MANUAL SUPPLEMENT

Branch Circuit Protection for ABB drives

Acceptable fuses, manual motor protectors and circuit breakers forACS380, AC(H,Q,S)580 and ACS880 drives

Purpose

This document outlines alternative fuses, manual motor protectors and circuit breakers that can be used for branch circuit protection on ABB ACS380, AC(H,Q,S)580 and ACS880 drives.

How to use this information

The drive specific hardware manual includes fuse and sometimes circuit breaker recommendations for the drive. In addition to the branch circuit protection identified in the manuals, alternative fuses and circuit breakers can beused if they meet certain characteristics. The guidelines in this document describe which fuses, manual motor protectors and circuit breakers are acceptable alternatives.

Table of Contents

Branch Circuit Protection for ABB drives 1

ACS380 drives 4

Fuse Information 4

ACS380-04, 200...240V 1-phase fuses 5

ACS380-04, 200...240V fuses 5

ACS380-04, 380...480V fuses 5

Type E Combination Motor Controller (MMP) information 6

ACS380-04, 200...240V 1-phase manual motor protectors 7

ACS380-04, 200...240V manual motor protectors 7

ACS380-04, 380...480V manual motor protectors 7

Miniature Circuit Breaker Protection information 8

ACS380-04, 200...240 V 1-phase miniature circuit breakers 9

ACS380-04, 200...240 V miniature circuit breakers 9

ACS380-04, 380...480V miniature circuit breakers 9

ACH, ACQ, ACS580 drives 10

Fuse Information 10

ACH, ACQ, ACS580-01, 208/230V fuses for NEC Rated Drives 12

ACH, ACQ, ACS580-01, 208/230V fuses for IEC Rated Drives 14

ACH, ACQ, ACS580-01, 480V fuses for NEC Rated Drives 16

ACH, ACQ, ACS580-01, 480V fuses for IEC Rated Drives 18

ACH, ACQ, ACS580-01, 575V fuses 20

ACH, ACQ580-04, 480V fuses 22

ACH, ACQ580-31, 230V fuses 23

ACH, ACQ580-31, 480V fuses 24

ACH, ACQ580-34, 480V fuses 25

Miniature Circuit Breaker Protection information (Not applicable to UL Type 4X drives) 26

ACS580-01, 200...240 V 1-phase miniature circuit breakers for NEC rated drives 27

ACS580-01, 200...240 V 1-phase miniature circuit breakers for IEC rated drives 27

ACS580-01, 200...240 V miniature circuit breakers for NEC rated drives 27

ACS580-01, 200...240 V miniature circuit breakers for IEC rated drives 27

ACS580-01, 380...480V miniature circuit breakers for NEC rated drives 28

ACS580-01, 380...480V miniature circuit breakers for IEC rated drives 28

Tmax XT Circuit Breaker Information 29

ACH, ACQ, ACS580-01, 230V circuit breakers NEC rated drives. 31

ACH, ACQ, ACS580-01, 230V circuit breakers IEC rated drives 31

ACH, ACQ, ACS580-01, 480V circuit breakers NEC rated drives 32

ACH, ACQ, ACS580-01, 480V circuit breakers IEC rated drives 32

ACH, ACQ, ACS580-01, 600V circuit breakers 33

ACH, ACQ580-31, 230V circuit breakers 33

ACH, ACQ580-31, 480V circuit breakers 34

ACS880 drives 35

Fuse Information 35

ACS880-01, 230V fuses 37

ACS880-01, 480V fuses 39

ACS880-01, 575V fuses 42

ACS880-04, 480V fuses 44

ACS880-04, 575V fuses 45

ACS880-04XT, 480V fuses 46

ACS880-04XT, 575V fuses 47

ACS880-04F, 480V fuses 48

ACS880-04F, 575V fuses **49**
ACS880-04FXT, 480V fuses **50**
ACS880-04FXT, 575V fuses **51**
ACS880-11, -31, 480V fuses **52**
ACS880-14, -34, 480V fuses **53**
ACS880-14, -34, 575V fuses **53**
Tmax XT Circuit Breaker Information 54
ACS880-01, 230V circuit breakers **56**
ACS880-01, 480V circuit breakers **56**
ACS880-01, 600V circuit breakers **57**
ACS880-11, -31, 480V circuit breakers **57**
Alternate Circuit Breakers **58**
Comparison Information **58**
Square-D and Schneider Electric circuit breakers 58
Square D and Schneider 480V circuit breakers **58**
Square D and Schneider 600V circuit breakers **59**
Rockwell Automation circuit breakers 59
Rules **59**
Rockwell Automation 480V circuit breakers **59**
Rockwell Automation 600V circuit breakers **59**

ACS380 drives

Purpose
This section outlines alternative branch circuit protection that may be used with ACS380-04 base drives, R0 through R4 frame size.

How to use this information
The drive hardware manual includes recommendations suitable branch circuit protection for the drives. In addition to the protection identified in the manual, alternative protective devices can be used if they meet certain characteristics. The guidelines in this document describe which protective devices are acceptable alternatives.
This document is a supplement to the following drive hardware manual(s):

- 3AXD50000029274 ACS380-04 drives hardware manual

Fuse Information

ACS380-04 drives are suitable for use on a circuit capable of delivering not more than 100 kA symmetrical amperes (RMS) at 240V and 480V maximum, when protected by appropriate fuses.

The drives are tested in accordance with UL 61800-5-1 on a circuit having available system fault current of 100 kA maximum.

Hardware manuals for ACS380-04 drives recommend:

- Listed Class T (UL 248-15) fast acting fuses up to 100A.

In addition to the above guidelines, the following are additional rules that must be followed:

1. Fuses are required as part of the installation. Fuses are not included with the base drive and must be provided by others.
2. The UL listed fuses in the hardware manual tables, or the tables in this document are the required branch circuit protection per NEC.
3. Recommended size or smaller UL 248 listed fast acting Class T fuses must be used to maintain the drive UL listing. Additional protection can be used. Refer to local codes and regulations.
4. UL 248 listed fast acting Class T fuses from other manufacturers can be used if they meet the rating requirements specified in the rules above.
5. When installing a drive, always follow ABB installation instructions and NEC requirements.
6. UL 248 listed fast acting Class T fuses can be used can be used in a group installation application. Please refer to the ACS380 hardware manual for maximum fuse ratings for a group installation.

Alternate recommended fuses for some of the major fuse manufacturers can be found in tables on the following pages. Other manufacturers not found on the tables below may be used if they meet the fuse requirements stated above.

ACS380-04, 200...240V 1-phase fuses

Frame Size	200....240V ACS380-04	Input Current no choke (A)	Input Current With choke (A)	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses 300V or 600V			
				Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
				A	V				
R0	02A4-1	5.5	4.0	10	300 or 600	JJN-10 or JJS-10	JLLN010 or JLLS010	A3T10 or A6T10	TJN10 or TJS10
R0	03A7-1	7.4	6.1	10	300 or 600	JJN-10 or JJS-10	JLLN010 or JLLS010	A3T10 orA6T10	TJN10 or TJS10
R1	04A8-1	9.1	8.0	15	300 or 600	JJN-15 or JJS-15	JLLN015 or JLLS015	A3T15 or A6T15	TJN15 or TJS15
R1	06A9-1	12.6	11.4	20	300 or 600	JJN-20 or JJS-20	JLLN020 or JLLS020	A3T20 or A6T20	TJN20 or TJS20
R1	07A8-1	14.9	12.8	25	300 or 600	JJN-25 or JJS-25	JLLN025 or JLLS025	A3T25 or A6T25	TJN25 or TJS25
R2	09A8-1	14.8	12.8	25	300 or 600	JJN-25 or JJS-25	JLLN025 or JLLS025	A3T25 or A6T25	TJN25 or TJS25
R2	12A2-1	21.0	20.1	30	300 or 600	JJN-30 or JJS-30	JLLN030 or JLLS030	A3T30 or A6T30	TJN30 or TJS30

ACS380-04, 200...240V fuses

Frame Size	200....240V ACS380-04	Input Current no choke (A)	Input Current with choke (A)	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses			
				Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
				A	V				
R1	02A4-2	3.5	2.3	6	600	JJS-6	JLLS006	A6T6	TJS6
R1	03A7-2	4.8	3.5	10	600	JJS-10	JLLS010	A6T10	TJS10
R1	04A8-2	5.8	4.6	10	600	JJS-10	JLLS010	A6T10	TJS10
R1	06A9-2	8.4	6.6	15	600	JJS-15	JLLS015	A6T15	TJS15
R1	07A8-2	9.4	7.5	15	600	JJS-15	JLLS015	A6T15	TJS15
R1	09A8-2	9.4	7.5	15	600	JJS-15	JLLS015	A6T15	TJS15
R2	12A2-2	13.1	11.6	20	600	JJS-20	JLLS020	A6T20	TJS20
R3	17A5-2	21	16.7	30	600	JJS-30	JLLS030	A6T30	TJS30
R3	25A0-2	30.5	24.2	40	600	JJS-40	JLLS040	A6T40	TJS40
R3	033A-2	37.5	30.8	50	600	JJS-50	JLLS050	A6T50	TJS50
R4	032A-2	37.4	30.8	60	600	JJS-60	JLLS060	A6T60	TJS60
R4	048A-2	53.2	46.2	80	600	JJS-80	JLLS080	A6T80	TJS80
R4	055A-2	53.2	46.2	80	600	JJS-80	JLLS080	A6T80	TJS80

ACS380-04, 380...480V fuses

Frame Size	480V ACS380-04	Input Current no choke (A)	Input Current with choke (A)	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses			
				Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
				A	V				
R0	01A8-4	2.2	1.6	6	600	JJS-6	JLLS006	A6T6	TJS6
R1	02A6-4	2.7	2.1	6	600	JJS-6	JLLS006	A6T6	TJS6
R1	03A3-4	3.9	3	6	600	JJS-6	JLLS006	A6T6	TJS6
R1	04A0-4	4.5	3.4	10	600	JJS-10	JLLS010	A6T10	TJS10
R1	05A6-4	6.6	4.8	10	600	JJS-10	JLLS010	A6T10	TJS10
R1	07A2-4	6.2	6	10	600	JJS-10	JLLS010	A6T10	TJS10
R1	09A4-4	9.8	7.6	15	600	JJS-15	JLLS015	A6T15	TJS15
R2	12A6-4	13.9	11	20	600	JJS-20	JLLS020	A6T20	TJS20
R3	17A0-4	18.8	14	30	600	JJS-30	JLLS030	A6T30	TJS30
R3	25A0-4	26.6	21	35	600	JJS-35	JLLS035	A6T35	TJS35
R3	033A-4	33.9	27	45	600	JJS-45	JLLS045	A6T45	TJS45
R4	032A-4	33.7	27	50	600	JJS-50	JLLS050	A6T50	TJS50
R4	038A-4	41.3	34	80	600	JJS-80	JLLS080	A6T80	TJS80
R4	045A-4	46.9	40	80	600	JJS-80	JLLS080	A6T80	TJS80
R4	050A-4	46.9	42	80	600	JJS-80	JLLS080	A6T80	TJS80

Type E Combination Motor Controller (MMP) information

The ACS380-04 drives are suitable for use on a circuit capable of delivering not more than 65 kA symmetrical amperes (RMS) at 240V maximum, and at 480V maximum on a grounded Wye system, when protected by a manual motor protector (MMP) selected from the tables below. Additional fuse protection is not required by UL when using the MMPs herein. MMPs are not required to be in the same enclosure as the drive.

For additional information on MMPs refer to the ABB.library.com document number:

- 2CDC131021D0202 Manual Motor Starter MS132
- 2CDC131083D0201 Manual Motor Starter MS165

Follow the rules below:

1. Manual motor protectors require adjusting the trip limit from the factory setting at or above the drive rated input current to avoid nuisance tripping.
2. MS132 MMPs require the use of the S1-M3-25 line-side feeder terminal to meet Type E self-protection class.
3. MMPs can only be used on a 480Y/277 V solidly grounded system if on a 480V network. [Short-circuit protective devices with slash voltage ratings (e.g. 480Y/277 V) can be applied only on solidly grounded networks where the voltage from line-to-ground does not exceed the lower of the two ratings (e.g. 277V), and the voltage from line-to-line does not exceed the higher of the two ratings (e.g. 480V). The lower rating represents the device's interrupting capability per pole.] These same devices can be used on either Wye or Delta network, ungrounded or grounded on a 240V maximum system.
4. Drives must be mounted in an enclosure with volume ≥ Enclosure Minimum Volume specified in the tables below.
5. Enclosures must have a solid bottom directly below the drives. Fans, filters, or louvers cannot be mounted directly below the drives, but can be mounted in adjacent areas on the bottom of the enclosure.
6. When multiple drives are installed in the same enclosure, minimum volume of the enclosure is determined by largest Enclosure Minimum Volume of the drives to be placed in the enclosure, plus the volume(s) of each additional drive.
7. For all drives, the enclosure must be sized to accommodate the specific thermal considerations of the application as well as provide free space for cooling. See the ABB ACS380 HW Manual for free space requirements.
8. Drives that incorporate UL Type 1 enclosure kits cannot be protected with Type E MMP's.

ACS380-04, 200...240V 1-phase manual motor protectors

Frame Size	208V ACS380-04	Input Current no choke (A)	Input Current with choke (A)	MMP Maximum Current (A)	MMP Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	MMP Type E
R0	02A4-1	5.5	4.0	10	600	1850	128	MS132-10 & S1-M3-25
R0	03A7-1	7.4	6.1	10	600	1850	128	MS132-10 & S1-M3-25
R1	04A8-1	9.1	8.0	20	600	1850	128	MS165-20
R1	06A9-1	12.6	11.4	20	600	1850	128	MS165-20
R1	07A8-1	14.9	12.8	20	600	1850	128	MS165-20
R2	09A8-1	14.8	12.8	32	600	1850	173	MS165-32
R2	12A2-1	21	20.1	32	600	1850	173	MS165-32

ACS380-04, 200...240V manual motor protectors

Frame Size	208V ACS380-04	Input Current no choke (A)	Input Current with choke (A)	MMP Maximum Current (A)	MMP Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	MMP Type E
R1	02A4-2	3.5	2.3	10	600	1850	128	MS132-10 & S1-M3-25
R1	03A7-2	4.8	3.5	10	600	1850	128	MS132-10 & S1-M3-25
R1	04A8-2	5.8	4.6	10	600	1850	128	MS132-10 & S1-M3-25
R1	06A9-2	8.4	6.6	10	600	1850	128	MS132-10 & S1-M3-25
R1	07A8-2	9.4	7.5	16	600	1850	128	MS165-16
R1	09A8-2	9.4	7.5	16	600	1850	128	MS165-16
R2	12A2-2	13.1	11.6	20	600	1850	173	MS165-20
R3	17A5-2	21.0	16.7	42	600	1850	310	MS165-42
R3	25A0-2	30.5	24.2	42	600	1850	310	MS165-42
R3	033A-2	37.5	30.8	54	600	1850	310	MS165-54
R4	032A-2	37.4	30.8	80	600	4577	472	MS165-80
R4	048A-2	53.2	46.2	80	600	4577	472	MS165-80
R4	055A-2	53.2	46.2	80	600	4577	472	MS165-80

ACS380-04, 380...480V manual motor protectors

Frame Size	480V ACS380-04	Input Current no choke (A)	Input Current with choke (A)	MMP Maximum Current (A)	MMP Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	MMP Type E
R0	01A8-4	2.2	1.6	4	600	1850	128	MS132-4.0 & S1-M3-25
R1	02A6-4	2.7	2.1	10	600	1850	128	MS132-10 & S1-M3-25
R1	03A3-4	3.9	3.0	10	600	1850	128	MS132-10 & S1-M3-25
R1	04A0-4	4.5	3.4	10	600	1850	128	MS132-10 & S1-M3-25
R1	05A6-4	6.6	4.8	10	600	1850	128	MS132-10 & S1-M3-25
R1	07A2-4	6.2	6.0	16	600	1850	128	MS165-16
R1	09A4-4	9.8	7.6	16	600	1850	128	MS165-16
R2	12A6-4	13.9	11.0	20	600	1850	173	MS165-20
R3	17A0-4	18.8	14.0	42	600	1850	310	MS165-42
R3	25A0-4	26.6	21.0	42	600	1850	310	MS165-42
R3	033A-4	33.9	27.0	54	600	1850	310	MS165-54
R4	032A-4	33.7	27.0	80	600	4577	472	MS165-80
R4	038A-4	41.3	34.0	80	600	4577	472	MS165-80
R4	045A-4	46.9	40.0	80	600	4577	472	MS165-80
R4	050A-4	46.9	42.0	80	600	4577	472	MS165-80

Miniature Circuit Breaker Protection information

The ACS380-04 drives are suitable for use on a circuit capable of delivering not more than 10 kA symmetrical amperes (RMS) at 240V maximum, and at 480V maximum on a grounded Wye system, when protected by an ABB Miniature Circuit Breaker selected from the tables below. Additional fuse protection is not required by UL when using the Miniature Circuit Breakers herein. Miniature Circuit Breakers arenot required to be in the same enclosure as the drive.

