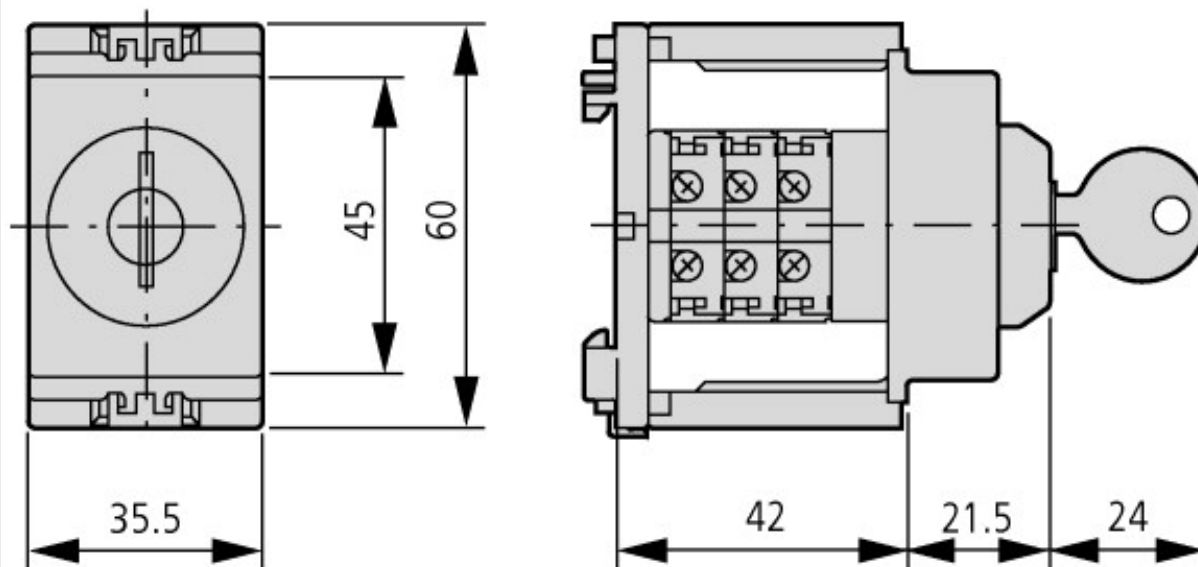
|   |  |  |
|---|--|--|
| Number of auxiliary contacts as normally open contact |  | 0  |
| Number of auxiliary contacts as change-over contact   |  | 0  |
| Motor drive optional                                  |  | No                                       |
| Motor drive integrated                                |  | 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





Key operation lock mechanism

## Assets (links)

### Declaration of CE Conformity

00002932

### Instruction Leaflets

IL03801025Z2018\_04

## Additional product information (links)

### IL03801025Z On-Off switches, changeover switches, control switches

|  |   |
|--|---|
| IL03801025Z On-Off switches, changeover switches, control switches | <a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03801025Z2018_04.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03801025Z2018_04.pdf</a>                           |
| Display flip catalog page.   | <a href="http://ecat.moeller.net/flip-cat/?edition=K115A&amp;startpage=12">http://ecat.moeller.net/flip-cat/?edition=K115A&amp;startpage=12</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>             |