

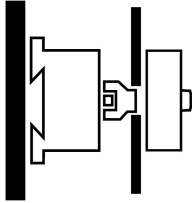
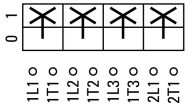
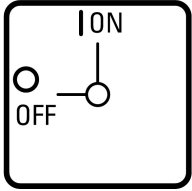


**Main switch, 3 pole + N, 160 A, Emergency-Stop function, Lockable in the 0 (Off) position, rear mounting**

**Part no. P5-160/V/SVB/N**  
**Catalog No. 280930**

**EL-Nummer (Norway) 0001417182**

**Delivery program**

|                                                    |                |     |                                                                                                                             |
|----------------------------------------------------|----------------|-----|-----------------------------------------------------------------------------------------------------------------------------|
| Product range                                      |                |     | Main switch<br>maintenance switch<br>Repair switch                                                                          |
| Part group reference                               |                |     | P5                                                                                                                          |
| Stop Function                                      |                |     | Emergency switching off function                                                                                            |
| Information about equipment supplied               |                |     | With red rotary handle and yellow locking ring                                                                              |
| Number of poles                                    |                |     | 3 pole + N                                                                                                                  |
| <b>Auxiliary contacts</b>                          |                |     |                                                                                                                             |
|                                                    |                | N/O | 0                                                                                                                           |
|                                                    |                | N/C | 0                                                                                                                           |
| Locking facility                                   |                |     | Lockable in the 0 (Off) position                                                                                            |
| Degree of Protection                               |                |     | Front IP65                                                                                                                  |
| Design                                             |                |     | rear mounting                                                                                                               |
|                                                    |                |     |                                         |
| Contact sequence                                   |                |     |  <p>1L1 1T1 1L2 1T2 1L3 1T3 2L1 2T1</p> |
| Function                                           |                |     |                                         |
| <b>Motor rating AC-23A, 50 - 60 Hz</b>             |                |     |                                                                                                                             |
| 400 V                                              | P              | kW  | 55                                                                                                                          |
| Rated uninterrupted current                        | I <sub>u</sub> | A   | 160                                                                                                                         |
| Note on rated uninterrupted current I <sub>u</sub> |                |     | Rated uninterrupted current I <sub>u</sub> is specified for max. cross-section.                                             |

**Technical data**

|                                       |  |    |                                                                                                  |
|---------------------------------------|--|----|--------------------------------------------------------------------------------------------------|
| <b>General</b>                        |  |    |                                                                                                  |
| Standards                             |  |    | IEC/EN 60947, VDE 0660, IEC/EN 60204, CSA, UL<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 | 8000        |
| Mounting position               |           |      | As required |

## Contacts

|                                                     |          |              |                                                                        |
|-----------------------------------------------------|----------|--------------|------------------------------------------------------------------------|
| Mechanical variables                                |          |              |                                                                        |
| Number of poles                                     |          |              | 3 pole + N                                                             |
| Auxiliary contacts                                  |          |              |                                                                        |
|                                                     |          | N/O          | 0                                                                      |
|                                                     |          | N/C          | 0                                                                      |
| Electrical characteristics                          |          |              |                                                                        |
| Rated operational voltage                           | $U_e$    | V AC         | 690                                                                    |
| Rated uninterrupted current                         | $I_u$    | A            | 160                                                                    |
| 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                                          |          | $\times I_e$ | 2                                                                      |
| AB 40 % DF                                          |          | $\times I_e$ | 1.6                                                                    |
| AB 60 % DF                                          |          | $\times I_e$ | 1.3                                                                    |
| Short-circuit rating                                |          |              |                                                                        |
| Fuse                                                |          | A gG/gL      | 160                                                                    |
| Rated short-time withstand current (1 s current)    | $I_{cw}$ | $A_{rms}$    | 3000                                                                   |
| Note on rated short-time withstand current $I_{cw}$ |          |              | Current for a time of 1 second                                         |
| Rated conditional short-circuit current             | $I_q$    | kA           | 30                                                                     |

