

## Description

Single or multipole hydraulic-magnetic circuit breakers with trip-free-mechanism and toggle actuation. A choice of switching characteristics ensures suitability for a wide range of applications. Industry standard dimensions and panel mounting. Auxiliary contacts optional. Low temperature sensitivity at rated load. Approved to CBE standard EN 60934 (IEC 60934) S-type HM CBE.

## Typical applications

In the business fields Communication and Transport: power supplies, switchgear, instrumentation and process control engineering.

## Standard current ratings and typical internal resistance values

| Current rating (A) | Trip curves and internal resistance ( $\Omega$ ) per pole |            |
|--------------------|---|------------|
|                    | K1, M1, T1,   | K2, M2, T2 |
| 0.05               | 452   | 376        |
| 0.1                | 100   | 94         |
| 1                  | 0.95  | 0.90       |
| 2                  | 0.26  | 0.20       |
| 3                  | 0.10  | 0.10       |
| 5                  | 0.042   | 0.040      |
| 10                 | < 0.02  | < 0.02     |
| 15                 | < 0.02  | < 0.02     |
| 20                 | < 0.02  | < 0.02     |
| 25                 | < 0.02  | < 0.02     |
| 30                 | < 0.02  | < 0.02     |
| 40                 | < 0.01  | < 0.01     |
| 50                 | < 0.01  | < 0.01     |
| 60                 | < 0.01  | < 0.01     |
| 80                 | < 0.01  | < 0.01     |
| 100                | < 0.01  | < 0.01     |
| 125                | < 0.01  | < 0.01     |

## Interrupting capacity to EN 60934, UL 489 and UL 1077

### IEC 60934 – test series E

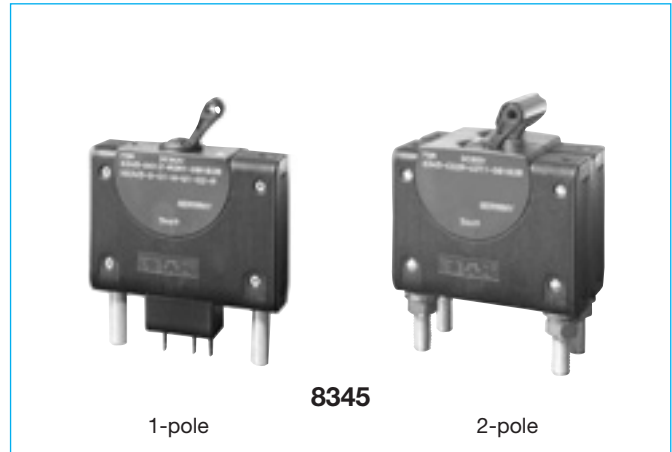
| voltage      | number of poles | $I_N$ max. (A) | $I_{cn}$ (A)   |
|--------------|-----------------|----------------|----------------|
| DC 80 V      | 1 + 2           | 0.02...125     | 10,000         |
| AC 240/415 V | 1 - 6           | 0.02...80      | $6 \times I_N$ |
| AC 240 V     | 1               | 0.02...20      | 5,000          |

### UL 489 – test sequence Z

| voltage      | number of poles | $I_N$ max. (A) | $I_{cn}$ (A) |
|--------------|-----------------|----------------|--------------|
| DC 80 V      | 1 + 2           | 0.5...125      | 10,000       |
| AC 120 V     | 1               | 0.5...80       | 5,000        |
| AC 120/240 V | 1               | 0.5...80       | 5,000        |
| AC 240 V     | 1 (2)           | 0.5...20       | 5,000        |

### UL 1077

| voltage      | number of poles | $I_N$ max. (A) | $I_{cn}$ (A) |
|--------------|-----------------|----------------|--------------|
| DC 80 V      | 1 + 2           | 0.02...125     | 10,000       |
| AC 277/480 V | 1 - 6           | 0.02...70      | 5,000        |