For additional information on ABB Miniature Circuit Breakers refer to the ABB.library.com document number:

- 2CDC002177D0204 SU 200 M Technical Data Sheet

Follow the rules below:

1. ABB Miniature Circuit Breaker can only be used on a 480Y/277 V solidly grounded system if on a 480V network. [Short-circuit protective devices with slash voltage ratings (e.g. 480Y/277 V) can be applied only on solidly grounded networks where the voltage from line-to-ground does not exceed the lower of the two ratings (e.g. 277V), and the voltage from line-to-line does not exceed the higher of the two ratings (e.g. 480V). The lower rating represents the device's interrupting capability per pole.] These same devices can be used on either Wye or Delta systems, ungrounded or grounded on a 240V maximum system.
2. Drives must be assembled in an enclosure with volume ≥ Enclosure Minimum Volume specified in the tables below.
3. Enclosures must have a solid bottom directly below the drives. Fans, filters, or louvers cannot be mounted directly below the drives but can be mounted in adjacent areas on the bottom of the enclosure.
4. When multiple drives are installed in the same enclosure, minimum volume of the enclosure is determined by largest Enclosure Minimum Volume of the drives to be placed in the enclosure, plus the volume(s) of each additional drive.
5. For all drives, the enclosure must be sized to accommodate the specific thermal considerations of the application as well as provide free space for cooling. See the ABB ACS380 HW Manual for free space requirements.

ACS380-04, 200...240 V 1-phase miniature circuit breakers

Frame Size	208V ACS380-04	Input Current no choke (A)	Input Current with choke (A)	MMP Maximum Current (A)	MMP Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in3)	MMP Type E
R0	02A4-1	5.5	4.0	10	480Y/277	1850	128	SU202M-C10
R0	03A7-1	7.4	6.1	10	480Y/277	1850	128	SU202M-C10
R1	04A8-1	9.1	8.0	20	480Y/277	1850	128	SU202M-C20
R1	06A9-1	12.6	11.4	20	480Y/277	1850	128	SU202M-C20
R1	07A8-1	14.9	12.8	20	480Y/277	1850	128	SU202M-C20
R2	09A8-1	14.8	12.8	32	480Y/277	1850	173	SU202M-C32
R2	12A2-1	21.0	20.1	32	480Y/277	1850	173	SU202M-C32

ACS380-04, 200...240 V miniature circuit breakers

Frame Size	208V ACS380-04	Input Current no choke (A)	Input Current with choke (A)	MMP Maximum Current (A)	MMP Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	MMP Type E
R1	02A4-2	3.5	2.3	16	480Y/277	1850	128	SU203M-C16
R1	03A7-2	4.8	3.5	16	480Y/277	1850	128	SU203M-C16
R1	04A8-2	5.8	4.6	16	480Y/277	1850	128	SU203M-C16
R1	06A9-2	8.4	6.6	16	480Y/277	1850	128	SU203M-C16
R1	07A8-2	9.4	7.5	25	480Y/277	1850	128	SU203M-C25
R1	09A8-2	9.4	7.5	25	480Y/277	1850	128	SU203M-C25
R2	12A2-2	13.1	11.6	25	480Y/277	1850	173	SU203M-C25
R3	17A5-2	21	16.7	50	480Y/277	1850	310	SU203M-C50
R3	25A0-2	30.5	24.2	50	480Y/277	1850	310	SU203M-C50
R3	033A-2	37.5	30.8	50	480Y/277	1850	310	SU203M-C50

ACS380-04, 380...480V miniature circuit breakers

Frame Size	480V ACS380-04	Input Current no choke (A)	Input Current with choke (A)	MMP Maximum Current (A)	MMP Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	MMP Type E
R0	01A8-4	2.2	1.6	10	480Y/277	1850	128	SU203M-C10
R1	02A6-4	2.7	2.1	10	480Y/277	1850	128	SU203M-C10
R1	03A3-4	3.9	3.0	10	480Y/277	1850	128	SU203M-C10
R1	04A0-4	4.5	3.4	10	480Y/277	1850	128	SU203M-C10
R1	05A6-4	6.6	4.8	10	480Y/277	1850	128	SU203M-C10
R1	07A2-4	6.2	6.0	16	480Y/277	1850	128	SU203M-C16
R1	09A4-4	9.8	7.6	16	480Y/277	1850	128	SU203M-C16
R2	12A6-4	13.9	11.0	25	480Y/277	1850	173	SU203M-C25
R3	17A0-4	18.8	14.0	50	480Y/277	1850	310	SU203M-C50
R3	25A0-4	26.6	21.0	50	480Y/277	1850	310	SU203M-C50
R3	033A-4	33.9	27.0	50	480Y/277	1850	310	SU203M-C50

ACH, ACQ, ACS580 drives

Purpose
This section outlines branch circuit protection that may be used with ACH, ACQ, ACS580-01, -04, -31, -34 drives through the R11 frame size.

How to use this information
The drive hardware manual includes recommendations for suitable branch circuit protection for the drive. In addition to the protection identified in the manual, alternative branch circuit protection devices can be used. The guidelines in this document describe which branch circuit protective devices are acceptable alternatives. This document is a supplement to the following drive hardware manuals:

- 3AXD50000044839 ACH580-01 drives hardware manual
- 3AXD50000044862 ACQ580-01 drives hardware manual
- 3AXD50000044794 ACS580-01 drives hardware manual
- 3AXD50000037066 ACH580-31 hardware manual
- 3AXD50000045935 ACQ580-31 hardware manual
- 3AXD50000048685 ACH580-04 drive modules hardware manual
- 3AXD50000048677 ACQ580-04 drive modules hardware manual
- 3AXD50000015497 ACS580-04 drive modules hardware manual
- 3AXD50000419708 ACH580-34 drive modules hardware manual
- 3AXD50000420025 ACQ580-34 drive modules hardware manual

Fuse Information

AC(H,Q,S)580-01 drives are suitable for use on a circuit capable of delivering not more than 100 kA symmetrical amperes (RMS) at 240V, 480V, or 600V maximum, when protected by appropriate fuses.

Find two sets of fuse tables. The first set is for UL marked drives with ratings for the standard US motors and is titled "…for NEC Rated Drives". The second set of tables are for UL marked drives with ratings for IEC motors and are titled "…for IEC Rated Drives". If the table headings do not indicate NEC or IEC rated drives, they are for NEC rated drives.

AC(H,Q,S)580-04, -31 and -34 drives are suitable for use on a circuit capable of delivering not more than 100 kA symmetrical amperes (RMS) at 480V maximum, when protected by appropriate fuses.

The drives are tested in accordance with standard UL 61800-5-1 on a circuit having available system fault currentof 100 kA maximum.

Hardware manuals for AC(H,Q,S)580-01, -04, -31, -34 drives provide required fusing guidelines:

- Listed Class T (UL 248-15) fast acting fuses up to 600A
- Listed Class L (UL 248-15) fast acting fuses up to 1000A

ABB performed the fault testing with "umbrella fuses." These fuses are calibrated to create worst case peak let-through current (I_{peak}) and let-through energy (I^2t) in accordance with the limits of the intended fuse class(es) and ratings. The umbrella fuse testing allows other listed fuses, which have let-through characteristics equal to or below these limits, to be used. Therefore, listed (UL 248-8) Class J fast acting, time delay, and high speed fuses can also be used, since they provide equal or better protection. Likewise, listed (UL 248-17) Class CF fast acting and time delay cubed body fuses can be used as well.

In addition to the above guidelines, the following additional rules must be followed. (Rules 2-5 do not apply for AC(H,Q,S)580-01, AC(H,Q,S)580-04, and AC(H,Q)580-34 drives when semiconductor fuses are used):

1. Fuses are required as part of the installation. Fuses are not included in the base drive configuration and must be provided by others.
2. The UL listed fuses in the hardware manual tables, or the tables in this document are the required branch circuit protection per NEC.
3. Recommended size or smaller UL 248 listed fast acting, time delay, or high speed fuses must be used to maintain the drive UL listing. Additional protection can be used. Refer to local codes and regulations.
4. UL 248 listed, fast acting, time delay, or high speed fuses from other manufacturers can be used if theymeet the rating requirements specified in the rules above.
5. A fuse of a different class can be used at the high fault rating where the I_{peak} and I^2t of the new fuse is not greater than that of the specified fuse.
6. When installing a drive, always follow installation instructions and NEC requirements.
7. Only 480V R9 frame drives with serial numbers beginning 1204109256 when built in Finland and beginning 22106xxxxx when built in the U.S. may be protected with fuses listed in the tables below. Drives with earlier serial numbers can only be protected with Class T fuses.
8. For 230V drives, 600V Class T fuses may be substituted with 300V Class T fuses.

Alternate recommended fuses for some of the major fuse manufacturers can be found in tables on the following pages. Other manufacturers not found on the tables below may be used if they meet the fuse requirements stated above.

Semiconductor fuses listed in the tables below and throughout the document are base part numbers only. Semiconductor fuses with optional indicators can be used and have no impact on the drive UL listing, performance, or rating of the fuse. To achieve 100 kA SCCR rating of the drive panel semiconductor fuses must be in the same enclosure as the drive.

ACH, ACQ, ACS580-01, 208/230V fuses for NEC Rated Drives

Frame Size	208/230V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	04A6-2	4.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	06A6-2	6.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	07A5-2	7.5	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	10A6-2	10.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	017A-2	16.7	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30
R2	024A-2	24.2	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R2	031A-2	30.8	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R3	046A-2	46.2	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R3	059A-2	59.4	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R4	075A-2	74.8	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4J100	JFL100
R5	088A-2	88.0	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R5	114A-2	114	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R6	143A-2	143	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R7	169A-2	169	250	600	JJS-250	JLLS250	A6T250	TJS250	JKS-250	JLS250	A4T250	JFL250
R7	211A-2	211	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300
R8	273A-2	273	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400
R9	343A-2	343	600	600	JJS-600	JLLS600	A6T600	TJS600	JKS-600	JLS600	A4J600	JFL600
R9	396A-2	396	600	600	JJS-600	JLLS600	A6T600	TJS600	JKS-600	JLS600	A4J600	JFL600

Frame Size	208/230V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	04A6-2	4.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	06A6-2	6.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	07A5-2	7.5	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	10A6-2	10.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	017A-2	16.7	30	600	LPJ-30SP	JTD30	AJT30	JDL30	DFJ-30	LDFJ030	HSJ30	JHL30
R2	024A-2	24.2	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R2	031A-2	30.8	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R3	046A-2	46.2	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R3	059A-2	59.4	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R4	075A-2	74.8	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R5	088A-2	88.0	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R5	114A-2	114	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R6	143A-2	143	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R7	169A-2	169	250	600	LPJ-250SP	JTD250	AJT250	JDL250	DFJ-250	LDFJ250	HSJ250	JHL250
R7	211A-2	211	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300
R8	273A-2	273	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R9	343A-2	343	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R9	396A-2	396	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600

Frame Size	208/230V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Class CF Time Delay Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R1	04A6-2	4.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	06A6-2	6.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	07A5-2	7.5	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	10A6-2	10.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	017A-2	16.7	30	600	KTK-R-30	KLKR30	ATMR30	HCLR30	TCF30RN	FCF30RN
R2	024A-2	24.2	40	600	-	-	-	-	TCF40RN	FCF40RN
R2	031A-2	30.8	40	600	-	-	-	-	TCF40RN	FCF40RN
R3	046A-2	46.2	80	600	-	-	-	-	TCF80RN	FCF80RN
R3	059A-2	59.4	80	600	-	-	-	-	TCF80RN	FCF80RN
R4	075A-2	74.8	100	600	-	-	-	-	TCF100RN	FCF100RN
R5	088A-2	88.0	150	600	-	-	-	-	TCF150RN	-
R5	114A-2	114	150	600	-	-	-	-	TCF150RN	-
R6	143A-2	143	200	600	-	-	-	-	TCF200RN	-
R7	169A-2	169	250	600	-	-	-	-	TCF250RN	-
R7	211A-2	211	300	600	-	-	-	-	TCF300RN	-
R8	273A-2	273	400	600	-	-	-	-	TCF400RN	-
R9	343A-2	343	600	600	-	-	-	-	-	-
R9	396A-2	396	600	600	-	-	-	-	-	-

ACH, ACQ, ACS580-01, 208/230V fuses for IEC Rated Drives

Frame Size	208/230V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	04A7-2	4.7	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	06A7-2	6.7	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	07A6-2	7.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	12A0-2	12.0	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	018A-2	16.9	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30
R2	025A-2	24.5	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R2	032A-2	31.2	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R3	047A-2	46.7	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R3	060A-2	60	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R4	076A-2	76	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4J100	JFL100
R5	089A-2	89	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R5	115A-2	115	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R6	144A-2	144	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R7	171A-2	171	250	600	JJS-250	JLLS250	A6T250	TJS250	JKS-250	JLS250	A4T250	JFL250
R7	213A-2	213	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300
R8	276A-2	276	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400

Frame Size	208/230V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	04A6-2	4.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	06A6-2	6.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	07A5-2	7.5	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	10A6-2	10.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	017A-2	16.7	30	600	LPJ-30SP	JTD30	AJT30	JDL30	DFJ-30	LDFJ030	HSJ30	JHL30
R2	024A-2	24.2	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R2	031A-2	30.8	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R3	046A-2	46.2	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R3	059A-2	59.4	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R4	075A-2	74.8	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R5	088A-2	88.0	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R5	114A-2	114	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R6	143A-2	143	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R7	169A-2	169	250	600	LPJ-250SP	JTD250	AJT250	JDL250	DFJ-250	LDFJ250	HSJ250	JHL250
R7	211A-2	211	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300
R8	273A-2	273	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R9	343A-2	343	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R9	396A-2	396	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600

Frame Size	208/230V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Class CF Time Delay Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R1	04A6-2	4.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	06A6-2	6.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	07A5-2	7.5	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	10A6-2	10.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	017A-2	16.7	30	600	KTK-R-30	KLKR30	ATMR30	HCLR30	TCF30RN	FCF30RN
R2	024A-2	24.2	40	600	-	-	-	-	TCF40RN	FCF40RN
R2	031A-2	30.8	40	600	-	-	-	-	TCF40RN	FCF40RN
R3	046A-2	46.2	80	600	-	-	-	-	TCF80RN	FCF80RN
R3	059A-2	59.4	80	600	-	-	-	-	TCF80RN	FCF80RN
R4	075A-2	74.8	100	600	-	-	-	-	TCF100RN	FCF100RN
R5	088A-2	88.0	150	600	-	-	-	-	TCF150RN	-
R5	114A-2	114	150	600	-	-	-	-	TCF150RN	-
R6	143A-2	143	200	600	-	-	-	-	TCF200RN	-
R7	169A-2	169	250	600	-	-	-	-	TCF250RN	-
R7	211A-2	211	300	600	-	-	-	-	TCF300RN	-
R8	273A-2	273	400	600	-	-	-	-	TCF400RN	-
R9	343A-2	343	600	600	-	-	-	-	-	-
R9	396A-2	396	600	600	-	-	-	-	-	-

ACH, ACQ, ACS580-01, 480V fuses for NEC Rated Drives

Frame Size	480V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	02A1-4	2.1	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	03A0-4	3.0	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	03A5-4	3.5	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	04A8-4	4.8	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	07A6-4	7.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	012A-4	12.0	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R2	014A-4	14.0	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30
R2	023A-4	23.0	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30
R3	027A-4	27.0	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R3	034A-4	34.0	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60
R3	044A-4	44.0	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60
R4	052A-4	52	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R4	065A-4	65	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4J100	JFL100
R4	077A-4	77	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100
R5*	078A-4	77	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4T110	JFL110
R5	096A-4	96	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R6	124A-4	124	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R7	156A-4	156	225	600	JJS-225	JLLS225	A6T225	TJS225	JKS-225	JLS225	A4J225	JFL225
R7	180A-4	180	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300
R8	240A-4	240	350	600	JJS-350	JLLS350	A6T350	TJS350	JKS-350	JLS350	A4J350	JFL350
R8*	260A-4	240	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400
R9**	302A-4	302	500	600	JJS-500	JLLS500	A6T500	TJS500	JKS-500	JLS500	A4J500	JFL500
R9**	361A-4	361	500	600	JJS-500	JLLS500	A6T500	TJS500	JKS-500	JLS500	A4J500	JFL500
R9**	414A-4	414	600	600	JJS-600	JLLS600	A6T600	TJS600	JKS-600	JLS600	A4J600	JFL600

*Not available in ACH580

** Follow Rule 7 above

Frame Size	480V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	02A1-4	2.1	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	03A0-4	3.0	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	03A5-4	3.5	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	04A8-4	4.8	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	07A6-4	7.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	012A-4	12.0	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R2	014A-4	14.0	30	600	LPJ-30SP	JTD30	AJT30	JDL30	DFJ-30	LDFJ030	HSJ30	JHL30
R2	023A-4	23.0	30	600	LPJ-30SP	JTD30	AJT30	JDL30	DFJ-30	LDFJ030	HSJ30	JHL30
R3	027A-4	27.0	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R3	034A-4	34.0	60	600	LPJ-60SP	JTD60	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R3	044A-4	44.0	60	600	LPJ-60SP	JTD60	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R4	052A-4	52	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R4	065A-4	65	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R4	077A-4	77	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R5*	078A-4	77	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R5	096A-4	96	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R6	124A-4	124	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R7	156A-4	156	225	600	LPJ-225SP	JTD225	AJT225	JDL225	DFJ-225	LDFJ225	HSJ225	JHL225
R7	180A-4	180	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300
R8	240A-4	240	350	600	LPJ-350SP	JTD350	AJT350	JDL350	DFJ-350	LDFJ350	HSJ350	JHL350
R8*	260A-4	240	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R9**	302A-4	302	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R9**	361A-4	361	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R9**	414A-4	414	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600

