

## Low voltage moulded case circuit breaker EB2

Low voltage moulded case circuit breakers are used for the switching and protection of power supply cables, motors and other electrical equipment against overloads and short circuit faults. They provide, beside protection function, other functions as remote ON/OFF operation, undervoltage protection, main switch etc. They are available in range from 20 A up to 1600 A in 3 and 4 pole versions.

### Advantages:

- Small dimensions, modular sizes
- Possibility of field-instalable accessories – up to 1600A frame size series 2 (EB2)
- High short circuit breaking capacity (up to 100 kA)
- Fast break mechanism
- Reduced energy let through  $I^2t$  – minimises thermal stresses
- Reduced tripping time – minimises damage after fault
- Reduced peak short current ampacity – minimised electrodynamic stresses on conductors and protected equipment
- Installation on mounting plate, 125 A frame size also on DIN-rail
- Wide range of accessories
- Compact design with high mechanical strength
- High dielectric withstand voltages (8 kV a.c.)
- Voltage level up to 690 V a.c. and 250 V d.c. – only MCCB's with thermal-magnetic tripping unit
- Direct opening – recommendation according to standard IEC 60204-1 – up to 1600 A frame size series 2 (EB2)
- Common internal accessories – up to 1600 A frame size series 2 (EB2)
- Visual safety
- Unsurpassed flexibility

### Thermal magnetic

Thermal magnetic MCCBs are available in frame sizes from 125A to 800A. All frame sizes have adjustable both thermal and magnetic trip settings. Overload protection is adjustable between 63 % and 100 % of  $I_n$ , meanwhile short-circuit between 6-13x $I_n$  (more details in the technical part of catalogue).

### Microprocessor's MCCBs

Microprocessor's MCCBs are available in frame sizes from 250 A up to 1600 A, with rated current from 40 A up to 1600 A. All frame sizes have adjustable thermal and magnetic protection.

Series 2: Protection against overload can be adjusted between 0,4 – 1 x  $I_n$ , meanwhile short-circuit protection has already preset different curves, which can be easily selected according to the type of load.

Legend: EB2 -> series 2  
 L -> economic, lower short-circuit breaking capacity  
 S -> standard  
 E -> microprocessor's

Product series	description	unit	condition	EB2	EB2	EB2
Model-type				125L	125 S	160 S
Number of poles				3, 4	3, 4	3, 4
Nominal current ratings						
	$I_n$	(A)	50°C	20,32,50, 63,100,125	20,32,50, 63,100,125	160
Electrical characteristics						
Rated operational voltage	$U_e$	(V)	AC 50/60 Hz	500	690	690
			DC	500	600	600
Rated insulation voltage	$U_i$	(V)		800	800	800
Rated impulse withstand voltage	$U_{imp}$	(kV)		8	8	8
Ultimate breaking capacity (IEC, JIS, AS/NZS)	$I_{cu}$	(kA)	690V AC	-	6	7.5
			525V AC	8	22	25
			440V AC	15	25	25
			400/415V AC	25	36	36
			220/240V AC	35	50	65
			250V DC	25	25	40
Service breaking capacity (IEC, JIS, AS/NZS)	$I_{cs}$	(kA)	690V AC	-	6	7.5
			525V AC	6	22	25
			440V AC	12	25	25
			400/415V AC	19	36/30	36
			220/240V AC	27	50	65
			250V DC	19	19	40
Rated breaking capacity (NEMA)		(kA)	480V AC	8	22	22
			240VAC	35	50	65
Protection						
Adjustable thermal, adjustable magnetic				■	■	■
Fixed thermal, fixed magnetic				■		
Microprocessor						
Utilisation category				A	A	A
Installation						
Front connection				■	■	■
Attached flat bar				•	•	•
Solderless terminal (cable clamp)				•	•	•
Rear connection				•	•	•
Plug-in				•	•	•
Draw-out				-	-	-
DIN rail mounting				•	•	-
Dimensions	h	(mm)		155	155	165
	w	(mm)	3 pole	90	90	105
			4 pole	120	120	140
	d	(mm)		68	68	68
Weight	W	(kg)	3 pole	1.1	1.1	1.5
			4 pole	1.4	1.4	1.9
Operation						
Direct Opening Action				■	■	■
Toggle operation				■	■	■
Variable depth / direct mount operating handle				•	•	•
Motor operator				•	•	•
Endurance	Electrical	cycles	440V AC	30000	30000	20000
	Mechanical	cycles		30000	30000	30000
Standards				IEC 60947-2, EN 60947-2		

■ Standard • Optional - Not Available

**ETIBREAK**

Product series	description	unit	condition	EB2	EB2	EB2	
Model-type				250L	250S	250E	
Number of poles				3, 4	3, 4	3, 4	
<b>Nominal current ratings</b>							
	$I_n$	(A)	50°C	200, 250	200, 250	40, 125, 160, 250	
<b>Electrical characteristics</b>							
Rated operational voltage	$U_e$	(V)	AC 50/60 Hz	500	690	690	
			DC	500	600	-	
Rated insulation voltage	$U_i$	(V)		800	800	800	
Rated impulse withstand voltage	$U_{imp}$	(kV)		8	8	8	
Ultimate breaking capacity (IEC, JIS, AS/NZS)	$I_{cu}$	(kA)	690V AC	-	7.5	20	
			525V AC	10	25	35	
			440V AC	15	25	50	
			400/415V AC	25	36	70	
			220/240V AC	35	65	125	
			250V DC	25	40	-	
Service breaking capacity (IEC, JIS, AS/NZS)	$I_{cs}$	(kA)	690V AC	-	7.5	15	
			525V AC	7.5	25	35	
			440V AC	12	25	50	
			400/415V AC	19	36	70	
			220/240V AC	27	65	125	
			250V DC	19	40	-	
Rated breaking capacity (NEMA)		(kA)	480V AC	10	22	35	
			240VAC	35	65	125	
Rated short-time withstand current	$I_{cw}$	(kA)	0.3 s	-	-	-	
<b>Protection</b>							
Adjustable thermal, adjustable magnetic				■	■		
Fixed thermal, fixed magnetic							
Microprocessor						■	
Utilisation category				A	A	A	
<b>Installation</b>							
Front connection				■	■	■	
Attached flat bar				•	•	•	
Solderless terminal (cable clamp)				•	•	•	
Rear connection				•	•	•	
Plug-in				•	•	•	
Draw-out				-	-	-	
DIN rail mounting				-	-	-	
Dimensions	h	(mm)		165	165	165	
			w	(mm) 3 pole	105	105	105
				(mm) 4 pole	140	140	140
			d	(mm)	68	68	103
Weight	W	(kg)	3 pole	1.5	1.5	2.5	
			4 pole	1.9	1.9	3.3	
<b>Operation</b>							
Direct Opening Action				■	■	■	
Toggle operation				■	■	■	
Variable depth / direct mount operating handle				•	•	•	
Motor operator				•	•	•	
Endurance	Electrical	cycles	415V AC	10000	10000	10000	
				30000	30000	30000	
Standards				IEC 60947-2, EN 60947-2			

■ Standard • Optional - Not Available

Product series	description	unit	condition	EB2	EB2	EB2	EB2	EB2		
Model-type				400L	400S	400E	630LE	630E		
Number of poles				3, 4	3, 4	3, 4	3, 4	3, 4		
Nominal current ratings										
Electrical characteristics	$I_n$	(A)	50°C	250,	250,	250,	630	630		
				400	400	400				
Rated operational voltage	$U_e$	(V)	AC 50/60 Hz	500	690	690	690*	690*		
			DC	500	600	-	-	-		
Rated insulation voltage	$U_i$	(V)		800	800	800	800	800		
Rated impulse withstand voltage	$U_{imp}$	(kV)		8	8	8	8	8		
Ultimate breaking capacity (IEC, JIS, AS/NZS)	$I_{cu}$	(kA)	690V AC	-	20	20	10*	20*		
			525V AC	15	30	30	15	30		
			440V AC	22	45	45	25	45		
			400/415V AC	25	50	50	36	50		
			220/240V AC	35	85	85	50	85		
			250V DC	25	40	-	-	-		
Service breaking capacity (IEC, JIS, AS/NZS)	$I_{cs}$	(kA)	690V AC	-	15	15	10*	15*		
			525V AC	15	30	30	15	30		
			440V AC	22	45	45	25	45		
			400/415V AC	25	50	50	36	50		
			220/240V AC	35	85	85	50	85		
			250V DC	19	40	-	-	-		
Rated breaking capacity (NEMA)		(kA)	480V AC	15	25	25	15	25		
			240VAC	35	85	85	50	85		
Rated short-time withstand current	$I_{cw}$	(kA)	0.3 s	-	-	5	-	-		
Protection										
Adjustable thermal, adjustable magnetic				■	■					
Fixed thermal, fixed magnetic										
Microprocessor						■	■	■		
Utilisation category				A	A	B	A	A		
Installation										
Front connection				■	■	■	■	■		
Attached flat bar				•	•	•	•	•		
Solderless terminal (cable clamp)				•	•	•	-	-		
Rear connection				•	•	•	-	-		
Plug-in				•	•	•				
Draw- out				•	•	•	-	-		
DIN rail mounting				-	-	-	-	-		
Dimensions	h	(mm)		260	260	260	260	260		
			w	(mm)	3 pole	140	140	140	140	140
					4 pole	185	185	185	185	185
			d	(mm)		103	103	103	103	103
Weight	W	(kg)	3 pole	4.2	4.2	4.3	5.0	5.0		
			4 pole	5.6	5.6	5.7	6.5	6.5		
Operation										
Direct Opening Action				■	■	■	■	■		
Toggle operation				■	■	■	■	■		
Variable depth / direct mount operating handle				•	•	•	•	•		
Motor operator				•	•	•	•	•		
Endurance	Electrical	cycles	415V AC	4500	4500	4500	4500	4500		
				15000	15000	15000	15000	15000		
Standards				IEC 60947-2, EN 60947-2						

