

SIEMENS

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Product Guide

QR Circuit Breaker

usa.siemens.com/circuitbreakers

Advantages to reduce your cost and improve installation flexibility.

- 250A, 240V AC breakers up to 100kAIC.



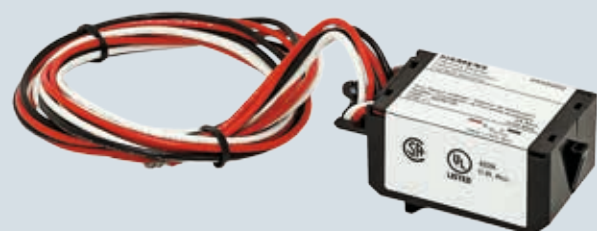
- Updated design includes push-to-trip button.
- Field installable internal accessories increase flexibility.
- Field installable external accessories for handle blocking/locking and interlocking.



- UL, CSA, and NOM certified for use anywhere in the NAFTA market.



- Modernization of previous breaker accessories in order to comply with QR Circuit Breakers.



General Information

The Siemens QR circuit breaker has a compact design for use in North American markets. Features include the ability to handle higher interrupting ratings and higher inrush currents, as well as available UL listed field installable internal accessories.

Applications:

- Implemented in load centers, panelboards, switchboards, meter centers, and modular metering
- Use by OEMs in control panels and a variety of other 240V applications

Operating Conditions:

- Standard QR breakers are calibrated at 40°C ambient temperatures. Operation at higher temperatures will require derating.
- Enclosures are available for installing QR breakers in factory environments (NEMA 1, 12), as well as outdoors (NEMA 3R, 4X, and 4X 316 Stainless Steel)

250A Frame

- UL489
- CSA-C22.2
- NOM-003
- Series Ratings
- HACR Rating
- 10 kA, 25 kA, 65 kA, 100 kA @ 240V AC
- Push-to-trip button
- UL-Listed Field Installable Internal Accessories
- Cable-in, cable-out design
- Enclosures available in NEMA 1, 12, 3R, 4X, and 4X 316 Stainless Steel
- Reverse Feed



General Information

QR2 Breaker 10kA *

Ampere Rating	2 Pole Catalog Number	3 Pole Catalog Number
100	QR22B100	QR23B100
125	QR22B125	QR23B125
150	QR22B150	QR23B150
175	QR22B175	QR23B175
200	QR22B200	QR23B200
225	QR22B225	QR23B225
250	QR22B250	QR23B250

QRH2 Breaker 25kA *

Ampere Rating	2 Pole Catalog Number	3 Pole Catalog Number
100	QRH22B100	QRH23B100
125	QRH22B125	QRH23B125
150	QRH22B150	QRH23B150
175	QRH22B175	QRH23B175
200	QRH22B200	QRH23B200
225	QRH22B225	QRH23B225
250	QRH22B250	QRH23B250

HQR2 Breaker 65kA *

Ampere Rating	2 Pole Catalog Number	3 Pole Catalog Number
100	HQR22B100	HQR23B100
125	HQR22B125	HQR23B125
150	HQR22B150	HQR23B150
175	HQR22B175	HQR23B175
200	HQR22B200	HQR23B200
225	HQR22B225	HQR23B225
250	HQR22B250	HQR23B250

HQR2H Breaker 100kA *

Ampere Rating	2 Pole Catalog Number	3 Pole Catalog Number
100	HQR22B100H	HQR23B100H
125	HQR22B125H	HQR23B125H
150	HQR22B150H	HQR23B150H
175	HQR22B175H	HQR23B175H
200	HQR22B200H	HQR23B200H
225	HQR22B225H	HQR23B225H
250	HQR22B250H	HQR23B250H

*Load side lugs are supplied as standard. If both line and load side lugs are needed, add "L" to the end of the catalog number.

Molded Case Switch

Amperes	Voltage	Poles	Interrupting Rating	Catalog Number
250	240	3	100kA	HQR23S250HA

Internal Accessories

Shunt trips and auxiliary switches are operational devices that are contained within an add-on module for the QR circuit breakers. Each module can be installed in the field.