## Technical data

|                                      |  |
|--------------------------------------|--|
| Voltage rating                       | 3 AC 415 V; AC 277/480 V; AC 120/240 V; AC 240 V; DC 80 V,   |
| Current rating range                 | 0.05...125 A single and multipole<br>150...180 A single pole, two poles connected in parallel<br>higher ratings upon request           |
| Auxiliary circuit                    | AC 240 V 6 A; DC 28 V 3 A<br>DC 65 V 1 A; DC 80 V 0.5 A  |
| Typical life                         | 10,000 operations at $1 \times I_N$  |
| Ambient temperature                  | -40...+85 °C (-40...+185 °F)   |
| Insulation co-ordination (IEC 60664) | 2.5 kV/2<br>reinforced insulation in operating area  |
| Dielectric strength                  | test voltage   |
| operating area                       | AC 3,000 V   |
| pole to pole                         | AC 1,500 V   |
| main to auxiliary circuit            | AC 3,000 V   |
| switching to trip circuit            | AC 1,500 V   |
| Insulation resistance                | > 100 M $\Omega$ (DC 500 V)  |
| Degree of protection (IEC 60529)     | operating area IP40<br>terminal area IP00  |
| Vibration                            |  |
| with toggle down:                    | 10 g (57-2000 Hz) $\pm 0.76$ mm (10-57Hz) at $0.9 I_N$   |
| directions 1, 2, 3, 4, 5:            | 10 g at $1 \times I_N$   |
| with curves F1, F2:                  | 10 g at $0.8 \times I_N$ in all planes.<br>(57-2000 Hz) $\pm 0.76$ mm (10-57 Hz) to IEC 60068-2-6, test Fc<br>10 frequency cycles/axis |
| Shock                                |  |
| directions 1, 2, 3, 4, 5:            | 100 g (11 ms) at $1 \times I_N$ ,  |
| direction 6:                         | 100 g (11 ms) at $0.8 \times I_N$ ,  |
| with curves F1, F2:                  | 100 g (11 ms) at $0.8 \times I_N$ to IEC 60068-2-27, test Ea   |
| Corrosion                            | 96 hours at 5% salt mist, to IEC 60068-2-11, test Ka   |
| Humidity                             | 240 hours at 95 % RH, to IEC 60068-2-3, test Ca  |
| Mass                                 | approx. 90 - 120 g per pole depending on version   |

## Approvals

|                |              |
|----------------|--------------|
| VDE (EN 60934) | 1- to 6-pole |
| UL 489         |              |
| UL 1077        | 1- to 6-pole |
| CCC            | 1- to 4-pole |

## Ordering information

Type No.  
8345

### Mounting

- B** flange mounting, with rectangular aperture with mounting nut 6-32UNC
- C** flange mounting, with rectangular aperture with mounting nut M3
- E** flange mounting, with round aperture with mounting nut 6-32UNC
- F** flange mounting, with round aperture with mounting nut M3

### Configuration

- 0** without barrier
- 1** with small barrier
- 2** with large barrier (request for multipole AC applications with approvals to UL 489, UL 1077, IEC)

### Number of poles

- 0** single pole unprotected
- 1** single pole protected
- 2** two pole protected
- 3** three pole protected
- 4** four pole protected
- P** one pole protected, two poles connected in parallel characteristic curves E/H/R upon request
- Q** one pole protected, three poles connected in parallel characteristic curves E/H/R upon request
- R** one pole protected, four poles connected in parallel characteristic curves E/H/R upon request
- S** one pole protected, five poles connected in parallel characteristic curves E/H/R upon request

### Actuator configuration

- A** all poles with standard toggle
- B** reduced number of standard toggles
- Z** without actuator

### Terminal design

- L** screw terminals  $M5 \leq 50$  A
- M** solder terminals  $\leq 75$  A
- P** blade terminals  $\leq 35$  A
- R** round connectors 6 mm
- S** stud terminals  $M5 \leq 60$  A
- T** stud terminals 10-32UNF-3A  $\leq 60$  A
- U** stud terminals  $M6 \leq 125$  A
- V** stud terminals 1/4-20UNC-3A  $\leq 125$  A
- W** laminated round terminals  $\leq 125$  A

### Terminal hardware

- 0** without
- 3** with washer and nut
- 6** Phillips screws

### Characteristic curve

- K1** short delay DC
- K2** short delay AC
- M0** medium delay AC/DC
- M1** medium delay DC
- M2** medium delay AC
- Q0** switch only
- T1** long delay DC
- T2** long delay AC