■ Standard • Optional - Not Available

**ETIBREAK**

Product series				EB2	EB2	EB2	EB2	EB2	EB2	EB2	EB2	
Model-type				800LE	800E	1000LE	1000E	1250LE	1250E	1600LE	1600E	
Number of poles				3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	
<b>Nominal current ratings</b>												
Electrical characteristics	$I_n$	(A)	50°C	800	800	1000	1000	1250	1250	1600	1600	
Rated operational voltage	$U_e$	(V)	AC 50/60 Hz	690	690	690	690	690	690	690	690	
			DC	-	-	-	-	-	-	-	-	
Rated insulation voltage	$U_i$	(V)		800	800	800	800	800	800	800	800	
Rated impulse withstand voltage	$U_{imp}$	(kV)		8	8	8	8	8	8	8	8	
Ultimate breaking capacity (IEC, JIS, AS/NZS)	$I_{cu}$	(kA)	690V AC	20	30	20	30	20	30	20	30	
			525V AC	30	45	30	45	30	45	30	45	
			440V AC	45	65	45	65	45	65	45	65	
			400/415V AC	50	70	50	70	50	70	50	70	
			220/240V AC	85	100	85	100	85	100	85	100	
			250V DC	-	-	-	-	-	-	-		
Service breaking capacity (IEC, JIS, AS/NZS)	$I_{cs}$	(kA)	690V AC	15	25	15	25	15	25	15	25	
			525V AC	30	45	30	45	30	45	30	45	
			440V AC	45	65	45	65	45	65	45	65	
			400/415V AC	50	70	50	70	50	70	50	70	
			220/240V AC	85	100	85	100	85	100	85	100	
			250V DC	-	-	-	-	-	-	-		
Rated breaking capacity (NEMA)		(kA)	480V AC	25	35	25	35	25	35	25	35	
			240V AC	85	100	85	100	85	100	85	100	
Rated short-time withstand current	$I_{cw}$	(kA)	0,3seconds	-	-	-	-	-	-	-	-	
<b>Protection</b>												
Adjustable thermal, adjustable magnetic				-	-	-	-	-	-	-	-	
Fixed thermal, fixed magnetic				-	-	-	-	-	-	-	-	
Microprocessor				■	■	■	■	■	■	■	■	
Utilisation category				A	A	A	A	A	A	A	A	
<b>Installation</b>												
Front connection				■	■	■	■	■	■	■	■	
Attached flat bar				•	•	•	•	•	•	•	•	
Solderless terminal (cable clamp)				-	-	-	-	-	-	-	-	
Rear connection				-	-	-	-	-	-	-	-	
Plug-in				-	-	-	-	-	-	-	-	
Draw- out				-	-	-	-	-	-	-	-	
DIN rail mounting				-	-	-	-	-	-	-	-	
Dimensions	h	(mm)		273	273	273	273	370	370	370	370	
			w	(mm)	3 pole	210	210	210	210	210	210	210
					4 pole	280	280	280	280	280	280	280
Weight	d	(mm)		103	103	103	103	120	120	140	140	
			W	(kg)	3 pole	9,1	9,1	11	11	19,8	19,8	27
					4 pole	12,3	12,3	14,8	14,8	25	25	35
<b>Operation</b>												
Direct Opening Action				■	■	■	■	■	■	■	■	
Toggle operation				■	■	■	■	■	■	■	■	
Variable depth / direct mount operating handle				•	•	•	•	•	•	•	•	
Motor operator				•	•	•	•	-	-	-	-	
Endurance			Electrical cycles	415V AC	4500	4500	4500	4500	4500	4500	4500	
			Mechanical cycles		15000	15000	15000	15000	15000	15000	15000	15000
Standards				IEC 60947-2, EN 60947-2								

■ Standard • Optional - Not Available

# Thermal magnetic adjustments and characteristics

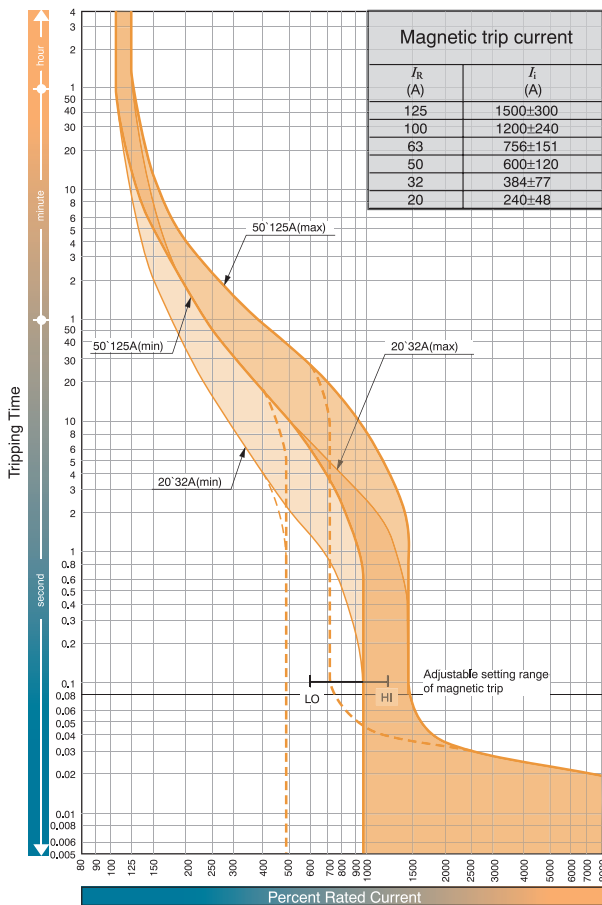
## Thermal adjustment

Low voltage moulded case circuit breakers have a wide thermal adjustment range, one of the largest on the market. The rated current 'I<sub>r</sub>' is continuously adjustable from 63% to 100% of this nominal current 'I<sub>n</sub>'. There are three main points of calibration marked at 63%, 80% and 100%.

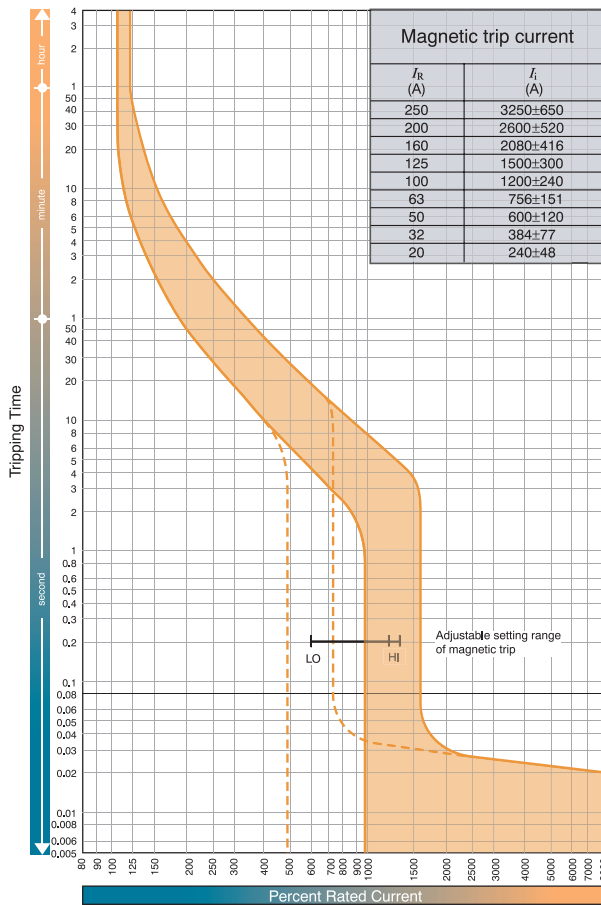
## Magnetic adjustment

An adjustable magnetic characteristics allows short-circuit protection to be matched to the load and supply characteristics, for example motor inrush current or generator short-circuit current.

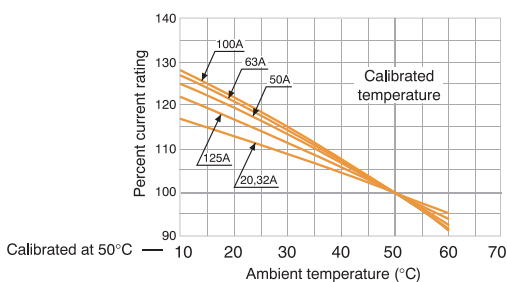
Time, current characteristics curves  
EB2 125



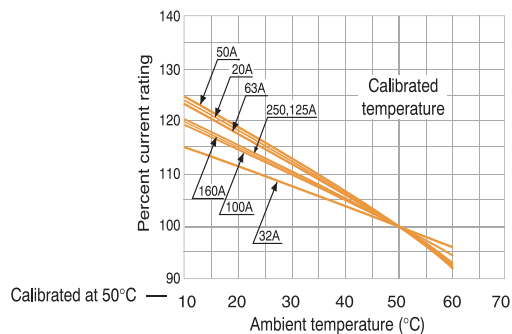
Time, current characteristics curves  
EB2 160 and EB2 250