Shunt Trip – A shunt trip is used to trip the breaker remotely. It is operated by providing voltage to the shunt trip coil. The coil in this device is designed to be energized momentarily, so included is a built-in limit switch which opens the coil circuit after the breaker trips. With the circuit breaker in the tripped position, voltage cannot be applied through the coil circuit due to the open contacts in the limit switch. The operational range of this device is (70 to 110%) of the marked voltage rating.

Auxiliary Switches – Auxiliary switches are used for remote indication of breaker contact position (ON or OFF). Each switch consists of "A" (normally open) and "B" (normally closed) contacts with a common connection. These devices are typically used for signaling purposes.



QR breakers with accessories installed



Accessories

Shunt Trip

Control Voltage		Shunt Trip	Shunt Trip and Auxiliary Switch Combination
AC	DC	Catalog Number	Catalog Number
-	24	S07QR2	S07QR2A
120 - 240	48	S01QR2	S01QR2A

Auxiliary Switch - Contains (1) or (2) sets of "A" contacts and "B" contacts.

Maximum Control Supply Voltage (V)	Maximum Allowable Current (A)	Single Auxiliary 1A -1B Contact Catalog Number	Double Auxiliary 2A - 2B Contact Catalog Number
250 AC /125 DC	5 AC / 0.5 DC	A01QR2	A02QR2

Terminal Connectors

Type	Breaker Amp Rating (A)	Wire Size	Wire Grip Screw Torque	Lug Catalog Number
Aluminum Connector	100 - 250	#3 - 1/0 AWG Al/Cu	100 in-lb (11.3 N-m)	3TA1QR300 (Kit of 3)
		2/0 AWG - 300 Kcmil Al/Cu	225 in-lb (25.4 N-m)	
Copper Connector	100 - 250	#3 - 1/0 AWG Cu ONLY	100 in-lb (11.3 N-m)	3TC1QR250 (Kit of 3)
		2/0 AWG - 300 Kcmil Cu ONLY	225 in-lb (25.4 N-m)	
Compression Lug	100 - 250	#6 AWG - 350kcmil Al/Cu	N/A	CCQ250 (Kit of 1)
Lug Retainer	100 - 250	-	-	QRLUGRETAINR (Kit of 10)*

* To move lugs from line side to load side QRLUGRETAINR is required.



Copper Connector
TC1QR250



Aluminum Connector
TA1QR300



Compression Lug CCQ250

External Accessories

Description	Catalog Number
Padlock Device	HPLQR
Mounting Screw Kit	MSQR3
Handle Blocking Device	HBLQR
Handle Sliding-bar Interlock	SBMIQR