### Illumination

- without

### Version

- D** standard

### Colour configuration

- B1** black actuator
- B2** white actuator
- B8** blue actuator

### Marking

|           | front plate  | actuator base |
|-----------|--|---------------|
| <b>A1</b> | without  | without       |
| <b>A2</b> | $I_N$  | without       |
| <b>A3</b> | $I_N$ , characteristic curve                         | without       |
| <b>A4</b> | $I_N$ , characteristic curve, wiring diagram on side | without       |
| <b>B1</b> | without  | ON-OFF        |
| <b>B2</b> | $I_N$  | ON-OFF        |
| <b>B3</b> | $I_N$ characteristic curve                           | ON-OFF        |
| <b>B4</b> | $I_N$ , characteristic curve, wiring diagram on side | ON-OFF        |

8345 - C 0 1 A - U 3 M1 - . D B1 A1 ...

8345 - C 0 1 A - U 3 M1 - . D B1 A1

### Rated voltage

**B** AC or  $\leq 80$  V DC

**C** DC  $\leq 80$  V  
AC  $\leq 277$  V  
(only for configurations 0 and 1)

### Current ratings

0.05...125 A  
higher current ratings upon request

### Approvals (optional)

**V** UL 489

8345 - C 0 1 A - U 3 M1 - . D B1 A1 B - 60 A - . ordering example

Remote trip coil available to special order!

## Ordering information for auxiliary contact module

Type number

X8345

### Module

**S** auxiliary contact module

### Auxiliary contacts

- 01** in all poles
- 02** in pole 1 only
- 03** in poles 1 + 3 only
- 04** in pole 2 only

### Auxiliary contact version

- H** auxiliary contacts standard, gold-flushed (asymmetrical terminals not for UL 489)
- K** auxiliary contacts, tin-plated (symmetrical terminals)

### Auxiliary contact function

- W1** 1 changeover
- W2** 2 changeover

### Terminal design

- 02** microswitch with blade terminals DIN 46244-A2.8-0.5

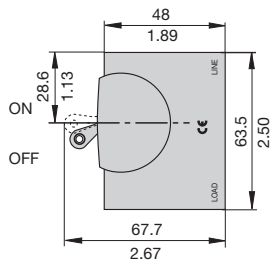
- M** mounted to base unit

X8345 - S 01 H W1 02 M ordering example

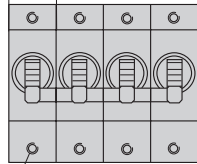
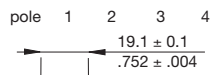
## Dimensions

### Mounting version B/C

Flange mounting rectangular aperture



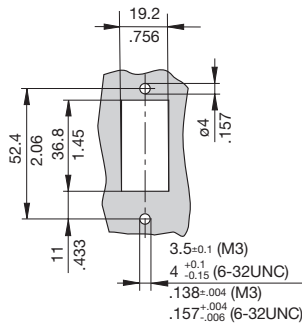
number of poles 1 to 4



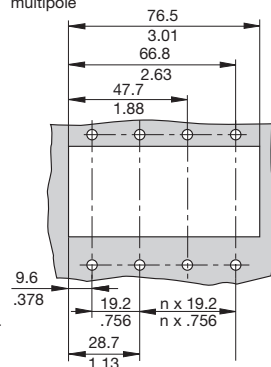
mounting thread M3 or 6-32  
all dimensions referred to the top edge  
mounting depth 4.2 mm/.165 in.  
max. insertion depth 5.5 mm  
max. tightening torque 0.33 Nm

### Cut-out dimensions:

1-pole

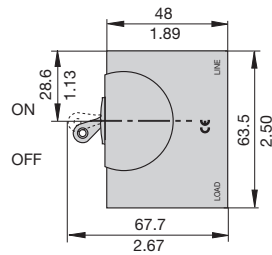


multipole

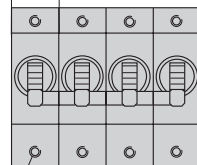
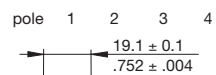