*Not available in ACH580

** Follow Rule 7 above

Frame Size	480V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R1	02A1-4	2.1	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	03A0-4	3.0	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	03A5-4	3.5	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	04A8-4	4.8	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	07A6-4	7.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	012A-4	12.0	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R2	014A-4	14.0	30	600	KTK-R-30	KLKR30	ATMR30	HCLR30	TCF30RN	FCF30RN
R2	023A-4	23.0	30	600	KTK-R-30	KLKR30	ATMR30	HCLR30	TCF30RN	FCF30RN
R3	027A-4	27.0	40	600	-	-	-	-	TCF40RN	FCF40RN
R3	034A-4	34.0	60	600	-	-	-	-	TCF60RN	FCF60RN
R3	044A-4	44.0	60	600	-	-	-	-	TCF60RN	FCF60RN
R4	052A-4	52	80	600	-	-	-	-	TCF80RN	FCF80RN
R4	065A-4	65	100	600	-	-	-	-	TCF100RN	FCF100RN
R4	077A-4	77	100	600	-	-	-	-	TCF100RN	-
R5*	078A-4	77	110	600	-	-	-	-	TCF110RN	-
R5	096A-4	96	150	600	-	-	-	-	TCF150RN	-
R6	124A-4	124	200	600	-	-	-	-	TCF200RN	-
R7	156A-4	156	225	600	-	-	-	-	TCF225RN	-
R7	180A-4	180	300	600	-	-	-	-	TCF300RN	-
R8	240A-4	240	350	600	-	-	-	-	TCF350RN	-
R8*	260A-4	240	400	600	-	-	-	-	TCF400RN	-
R9	302A-4	302	500	600	-	-	-	-	-	-
R9	361A-4	361	500	600	-	-	-	-	-	-
R9	414A-4	414	600	600	-	-	-	-	-	-

*Not available in ACH580

Frame Size	480V ACH580-01 ACQ580-01	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses			
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type Frenc hStyle
		A	A	V				
R9	302A-4	302	550	690	170M6409	170M6009	170M6609	170M6309
R9	361A-4	361	630	690	170M6410	170M6010	170M6610	170M6310
R9	414A-4	414	700	690	170M6411	170M6011	170M6611	170M6311

ACH, ACQ, ACS580-01, 480V fuses for IEC Rated Drives

Frame Size	480V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	02A7-4	2.1	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	03A4-4	3.0	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	04A1-4	3.4	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	05A7-4	4.8	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	07A3-4	6.0	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	09A5-4	7.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	12A7-4	11	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R2	018A-4	14	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30
R2	026A-4	21	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R3	033A-4	27	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60
R3	039A-4	34	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60
R3	046A-4	40	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60
R4	062A-4	52	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R4	073A-4	65	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100
R4	089A-4	77	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4T110	JFL110
R5	106A-4	96	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R6	145A-4	124	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R7	169A-4	156	225	600	JJS-225	JLLS225	A6T225	TJS225	JKS-225	JLS225	A4J225	JFL225
R7	206A-4	180	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300
R8	246A-4	240	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400
R8*	293A-4	260	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400
R9**	363A-4	361	500	600	JJS-500	JLLS500	A6T500	TJS500	JKS-500	JLS500	A4J500	JFL500
R9**	430A-4	414	600	600	JJS-600	JLLS600	A6T600	TJS600	JKS-600	JLS600	A4J600	JFL600
R9	490A-4	450	600	600	JJS-600	JLLS600	A6T600	TJS600	JKS-600	JLS600	A4J600	JFL600

** Follow Rule 7 above

Frame Size	480V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	02A7-4	2.1	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	03A4-4	3.0	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	04A1-4	3.4	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	05A7-4	4.8	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	07A3-4	6.0	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	09A5-4	7.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	12A7-4	11	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R2	018A-4	14	30	600	LPJ-30SP	JTD30	AJT30	JDL30	DFJ-30	LDFJ030	HSJ30	JHL30
R2	026A-4	21	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R3	033A-4	27	60	600	LPJ-60SP	JTD60	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R3	039A-4	34	60	600	LPJ-60SP	JTD60	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R3	046A-4	40	60	600	LPJ-60SP	JTD60	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R4	062A-4	52	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R4	073A-4	65	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R4	089A-4	77	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R5	106A-4	96	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R6	145A-4	124	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R7	169A-4	156	225	600	LPJ-225SP	JTD225	AJT225	JDL225	DFJ-225	LDFJ225	HSJ225	JHL225
R7	206A-4	180	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300
R8	246A-4	240	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R8*	293A-4	260	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R9**	363A-4	361	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R9**	430A-4	414	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R9	490A-4	450	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600

*Not available in ACH580

** Follow Rule 7 above

Frame Size	480V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R1	02A7-4	2.1	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	03A4-4	3.0	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	04A1-4	3.4	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	05A7-4	4.8	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	07A3-4	6.0	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	09A5-4	7.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	12A7-4	11	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R2	018A-4	14	30	600	KTK-R-30	KLKR30	ATMR30	HCLR30	TCF30RN	FCF30RN
R2	026A-4	21	40	600	-	-	-	-	TCF40RN	FCF40RN
R3	033A-4	27	60	600	-	-	-	-	TCF60RN	FCF60RN
R3	039A-4	34	60	600	-	-	-	-	TCF60RN	FCF60RN
R3	046A-4	40	60	600	-	-	-	-	TCF60RN	FCF60RN
R4	062A-4	52	80	600	-	-	-	-	TCF80RN	FCF80RN
R4	073A-4	65	100	600	-	-	-	-	TCF100RN	FCF100RN
R4	089A-4	77	110	600	-	-	-	-	TCF110RN	-
R5	106A-4	96	150	600	-	-	-	-	TCF150RN	-
R6	145A-4	124	200	600	-	-	-	-	TCF200RN	-
R7	169A-4	156	225	600	-	-	-	-	TCF225RN	-
R7	206A-4	180	300	600	-	-	-	-	TCF300RN	-
R8	246A-4	240	400	600	-	-	-	-	TCF400RN	-
R8*	293A-4	260	400	600	-	-	-	-	TCF400RN	-
R9	363A-4	361	500	600	-	-	-	-	-	-
R9	430A-4	414	600	600	-	-	-	-	-	-
R9	490A-4	450	600	600	-	-	-	-	-	-

*Not available in ACH580

ACH, ACQ, ACS580-01, 575V fuses

Frame Size	575V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R2	02A7-6	2.7	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R2	03A9-6	3.9	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R2	06A1-6	6.1	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R2	09A0-6	9	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R2	011A-6	11	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R2	017A-6	17	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30
R3	022A-6	22	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R3	027A-6	27	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R3	032A-6	32	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R5	041A-6	41	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100
R5	052A-6	52	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100
R5	062A-6	62	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100
R5	077A-6	77	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100
R7	099A-6	99	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R7	125A-6	125	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R8	144A-6	144	250	600	JJS-250	JLLS250	A6T250	TJS250	JKS-250	JLS250	A4J250	JFL250
R9	192A-6	192	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300
R9	242A-6	242	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400
R9	271A-6	271	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400

Frame Size	575V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R2	02A7-6	2.7	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R2	03A9-6	3.9	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R2	06A1-6	6.1	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R2	09A0-6	9	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R2	011A-6	11	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R2	017A-6	17	30	600	LPJ-30SP	JTD30	AJT30	JDL30	DFJ-30	LDFJ030	HSJ30	JHL30
R3	022A-6	22	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R3	027A-6	27	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R3	032A-6	32	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R5	041A-6	41	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R5	052A-6	52	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R5	062A-6	62	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R5	077A-6	77	100	600	LPJ-100SP	JTD100	AJT100	JDL100	DFJ-100	LDFJ100	HSJ100	JHL100
R7	099A-6	99	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R7	125A-6	125	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R8	144A-6	144	250	600	LPJ-250SP	JTD250	AJT250	JDL250	DFJ-250	LDFJ250	HSJ250	JHL250
R9	192A-6	192	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300
R9	242A-6	242	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R9	271A-6	271	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400

Frame Size	575V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R2	02A7-6	2.7	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R2	03A9-6	3.9	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R2	06A1-6	6.1	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R2	09A0-6	9	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R2	011A-6	11	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R2	017A-6	17	30	600	KTK-R-30	KLKR30	ATMR30	HCLR30	TCF30RN	FCF30RN
R3	022A-6	22	40	600	-	-	-	-	TCF40RN	FCF40RN
R3	027A-6	27	40	600	-	-	-	-	TCF40RN	FCF40RN
R3	032A-6	32	40	600	-	-	-	-	TCF40RN	FCF40RN
R5	041A-6	41	100	600	-	-	-	-	TCF100RN	FCF100RN
R5	052A-6	52	100	600	-	-	-	-	TCF100RN	FCF100RN
R5	062A-6	62	100	600	-	-	-	-	TCF100RN	FCF100RN
R5	077A-6	77	100	600	-	-	-	-	TCF100RN	FCF100RN
R7	099A-6	99	150	600	-	-	-	-	TCF150RN	-
R7	125A-6	125	200	600	-	-	-	-	TCF200RN	-
R8	144A-6	144	250	600	-	-	-	-	TCF250RN	-
R9	192A-6	192	300	600	-	-	-	-	TCF300RN	-
R9	242A-6	242	400	600	-	-	-	-	TCF400RN	-
R9	271A-6	271	400	600	-	-	-	-	TCF400RN	-

Frame Size	575V ACH580-01 ACQ580-01 ACS580-01	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses			
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type Frenc hStyle
		A	A	V				
R9	192A-6	192	500	690	170M6408	170M6008	170M6608	170M6308
R9	242A-6	242	500	690	170M6408	170M6008	170M6608	170M6308
R9	271A-6	271	500	690	170M6408	170M6008	170M6608	170M6308

ACH, ACQ580-04, 480V fuses

Frame Size	480V ACH580-04 ACQ580-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R10	505A-4	505	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R10	585A-4	585	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R10	650A-4	650	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R11	725A-4	725	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000
R11	820A-4	820	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000
R11	880A-4	880	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000

Frame Size	480V ACH580-04 ACQ580-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-10 Time Delay Class L Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R10	505A-4	505	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R10	585A-4	585	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R10	650A-4	650	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R11	725A-4	725	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-
R11	820A-4	820	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-
R11	880A-4	880	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-

Frame Size	480V ACH580-04 ACQ580-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R10	505A-4	505	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R10	585A-4	585	800	600	-	-	-	-	-	-	-	-
R10	650A-4	650	800	600	-	-	-	-	-	-	-	-
R11	725A-4	725	1000	600	-	-	-	-	-	-	-	-
R11	820A-4	820	1000	600	-	-	-	-	-	-	-	-
R11	880A-4	880	1000	600	-	-	-	-	-	-	-	-

Frame Size	480V ACH580-04 ACQ580-04	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
R10	505A-4	505	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
R10	585A-4	585	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
R10	650A-4	650	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
R11	725A-4	725	900	690	170M6413	170M6013	170M6613	170M6313	170M6813D
R11	820A-4	820	1000	690	170M6414	170M6014	170M6614	170M6314	170M6814D
R11	880A-4	880	1400	690	170M6417	170M6017	170M6617	170M6317	170M8555D

ACH, ACQ580-31, 230V fuses

Frame Size	230V ACH580-31 ACQ580-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R3	017A-2	14	35	600	JJS-35	JLLS035	A6T35	TJS35	JKS-35	JLS35	A4J35	JFL35
R3	024A-2	20	35	600	JJS-35	JLLS035	A6T35	TJS35	JKS-35	JLS35	A4J35	JFL35
R6	031A-2	28	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R6	046A-2	40	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R6	059A-2	53	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R6	075A-2	66	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R6	088A-2	76	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R8	114A-2	98	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R8	143A-2	128	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R8	169A-2	152	225	600	JJS-225	JLLS225	A6T225	TJS225	JKS-225	JLS225	A4J225	JFL225
R8	211A-2	188	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300

Frame Size	230V ACH580-31 ACQ580-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R3	017A-2	14	35	600	LPJ-35SP	JTD35	AJT35	JDL35	DFJ-35	LDFJ035	HSJ35	JHL35
R3	024A-2	20	35	600	LPJ-35SP	JTD35	AJT35	JDL35	DFJ-35	LDFJ035	HSJ35	JHL35
R6	031A-2	28	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R6	046A-2	40	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R6	059A-2	53	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R6	075A-2	66	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R6	088A-2	76	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R8	114A-2	98	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R8	143A-2	128	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R8	169A-2	152	225	600	LPJ-225SP	JTD225	AJT225	JDL225	DFJ-225	LDFJ225	HSJ225	JHL225
R8	211A-2	188	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300

Frame Size	230V ACH580-31 ACQ580-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Bussmann
		A	A	V		
R3	017A-2	14	35	600	TCF35RN	FCF35RN
R3	024A-2	20	35	600	TCF35RN	FCF35RN
R6	031A-2	28	110	600	TCF110RN	-
R6	046A-2	40	110	600	TCF110RN	-
R6	059A-2	53	110	600	TCF110RN	-
R6	075A-2	66	110	600	TCF110RN	-
R6	088A-2	76	110	600	TCF110RN	-
R8	114A-2	98	150	600	TCF150RN	-
R8	143A-2	128	200	600	TCF200RN	-
R8	169A-2	152	225	600	TCF225RN	-
R8	211A-2	188	300	600	TCF300RN	-

Note: 300V Class T fuses may be used in lieu of 600V Class T fuses.

ACH, ACQ580-31, 480V fuses

Frame Size	480V ACH580-31 ACQ580-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R3	07A6-4	7	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R3	012A-4	9	20	600	JJS-20	JLLS020	A6T20	TJS20	JKS-20	JLS20	A4J20	JFL20
R3	014A-4	12	25	600	JJS-25	JLLS025	A6T25	TJS25	JKS-25	JLS25	A4J25	JFL25
R3	023A-4	17	35	600	JJS-35	JLLS035	A6T35	TJS35	JKS-35	JLS35	A4J35	JFL35
R6	027A-4	24	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R6	034A-4	29	50	600	JJS-50	JLLS050	A6T50	TJS50	JKS-50	JLS50	A4J50	JFL50
R6	044A-4	34	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60
R6	052A-4	44	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R6	065A-4	54	90	600	JJS-90	JLLS090	A6T90	TJS90	JKS-90	JLS90	A4J90	JFL90
R6	077A-4	66	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R8	096A-4	82	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R8	124A-4	111	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R8	156A-4	134	225	600	JJS-225	JLLS225	A6T225	TJS225	JKS-225	JLS225	A4J225	JFL225
R8	180A-4	163	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300

Frame Size	480V ACH580-31 ACQ580-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R3	07A6-4	7	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R3	012A-4	9	20	600	LPJ-20SP	JTD20	AJT20	JDL20	DFJ-20	LDFJ020	HSJ20	JHL20
R3	014A-4	12	25	600	LPJ-25SP	JTD25	AJT25	JDL25	DFJ-25	LDFJ025	HSJ25	JHL25
R3	023A-4	17	35	600	LPJ-35SP	JTD35	AJT35	JDL35	DFJ-35	LDFJ035	HSJ35	JHL35
R6	027A-4	24	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R6	034A-4	29	50	600	LPJ-50SP	JTD50	AJT50	JDL50	DFJ-50	LDFJ050	HSJ50	JHL50
R6	044A-4	34	60	600	LPJ-60SP	JTD60	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R6	052A-4	44	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R6	065A-4	54	90	600	LPJ-90SP	JTD90	AJT90	JDL90	DFJ-90	LDFJ090	HSJ90	JHL90
R6	077A-4	66	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R8	096A-4	82	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R8	124A-4	111	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R8	156A-4	134	225	600	LPJ-225SP	JTD225	AJT225	JDL225	DFJ-225	LDFJ225	HSJ225	JHL225
R8	180A-4	163	300	600	LPJ-300SP	JTD400	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300

Frame Size	480V ACH580-31 ACQ580-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R3	07A6-4	7	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R3	012A-4	9	20	600	KTK-R-20	KLKR20	ATMR20	HCLR20	TCF20RN	FCF20RN
R3	014A-4	12	25	600	KTK-R-25	KLKR25	ATMR25	HCLR25	TCF25RN	FCF25RN
R3	023A-4	17	35	600	-	-	-	-	TCF35RN	FCF35RN
R6	027A-4	24	40	600	-	-	-	-	TCF40RN	FCF40RN
R6	034A-4	29	50	600	-	-	-	-	TCF50RN	FCF50RN
R6	044A-4	34	60	600	-	-	-	-	TCF60RN	FCF60RN
R6	052A-4	44	80	600	-	-	-	-	TCF80RN	FCF80RN
R6	065A-4	54	90	600	-	-	-	-	TCF90RN	FCF90RN
R6	077A-4	66	110	600	-	-	-	-	TCF110RN	-
R8	096A-4	82	150	600	-	-	-	-	TCF150RN	-
R8	124A-4	111	200	600	-	-	-	-	TCF200RN	-
R8	156A-4	134	225	600	-	-	-	-	TCF225RN	-
R8	180A-4	163	300	600	-	-	-	-	TCF300RN	-

ACH, ACQ580-34, 480V fuses

Frame Size	480V ACH580-34 ACQ580-34	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses			
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style
		A	A	V				
R11	240A-4	209	315	690	170M4410	170M4010	170M4610	170M4310
R11	302A-4	258	500	690	170M5410	170M5010	170M5610	170M5310
R11	361A-4	307	630	690	170M6410	170M6010	170M6610	170M6310
R11	414A-4	363	700	690	170M6411	170M6011	170M6611	170M6311
R11	477A-4	418	700	690	170M6411	170M6011	170M6611	170M6311

Frame Size	480V ACH580-34 ACQ580-34	Input Current	UL Fuse Size (A) and Voltage (V)		Semiconductor Fuses UL 248-13 Recognized Fuses	
			Maximum Current	Voltage Rating	Littelfuse	Mersen/ Ferraz Shawmut
		A	A	V		
R11	240A-4	209	315	690	PSR031FL0315	PC33UD69V450TF
R11	302A-4	258	500	690	PSR032FL0500	PC33UD69V500TF
R11	361A-4	307	630	690	PSR032FL0630	PC33UD69V630TF
R11	414A-4	363	700	690	PSR032FL0700	PC33UD69V700TF
R11	477A-4	418	700	690	PSR032FL0700	PC33UD69V700TF

Miniature Circuit Breaker Protection information (Not applicable to UL Type 4X drives)

The AC(H,Q,S)580-01 drives are suitable for use on a circuit capable of delivering not more than 10 kA symmetrical amperes (RMS) at 240V maximum, and at 480V maximum on a grounded Wye system, when protected by an ABB Miniature Circuit Breaker selected from the tables below. Additional fuse protection is not required by UL when using the Miniature Circuit Breakers herein. Miniature Circuit Breakers are not required to be in the same enclosure as the drive.

