



**P3, 100 A, Basic switch**

**Part no.** P3-100/XZ  
**Catalog No.** 046309

**Delivery program**

|   |       |     |  |
|---|-------|-----|--|
| Product range                             |       |     | Main switch<br>maintenance switch<br>Repair switch                     |
| Part group reference                      |       |     | P3   |
| Information about equipment supplied      |       |     | Auxiliary contact or neutral conductor fitted by user.                 |
| Number of poles                           |       |     | 3 pole   |
| <b>Auxiliary contacts</b>                 |       |     |  |
|   |       | N/O | 0  |
|   |       | N/C | 0  |
| Degree of Protection                      |       |     | Front IP65   |
| Design                                    |       |     | Basic switch   |
| <b>Motor rating AC-23A, 50 - 60 Hz</b>    |       |     |  |
| 400 V                                     | P     | kW  | 55   |
| Rated uninterrupted current               | $I_u$ | A   | 100  |
| Note on rated uninterrupted current $I_u$ |       |     | Rated uninterrupted current $I_u$ is specified for max. cross-section. |

**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   |
| 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**

|  |       |         |  |
|--|-------|---------|--|
| <b>Mechanical variables</b>                              |       |         |  |
| Number of poles  |       |         | 3 pole   |
| Auxiliary contacts                                       |       |         |  |
|  |       | N/O     | 0  |
|  |       | N/C     | 0  |
| <b>Electrical characteristics</b>                        |       |         |  |
| Rated operational voltage                                | $U_e$ | V AC    | 690  |
| Rated uninterrupted current                              | $I_u$ | A       | 100  |
| Note on rated uninterrupted current $I_u$                |       |         | Rated uninterrupted current $I_u$ is specified for max. cross-section. |
| <b>Load rating with intermittent operation, class 12</b> |       |         |  |
| AB 25 % DF   |       | $x I_e$ | 2  |
| AB 40 % DF   |       | $x I_e$ | 1.6  |
| AB 60 % DF   |       | $x I_e$ | 1.3  |
| <b>Short-circuit rating</b>                              |       |         |  |
| Fuse   |       | A gG/gL | 100  |

|   |          |           |                                |
|---|----------|-----------|--------------------------------|
| Rated short-time withstand current (1 s current)    | $I_{cw}$ | $A_{rms}$ | 2000                           |
| Note on rated short-time withstand current $I_{cw}$ |          |           | Current for a time of 1 second |
| Rated conditional short-circuit current             | $I_q$    | kA        | 4                              |

## Switching capacity

|   |              |               |       |
|---|--------------|---------------|-------|
| cos $\phi$ rated making capacity as per IEC 60947-3 |              | A             | 950   |
| Rated breaking capacity cos $\phi$ to IEC 60947-3   |              | A             |       |
| 230 V   |              | A             | 760   |
| 400/415 V   |              | A             | 740   |
| 500 V   |              | A             | 880   |
| 690 V   |              | A             | 520   |
| Safe isolation to EN 61140                          |              |               |       |
| between the contacts                                |              | V AC          | 440   |
| Current heat loss per contact at $I_e$              |              | W             | 7.5   |
| Lifespan, mechanical                                | Operations   | $\times 10^6$ | > 0.1 |
| Maximum operating frequency                         | Operations/h |               | 1200  |
| AC  |              |               |       |
| AC-3  |              |               |       |
| Rating, motor load switch                           | P            | kW            |       |
| 220 V 230 V   | P            | kW            | 22    |
| 400 V 415 V   | P            | kW            | 37    |
| 500 V   | P            | kW            | 45    |
| 690 V   | P            | kW            | 37    |
| Rated operational current motor load switch         |              |               |       |
| 230 V   | $I_e$        | A             | 71    |
| 400V 415 V  | $I_e$        | A             | 71    |
| 500 V   | $I_e$        | A             | 65    |
| 690 V   | $I_e$        | A             | 23.8  |
| AC-23A  |              |               |       |
| Motor rating AC-23A, 50 - 60 Hz                     | P            | kW            |       |
| 230 V   | P            | kW            | 30    |
| 400 V 415 V   | P            | kW            | 55    |
| 500 V   | P            | kW            | 55    |
| 690 V   | P            | kW            | 55    |
| Rated operational current motor load switch         |              |               |       |
| 230 V   | $I_e$        | A             | 100   |
| 400 V 415 V   | $I_e$        | A             | 100   |
| 500 V   | $I_e$        | A             | 96    |
| 690 V   | $I_e$        | A             | 68    |
| DC  |              |               |       |
| DC-1, Load-break switches L/R = 1 ms                |              |               |       |
| Voltage per contact pair in series                  |              | V             | 60    |
| DC-23A, motor load switch L/R = 15 ms               |              |               |       |
| 24 V  |              |               |       |
| Rated operational current                           | $I_e$        | A             | 50    |
| Contacts  |              | Quantity      | 1     |
| 48 V  |              |               |       |
| Rated operational current                           | $I_e$        | A             | 50    |
| Contacts  |              | Quantity      | 2     |
| 60 V  |              |               |       |
| Rated operational current                           | $I_e$        | A             | 50    |
| Contacts  |              | Quantity      | 2     |
| 120 V   |              |               |       |
| Rated operational current                           | $I_e$        | A             | 25    |
| Contacts  |              | Quantity      | 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 (2,5 - 35)<br>2 x (2,5 - 10) |
| Flexible with ferrules to DIN 46228  |  | mm <sup>2</sup> | 1 x (1.5 - 25)<br>2 x (1.5 - 6)  |
| Terminal screw                       |  |                 | M5                               |
| Tightening torque for terminal screw |  | Nm              | 3                                |

