

# Molded Case Circuit Breakers

## کلیدهای اتوماتیک

### Susol MCCB Series

### کلیدهای اتوماتیک سری سوسل

#### MCCB types

#### تیپ های مختلف کلیدهای اتوماتیک



| Type                                                            | مدل های مختلف کلیدهای اتوماتیک         | TD 100                              | TD 160                                                                    | TS 100              |
|-----------------------------------------------------------------|----------------------------------------|-------------------------------------|---------------------------------------------------------------------------|---------------------|
| Frame size                                                      | AF سایز بدنه (آمبر فریم)               | 100                                 | 160                                                                       | 100                 |
| Rated current, I <sub>n</sub> ***                               | A جریان نامی                           | 16, 20, 25, 32, 40, 50, 63, 80, 100 | 1P: 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160<br>2, 3P: 100, 125, 160 | 40, 50, 63, 80, 100 |
| Number of poles (P)                                             | تعداد پل ها                            | 2*, 3, 4                            | 1, 2*, 3, 4                                                               | 2*, 3, 4            |
| Rated operational voltage, U <sub>e</sub>                       | V ولتاژ نامی AC                        | 690                                 | 240(1P), 690                                                              | 690                 |
|                                                                 | V ولتاژ نامی DC                        | 500                                 | 250(1P), 500                                                              | 500                 |
| Rated impulse withstand voltage, U <sub>imp</sub>               | kV ولتاژ ضربه قابل تحمل                | 8                                   | 8                                                                         | 8                   |
| Rated insulation voltage, U <sub>i</sub>                        | V ولتاژ عایقی نامی                     | 750                                 | 750                                                                       | 750                 |
| Rated ultimate short-circuit breaking capacity, I <sub>cu</sub> | kA ماکزیمم "قدرت قطع" اتصال کوتاه نامی |                                     |                                                                           |                     |
|                                                                 | 220 / 240 V                            | N                                   | N                                                                         | N                   |
|                                                                 | 380 / 415 V                            | H                                   | H                                                                         | H                   |
|                                                                 | 440 / 460 V                            | L                                   | L                                                                         | L                   |
|                                                                 | 480 / 500 V                            | 85                                  | 30(1P)<br>85                                                              | 100                 |
|                                                                 | 660 / 690 V                            | 50                                  | 50(1P)<br>100                                                             | 200                 |
|                                                                 |                                        | 50                                  | 50                                                                        | 50                  |
|                                                                 |                                        | 70                                  | 70                                                                        | 70                  |
|                                                                 |                                        | 130                                 | 130                                                                       | 130                 |
|                                                                 |                                        | 30                                  | 30                                                                        | 42                  |
|                                                                 |                                        | 65                                  | 65                                                                        | 65                  |
|                                                                 |                                        | 10                                  | 10                                                                        | 10                  |
|                                                                 |                                        | 8                                   | 8                                                                         | 15                  |
|                                                                 |                                        | 10                                  | 10                                                                        | 20                  |
|                                                                 |                                        | 42                                  | 16(1P)<br>42                                                              | 50                  |
|                                                                 |                                        | 65                                  | 25(1P)<br>65                                                              | 85                  |
|                                                                 |                                        | 100                                 | 100                                                                       | 100                 |
|                                                                 |                                        | 42                                  | 42                                                                        | 50                  |
|                                                                 |                                        | 65                                  | 65                                                                        | 85                  |
|                                                                 |                                        | 100                                 | 100                                                                       | 100                 |
|                                                                 |                                        | 100%                                | 100%                                                                      | 100%                |
|                                                                 |                                        | 100%                                | 100%                                                                      | 100%                |
|                                                                 |                                        | 100%                                | 100%                                                                      | 100%                |
|                                                                 |                                        | 187                                 | 105(1P)<br>187                                                            | 220                 |
|                                                                 |                                        | 220                                 | 105(1P)<br>220                                                            | 264                 |
|                                                                 |                                        | 440                                 | 440                                                                       | 440                 |
|                                                                 |                                        | 105                                 | 105                                                                       | 105                 |
|                                                                 |                                        | 187                                 | 187                                                                       | 187                 |
|                                                                 |                                        | 330                                 | 330                                                                       | 330                 |