Find two sets of circuit breaker protection tables. The first set is for UL marked drives with ratings for the standard U.S. motors and is titled "…for NEC Rated Drives". The second set of tables are for UL marked drives with ratings for IEC motors and are titled "…for IEC Rated Drives". If the table headings do not indicate NEC or IEC rated drives, they are for NEC rated drives.

For additional information on ABB Miniature Circuit Breakers refer to the ABB.library.com document number

- 2CDC002177D0204 SU 200 M Technical Data Sheet

Follow the rules below:

1. ABB Miniature Circuit Breakers can only be used on a 480Y/277 V solidly grounded system if on a 480V network. [Short-circuit protective devices with slash voltage ratings (e.g. 480Y/277 V) can be applied only on solidly grounded networks where the voltage from line-to-ground does not exceed the lower of the two ratings (e.g. 277V), and the voltage from line-to-line does not exceed the higher of the two ratings (e.g. 480V). The lower rating represents the device's interrupting capability per pole.] These same devices can be used on either Wye or Delta systems, ungrounded or grounded on a 240V maximum system.
2. Miniature circuit breakers can only be used with Type Open, Type 1 and Type 12 drives. (4X is not allowed.)
3. For all drives, the enclosure must be sized to accommodate the specific thermal considerations of the application as well as provide free space for cooling. See the ABB ACS580 HW Manual for free space requirements.

ACS580-01, 200...240 V 1-phase miniature circuit breakers for NEC rated drives

Frame Size	200...240 V ACS580-01 ACQ580-01	Input Amps	Circuit Breaker Maximum Current (A)	Circuit Breaker Voltage (V)	Miniature Circuit Breakers
R1	04A6-2	3.3	10	480Y/277	SU202M-C10
R1	06A6-2	4.6	10	480Y/277	SU202M-C10
R1	07A5-2	6.3	10	480Y/277	SU202M-C10
R1	10A6-2	8.9	10	480Y/277	SU202M-C10
R1	017A-2	11.8	20	480Y/277	SU202M-C20
R2	024A-2	17.3	35	480Y/277	SU202M-C35
R2	031A-2	30.4	35	480Y/277	SU202M-C35
R3	046A-2	41.8	60	480Y/277	SU202M-C60
R3	059A-2	55.4	60	480Y/277	SU202M-C60

ACS580-01, 200...240 V 1-phase miniature circuit breakers for IEC rated drives

Frame Size	200...240 V ACS580-01 ACQ580-01	Input Amps	Circuit Breaker Maximum Current (A)	Circuit Breaker Voltage (V)	Miniature Circuit Breakers
R1	04A7-2	3.3	10	480Y/277	SU202M-C10
R1	06A7-2	4.6	10	480Y/277	SU202M-C10
R1	07A6-2	6.3	10	480Y/277	SU202M-C10
R1	12A0-2	8.9	10	480Y/277	SU202M-C10
R1	018A-2	11.8	20	480Y/277	SU202M-C20
R2	025A-2	17.3	35	480Y/277	SU202M-C35
R2	032A-2	30.4	35	480Y/277	SU202M-C35
R3	047A-2	42	60	480Y/277	SU202M-C60
R3	060A-2	55	60	480Y/277	SU202M-C60

ACS580-01, 200...240 V miniature circuit breakers for NEC rated drives

Frame Size	200...240 V ACS580-01 ACQ580-01	Input Amps	Circuit Breaker Maximum Current (A)	Circuit Breaker Voltage (V)	Miniature Circuit Breakers
R1	04A6-2	4.6	10	480Y/277	SU203M-C10
R1	06A6-2	6.6	10	480Y/277	SU203M-C10
R1	07A5-2	7.5	10	480Y/277	SU203M-C10
R1	10A6-2	10.6	20	480Y/277	SU203M-C20
R1	017A-2	16.7	20	480Y/277	SU203M-C20
R2	024A-2	24	35	480Y/277	SU203M-C35
R2	031A-2	30.8	35	480Y/277	SU203M-C35
R3	046A-2	46.2	63	480Y/277	SU203M-C63
R3	059A-2	59.4	63	480Y/277	SU203M-C63

ACS580-01, 200...240 V miniature circuit breakers for IEC rated drives

Frame Size	200...240 V ACS580-01 ACQ580-01	Input Amps	Circuit Breaker Maximum Current (A)	Circuit Breaker Voltage (V)	Miniature Circuit Breakers
R1	04A7-2	4.7	10	480Y/277	SU203M-C10
R1	06A7-2	6.7	10	480Y/277	SU203M-C10
R1	07A6-2	7.6	10	480Y/277	SU203M-C10
R1	12A0-2	12.0	20	480Y/277	SU203M-C20
R1	018A-2	16.9	20	480Y/277	SU203M-C20
R2	025A-2	24.5	35	480Y/277	SU203M-C35
R2	032A-2	31.2	35	480Y/277	SU203M-C35
R3	047A-2	46.7	63	480Y/277	SU203M-C63
R3	060A-2	60	63	480Y/277	SU203M-C63

ACS580-01, 380...480V miniature circuit breakers for NEC rated drives

Frame Size	480V ACS580-01 ACQ580-01[4]	Input Amps	Circuit Breaker Maximum Current (A)	Circuit Breaker Voltage (V)	Miniature Circuit Breakers
R1	02A1-4	2.1	10	480Y/277	SU203M-C10
R1	03A0-4	3.0	10	480Y/277	SU203M-C10
R1	03A5-4	3.5	10	480Y/277	SU203M-C10
R1	04A8-4	4.8	10	480Y/277	SU203M-C10
R1	06A0-4	6.0	10	480Y/277	SU203M-C10
R1	07A6-4	7.6	10	480Y/277	SU203M-C10
R1	012A-4	12	16	480Y/277	SU203M-C16
R2	014A-4	14	40	480Y/277	SU203M-C40
R2	023A-4	23	40	480Y/277	SU203M-C40
R3	027A-4	27	63	480Y/277	SU203M-C63
R3	034A-4	34	63	480Y/277	SU203M-C63
R3	044A-4	44	63	480Y/277	SU203M-C63

ACS580-01, 380...480V miniature circuit breakers for IEC rated drives

Frame Size	480V ACS580-01 & ACQ580-01[4]	Input Amps	Circuit Breaker Maximum Current (A)	Circuit Breaker Voltage (V)	Miniature Circuit Breakers
R1	02A7-4	2.1	10	480Y/277	SU203M-C10
R1	03A4-4	3.0	10	480Y/277	SU203M-C10
R1	04A1-4	3.4	10	480Y/277	SU203M-C10
R1	05A7-4	4.8	10	480Y/277	SU203M-C10
R1	07A3-4	6.0	10	480Y/277	SU203M-C10
R1	09A5-4	7.6	10	480Y/277	SU203M-C10
R1	12A7-4	11	16	480Y/277	SU203M-C16
R2	018A-4	14	40	480Y/277	SU203M-C40
R2	026A-4	21	40	480Y/277	SU203M-C40
R3	033A-4	27	63	480Y/277	SU203M-C63
R3	039A-4	34	63	480Y/277	SU203M-C63
R3	046A-4	40	63	480Y/277	SU203M-C63

Tmax XT Circuit Breaker Information

AC(H,Q,S)580-01 and AC(H,Q)580-31 drives are suitable for use on a circuit capable of delivering not more than 65 kA symmetrical amperes (RMS) at 240V, 480V, or 600V maximum, when protected by appropriate circuit breakers in the tables below. Additional fuse protection is not required by UL when using circuit breakers herein. Circuit breakers arenot required to be in the same enclosure as the drive.

Find two sets of circuit breaker protection tables. The first set is for UL marked drives with ratings for the standard US motors and is titled "…for NEC Rated Drives". The second set of tables are for UL marked drives with ratings for IEC motors and are titled "…for IEC Rated Drives". If the table headings do not indicate NEC or IEC rated drives, they are for NEC rated drives.

For additional information on Tmax XT Circuit Breakers refer to the ABB.library.com document number:

- 1SXU210248C0201 Low Voltage Molded Case Circuit Breakers UL489 and CS22.2 Standards

Follow the rules in the table below:

Drives	Follow These Rules
230V AC(H,Q,S)580-01	1-12
480V AC(H,Q,S)580-01	1-9 and 13-18
600V AC(H,Q,S)580-01	1-9, 13-14, and 19
230V AC(H,Q)580-31	1-11
480V AC(H,Q)580-31	1-9 and 13-14

Follow rules 1-9 for all voltages and types.

1. All drives in the tables below must be mounted inside an enclosure. Drives that have an Enclosure Minimum Volume listed must be mounted in an enclosure ≥ Enclosure Minimum Volume specified in the tables below.
2. When multiple drives that have an Enclosure Minimum Volume specified are installed in the same enclosure, minimum volume of the enclosure is determined by largest Enclosure Minimum Volume of thedrives to be placed in the enclosure, plus the volume(s) of each additional drive. For example, if combining the 480V R6 and R3 drive, select an enclosure with the volume ≥ 16200+1011 = 17211 in^3.
3. For UL Type Open, Type 1 or UL Type 12 drives that have a Minimum Enclosure Volume indicated with ‡, no minimum enclosure volume is required but the drive must be mounted inside an enclosure.
4. If combining a drive with an Enclosure Minimum Volume specified and others with an Enclosure Minimum Volume indicated with ‡, start with the largest specified Enclosure Minimum Volume listed and add the drive volumes for the other drives.
5. When mounting drives with no Enclosure Minimum Volume specified, there are no restrictions on the enclosure size, but follow air clearances specified in the drive HW manuals for sufficient ventilation around each drive.
6. Open Type, Type 1 and Type 12 drives can be used inside of the enclosure. Use drive volume listed for all three drive environmental ratings in the table when installing multiple drives in the enclosure.
7. The ABB circuit breaker part number listed in the table is a base part number.
   - Symbol α represents 80% or 100% allowable continuous current. Options allowed are U, Q, C and D.
   - Symbol β represents the number of poles for the breaker. Options allowed are 3, and 4.
   - Symbol # represents trip units. Trip units allowed include A thru C, E thru L, P thru Z. If using Ekip breakers, set the overload current of the circuit breaker equal to or less than the value shown in the "CB Maximum Current" column in the tables below.
   - The digits indicated with an "*" represent accessories for the breakers and have no impact on the drive UL listing or performance or rating of the breaker.
   - For the ABB XT circuit breaker configurator refer to: https://lowvoltage-configurator.tnb.com/configurator/#/config/tmax_xt
8. Ratings in the tables are maximum for the given circuit breaker frame size. Breakers of the same framesize and interrupting rating with lower current ratings are also allowed.
9. Using a circuit breaker with a lower KAIC rating is not allowed even if the available SC current is less than 65 kA.

AC(H,Q,S)580-01 230V drives were tested with ABB inverse time circuit breakers rated at 65 kA and 240V. When usingcircuit breakers to protect these drives follow these initial rules:

10. Other manufacturers' inverse time circuit breakers can be used if they are UL 489 listed, they are 240V or higher, they have a 65 kA or higher interrupting rating and they have the same or lower nominal current rating than the ABB specified circuit breaker.
11. Current limiting inverse time circuit breakers must not be used.
12. Enclosures for frames R1 and R2 must have a solid bottom directly below the drive. Fans, filters, or louvers cannot be mounted directly below the drive but can be mounted in adjacent areas on the bottomof the enclosure.

AC(H,Q,S)580-01 and AC(H,Q)580-31 480V drives and AC(H,Q,S)580-01 600V drives were tested with ABB current limiting inverse time circuit breakers rated at 65 kA and 480V or 600V. When using circuit breakers to protect these drives follow theseinitial rules:

13. When designing UL508A panels, Article SB 4.2.3 Exception No. 3 allows the use of other manufacturers' current limiting inverse time circuit breakers which have same voltage, current and interrupting rating, if Ipeak and I^2t are the same or less than the ABB specified circuit breaker.
14. Non-current limiting inverse time circuit breakers must not be used.

AC(H,Q,S)580-01 480V drives must also follow these rules:

15. Enclosures for frames R1, R3, and R9 must have a solid bottom directly below the drive. Fans, filters, or louvers cannot be mounted directly below the drive but can be mounted in adjacent areas on the bottom of the enclosure.
16. Enclosures for frame R6 must have a solid top directly above the drive. Fans, filters, or louvers cannot be mounted directly above the drive. A solid top is not required if the enclosure volume is a minimum of 53703 in^3.
17. Only 480V R8 frame drives with serial numbers after 1204301926 when built in Finland and after 2205002140 when built in the U.S. may be protected with circuit breakers listed in the tables below.
18. Only 480V R9 frame drives with serial numbers beginning 1204109256 when built in Finland and beginning 22106xxxxx when built in the U.S. may be protected with circuit breakers listed in the tables below.

AC(H,Q,S)580-01 600V drives must also follow these rules:

19. Enclosures for frames R2, R3, R5 and R9 must have a solid bottom directly below the drive. Fans, filters, or louvers cannot be mounted directly below the drive but can be mounted in adjacent areas on the bottom of the enclosure.

Alternative circuit breakers can be found at the end of this document.

ACH, ACQ, ACS580-01, 230V circuit breakers NEC rated drives.

Frame Size	230V ACH580-01 ACQ580-01 ACS580-01	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 240 V
R1	04A6-2	4.6	25	240	‡	561	XT2Nαβ025#********
R1	06A6-2	6.6	25	240	‡	561	XT2Nαβ025#********
R1	07A5-2	7.5	25	240	‡	561	XT2Nαβ025#********
R1	10A6-2	10.6	25	240	‡	561	XT2Nαβ025#********
R1	017A-2	16.7	25	240	‡	561	XT2Nαβ025#********
R2	024A-2	24.2	40	240	‡	737	XT2Nαβ040#********
R2	031A-2	30.8	40	240	‡	737	XT2Nαβ040#********
R3	046A-2	46.2	100	240	‡	1390	XT2Nαβ100#********
R3	059A-2	59.4	100	240	‡	1390	XT2Nαβ100#********
R4	075A-2	74.8	100	240	‡	2027	XT2Nαβ100#********
R5	088A-2	88.0	150	240	‡	2181	XT4Nαβ150#********
R5	114A-2	114	150	240	‡	2181	XT4Nαβ150#********
R6	143A-2	143	200	240	‡	2880	XT4Nαβ200#********
R7	169A-2	169	300	240	‡	3369	XT5Nαβ30A#********
R7	211A-2	211	300	240	‡	3369	XT5Nαβ30A#********
R8	273A-2	273	400	240	‡	3858	XT5Nαβ40A#********
R9	343A-2	343	600	240	‡	5226	XT5Nαβ60B#********
R9	396A-2	396	600	240	‡	5226	XT5Nαβ60B#********

‡ Enclosure Minimum Volume is not applicable
Follow Rules 1-12 above

ACH, ACQ, ACS580-01, 230V circuit breakers IEC rated drives

Frame Size	230V ACH580-01 ACQ580-01 ACS580-01	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 240 V
R1	04A7-2	4.7	25	240	‡	561	XT2Nαβ025#********
R1	06A7-2	6.7	25	240	‡	561	XT2Nαβ025#********
R1	07A6-2	7.6	25	240	‡	561	XT2Nαβ025#********
R1	12A0-2	12.0	25	240	‡	561	XT2Nαβ025#********
R1	018A-2	16.9	25	240	‡	561	XT2Nαβ025#********
R2	025A-2	24.5	40	240	‡	737	XT2Nαβ040#********
R2	032A-2	31.2	40	240	‡	737	XT2Nαβ040#********
R3	047A-2	46.7	100	240	‡	1390	XT2Nαβ100#********
R3	060A-2	60	100	240	‡	1390	XT2Nαβ100#********
R4	076A-2	76	100	240	‡	2027	XT2Nαβ100#********
R5	089A-2	89	150	240	‡	2181	XT4Nαβ150#********
R5	115A-2	115	150	240	‡	2181	XT4Nαβ150#********
R6	144A-2	144	200	240	‡	2880	XT4Nαβ200#********
R7	171A-2	171	300	240	‡	3369	XT5Nαβ30A#********
R7	213A-2	213	300	240	‡	3369	XT5Nαβ30A#********
R8	276A-2	276	400	240	‡	3858	XT5Nαβ40A#********