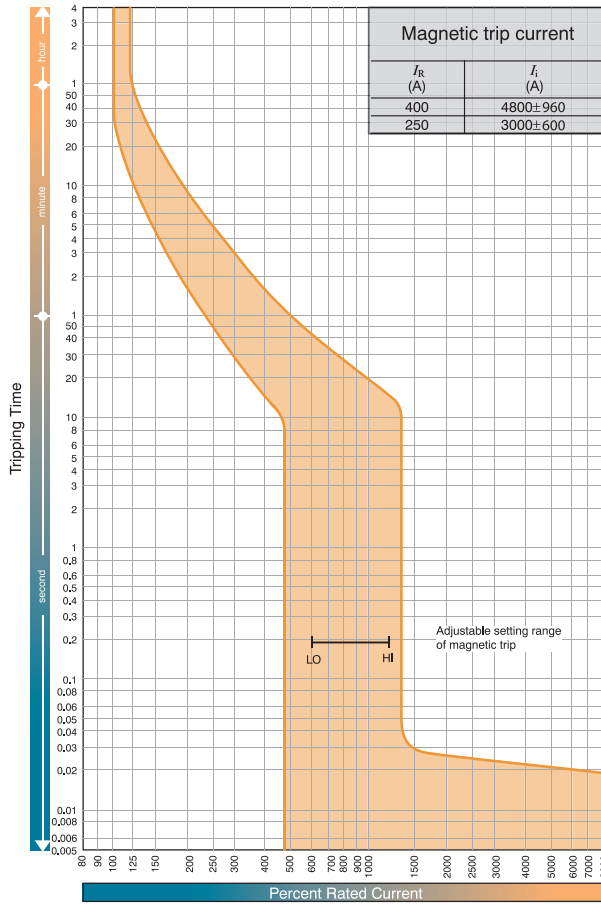
Ambient compensating curves



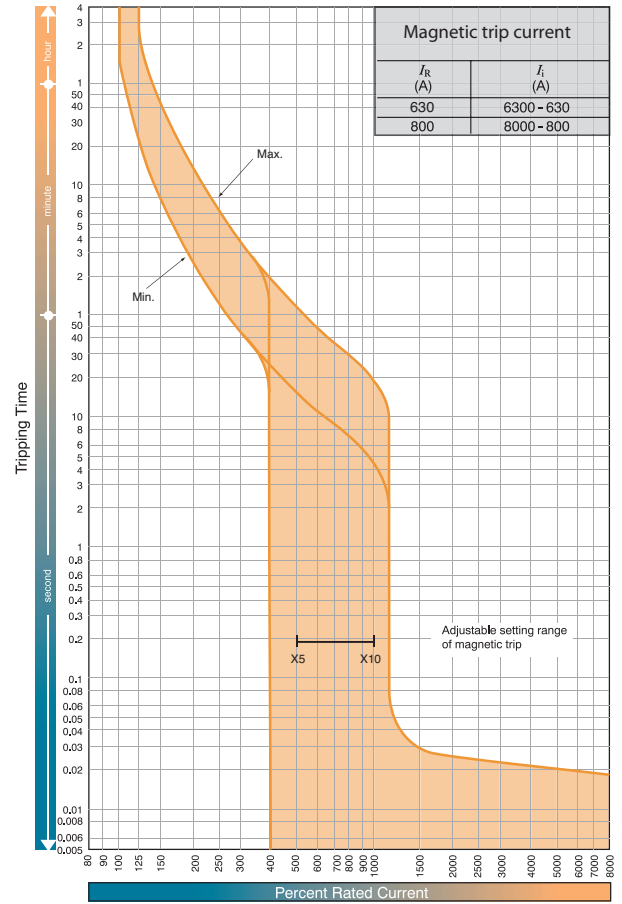
Ambient compensating curves



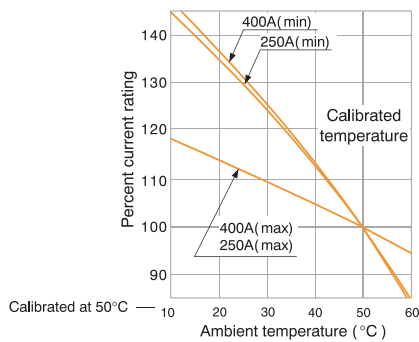
Time, current characteristics curves  
EB2 400



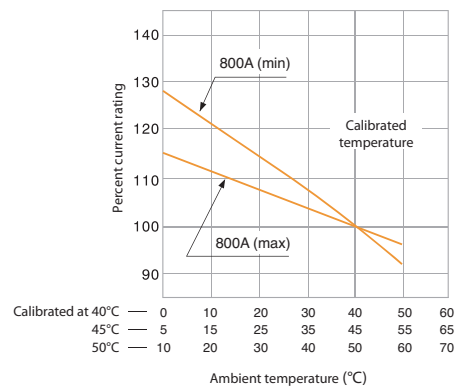
Time, current characteristics curves  
EB2 630 and EB2 800



Ambient compensating curves

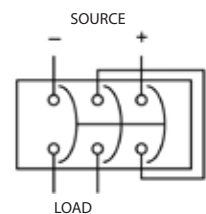


Ambient compensating curves



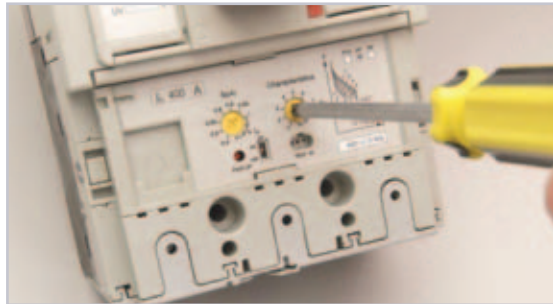
Special applications of thermal magnetic MCCBs

All standard thermal magnetic MCCBs are suitable for DC application up to 250 V DC.

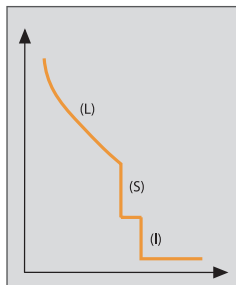


## Microprocessor based characteristics and adjustments EB2 series

Etibreak 2 MCCBs from 250A to 630A frame sizes are available with electronic protection units. Current ratings,  $I_n$ , of 40A, 125A, 160A, 250A, 400A and 630A are available. These offer great flexibility as their characteristics can be set to suit a wide range of application conditions. Overload protection can be set between 0.4 and 1.0 times  $I_n$ .



Selecting a Preset Characteristic for a 400A Etibreak 2 MCCB with Electronic Protection



Electronic protection characteristic

Every Etibreak electronic protection unit includes overload protection (L), delayed short-circuit protection (S) and instantaneous protection (I) as standard.



### Adjustment dials

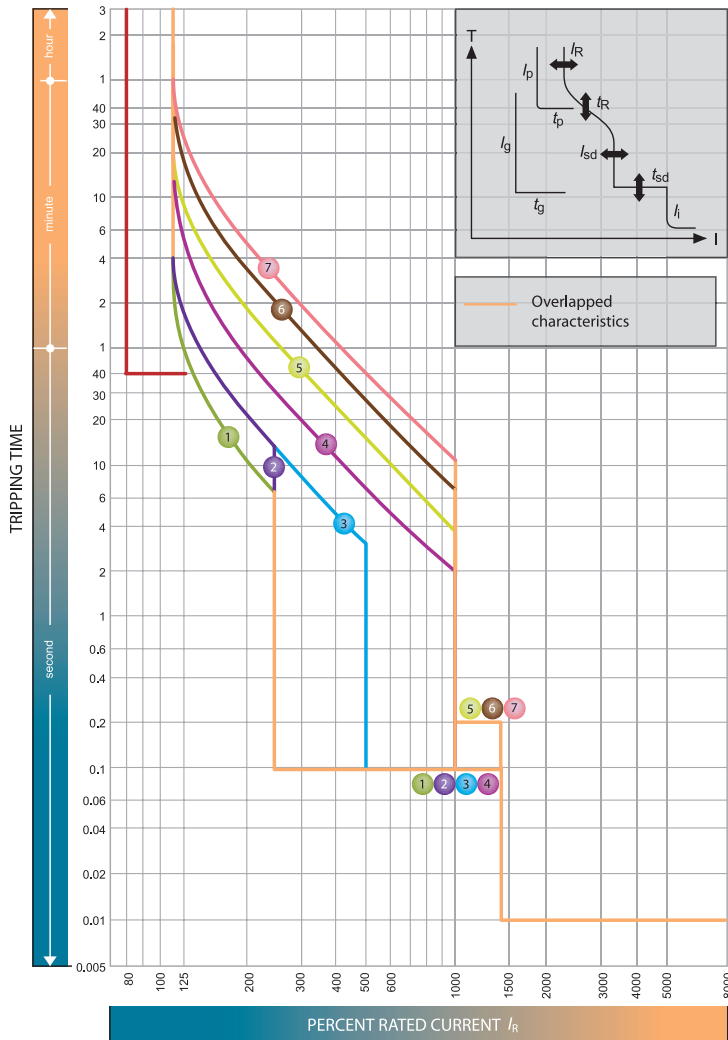
The left adjustment dial sets the rated current to match the conductor rating. The right adjustment dials select one of six on 630A models preset characteristics. The effects of the left adjustment dial (labelled  $I_n(A)$ ), and the right adjustment dial (labelled Characteristics) are detailed in the tables shown underneath each time/current graph.