|                                                                 |                                        | 105                                 | 105                                                                       | 105                 |
|                                                                 |                                        | 154                                 | 154                                                                       | 154                 |
|                                                                 |                                        | 286                                 | 286                                                                       | 286                 |
|                                                                 |                                        | 63                                  | 63                                                                        | 88                  |
|                                                                 |                                        | 105                                 | 105                                                                       | 143                 |
|                                                                 |                                        | 143                                 | 143                                                                       | 187                 |
|                                                                 |                                        | 8                                   | 8                                                                         | 17                  |
|                                                                 |                                        | 14                                  | 14                                                                        | 30                  |
|                                                                 |                                        | 17                                  | 17                                                                        | 40                  |
| Category of utilization                                         | رده کاربردی                            | A                                   | A                                                                         | A                   |
| Isolation behavior                                              | عملکرد عایقی                           | ●                                   | ●                                                                         | ●                   |
| Trip unit (release)                                             | رله های قطع کننده (تریپ)               |                                     |                                                                           |                     |
| ☆ Thermal-Magnetic                                              | مغناطیسی-حرارتی                        |                                     |                                                                           |                     |
| • fixed-thermal, fixed-magnetic                                 | ثابت - ثابت FTU                        | ●                                   | ●                                                                         | ●                   |
| • adjustable-thermal, fixed-magnetic                            | ثابت - قابل تنظیم FMU                  | ●                                   | ●**                                                                       | ●                   |
| • adjustable-thermal, adjustable-magnetic                       | قابل تنظیم - قابل تنظیم ATU            | —                                   | —                                                                         | —                   |
| • magnetic only                                                 | فقط مغناطیسی MTU                       | —                                   | —                                                                         | ●                   |
| ☆ Electronic                                                    | رله های الکترونیکی                     |                                     |                                                                           |                     |
| • LSI                                                           | ETS                                    | —                                   | —                                                                         | ●                   |
| • LSI                                                           | ETM                                    | —                                   | —                                                                         | —                   |
| Earth-fault protection, I <sub>g</sub>                          | حفاظت اتصال زمین                       | —                                   | —                                                                         | —                   |
| Zone selection interlocking, ZSI                                | انتخاب ناحیه عملکرد کلید               | —                                   | —                                                                         | —                   |
| Ammeter                                                         | آمپر متر                               | —                                   | —                                                                         | —                   |
| Communication                                                   | سیستم ارتباطی                          | —                                   | —                                                                         | —                   |
| Earth-leakage protection module                                 | حفاظت جریان نشتی زمین                  | —                                   | —                                                                         | —                   |
| Connection                                                      | نصب روبرو                              | ●                                   | ●                                                                         | ●                   |
| fixed front-connection                                          | نصب پشت                                | ●                                   | ●**                                                                       | ●                   |
| rear-connection                                                 | نصب روبرو                              | ●                                   | ●**                                                                       | ●                   |
| plug-in front-connection                                        | نصب پشت                                | ●                                   | ●**                                                                       | ●                   |
| rear-connection                                                 | نصب پشت                                | ●                                   | ●**                                                                       | ●                   |
| Mechanical life                                                 | عمر مکانیکی                            | 25,000                              | 25,000                                                                    | 25,000              |
| Electrical life @ 415 V AC                                      | عمر الکتریکی                           | 10,000                              | 10,000                                                                    | 10,000              |
| Basic Dimension (W × H × D) 1-pole                              | mm                                     | —                                   | 35 × 140 × 86                                                             | —                   |
| 3-pole                                                          | mm                                     | 90 × 140 × 86                       | 90 × 140 × 86                                                             | 105 × 160 × 86      |
| 4-pole                                                          | mm                                     | 120 × 140 × 86                      | 120 × 140 × 86                                                            | 140 × 160 × 86      |
| Weight 1-pole                                                   | kg وزن                                 | —                                   | 0.57                                                                      | —                   |
| 3-pole                                                          | kg                                     | 1.5                                 | 1.5                                                                       | 2                   |
| 4-pole                                                          | kg                                     | 1.8                                 | 1.8                                                                       | 2.6                 |
| Reference Standard                                              | استاندارد                              | IEC 60947-2                         | IEC 60947-2                                                               | IEC 60947-2         |