Padlock Device HPLQR^①



Handle Block Device HBLQR^②



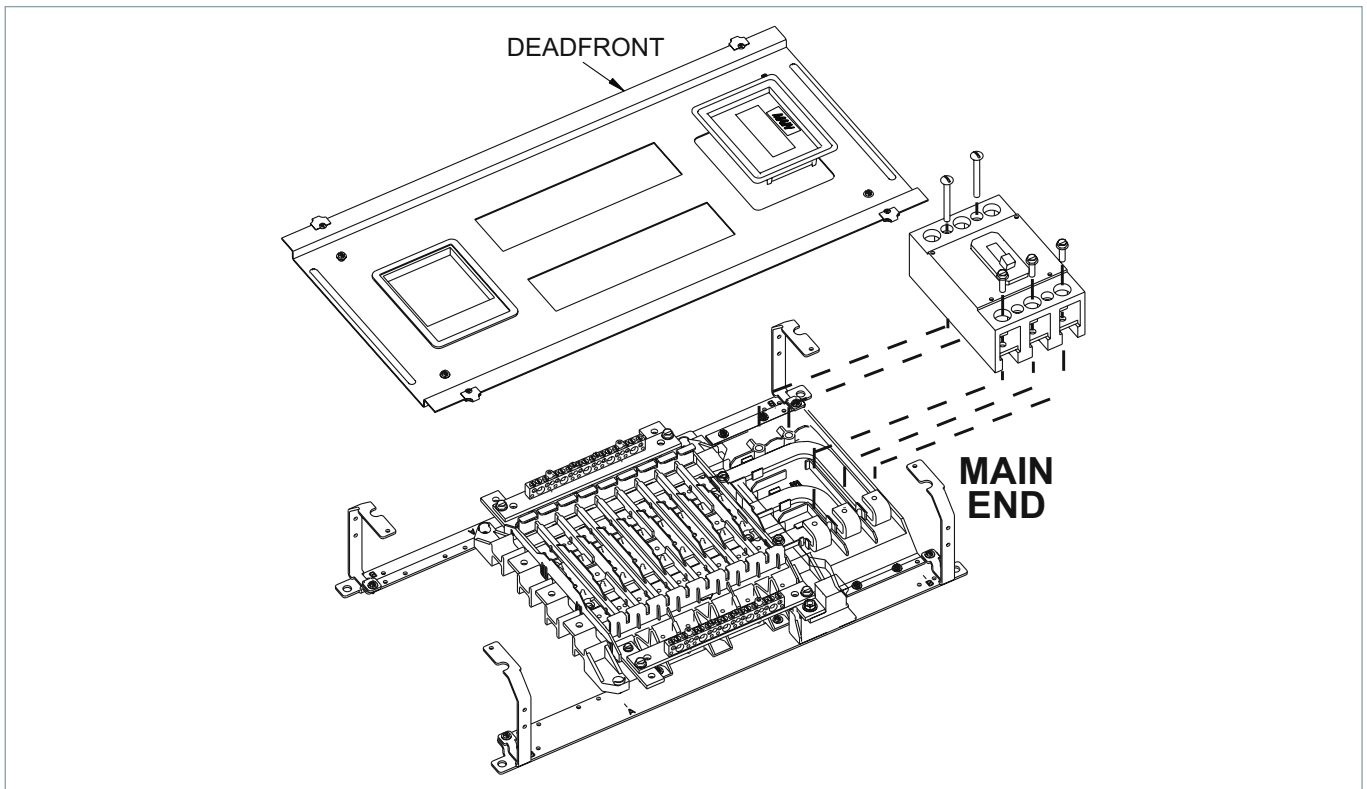
Mechanical Interlock



① Can be used to lock breaker handle in OFF or ON positions.

② Can be used to block breaker handle in OFF or ON positions.

Panelboard Kits



Panelboard Kits

Catalog Number	Description	Works With		
		Breaker Poles	Phase	Panelboard Type
MBKQR1A	RP1 Panelboard Kit for Main or Subfeed QR Breakers 1Phase	-	1	RP1
MBKQR3A	RP1 Panelboard Kit for Main or Subfeed QR Breakers 3Phase	-	3	RP1
MBKQR1	P1 Panelboard Kit for Main or Subfeed QR Breakers 1Phase	-	1	P1
MBKQR3	P1 Panelboard Kit for Main or Subfeed QR Breakers 3Phase	-	3	P1
BBKQR1	P2 Panelboard Strap Kit for Branch Mounting of QR Breakers 2P or 3P	2, 3	-	P2
BBKQR2	P2 and P3 Panelboard Strap Kit for Branched Twin Mounting of QR Breakers	2, 3	-	P3
MBKQRFK	P1/RP1 Horizontal Mount Space Filler Kit for 1Phase/3Phase QR	2, 3	-	P1/RP1
BBKQRP1FK	P2 Horizontal/Vertical Mount Space Filler Kit for 1Phase/3Phase QR	-	1, 3	P2
BBKQRP2FK	P3 Horizontal Dual Mount Space Filler Kit for 1Phase/3Phase QR	-	1, 3	P3
MBKQRC1FK	C1 Main Position Space Filler Kit for 1Phase/3Phase	-	1, 3	C1

Enclosures

NEMA 1

A general indoor, sheet-steel enclosure for use in normal atmospheres. Listed as service entrance equipment.

NEMA 3R

An outdoor, sheet-steel enclosure providing protection against driving rain, sleet or snow. Listed as service entrance equipment.

NEMA 12

A special-industry, sheet-steel enclosure for use in atmospheres containing particles of lint, dust, dirt, sawdust and other foreign matter.

NEMA 4, 4X

Stainless steel indoor or outdoor enclosure designed for use in areas where serious corrosion problems exist. They provide a degree of protection against windblown dust, rain, splashing water and hose-directed water. Available in both 304 Stainless Steel and 316 Stainless Steel, Meets NEMA Type 1, 3, 4, 4X, 12 and 13 requirements and UL 508 Type 4 and 4X requirements.