#### Tolerances of Characteristics

Characteristics		Tolerance
Long Time Delay (LTD)	$t_R$	+/- 20%
Short Time Delay (STD)	$I_{sd}$	+/- 15%
	$t_{sd}$	Total clearing time +50ms, resettable time - 20ms
Instantaneous (INST)	$I_t$	+/- 20%



EB2 250 E

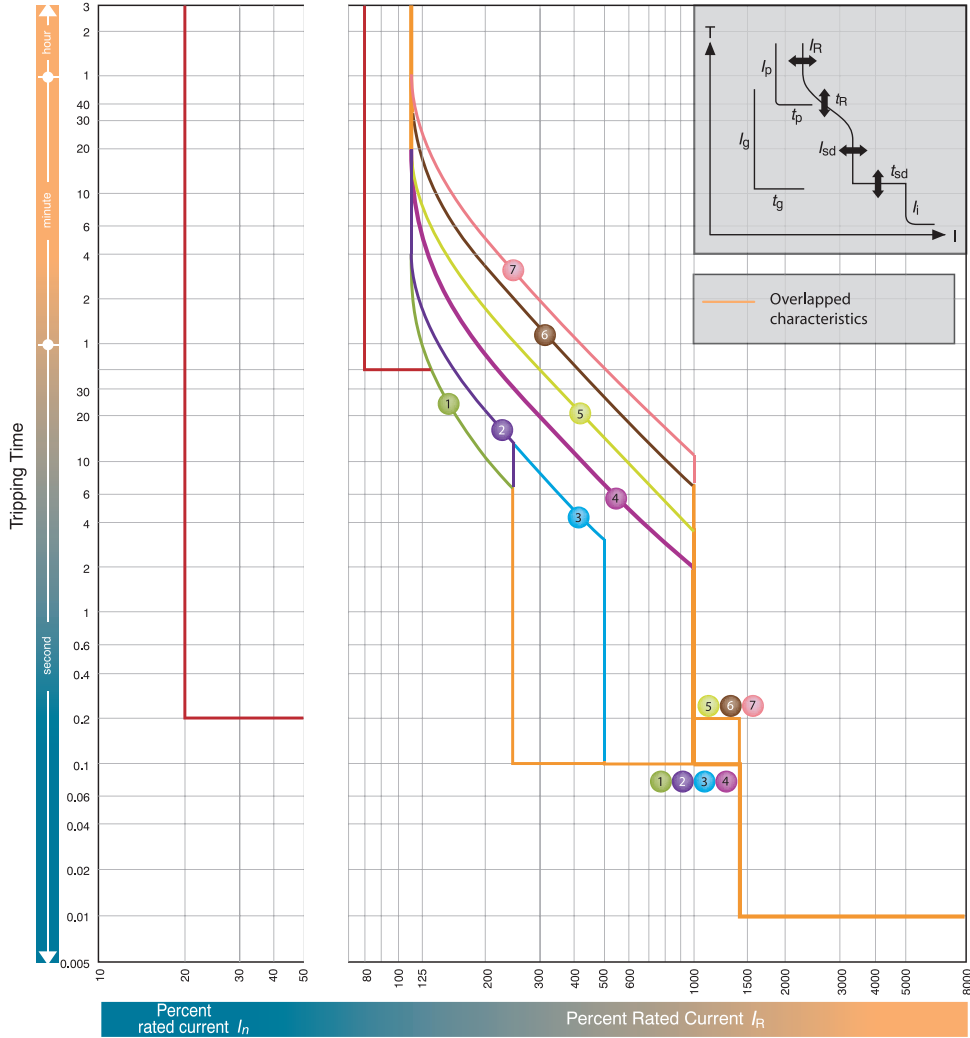


$I_n = 40, 125, 160, 250$

		$I_n$ (A)								
		LTD Pick-up current $I_R$	$xI_n$	0.4	0.5	0.63	0.8	0.9	0.95	1.0
Standard	LTD	Index $t_R$	Index (s)	11	21	21	5	10	19	29
					at 200% $xI_n$			at 600% $xI_n$		
	STD	Index $I_{sd}$	Index $xI_n$	2.5			10			
		Index $t_{sd}$	Index (s)	0.1				0.2		
INST	Index $I_i$	Index $xI_n$	14 (Max: 13 $xI_n$ ) Note (1)							

Note: (1)  $I_i$  max. = 12  $xI_n$ .

EB2 400 E



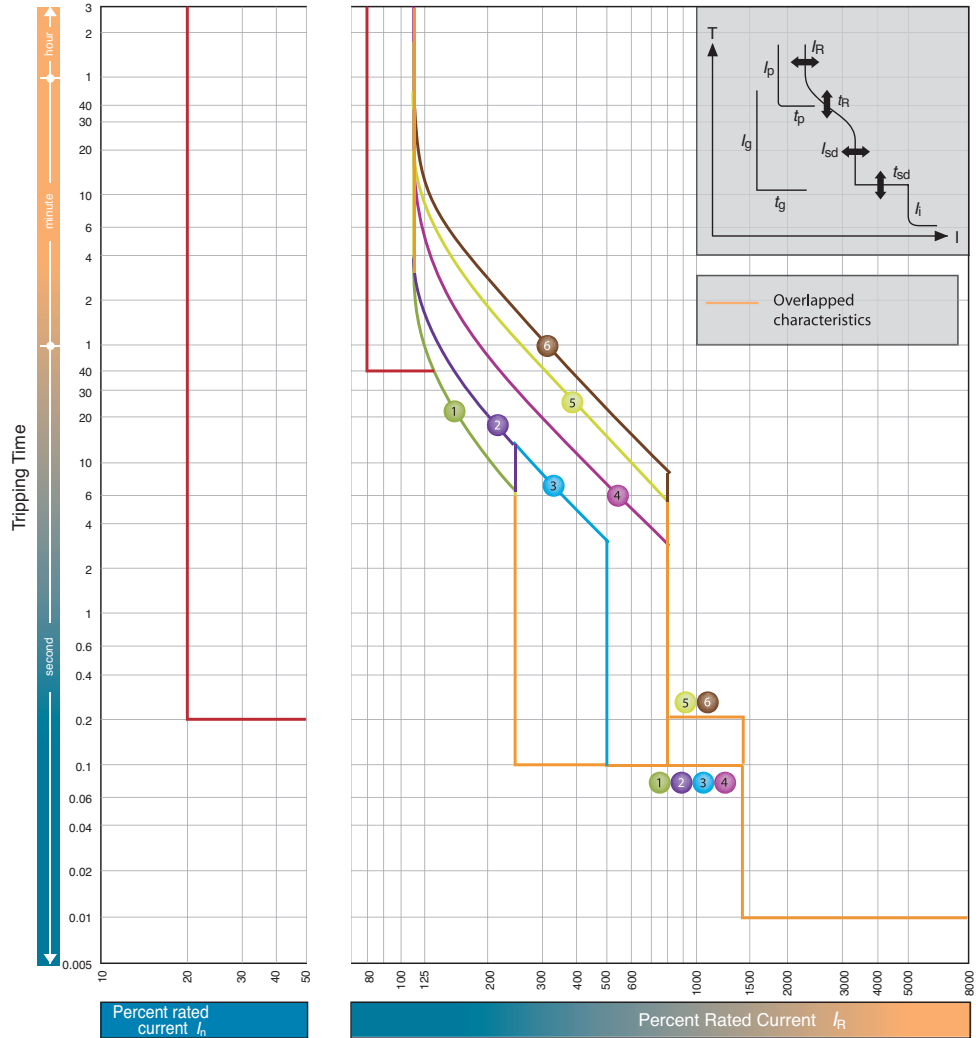
$I_n = 250, 400$

$I_R$ (A)									
LTD Pick-up current $I_R$	$xI_n$	0.4	0.5	0.63	0.8	0.9	0.95	1.0	

Standard	Characteristics		No.	1	2	3	4	5	6	7
	LTD	Index $t_R$	Index (s)		11	21	21	5	10	19
STD	Index $I_{sd}$	Index $xI_n$		2.5		5	10			
	Index $t_{sd}$	Index (s)		0.1				0.2		
INST	Index $I_i$	Index $xI_n$		14 (Max: $13 x I_n$ ) Note (1)						

Note: (1)  $I_i$  max. =  $13 x I_n$ .

EB2 630 E



$I_n = 630A$

$I_R$ (A)									
LTD Pick-up current $I_p$	$x I_n$	0.4	0.5	0.63	0.8	0.85	0.9	0.95	1.0

Characteristics		No.	1	2	3	4	5	6	
Standard	LTD	Index $t_R$	Index (s)	11	21	21	5	10	16
				at 200% x $I_R$			at 600% x $I_R$		
Standard	STD	Index $I_{sd}$	Index $x I_n$	2.5		5		8	
		Index $t_{sd}$	Index (s)	0.1			0.2		
Standard	INST	Index $I_i$	Index $x I_n$	14 (Max: 10 x $I_n$ ) Note (1)					

Note: (1)  $I_i$  max. = 10 x  $I_n$ .

## Microprocessor based characteristics and adjustments EB series

### Characteristics

In addition to the standard overload and short-circuit protection, there are a number of options available to meet specific application.

MCCB type	LTD	STD	INST	I <sup>2</sup> t RAMP	PICK-UP LED	TEST PORT	PTA	GFT
EB 1250	s	s	s	s	s	s	0	0
EB1600	s	s	s	s	s	s	0	0

