

# Specifications



## Eaton 177187

Eaton Moeller® series LS Position switches, 1N/C+1N/O, rounded plunger, +actuator ZB, Cold Climate -40°C LS-11S-CC-ZB

### General specifications

|                             |                                                                                                                                                                                                                            |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRODUCT NAME</b>         | Eaton Moeller® series LS Position switch                                                                                                                                                                                   |
| <b>CATALOG NUMBER</b>       | 177187                                                                                                                                                                                                                     |
| <b>MODEL CODE</b>           | LS-11S-CC-ZB                                                                                                                                                                                                               |
| <b>EAN</b>                  | 4015081716319                                                                                                                                                                                                              |
| <b>PRODUCT LENGTH/DEPTH</b> | 96 mm                                                                                                                                                                                                                      |
| <b>PRODUCT HEIGHT</b>       | 34 mm                                                                                                                                                                                                                      |
| <b>PRODUCT WIDTH</b>        | 31 mm                                                                                                                                                                                                                      |
| <b>PRODUCT WEIGHT</b>       | 0.08 kg                                                                                                                                                                                                                    |
| <b>CERTIFICATIONS</b>       | IEC/EN 60947                                                                                                                                                                                                               |
| <b>CATALOG NOTES</b>        | <ul style="list-style-type: none"><li>• Contacts with safety function, by positive opening to IEC/EN 60947-5-1</li><li>• Contains a silicone seal to increase resistance to ozone, detergents and disinfectants.</li></ul> |



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## Features & Functions

|                                 |                                       |
|---------------------------------|---------------------------------------|
| <b>ELECTRIC CONNECTION TYPE</b> | Cable entry metrical                  |
| <b>ENCLOSURE MATERIAL</b>       | Plastic<br>Insulated material         |
| <b>FEATURES</b>                 | Snap-action contact<br>Forced opening |
| <b>SWITCH FUNCTION TYPE</b>     | Quick-break switch                    |

## Ambient conditions, mechanical

|                          |                                                                        |
|--------------------------|------------------------------------------------------------------------|
| <b>MOUNTING POSITION</b> | As required<br>Horizontal<br>Vertical                                  |
| <b>SHOCK RESISTANCE</b>  | 25 g, Standard-action contact, Mechanical, Half-sinusoidal shock 20 ms |

## Terminal capacities

|                                                  |                                                                    |
|--------------------------------------------------|--------------------------------------------------------------------|
| <b>TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)</b> | 2 x (0.5 - 1.5) mm <sup>2</sup><br>1 x (0.5 - 1.5) mm <sup>2</sup> |
| <b>TERMINAL CAPACITY (SOLID)</b>                 | 1 x (0.5 - 1.5) mm <sup>2</sup><br>2 x (0.5 - 1.5) mm <sup>2</sup> |
| <b>SCREW SIZE</b>                                | PH1, Terminal screw                                                |

## General

|                                               |                                                                                                    |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>CONNECTION TYPE</b>                        | Cage Clamp                                                                                         |
| <b>DEGREE OF PROTECTION</b>                   | IP65<br>NEMA Other                                                                                 |
| <b>OPERATING FREQUENCY</b>                    | 1800 Operations/h                                                                                  |
| <b>OVERVOLTAGE CATEGORY</b>                   | III                                                                                                |
| <b>POLLUTION DEGREE</b>                       | 3                                                                                                  |
| <b>PRODUCT CATEGORY</b>                       | Safety position switches                                                                           |
| <b>RATED IMPULSE WITHSTAND VOLTAGE (UIMP)</b> | 4000 V AC                                                                                          |
| <b>REPETITION ACCURACY</b>                    | 0.15 mm<br>(Contacts/switching capacity)                                                           |
| <b>SUITABLE FOR</b>                           | Safety functions                                                                                   |
| <b>TYPE</b>                                   | <ul style="list-style-type: none"><li>• Position switch</li><li>• Safety position switch</li></ul> |

## Climatic environmental conditions

|                                            |                                                                                |
|--------------------------------------------|--------------------------------------------------------------------------------|
| <b>AMBIENT OPERATING TEMPERATURE - MIN</b> | -40 °C                                                                         |
| <b>AMBIENT OPERATING TEMPERATURE - MAX</b> | 70 °C                                                                          |
| <b>CLIMATIC PROOFING</b>                   | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |

## Electrical rating

|                                                                     |       |
|---------------------------------------------------------------------|-------|
| <b>RATED INSULATION VOLTAGE (UI)</b>                                | 400 V |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 220 V, 230 V, 240 V</b> | 6 A   |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 24 V</b>                | 6 A   |
| <b>RATED OPERATIONAL CURRENT (IE) AT AC-15, 380 V, 400 V, 415 V</b> | 4 A   |
| <b>RATED OPERATIONAL CURRENT (IE) AT DC-13,</b>                     | 0.6 A |