‡ Enclosure Minimum Volume is not applicable
Follow Rules 1-12 above

ACH, ACQ, ACS580-01, 480V circuit breakers NEC rated drives

Frame Size	480V ACH580-01 ACQ580-01 ACS580-01	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 480V	Maximum I^2t (A^2s)	Maximum peak (kA)
R1	02A1-4	2.1	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	03A0-4	3.0	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	03A5-4	3.5	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	04A8-4	4.8	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	07A6-4	7.6	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	012A-4	12.0	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R2	014A-4	14.0	35	480	16200	684	XT2Hαβ035#********	$0.512x10^6$	23.2
R2	023A-4	23.0	35	480	16200	684	XT2Hαβ035#********	$0.512x10^6$	23.2
R3	027A-4	27.0	70	480	27720	1011	XT2Hαβ070#********	$0.512x10^6$	23.2
R3	034A-4	34.0	70	480	27720	1011	XT2Hαβ070#********	$0.512x10^6$	23.2
R3	044A-4	44.0	70	480	27720	1011	XT2Hαβ070#********	$0.512x10^6$	23.2
R4	052A-4	52	125	480	30240	1669	XT2Hαβ125#********	$0.512x10^6$	23.2
R4	065A-4	65	125	480	30240	1669	XT2Hαβ125#********	$0.512x10^6$	23.2
R4	077A-4	77	125	480	30240	1669	XT2Hαβ125#********	$0.512x10^6$	23.2
R5*	078A-4	77	150	480	30240	2030	XT4Hαβ150#********	$0.98x10^6$	30
R5	096A-4	96	150	480	30240	2030	XT4Hαβ150#********	$0.98x10^6$	30
R6	124A-4	124	225	480	16200	2880	XT4Hαβ225#********	$0.98x10^6$	30
R7	156A-4	156	250	480	18900	3369	XT4Hαβ250#********	$0.98x10^6$	30
R7	180A-4	180	250	480	18900	3369	XT4Hαβ250#********	$0.98x10^6$	30
R8	240A-4	240	400	480	32400	3858	XT5Hαβ40A#********	$4.2x10^6$	47.9
R8	260A-4	240	400	480	32400	3858	XT5Hαβ40A#********	$4.2x10^6$	47.9
R9	302A-4	302	600	480	32400	5226	XT5Hαβ60B#********	$4.2x10^6$	47.9
R9	361A-4	361	600	480	32400	5226	XT5Hαβ60B#********	$4.2x10^6$	47.9
R9	414A-4	414	600	480	32400	5226	XT5Hαβ60B#********	$4.2x10^6$	47.9

*Not available in ACH580
Follow Rules 1-9 and 13-18 above

ACH, ACQ, ACS580-01, 480V circuit breakers IEC rated drives

Frame Size	480V ACH580-01 ACQ580-01 ACS580-01	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 480V	Maximum I^2t (A^2s)	Maximum peak (kA)
R1	02A7-4	2.1	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	03A4-4	3.0	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	04A1-4	3.4	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	05A7-4	4.8	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	07A3-4	6.0	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	09A5-4	7.6	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R1	12A7-4	11	20	480	6480	506	XT2Hαβ020#********	$0.512x10^6$	23.2
R2	018A-4	14	35	480	16200	684	XT2Hαβ035#********	$0.512x10^6$	23.2
R2	026A-4	21	35	480	16200	684	XT2Hαβ035#********	$0.512x10^6$	23.2
R3	033A-4	27	70	480	27720	1011	XT2Hαβ070#********	$0.512x10^6$	23.2
R3	039A-4	34	70	480	27720	1011	XT2Hαβ070#********	$0.512x10^6$	23.2
R3	046A-4	40	70	480	27720	1011	XT2Hαβ070#********	$0.512x10^6$	23.2
R4	062A-4	52	125	480	30240	1669	XT2Hαβ125#********	$0.512x10^6$	23.2
R4	073A-4	65	125	480	30240	1669	XT2Hαβ125#********	$0.512x10^6$	23.2
R4	089A-4	77	125	480	30240	1669	XT2Hαβ125#********	$0.512x10^6$	23.2
R5	106A-4	96	150	480	30240	2030	XT4Hαβ150#********	$0.98x10^6$	30
R6	145A-4	124	225	480	16200	2880	XT4Hαβ225#********	$0.98x10^6$	30
R7	169A-4	156	250	480	18900	3369	XT4Hαβ250#********	$0.98x10^6$	30
R7	206A-4	180	250	480	18900	3369	XT4Hαβ250#********	$0.98x10^6$	30
R8	246A-4	240	400	480	32400	3858	XT5Hαβ40A#********	$4.2x10^6$	47.9
R8	293A-4	260	400	480	32400	3858	XT5Hαβ40A#********	$4.2x10^6$	47.9
R9	363A-4	361	600	480	32400	5226	XT5Hαβ60B#********	$4.2x10^6$	47.9
R9	430A-4	414	600	480	32400	5226	XT5Hαβ60B#********	$4.2x10^6$	47.9

*Not available in ACH580
Follow Rules 1-9 and 13-18 above

ACH, ACQ, ACS580-01, 600V circuit breakers

Frame Size	575V ACH580-01 ACQ580-01 ACS580-01	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 600V	Maximum I^2t (A^2s)	Maximum I peak (kA)
R2	02A7-6	2.7	25	600	16200	684	XT4Vαβ025#********	$1.2x10^6$	31.5
R2	03A9-6	3.9	25	600	16200	684	XT4Vαβ025#********	$1.2x10^6$	31.5
R2	06A1-6	6.1	25	600	16200	684	XT4Vαβ025#********	$1.2x10^6$	31.5
R2	09A0-6	9	25	600	16200	684	XT4Vαβ025#********	$1.2x10^6$	31.5
R2	011A-6	11	25	600	16200	684	XT4Vαβ025#********	$1.2x10^6$	31.5
R2	017A-6	17	25	600	16200	684	XT4Vαβ025#********	$1.2x10^6$	31.5
R3	022A-6	22	50	600	16200	1011	XT4Vαβ050#********	$1.2x10^6$	31.5
R3	027A-6	27	50	600	16200	1011	XT4Vαβ050#********	$1.2x10^6$	31.5
R3	032A-6	32	50	600	16200	1011	XT4Vαβ050#********	$1.2x10^6$	31.5
R5	041A-6	41	125	600	16200	2030	XT4Vαβ125#********	$1.2x10^6$	31.5
R5	052A-6	52	125	600	16200	2030	XT4Vαβ125#********	$1.2x10^6$	31.5
R5	062A-6	62	125	600	16200	2030	XT4Vαβ125#********	$1.2x10^6$	31.5
R5	077A-6	77	125	600	16200	2030	XT4Vαβ125#********	$1.2x10^6$	31.5
R7	099A-6	99	200	600	18900	3369	XT4Vαβ200#********	$1.2x10^6$	31.5
R7	125A-6	125	200	600	18900	3369	XT4Vαβ200#********	$1.2x10^6$	31.5
R8	144A-6	144	250	600	32400	3858	XT4Vαβ250#********	$1.2x10^6$	31.5
R9	192A-6	192	400	600	32400	5226	XT5Lαβ40A#********	$4.2x10^6$	51.4
R9	242A-6	242	400	600	32400	5226	XT5Lαβ40A#********	$4.2x10^6$	51.4
R9	271A-6	271	400	600	32400	5226	XT5Lαβ40A#********	$4.2x10^6$	51.4

Follow Rules 1-9, 13-14, and 19 above

ACH, ACQ580-31, 230V circuit breakers

Frame Size	230V ACH580-31 ACQ580-31	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 240V
R3	017A-2	14	40	240	‡	1638	XT2Nαβ040#********
R3	024A-2	20	40	240	‡	1638	XT2Nαβ040#********
R6	031A-2	28	70	240	‡	3507	XT4Nαβ070#********
R6	046A-2	40	70	240	‡	3507	XT4Nαβ070#********
R6	059A-2	53	150	240	‡	3507	XT4Nαβ150#********
R6	075A-2	66	150	240	‡	3507	XT4Nαβ150#********
R6	088A-2	76	150	240	‡	3507	XT4Nαβ150#********
R8	114A-2	98	225	240	‡	6602	XT5Nαβ225#********
R8	143A-2	128	225	240	‡	6602	XT5Nαβ225#********
R8	169A-2	152	250	240	‡	6602	XT5Nαβ250#********
R8	211A-2	188	300	240	‡	6602	XT5Nαβ30A#********

‡ Enclosure Minimum Volume is not applicable

Follow Rules 1-11 above

ACH, ACQ580-31, 480V circuit breakers

Frame Size	480V ACH580-31 ACQ580-31	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 480V	Maximum I^2t (A^2s)	Maximu mI peak (kA)
R3	07A6-4	7	20	480	‡	1638	XT2Hαβ020#********	$0.512x10^6$	23.2
R3	012A-4	9	20	480	‡	1638	XT2Hαβ020#********	$0.512x10^6$	23.2
R3	014A-4	12	35	480	‡	1638	XT2Hαβ035#********	$0.512x10^6$	23.2
R3	023A-4	17	35	480	‡	1638	XT2Hαβ035#********	$0.512x10^6$	23.2
R6	027A-4	24	70	480	‡	3507	XT2Hαβ070#********	$0.512x10^6$	23.2
R6	034A-4	29	70	480	‡	3507	XT2Hαβ070#********	$0.512x10^6$	23.2
R6	044A-4	34	70	480	‡	3507	XT2Hαβ070#********	$0.512x10^6$	23.2
R6	052A-4	44	125	480	‡	3507	XT2Hαβ125#********	$0.512x10^6$	23.2
R6	065A-4	54	125	480	‡	3507	XT2Hαβ125#********	$0.512x10^6$	23.2
R6	077A-4	66	125	480	‡	3507	XT2Hαβ125#********	$0.512x10^6$	23.2
R8	096A-4	82	225	480	‡	6602	XT4Hαβ225#********	$0.98x10^6$	30
R8	124A-4	111	225	480	‡	6602	XT4Hαβ225#********	$0.98x10^6$	30
R8	156A-4	134	250	480	‡	6602	XT4Hαβ250#********	$0.98x10^6$	30
R8	180A-4	163	250	480	‡	6602	XT4Hαβ250#********	$0.98x10^6$	30

‡ Enclosure Minimum Volume is not applicable
Follow Rules 1-9 and 13-14 above

ACS880 drives

Purpose
This section outlines branch circuit protection that may be used with ACS880-01, -04, 04XT, -04F, 04FXT, -11, -14, -31, -34 drives.

How to use this information
The drive hardware manual includes branch circuit protection recommendations for the drive. In addition to the branch circuit protection identified in the manual, alternative devices can be used if they meet certain characteristics. The guidelines in this document describe which fuses and circuit breakers are an acceptable alternative. This document is a supplement to the following drive hardware manuals:

- 3AUA0000078093 ACS880-01 hardware manual
- 3AUA0000128301 ACS880-04 drive modules hardware manual
- 3AXD50000025169 ACS880-04XT drive module packages hardware manual
- 3AXD50000034664 ACS880-04F drive modules hardware manual
- 3AXD50000274444 ACS880-04FXT drive module packages hardware manual
- 3AXD50000045932 ACS880-11 hardware manual
- 3AXD50000035160 ACS880-14 drive modules hardware manual
- 3AXD50000045933 ACS880-31 hardware manual
- 3AXD50000035191 ACS880-34 drive modules hardware manual

Fuse Information

ACS880-01 drives are suitable for use on a circuit capable of delivering not more than 100 kA symmetricalamperes (RMS) at 240V, 480V, or 600V maximum, when protected by appropriate fuses.

ACS880-11 and -31 drives are suitable for use on a circuit capable of delivering not more than 100 kA symmetrical amperes (RMS) at 480V maximum when protected by appropriate fuses.

ACS880-04, -04F, -04XT, -04FXT, - 14 and -34 drives are suitable for use on a circuit capable of delivering not more than 100 kA symmetrical amperes (RMS) at 480 and 600V maximum when protected by appropriate fuses.

The drives are tested in accordance with standard UL 61800-5-1 on a circuit having available system fault current of 100 kA maximum.

Hardware manuals for ACS880-01, -04, -11, -14, -31, and -34 drives provided fusing guidelines:

- Listed Class T (UL 248-15) fast acting fuses up to 600A
- Listed Class L (UL 248-15) fast acting fuses up to 1000A.

ABB performed the fault testing with “umbrella fuses.” These fuses are calibrated to create worst case peak let-through current (I_{peak}) and let-through energy (I^2t) in accordance with the limits of the intended fuse class(es) and ratings. The umbrella fuse testing allows other Listed fuses, which have let-through characteristics equal to or below these limits, to be used. Therefore, listed (UL 248-8) Class J fast acting, time delay, and high speed fuses can also be used, since they provide equal or better protection. Likewise, listed (UL 248-17) Class CF fast acting and time delay cubed body fuses can be used as well.

In addition to the above guidelines, the following rules must be followed. (These rules do not apply for the ACS880-04 drives where semiconductor fuses can be used as alternate and ACS880-14 and -34 drives whichuse strictly semiconductor fuses):

1. Fuses are required as part of the installation. Fuses are not included in the base drive configuration and must be provided by others.
2. The UL listed fuses in the hardware manual tables, or the tables in this document are the required branch circuit protection per NEC.
3. Recommended size or smaller UL 248 listed fast acting, time delay, or high speed fuses must be used to maintain the drive UL listing. Additional protection can be used. Refer to local codes and regulations.
4. UL 248 listed, fast acting, time delay, or high speed fuses from other manufacturers can be used if theymeet the rating requirements specified in the rules above.
5. A fuse of a different class can be used at the high fault rating where the I_{peak} and I^2t of the new fuse is not greater than that of the specified fuse.
6. When installing a drive, always follow installation instructions and NEC requirements.
7. Only 480V R9 drives with serial numbers beginning 1204205581 when built in Finland and beginning 22106xxxxx when built in the U.S. may be protected with fuses listed in the tables below. Drives withearlier serial numbers can only be protected with Class T fuses.

Alternate recommended fuses for some of the major fuse manufacturers can be found in tables on the following pages. Other manufacturers not found on the tables below may be used if they meet the fuse requirements stated above.

Semiconductor fuses listed in the tables below and throughout the document are base part numbers only. Semiconductor fuses with optional indicators can be used and have no impact on the drive UL listing, performance, or rating of the fuse. To achieve 100 kA SCCR rating of the drive panel semiconductor fuses must bein the same enclosure as the drive.

ACS880-01, 230V fuses

Frame Size	230V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	04A6-2	4.4	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	06A6-2	6.3	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	07A5-2	7.1	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	10A6-2	10.1	20	600	JJS-20	JLLS020	A6T20	TJS20	JKS-20	JLS20	A4J20	JFL20
R2	16A8-2	16.0	25	600	JJS-25	JLLS025	A6T25	TJS25	JKS-25	JLS25	A4J25	JFL25
R2	24A3-2	23.1	35	600	JJS-35	JLLS035	A6T35	TJS35	JKS-35	JLS35	A4J35	JFL35
R3	031A-2	29.3	50	600	JJS-50	JLLS050	A6T50	TJS50	JKS-50	JLS50	A4J50	JFL50
R4	046A-2	44.0	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R4	061A-2	58.0	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R5	075A-2	71.0	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R5	087A-2	83.0	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R6	115A-2	109	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R6	145A-2	138	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R7	170A-2	162	250	600	JJS-250	JLLS250	A6T250	TJS250	JKS-250	JLS250	A4T250	JFL250
R7	206A-2	196	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300
R8	274A-2	260	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400

Frame Size	230V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	04A6-2	4.4	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	06A6-2	6.3	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	07A5-2	7.1	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	10A6-2	10.1	20	600	LPJ-20SP	JTD20	AJT20	JDL20	DFJ-20	LDFJ020	HSJ20	JHL20
R2	16A8-2	16.0	25	600	LPJ-25SP	JTD25	AJT25	JDL25	DFJ-25	LDFJ025	HSJ25	JHL25
R2	24A3-2	23.1	35	600	LPJ-35SP	JTD35	AJT35	JDL35	DFJ-35	LDFJ035	HSJ35	JHL35
R3	031A-2	29.3	50	600	LPJ-50SP	JTD50	AJT50	JDL50	DFJ-50	LDFJ050	HSJ50	JHL50
R4	046A-2	44.0	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R4	061A-2	58.0	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R5	075A-2	71.0	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R5	087A-2	83.0	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R6	115A-2	109	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R6	145A-2	138	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R7	170A-2	162	250	600	LPJ-250SP	JTD250	AJT250	JDL250	DFJ-250	LDFJ250	HSJ250	JHL250
R7	206A-2	196	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300
R8	274A-2	260	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400

Frame Size	230V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R1	04A6-2	4.4	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	06A6-2	6.3	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	07A5-2	7.1	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	10A6-2	10.1	20	600	KTK-R-20	KLKR20	ATMR20	HCLR20	TCF20RN	FCF20RN
R2	16A8-2	16.0	25	600	KTK-R-25	KLKR25	ATMR25	HCLR25	TCF25RN	FCF25RN
R2	24A3-2	23.1	35	600	-	-	-	-	TCF35RN	FCF35RN
R3	031A-2	29.3	50	600	-	-	-	-	TCF50RN	FCF50RN
R4	046A-2	44.0	80	600	-	-	-	-	TCF80RN	FCF80RN
R4	061A-2	58.0	80	600	-	-	-	-	TCF80RN	FCF80RN
R5	075A-2	71.0	110	600	-	-	-	-	TCF110RN	-
R5	087A-2	83.0	110	600	-	-	-	-	TCF110RN	-
R6	115A-2	109	150	600	-	-	-	-	TCF150RN	-
R6	145A-2	138	200	600	-	-	-	-	TCF200RN	-
R7	170A-2	162	250	600	-	-	-	-	TCF250RN	-
R7	206A-2	196	300	600	-	-	-	-	TCF300RN	-
R8	274A-2	260	400	600	-	-	-	-	TCF400RN	-

