

DATA SHEET: TEMPOWER 2 ACB FOR 800V AC

Types: AR316H-V8, AR320H-V8, AR325H-V8, AR332H-V8



Electrical Characteristics to IEC 60947-1, IEC 60947-2

Type	AR316H-V8	AR320H-V8	AR325H-V8	AR332H-V8
Series	High Fault	High Fault	High Fault	High Fault
AMPERE RATING(A)	1600	2000	2500	3100
RATED CURRENT (max) [I_n](A)	JIS ⑫, IEC, EN, AS	1600	2000	2500
① ②	NEMA, ANSI	1600	2000	2500
	Marine	1600	2000	2500
NEUTRAL POLE AMPERES FRAME (A)	1600	2000	2500	3100
NUMBER OF POLES	3	3	3	3
RATED PRIMARY CURRENT OF OVER-CURRENT RELEASE [I_{CT}](A)	200	2000	2500	3100
• for general feeder circuit use	400			
	800			
	1250			
	1600			
RATED CURRENT OF OVER-CURRENT RELEASE (A)	$100 \leq I_n \leq 200$	$1000 \leq I_n \leq 2000$	$1250 \leq I_n \leq 2500$	$1600 \leq I_n \leq 3100$
• for generator protection use	$200 \leq I_n \leq 400$			
[I_n] is generator rated current.	$400 \leq I_n \leq 800$			
	$630 \leq I_n \leq 1250$			
	$800 \leq I_n \leq 1600$			
AC RATED INSULATION VOLTAGE [U_i](V. 50/60Hz)	1000	1000	1000	1000
RATED OPERATIONAL VOLTAGE [U_e](V. 50/60Hz)	800	800	800	800
AC RATED BREAKING CAP [kA sym rms] MAKING CAPACITY [kA peak]				
AC 800V ③ ⑦	30/63	30/63	30/63	30/63
JIS, IEC, EN, AS 690V ③	85/187	85/187	85/187	85/187
[$I_{CS} = I_{CU}$] ⑥ 440V	100/220	100/220	100/220	100/220
RATED IMPULSE WITHSTAND VOLTAGE [U_{imp}](kV)	12	12	12	12
RATED SHORT TIME WITHSTAND 1s	100	100	100	100
CURRENT [I_{cw}](kA rms) 3s	75	75	75	75
LATCHING CURRENT (kA)	85	85	85	85
TOTAL BREAKING TIME (s)	0.03	0.03	0.03	0.03
CLOSING OPERATION TIME				
SPRING CHARGING TIME (s) max.	10	10	10	10
CLOSE TIME (s) max.	0.08	0.08	0.08	0.08
No. of operating cycles				
Mechanical life with maintenance	25000	25000	20000	20000
without maintenance	12000	12000	10000	10000
Electrical life without maintenance AC460V	10000	10000	7000	7000
AC690V	7000	7000	5000	5000
Draw-Out Body (kg) ⑤	56 68	56 68	56 68	56 68
Draw-Out Chassis (kg) ⑤	49 57	49 57	49 57	49 57
Total Draw-Out Weight (kg) ⑤	105 125	105 125	105 125	105 125
OUTLINE DIMENSION (mm)				
DRAW-OUT TYPE ④				
a	460	460	460	460
b	460	460	460	460
c	345	345	345	345
d	40	40	40	40

① : Values in open air at 40°C (45°C for marine applications).

② : Values for ACBs are draw-out type with vertical terminals.

③ : Contact us for application in systems with IT earthing at this voltage

④ : For vertical terminals.

⑤ : These weights are based on normal specifications with the OCR and standard accessories.

⑥ : $I_{CS} = 25kA$ at 800V

⑦ : Interpole barriers are mandatory at this voltage.

Note: When the INST trip function is set to NON, the MCR function should be enabled, otherwise, the rated breaking capacity is reduced to the rated latching current.