\* 2 pole MCCB in 3pole frame size

\*\* Not applicable to 1 pole

\*\*\* Applicable to MCCBs equipped with FTU , FMU , ATU

|                      | Amb. Temp. | -5 °C   | 0 °C    | 10 °C   | 20 °C   | 25 °C   | 30 °C   | 35 °C   | 40 °C   | 45 °C  | 50 °C  |
|----------------------|------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|
| Calibrated for 40 °C | TD 160     | 122.5 % | 120.0 % | 115.0 % | 110.0 % | 107.5 % | 105.0 % | 102.5 % | 100.0 % | 97.5 % | 95.0 % |
|                      | TS 250     | 122.5 % | 120.0 % | 115.0 % | 110.0 % | 107.5 % | 105.0 % | 102.5 % | 100.0 % | 97.5 % | 95.0 % |
|                      | TS 630     | 110.0 % | 109.0 % | 107.0 % | 105.0 % | 104.0 % | 103.0 % | 101.5 % | 100.0 % | 98.5 % | 97.0 % |
|                      | TS 800     | 110.0 % | 109.0 % | 107.0 % | 105.0 % | 104.0 % | 103.0 % | 101.5 % | 100.0 % | 98.5 % | 97.0 % |

کالیبره شده  
برای ۴۰ درجه سانتیگراد

## Molded Case Circuit Breakers



| TS 160                        |       |       | TS 250                |       |       | TS 400                |       |       | TS 630                |       |       | TS 800                |       |       |
|-------------------------------|-------|-------|-----------------------|-------|-------|-----------------------|-------|-------|-----------------------|-------|-------|-----------------------|-------|-------|
| 160                           |       |       | 250                   |       |       | 400                   |       |       | 630                   |       |       | 800                   |       |       |
| (100) <sup>*</sup> , 125, 100 |       |       | 125, 160, 200, 250    |       |       | 300, 400              |       |       | 500, 630              |       |       | 800                   |       |       |
| 2 <sup>*</sup> , 3, 4         |       |       | 2 <sup>*</sup> , 3, 4 |       |       | 2 <sup>*</sup> , 3, 4 |       |       | 2 <sup>*</sup> , 3, 4 |       |       | 2 <sup>*</sup> , 3, 4 |       |       |
| 690                           |       |       | 690                   |       |       | 690                   |       |       | 690                   |       |       | 690                   |       |       |
| 500                           |       |       | 500                   |       |       | 500                   |       |       | 500                   |       |       | 500                   |       |       |
| 8                             |       |       | 8                     |       |       | 8                     |       |       | 8                     |       |       | 8                     |       |       |
| 750                           |       |       | 750                   |       |       | 750                   |       |       | 750                   |       |       | 750                   |       |       |
| N                             | H     | L     | N                     | H     | L     | N                     | H     | L     | N                     | H     | L     | N                     | H     | L     |
| 100                           | 120   | 200   | 100                   | 120   | 200   | 100                   | 120   | 200   | 100                   | 120   | 200   | 100                   | 120   | 200   |
| 50                            | 85    | 150   | 50                    | 85    | 150   | 65                    | 85    | 150   | 65                    | 85    | 150   | 65                    | 100   | 150   |
| 50                            | 70    | 130   | 50                    | 70    | 130   | 65                    | 85    | 130   | 65                    | 85    | 130   | 65                    | 100   | 130   |
| 42                            | 65    | 85    | 42                    | 65    | 85    | 42                    | 65    | 85    | 42                    | 65    | 85    | 42                    | 85    | 100   |
| 10                            | 15    | 20    | 10                    | 15    | 20    | 10                    | 20    | 35    | 10                    | 20    | 35    | 10                    | 20    | 35    |
| 50                            | 85    | 100   | 50                    | 85    | 100   | 50                    | 85    | 100   | 50                    | 85    | 100   | 50                    | 85    | 100   |
| 50                            | 85    | 100   | 50                    | 85    | 100   | 50                    | 85    | 100   | 50                    | 85    | 100   | 50                    | 85    | 100   |
| 100 %                         | 100 % | 100 % | 100 %                 | 100 % | 100 % | 100 %                 | 100 % | 100 % | 100 %                 | 100 % | 100 % | 100 %                 | 100 % | 100 % |
|                               |       |       |                       |       |       |                       |       |       |                       |       |       |                       |       |       |
| 220                           | 264   | 440   | 220                   | 264   | 440   | 220                   | 264   | 440   | 220                   | 264   | 440   | 220                   | 264   | 440   |
| 105                           | 187   | 330   | 105                   | 187   | 330   | 143                   | 187   | 330   | 143                   | 187   | 330   | 143                   | 220   | 330   |
