



## Switchboard MaxSB Low Voltage Products and Systems



# Switchboard MaxSB

### New / Experienced

Building on years of experience in supplying low voltage distribution equipment all over the world ABB opens a new approach to what a switchboard can be and how it can better serve the user, the design engineer and the contractor.

### Fresh / Familiar

ABB builds on the familiar look of a switchboard with group mounted molded case circuit breakers and fixed or draw out main breakers. Fresh ideas are incorporated with features such as a slotted vertical bus design, a full hinged door that incorporates the breaker cover plates, and a modular frame enclosure system.

### Unique / Reliable

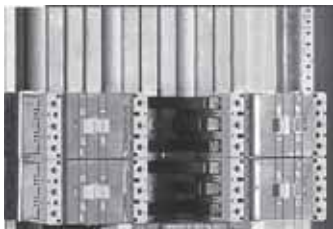
Unique design features such as the slotted bus, and hinged door make this switchboard new. Plated copper bus, bolted bus connections, a frame enclosure structure, and ABB's proven breaker technology make this ABB switchboard highly reliable. Quality is a standard feature in ABB switchboards. A list of expensive options is not needed to ensure the highest quality standards are met.

### Features

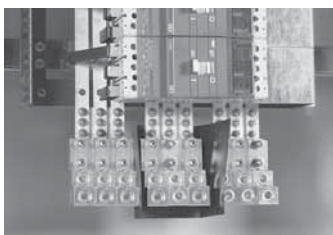
- Hinged door and large wire ways save time and money in field wiring.
- Unique bus layout delivers the freedom to locate feeder breakers independent of any hole pattern.
- Plated copper bus used in all three phases and neutral.
- Copper ground bus extends full width of switchboard.
- Horizontal bus up to 5000 Amps
- Vertical bus up to 3000 Amps
- Group mounted feeder breakers ranging from 15 amps to 1200 Amps
- Main breakers up to 5000 Amps
- Strong frame construction isolates bus and breaker assemblies from enclosure "skin". Durable dry paint finish. Four inch base and lifting eyes are standard.

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## Switchboard MaxSB General information



Unique hole-less bus bar arrangement allows you to install feeder breakers in any location vertically. Less time less hassle.



Easy access to incoming terminals. Less time less hassle



5000 amp Mains and 3000 amp vertical bus designs enable this switchboard to distribute power in the largest low voltage applications. A multi-layered bus design and modular enclosure system provide the flexibility to provide an 800 amp free-standing switchboard that has an extremely small foot print.

### Precise / Flexible

ABB's switchboard uses a frame-based enclosure system. Unlike self-supporting enclosures the frame supports the bus bar and breaker assemblies. Front panels, sidewalls, and rear panels are also supported by the frame structure. This design offers a number of advantages over self-supporting enclosure systems. Damaged walls and panels can be easily replaced without the need to disassemble interior bus or breaker assemblies. The modular nature of ABB's frame enclosure system makes it easy to expand the switchboard by adding sections as system requirements change. Simply remove a side wall and butt the new section against the old. Overlapping horizontal bus design makes for a simple and accurate splice connection.

### Custom / Standard

Wouldn't it be nice to have the freedom to layout a switchboard in such a way that it compliments the application and site requirements? Would you benefit from the freedom to locate breakers as you choose? Wouldn't you like to add custom features like a dust-proof enclosure, or a full glass door for added security and an enhanced appearance in high visibility sites? ABB's standard switchboard design makes these and other custom like features affordable.

### Industrial / Commercial

The Operations Manager wants reliability, the specifying engineer wants a product he can believe in, the service department demands maintainability, the CFO wants value and the contractor wants a supplier and product that is easy to work with and on time delivery. One company can match all of these requirements; ABB.

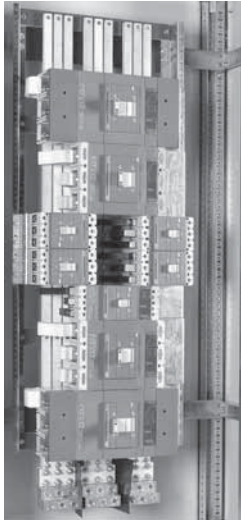
The Operations Manager and specifying engineer appreciate features such as plated copper bus and bolted bus connections. A frame-based enclosure system delivers strength, expandability and simplifies repairs. The complete system is designed and tested to meet or exceed UL requirements.

The maintenance department enjoys a hinged door that makes it easy for qualified personnel to access the cabinet to maintain and service ABB's switchboards. Connections are located so that you can actually get to them. A framed enclosure construction and bus design make this switchboard easy to expand as requirements change.

Contractors save on installation time with easy to access terminals, increased cable area and a design that makes it easy to add breakers and accessories in the field.