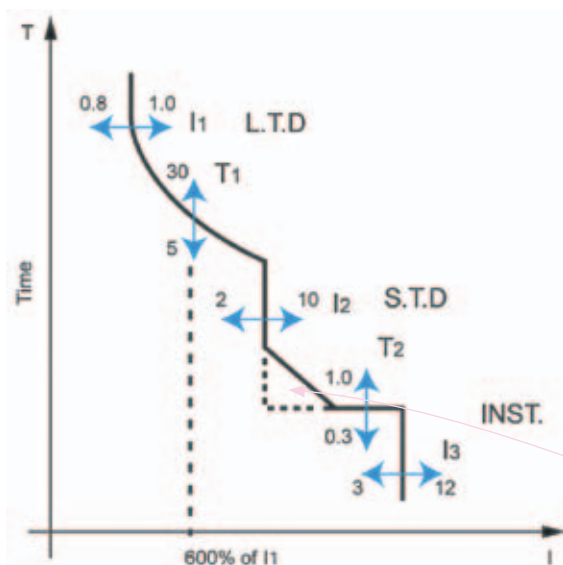
s-Standard, o- optional

### LEGEND

#### APPLICATION

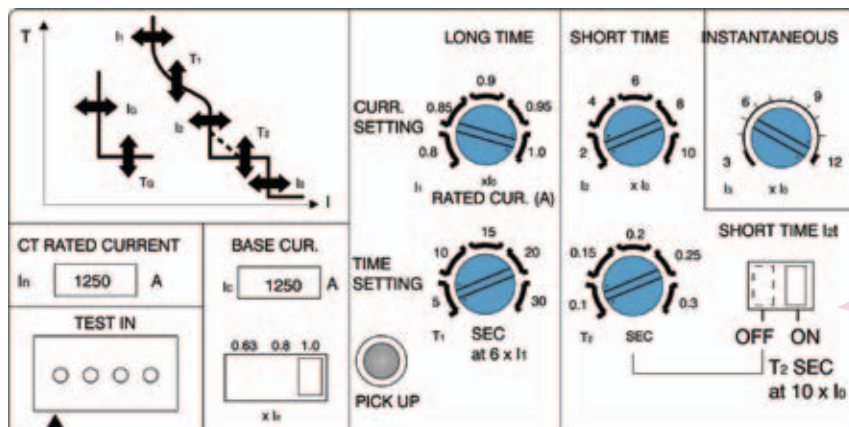
LTD	Long Time delay	- Overload protection, True R.M.S.
STD	Short Time delay	- Short-circuit protection and selectivity
INST	Instantaneous	- Short-circuit protection, fast reaction
I <sup>2</sup> t RAMP		- Provides easier grading with downstream fuse
Pick-up LED		- Lights on LTD overload, flashes on PTA pick-up
TEST report		- Facility for OCR checker for calibration checking
PTA	Pre-trip alarm	- Useful for loadshedding application
GFT	Ground Fault Trip	- Protection against ground faults

### Standards Time Current Curves



Each part of the curve can be independently adjusted. This unique adjustability of LTD, STD and INST enables the standard microprocessor MCCB to achieve more than 200,000 permutations of its time / current characteristic. This makes ETIBREAK microprocessor range one of the most flexible on the market.

The I<sup>2</sup>t RAMP switch, which is provided as standard, assists in discrimination with downstream fuses. With the switch off, the STD operates with a definite time characteristic. With the switch on, the characteristic shape is changing – cutting off the corner which poses a potential selectivity problem.



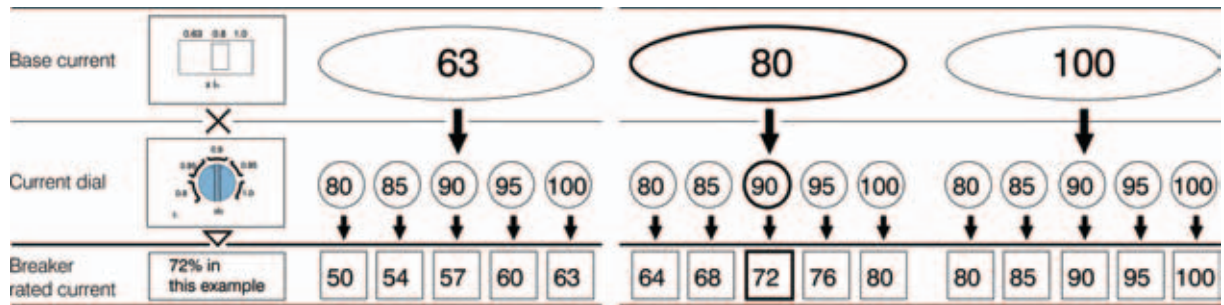
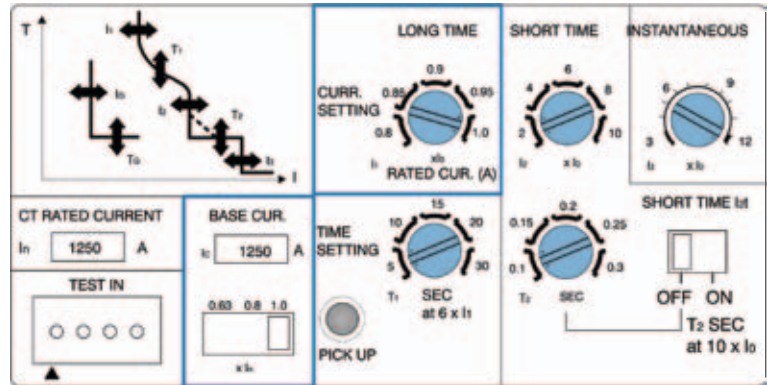
Setting dial		Available adjustments	
Base current settings	$I_0$	0,63-0,8-1,0 x $I_n$	A
LTD Pick up	$I_1$	0,8-0,85-0,9-0,95-1,0 x $I_0$	A
LTD Settings	$T_1$	5-10-15-20-25-30 (at $I_1$ x 600%)	s
STD Pick up	$I_2$	2-4-6-8-10 x $I_0$	A
STD Settings	$T_2$	0,1-0,15-0,2-0,25-0,3	s
INST Pick up	$I_3$	3-12 x $I_0$ (continuously adjustable)	A

OVERLOAD ADJUSTMENTS

The rated current of the microprocessor based MCCB is adjusted using two current multipliers. This process achieves high accuracy adjustment from 50-100%. These are the LTD pickup dial  $I_1$  and the Base current  $I_0$  selector switch. The current (LTD pickup) is achieved as follows:

$$I_{rated} = I_n \times I_0 \times I_1$$

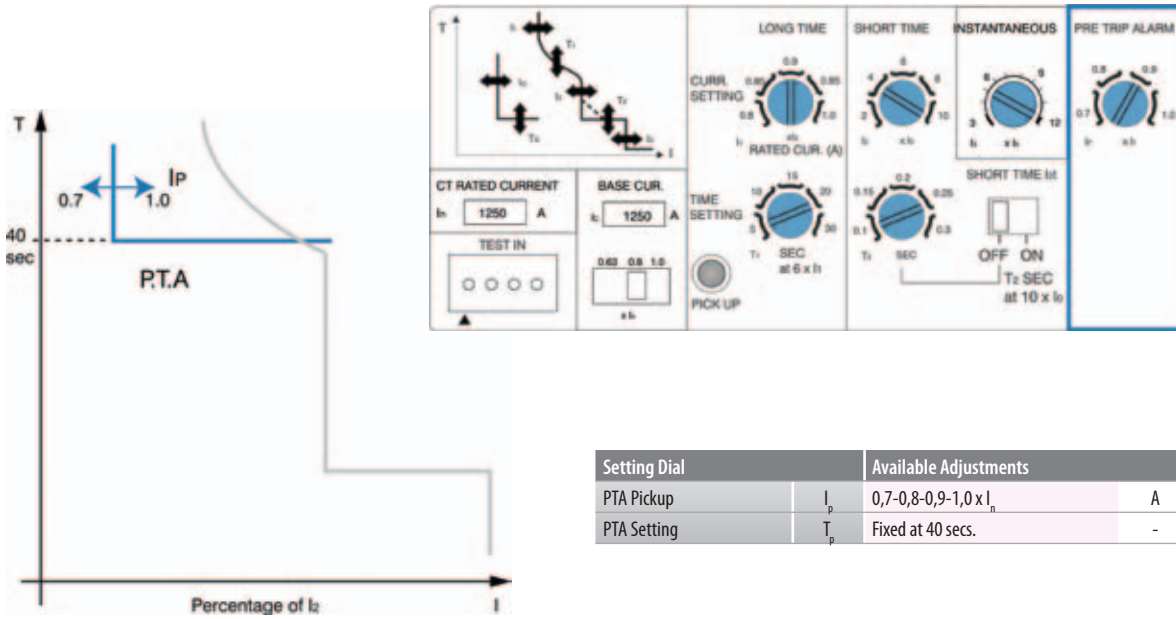
In total there are 15 possible increments of adjustment between 50-100% as shown below.



GROUND FAULT and PRE TRIP ALARM (special order)  
Ground fault adjustments

Setting dial		Available adjustments	
GFT Pickup	$I_g$	0,1 to 0,4 continuously adjustable x $I_n$	A
GFT Settings	$T_g$	0,1-0,2-0,3-0,4-0,8	s

Pre trip alarm adjustments (special order)



Setting Dial	Available Adjustments
PTA Pickup	$I_p$ 0,7-0,8-0,9-1,0 x $I_n$ A
PTA Setting	$T_p$ Fixed at 40 secs. -

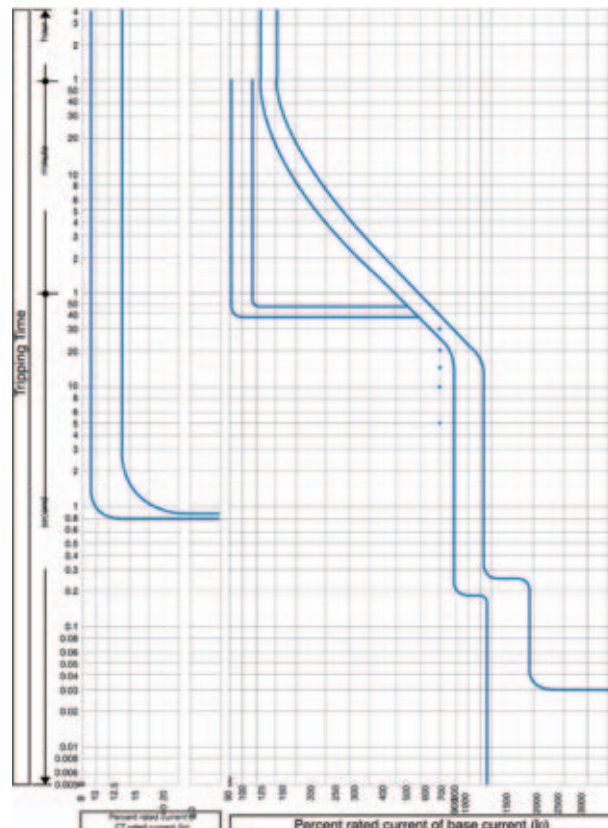
**Output contact**

Normally open contact, (1a) integral lead is standard length (450 mm)

	Resistive load	Inductive load
Rating of contact	250 V AC 125 V A(2 A max)	20 V A(2 A max)
Tripped indication	220 V AC 60 W (2 A max)	10 W (2 A max) Pick-up LED flickers

The PTA (Pre-trip alarm) option continuously monitors the true r.m.s. value of the load current. When the load current exceeds the present current value  $I_p$  the pick-up led "flashes" to provide a local alarm. If the current continues to exceed the  $I_p$  setting for 40 sec. or more a volt free contact will close to provide a remote alarm. This volt free contact could also be used to trip nonessential load or start additional generator capacity. The volt free contact will only reset if the load current decrease to a value below  $I_p$  or the control voltage is interrupted.