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L-characteristic for general feeder circuits (Type AGR-11BL, 21BL, 31BL)

Specifications

Setting range of protection functions

Adjustable long time-delay trip characteristics

LT

Pick-up current [I_R] (A)

Time-delay [t_R] (s)

Time-delay setting tolerance (%)

Adjustable short time-delay trip characteristics

ST

Pick-up current [I_{sg}] (A)

Current setting tolerance (%)

Time-delay [t_{sg}] (ms) Relay time

Resettable time (ms)

Max. total clearing time (ms)

Adjustable instantaneous trip characteristics

INST or MCR (For AGR-11B, INST only)

Pick-up current [I_i] (A)

Current setting tolerance (%)

Adjustable pre-trip alarm characteristics

PTA

Pick-up current [I_{p1}] (A)

Current setting tolerance (%)

Time-delay [t_{p1}] (s)

Time-delay setting tolerance (%)

Adjustable ground fault trip characteristics

GF

Pick-up current [I_g] (A)

Current setting tolerance (%)

Time-delay [t_g] (ms) Relay time

Resettable time (ms)

Max. total clearing time (ms)

Ground fault trip characteristics on line side

REF (AGR-21B, 31B only)

Pick-up current [I_{REF}] (A)

current setting tolerance (%)

Time-delay (s)

N-phase protection characteristics

NP

Pick-up current [I_N] (A)

Time-delay [t_N] (s)

Time-delay setting tolerance (%)

Phase rotation protection characteristics

NS (AGR-21B, 31B only)

Pick-up current [I_{NS}] (A)

current setting tolerance (%)

Time-delay [t_{NS}] (s)

Time-delay setting tolerance (%)

Adjustable earth leakage trip characteristics

ELT (AGR-31B only)

Pick-up current [I_{AR}] (A)

Current setting tolerance

Time-delay [t_{AR}] (ms) Relay time

Resettable time (ms)

Max. total clearing time (ms)

Undervoltage alarm characteristics

UV (AGR-31B only)

Recovery setting voltage (V)

Recovery voltage setting tolerance (%)

Setting voltage (V)

Voltage setting tolerance (%)

Time-delay (s)

Time-delay setting tolerance (%)

Control power

Setting range

I_n × (0.8 – 0.85 – 0.9 – 0.95 – 1.0 – NON) ; 6 graduations

• Non tripping when load current ≤ ([I_R] × 1.05). • Tripping when ([I_R] × 1.05) < load current ≤ ([I_R] × 1.2)

(0.5 – 1.25 – 2.5 – 5 – 10 – 15 – 20 – 25 – 30) at 600% of [I_R]; 9 graduations

±15% +150ms – 0ms

I_n × (1 – 1.5 – 2 – 2.5 – 3 – 4 – 6 – 8 – 10 – NON) ; 10 graduations

±15%

50

100

200

400

600

800

25

75

175

375

575

775

120

170

270

470

670

870

; 6 graduations

I_n × (2 – 4 – 6 – 8 – 10 – 12 – 14 – 16 – NON) ; 9 graduations

±20%

I_n × (0.75 – 0.8 – 0.85 – 0.9 – 0.95 – 1.0) ; 6 graduations

±7.5%

(5 – 10 – 15 – 20 – 40 – 60 – 80 – 120 – 160 – 200) at [I_{p1}] or more; 10 graduations

±15% +100ms – 0ms

Note: Set [I_g] to 1200A or less.

I_{CT} × (0.1 – 0.2 – 0.3 – 0.4 – 0.6 – 0.8 – 1.0 – NON) ; 8 graduations

±20%

100

200

300

500

1000

2000

75

175

275

475

975

1975

170

270

370

570

1070

2070

; 6 graduations

I_{CT} × (0.1 – 0.2 – 0.3 – 0.4 – 0.6 – 0.8 – 1.0 – NON) ; 8 graduations

±20%

Inst

I_{CT} × (0.4 – 0.5 – 0.63 – 0.8 – 1.0) ; Factory set to a user-specified value for AGR-11BL.