ACS880-01, 480V fuses

Frame Size	480V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	02A1-5	2.1	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	03A0-5	3.0	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	03A4-5	3.4	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	04A8-5	4.8	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	05A2-5	5.2	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	07A6-5	7.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R1	11A0-5	11	20	600	JJS-20	JLLS020	A6T20	TJS20	JKS-20	JLS20	A4J20	JFL20
R2	014A-5	14	25	600	JJS-25	JLLS025	A6T25	TJS25	JKS-25	JLS25	A4J25	JFL25
R2	021A-5	21	35	600	JJS-35	JLLS035	A6T35	TJS35	JKS-35	JLS35	A4J35	JFL35
R3	027A-5	27	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R3	034A-5	34	50	600	JJS-50	JLLS050	A6T50	TJS50	JKS-50	JLS50	A4J50	JFL50
R4	040A-5	40	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60
R4	052A-5	52	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R5	065A-5	65	90	600	JJS-90	JLLS090	A6T90	TJS90	JKS-90	JLS90	A4T90	JFL90
R5	077A-5	77	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R6	096A-5	96	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R6	124A-5	124	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R7	156A-5	156	225	600	JJS-225	JLLS225	A6T225	TJS225	JKS-225	JLS225	A4J225	JFL225
R7	180A-5	180	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300
R8	240A-5	240	350	600	JJS-350	JLLS350	A6T350	TJS350	JKS-350	JLS350	A4J350	JFL350
R8	260A-5	260	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400
R9**	302A-5	302	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400
R9**	361A-5	361	500	600	JJS-500	JLLS500	A6T500	TJS500	JKS-500	JLS500	A4J500	JFL500
R9**	414A-5	414	600	600	JJS-600	JLLS600	A6T600	TJS600	JKS-600	JLS600	A4J600	JFL600
R9	477A-4	450	600	600	JJS-600	JLLS600	A6T600	TJS600	JKS-600	JLS600	A4J600	JFL600

** Follow Rule 7 above

Frame Size	480V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R1	02A1-5	2.1	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	03A0-5	3.0	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	03A4-5	3.4	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	04A8-5	4.8	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	05A2-5	5.2	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	07A6-5	7.6	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R1	11A0-5	11	20	600	LPJ-20SP	JTD20	AJT20	JDL20	DFJ-20	LDFJ020	HSJ20	JHL20
R2	014A-5	14	25	600	LPJ-25SP	JTD25	AJT25	JDL25	DFJ-25	LDFJ025	HSJ25	JHL25
R2	021A-5	21	35	600	LPJ-35SP	JTD35	AJT35	JDL35	DFJ-35	LDFJ035	HSJ35	JHL35
R3	027A-5	27	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R3	034A-5	34	50	600	LPJ-50SP	JTD50	AJT50	JDL50	DFJ-50	LDFJ050	HSJ50	JHL50
R4	040A-5	40	60	600	LPJ-60SP	JTD60	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R4	052A-5	52	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R5	065A-5	65	90	600	LPJ-90SP	JTD90	AJT90	JDL90	DFJ-90	LDFJ090	HSJ90	JHL90
R5	077A-5	77	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R6	096A-5	96	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R6	124A-5	124	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R7	156A-5	156	225	600	LPJ-225SP	JTD225	AJT225	JDL225	DFJ-225	LDFJ225	HSJ225	JHL225
R7	180A-5	180	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300
R8	240A-5	240	350	600	LPJ-350SP	JTD350	AJT350	JDL350	DFJ-350	LDFJ350	HSJ350	JHL350
R8	260A-5	260	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R9**	302A-5	302	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R9**	361A-5	361	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R9**	414A-5	414	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R9	477A-4	450	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600

** Follow Rule 7 above

Frame Size	480V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R1	02A1-5	2.1	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	03A0-5	3.0	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	03A4-5	3.4	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	04A8-5	4.8	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	05A2-5	5.2	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	07A6-5	7.6	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R1	11A0-5	11	20	600	KTK-R-20	KLKR20	ATMR20	HCLR20	TCF20RN	FCF20RN
R2	014A-5	14	25	600	KTK-R-25	KLKR25	ATMR25	HCLR25	TCF25RN	FCF25RN
R2	021A-5	21	35	600	-	-	-	-	TCF35RN	FCF35RN
R3	027A-5	27	40	600	-	-	-	-	TCF40RN	FCF40RN
R3	034A-5	34	50	600	-	-	-	-	TCF50RN	FCF50RN
R4	040A-5	40	60	600	-	-	-	-	TCF60RN	FCF60RN
R4	052A-5	52	80	600	-	-	-	-	TCF80RN	FCF80RN
R5	065A-5	65	90	600	-	-	-	-	TCF90RN	FCF90RN
R5	077A-5	77	110	600	-	-	-	-	TCF110RN	-
R6	096A-5	96	150	600	-	-	-	-	TCF150RN	-
R6	124A-5	124	200	600	-	-	-	-	TCF200RN	-
R7	156A-5	156	225	600	-	-	-	-	TCF225RN	-
R7	180A-5	180	300	600	-	-	-	-	TCF300RN	-
R8	240A-5	240	350	600	-	-	-	-	TCF350RN	-
R8	260A-5	260	400	600	-	-	-	-	TCF400RN	-
R9	302A-5	302	400	600	-	-	-	-	-	-
R9	361A-5	361	500	600	-	-	-	-	-	-
R9	414A-5	414	600	600	-	-	-	-	-	-
R9	477A-4	450	600	600	-	-	-	-	-	-

Frame Size	480V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses			
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type Frenc hStyle
		A	A	V				
R9	302A-5	302	550	690	170M6409	170M6009	170M6609	170M6309
R9	361A-5	361	630	690	170M6410	170M6010	170M6610	170M6310
R9	414A-5	414	700	690	170M6411	170M6011	170M6611	170M6311

ACS880-01, 575V fuses

Frame Size	575V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R3	07A4-7	7	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R3	09A9-7	9.4	20	600	JJS-20	JLLS020	A6T20	TJS20	JKS-20	JLS20	A4J20	JFL20
R3	14A3-7	13.6	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30
R3	019A-7	18	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R3	023A-7	22	50	600	JJS-50	JLLS050	A6T50	TJS50	JKS-50	JLS50	A4J50	JFL50
R3	027A-7	27	50	600	JJS-50	JLLS050	A6T50	TJS50	JKS-50	JLS50	A4J50	JFL50
R5	035A-7	41	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4T60	JFL60
R5	042A-7	52	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4T80	JFL80
R5	049A-7	52	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4T80	JFL80
R6	061A-7	62	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R6	084A-7	77	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R7	098A-7	99	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R7	119A-7	125	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R8	142A-7	144	250	600	JJS-250	JLLS250	A6T250	TJS250	JKS-250	JLS250	A4J250	JFL250
R8	174A-7	180	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300
R9	210A-7	242	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400
R9	271A-7	271	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400

Frame Size	575V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R3	07A4-7	7	15	600	LPJ-15SP	JTD15	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R3	09A9-7	9.4	20	600	LPJ-20SP	JTD20	AJT20	JDL20	DFJ-20	LDFJ020	HSJ20	JHL20
R3	14A3-7	13.6	30	600	LPJ-30SP	JTD30	AJT30	JDL30	DFJ-30	LDFJ030	HSJ30	JHL30
R3	019A-7	18	40	600	LPJ-40SP	JTD40	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R3	023A-7	22	50	600	LPJ-50SP	JTD50	AJT50	JDL50	DFJ-50	LDFJ050	HSJ50	JHL50
R3	027A-7	27	50	600	LPJ-50SP	JTD50	AJT50	JDL50	DFJ-50	LDFJ050	HSJ50	JHL50
R5	035A-7	41	60	600	LPJ-60SP	JTD60	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R5	042A-7	52	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R5	049A-7	52	80	600	LPJ-80SP	JTD80	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R6	061A-7	62	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R6	084A-7	77	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R7	098A-7	99	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R7	119A-7	125	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R8	142A-7	144	250	600	LPJ-250SP	JTD250	AJT250	JDL250	DFJ-250	LDFJ250	HSJ250	JHL250
R8	174A-7	180	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300
R9	210A-7	242	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400
R9	271A-7	271	400	600	LPJ-400SP	JTD400	AJT400	JDL400	DFJ-400	LDFJ400	HSJ400	JHL400

Frame Size	575V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R3	07A4-7	7	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	TCF15RN	FCF15RN
R3	09A9-7	9.4	20	600	KTK-R-20	KLKR20	ATMR20	HCLR20	TCF20RN	FCF20RN
R3	14A3-7	13.6	30	600	KTK-R-30	KLKR30	ATMR30	HCLR30	TCF30RN	FCF30RN
R3	019A-7	18	40	600	-	-	-	-	TCF40RN	FCF40RN
R3	023A-7	22	50	600	-	-	-	-	TCF50RN	FCF50RN
R3	027A-7	27	50	600	-	-	-	-	TCF50RN	FCF50RN
R5	035A-7	41	60	600	-	-	-	-	TCF60RN	FCF60RN
R5	042A-7	52	80	600	-	-	-	-	TCF80RN	FCF80RN
R5	049A-7	52	80	600	-	-	-	-	TCF80RN	FCF80RN
R6	061A-7	62	110	600	-	-	-	-	TCF110RN	-
R6	084A-7	77	150	600	-	-	-	-	TCF150RN	-
R7	098A-7	99	150	600	-	-	-	-	TCF150RN	-
R7	119A-7	125	200	600	-	-	-	-	TCF200RN	-
R8	142A-7	144	250	600	-	-	-	-	TCF250RN	-
R8	174A-7	180	300	600	-	-	-	-	TCF300RN	-
R9	210A-7	242	400	600	-	-	-	-	TCF400RN	-
R9	271A-7	271	400	600	-	-	-	-	TCF400RN	-

Frame Size	575V ACS880-01	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses			
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type Frenc hStyle
		A	A	V				
R9	210A-7	242	500	690	170M6408	170M6008	170M6608	170M6308
R9	271A-7	271	500	690	170M6408	170M6008	170M6608	170M6308

ACS880-04, 480V fuses

Frame Size	480V ACS880-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R10	460A-5	460	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R10	503A-5	505	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R10	583A-5	585	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R10	635A-5	650	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R11	715A-5	725	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000
R11	820A-5	820	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000
R11	880A-5	880	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000

Frame Size	480V ACS880-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-10 Time Delay Class L Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R10	460A-5	460	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R10	503A-5	505	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R10	583A-5	585	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R10	635A-5	650	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R11	715A-5	725	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-
R11	820A-5	820	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-
R11	880A-5	880	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-

Frame Size	480V ACS880-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R10	460A-5	460	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R10	503A-5	505	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R10	583A-5	585	800	600	-	-	-	-	-	-	-	-
R10	635A-5	650	800	600	-	-	-	-	-	-	-	-
R11	715A-5	725	1000	600	-	-	-	-	-	-	-	-
R11	820A-5	820	1000	600	-	-	-	-	-	-	-	-
R11	880A-5	880	1000	600	-	-	-	-	-	-	-	-

Frame Size	480V ACS880-04	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
R10	460A-5	460	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
R10	503A-5	505	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
R10	583A-5	585	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
R10	635A-5	650	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
R11	715A-5	725	900	690	170M6413	170M6013	170M6613	170M6313	170M6813D
R11	820A-5	820	1000	690	170M6414	170M6014	170M6614	170M6314	170M6814D
R11	880A-5	880	1400	690	170M6417	170M6017	170M6617	170M6317	170M8555D

ACS880-04, 575V fuses

Frame Size	575V ACS880-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/Ferraz Shawmut	Edison
		A	A	V								
R10	330A-7	330	500	600	JJS-500	JLLS500	A6T500	TJS500	-	-	-	-
R10	370A-7	370	500	600	JJS-500	JLLS500	A6T500	TJS500	-	-	-	-
R10	430A-7	430	500	600	JJS-500	JLLS500	A6T500	TJS500	-	-	-	-
R11	470A-7	470	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R11	522A-7	522	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R11	590A-7	590	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R11	650A-7	650	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R11	721A-7	721	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800

Frame Size	575V ACS880-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-10 Time Delay Class L Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/Ferraz Shawmut	Edison
		A	A	V								
R10	330A-7	330	500	600	-	-	-	-	JKS-500	JLS500	A4J500	JFL500
R10	370A-7	370	500	600	-	-	-	-	JKS-500	JLS500	A4J500	JFL500
R10	430A-7	430	500	600	-	-	-	-	JKS-500	JLS500	A4J500	JFL500
R11	470A-7	470	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R11	522A-7	522	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R11	590A-7	590	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R11	650A-7	650	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R11	721A-7	721	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-

Frame Size	575V ACS880-04	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/Ferraz Shawmut	Edison
		A	A	V								
R10	330A-7	330	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R10	370A-7	370	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R10	430A-7	430	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R11	470A-7	470	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R11	522A-7	522	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R11	590A-7	590	800	600	-	-	-	-	-	-	-	-
R11	650A-7	650	800	600	-	-	-	-	-	-	-	-
R11	721A-7	721	800	600	-	-	-	-	-	-	-	-

Frame Size	575V ACS880-04	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
R10	330A-7	330	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
R10	370A-7	370	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
R10	430A-7	430	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
R11	470A-7	470	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
R11	522A-7	522	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
R11	590A-7	590	900	690	170M6413	170M6013	170M6613	170M6313	170M6813D
R11	650A-7	650	1000	690	170M6414	170M6014	170M6614	170M6314	170M6814D
R11	721A-7	721	1250	600	170M6416	170M6016	170M6616	170M6316	170M8554D

ACS880-04XT, 480V fuses

Frame Size	480V ACS880-04XT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
(2) R10	1010A-5	1010	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
(2) R10	1160A-5	1160	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
(2) R11	1310A-5	1310	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
(2) R11	1610A-5	1610	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000

Frame Size	480V ACS880-04XT	Input Current	UL Fuse Size (A) and Voltage (V)		UL248-10 Time Delay Fuses Class L			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V				
(2) R10	1010A-5	1010	700	690	KLU-800	KLPC800	A4BT800	LCL800
(2) R10	1160A-5	1160	800	690	KLU-800	KLPC800	A4BT800	LCL800
(2) R11	1310A-5	1310	800	690	KLU-1000	KLPC1000	A4BT1000	LCL1000
(2) R11	1610A-5	1610	1000	690	KLU-1000	KLPC1000	A4BT1000	LCL1000

Frame Size	480V ACS880-04XT	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
(2) R10	1010A-5	1010	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
(2) R10	1160A-5	1160	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
(2) R11	1310A-5	1310	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
(2) R11	1610A-5	1610	1000	690	170M6414	170M6014	170M6614	170M6314	170M6814D

Six fuses required per installation

ACS880-04XT, 575V fuses

Frame Size	575V ACS880-04XT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
(2) R10	0810A-7	810	500	600	JJS-500	JLLS500	A6T500	TJS500	-	-	-	-
(2) R11	0960A-7	960	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
(2) R11	1080A-7	1080	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
(2) R11	1320A-7	1320	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800

Frame Size	575V ACS880-04XT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-10 Time Delay Class L Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
(2) R10	0810A-7	810	500	600	-	-	-	-	JKS-500	JLS500	A4J500	JFL500
(2) R11	0960A-7	960	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
(2) R11	1080A-7	1080	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
(2) R11	1320A-7	1320	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-

Frame Size	575V ACS880-04XT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
(2) R10	0810A-7	810	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
(2) R11	0960A-7	960	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
(2) R11	1080A-7	1080	800	600	-	-	-	-	-	-	-	-
(2) R11	1320A-7	1320	800	600	-	-	-	-	-	-	-	-

Frame Size	575V ACS880-04XT	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
(2) R10	0810A-7	810	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
(2) R11	0960A-7	960	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
(2) R11	1080A-7	1080	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
(2) R11	1320A-7	1320	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D

Six fuses required per installation
(2) = two modules per drive

ACS880-04F, 480V fuses

Frame Size	480V ACS880-04F	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R11	459A-5	459	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R11	502A-5	502	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R11	582A-5	582	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R11	634A-5	634	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R11	715A-5	715	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000
R11	820A-5	820	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000
R11	880A-5	880	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000

Frame Size	480V ACS880-04F	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-10 Time Delay Class L Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R11	459A-5	459	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R11	502A-5	502	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R11	582A-5	582	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R11	634A-5	634	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R11	715A-5	715	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-
R11	820A-5	820	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-
R11	880A-5	880	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000	-	-	-	-

Frame Size	480V ACS880-04F	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R11	459A-5	459	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R11	502A-5	502	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R11	582A-5	582	800	600	-	-	-	-	-	-	-	-
R11	634A-5	634	800	600	-	-	-	-	-	-	-	-
R11	715A-5	715	1000	600	-	-	-	-	-	-	-	-
R11	820A-5	820	1000	600	-	-	-	-	-	-	-	-
R11	880A-5	880	1000	600	-	-	-	-	-	-	-	-

Frame Size	480V ACS880-04F	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
R11	459A-5	459	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
R11	502A-5	502	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
R11	582A-5	582	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
R11	634A-5	634	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
R11	715A-5	715	900	690	170M6413	170M6013	170M6613	170M6313	170M6813D
R11	820A-5	820	1000	690	170M6414	170M6014	170M6614	170M6314	170M6814D
R11	880A-5	880	1400	690	170M6417	170M6017	170M6617	170M6317	170M8555D

ACS880-04F, 575V fuses

Frame Size	575V ACS880-04F	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R11	329A-7	329	500	600	JJS-500	JLLS500	A6T500	TJS500	-	-	-	-
R11	369A-7	369	500	500	JJS-500	JLLS500	A6T500	TJS500	-	-	-	-
R11	429A-7	429	500	500	JJS-500	JLLS500	A6T500	TJS500	-	-	-	-
R11	470A-7	470	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R11	522A-7	522	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
R11	590A-7	590	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R11	650A-7	650	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
R11	721A-7	721	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800