| 105                           | 154   | 286   | 105                   | 154   | 286   | 143                   | 187   | 286   | 143                   | 187   | 286   | 143                   | 220   | 286   |
| 88                            | 143   | 187   | 88                    | 143   | 187   | 88                    | 143   | 187   | 88                    | 143   | 187   | 88                    | 187   | 220   |
| 17                            | 30    | 40    | 17                    | 30    | 40    | 17                    | 40    | 74    | 17                    | 40    | 74    | 17                    | 40    | 74    |
| A                             |       |       | A                     |       |       | A                     |       |       | A                     |       |       | A                     |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
|                               |       |       |                       |       |       |                       |       |       |                       |       |       |                       |       |       |
|                               |       |       |                       |       |       |                       |       |       |                       |       |       |                       |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
|                               |       |       |                       |       |       |                       |       |       |                       |       |       |                       |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| —                             |       |       | —                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| —                             |       |       | —                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| —                             |       |       | —                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| —                             |       |       | —                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| —                             |       |       | —                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| —                             |       |       | —                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| —                             |       |       | —                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| ●                             |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       | ●                     |       |       |
| 25,000                        |       |       | 25,000                |       |       | 20,000                |       |       | 20,000                |       |       | 10,000                |       |       |
| 10,000                        |       |       | 10,000                |       |       | 6,000                 |       |       | 6,000                 |       |       | 3,000                 |       |       |
| —                             |       |       | —                     |       |       | —                     |       |       | —                     |       |       | —                     |       |       |
| 105×160×86                    |       |       | 105×160×86            |       |       | 140×260×110           |       |       | 140×260×110           |       |       | 210×320×135           |       |       |
| 140×160×86                    |       |       | 140×160×86            |       |       | 186.5×260×110         |       |       | 186.5×260×110         |       |       | 280×320×135           |       |       |
| —                             |       |       | —                     |       |       | —                     |       |       | —                     |       |       | —                     |       |       |
| 2                             |       |       | 2                     |       |       | 5.4                   |       |       | 5.4                   |       |       | 15.1                  |       |       |
| 2.6                           |       |       | 2.6                   |       |       | 7.2                   |       |       | 7.2                   |       |       | 19.6                  |       |       |
| IEC 60947-2                   |       |       | IEC 60947-2           |       |       | IEC 60947-2           |       |       | IEC 60947-2           |       |       | IEC 60947-2           |       |       |

※ The trip unit ATU is available from 125A

|                                                                      | Amb. Temp.    | - 5 °C | 0 °C   | 10 °C  | 20 °C  | 25 °C  | 30 °C  | 35 °C  | 40 °C  | 45 °C  | 50 °C  |
|----------------------------------------------------------------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Calibrated for 50 °C</b><br>کالیبره شده<br>برای ۵۰ درجه سانتیگراد | <b>TD 160</b> | 122.0% | 120.0% | 116.0% | 112.0% | 110.0% | 108.0% | 106.0% | 104.0% | 102.0% | 100.0% |
|                                                                      | <b>TS 250</b> | 122.0% | 120.0% | 116.0% | 112.0% | 110.0% | 108.0% | 106.0% | 104.0% | 102.0% | 100.0% |
|                                                                      | <b>TS 630</b> | 122.2% | 112.0% | 110.0% | 108.0% | 107.0% | 106.0% | 104.5% | 103.0% | 101.5% | 100.0% |
|                                                                      | <b>TS 800</b> | 112.2% | 112.0% | 110.0% | 108.0% | 107.0% | 106.0% | 104.5% | 103.0% | 101.5% | 100.0% |