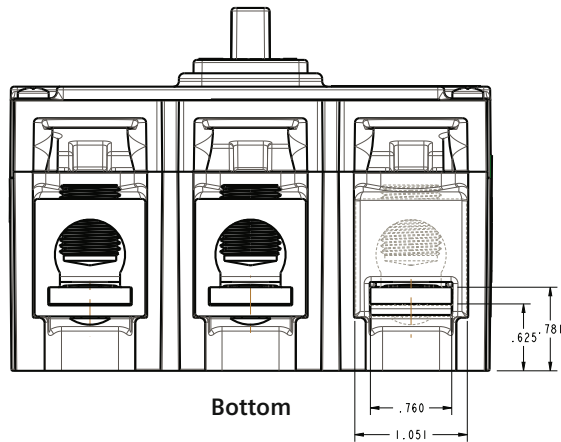
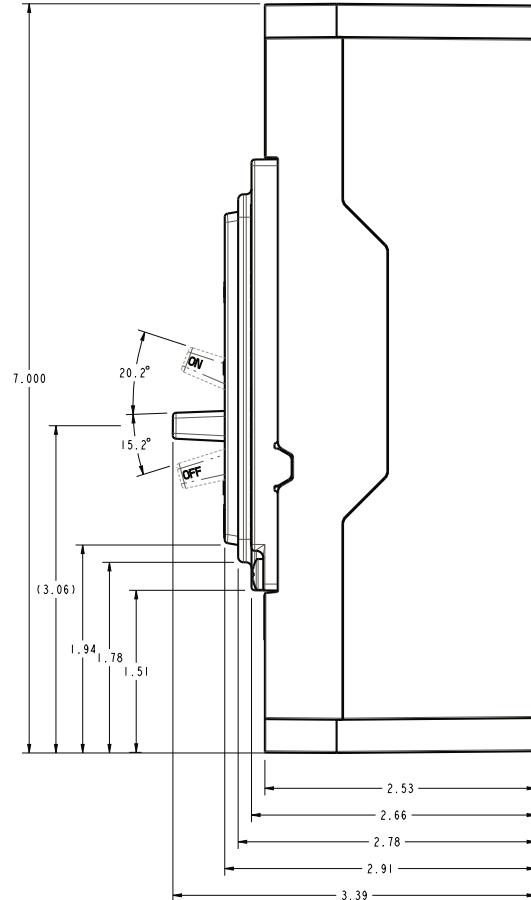
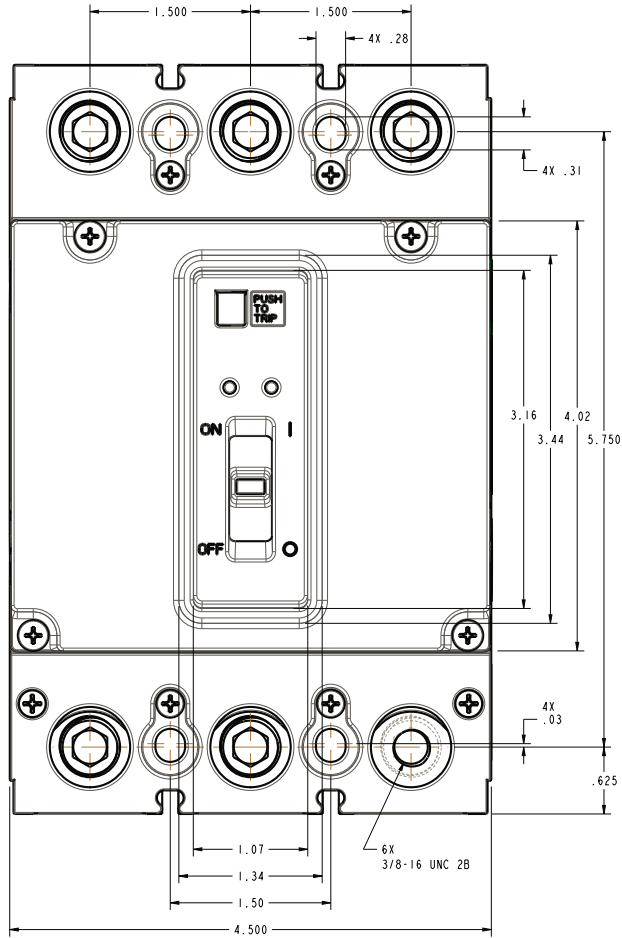