Frame Size	575V ACS880-04F	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-10 Time Delay Class L Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R11	329A-7	329	500	600	-	-	-	-	JKS-500	JLS500	A4J500	JFL500
R11	369A-7	369	500	500	-	-	-	-	JKS-500	JLS500	A4J500	JFL500
R11	429A-7	429	500	500	-	-	-	-	JKS-500	JLS500	A4J500	JFL500
R11	470A-7	470	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R11	522A-7	522	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
R11	590A-7	590	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R11	650A-7	650	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
R11	721A-7	721	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-

Frame Size	575V ACS880-04F	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R11	329A-7	329	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R11	369A-7	369	500	500	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R11	429A-7	429	500	500	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
R11	470A-7	470	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R11	522A-7	522	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
R11	590A-7	590	800	600	-	-	-	-	-	-	-	-
R11	650A-7	650	800	600	-	-	-	-	-	-	-	-
R11	721A-7	721	800	600	-	-	-	-	-	-	-	-

Frame Size	575V ACS880-04F	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
R11	329A-7	329	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
R11	369A-7	369	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
R11	429A-7	429	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
R11	470A-7	470	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
R11	522A-7	522	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
R11	590A-7	590	900	690	170M6413	170M6013	170M6613	170M6313	170M6813D
R11	650A-7	650	1000	690	170M6414	170M6014	170M6614	170M6314	170M6814D
R11	721A-7	721	1250	690	170M6416	170M6016	170M6616	170M6316	170M8554D

ACS880-04FXT, 480V fuses

Frame Size	480V ACS880-04FXT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
(2) R11	1008A-5	1008	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
(2) R11	1158A-5	1158	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
(2) R11	1310A-5	1310	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
(2) R11	1610A-5	1610	1000	600	-	JLLS1000	-	-	KTU-1000	LDC1000	A4BY1000	LCU1000

Frame Size	480V ACS880-04FXT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-10 Time Delay Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V				
(2) R11	1008A-5	1008	800	600	KLU-800	KLPC800	A4BT800	LCL800
(2) R11	1158A-5	1158	800	600	KLU-800	KLPC800	A4BT800	LCL800
(2) R11	1310A-5	1310	800	600	KLU-1000	KLPC1000	A4BT1000	LCL1000
(2) R11	1610A-5	1610	1000	600	KLU-1000	KLPC1000	A4BT1000	LCL1000

Frame Size	480V ACS880-04FXT	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
(2) R11	1008A-5	1008	700	690	170M6411	170M6011	170M6611	170M6311	170M6811D
(2) R11	1158A-5	1158	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
(2) R11	1310A-5	1310	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
(2) R11	1610A-5	1610	1000	690	170M6414	170M6014	170M6614	170M6314	170M6814D

Six fuses required per installation
(2) = two modules per drive

ACS880-04FXT, 575V fuses

Frame Size	575V ACS880-04FXT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-10 Fast Acting Class L Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
(2) R11	0808A-7	808	500	600	JJS-500	JLLS500	A6T500	TJS500	-	-	-	-
(2) R11	0960A-7	960	600	600	JJS-600	JLLS600	A6T600	TJS600	-	-	-	-
(2) R11	1080A-7	1080	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800
(2) R11	1320A-7	1320	800	600	JJS-800	JLLS800	A6T800	TJS800	KTU-800	LDC800	A4BY800	LCU800

Frame Size	575V ACS880-04FXT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-10 Time Delay Class L Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
(2) R11	0808A-7	808	500	600	-	-	-	-	JKS-500	JLS500	A4J500	JFL500
(2) R11	0960A-7	960	600	600	-	-	-	-	JKS-600	JLS600	A4J600	JFL600
(2) R11	1080A-7	1080	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-
(2) R11	1320A-7	1320	800	600	KLU-800	KLPC800	A4BT800	LCL800	-	-	-	-

Frame Size	575V ACS880-04FXT	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
(2) R11	0808A-7	808	500	600	LPJ-500SP	JTD500	AJT500	JDL500	DFJ-500	LDFJ500	HSJ500	JHL500
(2) R11	0960A-7	960	600	600	LPJ-600SP	JTD600	AJT600	JDL600	DFJ-600	LDFJ600	HSJ600	JHL600
(2) R11	1080A-7	1080	800	600	-	-	-	-	-	-	-	-
(2) R11	1320A-7	1320	800	600	-	-	-	-	-	-	-	-

Frame Size	575V ACS880-04FXT	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses				
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type French Style	Type DIN 43620
		A	A	V					
(2) R11	0808A-7	808	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
(2) R11	0960A-7	960	630	690	170M6410	170M6010	170M6610	170M6310	170M6810D
(2) R11	1080A-7	1080	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D
(2) R11	1320A-7	1320	800	690	170M6412	170M6012	170M6612	170M6312	170M6812D

Six fuses required per installation
(2) = two modules per drive

ACS880-11, -31, 480V fuses

Frame Size	480V ACS880-11 ACS880-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-15 Fast Acting Class T Fuses				UL 248-8 Fast Acting Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R3	07A6-5	5.8	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15
R3	11A0-5	7.8	20	600	JJS-20	JLLS020	A6T20	TJS20	JKS-20	JLS20	A4J20	JFL20
R3	014A-5	10.6	25	600	JJS-25	JLLS025	A6T25	TJS25	JKS-25	JLS25	A4J25	JFL25
R3	021A-5	15.6	35	600	JJS-35	JLLS035	A6T35	TJS35	JKS-35	JLS35	A4J35	JFL35
R6	027A-5	21.3	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40
R6	034A-5	26.2	50	600	JJS-50	JLLS050	A6T50	TJS50	JKS-50	JLS50	A4J50	JFL50
R6	040A-5	31.2	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60
R6	052A-5	40.1	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80
R6	065A-5	49.5	90	600	JJS-90	JLLS090	A6T90	TJS90	JKS-90	JLS90	A4J90	JFL90
R6	077A-5	60.2	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110
R8	101A-5	74	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150
R8	124A-5	100	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200
R8	156A-5	120	225	600	JJS-225	JLLS225	A6T225	TJS225	JKS-225	JLS225	A4J225	JFL225
R8	180A-5	147	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300

Frame Size	480V ACS880-11 ACS880-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-8 Time Delay Class J Fuses				UL 248-8 High Speed Class J Fuses			
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison
		A	A	V								
R3	07A6-5	5.8	15	600	LPJ-15SP	JTD015	AJT15	JDL15	DFJ-15	LDFJ015	HSJ15	JHL15
R3	11A0-5	7.8	20	600	LPJ-20SP	JTD020	AJT20	JDL20	DFJ-20	LDFJ020	HSJ20	JHL20
R3	014A-5	10.6	25	600	LPJ-25SP	JTD025	AJT25	JDL25	DFJ-25	LDFJ025	HSJ25	JHL25
R3	021A-5	15.6	35	600	LPJ-35SP	JTD035	AJT35	JDL35	DFJ-35	LDFJ035	HSJ35	JHL35
R6	027A-5	21.3	40	600	LPJ-40SP	JTD040	AJT40	JDL40	DFJ-40	LDFJ040	HSJ40	JHL40
R6	034A-5	26.2	50	600	LPJ-50SP	JTD050	AJT50	JDL50	DFJ-50	LDFJ050	HSJ50	JHL50
R6	040A-5	31.2	60	600	LPJ-60SP	JTD060	AJT60	JDL60	DFJ-60	LDFJ060	HSJ60	JHL60
R6	052A-5	40.1	80	600	LPJ-80SP	JTD080	AJT80	JDL80	DFJ-80	LDFJ080	HSJ80	JHL80
R6	065A-5	49.5	90	600	LPJ-90SP	JTD090	AJT90	JDL90	DFJ-90	LDFJ090	HSJ90	JHL90
R6	077A-5	60.2	110	600	LPJ-110SP	JTD110	AJT110	JDL110	DFJ-110	LDFJ110	HSJ110	JHL110
R8	101A-5	74	150	600	LPJ-150SP	JTD150	AJT150	JDL150	DFJ-150	LDFJ150	HSJ150	JHL150
R8	124A-5	100	200	600	LPJ-200SP	JTD200	AJT200	JDL200	DFJ-200	LDFJ200	HSJ200	JHL200
R8	156A-5	120	225	600	LPJ-225SP	JTD225	AJT225	JDL225	DFJ-225	LDFJ225	HSJ225	JHL225
R8	180A-5	147	300	600	LPJ-300SP	JTD300	AJT300	JDL300	DFJ-300	LDFJ300	HSJ300	JHL300

Frame Size	480V ACS880-11 ACS880-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL 248-4 Fast Acting Class CC Fuses				UL 248-17 Time Delay Class CF Cube Fuses	UL 248-17 Fast Acting Class CF Cube Fuses
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen/ Ferraz Shawmut	Edison	Bussmann	Bussmann
		A	A	V						
R3	07A6-5	5.8	15	600	KTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN	FCF15RN
R3	11A0-5	7.8	20	600	KTK-R-20	KLKR20	ATMR20	HCLR20	FCF20RN	FCF20RN
R3	014A-5	10.6	25	600	KTK-R-25	KLKR25	ATMR25	HCLR25	FCF25RN	FCF25RN
R3	021A-5	15.6	35	600	-	-	-	-	FCF35RN	FCF35RN
R6	027A-5	21.3	40	600	-	-	-	-	FCF40RN	FCF40RN
R6	034A-5	26.2	50	600	-	-	-	-	FCF50RN	FCF50RN
R6	040A-5	31.2	60	600	-	-	-	-	FCF60RN	FCF60RN
R6	052A-5	40.1	80	600	-	-	-	-	FCF80RN	FCF80RN
R6	065A-5	49.5	90	600	-	-	-	-	FCF90RN	FCF90RN
R6	077A-5	60.2	110	600	-	-	-	-	FCF110RN	-
R8	101A-5	74	150	600	-	-	-	-	FCF150RN	-
R8	124A-5	100	200	600	-	-	-	-	FCF200RN	-
R8	156A-5	120	225	600	-	-	-	-	FCF225RN	-
R8	180A-5	147	300	600	-	-	-	-	FCF300RN	-

ACS880-14, -34, 480V fuses

Frame Size	480V ACS880-14 ACS880-34	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses			
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type Frenc hStyle
		A	A	V				
R11	240A-5	169	315	690	170M4410	170M4010	170M4610	170M4310
R11	260A-5	205	400	690	170M5408	170M5008	170M5608	170M5308
R11	302A-5	239	500	690	170M5410	170M5010	170M5610	170M5310
R11	361A-5	257	630	690	170M6410	170M6010	170M6610	170M6310
R11	414A-5	321	700	690	170M6411	170M6011	170M6611	170M6311
R11	460A-5	404	700	690	170M6411	170M6011	170M6611	170M6311
R11	503A-5	455	800	690	170M6412	170M6012	170M6612	170M6312

Frame Size	480V ACS880-14 ACS880-34	Input Current	UL Fuse Size (A) and Voltage (V)		Semiconductor Fuses UL 248-13 Recognized Fuses	
			Maximum Current	Voltage Rating	Littelfuse	Mersen/ Ferraz Shawmut
		A	A	V		
R11	240A-4	169	315/450	690	PSR031FL0315	PC33UD69V450TF
R11	260A-5	205	400/450	690	PSR032FL0400	PC33UD69V450TF
R11	302A-4	239	500	690	PSR032FL0500	PC33UD69V500TF
R11	361A-4	257	630	690	PSR032FL0630	PC33UD69V630TF
R11	414A-4	321	700	690	PSR032FL0700	PC33UD69V700TF
R11	460A-4	404	700	690	PSR032FL0700	PC33UD69V700TF
R11	503A-4	455	700	690	PSR032FL0800	PC33UD69V800TF

ACS880-14, -34, 575V fuses

Frame Size	575V ACS880-14 ACS880-34	Input Current	UL Fuse Size (A) and Voltage (V)		Bussmann Semiconductor Fuses UL 248-13 Recognized Fuses			
			Maximum Current	Voltage Rating	Type Flush End	Type DIN 43463	Type US Style	Type Frenc hStyle
		A	A	V				
R11	142A-7	125	250	690	170M4409	170M4009	170M4609	170M4309
R11	174A-7	146	315	690	170M4410	170M4010	170M4610	170M4310
R11	210A-7	166	400	690	170M5408	170M5008	170M5608	170M5308
R11	271A-7	208	500	690	170M5410	170M5010	170M5610	170M5310
R11	330A-7	250	630	690	170M6410	170M6010	170M6610	170M6310
R11	370A-7	291	700	690	170M6411	170M6011	170M6611	170M6311
R11	430A-7	375	700	690	170M6411	170M6011	170M6611	170M6311

Frame Size	575V ACS880-14 ACS880-34	Input Current	UL Fuse Size (A) and Voltage (V)		Semiconductor Fuses UL 248-13 Recognized Fuses	
			Maximum Current	Voltage Rating	Littelfuse	Mersen/ Ferraz Shawmut
		A	A	V		
R11	142A-7	125	250	690	PSR031FL0250	---
R11	174A-7	146	315	690	PSR031FL0315	---
R11	210A-7	166	400/450	690	PSR032FL0400	PC33UD69V450TF
R11	271A-7	208	500	690	PSR032FL0500	PC33UD69V500TF
R11	330A-7	250	630	690	PSR032FL0630	PC33UD69V630TF
R11	370A-7	291	700	690	PSR032FL0700	PC33UD69V700TF
R11	430A-7	375	700	690	PSR032FL0700	PC33UD69V700TF

Tmax XT Circuit Breaker Information

ACS880-01, -11, and -31 drives are suitable for use on a circuit capable of delivering not more than 65 kA symmetrical amperes (RMS) at 240V, 480V, or 600V maximum, when protected by appropriate circuit breakers inthe tables below. Additional fuse protection is not required by UL when using circuit breakers herein. Circuit breakers are not required to be in the same enclosure as the drive.

For additional information on Tmax XT Circuit Breakers refer to the ABB.library.com document number:

- 1SXU210248C0201 Low Voltage Molded Case Circuit Breakers UL489 and CS22.2 Standards

Follow the rules in the table below:

Drives	Follow These Rules
230V ACS880-01	1-11
480V ACS880-01	1-9 and 12-17
600V ACS880-01	1-9, 12-13, and 18
480V ACS880-11, -31	1-9 and 12-13

Follow rules 1-9 for all voltages.

1. All drives in the tables below must be mounted inside an enclosure. Drives that have an Enclosure Minimum Volume listed must be mounted in an enclosure ≥ EnclosureMinimum Volume specified in the tables below.
2. When multiple drives that have an Enclosure Minimum Volume specified are installed in the same enclosure, minimum volume of the enclosure is determined by largest Enclosure Minimum Volume of thedrives to be placed in the enclosure, plus the volume(s) of each additional drive. For example, if combining the 480V R6 and R3 drive, select an enclosure with the volume ≥ 16200+1011 = 17211 in^3.
3. For UL Type Open, Type 1 or UL Type 12 drives that have a Minimum Enclosure Volume indicated with ‡, no minimum enclosure volume is required but the drive must be mounted inside an enclosure.
4. If combining a drive with an Enclosure Minimum Volume specified and others with an Enclosure Minimum Volume indicated with ‡, start with the largest specified Enclosure Minimum Volume listed and add the drive volumes for the other drives.
5. When mounting drives with no Enclosure Minimum Volume specified, there are no restrictions on the enclosure size, but follow air clearances specified in the drive HW manuals for sufficient ventilation around each drive.
6. Open Type, Type 1 and Type 12 drives can be used inside of the enclosure. Use drive volume for all three environmental ratings in the table when installing multiple drives in the enclosure.
7. The ABB circuit breaker part number listed in the table is a base part number.
    - Symbol α represents 80% or 100% allowable continuous current. Options allowed are U, Q, C and D.
    - Symbol β represents the number of poles for the breaker. Options allowed are 3, and 4.
    - Symbol # represents trip units. Trip units allowed include A thru C, E thru L, P thru Z. If using Ekip breakers, set the overload current of the circuit breaker equal to or less than the value shown in the“CB Maximum Current” column in the tables below.
    - The digits indicated with an “*” represent accessories for the breakers and have no impact on thedrive UL listing or performance or rating of the breaker.
    - For the ABB circuit breaker configurator refer to: https://lowvoltage-configurator.tnb.com/configurator/#/config/tmax_xt
8. Ratings in the tables are maximum for the given circuit breaker frame size. Breakers of the same framesize and interrupting rating with lower current ratings are also allowed.
9. Using a circuit breaker with a lower KAIC rating is not allowed even if the available SC current is less than 65 kA.

ACS880-01 230V drives were tested with ABB inverse time circuit breakers rated at 65 kA and 240V. When using circuit breakers to protect these drives follow these initial rules:

10. Other manufacturers' inverse time circuit breakers can be used if they are UL 489 listed, they are 240V orhigher, they have a 65 kA or higher interrupting capacity and they have the same or lower nominal currentrating than ABB specified circuit breaker.
11. Current limiting inverse time circuit breakers must not be used.

ACS880-01 480V and 600V drives and ACS880-11, -31 480V drives were tested with ABB current limiting inversetime circuit breakers rated at 65 kA and 480V or 600V. When using circuit breakers to protect these drives follow these initial rules:

12. When designing UL508A panels, Article SB 4.2.3 Exception No. 3 allows the use of other manufacturers' current limiting inverse time circuit breakers which have same voltage, current and interrupting rating, if I peak and I^2t are the same or less than the ABB specified circuit breaker.
13. Non-current limiting inverse time circuit breakers must not be used.