### Mounting version E/F

Flange mounting round aperture



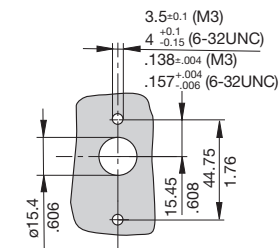
number of poles 1 to 4



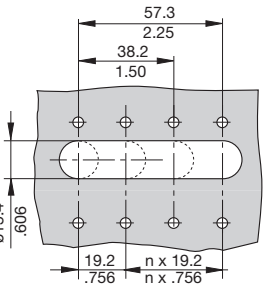
mounting thread M3 or 6-32  
all dimensions referred to the top edge  
mounting depth 4.2 mm/.165 in.  
max. insertion depth 5.5 mm  
max. tightening torque 0.33 Nm

### Cut-out dimensions:

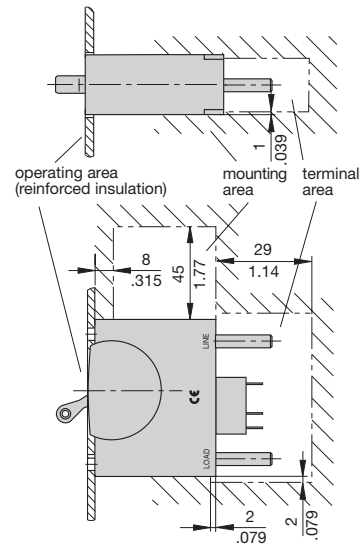
1-pole



4-pole

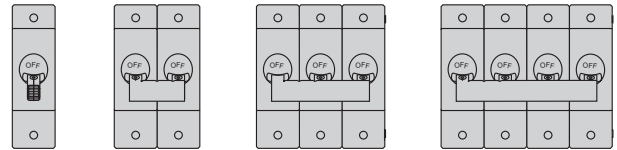


## Installation drawing

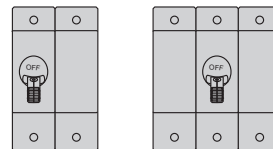


## Actuator configuration

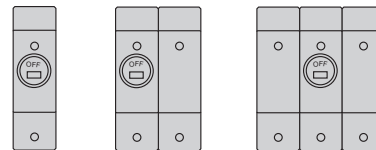
### A 1 toggle per pole, mounting version B/C



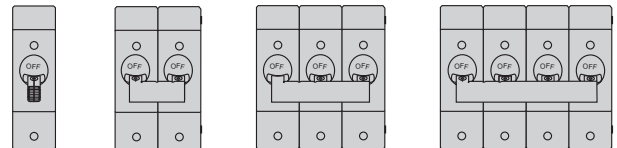
### B reduced number of toggles per unit, mounting version B/C



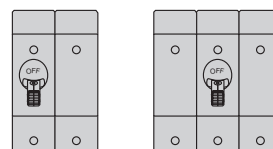
### Z without toggles



### A 1 toggle per pole, mounting version E/F



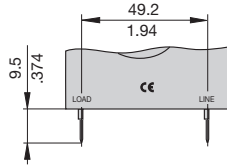
### B reduced number of toggles per unit, mounting version E/F



This is a metric design and millimeter dimensions take precedence ( $\frac{\text{mm}}{\text{inch}}$ )

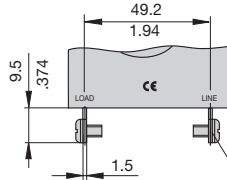
## Terminal design / Dimensions

### P - with blade terminals



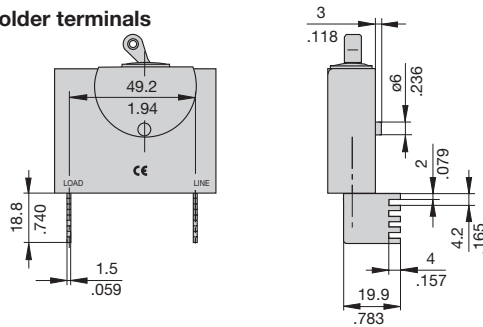
blade terminal A6.3-0.8  
(QC .250) DIN 46244