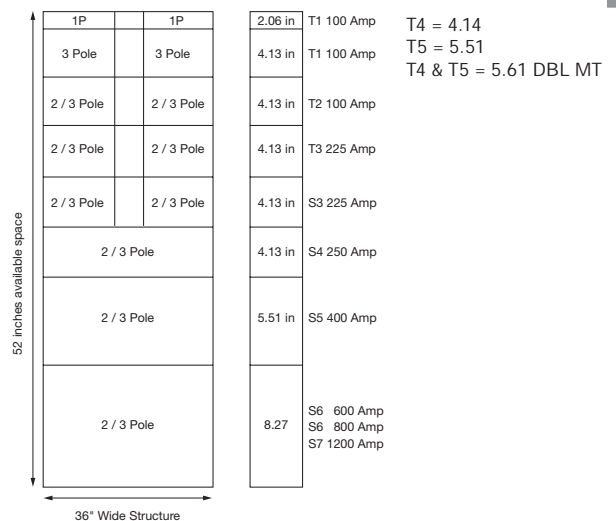
# Switchboard MaxSB

## Low Voltage Products and Systems



### Feeder Breakers

| Frame | Poles | Space Inches | KAIC            |     |                 | Trip Frame Rating Amps                  |     |     |     |     |    |    |    |
|-------|-------|--------------|-----------------|-----|-----------------|---|-----|-----|-----|-----|----|----|----|
|       |       |              | 277             | 240 | 480             | 15                                      | 20  | 25  | 30  | 35  | 40 | 50 | 60 |
| T1B   | 1     | 1.0          | 18 <sup>②</sup> |     |                 |   |     |     |     |     |    |    |    |
| T1N   | 3     | 3.0          |                 | 50  | 22 <sup>③</sup> |   |     |     |     |     |    |    |    |
| T2S   | 2/3   | 3.54         |                 | 65  | 35              |   |     |     |     |     |    |    |    |
| T2H   | 2/3   | 3.54         |                 | 100 | 65              |   |     |     |     |     |    |    |    |
| T3N   | 2/3   | 4.13         |                 | 50  | 25              |   |     |     |     |     |    |    |    |
| T3S   | 2/3   | 4.13         |                 | 65  | 35              |   |     |     |     |     |    |    |    |
| S3N   | 2/3   | 4.13         |                 | 65  | 25              |   |     |     |     |     |    |    |    |
| S3H   | 2/3   | 4.13         |                 | 100 | 50              |   |     |     |     |     |    |    |    |
| S3L   | 2/3   | 4.13         |                 | 150 | 85 <sup>①</sup> |   |     |     |     |     |    |    |    |
|       |       |              |                 |     |                 | 70                                      | 80  | 90  | 100 |     |    |    |    |
| T1B   | 1     | 1.0          | 18              |     |                 |   |     |     |     |     |    |    |    |
| T1N   | 3     | 3.0          |                 | 50  | 22              |   |     |     |     |     |    |    |    |
| T2S   | 2/3   | 3.54         |                 | 65  | 35              |   |     |     |     |     |    |    |    |
| T2H   | 2/3   | 3.54         |                 | 100 | 65              |   |     |     |     |     |    |    |    |
| T3N   | 2/3   | 4.13         |                 | 50  | 25              |   |     |     |     |     |    |    |    |
| T3S   | 2/3   | 4.13         |                 | 65  | 35              |   |     |     |     |     |    |    |    |
| S3N   | 2/3   | 4.13         |                 | 65  | 25              |   |     |     |     |     |    |    |    |
| S3H   | 2/3   | 4.13         |                 | 100 | 50              |   |     |     |     |     |    |    |    |
| S3L   | 2/3   | 4.13         |                 | 150 | 85              |   |     |     |     |     |    |    |    |
|       |       |              |                 |     |                 | 125                                     | 150 | 175 | 200 | 225 |    |    |    |
| T3N   | 2/3   | 4.13         |                 | 50  | 25              |   |     |     |     |     |    |    |    |
| T3S   | 2/3   | 4.13         |                 | 65  | 35              |   |     |     |     |     |    |    |    |
| S3N   | 2/3   | 4.13         |                 | 65  | 25              |   |     |     |     |     |    |    |    |
| S3H   | 2/3   | 4.13         |                 | 100 | 50              |   |     |     |     |     |    |    |    |
| S3L   | 2/3   | 4.13         |                 | 150 | 85              |   |     |     |     |     |    |    |    |
|       |       |              |                 |     |                 | 250 Electronic - adjustable 40 - 250    |     |     |     |     |    |    |    |
| S4N   | 2/3   | 4.13         |                 | 65  | 25              |   |     |     |     |     |    |    |    |
| S4H   | 2/3   | 4.13         |                 | 150 | 65              |   |     |     |     |     |    |    |    |
| S4L   | 2/3   | 4.13         |                 | 200 | 100             |   |     |     |     |     |    |    |    |
|       |       |              |                 |     |                 | 400 Electronic - adjustable 160 - 400   |     |     |     |     |    |    |    |
| S5N   | 2/3   | 5.51         |                 | 65  | 35              |   |     |     |     |     |    |    |    |
| S5H   | 2/3   | 5.51         |                 | 150 | 65              |   |     |     |     |     |    |    |    |
| S5L   | 2/3   | 5.51         |                 | 200 | 100             |   |     |     |     |     |    |    |    |
|       |       |              |                 |     |                 | 600 Electronic - adjustable 240 - 600   |     |     |     |     |    |    |    |
| S6N   | 2/3   | 8.27         |                 | 65  | 50              |   |     |     |     |     |    |    |    |
| S6H   | 2/3   | 8.27         |                 | 150 | 65              |   |     |     |     |     |    |    |    |
| S6L   | 2/3   | 8.27         |                 | 200 | 100             |   |     |     |     |     |    |    |    |
|       |       |              |                 |     |                 | 800 Electronic - adjustable 320 - 800   |     |     |     |     |    |    |    |
| S6N   | 2/3   | 8.27         |                 | 65  | 50              |   |     |     |     |     |    |    |    |
| S6H   | 2/3   | 8.27         |                 | 150 | 65              |   |     |     |     |     |    |    |    |
| S6L   | 2/3   | 8.27         |                 | 200 | 100             |   |     |     |     |     |    |    |    |
|       |       |              |                 |     |                 | 1200 Electronic - adjustable 480 - 1200 |     |     |     |     |    |    |    |
| S7H   | 2/3   | 8.27         |                 | 100 | 65              |   |     |     |     |     |    |    |    |



