

# Specifications



Photo is representative

## Eaton 280928

Eaton Moeller® series P5 Main switch, P5, 160 A, rear mounting, 3 pole, Emergency switching off function, With red rotary handle and yellow locking ring, Lockable in the 0 (Off) position

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller® series P5 Main switch
<b>CATALOG NUMBER</b>	280928
<b>EAN</b>	4015082809287
<b>PRODUCT LENGTH/DEPTH</b>	115 mm
<b>PRODUCT HEIGHT</b>	150 mm
<b>PRODUCT WIDTH</b>	130 mm
<b>PRODUCT WEIGHT</b>	1.343 kg
<b>CERTIFICATIONS</b>	CSA CSA File No.: 223805 UL Category Control No.: NLRV, NLRV7 CSA-C22.2 No. 94 CE IEC/EN 60947-3 IEC/EN 60204 UL File No.: E36332 IEC/EN 60947 UL 508 CSA Class No.: 3211-05 CSA-C22.2 No. 14-05 UL VDE 0660
<b>CATALOG NOTES</b>	Rated Short-time Withstand Current (Icw) for a time of 1 second
<b>MODEL CODE</b>	P5-160/V/SVB



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## Features & Functions

<b>FEATURES</b>	Version as main switch Version as emergency stop installation Version as maintenance-/service switch
<b>FITTED WITH:</b>	Red rotary handle and yellow locking ring
<b>FUNCTIONS</b>	Interlockable Emergency switching off function
<b>LOCKING FACILITY</b>	Lockable in the 0 (Off) position
<b>NUMBER OF POLES</b>	3

## Climatic environmental conditions

<b>AMBIENT OPERATING TEMPERATURE - MIN</b>	-25 °C
<b>AMBIENT OPERATING TEMPERATURE - MAX</b>	50 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN</b>	-25 °C
<b>AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX</b>	40 °C
<b>CLIMATIC PROOFING</b>	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

## General

<b>ACCESSORIES</b>	Auxiliary contact or neutral conductor fitted by user.
<b>DEGREE OF PROTECTION</b>	NEMA 12
<b>DEGREE OF PROTECTION (FRONT SIDE)</b>	IP65
<b>LIFESPAN, MECHANICAL</b>	100,000 Operations
<b>MOUNTING METHOD</b>	Rear mounting
<b>MOUNTING POSITION</b>	As required
<b>OPERATING FREQUENCY</b>	50 Operations/h
<b>OVERVOLTAGE CATEGORY</b>	III
<b>POLLUTION DEGREE</b>	3
<b>PRODUCT CATEGORY</b>	Main switch
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>	8000 V AC
<b>SAFE ISOLATION</b>	440 V AC, Between the contacts, According to EN 61140
<b>SAFETY PARAMETER (EN ISO 13849-1)</b>	B10d values as per EN ISO 13849-1, table C.1
<b>SUITABLE FOR</b>	Intermediate mounting Branch circuits, suitable as motor disconnect, (UL/CSA)

## Terminal capacities

<b>TERMINAL CAPACITY</b>	2 x 13 x 1.5 mm Number of segments x width x thickness, copper strip 1 x 70 mm <sup>2</sup> , flexible with ferrules to DIN 46228 2 x 35 mm <sup>2</sup> , solid or stranded 2/0 AWG, flexible 1 x 95 mm <sup>2</sup> , solid or stranded 3/0 AWG, solid or flexible conductor with ferrule 1 x 13 x 3 mm Number of segments x width x thickness, copper strip 2 x 25 mm <sup>2</sup> , flexible with ferrules to DIN 46228
<b>SCREW SIZE</b>	5 mm AF, Hexagon socket-head spanner, Terminal

	screw
<b>TIGHTENING TORQUE</b>	14 Nm, Screw terminals 125 lb-in, Screw terminals

## Electrical rating

**RATED BREAKING  
CAPACITY AT 220/230 V** 900 A  
(COS PHI TO IEC 60947-3)

**RATED BREAKING  
CAPACITY AT 400/415 V** 850 A  
(COS PHI TO IEC 60947-3)

**RATED BREAKING  
CAPACITY AT 500 V (COS  
PHI TO IEC 60947-3)** 850 A

**RATED BREAKING  
CAPACITY AT 660/690 V** 340 A  
(COS PHI TO IEC 60947-3)

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,** 103 A  
**220 V, 230 V, 240 V**