## 110 V

|                                                       |       |
|-------------------------------------------------------|-------|
| <b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 125 V</b> | 0.8 A |
|-------------------------------------------------------|-------|

|                                                              |       |
|--------------------------------------------------------------|-------|
| <b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 220 V, 230 V</b> | 0.3 A |
|--------------------------------------------------------------|-------|

|                                                      |     |
|------------------------------------------------------|-----|
| <b>RATED OPERATIONAL CURRENT (IE) AT DC-13, 24 V</b> | 3 A |
|------------------------------------------------------|-----|

|                                        |                                |
|----------------------------------------|--------------------------------|
| <b>SHORT-CIRCUIT PROTECTION RATING</b> | Max. 6 A gG/gL, Fuse, Contacts |
|----------------------------------------|--------------------------------|

|                         |                       |
|-------------------------|-----------------------|
| <b>SUPPLY FREQUENCY</b> | Max. 400 Hz, Contacts |
|-------------------------|-----------------------|

## Actuator

|                      |         |
|----------------------|---------|
| <b>ACTUATOR TYPE</b> | Plunger |
|----------------------|---------|

## Safety

|                                          |      |
|------------------------------------------|------|
| <b>EXPLOSION SAFETY CATEGORY FOR GAS</b> | None |
|------------------------------------------|------|

|                                           |      |
|-------------------------------------------|------|
| <b>EXPLOSION SAFETY CATEGORY FOR DUST</b> | None |
|-------------------------------------------|------|

## Contacts

|                                                  |   |
|--------------------------------------------------|---|
| <b>NUMBER OF CONTACTS (CHANGE-OVER CONTACTS)</b> | 0 |
|--------------------------------------------------|---|

|                                                      |   |
|------------------------------------------------------|---|
| <b>NUMBER OF CONTACTS (NORMALLY CLOSED CONTACTS)</b> | 1 |
|------------------------------------------------------|---|

|                                                    |   |
|----------------------------------------------------|---|
| <b>NUMBER OF CONTACTS (NORMALLY OPEN CONTACTS)</b> | 1 |
|----------------------------------------------------|---|

## Design verification

|                                                           |     |
|-----------------------------------------------------------|-----|
| <b>EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID</b> | 0 W |
|-----------------------------------------------------------|-----|

|                                        |     |
|----------------------------------------|-----|
| <b>HEAT DISSIPATION CAPACITY PDISS</b> | 0 W |
|----------------------------------------|-----|

|                                                          |        |
|----------------------------------------------------------|--------|
| <b>HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID</b> | 0.17 W |
|----------------------------------------------------------|--------|

|                                                                      |     |
|----------------------------------------------------------------------|-----|
| <b>RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)</b> | 6 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</b> | Meets the product |
|---------------------------------|-------------------|

|                                                                                         |                                                                                                                                  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>RESISTANCE OF INSULATING MATERIALS TO NORMAL HEAT</b>                                | 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>                                 | Meets the product standard's requirements.                                                                                       |
| <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.                                                               |
| <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</b>                                                              | Is the panel builder's                                                                                                           |

|                                            |                                                                                                          |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>RATING</b>                              | 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

### CATALOGUES

[eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf](#)

[eaton-pushbuttons-signal-towers-sensors-assortment-overview-catalog-ca047003en-en-us.pdf](#)

### DECLARATIONS OF CONFORMITY

[eaton-safety-position-switch-declaration-of-conformity-uk251041en.pdf](#)

[eaton-safety-position-switch-declaration-of-conformity-eu250558en.pdf](#)

[DA-DC-00004362.pdf](#)

[DA-DC-00004359.pdf](#)

### DRAWINGS

[eaton-safety-position-switches-ls-dimensions.eps](#)

[eaton-safety-position-switches-switch-ls-3d-drawing.eps](#)

### ECAD MODEL

[ETN.177187.edz](#)

### INSTALLATION INSTRUCTIONS

[eaton-position-switches-ls-zb-safety-position-switch-instruction-leaflet-il05208003z.pdf](#)

### MCAD MODEL

[DA-CD-ls\\_zb\\_mit\\_betaetiger](#)

[DA-CS-ls\\_zb\\_mit\\_betaetiger](#)

### SALES NOTES

[eaton-safety-switches-rs-titan-flyer-fl053001en-en-us.pdf](#)

### WIRING DIAGRAMS

[eaton-safety-position-switches-contact-ls-wiring-diagram.eps](#)

|                 |
|-----------------|
| PROJECT NAME:   |
| PROJECT NUMBER: |
| PREPARED BY:    |
| DATE:           |



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