|       |        |                        |
|-------|--------|------------------------|
| ① S3L | 15-30A | 65kA@480V              |
| ② T1B | 15A    | 10kA@277V              |
| ③ T1N | 15A    | 35kA@240V<br>14kA@480V |

Maximum switchboard rating = 100kA

## Molded case circuit breakers

### Tmax

### T1 100 A - T2 100A - T3 225 A



T1 100A



T2 100A



T3 225A



Tmax T2 can be fitted with the latest generation in electronic trip units. This is the first time that a circuit-breaker of this size can benefit from electronic protection, and the setting flexibility it provides.

#### UL 489 CSA 22.2

| Circuit breakers                                      |                      | Tmax T1 1p      | Tmax T1         | Tmax T2 | Tmax T3 |
|---|----------------------|-----------------|-----------------|---------|---------|
| Maximum frame continuous current 40°C I <sub>u</sub>  | [A]                  | 100             | 100             | 100     | 225     |
| Number of poles                                       | [Nr]                 | 1               | 3/4             | 2/3/4   | 2/3/4   |
| Rated operational voltage (AC) 50-80Hz U <sub>e</sub> | [V]                  | 277             | 480             | 480     | 480     |
| Short circuit interrupting capacity, I <sub>cu</sub>  |                      | B               | N               | S H     | N S     |
| AC 240V   | [kA]                 |                 | 50              | 65 100  | 50 65   |
| 277V  | [kA]                 | 18 <sup>①</sup> |                 |         |         |
| DC 480V   | [kA]                 |                 | 22 <sup>②</sup> | 35 65   | 25 35   |
| 250V 2 poles in series                                | [kA]                 |                 | 25              |         | 25 35   |
| 500V 3 poles in series                                | [kA]                 |                 | 25              |         | 25 35   |
| Relays  | TM<br>PR22 1DS<br>MA | -               | -               | -       | -       |
| Versions  | MCCB<br>MCS<br>MCP   | -               | -               | -       | -       |

