Time Current Characteristics Curve

SIEMENS **LG** Frame Circuit Breaker

Electronic Trip Unit 555 3-Pole
with LI and LIG Protection

Example Settings are for I_n = 600 Amps

Interruption Ratings

Type	Maximum Trip Unit Rating (I_n)	Symmetrical RMS Amperes		
		240V	480V	600V
NLGB	600 A, 400 A	65kA	35kA	18kA
HLGB		100kA	65kA	18kA
LLGB		200kA	100kA	18kA

The effects of Thermal Memory are not shown. 806995 A02

Switch Settings - I_r (Multi)

.333 .375 .417 .500 .525 .583 .667 .750 .833 1.0

I_{ld} - Long Time Pickup

I_r = Switch Setting

I_{ld} = +5% +30%

I_{ld} = 105% - 130% X I_r

t_r - Long Time Delay

-10% +10%

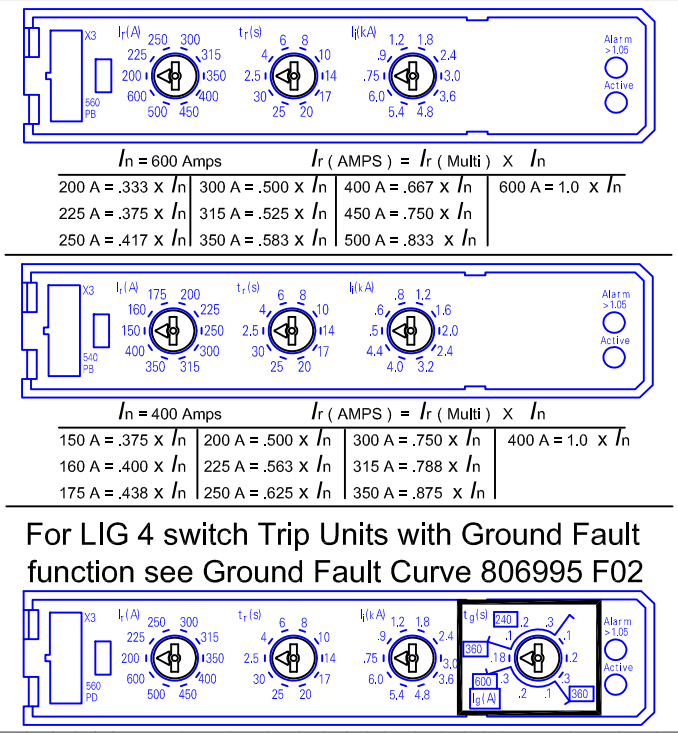
t_r – @ 6 X I_r

t_r 30s 25s 20s 17s 14s 10s 8s 6s 4s 2.5s

I_i – Instantaneous Pickup

I_i

−20% +20%



For LIG 4 switch Trip Units with Ground Fault function see Ground Fault Curve 806995 F02

I_n = 600 Amp	I_n = 400 Amp
Switch Settings	Switch Settings
Equivalent I_n- Multiples	Equivalent I_n- Multiples

For Max. Interruption Rating, See table above.

Time in Seconds

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Multiples of Continuous Current Rating x I_n

Time Current Characteristics Curve

SIEMENS **LG** Frame Circuit Breaker

Electronic Trip Unit 555 3-Pole
with LSI and LSIG Protection - I^2t OFF

Example Settings are for I_n = 600 Amps

Interruption Ratings

Type	Maximum Trip Unit Rating (I_n)	Symmetrical RMS Amperes		
		240V	480V	600V
NLGB	600 A, 400 A	65kA	35kA	18kA
HLGB		100kA	65kA	18kA
LLGB		200kA	100kA	18kA