• Non tripping when load current ≤ ([I_N] × 1.05). • Tripping when ([I_N] × 1.05) < load current ≤ ([I_N] × 1.2)

Tripping at 600% of [I_N] with LT time-delay [t_R]

±15% +150ms – 0ms

I_n × (0.2 – 0.3 – 0.4 – 0.5 – 0.6 – 0.7 – 0.8 – 0.9 – 1.0) ; 9 graduations

±10%

(0.4 – 0.8 – 1.2 – 1.6 – 2 – 2.4 – 2.8 – 3.2 – 3.6 – 4) at 150% of [I_{NS}] ; 10 graduations

±20% +150ms – 0ms

0.2 – 0.3 – 0.5 (Medium sensitivity) or 1 – 2 – 3 – 5 – 10 (Low sensitivity)

Non operate below 70% of [I_{AR}]. Operate between 70% and 100% of [I_{AR}].

100

150

300

500

800

1500

3000

50

100

250

450

750

1450

2950

250

300

450

650

950

1650

3150

; 7 graduations

V_n × (0.8 – 0.85 – 0.9 – 0.95) ; 4 graduations

±5%

V_n × (0.4 – 0.6 – 0.8) ; 3 graduations

±5%

0.1 – 0.5 – 1 – 2 – 5 – 10 – 15 – 20 – 30 – 36 ; 10 graduations

±15% +100ms–0ms

AC100 – 120V

DC100 – 125V

DC24V

Common

AC200 – 240V

DC200 – 250V

DC48V

Common

DC24V

DC48V

Common

Power consumption: 5 VA

: Default setting

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L-characteristic for general feeder circuits (Type AGR-11BL, 21BL, 31BL)

Specifications

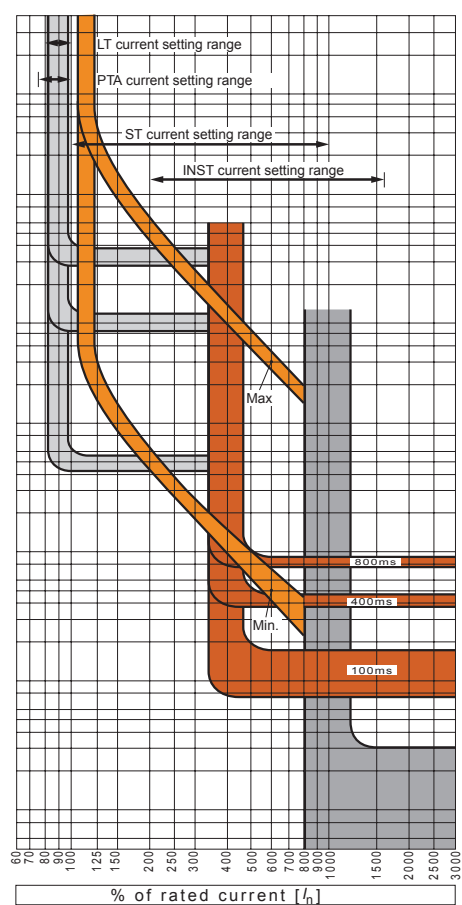
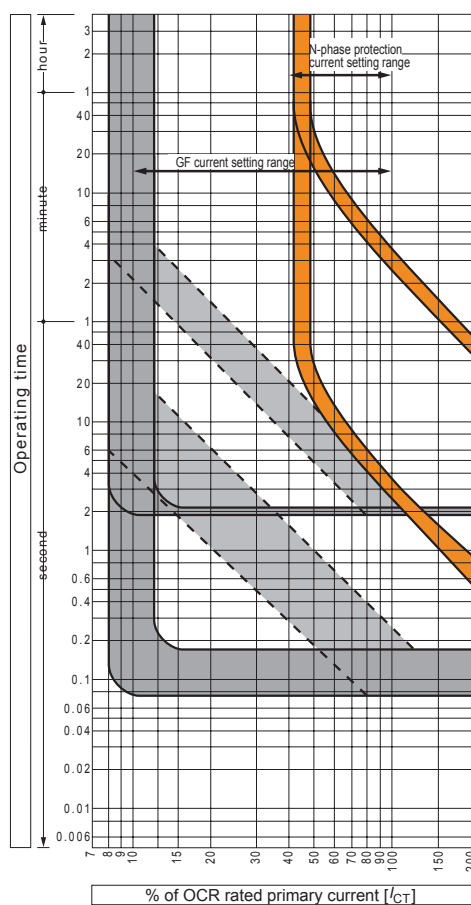
Values of $[I_{CT}]$ and $[I_n]$