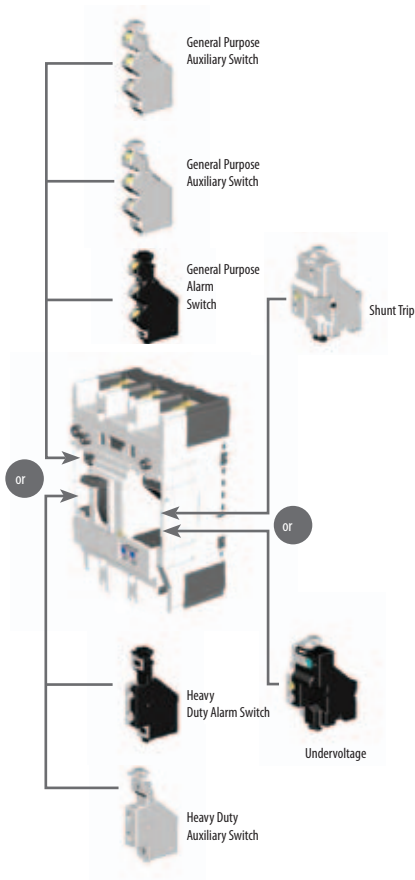
**Time/current curves**  
EB1250, EB1600



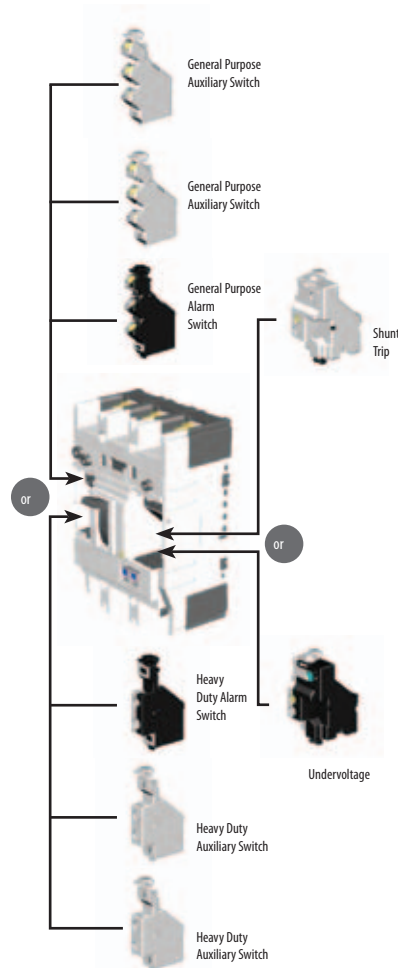
Internal accessories – series EB2

Ampere Frame size (A):

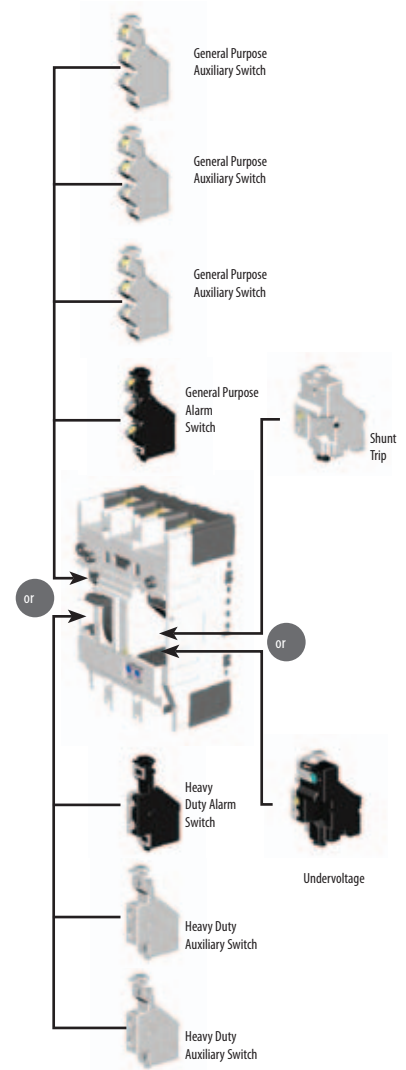
125



160, 250



400 ... 1600



- Status indication switches mount in the left side of the MCCB. General purpose and heavy duty status indication switches cannot be mixed in the same MCCB. Only one alarm switch can be fitted to an MCCB.
- Shunt trips and undervoltage trips mount in the right side of the MCCB.
- It is not possible to install a shunt trip and an undervoltage trip in an MCCB as they occupy the same location. Undervoltage trips can provide remote tripping if necessary by wiring a normally closed contact or pushbutton in series with the protected supply.
- Undervoltage trips with time delays require an external time delay controller which clips to the side of the MCCB.

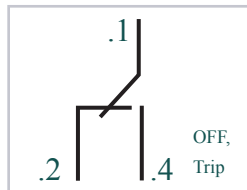
Internal accessories – series EB2



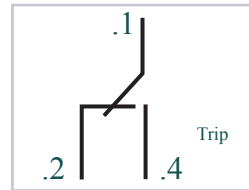
General Purpose Auxiliary Switch



General Purpose Alarm Switch



Terminal Designations and Function of General Purpose Auxiliary Switch

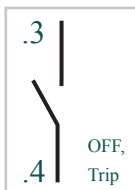


Terminal Designations and Function of General Purpose Alarm Switch

General purpose auxiliaries and alarm switch ratings						
Volts (V)	AC Amperes (A)		Volts (V)	DC Amperes (A)		Minimum Load
	Resistive Load	Inductive Load		Resistive Load	Inductive Load	
440	-	-	250	-	-	100mA at
240	3	2	125	0.4	0.05	15V DC.
110	3	2	30	3	2	



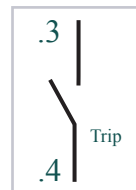
Heavy Duty Auxiliary Switch



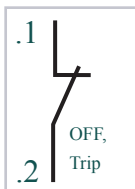
Terminal Designations and Function of Heavy Duty Auxiliary Switch NO contact



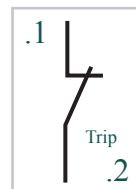
Heavy Duty Alarm Switch



Terminal Designations and Function of Heavy Duty Alarm Switch, NO contact



Terminal Designations and Function of Heavy Duty Auxiliary Switch, NC contact



Terminal Designations and Function of Heavy Duty Alarm Switch, NC contact

Ratings of Heavy Duty Auxiliary and Alarm switches					
Volts (V)	AC Amperes (A)		Volts (V)	DC Amperes (A)	
	Resistive Load	Inductive Load		Resistive Load	Inductive Load
440	3	3	250	0.5	0.5
240	4	4	125	1	1
110	5	5	48	3	2.5
48	6	6	24	6	2.5

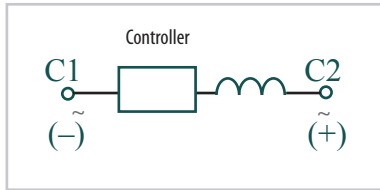




Shunt Trips

**Ratings of Shunt Trips**

Rated Voltage	Voltage AC		Voltage DC			
	200-240	380-450	24	48	100-120	200-240
Excitation Current (A)	0.014	0.0065	0.03	0.03	0.011	0.011



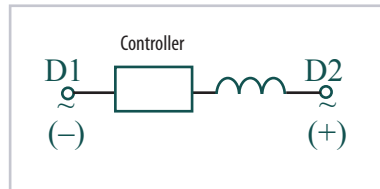
Terminal Designations of Shunt Trips



Undervoltage Trips

**Ratings of Undervoltage Trips**

Rated Voltage	Power supply capacity (VA)		Excitation current (mA)		
	Voltage AC		24	Voltage DC	
	200-240	380-450	100-120	200-240	
Power Supply Capacity (A)	1.4	2.28	23	10	10



Terminal Designations of Undervoltage Trips

## External accessories

IZ – Interpole barrier. Installed between MCCB terminal, which increases the distance between poles to reduce the possibility of creepage.