### L - with screw terminals

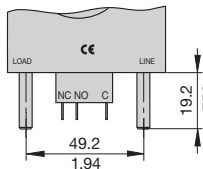


terminal with flat head screw M5  
tightening torque max. 1.2 Nm

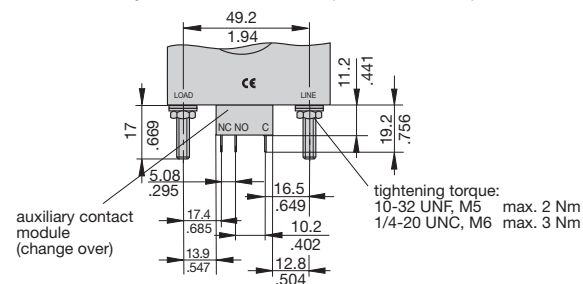
### M - with solder terminals



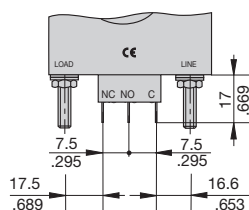
### R - round connectors D = 6 mm (dia. .236) (version H) asymmetrical terminals (not for UL 489)



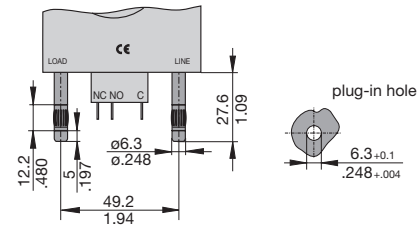
### S/U/T/V - with auxiliary contacts (version H) asymmetrical terminals (not for UL 489)



### auxiliary contacts version K symmetrical terminals



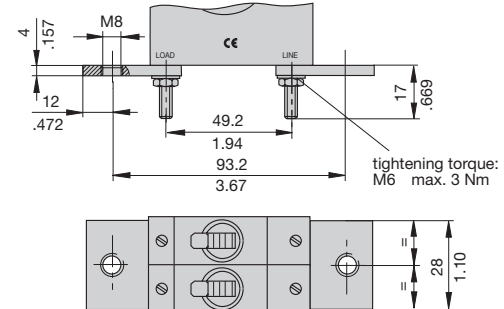
### W - laminated round terminals



## Number of poles / Dimensions

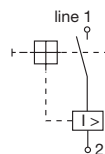
### P 1-pole protected, 2-poles connected in parallel for rating currents from 150 to 200 A

tightening torque:  
M8 max. 6 Nm

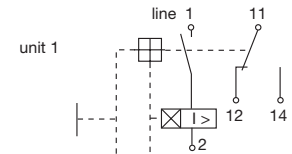


## Internal connection diagrams

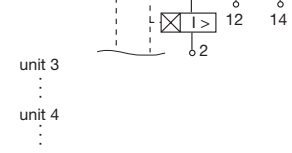
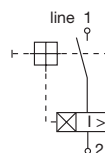
### 1-pole protected magnetically



### multipole



### 1-pole protected hydraulic-magnetically

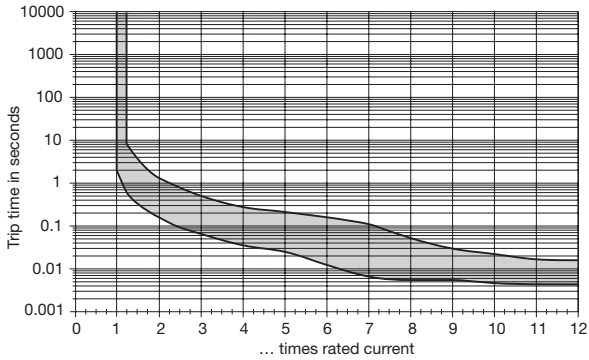


This is a metric design and millimeter dimensions take precedence (mm)  
inch

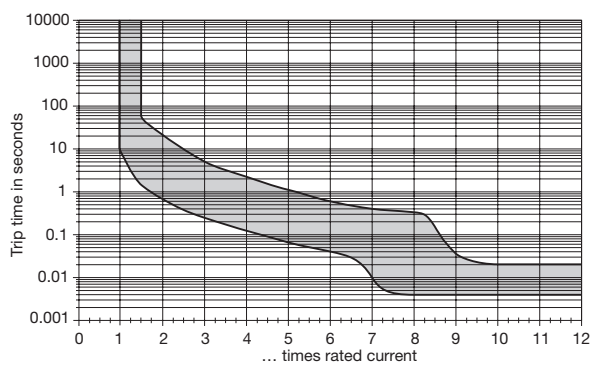
## Typical time/current characteristics at +23 °C / +73.4 °F