Type	Applicable	Rated current [I_n](A)				
		$[I_{CT}]$ (A)	$[I_{CT}]$ $\times 0.5$	$[I_{CT}]$ $\times 0.63$	$[I_{CT}]$ $\times 0.8$	$[I_{CT}]$ $\times 1.0$
AR316H-V8	200	100	125	160	200	
	400	200	250	320	400	
	800	400	500	630	800	
	1250	630	800	1000	1250	
	1600	800	1000	1250	1600	
AR320H-V8	2000	1000	1250	1600	2000	
AR325H-V8	2500	1250	1600	2000	2500	
AR332H-V8	3200	1600	2000	2500	3200	

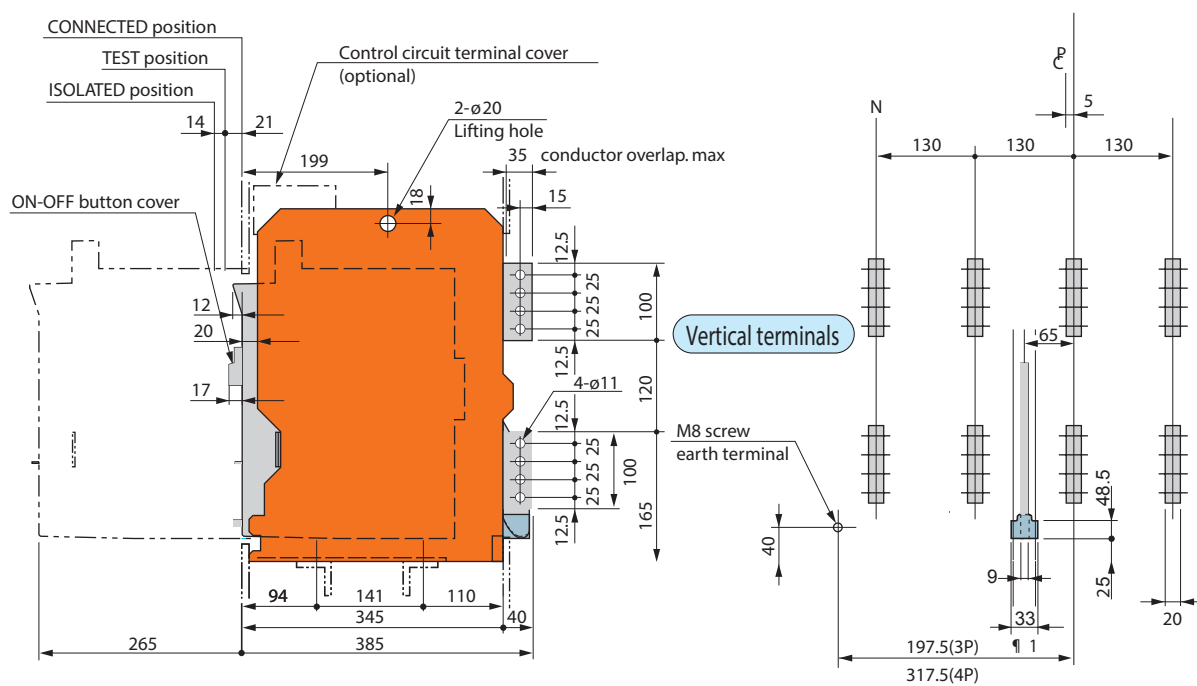
AR332H-V8 set protection to 3100A

ACB maximum rating 3100 Amps

PROTECTION CHARACTERISTICS



The ST trip characteristic shown in the figure applies when the ramp characteristic select switch is in the OFF position.



DATA SHEET: TEMBREAK 2 VE400-NE FOR 800V AC with I_{cu} = 30kA @ 800V AC

MCCB Electrical Characteristics to IEC 60947-2, EN 60947-2, JIS C 8201-2-1 ANN.1, AS/NZS 3947-2

Frame Reference	Quantity	Unit	Condition	TB2 L 400
Maximum In (A) of Frame				400
Model				VE400
Number of Poles				3
Type				NE
Nominal current Ratings				
	I _n	(A)	50°C	250
Electrical characteristics				
Rated operational voltage	U _e	(V)	AC 50/60 Hz	800
Rated insulation voltage	U _i	(V)		800
Rated impulse voltage	U _{imp}	(kV)		8
Ultimate breaking capacity (IEC, JIS,AS/NZS)	I _{cu}	(kA)	800V AC	30
Service breaking capacity (IEC, JIS,AS/NZS)	I _{cs}	(kA)	800V AC	15
Rated short-time withstand	I _{cw}	(kA)	0.3 Seconds	5
Protection				
Adjustable thermal, adjustable magnetic Microprocessor Utilisation Category				■ B
Installation				
Extension Bar (FB) only				■
Front Connection (FC)				-
Cable Clamp (FW)				-
Rear Connection (RC)				-
Plug-in (PM)				-
Din Rail Mounting (DA)				-
Dimensions:	height width depth	(mm) (mm) (mm)	3 pole	260 140 140
Weight	weight	(kg)	3 pole	7.1
Operation				
Direct Opening Action				■
Toggle operation				■
Door mounted (HS)/ Breaker mounted handle (HB)				•
Motor operation				•