### Technical safety parameters:

|              |  |  |   |
|--------------|--|--|---|
| <b>Notes</b> |  |  | B10 <sub>q</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     | 100  |
| Notes                                    |                |       | If used with neutral conductor: I <sub>U</sub> = max. 90 A |
| Auxiliary contacts                       |                |       |  |
| General Use                              | I <sub>U</sub> | A     | 10   |
| Pilot Duty                               |                |       | A 600<br>P 600   |
| <b>Switching capacity</b>                |                |       |  |
| Maximum motor rating                     |                |       |  |
| Single-phase                             |                |       |  |
| 120 V AC                                 |                | HP    | 5  |
| 200 V AC                                 |                | HP    | 10   |
| 240 V AC                                 |                | HP    | 15   |
| Three-phase                              |                |       |  |
| 200 V AC                                 |                | HP    | 20   |
| 240 V AC                                 |                | HP    | 25   |
| 480 V AC                                 |                | HP    | 60   |
| 600 V AC                                 |                | HP    | 75   |
| <b>Short Circuit Current Rating</b>      |                |       |  |
|  |                | SCCR  |  |
| Basic Rating                             |                | kA    | 10   |
| max. Fuse                                |                | A     | 150  |
| <b>Terminal capacity</b>                 |                |       |  |
| Solid or flexible conductor with ferrule |                | AWG   | 14 - 2   |
| Terminal screw                           |                |       | M5   |
| Tightening torque                        |                | lb-in | 26.5   |

### Design verification as per IEC/EN 61439

|  |                   |    |  |
|--|-------------------|----|--|
| <b>Technical data for design verification</b>  |                   |    |  |
| Rated operational current for specified heat dissipation   | I <sub>n</sub>    | A  | 100  |
| Heat dissipation per pole, current-dependent   | P <sub>vid</sub>  | W  | 7.5  |
| 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   |
| <b>IEC/EN 61439 design verification</b>  |                   |    |  |
| 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) / 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  | 690                                      |
| Rated operating voltage   | V  | 690 - 690                                |
| Rated permanent current I <sub>u</sub>  | A  | 100                                      |
| Rated permanent current at AC-23, 400 V   | A  | 100                                      |
| Rated permanent current at AC-21, 400 V   | A  | 100                                      |
| Rated operation power at AC-3, 400 V  | kW | 37                                       |
| Rated short-time withstand current I <sub>cw</sub>  | kA | 2  |
| Rated operation power at AC-23, 400 V   | kW | 55                                       |
| Switching power at 400 V  | kW | 55                                       |
| Conditioned rated short-circuit current I <sub>q</sub>  | kA | 4  |
| Number of poles   |    | 3  |
| 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  |    | No                                       |
| Suitable for front mounting 4-hole  |    | No                                       |
| Suitable for front mounting centre  |    | No                                       |
| Suitable for distribution board installation  |    | No                                       |
| Suitable for intermediate mounting  |    | No                                       |
| Colour control element  |    | Other                                    |

|   |  |                  |
|---|--|------------------|
| Type of control element                       |  | Other            |
| Interlockable                                 |  | No               |
| Type of electrical connection of main circuit |  | Screw connection |
| Degree of protection (IP), front side         |  | IP65             |
| Degree of protection (NEMA)                   |  | Other            |

## Additional product information (links)

|  |   |
|--|---|
| 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> |