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,** 85 A  
**380 V, 400 V, 415 V**

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,** 80 A  
**500 V**

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,** 42 A  
**660 V, 690 V**

**RATED OPERATIONAL  
CURRENT (IE) AT AC-21,** 160 A  
**440 V**

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,** 103 A  
**230 V**

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,** 105 A  
**400 V, 415 V**

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,** 106 A  
**500 V**

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,** 42 A  
**690 V**

**RATED OPERATIONAL  
CURRENT (IE) AT DC-1,  
LOAD-BREAK SWITCHES** 160 A  
**L/R = 1 MS**

**RATED OPERATIONAL  
CURRENT (IE) AT DC-23A,** 160 A  
**24 V**

**RATED OPERATIONAL  
CURRENT (IE) AT DC-23A,** 160 A  
**48 V**

## Short-circuit rating

**RATED CONDITIONAL  
SHORT-CIRCUIT CURRENT** 30 kA  
(IQ)

**RATED SHORT-TIME  
WITHSTAND CURRENT** 3 kA, Contacts, 1 second  
(ICW) 3 kA

**SHORT-CIRCUIT CURRENT  
RATING (BASIC RATING)** 10 kA, SCCR (UL/CSA)  
400A Class RK1, max. Fuse,  
SCCR (UL/CSA)

**SHORT-CIRCUIT CURRENT  
RATING (HIGH FAULT)** 300 A, Class J, max. Fuse,  
SCCR (UL/CSA)  
65 kA, SCCR (UL/CSA)

**SHORT-CIRCUIT  
PROTECTION RATING** 160 A gG/gL, Fuse,  
Contacts

<b>RATED OPERATIONAL CURRENT (IE) AT DC-23A, 60 V</b>	160 A
<b>RATED OPERATIONAL CURRENT (IE) AT DC-23A, 120 V</b>	50 A
<b>RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ</b>	45 kW
<b>RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ</b>	45 kW
<b>RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ</b>	37 kW
<b>RATED OPERATIONAL POWER AT AC-23A, 220/230 V, 50 HZ</b>	30 kW
<b>RATED OPERATIONAL POWER AT AC-23A, 400 V, 50 HZ</b>	55 kW
<b>RATED OPERATIONAL POWER AT AC-23A, 500 V, 50 HZ</b>	75 kW
<b>RATED OPERATIONAL POWER AT AC-23A, 690 V, 50 HZ</b>	37 kW
<b>RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX</b>	690 V
<b>RATED UNINTERRUPTED CURRENT (IU)</b>	160 A
<b>UNINTERRUPTED CURRENT</b>	Rated uninterrupted current I <sub>u</sub> is specified for max. cross-section.

## Switching capacity

LOAD RATING	2 x I <sub>e</sub> (with intermittent operation class 12, 25 % duty factor)
	1.6 x I <sub>e</sub> (with intermittent operation class 12, 40 % duty factor)
	1.3 x I <sub>e</sub> (with intermittent operation class 12, 60 % duty factor)

NUMBER OF CONTACTS IN SERIES AT DC-23A, 24 V 3

NUMBER OF CONTACTS IN SERIES AT DC-23A, 48 V 3

NUMBER OF CONTACTS IN SERIES AT DC-23A, 60 V 3

NUMBER OF CONTACTS IN SERIES AT DC-23A, 120 V 3

SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE) 200 A, Rated uninterrupted current max. (UL/CSA)

SWITCHING CAPACITY (AUXILIARY CONTACTS, GENERAL USE) 10A, IU, (UL/CSA)

SWITCHING CAPACITY (AUXILIARY CONTACTS, PILOT DUTY) A600 (UL/CSA)