Ordering Information

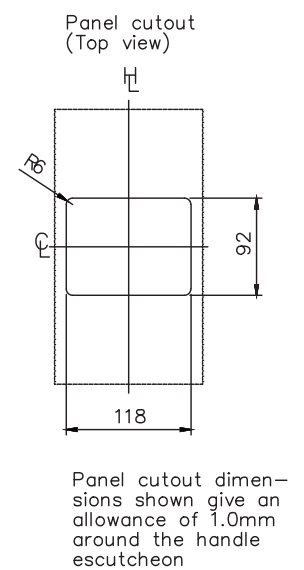
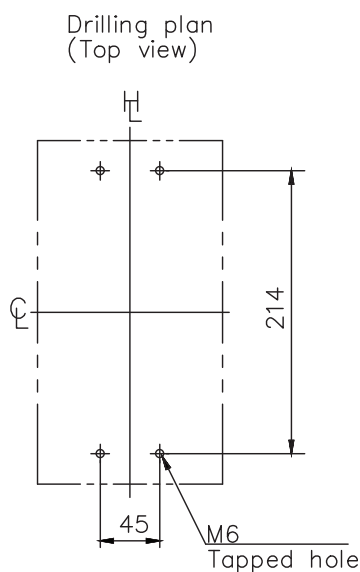
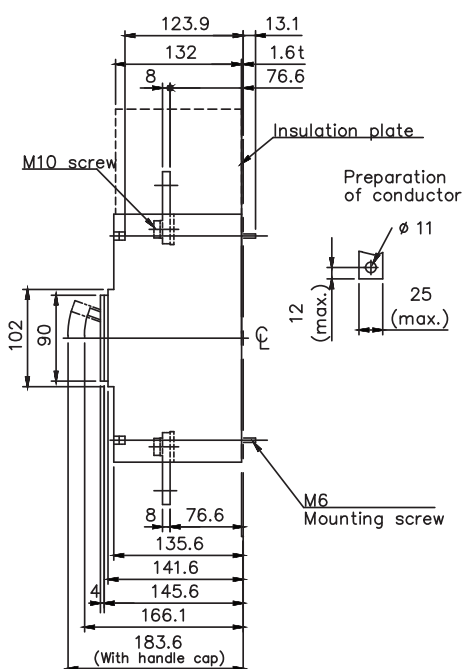
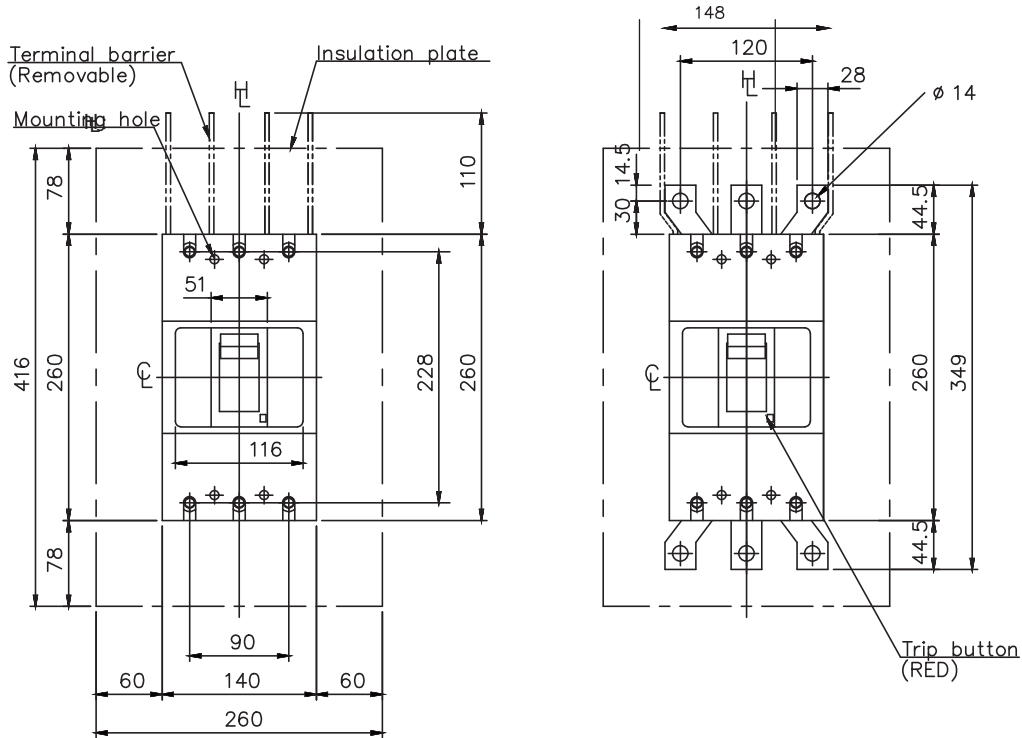
Model	Protection Codes	I _R (A)	Order Code (3P)
VE400-NE	A (LSI)	100-250	4547560 411977