ACS880-01 480V drives must also follow these rules:

14. Enclosures for frames R1 and R9 must have a solid bottom directly below the drive. Fans, filters, or louvers cannot be mounted directly below the drive but can be mounted in adjacent areas on the bottom of the enclosure.
20. Enclosures for frame R6 must have a solid top directly above the drive. Fans, filters, or louvers cannot be mounted directly above the drive. A solid top is not required if the enclosure volume is a minimum of 53703 in^3.
15. Only 480V R8 frame drives with serial numbers beginning 1204107353 when built in Finland and 2205002140 when built in the U.S. may be protected with circuit breakers listed in the tables below.
16. Only 480V R9 drives with serial numbers beginning 1204205581 when built in Finland and beginning22106xxxxx when built in the U.S. may be protected with circuit breakers listed in the tables below.

ACS880-01 600V drives must also follow this rule:

17. Enclosures for frames R3, R5 and R9 must have a solid bottom directly below the drive. Fans, filters, or louvers cannot be mounted directly below the drive but can be mounted in adjacent areas on the bottomof the enclosure.

Alternative circuit breakers can be found at the end of this document.

ACS880-01, 230V circuit breakers

Frame Size	230V ACS880-01	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 240 V
R1	04A6-2	4.4	15	240	‡	681	XT2Nαβ015#********
R1	06A6-2	6.3	15	240	‡	681	XT2Nαβ015#********
R1	07A5-2	7.1	15	240	‡	681	XT2Nαβ015#********
R1	10A6-2	10.1	15	240	‡	681	XT2Nαβ015#********
R2	16A8-2	16.0	40	240	‡	750	XT2Nαβ040#********
R2	24A3-2	23.1	40	240	‡	750	XT2Nαβ040#********
R3	031A-2	29.3	50	240	‡	1011	XT2Nαβ050#********
R4	046A-2	44	100	240	‡	1669	XT2Nαβ100#********
R4	061A-2	58	100	240	‡	1669	XT2Nαβ100#********
R5	075A-2	72	150	240	‡	2030	XT4Nαβ150#********
R5	087A-2	83	150	240	‡	2030	XT4Nαβ150#********
R6	115A-2	109	200	240	‡	2880	XT4Nαβ200#********
R6	145A-2	138	200	240	‡	2880	XT4Nαβ200#********
R7	170A-2	162	300	240	‡	3369	XT5Nαβ30A#********
R7	206A-2	196	300	240	‡	3369	XT5Nαβ30A#********
R8	274A-2	260	400	240	‡	3858	XT5Nαβ40A#********

‡ Enclosure Minimum Volume is not applicable
Follow Rules 1-11 above

ACS880-01, 480V circuit breakers

Frame Size	480V ACS880-01	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 480V	Maximum I^2t (A^2s)	Maximum I peak (kA)
R1	02A1-5	2.1	15	480	8100	681	XT2Hαβ015#********	$0.512x10^6$	23.2
R1	03A0-5	3.0	15	480	8100	681	XT2Hαβ015#********	$0.512x10^6$	23.2
R1	03A4-5	3.4	15	480	8100	681	XT2Hαβ015#********	$0.512x10^6$	23.2
R1	04A8-5	4.8	15	480	8100	681	XT2Hαβ015#********	$0.512x10^6$	23.2
R1	05A2-5	5.2	15	480	8100	681	XT2Hαβ015#********	$0.512x10^6$	23.2
R1	07A6-5	7.6	15	480	8100	681	XT2Hαβ015#********	$0.512x10^6$	23.2
R1	11A0-5	11	15	480	8100	681	XT2Hαβ015#********	$0.512x10^6$	23.2
R2	014A-5	14	30	480	27720	750	XT2Hαβ030#********	$0.512x10^6$	23.2
R2	021A-5	21	30	480	27720	750	XT2Hαβ030#********	$0.512x10^6$	23.2
R3	027A-5	27	50	480	27720	1011	XT2Hαβ050#********	$0.512x10^6$	23.2
R3	034A-5	34	50	480	27720	1011	XT2Hαβ050#********	$0.512x10^6$	23.2
R4	040A-5	40	70	480	30240	1669	XT2Hαβ070#********	$0.512x10^6$	23.2
R4	052A-5	52	70	480	30240	1669	XT2Hαβ070#********	$0.512x10^6$	23.2
R5	065A-5	65	125	480	30240	2030	XT2Hαβ125#********	$0.512x10^6$	23.2
R5	077A-5	77	125	480	30240	2030	XT2Hαβ125#********	$0.512x10^6$	23.2
R6	096A-5	96	225	480	16200	2880	XT4Hαβ225#********	$0.98x10^6$	30
R6	124A-5	124	225	480	16200	2880	XT4Hαβ225#********	$0.98x10^6$	30
R7	156A-5	156	250	480	18900	3369	XT4Hαβ250#********	$0.98x10^6$	30
R7	180A-5	180	250	480	18900	3369	XT4Hαβ250#********	$0.98x10^6$	30
R8	240A-5	240	400	480	32400	3858	XT5Hαβ40A#********	$4.2x10^6$	47.9
R8	260A-5	260	400	480	32400	3858	XT5Hαβ40A#********	$4.2x10^6$	47.9
R9	302A-5	302	600	480	32400	5226	XT5Hαβ60B#********	$4.2x10^6$	47.9
R9	361A-5	361	600	480	32400	5226	XT5Hαβ60B#********	$4.2x10^6$	47.9
R9	414A-5	414	600	480	32400	5226	XT5Hαβ60B#********	$4.2x10^6$	47.9

Follow Rules 1-9 and 12-17 above

ACS880-01, 600V circuit breakers

Frame Size	575V ACS880-01	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 600V	Maximum I^2t (A^2s)	Maximum I peak (kA)
R3	07A4-7	7	35	600	28980	1011	XT4Vαβ035#********	$1.2x10^6$	31.5
R3	09A9-7	9.4	35	600	28980	1011	XT4Vαβ035#********	$1.2x10^6$	31.5
R3	14A3-7	13.6	35	600	28980	1011	XT4Vαβ035#********	$1.2x10^6$	31.5
R3	019A-7	18	35	600	28980	1011	XT4Vαβ035#********	$1.2x10^6$	31.5
R3	023A-7	22	35	600	28980	1011	XT4Vαβ035#********	$1.2x10^6$	31.5
R3	027A-7	27	35	600	28980	1011	XT4Vαβ035#********	$1.2x10^6$	31.5
R5	035A-7	41	70	600	28980	2030	XT4Vαβ070#********	$1.2x10^6$	31.5
R5	042A-7	52	70	600	28980	2030	XT4Vαβ070#********	$1.2x10^6$	31.5
R5	049A-7	52	70	600	28980	2030	XT4Vαβ070#********	$1.2x10^6$	31.5
R6	061A-7	62	125	600	24840	2880	XT4Vαβ125#********	$1.2x10^6$	31.5
R6	084A-7	77	125	600	24840	2880	XT4Vαβ125#********	$1.2x10^6$	31.5
R7	098A-7	99	200	600	18900	3369	XT4Vαβ200#********	$1.2x10^6$	31.5
R7	119A-7	125	200	600	18900	3369	XT4Vαβ200#********	$1.2x10^6$	31.5
R8	142A-7	144	250	600	32400	3858	XT4Vαβ250#********	$1.2x10^6$	31.5
R8	174A-7	180	250	600	32400	3858	XT4Vαβ250#********	$1.2x10^6$	31.5
R9	210A-7	242	400	600	32400	5226	XT5Lαβ40A#********	$4.2x10^6$	51.4
R9	271A-7	271	400	600	32400	5226	XT5Lαβ40A#********	$4.2x10^6$	51.4

Follow Rules 1-9, 12-13, and 18 above

ACS880-11, -31, 480V circuit breakers

Frame Size	480V ACS880-11 ACS880-31	Input Current (A)	CB Maximum Current (A)	CB Voltage (V)	Enclosure Minimum Volume (in^3)	Drive Volume (in^3)	Circuit Breaker (ABB) 65 kA @ 480V	Maximum I^2t (A^2s)	Maximum I peak (kA)
R3	07A6-5	5.8	20	480	‡	1638	XT2Hαβ020#********	$0.512x10^6$	23.2
R3	11A0-5	7.8	20	480	‡	1638	XT2Hαβ020#********	$0.512x10^6$	23.2
R3	014A-5	10.6	35	480	‡	1638	XT2Hαβ035#********	$0.512x10^6$	23.2
R3	021A-5	15.6	35	480	‡	1638	XT2Hαβ035#********	$0.512x10^6$	23.2
R6	027A-5	21.3	70	480	‡	3507	XT2Hαβ070#********	$0.512x10^6$	23.2
R6	034A-5	26.2	70	480	‡	3507	XT2Hαβ070#********	$0.512x10^6$	23.2
R6	040A-5	31.2	70	480	‡	3507	XT2Hαβ070#********	$0.512x10^6$	23.2
R6	052A-5	40.1	125	480	‡	3507	XT2Hαβ125#********	$0.512x10^6$	23.2
R6	065A-5	49.5	125	480	‡	3507	XT2Hαβ125#********	$0.512x10^6$	23.2
R6	077A-5	60.2	125	480	‡	3507	XT2Hαβ125#********	$0.512x10^6$	23.2
R8	101A-5	74	225	480	‡	6602	XT4Hαβ225#********	$0.98x10^6$	30
R8	124A-5	100	225	480	‡	6602	XT4Hαβ225#********	$0.98x10^6$	30
R8	156A-5	120	250	480	‡	6602	XT4Hαβ250#********	$0.98x10^6$	30
R8	180A-5	147	250	480	‡	6602	XT4Hαβ250#********	$0.98x10^6$	30

‡ Enclosure Minimum Volume is not applicable
Follow Rules 1-9 and 12-13 above

Alternate Circuit Breakers

Purpose
This section outlines alternative circuit breakers that can be used as branch circuit protection for the ABB AC(H,Q,S)580-01 and ACS880-01 drives. Additional fuses are not required when using these circuit breakers.

How to use this information
The following tables provide an ABB circuit breaker cross reference to applicable Square D, Schneider Electric,and Rockwell Automation circuit breakers.

Comparison Information
ABB XT class circuit breakers were tested with the AC(H,Q,S)580 and ACS880 drives. Specific nominal current, voltage, peak let-thru current and peak let-thru energy was established and comparisons to competitor breakers were approved by UL.

Square-D and Schneider Electric circuit breakers

Comparisons to the Square D and Schneider Electric circuit breakers are found in the tables below.

Rules
Follow rules 1-17 in the circuit breaker sections above with respect to ABB or competitor breakers.

When crossing an ABB circuit breaker with either Square D and Schneider Electric circuit breakers determine the recommended ABB circuit breaker part number in the tables above and cross to the appropriate Electronic Trip or Thermal Magnetic Square D or Schneider Electric part number in the tables below. The Square D and Schneider Electric circuit breaker part numbers listed in the tables are base part numbers. Follow the items below to select the appropriate circuit breaker.

- Symbol **λ** represents the terminal lugs. Options allowed are D, F, L, M, N, P, or S.
- Symbol **β** represents the number of poles for the breaker. Options allowed are 3 or 4 (L frame only).
- Symbol **ɷ** represents circuit breakers with electronic trip units including H and L frame breakers. Tripunits can be U31X, U33X, U43X, U44X, U53X, U54X. If using breakers with electronic trip units, set theoverload current of the circuit breaker equal to or less than the value shown in the “CB Maximum Current” column in the tables below.
- The digits indicated with an “*” represent accessories for the breakers and have no impact on thedrive UL listing or performance or rating of the breaker.
- For information on Square D – Schneider Electric circuit breakers refer to: https://www.se.com/us/en/download/document/0611CT1001/

Square D and Schneider 480V circuit breakers

CB Maximum Current (A)	CB Voltage (V)	Circuit Breaker (ABB) 65 kA @ 480V	Circuit Breaker (Square-D) 65 kA @ 480V Electronic Trip	Circuit Breaker (Schneider Electric) 65 kA @ 480V Electronic Trip
400	480	XT5Hαβ40A#********	LJλβ6400ɷ*	NLJλβ6400ɷ*
600	480	XT5Hαβ60B#********	LJλβ6600ɷ*	NLJλβ6600ɷ*

Square D and Schneider 600V circuit breakers

CB Maximum Current (A)	CB Voltage (V)	Circuit Breaker (ABB) 65 kA @ 480V	Circuit Breaker (Square-D) 65 kA @ 600V Electronic Trip	Circuit Breaker (Schneider Electric) 65 kA @ 600V Electronic Trip	Circuit Breaker (Square-D) 65 kA @ 600V Thermal Magnetic Trip	Circuit Breaker (SchneiderElectric) 65 kA @ 600V Thermal Magnetic Trip
25	600	XT4Vαβ025#********	HRλ36060ϖ*	NHRλ36060ϖ*	HRλ36025*	NHRλ36025*
35	600	XT4Vαβ035#********	HRλ36060ϖ*	NHRλ36060ϖ*	HRλ36035*	NHRλ36035*
50	600	XT4Vαβ050#********	HRλ36060ϖ*	NHRλ36060ϖ*	HRλ36050*	NHRλ36050*
70	600	XT4Vαβ070#********	HRλ36100ϖ*	NHRλ36100ϖ*	HRλ36070*	NHRλ36070*
125	600	XT4Vαβ125#********	HRλ36150ϖ*	NHRλ36150ϖ*	HRλ36125*	NHRλ36125*

Rockwell Automation circuit breakers

Comparisons to the Rockwell Automation circuit breakers are found in the tables below.

Rules

Follow rules 1-17 in the circuit breaker sections above with respect to ABB or competitor breakers.

When crossing an ABB circuit breaker with Rockwell Automation circuit breakers determine the recommended ABB circuit breaker part number in the tables above and cross to the appropriate Electronic Trip or Thermal Magnetic Rockwell Automation part number in the tables below.

- If using breakers with electronic trip units, set the overload current of the circuit breaker equal to orless than the value shown in the “CB Maximum Current” column in the tables below.
- For information on Rockwell Automation circuit breakers refer to: 140G Molded Case Circuit Breakers | Allen-Bradley (rockwellautomation.com)

Rockwell Automation 480V circuit breakers

CB Maximum Current (A)	CB Voltage (V)	Circuit Breaker (ABB) 65 kA @ 480V	Circuit Breaker (Rockwell Automation) 65 kA @ 480V Thermal Mag Trip	Circuit Breaker (Rockwell Automation) 65 kA @ 480V Electronic LSI Trip	Circuit Breaker (Rockwell Automation) 65 kA @ 480V Electronic LSIG Trip	Circuit Breaker (Rockwell Automation) 65 kA @ 480V Electronic LSIG-MM Trip
15	480	XT2Hαβ015#********	140G-HC6C3-C15	140G-HC6H3-C25	140G-HC6I3-C25	-
20	480	XT2Hαβ020#********	140G-HC6C3-C20	140G-HC6H3-C25	140G-HC6I3-C25	-
30	480	XT2Hαβ030#********	140G-HC6C3-C30	140G-HC6H3-C60	140G-HC6I3-C60	-
35	480	XT2Hαβ035#********	140G-HC6C3-C35	140G-HC6H3-C60	140G-HC6I3-C60	-
50	480	XT2Hαβ050#********	140G-HC6C3-C50	140G-HC6H3-C60	140G-HC6I3-C60	-
70	480	XT2Hαβ070#********	140G-HC6C3-C70	140G-HC6H3-D10	140G-HC6I3-D10	-
125	480	XT2Hαβ125#********	140G-HC6F3-D12	140G-HC6H3-D12	140G-HC6I3-D12	-
150	480	XT4Hαβ150#********	140G-JC6F3-D15	140G-JC6H3-D15	140G-JC6I3-D15	-
225	480	XT4Hαβ225#********	140G-JC6F3-D22	140G-JC6H3-D25	140G-JC6I3-D25	-
250	480	XT4Hαβ250#********	140G-JC6F3-D25	140G-JC6H3-D25	140G-JC6I3-D25	-
400	480	XT5Hαβ40A#********	140G-KC6F3-D40	140G-KC6H3-D40	140G-KC6I3-D40	140G-KC6K3-D40

Rockwell Automation 600V circuit breakers

CB Maximum Current (A)	CB Voltage (V)	Circuit Breaker (ABB) 65 kA @ 600V	Circuit Breaker (Rockwell Automation) 65 kA @ 600V Thermal Mag Trip	Circuit Breaker (Rockwell Automation) 65 kA @ 600V Electronic LSI Trip	Circuit Breaker (Rockwell Automation) 65 kA @ 600V Electronic LSIG Trip	Circuit Breaker (Rockwell Automation) 65 kA @600V Electronic LSIG-MM Trip
400	600	XT5Lαβ40A#********	140G-KC0F3-D40	140G-KC0H3-D40	140G-KC0I3-D40	140G-KC0K3-D40

Revision History:

Rev. H Table ACH, ACQ, ACS580-01, 480V fuses: Updated error in fuse size for 361-4 drive Pg. 12
Table ACS880-01 circuit breakers 600V: Updated drive volume for ACS880-01-035A-7 drive volume Pg. 42

Rev. J Additional rule (15) for 480V R6 frame Pg. 19 and Pg. 39.
Updated Minimum Enclosure Size and Drive Volume for 230V R1-R5 frame drives Pg. 21
Updated Minimum Enclosure Size for 480V R6-R9 Pg. 21 and Pg. 41.

Rev. K Added IEC fuse tables and circuit breaker tables for AC(H,Q,S)580 drives. Added Miniature Circuit Breakers for ACS380 and AC(H,Q,S)580 drives. Removed all fuses but Class T for ACS380 drives. Added extended ACxx80-01-454A/477A R9 frame drive to tables. Added alternative fuses for -14 and -34 drives. Modified rules when utilizing Circuit Breaker designs.