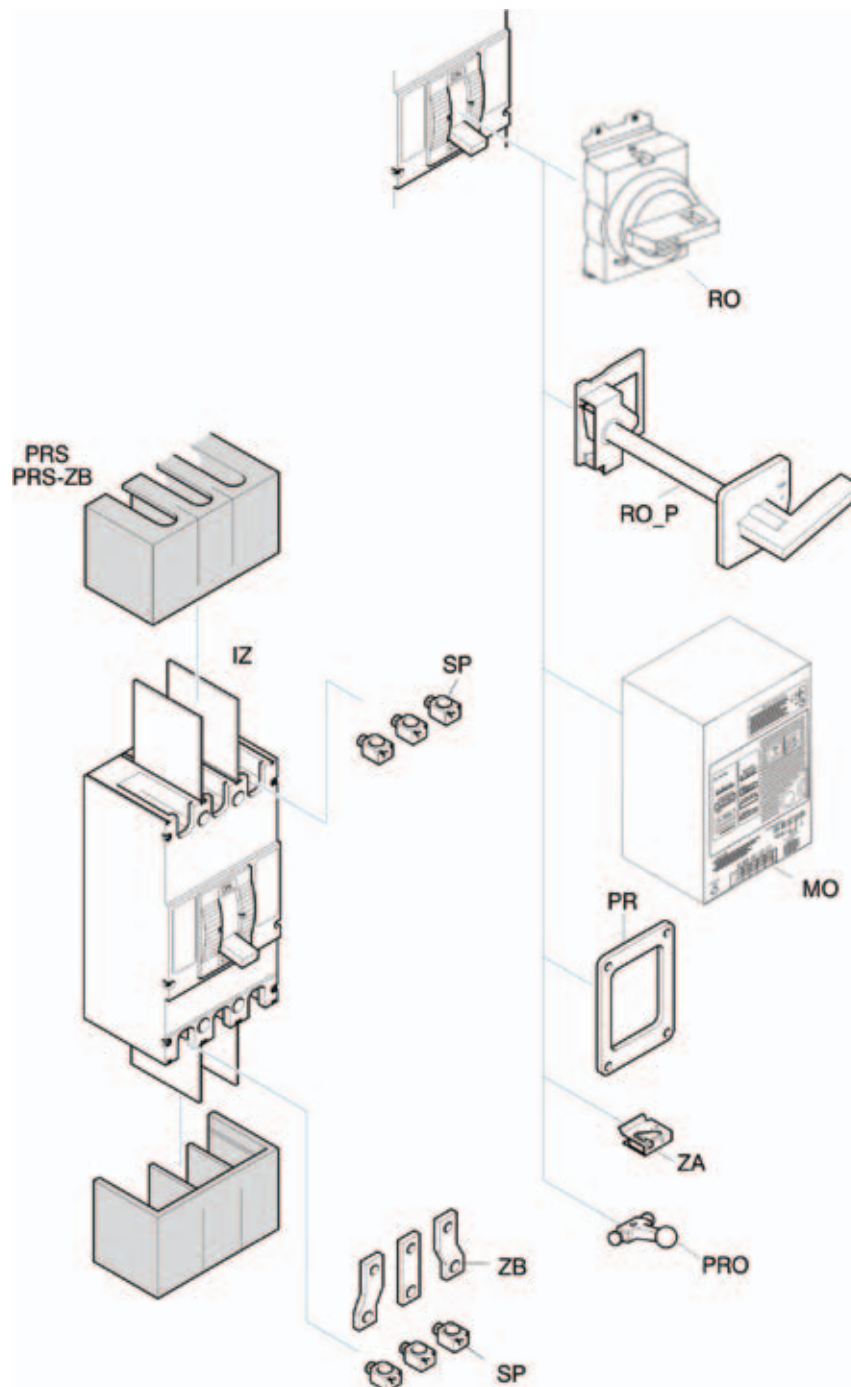
PRS – Terminal cover. The terminal covers are applied to the MCCB to prevent accidental contact with live parts and thereby protection against direct contact.

PRS-ZB – Terminal cover for att. Busbar. The terminal covers are applied to the MCCB to prevent accidental contact with live parts and thereby protection against direct contact. The width is different because of attach busbar.

SP – Solderless terminal

RO – Operating handle, breaker mounted. It's used when MCCB is installed in control centre/switchboard

RO\_P – Operating handle, panel mounted, variable depth. This consists of an operating mechanism mounted on the breaker, an operating handle mounted on the panel door and a square shaft to connect the mechanism with the handle.



MO – Motor operator. Enabling to switch MCCB ON or OFF remotly.

PR – Door flange. Accessory for mounting on panel door.

ZA – Handle lock. Enables the MCCB to be padlocked in neither the ON or OFF position.

ZB – Attach busbar. Used for easier instalation on busbar systems (widen terminals).

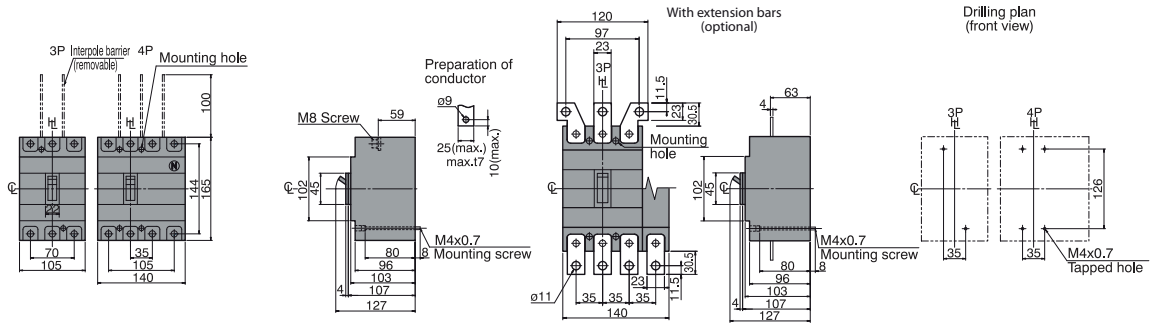
PRO – Handle extension. Used for easier manipulation ON/OFF at bigger MCCB's.



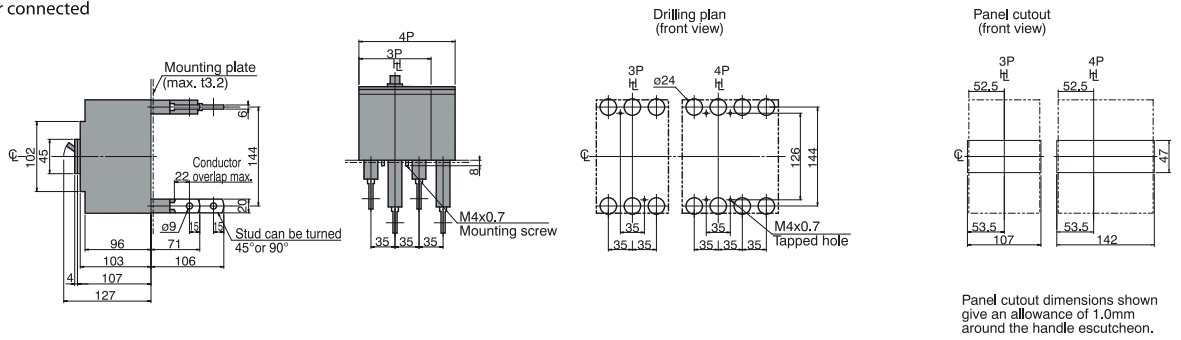


EB2 250/\_E (Microprocessor's MCCBs)

