



MOLDED CASE CIRCUIT BREAKERS 500A – 1250A

**P-Frame
NS630
NS1250**

FEATURES

- Moisture and fungus protection
- Clear indication of breaker status
- Reinforced insulation
- Shunt trip
- Auxiliary contacts
- Load side extension bars
- 80% Rated – P-Frame (UL)
Upgradeable to 100%
- 100% Rated – NS630/NS1250 (IEC)
- Maintenance-free operation
- Exceptional characteristics under short-circuit conditions
- Adjustable trip settings

CONFORMITY WITH INTERNATIONAL STANDARDS

The P-Frame and NS630/NS1250 Circuit Breakers have been designed to comply with the international standard IEC 947-2 as well as with these other major standards:

P-FRAME

UL 489
CSA 22.2 No 5.1
Federal Specification W-C-375B/GEN
NEMA AB1
NMX J-266
UTE, VDE, BS, CEI, UNE

NS630/NS1250

Federal Specification W-C-375B/GEN
NEMA AB1
UTE, VDE, BS, CEI, UNE

Additionally, the P-Frame and NS630/NS1250 Circuit Breakers have been approved for marine application by American Bureau of Shipping, Bureau Veritas, Lloyd's Register of Shipping, Registro Italiano Navale, Germanischer Lloyd, and Det Norske Veritas.

RATINGS

UL-CSA

- P-Frame Rating: 1200 Amps (max)

IEC

- NS630 Rating: 630 Amps (max)
- NS1250 Rating: 1250 Amps (max)

SHUNT TRIP

The shunt trip provides a means of tripping the circuit breaker electronically. Shunt trip ratings are as follows:

- Voltage: 24 VDC
- Coil Burden (Holding/Inrush): 4.5/200 VA
- Power Consumption: 4.5 VA

AUXILIARY CONTACTS

The auxiliary contacts provide a means of remote circuit breaker position indication and consist of one (1) Form C Contact (1 Normally open and 1 Normally closed contact) with the following Current Ratings:

- 6A @ 240-480 VAC, 50/60 Hz

TRIP UNITS

All circuit breakers come equipped with **True RMS Current Sensing**. The trip units for each of the circuit breaker ratings sample the current waveform to provide true RMS protection through the 15th harmonic. This true RMS sensing gives accurate values for the magnitude of a nonsinusoidal waveform. Therefore, the heating effects of harmonically distorted waveforms are accurately evaluated.

The trip system comes equipped with a set of current transformers (CTs) to sense current, a trip unit to evaluate the current, and a tripping solenoid to trip the circuit breaker. Additionally, each trip unit comes equipped with Active Thermal Imaging which is active 20 minutes before and after tripping.

The **P-Frame** circuit breaker comes equipped with a MICROLOGIC 3.0 basic trip unit (LI), which includes the following features:

- Long-Time setting – adjustable dial settings from 0.4 – 1.0 x sensor rating (In)
- Long-Time Delay – adjustable
- Instantaneous setting – adjustable
Dial settings from 1.5 – 12 x sensor rating (In)
- Neutral protection (four-pole breakers)
- Type A Rating Plug

The **NS630 and NS1250** circuit breakers come equipped with a MICROLOGIC 2.0 trip unit (LSO), which includes the following features:

- Long-Time setting – adjustable
Dial settings from 0.4 – 1.0 x sensor rating (In)
- Long-Time Delay – adjustable
- Short-Time protection
Adjustable short-time pickup
Fixed time delay at zero
- Type R Rating Plug

CUSTOMER CABLE CONNECTIONS

The P-Frame, NS630 and NS1250 circuit breakers are equipped with mechanical lugs as standard, on both ends of the package-mounted circuit breaker. These lugs are standard for use with copper or aluminum wire.

