

# Specifications

## Eaton 064945

Eaton Moeller® series T0 Star-delta switches, T0, 20 A, service distribution board mounting, 4 contact unit(s), Contacts: 8, 60 °, maintained, With 0 (Off) position, 0-Y-D, Design number 8410

### General specifications

<b>PRODUCT NAME</b>	Eaton Moeller® series T0 Star-delta switch
<b>CATALOG NUMBER</b>	064945
<b>EAN</b>	4015080649458
<b>PRODUCT LENGTH/DEPTH</b>	111 mm
<b>PRODUCT HEIGHT</b>	55 mm
<b>PRODUCT WIDTH</b>	54 mm
<b>PRODUCT WEIGHT</b>	0.179 kg
<b>CERTIFICATIONS</b>	UL 60947-4-1 CE IEC/EN 60947 UL File No.: E36332 IEC/EN 60204 UL Category Control No.: NLRV VDE 0660 CSA Class No.: 3211-05 CSA-C22.2 No. 94 IEC/EN 60947-3 CSA File No.: 012528 CSA-C22.2 No. 60947-4-1-14 UL CSA
<b>CATALOG NOTES</b>	Rated Short-time Withstand Current (Icw) for a time of 1 second
<b>MODEL CODE</b>	T0-4-8410/IVS

## Features & Functions

<b>ENCLOSURE MATERIAL</b>	Plastic
<b>FITTED WITH:</b>	0 (off) position Black thumb grip and front plate
<b>INSCRIPTION</b>	0-Y-D
<b>NUMBER OF POLES</b>	3

## General

<b>DEGREE OF PROTECTION</b>	IP30
<b>DEGREE OF PROTECTION (FRONT SIDE)</b>	IP30 NEMA 2
<b>LIFESPAN, MECHANICAL</b>	400,000 Operations
<b>MODEL</b>	Star-delta switch
<b>MOUNTING METHOD</b>	Service distribution board mounting
<b>MOUNTING POSITION</b>	As required
<b>NUMBER OF CONTACT UNITS</b>	4
<b>OPERATING FREQUENCY</b>	1200 Operations/h
<b>OVERVOLTAGE CATEGORY</b>	III
<b>POLLUTION DEGREE</b>	3
<b>PRODUCT CATEGORY</b>	Control switches
<b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b>	6000 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>SHOCK RESISTANCE</b>	15 g, Mechanical, According to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms
<b>SUITABLE FOR</b>	Ground mounting Distribution board installation Branch circuits, suitable as motor disconnect, (UL/CSA) Front mounting
<b>SWITCHING ANGLE</b>	60 °
<b>TYPE</b>	Star-delta switch

## Climatic environmental conditions

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

<b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b>	2 x (0.75 - 2.5) mm <sup>2</sup> , ferrules to DIN 46228 1 x (0.75 - 2.5) mm <sup>2</sup> , ferrules to DIN 46228
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<b>TERMINAL CAPACITY (SOLID/FLEXIBLE WITH FERRULE AWG)</b>	18 - 14
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<b>TERMINAL CAPACITY (SOLID/STRANDED)</b>	1 x (1 - 2.5) mm <sup>2</sup> 2 x (1 - 2.5) mm <sup>2</sup>
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<b>SCREW SIZE</b>	M3.5, Terminal screw
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<b>TIGHTENING TORQUE</b>	8.8 lb-in, Screw terminals 1 Nm, Screw terminals
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## Electrical rating

**RATED BREAKING  
CAPACITY AT 220/230 V  
(COS PHI TO IEC 60947-3)** 100 A

**RATED BREAKING  
CAPACITY AT 400/415 V  
(COS PHI TO IEC 60947-3)** 110 A

**RATED BREAKING  
CAPACITY AT 500 V (COS  
PHI TO IEC 60947-3)** 80 A

**RATED BREAKING  
CAPACITY AT 660/690 V  
(COS PHI TO IEC 60947-3)** 60 A

**RATED OPERATIONAL  
CURRENT (IE)** 20 A at AC-3, 400 V star-  
delta  
8.5 A at AC-3, 690 V star-  
delta  
20 A at AC-3, 230 V star-  
delta  
15.6 A at AC-3, 500 V star-  
delta