The effects of Thermal Memory are not shown. 806995 B02

Switch Settings - I_r (Multi) .583 .667 .750 .833 1.0

I_{ld} - Long Time Pickup

I_r = Switch Setting

I_{ld} = +5% +30%

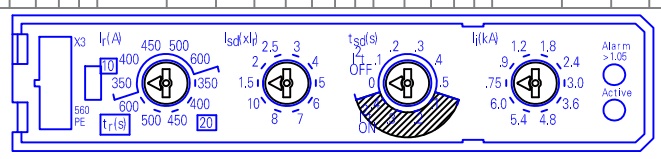
I_{ld} = 105% - 130% X I_r

t_r - Long Time Delay

-10% +10%

t_r – @ 6 X I_r

t_r 20s 10s

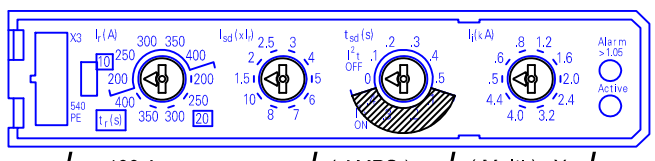


I_n = 600 Amps

I_r (AMPS) = I_r (Multi) X I_n

350 A = .583 X I_n | 450 A = .750 X I_n | 600 A = 1.0 X I_n

400 A = .667 X I_n | 500 A = .833 X I_n



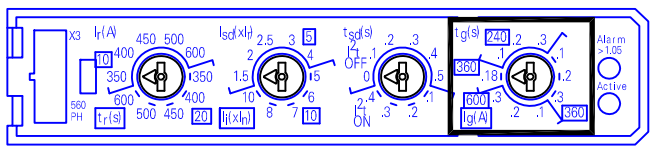
I_n = 400 Amps

I_r (AMPS) = I_r (Multi) X I_n

125 A = .500 X I_n | 200 A = .800 X I_n | 250 A = 1.0 X I_n

150 A = .600 X I_n | 225 A = .900 X I_n

For LSIG 4 switch Trip Units with Ground Fault function see Ground Fault Curve 806995 F02



I_{sd} – Short Time Pickup

I_{sd}

–20% +20%

I_{sd} = 1.5, 2, 2.5 .. 10 x I_r

t_{sd} t_{sd} - Short Time Delay
Fixed Tolerance
-0.0 sec. to +0.06 sec.

I_i - Instantaneous Amps

400A LSIG units have 5X and 11X I_n only.

600A LSIG units have 5X and 10X I_n only.

I_i tolerance is ± 20%

Tolerance Zone for Short Time Delay Set at "0"

For Max. Interruption Rating, See table above.

Time in Seconds

Multiples of Continuous Current Rating x I_n

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April 2012

Time Current Characteristics Curve

SIEMENS **LG** Frame Circuit Breaker

Electronic Trip Unit 555 3-Pole
with LSI and LSIG Protection - I^2t ON

Example Settings are for I_n = 600 Amps

Interruption Ratings

Type	Maximum Trip Unit Rating (I_n)	Symmetrical RMS Amperes 240V	480V	600V
NLGB	600 A, 400 A	65kA	35kA	18kA
HLGB		100kA	65kA	18kA
LLGB		200kA	100kA	18kA