NEMA 3R Enclosure QR2N3R3

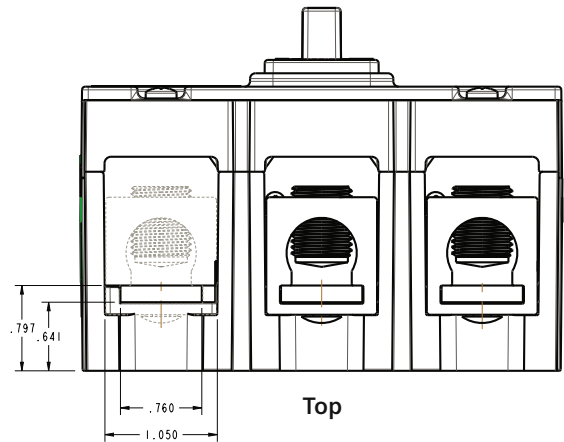
Enclosure Type	Mounting	Poles	Ampere Rating	Catalog Number
NEMA 1 - Indoor (general duty)	Surface	2, 3	100 - 250	QR2N1S
NEMA 1 - Indoor (general duty)	Flush	2, 3	100 - 250	QR2N1F
NEMA 3R - Outdoor (rain, snow)	Surface	2, 3	100 - 250	QR2N3R3
NEMA 12 - (particulate matter)	Surface	2, 3	100 - 250	QR2N12
NEMA 4X - (corrosion, particulates, water)	Surface	2, 3	100 - 250	QR2N4X
NEMA 4X 316 Stainless Steel - (corrosion, particulates, water)	Surface	2, 3	100 - 250	QR2N4X316

Dimensions

QR Frame Outline Drawing – 3 Pole
(All dimensions in inches)