#### IEC 60047-2

| Circuit breakers  |   | Tmax T1 1p              | Tmax T1                   | Tmax T2                         | Tmax T3                        |
|---|---|-------------------------|---------------------------|---------------------------------|--------------------------------|
| Rated uninterrupted current I <sub>u</sub>                      | [A]   | 160                     | 160                       | 160                             | 250                            |
| Number of poles   | [Nr]  | 1                       | 3/4                       | 3/4                             | 3/4                            |
| Rated service voltage, U <sub>e</sub>                           | [V]   | 240                     | 690                       | 690                             | 690                            |
| AC 50-60Hz  |   |                         |                           |                                 |                                |
| DC  | [V]   | 125                     | 500                       | 500                             | 500                            |
| Rated ultimate short circuit breaking capacity, I <sub>cu</sub> |   | B                       | B C N                     | N S H L                         | N S                            |
| AC 220/230V   | [kA]  | 25                      | 25 40 50                  | 65 85 100 120                   | 50 85                          |
| 380/415   | [kA]  |                         | 16 25 36                  | 36 50 70 85                     | 36 50                          |
| 440V  | [kA]  |                         | 10 15 22                  | 30 45 55 75                     | 25 40                          |
| 500V  | [kA]  |                         | 8 10 15                   | 25 30 36 50                     | 20 30                          |
| 690V  | [kA]  |                         | 3 4 6                     | 6 7 8 10                        | 5 8                            |
| DC 250V 2 poles in series                                       | [kA]  |                         | 16 25 36                  | 35 50 70 85                     | 36 50                          |
| 250V 2 poles in series  | [kA]  |                         | 20 30 40                  | 40 55 85 100                    | 40 55                          |
| 500V 2 poles in series  | [kA]  |                         | 16 25 36                  | 36 50 70 85                     | 36 50                          |
| Trip units  | Fixed thermal magnetic<br>Fixed thermal magnetic<br>PR221/DS<br>Fixed magnetic<br>Adjustable magnetic | -                       | -                         | -                               | -                              |
| Dimensions  | H [in/mm]<br>W 1p or 3p [in/mm]<br>W 4p [in/mm]   | 5.12/130<br>1/25.4      | 5.12/130<br>3/76<br>4/102 | 5.12/130<br>3.54/90<br>4.72/122 | 5.9/150<br>4.13/105<br>5.5/140 |
| Mechanical life   | D [in/mm]<br>[No operations]<br>[No hourly operations]  | 2.76/70<br>25000<br>240 | 2.76/70<br>25000<br>240   | 2.76/70<br>25000<br>240         | 2.76/70<br>25000<br>120        |
| Electrical life   | [No operations]<br>[No hourly operations]   | 8000<br>120             | 8000<br>120               | 8000<br>120                     | 8000<br>120                    |

① 15A : 10kA@277Vac  
② 15A : 35kA@240Vac; 14kA@480Vac

# Molded case circuit breakers

## Isomax

### S3B - S3 - S4



S3B

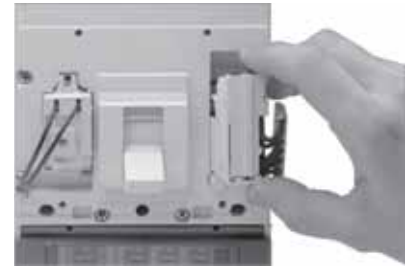


S3



S4

Isolation of control accessories and power poles allows for the safe addition / replacement of shunt trips, auxiliaries, bell alarm and under voltage relays.