## Switching capacity

|                                                     |              |               |       |
|-----------------------------------------------------|--------------|---------------|-------|
| cos $\phi$ rated making capacity as per IEC 60947-3 |              | A             | 1050  |
| Rated breaking capacity cos $\phi$ to IEC 60947-3   |              | A             |       |
| 230 V                                               |              | A             | 900   |
| 400/415 V                                           |              | A             | 850   |
| 500 V                                               |              | A             | 850   |
| 690 V                                               |              | A             | 340   |
| Safe isolation to EN 61140                          |              |               |       |
| between the contacts                                |              | V AC          | 440   |
| Current heat loss per contact at $I_e$              |              | W             | 10    |
| Lifespan, mechanical                                | Operations   | $\times 10^6$ | > 0.1 |
| Maximum operating frequency                         | Operations/h |               | 50    |
| AC                                                  |              |               |       |
| AC-3                                                |              |               |       |
| Rating, motor load switch                           | P            | kW            |       |
| 220 V 230 V                                         | P            | kW            | 30    |
| 400 V 415 V                                         | P            | kW            | 45    |
| 500 V                                               | P            | kW            | 55    |
| 690 V                                               | P            | kW            | 37    |
| Rated operational current motor load switch         |              |               |       |
| 230 V                                               | $I_e$        | A             | 103   |
| 400V 415 V                                          | $I_e$        | A             | 85    |
| 500 V                                               | $I_e$        | A             | 80    |
| 690 V                                               | $I_e$        | A             | 42    |
| AC-21A                                              |              |               |       |
| Rated operational current switch                    |              |               |       |
| 440 V                                               | $I_e$        | A             | 160   |
| AC-23A                                              |              |               |       |
| Motor rating AC-23A, 50 - 60 Hz                     |              |               |       |
| 230 V                                               | P            | kW            | 30    |
| 400 V 415 V                                         | P            | kW            | 55    |
| 500 V                                               | P            | kW            | 75    |
| 690 V                                               | P            | kW            | 37    |

|                                               |                   |                |                                                     |
|-----------------------------------------------|-------------------|----------------|-----------------------------------------------------|
| Rated operational current motor load switch   |                   |                |                                                     |
| 230 V                                         | I <sub>e</sub>    | A              | 103                                                 |
| 400 V 415 V                                   | I <sub>e</sub>    | A              | 105                                                 |
| 500 V                                         | I <sub>e</sub>    | A              | 106                                                 |
| 690 V                                         | I <sub>e</sub>    | A              | 42                                                  |
| DC                                            |                   |                |                                                     |
| DC-1, Load-break switches L/R = 1 ms          |                   |                |                                                     |
| Rated operational current                     | I <sub>e</sub>    | A              | 160                                                 |
| Voltage per contact pair in series            |                   | V              | 42                                                  |
| DC-23A, motor load switch L/R = 15 ms         |                   |                |                                                     |
| 24 V                                          |                   |                |                                                     |
| Rated operational current                     | I <sub>e</sub>    | A              | 160                                                 |
| Contacts                                      |                   | Quantity       | 3                                                   |
| 48 V                                          |                   |                |                                                     |
| Rated operational current                     | I <sub>e</sub>    | A              | 160                                                 |
| Contacts                                      |                   | Quantity       | 3                                                   |
| 60 V                                          |                   |                |                                                     |
| Rated operational current                     | I <sub>e</sub>    | A              | 160                                                 |
| Contacts                                      |                   | Quantity       | 3                                                   |
| 120 V                                         |                   |                |                                                     |
| Rated operational current                     | I <sub>e</sub>    | A              | 50                                                  |
| Contacts                                      |                   | Quantity       | 3                                                   |
| Control circuit reliability at 24 V DC, 10 mA | Fault probability | H <sub>F</sub> | < 10 <sup>-5</sup> , < 1 fault in 100000 operations |

### Terminal capacities

|                                      |                                           |                 |                            |
|--------------------------------------|-------------------------------------------|-----------------|----------------------------|
| Solid or stranded                    |                                           | mm <sup>2</sup> | 1 x 95<br>2 x 35           |
| Flexible with ferrules to DIN 46228  |                                           | mm <sup>2</sup> | 1 x 70<br>2 x 25           |
| Copper strip                         | Number of segments<br>x width x thickness | mm              | 1 x 13 x 3<br>2 x 13 x 1.5 |
| Terminal screw                       |                                           |                 | Allen screw 5              |
| Tightening torque for terminal screw |                                           | Nm              | 14                         |