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,  
220 V, 230 V, 240 V** 11.5 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,  
380 V, 400 V, 415 V** 11.5 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,  
500 V** 9 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-3,  
660 V, 690 V** 4.9 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-21,  
440 V** 20 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,  
230 V** 13.3 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,  
400 V, 415 V** 13.3 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,  
500 V** 13.3 A

**RATED OPERATIONAL  
CURRENT (IE) AT AC-23A,  
690 V** 7.6 A

**RATED OPERATIONAL  
CURRENT (IE) AT DC-1,** 10 A

## Short-circuit rating

**RATED CONDITIONAL  
SHORT-CIRCUIT CURRENT  
(IQ)** 6 kA

**RATED SHORT-TIME  
WITHSTAND CURRENT  
(ICW)** 320 A, Contacts, 1 second

**SHORT-CIRCUIT CURRENT  
RATING (BASIC RATING)** 50A, max. Fuse, SCCR  
(UL/CSA)  
5 kA, SCCR (UL/CSA)

**SHORT-CIRCUIT CURRENT  
RATING (HIGH FAULT)** 10 kA, SCCR (UL/CSA)  
20 A, Class J, max. Fuse,  
SCCR (UL/CSA)

**SHORT-CIRCUIT  
PROTECTION RATING** 20 A gG/gL, Fuse, Contacts

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**LOAD-BREAK SWITCHES****L/R = 1 MS**

<b>RATED OPERATIONAL CURRENT (IE) AT DC-13, CONTROL SWITCHES L/R = 50 MS</b>	10 A
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<b>RATED OPERATIONAL CURRENT (IE) AT DC-21, 240 V</b>	1 A
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<b>RATED OPERATIONAL CURRENT (IE) AT DC-23A, 24 V</b>	10 A
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<b>RATED OPERATIONAL CURRENT (IE) AT DC-23A, 48 V</b>	10 A
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<b>RATED OPERATIONAL CURRENT (IE) AT DC-23A, 60 V</b>	10 A
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<b>RATED OPERATIONAL CURRENT (IE) AT DC-23A, 120 V</b>	5 A
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<b>RATED OPERATIONAL CURRENT (IE) AT DC-23A, 240 V</b>	5 A
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<b>RATED OPERATIONAL POWER AT AC-3, 380/400 V, 50 HZ</b>	5.5 kW
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<b>RATED OPERATIONAL POWER AT AC-3, 415 V, 50 HZ</b>	5.5 kW
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<b>RATED OPERATIONAL POWER AT AC-3, 690 V, 50 HZ</b>	4 kW
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<b>RATED OPERATIONAL POWER AT AC-23A, 220/230 V, 50 HZ</b>	3 kW
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<b>RATED OPERATIONAL POWER AT AC-23A, 400 V, 50 HZ</b>	5.5 kW
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<b>RATED OPERATIONAL POWER AT AC-23A, 500 V, 50 HZ</b>	7.5 kW
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<b>RATED OPERATIONAL POWER AT AC-23A, 690 V, 50 HZ</b>	5.5 kW
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<b>RATED OPERATIONAL POWER STAR-DELTA AT 220/230 V, 50 HZ</b>	5.5 kW
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<b>RATED OPERATIONAL POWER STAR-DELTA AT</b>	7.5 kW
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<b>380/400 V, 50 HZ</b>	
<b>RATED OPERATIONAL POWER STAR-DELTA AT 500 V, 50 HZ</b>	7.5 kW
<b>RATED OPERATIONAL POWER STAR-DELTA AT 690 V, 50 HZ</b>	5.5 kW
<b>RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX</b>	690 V
<b>RATED UNINTERRUPTED CURRENT (IU)</b>	20 A
<b>UNINTERRUPTED CURRENT</b>	Rated uninterrupted current Iu is specified for max. cross-section.