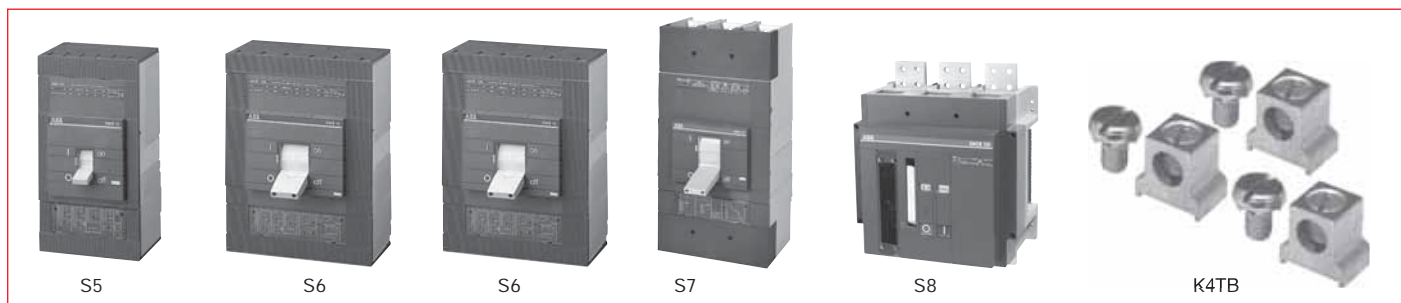


#### Circuit breaker type

|   |                 |           | S3B                | S3                 |                    |                    | S4                 |                    |                    |                    |                    |     |
|---|-----------------|-----------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----|
| Maximum frame continuous rated current  | 40° C           | A         | 225                | 150                | 225                | 250                |                    |                    |                    |                    |                    |     |
| Rated operational voltage   | 50/60Hz         | V         | 240                | 600                | 480                | 600                |                    |                    |                    |                    |                    |     |
| Test voltage  | 1 min. 50/60 Hz | V         | 3000               | 3000               | 3000               | 3000               |                    |                    |                    |                    |                    |     |
| Rated impulse withstand voltage   |                 | kV        | 6                  | 6                  | 6                  | 8                  |                    |                    |                    |                    |                    |     |
| Poles   |                 | No.       | 2/3                | 2/3/4              | 2/3/4              | 2/3/4              |                    |                    |                    |                    |                    |     |
| Performance level   |                 |           | B                  | N                  | H                  | L                  | N                  | H                  | L                  |                    |                    |     |
| UL/CSA short-circuit<br>Interrupting capacity<br>UL 489, File #E93565<br>CSA, File #LR90467 | 240VAC          | kA RMS    | 150                | 65                 | 100                | 150                | 65                 | 100                | 150                | 65                 | 100                | 150 |
|   | 480VAC          |           | –                  | 25                 | 50                 | 85 <sup>②</sup>    | 25                 | 50                 | 65                 | 65                 | 150                | 200 |
|   | 600VAC          |           | –                  | 14                 | 14                 | 25                 | –                  | –                  | –                  | 18                 | 32                 | 35  |
|   | 500VDC          |           | ①                  | 50                 | 35                 | 50                 | 65                 | 25                 | 35                 | 50                 | –                  | –   |
|   | 600VDC          | ①         | –                  | 20                 | 35                 | 50                 | –                  | –                  | –                  | –                  | –                  | –   |
| IEC-947 rated ultimate<br>Short-circuit<br>Breaking capacity                                | 202/230VAC      | kA RMS    | 150                | 65                 | 100                | 170                | 65                 | 100                | 170                | 65                 | 100                | 200 |
|   | 380/400/415VAC  |           | –                  | 35                 | 65                 | 85                 | 35                 | 65                 | 85                 | 35                 | 65                 | 100 |
|   | 440VAC          |           | –                  | 30                 | 50                 | 65                 | 30                 | 50                 | 65                 | 30                 | 50                 | 80  |
|   | 500VAC          |           | –                  | 25                 | 40                 | 50                 | 25                 | 40                 | 50                 | 25                 | 40                 | 65  |
|   | 660/690VAC      | –         | 14                 | 18                 | 20                 | 14                 | 18                 | 20                 | 18                 | 22                 | 30                 |     |
| Overcurrent trip unit/relay   |                 |           | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  |     |
| Thermal-magnetic  |                 |           | –                  | –                  | –                  | –                  | –                  | –                  | –                  | –                  | –                  |     |
| Microprocessor-based  |                 |           | –                  | –                  | –                  | –                  | –                  | –                  | –                  | –                  | –                  |     |
| Dialogue unit   |                 |           | –                  | –                  | –                  | –                  | –                  | –                  | –                  | –                  | –                  |     |
| Interchangeability  |                 |           | –                  | –                  | –                  | –                  | –                  | –                  | –                  | –                  | –                  |     |
| Version — Terminals   |                 |           | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  |     |
| Fixed — front or rear   |                 |           | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  |     |
| Plug-in — front or rear   |                 |           | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  |     |
| Withdrawable — front or rear  |                 |           | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  | •                  |     |
| Dimensions (fixed circuit-breaker)  |                 |           |                    |                    |                    |                    |                    |                    |                    |                    |                    |     |
| 2P & 3P (H x W x D)   |                 | in        | 6.70 x 4.13 x 4.07 | 6.70 x 4.13 x 4.07 | 6.70 x 4.13 x 4.07 | 6.70 x 4.13 x 4.07 | 10.0 x 4.13 x 4.07 | 10.0 x 4.13 x 4.07 | 10.0 x 4.13 x 4.07 | 10.0 x 4.13 x 4.07 | 10.0 x 4.13 x 4.07 |     |
| 4P (H x W x D)  |                 | in        | 6.70 x 5.51 x 4.07 | 6.70 x 5.51 x 4.07 | 6.70 x 5.51 x 4.07 | 6.70 x 5.51 x 4.07 | 10.0 x 5.51 x 4.07 | 10.0 x 5.51 x 4.07 | 10.0 x 5.51 x 4.07 | 10.0 x 5.51 x 4.07 | 10.0 x 5.51 x 4.07 |     |
| Mechanical duration   |                 | No.       | 25,000             | 25,000             | 25,000             | 25,000             | 25,000             | 25,000             | 25,000             | 25,000             | 25,000             |     |
| operations frequency  |                 | ops./hour | 240                | 120                | 120                | 120                | 120                | 120                | 120                | 120                | 120                |     |
| Weights (fixed 3P)  |                 | lbs.      | 6.75               | 6.75               | 6.75               | 6.75               | 8.8                | 8.8                | 8.8                | 8.8                | 8.8                |     |