### Technical safety parameters:

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

### Rating data for approved types

|                                  |                |      |       |
|----------------------------------|----------------|------|-------|
| Contacts                         |                |      |       |
| Rated operational voltage        | U <sub>e</sub> | V AC | 600   |
| Rated uninterrupted current max. |                |      |       |
| Main conducting paths            |                |      |       |
| General use                      |                | A    | 200   |
| Auxiliary contacts               |                |      |       |
| General Use                      | I <sub>U</sub> | A    | 10    |
| Pilot Duty                       |                |      | A 600 |
| Switching capacity               |                |      |       |
| Maximum motor rating             |                |      |       |
| Single-phase                     |                |      |       |
| 120 V AC                         |                | HP   | 10    |
| 240 V AC                         |                | HP   | 25    |
| 277 V AC                         |                | HP   | 25    |
| Three-phase                      |                |      |       |
| 120 V AC                         |                | HP   | 20    |
| 240 V AC                         |                | HP   | 40    |
| 480 V AC                         |                | HP   | 60    |
| 600 V AC                         |                | HP   | 60    |

| Short Circuit Current Rating             |       | SCCR |               |
|------------------------------------------|-------|------|---------------|
| Basic Rating                             | kA    |      | 10            |
| max. Fuse                                | A     |      | 400 Class RK1 |
| High fault rating                        | kA    |      | 65            |
| max. Fuse                                | A     |      | 300, Class J  |
| Terminal capacity                        |       |      |               |
| Solid or flexible conductor with ferrule | AWG   |      | 3/0           |
| Flexible                                 | AWG   |      | 2/0           |
| Terminal screw                           |       |      | Allen screw 5 |
| Tightening torque                        | lb-in |      | 125           |

## Design verification as per IEC/EN 61439

| Technical data for design verification                                                                                 |            |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Rated operational current for specified heat dissipation                                                               | $I_n$      | A  | 160                                                                                                                              |
| Heat dissipation per pole, current-dependent                                                                           | $P_{vid}$  | W  | 5                                                                                                                                |
| 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

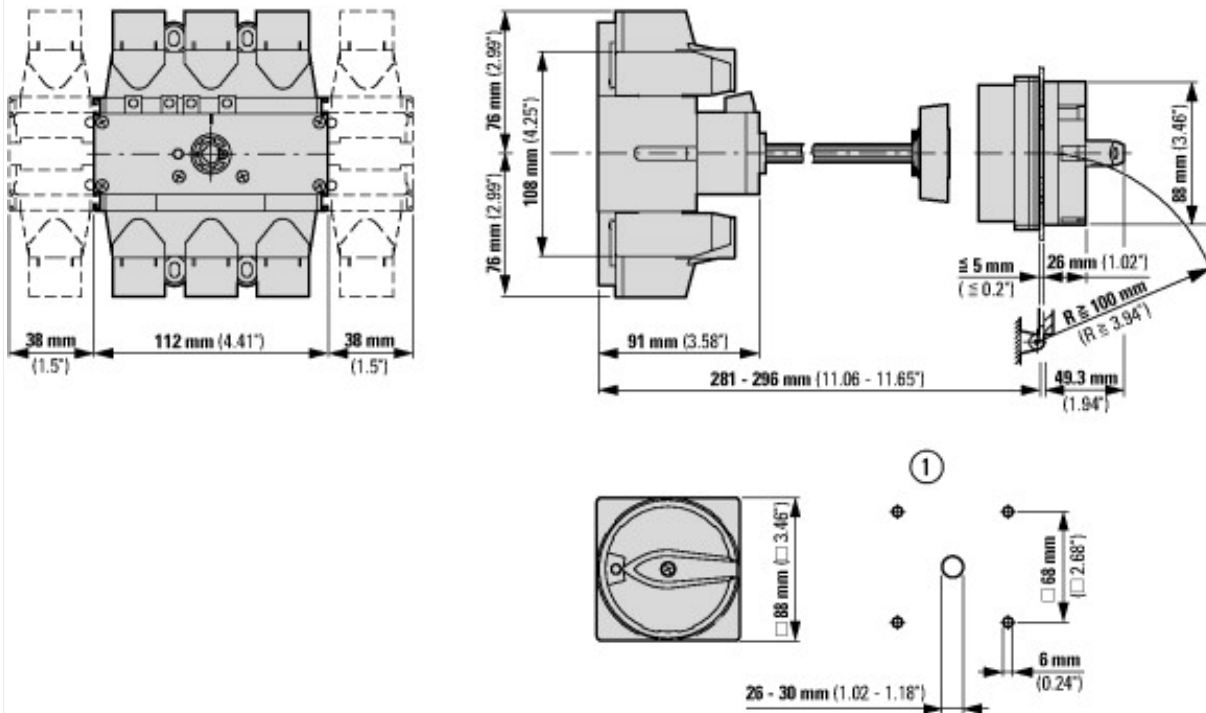
| Low-voltage industrial components (EG000017) / Switch disconnecter (EC000216)                                                                                                                                 |  |  |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----|
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Switch disconnecter (ecl@ss10.0.1-27-37-14-03 [AKF060013]) |  |  |     |
| Version as main switch                                                                                                                                                                                        |  |  | Yes |
| Version as maintenance-/service switch                                                                                                                                                                        |  |  | Yes |
| Version as safety switch                                                                                                                                                                                      |  |  | No  |