## Switching capacity

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

### NUMBER OF CONTACTS IN SERIES AT DC-21A, 240 V

1

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

1

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

2

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

3

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

3

### NUMBER OF CONTACTS IN SERIES AT DC-23A, 240 V

5

### SWITCHING CAPACITY (MAIN CONTACTS, GENERAL USE)

16 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)  
P300 (UL/CSA)

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

130 A

### VOLTAGE PER CONTACT PAIR IN SERIES

60 V

## Motor rating

### ASSIGNED MOTOR

**POWER AT 115/120 V, 60 HZ, 1-PHASE** 0.5 HP

### ASSIGNED MOTOR

**POWER AT 200/208 V, 60 HZ, 1-PHASE** 1 HP

### ASSIGNED MOTOR

**POWER AT 200/208 V, 60 HZ, 3-PHASE** 3 HP

### ASSIGNED MOTOR

**POWER AT 230/240 V, 60 HZ, 1-PHASE** 1.5 HP

### ASSIGNED MOTOR

**POWER AT 230/240 V, 60 HZ, 3-PHASE** 3 HP

### ASSIGNED MOTOR

**POWER AT 460/480 V, 60 HZ, 3-PHASE** 7.5 HP

### ASSIGNED MOTOR

**POWER AT 575/600 V, 60 HZ, 3-PHASE** 7.5 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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<b>NUMBER OF CONTACTS</b>	8
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## Actuator

<b>ACTUATOR FUNCTION</b>	Maintained With 0 (Off) position
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<b>ACTUATOR TYPE</b>	Short thumb-grip
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## Design verification

<b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b>	0 W
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<b>HEAT DISSIPATION CAPACITY PDISS</b>	0 W
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<b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b>	0.6 W
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<b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b>	20 A
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<b>STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS</b>	0 W
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<b>10.2.2 CORROSION RESISTANCE</b>	Meets the product standard's requirements.
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<b>10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES</b>	Meets the product standard's requirements.
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<b>10.2.3.2 VERIFICATION OF RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>	Meets the product standard's requirements.
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<b>10.2.3.3 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. EFFECTS</b>	Meets the product standard's requirements.
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<b>10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION</b>	Meets the product standard's requirements.
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<b>10.2.5 LIFTING</b>	Does not apply, since the entire switchgear needs to be evaluated.
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<b>10.2.6 MECHANICAL IMPACT</b>	Does not apply, since the entire switchgear needs to be evaluated.
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<b>10.2.7 INSCRIPTIONS</b>	Meets the product standard's requirements.
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<b>10.3 DEGREE OF PROTECTION OF ASSEMBLIES</b>	Does not apply, since the entire switchgear needs to be evaluated.
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<b>10.4 CLEARANCES AND CREEPAGE DISTANCES</b>	Meets the product standard's requirements.
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<b>10.5 PROTECTION AGAINST ELECTRIC SHOCK</b>	Does not apply, since the entire switchgear needs to be evaluated.
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<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.

## Resources

### BROCHURES

[Brochure - T Rotary Cam switch and P Switch-disconnector](#)

### CATALOGUES

[P Switch-disconnectors and T Rotary cam switches catalogue CA042001EN](#)

### DECLARATIONS OF CONFORMITY

[DA-DC-00004927.pdf](#) [DA-DC-00004895.pdf](#)

### DRAWINGS

[eaton-rotary-switches-mounting-t0-step-switch-dimensions.eps](#)

	<a href="#">eaton-rotary-switches-mounting-t0-step-switch-dimensions-005.eps</a> <a href="#">eaton-rotary-switches-mounting-t0-changeover-switch-3d-drawing.eps</a> <a href="#">eaton-general-rotary-switch-t0-step-switch-symbol-005.eps</a> <a href="#">eaton-rotary-switches-front-plate-t0-star-delta-switch-symbol-006.eps</a>
ECAD MODEL	<a href="#">ETN.064945.edz</a>
INSTALLATION INSTRUCTIONS	<a href="#">IL03801006Z</a>
INSTALLATION VIDEOS	<a href="#">Eaton's P Switch-disconnectors used in a factory</a>
MCAD MODEL	<a href="#">DA-CS-t0_4_ivs</a> <a href="#">DA-CD-t0_4_ivs</a>
PRODUCT NOTIFICATIONS	<a href="#">MZ008005ZU_Orderform_Customized_Switch.pdf</a> <a href="#">MZ008006ZU_Orderform_Customized_Switch.pdf</a>
WIRING DIAGRAMS	<a href="#">eaton-rotary-switches-star-delta-t0-star-delta-switch-wiring-diagram.eps</a>

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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