(trip time at rated current and all poles symmetrically loaded)

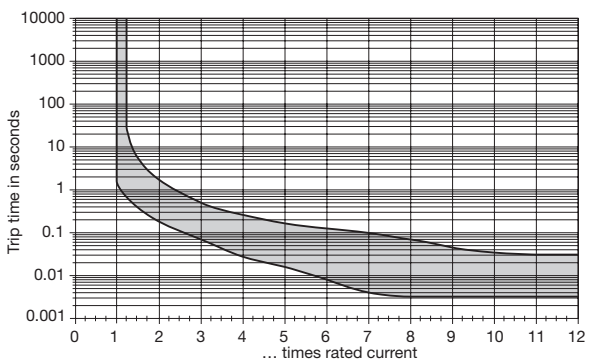
**Curve K1 (short delay) for DC**



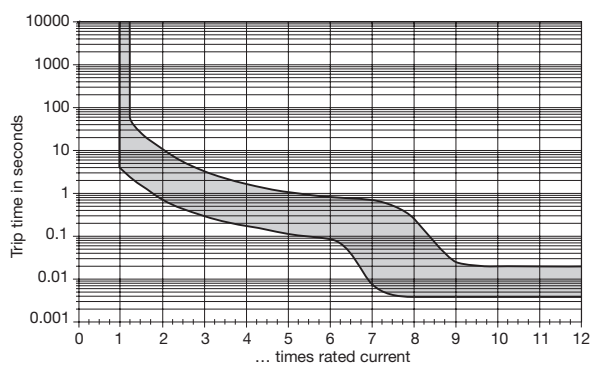
**Curve M0 (medium delay) for AC/DC**



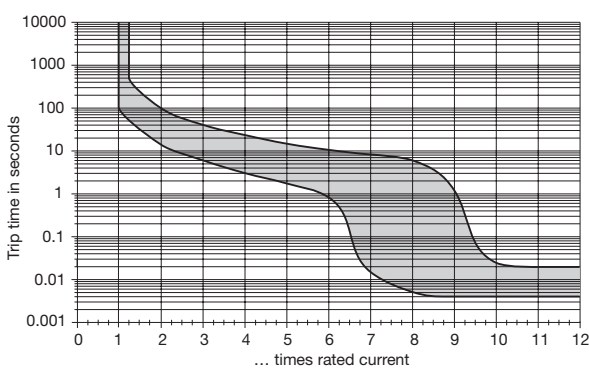
**Curve K2 (short delay) for AC 50/60 Hz**