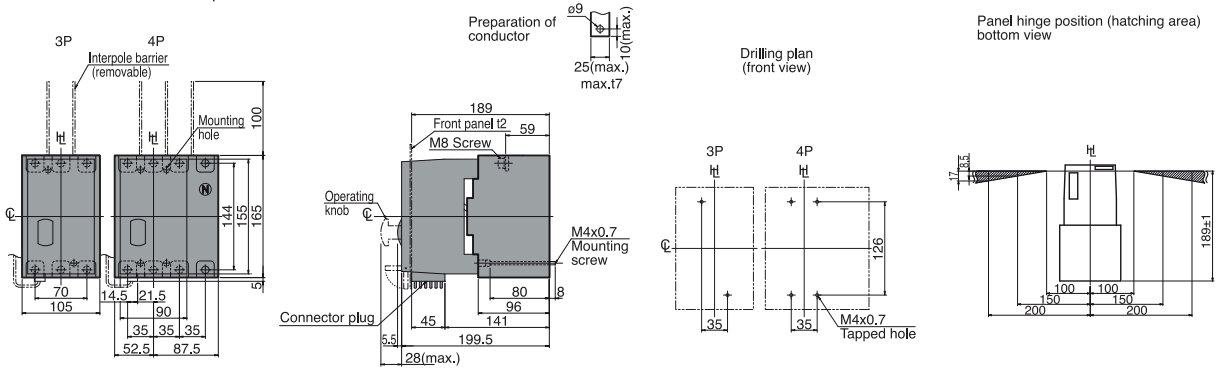
Front connected



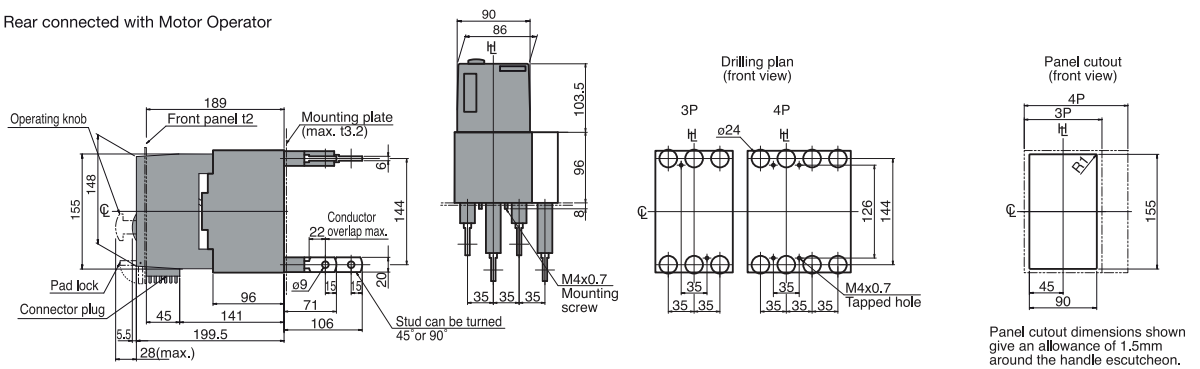
Rear connected



Front connected with Motor Operator

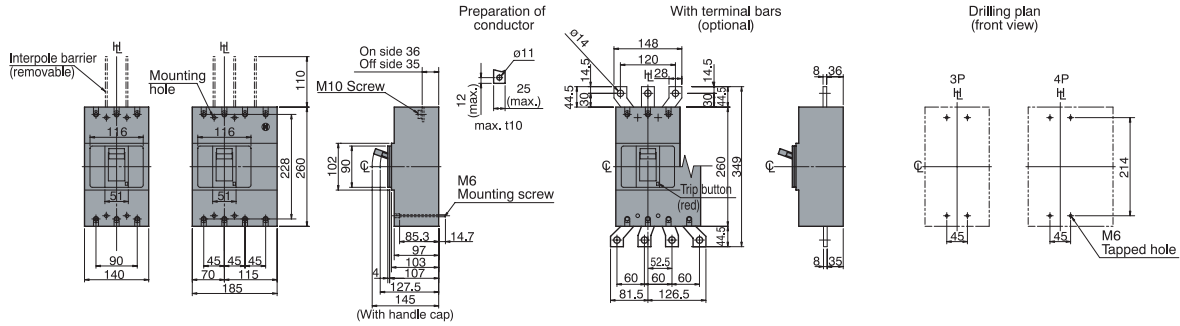


Rear connected with Motor Operator

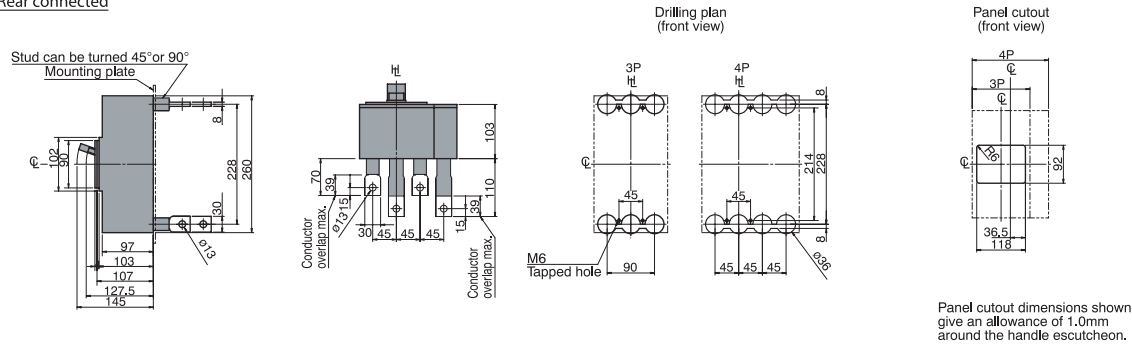


EB2 400

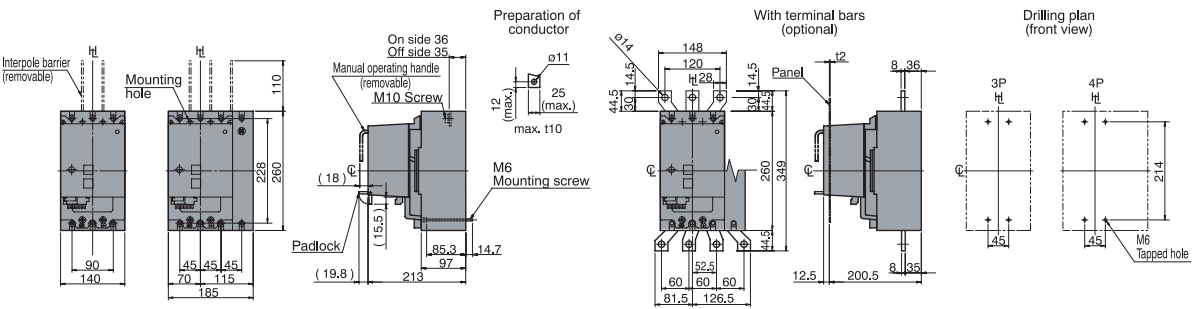
Front connected



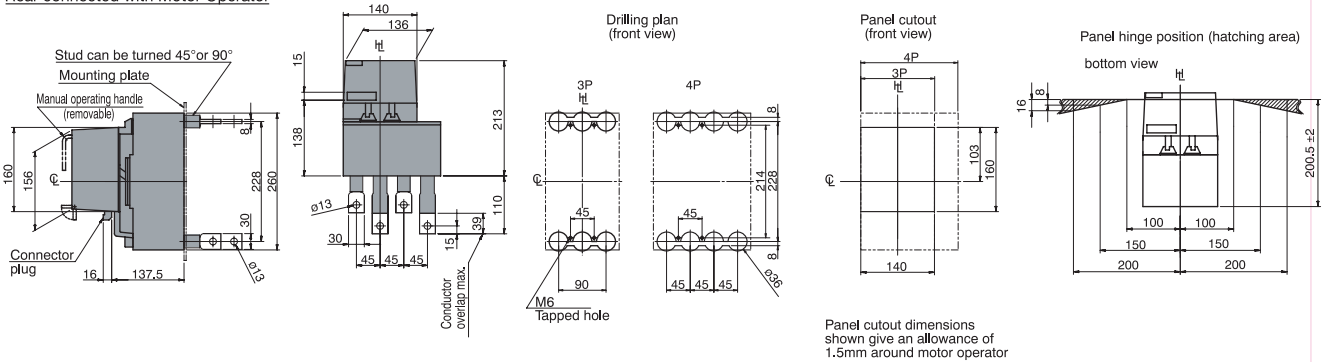
Rear connected



Front connected with Motor Operator

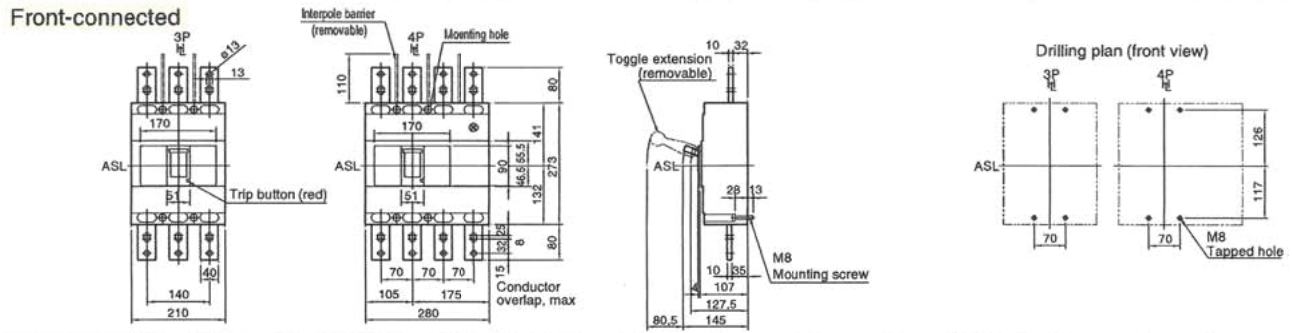


Rear connected with Motor Operator

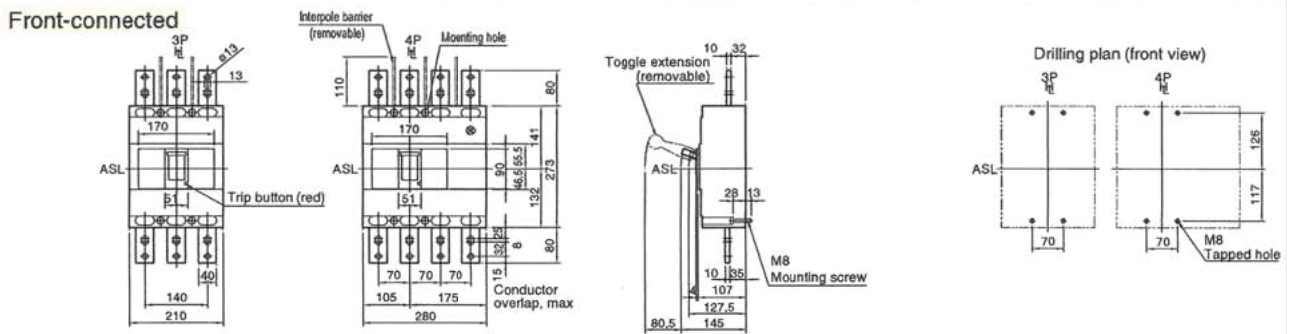




EB2 800



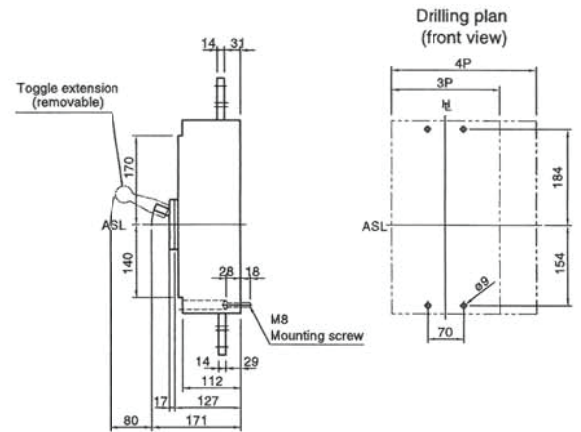
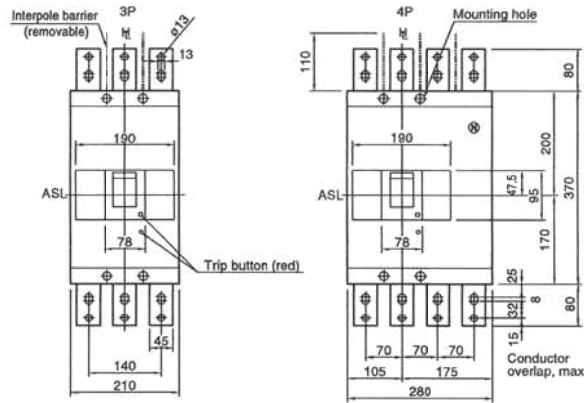
EB2 1000





EB2 1250

Front-connected



EB2 1600

Front-connected