The effects of Thermal Memory are not shown. 806995 C02

Switch Settings - I_r (Multi) .583 .667 .750 .833 1.0

I_{ld} - Long Time Pickup

I_r = Switch Setting

I_{ld} = +5% / +30%

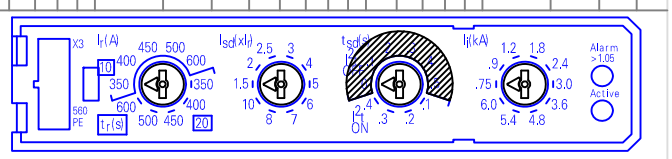
I_{ld} = 105% - 130% X I_r

t_r - Long Time Delay

-10% / +10%

t_r – @ 6 X I_r

t_r 20s / 10s

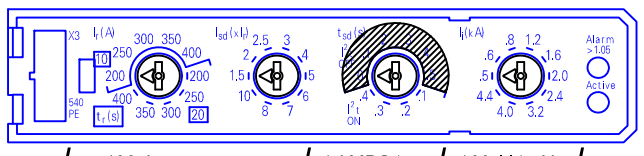


I_n = 600 Amps

350 A = .583 X I_n | 450 A = .750 X I_n | 600 A = 1.0 X I_n

400 A = .667 X I_n | 500 A = .833 X I_n

I_r (AMPS) = I_r (Multi) X I_n



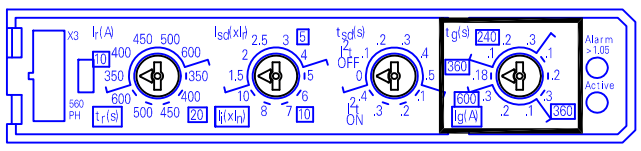
I_n = 400 Amps

125 A = .500 X I_n | 200 A = .800 X I_n | 250 A = 1.0 X I_n

150 A = .600 X I_n | 225 A = .900 X I_n

I_r (AMPS) = I_r (Multi) X I_n

For LSIG 4 switch Trip Units with Ground Fault function see Ground Fault Curve 806995 F02



I_{sd} – Short Time Pickup

I_{sd}

–20% / +20%

I_{sd} = 1.5, 2, 2.5 .. 10 x I_r

I_i - Instantaneous Amps
400A LSIG units have
5X and 11X I_n only.
600A LSIG units have
5X and 10X I_n only.
I_i tolerance is ± 20%

t_{sd} – Short Time Delay

-20% / +20%

t_{sd} = 0.1s .... 0.4s @ 8 x I_r

For Max. Interruption Rating, See table above.

Time in Seconds

Multiples of Continuous Current Rating x I_n

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April 2012

Time Current Characteristics Curve

SIEMENS **LG** Frame Circuit Breaker

Electronic Trip Unit 555 3-Pole
with Ground Fault Protection.

Interruption Ratings

Type	Maximum Trip Unit Rating (I_n)	Symmetrical RMS Amperes 240V	480V	600V
NLGB	600 A, 400 A	65kA	35kA	18kA
HLGB		100kA	65kA	18kA
LLGB		200kA	100kA	18kA

The effects of Long Time, Short Time and Instantaneous are not shown. 806995 F02

I_g - Ground Fault Pickup

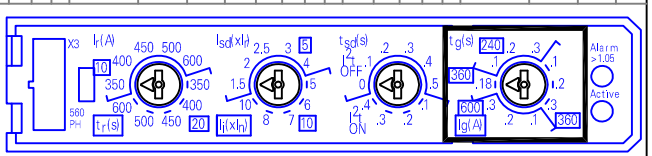
−20% +20%

400A - I_g = 0.4, 0.6, 0.8 or 1.0 x I_n

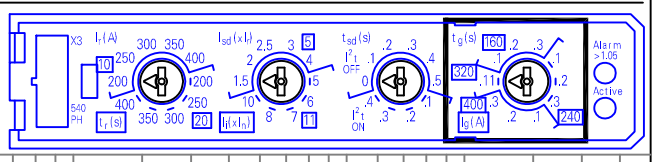
600A - I_g = 0.4, 0.6, or 1.0 x I_n

% of *In*	*In* = 600A	*In* = 400A
40%	240 A	160 A
60%	360 A	240 A
80%		320 A
100%	600 A	400 A

I_n= 600 A



I_n= 400 A



t_g - Ground Fault Delay

-20% +20%

t_g - @ 2.0 x I_g

.3s

.2s

600A - .18s

400A - .11s

.1s

Ground Fault Delay is a function of I^2t

t_g - Ground Fault Delay in Seconds.
tolerance of -0.00 sec to +0.06 sec

t [s]

Time in Seconds

10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 2,000 1,000 900 800 700 600 500 400 300 200 100 90 80 70 60 50 40 30 20 10 9 8 7 6 5 4 3 2 1 .9 .8 .7 .6 .5 .4 .3 .2 .1 .09 .08 .07 .06 .05 .04 .03 .02 .01

.1 .2 .3 .4 .5 .6 .7 .8 .9 1.0 2 3 4 5 6 7 8 9 10 20 30 40 50 60 70 80 90 100 200 300 400 500 600 700 800 900 1,000 2,000 3,000

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Multiples of Continuous Current Rating x I_n