|                                                         |    |                                          |
|---------------------------------------------------------|----|------------------------------------------|
| Version as emergency stop installation                  |    | Yes                                      |
| Version as reversing switch                             |    | No                                       |
| Number of switches                                      |    | 1                                        |
| Max. rated operation voltage Ue AC                      | V  | 690                                      |
| Rated operating voltage                                 | V  | 690 - 690                                |
| Rated permanent current Iu                              | A  | 160                                      |
| Rated permanent current at AC-23, 400 V                 | A  | 105                                      |
| Rated permanent current at AC-21, 400 V                 | A  | 160                                      |
| Rated operation power at AC-3, 400 V                    | kW | 45                                       |
| Rated short-time withstand current Icw                  | kA | 3                                        |
| Rated operation power at AC-23, 400 V                   | kW | 55                                       |
| Switching power at 400 V                                | kW | 55                                       |
| Conditioned rated short-circuit current Iq              | kA | 30                                       |
| 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                            |    | No                                       |
| Suitable for front mounting 4-hole                      |    | No                                       |
| Suitable for front mounting centre                      |    | No                                       |
| Suitable for distribution board installation            |    | No                                       |
| Suitable for intermediate mounting                      |    | Yes                                      |
| Colour control element                                  |    | Red                                      |
| Type of control element                                 |    | Door coupling rotary drive               |
| Interlockable                                           |    | Yes                                      |
| Type of electrical connection of main circuit           |    | Frame clamp                              |
| Degree of protection (IP), front side                   |    | IP65                                     |
| Degree of protection (NEMA)                             |    | 12                                       |

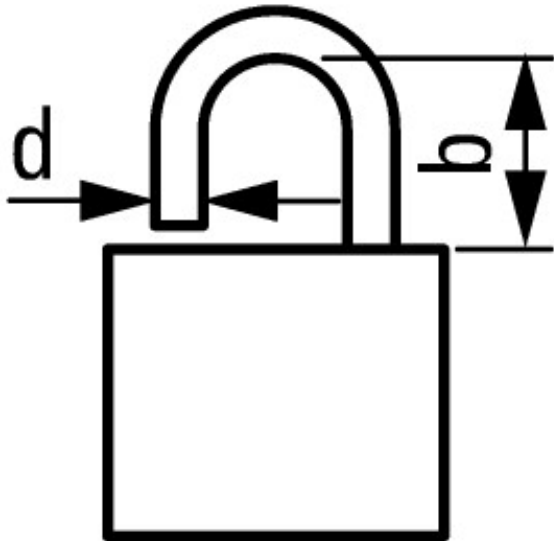
## Approvals

|                             |  |                                                                           |
|-----------------------------|--|---------------------------------------------------------------------------|
| 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, NLRV7                                                               |
| CSA File No.                |  | 223805                                                                    |
| CSA Class No.               |  | 3211-05                                                                   |
| North America Certification |  | UL listed, CSA certified                                                  |
| Suitable for                |  | Branch circuits, suitable as motor disconnect                             |
| Degree of Protection        |  | IEC: IP65; UL/CSA Type 1, 12                                              |

## Dimensions



① Drilling dimensions door



$$d = 4 - 8 \text{ mm}$$

$$b + d \leq 47 \text{ mm}$$

$$d = 0.16 - 0.31''$$

$$b + d \leq 1.85''$$

≤ 3 padlocks

## Assets (links)

[Declaration of CE Conformity](#)

00003041

[Instruction Leaflets](#)

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