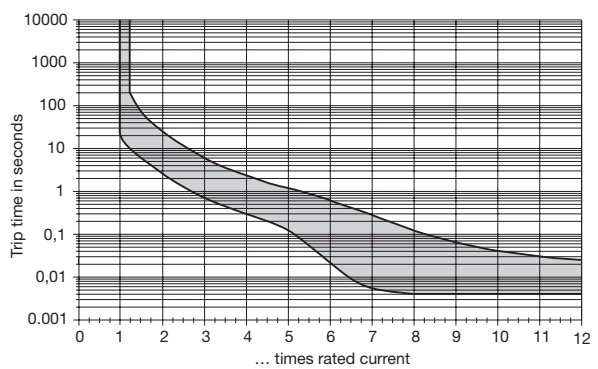
**Curve M1 (medium delay) for DC**



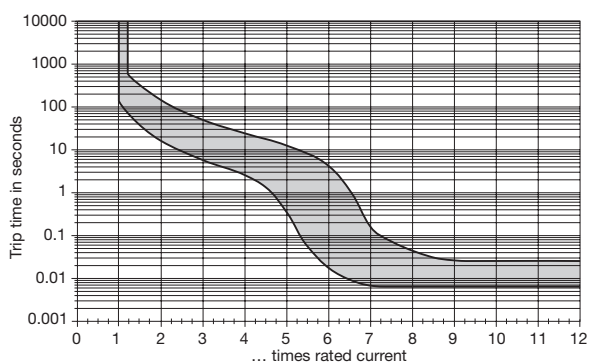
**Curve T1 (long delay) for DC**



**Curve M2 (medium delay) for AC 50/60 Hz**



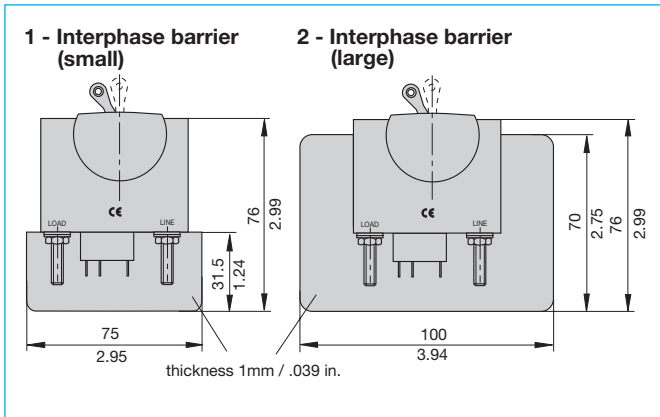
**Curve T2 (long delay) for AC 50/60 Hz**



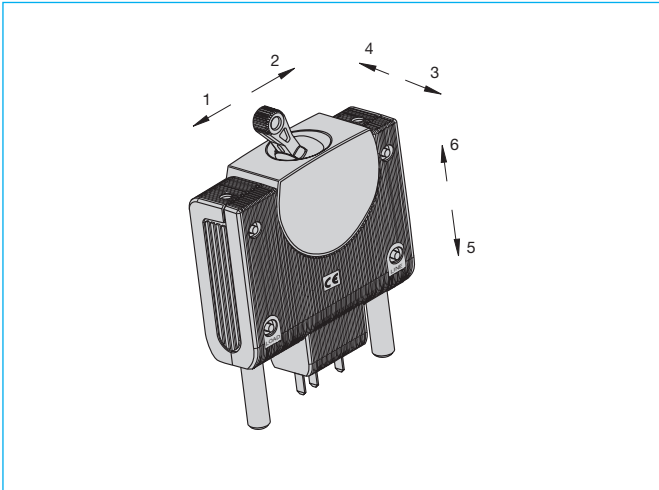
All curves will only be maintained if the escutcheon is mounted on a vertical surface.

**Other characteristic curves to special order ( e. g. pulse delayed, for high inrush currents or capacitive loads).**

## Interphase barriers / Dimensions



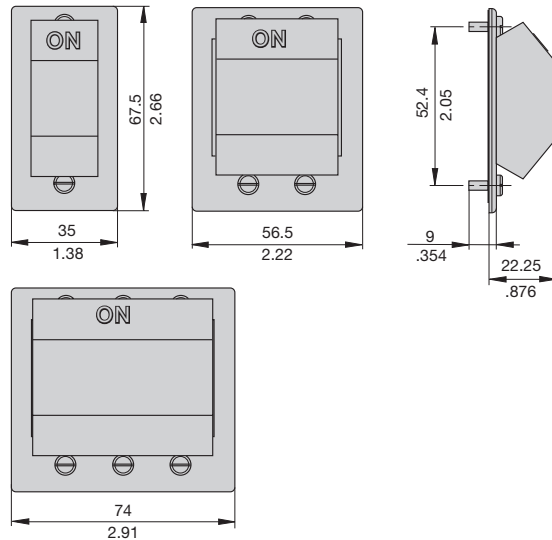
## Shock directions



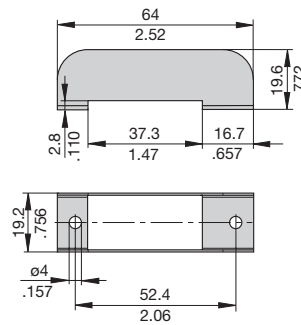
## Accessories

Splash cover (IP65) for 1-, 2-, 3-pole (only for mounting version B/C)

|              | number of poles | mounting version | actuator configuration |
|--------------|-----------------|------------------|------------------------|
| X 222 444 01 | 1-pole          | B                | 1                      |
| X 222 444 02 | 1-pole          | C                | 1                      |
| X 222 444 11 | 2-pole          | B                | 2                      |
| X 222 444 12 | 2-pole          | C                | 2                      |
| X 222 444 21 | 3-pole          | B                | 3                      |
| X 222 444 22 | 3-pole          | C                | 3                      |



Toggle guard (only for mounting version B/C)  
Y 307 381 01



This is a metric design and millimeter dimensions take precedence ( $\frac{\text{mm}}{\text{inch}}$ )

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.