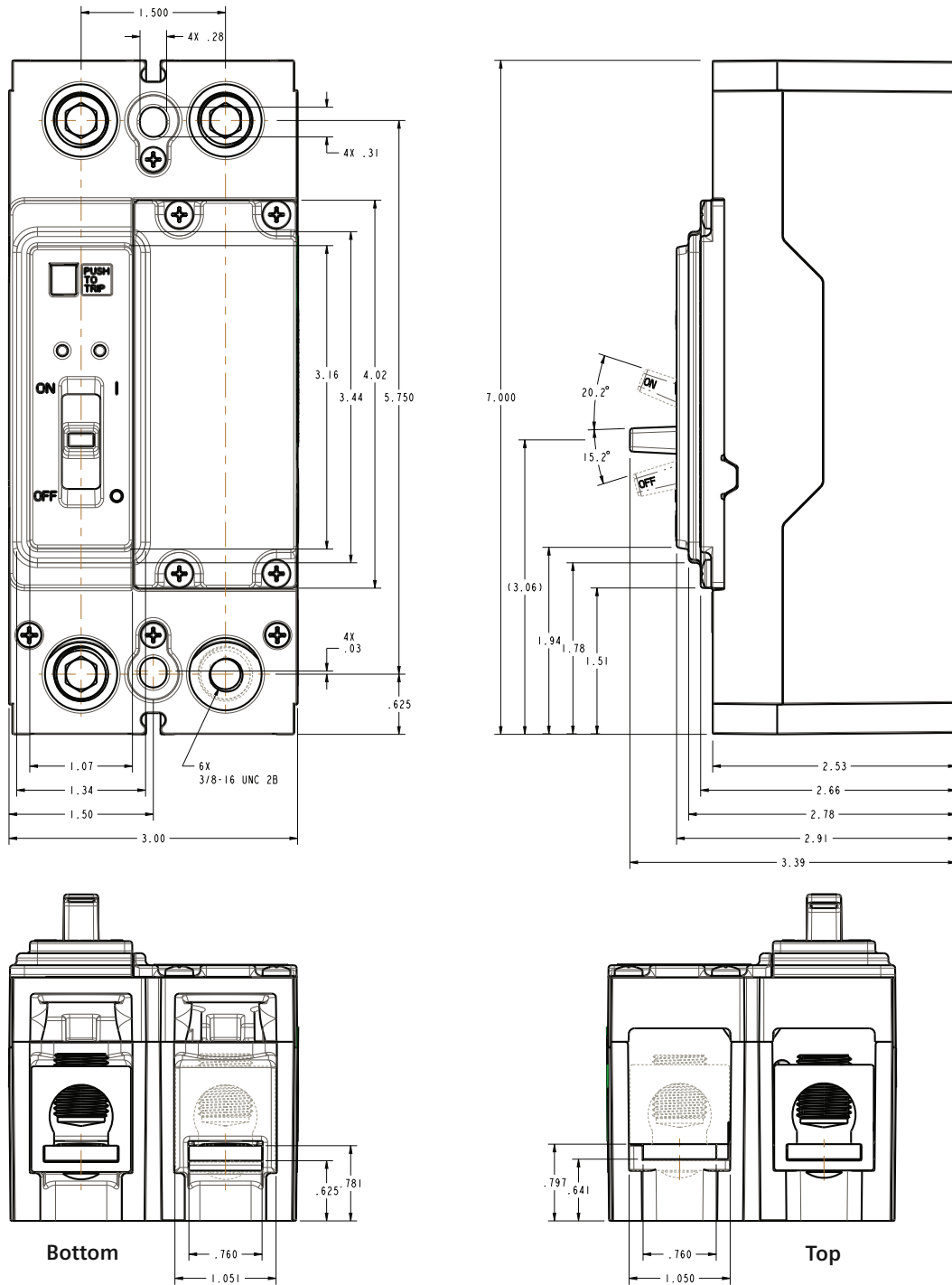
Bottom



Top

Dimensions

QR Frame Outline Drawing – 2 Pole (All dimensions in inches)



Application Data

General

In the application of circuit breakers, consideration should be given to the following factors:

1. Voltage of circuit.
2. Ampacity of circuit.
3. Frequency of power source.
4. Operation conditions.
5. Fault current available.

Voltage of circuit – The system voltage should not exceed the listed voltage rating of the circuit breaker, fuse, or switch.

Ampacity of circuit – The listed continuous current rating of the circuit breaker should not exceed the allowable ampacity of the conductors. Where the allowable ampacity of the conductor does not correspond to listed current ratings for fuse or circuit breakers, the next larger rating of fuses or circuit breakers is permitted providing it does not exceed the conductor ampacity by more than 25%. An exception to this rule is permitted for motor circuits or other circuits where high inrush currents may persist for an appreciable time.

Frequency of power source – Circuit breakers are calibrated for use on direct current of 48-60-Hertz alternating current. For frequencies above 62-Hertz, some fuses, switches and circuit breakers must be derated. The derating varies with each type and size of protective device. Consult your local representative for specific information.

Operating conditions – Molded case circuit breakers and fuses are calibrated without any enclosure as specified by the \ Underwriters' Laboratories, Inc. Sound engineering practice dictates that continuous loads should not exceed 80% of the breaker or fuse current rating for most applications.

Electrical connections – Molded Case Circuit Breakers are to be connected with 60 or 75°C wire for breakers having a rated ampacity of 125 amperes or less. For circuit breakers

having a rated ampacity greater than 125 amperes, only 75°C cable shall be used unless otherwise indicated on the circuit breaker label.

Note: Exceptions to this rule are outlined in Article 110-14-C(1) and C(2) of the 2005 National Electric Code.

Conductors should be derated in accordance with the Nation Electrical Code for both ambient temperature and continuous loading. Conductors which are loaded continuously should be derated to 80% of their allowable current-carrying capacity except when supplied by an assembly including its overcurrent device that is listed for continuous operation at 100% of its rating.