DATA SHEET: TEMBREAK 2 VE400-NE MCCB

Icu = 30kA AT 800V AC

Outline Dimensions VE400-NE FC

ASL:Arrangement Standard Line H: Handle Frame Centre Line

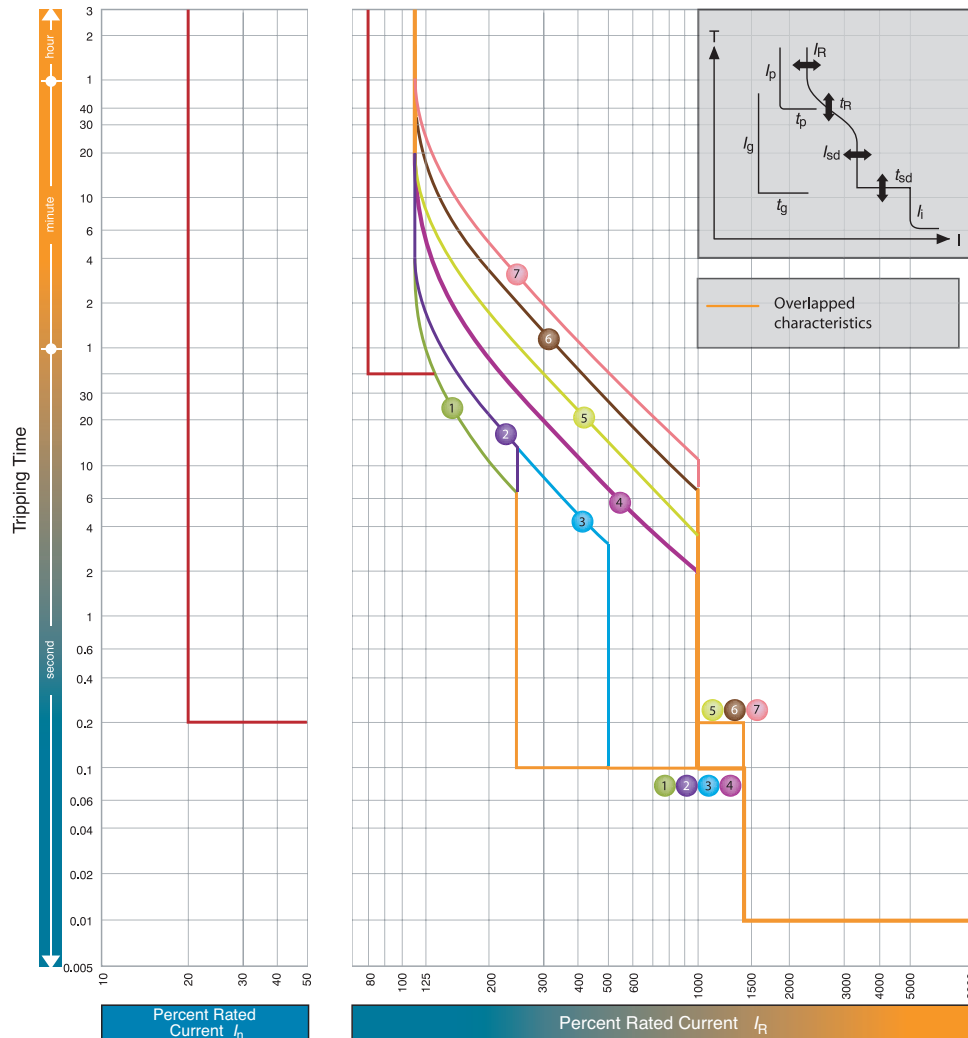


DATA SHEET: TEMBREAK 2 VE400-NE

MCCB $I_{cu} = 30kA @ 800V AC$

Time/Current Characteristic Curves

VE400-NE



$I_{ct} = 250A$ Note (1)

		I_R (A)									
		LTD Pick-up current	I_R	x/n	0.4	0.5	0.63	0.8	0.9	0.95	1.0
		Characteristics		No.	1	2	3	4	5	6	7
Standard	LT	t_R	(s)	11	21	21	5	10	19	29	
				at 200% x I_R			at 600% x I_R				
	ST	t_{sd}	(s)	2.5	5	10					
				0.1			0.2				
	INST	I_i	x/ I_R	14(Max: 13 x I_n) Note (2)							

Note

(1) Only available at 250A. (2) I_i max. = 13 x I_{ct} .