RATED MAKING CAPACITY UP TO 690 V (COS PHI TO IEC/EN 60947-3) 1050 A

VOLTAGE PER CONTACT PAIR IN SERIES 42 V

## Motor rating

ASSIGNED MOTOR  
POWER AT 115/120 V, 60 HZ, 1-PHASE 10 HP

ASSIGNED MOTOR  
POWER AT 115/120 V, 60 HZ, 3-PHASE 20 HP

ASSIGNED MOTOR  
POWER AT 230/240 V, 60 HZ, 1-PHASE 25 HP

ASSIGNED MOTOR  
POWER AT 230/240 V, 60 HZ, 3-PHASE 40 HP

ASSIGNED MOTOR  
POWER AT 277 V, 60 HZ, 1-PHASE 25 HP

ASSIGNED MOTOR  
POWER AT 460/480 V, 60 HZ, 3-PHASE 60 HP

ASSIGNED MOTOR  
POWER AT 575/600 V, 60 HZ, 3-PHASE 60 HP

## Contacts

<b>CONTROL CIRCUIT RELIABILITY</b>	1 failure per 100,000 switching operations statistically determined, at 24 V DC, 10 mA)
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<b>NUMBER OF AUXILIARY CONTACTS (CHANGE- OVER CONTACTS)</b>	0
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<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)</b>	0
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<b>NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)</b>	0
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## Actuator

<b>ACTUATOR COLOR</b>	Red
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<b>ACTUATOR TYPE</b>	Door coupling rotary drive
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## Design verification

<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>	5 W
<b>HEAT DISSIPATION CAPACITY PDISS</b>	0 W
<b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>	5 W
<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	160 A
<b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>	0 W
<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	UV resistance only in connection with protective shield.
<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
<b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.

## Resources

<b>BROCHURES</b>	<a href="#">Brochure - T Rotary Cam switch and P Switch-disconnector</a>
<b>CATALOGUES</b>	<a href="#">P Switch-disconnectors and T Rotary cam switches catalogue CA042001EN</a>
<b>DECLARATIONS OF CONFORMITY</b>	<a href="#">DA-DC-00004930.pdf</a> <a href="#">DA-DC-00004899.pdf</a>
<b>DRAWINGS</b>	<a href="#">eaton-rotary-switches-mounting-p5-main-switch-dimensions-004.eps</a> <a href="#">eaton-rotary-switches-padlock-t0-main-switch-dimensions.eps</a> <a href="#">eaton-general-mounting-p1-main-switch-symbol-002.eps</a> <a href="#">eaton-rotary-switches-mounting-p1-main-switch-3d-drawing-002.eps</a> <a href="#">eaton-rotary-switches-t0-main-switch-symbol.eps</a>
<b>ECAD MODEL</b>	<a href="#">ETN.280928.edz</a>
<b>INSTALLATION INSTRUCTIONS</b>	<a href="#">IL03802011Z2021_10.pdf</a>
<b>INSTALLATION VIDEOS</b>	<a href="#">Eaton's P Switch-disconnectors used in a factory</a>
<b>MCAD MODEL</b>	<a href="#">p5_160_v_svb.stp</a> <a href="#">p5_160_v_svb</a>
<b>WIRING DIAGRAMS</b>	<a href="#">eaton-rotary-switches-p5-main-switch-wiring-diagram.eps</a>



<b>10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS</b>	Does not apply, since the entire switchgear needs to be evaluated.
<b>10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS</b>	Is the panel builder's responsibility.
<b>10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS</b>	Is the panel builder's responsibility.
<b>10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH</b>	Is the panel builder's responsibility.
<b>10.9.3 IMPULSE WITHSTAND VOLTAGE</b>	Is the panel builder's responsibility.
<b>10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL</b>	Is the panel builder's responsibility.
<b>10.10 TEMPERATURE RISE</b>	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
<b>10.11 SHORT-CIRCUIT RATING</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.12 ELECTROMAGNETIC COMPATIBILITY</b>	Is the panel builder's responsibility. The specifications for the switchgear must be observed.
<b>10.13 MECHANICAL FUNCTION</b>	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



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