Frame	Current Size	# of Cables	Cable Size
P-Frame NS630 NS1250	< 800A	1 to 3	3/0-500 kcmil (95-250 mm ²)
	> 800A	1 to 4	3/0-500 kcmil (95-250 mm ²)

CIRCUIT BREAKER CHARACTERISTICS

UL-IEC/CSA Breakers		P-Frame	
Number of Poles		3	
Rated Current (Amps)		1200	
Voltage Rating (VAC)		600	
Interrupting Rating (60 Hz) – kA RMS	240 V	65	
	480 V	35	
	600 V	18	
IEC 60947-2 Rating (50/60 Hz) – kA RMS	I _{cu}	240 V	50
		380/415 V	35
	I _{cs}	240 V	25
		380/415 V	20

IEC 947-2 Breakers (50/60 Hz)		NS630/ NS1250	
Number of Poles		3/4	
Rated Current (Amps)		630/1250	
Voltage Rating (VAC)		690	
Breaking Capacities (kA RMS)	I _{cu}	220/240 V	50
		380/415 V	50
		440 V	50
		500/525 V	40
		660/690 V	30
Breaking Capacities	I _{cs}	220/240 V	75% I _{cu}
		380/415 V	75% I _{cu}
		440 V	75% I _{cu}
		500/525 V	75% I _{cu}
		660/690 V	75% I _{cu}

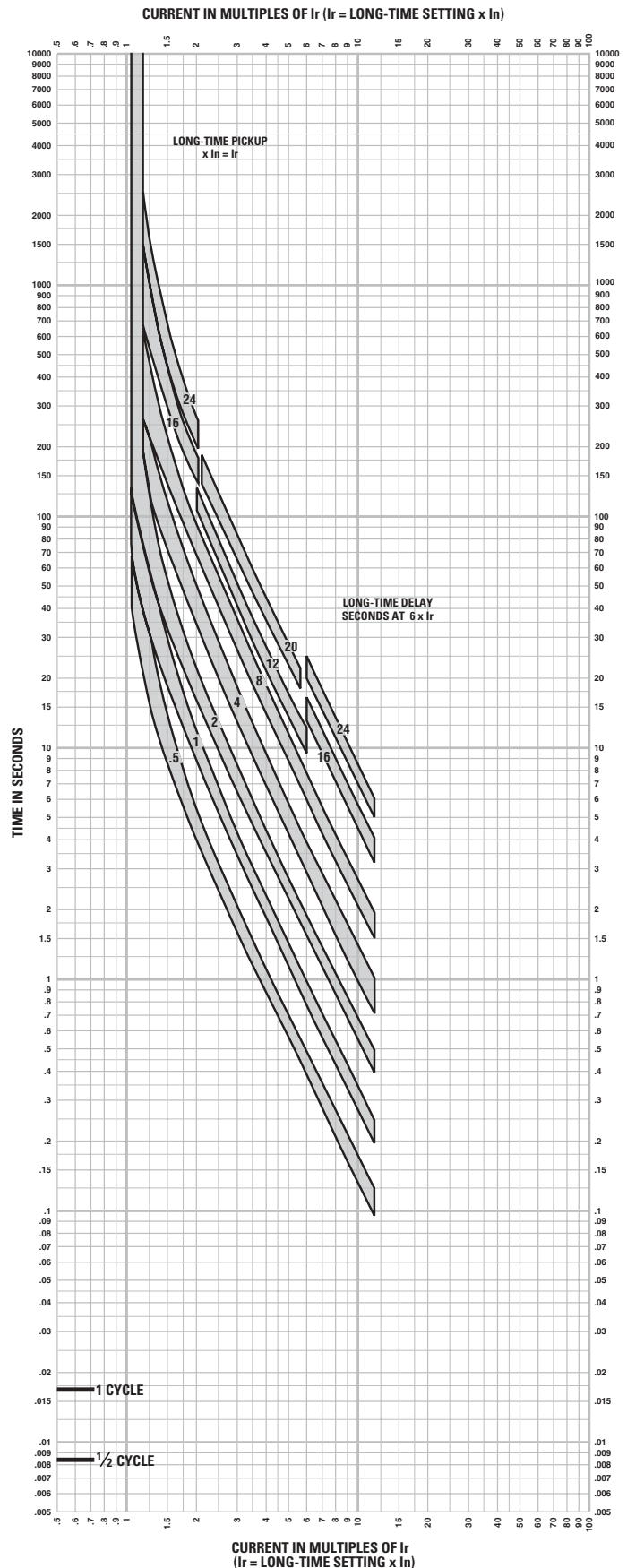
TRIP CURVES

P-FRAME

Long-time Pickup and Delay

Notes:

1. There is a thermal-imaging effect that can act to shorten the long-time delay. The thermal imaging effect comes into play if a current above the long-time delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately 20 minutes is required between overloads to completely reset thermal-imaging.
2. The end of the curve is determined by the instantaneous setting.
3. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
4. The time-current curve information is to be used for application and coordination purposes only.
5. Curves apply from -30°C to 60°C (-86°F to 140°F) ambient temperature.