① For use with thermal - magnetic trip only:  
500 VDC, 2 poles in series  
600 VDC, 3 poles in series  
② 15-30A units are 65kA at 480VAC

## Molded case circuit breakers Isomax S3B - S3 - S4



| Circuit breaker type  |                 | S5     | S6                 |                     |                     | S7                  | S8                   |     |     |     |     |     |     |
|---|-----------------|--------|--------------------|---------------------|---------------------|---------------------|----------------------|-----|-----|-----|-----|-----|-----|
| Maximum frame continuous rated current  | 40° C           | A      | 400                | 600                 | 800                 | 1200                | 1600/2000/2500       |     |     |     |     |     |     |
| Rated operational voltage   | 50/60Hz         | V      | 600                | 600                 | 600                 | 600                 | 600                  |     |     |     |     |     |     |
| Test voltage  | 1 min. 50/60 Hz | V      | 3000               | 3000                | 3000                | 3000                | 3000                 |     |     |     |     |     |     |
| Rated impulse withstand voltage   |                 | kV     | 8                  | 8                   | 8                   | 8                   | 8                    |     |     |     |     |     |     |
| Poles   |                 | No.    | 2/3/4              | 2/3/4               | 2/3/4               | 2/3/4               | 3                    |     |     |     |     |     |     |
| Performance level   |                 |        | N H L              | N H L               | N H L               | H                   | V                    |     |     |     |     |     |     |
| UL/CSA short-circuit<br>Interrupting capacity<br>UL 489, File #E93565<br>CSA, File #LR90467 | 240VAC          | kA RMS | 65                 | 150                 | 200                 | 65                  | 150                  | 200 | 100 | 120 |     |     |     |
|   | 480VAC          |        | 35                 | 65                  | 100                 | 50                  | 65                   | 100 | 65  | 100 |     |     |     |
|   | 600VAC          |        | 22                 | 22                  | 35                  | 25                  | 35                   | 42  | 50  | 85  |     |     |     |
|   | 500VDC          |        | 35                 | 50                  | 65                  | 35                  | 50                   | 65  | –   | –   |     |     |     |
| CSA, File #LR90467  | 600VDC          | ①      | 20                 | 35                  | 50                  | 20                  | 35                   | 50  | 20  | 35  | 50  | –   | –   |
| IEC-947 rated ultimate<br>Short-circuit<br>Breaking capacity                                | 202/230VAC      | kA RMS | 65                 | 100                 | 200                 | 65                  | 100                  | 200 | 65  | 100 | 200 | 100 | 120 |
|   | 380/400/415VAC  |        | 35                 | 65                  | 100                 | 35                  | 65                   | 100 | 35  | 65  | 100 | 65  | 120 |
|   | Icu 440VAC      |        | 30                 | 50                  | 80                  | 30                  | 50                   | 680 | 30  | 50  | 80  | 55  | 100 |
|   | 500VAC          |        | 25                 | 40                  | 65                  | 25                  | 40                   | 65  | 25  | 40  | 65  | 45  | 70  |
| 660/690VAC  | 20              | 25     | 30                 | 20                  | 25                  | 35                  | 20                   | 25  | 35  | 25  | 50  |     |     |
| Overcurrent trip unit/relay   |                 |        |                    |                     |                     |                     |                      |     |     |     |     |     |     |
| Thermal-magnetic  |                 |        | •                  | •                   | •                   | •                   | •                    | •   | •   | •   | •   | •   |     |
| Microprocessor-based  |                 |        | •                  | •                   | •                   | •                   | •                    | •   | •   | •   | •   | •   |     |
| Dialogue unit   |                 |        | •                  | •                   | •                   | •                   | •                    | •   | •   | •   | •   | •   |     |
| Interchangeability  |                 |        | •                  | •                   | •                   | •                   | •                    | •   | •   | •   | •   | •   |     |
| Version — Terminals   |                 |        |                    |                     |                     |                     |                      |     |     |     |     |     |     |
| Fixed — front or rear   |                 |        | •                  | •                   | •                   | •                   | •                    | •   | •   | •   | •   | •   |     |
| Plug-in — front or rear   |                 |        | •                  | •                   | •                   | •                   | •                    | •   | •   | •   | •   | •   |     |
| Withdrawable — front or rear  |                 |        | •                  | •                   | •                   | •                   | •                    | •   | •   | •   | •   | •   |     |
| Dimensions (fixed circuit-breaker)  |                 |        |                    |                     |                     |                     |                      |     |     |     |     |     |     |
| 2P & 3P (H x W x D)   | in              |        | 10.0 x 5.51 x 4.07 | 10.55 x 8.27 x 4.07 | 14.25 x 8.27 x 4.07 | 15.98 x 8.27 x 5.45 | 15.75 x 15.98 x 9.25 |     |     |     |     |     |     |
| 4P (H x W x D)  | in              |        | 10.0 x 7.24 x 4.07 | 10.55 x 11.0 x 4.07 | 14.25 x 11.0 x 4.07 | 15.98 x 11.0 x 5.45 |                      |     |     |     |     |     |     |
| Mechanical duration operations frequency  | No. ops./hour   |        | 20,000<br>120      | 20,000<br>120       | 20,000<br>120       | 10,000<br>120       | 10,00<br>20          |     |     |     |     |     |     |
| Weights (fixed 3P)  | lbs.            |        | 11.0               | 21.0                | 22.0                | 37.5                | 135                  |     |     |     |     |     |     |