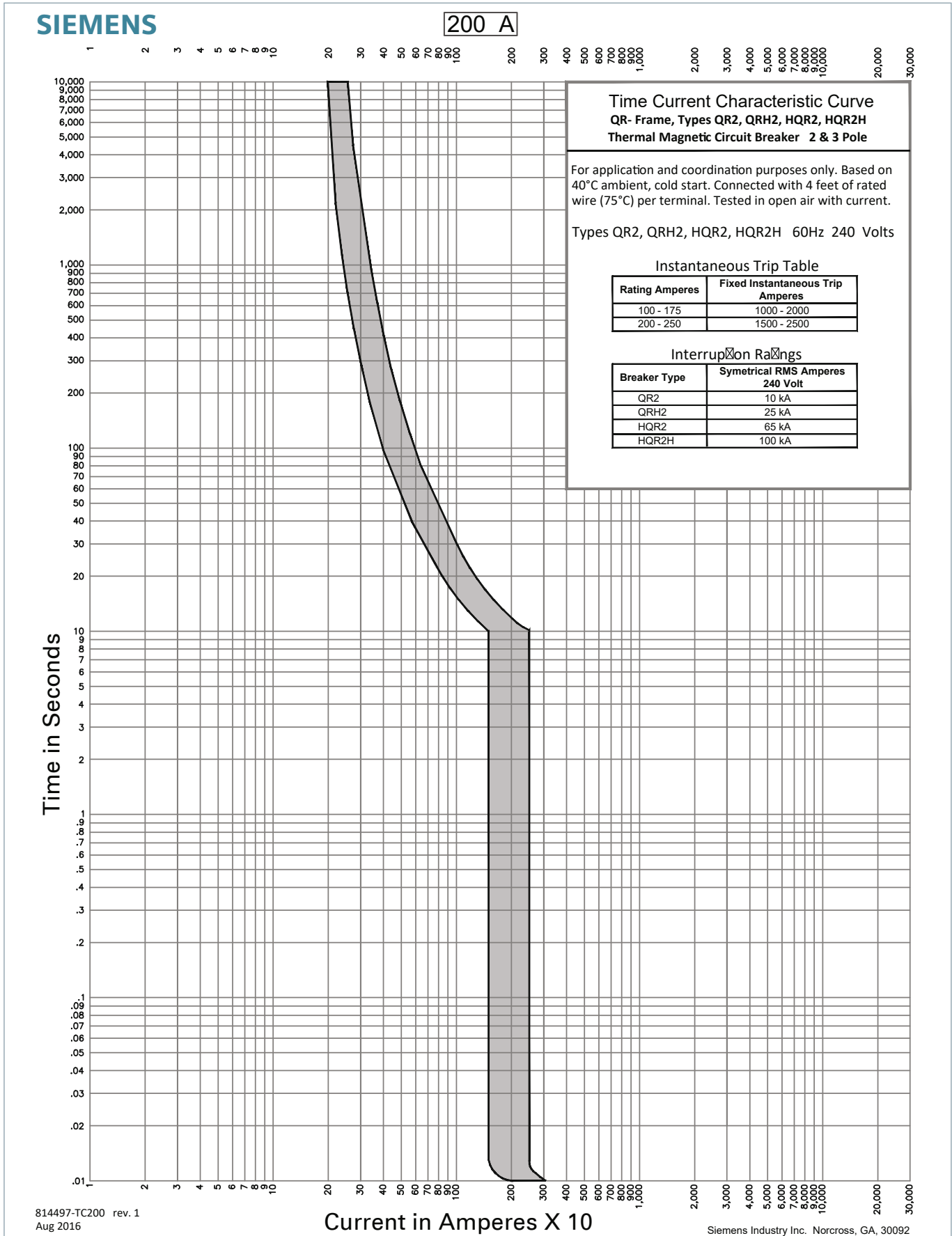
When the type of load is unusual, intermittent, or one which involves momentary peak currents such as motor loads, consideration should be given to the heating effect on the protective device over a period of time. The duty cycle of a motor which is started and stopped frequently may require a circuit breaker or fuses with a higher rating than an infrequently started motor.

The presence of excessive dust, moisture, corrosive fumes, or explosive atmosphere requires the use of enclosures suitable for such atmospheres. For application in regions where fungus growth may occur, some circuit breakers should be treated with a fungus and moisture resistant material.

Fault current available – The interrupting rating of the circuit breaker should be greater than the available short circuit current at the point of application. The short circuit current from some power sources, such as engine driven generators, is limited, and the protective device characteristics should be selected to clear such faults without delay.

Some systems require a study of protective device characteristics to assure proper protection and coordination for any possible value of fault current.

Time Current Curve



Notes:

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