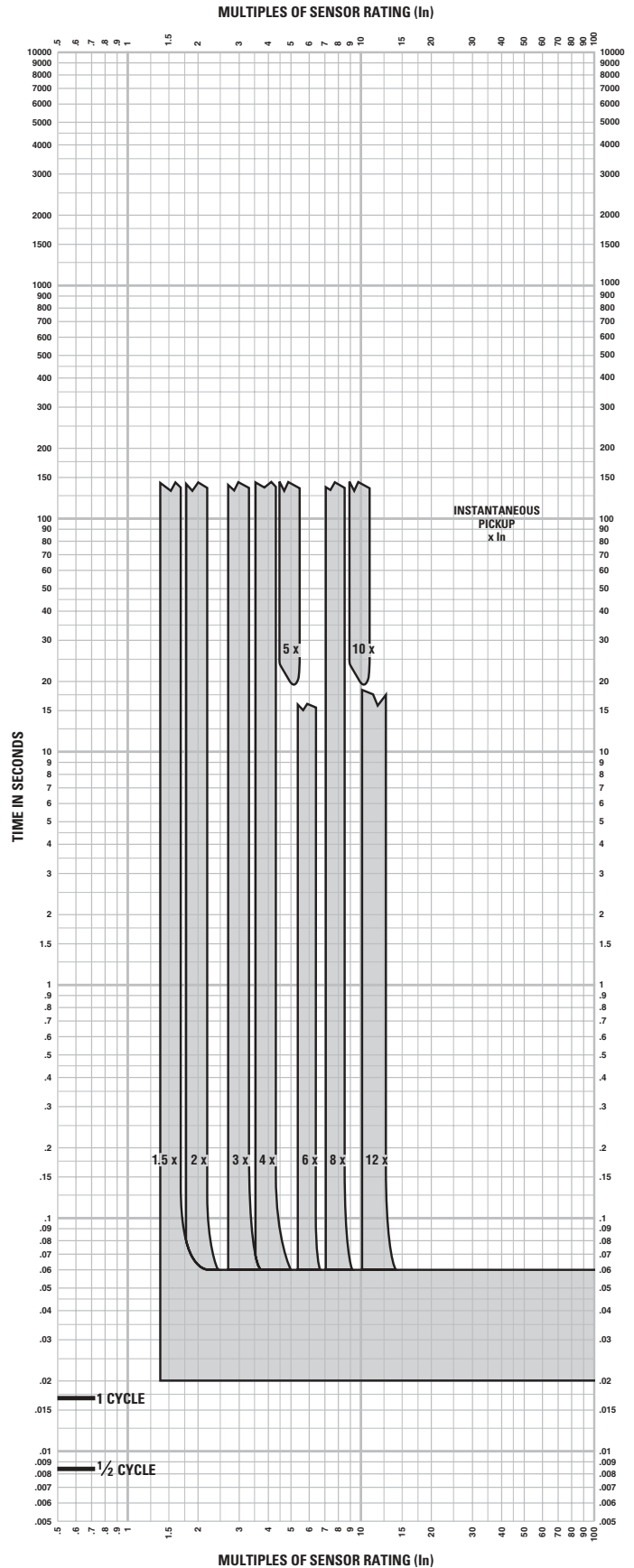


P-FRAME

Instantaneous Pickup
1.5 x – 12 x

Notes:

1. The end of the curve is determined by the interrupting rating of the circuit breaker.
2. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
3. The instantaneous region of the trip curve shows maximum total clearing times. Actual clearing times in this region can vary depending on the circuit breaker mechanism design and other factors. The actual clearing time can be considerably faster than indicated.
4. The time-current curve information is to be used for application and coordination purposes only.
5. Curves apply from -30°C to 60°C (-86°F to 140°F) ambient temperature.
6. Instantaneous override value:
24 kA RMS $\pm 10\%$.