## Description

A module which adds remote trip capability to all versions of type 8345. A voltage applied across the coil, by means of an external sensor for example, will cause disconnection of the main switch/circuit breaker mechanism.

## Typical applications

Electrical monitoring of safety systems, remote trip.

## Ordering information

|  |                                   |
|--|-----------------------------------|
| <b>Type No.</b>                          |                                   |
| X8345                                    | Module for type 8345              |
| <b>Module</b>                            |                                   |
| F  | remote trip module                |
| <b>Assembly version</b>                  |                                   |
| 01                                       | only in pole 1                    |
| 02                                       | only in pole 2                    |
| 03                                       | only in pole 3                    |
| 04                                       | only in pole 4                    |
| <b>Remote trip version</b>               |                                   |
| X1                                       | DC                                |
| <b>Voltage rating</b>                    |                                   |
| 12                                       | 12 V                              |
| 24                                       | 24 V                              |
| <b>Terminal design</b>                   |                                   |
| 02                                       | blade terminals DIN 4644-A2.8-0.5 |
| M  | module mounted to circuit breaker |
| X8345 - F 01 X1 12 02 M ordering example |                                   |

## Voltage ratings and typical internal resistance values

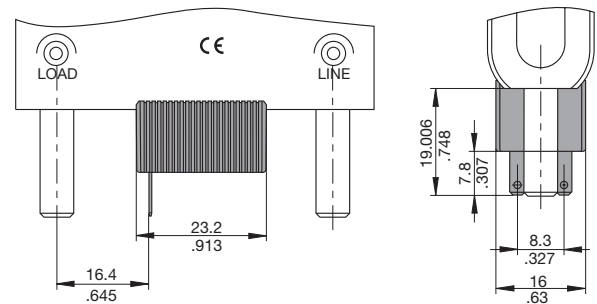
| Voltage ratings | Internal resistance ( $\Omega$ ) |
|-----------------|----------------------------------|
| DC 12 V         | 3.4                              |
| DC 24 V         | 13.9                             |

This is a metric design and millimeter dimensions take precedence ( $\frac{\text{mm}}{\text{inch}}$ )

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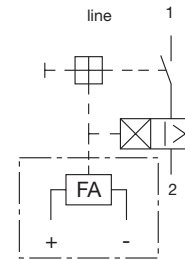
## Dimensions

Additional remote trip module



## Internal connection diagram

1-pole protected hydraulic-magnetically with additional remote trip coil



## Technical data

|  |  |
|--|--|
| Voltage ratings  | DC 12 V and DC 24 V  |
| Power consumption  | approx. 40 W   |
| Pulse operation  | 20 ms < t <sub>ON</sub> < 100 ms / t <sub>OFF</sub> > 10 sec<br>(Continuous duty possible for multipole devices upon request)  |
| Typical life   | 10,000 operations at U <sub>N</sub>  |
| Ambient temperature  | -40...+85 °C (-40...+185 °F)   |
| Insulation co-ordination (IEC 60664)                           | 2.5 kV/2 (EN 60934)  |
| Dielectric strength between main circuit and trip coil circuit | test voltage<br>AC 3,000 V (EN 60934)  |
| Insulation resistance  | > 100 M $\Omega$ (DC 500 V)  |
| Vibration  | 6 g (57-2000 Hz) $\pm$ 0.46 mm (10-57 Hz) shock direction 1/2<br>4 g (57-2000 Hz) $\pm$ 0.30 mm (10-57 Hz) shock direction 3/4<br>3 g (57-2000 Hz) $\pm$ 0.23 mm (10-57 Hz) shock direction 5/6<br>to IEC 60068-2-6, test Fc<br>10 frequency cycles/axis |
| Shock  | 100 g (11 ms)<br>(not when mounted upside down)<br>to IEC 60068-2-27, test Ea  |
| Corrosion  | 96 hours at 5 % salt mist,<br>to IEC 60068-2-11, test Ka   |
| Humidity   | 240 hours at 95 % RH<br>to IEC 60068-2-3, test Ca  |
| Mass   | approx. 8.5 g (without base unit)  |



Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А