### Standard cable lug kits

| For breakers | Amps | Wire range              | Catalog number |
|--------------|------|-------------------------|----------------|
| S3           | 60   | 14AWG - 2AWG            | K3TA           |
| S3 - S4      | 100  | 14AWG - 1/0             | K4TB           |
| S3 - S4      | 150  | 14AWG - 4/0             | K4TC           |
| S3 - S4 - S5 | 225  | 4AWG - 300kcmil         | K4TD           |
| S4           | 250  | 6AWG - 350kcmil         | K4TE           |
| S5           | 300  | 250kcmil - 500kcmil     | K5TF           |
| S5           | 400  | (2) 3/0 - 250kcmil      | K5TG           |
| S6           | 600  | (2) 250kcmil - 250Kcmil | K5TH           |
| S6           | 800  | (3) 2/0 - 400kcmil      | K6TJ           |
| S7           | 1200 | (4) 4/0 - 400kcmil      | K7TK           |
| S8           | 1600 | (4) 1/0 - 750kcmil      | K8TL           |
| S8           | 2500 | (6) 1/0 - 750kcmil      | K8TM           |

Standard cable lugs, for use on load side of circuit breaker. Suitable for use with Cu or Al. Special versions available with taps and screw for control wire connection. Note: S6 and S7 lugs are Al9Cu (90°); all others AL7Cu (75°C). Must use wire based on 75°C ampacity.