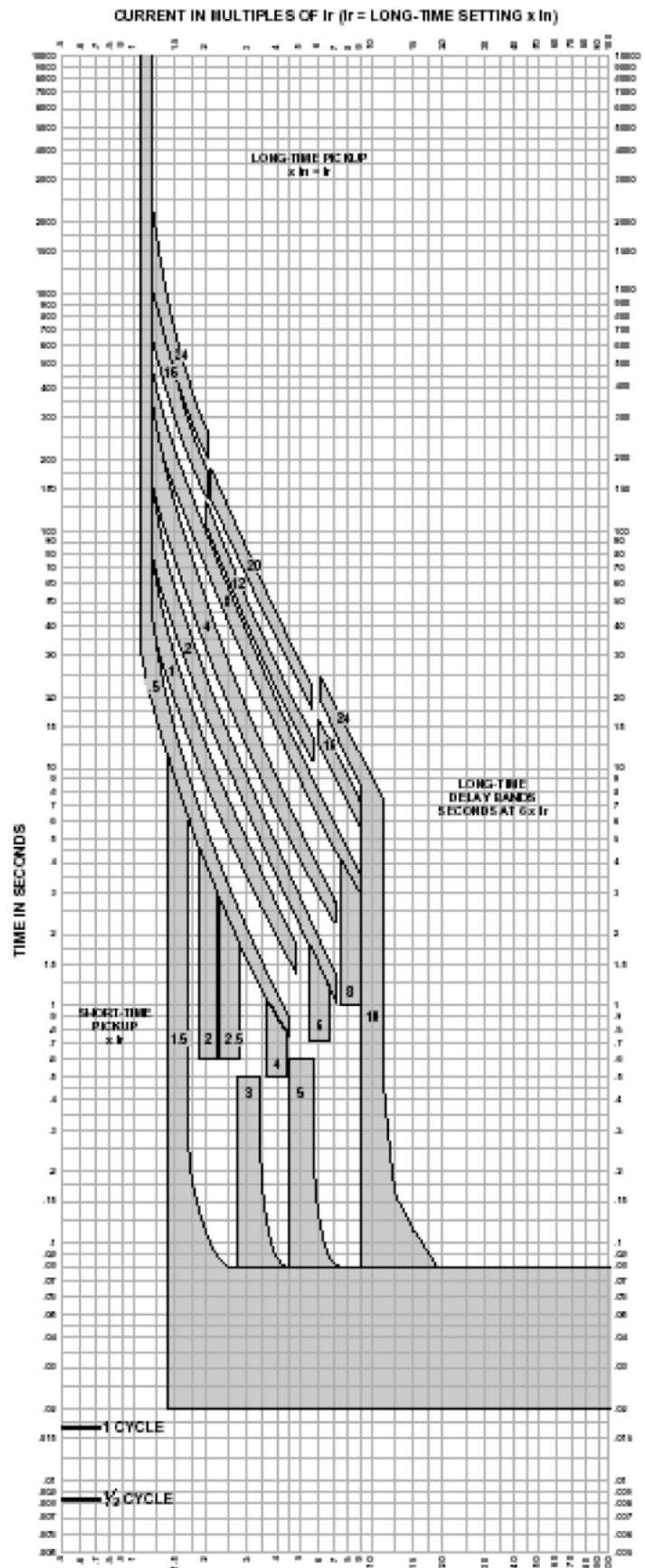


NS630 and NS1250

Long-time Pickup and Delay
Short-time Pickup with No Delay

Notes:

1. There is a thermal-imaging effect that can act to shorten the long-time delay. The thermal imaging effect comes into play if a current above the long-time delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in a shorter time than normal. The amount of time delay reduction is inverse to the amount of time that has elapsed since the previous overload.
2. The end of the curve is determined by the short-time setting.
3. Total clearing times shown include the response times of the trip unit, the circuit breaker opening, and the extinction of the current.
4. Overload indicator illuminates at 100%.
5. The time-current curve information is to be used for application and coordination purposes only.
6. Curves apply from -30°C to 60°C (-86°F to 140°F) ambient temperature.
7. Instantaneous override value:
24 kA RMS $\pm 10\%$



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