# Air circuit breakers

## Emax

### E1 - E2 - E3 - E4 - E6



#### Circuit breaker type

|  |        | E1        |           | E2   |      | E3        |      |      |           | E4   |      |           | E6   |     |
|--|--------|-----------|-----------|------|------|-----------|------|------|-----------|------|------|-----------|------|-----|
|  |        | B-A       | B-A       | N-A  | N-A  | S-A       | H-A  | V-A  | S-A       | H-A  | V-A  | H-A       | V-A  |     |
| Performance level  |        |           |           |      |      |           |      |      |           |      |      |           |      |     |
| Rated continuous current<br>File #E194191                              | A      | 800       | 1600      | 1200 | 2000 | 1200      | 1200 | 1200 | 3200      | 3200 | 3200 | 4000      | 4000 |     |
|  | A      | 1200      | -         | 1600 | 2500 | 1600      | 1600 | 1600 | 3600      | 3600 | 3600 | 5000      | 5000 |     |
|  | A      | -         | -         | -    | -    | 2000      | 2000 | 2000 | -         | -    | -    | -         | -    |     |
|  | A      | -         | -         | -    | -    | 2500      | 2500 | 2500 | -         | -    | -    | -         | -    |     |
| Rated short circuit current  | 240VAC | kA        | 42        | 42   | 65   | 65        | 85   | 85   | 100       | 85   | 100  | 100       | 125  | 125 |
|  | 480VAC | kA        | 42        | 42   | 50   | 50        | 65   | 85   | 100       | 65   | 85   | 100       | 85   | 125 |
|  | 600VAC | kA        | 35        | 42   | 50   | 50        | 65   | 65   | 85        | 65   | 85   | 85        | 85   | 85  |
| Rated short time current   | kA     | 35        | 42        | 50   | 50   | 65        | 65   | 65   | 65        | 85   | 85   | 100       | 100  |     |
| Trip units   |        |           |           |      |      |           |      |      |           |      |      |           |      |     |
| PR111/P-A  |        | •         | •         | •    | •    | •         | •    | •    | •         | •    | •    | •         | •    |     |
| PR112/P-A  |        | •         | •         | •    | •    | •         | •    | •    | •         | •    | •    | •         | •    |     |
| PR113/P-A  |        | •         | •         | •    | •    | •         | •    | •    | •         | •    | •    | •         | •    |     |
| Operation times  |        |           |           |      |      |           |      |      |           |      |      |           |      |     |
| Make time (max)  | ms     | 80        | 80        | 80   | 80   | 80        | 80   | 80   | 80        | 80   | 80   | 80        | 80   |     |
| Break time (I<ST current)(max)   | ms     | 70        | 70        | 70   | 70   | 70        | 70   | 70   | 70        | 70   | 70   | 70        | 70   |     |
| Break time (I>ST current)(max)   | ms     | 30        | 30        | 30   | 30   | 30        | 30   | 30   | 30        | 30   | 30   | 30        | 30   |     |
| Overall dimensions, 3 pole   |        |           |           |      |      |           |      |      |           |      |      |           |      |     |
| Fixed: H=418mm / 16.46in<br>D=302mm / 11.89in<br>W (3 poles)           | mm/in  | 296/11.65 | 296/11.65 |      |      | 404/15.91 |      |      | 566/22.28 |      |      | 782/30.79 |      |     |
| Drawout: H=461mm / 18.15in<br>D=396.5mm / 15.61 in<br>W (3 poles)      | mm/in  | 324/12.76 | 324/12.76 |      |      | 432/17.01 |      |      | 594/23.39 |      |      | 810/31.89 |      |     |
| Weights (CB with releases, RH terminals and CTs, accessories excluded) |        |           |           |      |      |           |      |      |           |      |      |           |      |     |
| Fixed 3 poles  | Kg/lbs | 452/93    | 46/101    |      |      | 68/150    |      |      | 95/209    |      |      | 140/309   |      |     |
| Drawout 3 poles  | Kg/lbs | 65/143    | 72/159    |      |      | 100/220   |      |      | 147/324   |      |      | 210/463   |      |     |
| Overall dimensions, 4 pole   |        |           |           |      |      |           |      |      |           |      |      |           |      |     |
| Fixed: H=418mm / 16.46in<br>D=302mm / 11.89in<br>W (4 poles)           | mm/in  | 386/15.20 | 386/15.20 |      |      | 530/20.87 |      |      | 656/25.83 |      |      | 908/35.75 |      |     |
| Drawout: H=461mm / 18.15in<br>D=396.5mm / 15.61in<br>W (4 poles)       | mm/in  | 414/16.30 | 414/16.30 |      |      | 558/21.97 |      |      | 684/26.93 |      |      | 936/36.85 |      |     |
| Weights (CB with releases, RH terminals and CTs, accessories excluded) |        |           |           |      |      |           |      |      |           |      |      |           |      |     |
| Fixed 4 poles  | Kg/lbs | 50/110    | 55/121    |      |      | 80/176    |      |      | 115/253   |      |      | 170/374   |      |     |
| Drawout 4 poles  | Kg/lbs | 80/176    | 89/196    |      |      | 125/275   |      |      | 190/418   |      |      | 260/573   |      |     |

Specifications common to the entire range

Rated max voltage 635 VAC  
 Rated voltage 600VAC  
 Test voltage (1 min 50/60Hz) 2.2k  
 Frequency 50/60Hz  
 Number of poles 3/4  
 Versions Fixed/Drawout

#### Lugs: Main Breakers and Main Lugs Only

| Frames | Lug size | Wire size   | Catalog number |
|--------|----------|-------------|----------------|
| E1     | (4)      | #2-600kcmil | KE1CLK 4600    |
| E2     | (4)      | #2-600kcmil | KE2CLK 4600    |
| E3     | (6)      | #2-600kcmil | KE3CLK 6600    |
| E4     | (10)     | #2-600kcmil | KE4CLK 10600   |
| E5     | (12)     | #2-600kcmil | KE6CLK 12600   |



ABB's Emax air circuit breaker is available with three trip units models. From the PR111 that offers only the basic protection functions to the PR113 that offers protection, multi-meter capability, and communication capability there is a trip unit for every application.

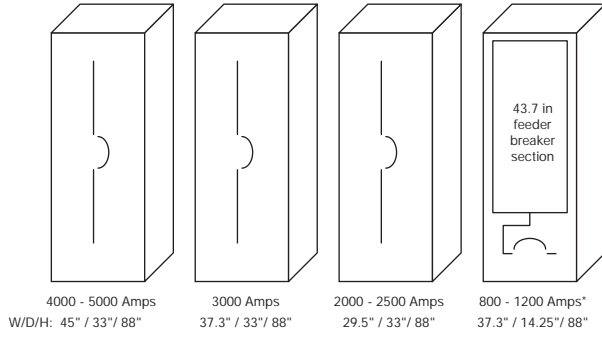
# Air circuit breakers

## Emax

### E1 - E2 - E3 - E4 - E6

#### Typical layouts

Mains



Mains Lugs Only and Feeder Breaker Sections

