

Fuses for the ABB 580 drive family

Acceptable fuses

Purpose

This document outlines which alternative fuses may be used with ACH580-01/31, ACQ580-01/31, and ACS580-01 base drives through the R8 frame size.

How to use this information

The drive hardware manual includes fuse recommendations for the drive. In addition to the fuses identified in the manual, alternative fuses can be used if they meet certain requirements. The guidelines in this document describe which fuses are acceptable alternatives. This document is a supplement to the following drive hardware manuals:

- 3AXD50000044839 – ACH580-01 drives
- 3AXD50000044862 – ACQ580-01 drives
- 3AXD50000018826 – ACS580-01 drives
- 3AXD50000037066 – ACH580-31 drives
- 3AXD50000045935 – ACQ580-31 drives

Information

ACH580-01/31, ACQ580-01/31 and ACS580-01 drives are suitable for use on a circuit capable of delivering no more than 100 kA symmetrical amperes (RMS) at 600 V maximum, when protected by appropriate fuses. The drives are tested to UL61800-5-1 standard on a circuit having available system fault of 100 kA.

Hardware manuals for ACH580-01/31, ACQ580-01/31 and ACS580-01 drives recommend:

- Listed Class CC (UL 248-4) fuses (up to 30A)
- Listed Class T (UL 248-15) fast acting fuses (up to 400A).

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) limits. 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 and high-speed fuses can also be used, since they provide equal or better protection. Likewise, listed (UL248-17) fast-acting cubed body (CF) fuses can be used as well.

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

1. The UL listed fuses in the hardware manual tables, or the tables in this document, are the required branch circuit protection per NEC.

2. Fuses are required as part of the installation. Fuses are not included in the base drive configuration and must be provided by others.
3. Fuses with a higher current rating than specified must not be used.
4. Fuses with a lower current rating than specified may be used if they are of the same voltage and are (UL 248) listed fast-acting or high-speed fuses.
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. Recommended drive fuses must be used to maintain drive UL listing. Additional protection can be used. Refer to local codes and regulations.
7. When installing a drive always follow installation instructions and NEC requirements.
8. (UL 248) listed, fast-acting or high-speed fuses from other manufacturers can be used if they meet the rating requirements specified in the rules above.

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

Table 1
ACH/Q/S580-01
208/230 VAC

Frame Size	208/230V ACH580-01 ACS580-01 ACQ580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL248-15 Class T Fast-Acting Fuses				UL 248-8 Fast-Acting Class J Fuses				UL 248-8 High-Speed Class J Fuses				UL 248-4 Class CC Fast-Acting Fuses				UL 248-17 Class CF Fast-Acting Cube Fuse
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen - Ferraz - Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz - Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz Shawmut	Edison	Bussmann
			A	V																	Bussmann
R1	04A6-2	4.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	06A6-2	6.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	07A5-2	7.5	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	10A6-2	10.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	017A-2	16.7	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30	DFJ-30	LDFJ030	HSJ30	JHL30	CTK-R-30	KLKR30	ATMR30	HCLR30	FCF30RN
R2	024A-2	24.2	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40	DFJ-30	LDFJ030	HSJ30	JHL30	-	-	-	-	FCF30RN
R2	031A-2	30.8	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40	DFJ-40	LDFJ040	HSJ40	JHL40	-	-	-	-	FCF40RN
R3	046A-2	46.2	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80	DFJ-80	LDFJ080	HSJ80	JHL40	-	-	-	-	FCF40RN
R3	059A-2	59.4	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80	DFJ-80	LDFJ080	HSJ80	JHL80	-	-	-	-	FCF80RN
R4	075A-2	74.8	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4J100	JFL100	DFJ-100	LDFJ100	HSJ100	JHL100	-	-	-	-	FCF100RN
R5	088A-2	88.0	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150	DFJ-150	LDFJ150	HSJ150	JHL150	-	-	-	-	-
R5	114A-2	114	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150	DFJ-150	LDFJ150	HSJ150	JHL150	-	-	-	-	-
R6	143A-2	143	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200	DFJ-200	LDFJ200	HSJ200	JHL200	-	-	-	-	-
R7	169A-2	169	250	600	JJS-250	JLLS250	A6T250	TJS250	JKS-250	JLS250	A4T250	JFL250	DFJ-250	LDFJ250	HSJ250	JHL250	-	-	-	-	-
R7	211A-2	211	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300	DFJ-300	LDFJ300	HSJ300	JHL300	-	-	-	-	-
R8	273A-2	273	400	600	JJS-400	JLLS400	A6T400	TJS400	JKS-400	JLS400	A4J400	JFL400	DFJ-400	LDFJ400	HSJ400	JHL400	-	-	-	-	-

Table 2

ACH/Q/S580-01
480 VAC

Frame Size	480V ACH580-01 ACS580-01 ACQ580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL248-15 Class T Fast-Acting Fuses				UL 248-8 Fast-Acting Class J Fuses				UL 248-8 High-Speed Class J Fuses				UL 248-4 Class CC Fast-Acting Fuses				UL 248-17 Class CF Fast-Acting Cube Fuse
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen - Ferraz - Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz - Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz Shawmut	Edison	Bussmann
			A	V																	
R1	02A1-4	2.1	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	03A0-4	3.0	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	03A5-4	3.5	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	04A8-4	4.8	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	07A6-4	7.6	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R1	012A-4	12.0	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	CTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R2	014A-4	14.0	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30	DFJ-30	LDFJ030	HSJ30	JHL30	CTK-R-30	KLKR30	ATMR30	HCLR30	FCF30RN
R2	023A-4	23.0	30	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30	DFJ-30	LDFJ030	HSJ30	JHL30	CTK-R-30	KLKR30	ATMR30	HCLR30	FCF30RN
R3	027A-4	27.0	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40	DFJ-40	LDFJ040	HSJ40	JHL40	-	-	-	-	FCF40RN
R3	034A-4	34.0	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60	DFJ-60	LDFJ060	HSJ60	JHL60	-	-	-	-	FCF60RN
R3	044A-4	44.0	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60	DFJ-60	LDFJ060	HSJ60	JHL60	-	-	-	-	FCF60RN
R4	052A-4	52	80	600	JJS-80	JLLS080	A6T80	TJS80	JKS-80	JLS80	A4J80	JFL80	DFJ-80	LDFJ080	HSJ80	JHL80	-	-	-	-	FCF80RN
R4	065A-4	65	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4J100	JFL100	DFJ-100	LDFJ100	HSJ100	JHL100	-	-	-	-	FCF100RN
R4	077A-4	77	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100	DFJ-100	LDFJ100	HSJ100	JHL100	-	-	-	-	-
R5	096A-4	96	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150	DFJ-150	LDFJ150	HSJ150	JHL150	-	-	-	-	-
R6	124A-4	124	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200	DFJ-200	LDFJ200	HSJ200	JHL200	-	-	-	-	-
R7	156A-4	156	225	600	JJS-225	JLLS225	A6T225	TJS225	JKS-225	JLS225	A4J225	JFL225	DFJ-225	LDFJ225	HSJ225	JHL225	-	-	-	-	-
R7	180A-4	180	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4J300	JFL300	DFJ-300	LDFJ300	HSJ300	JHL300	-	-	-	-	-
R8	240A-4	240	350	600	JJS-350	JLLS350	A6T350	TJS350	JKS-350	JLS350	A4J350	JFL350	DFJ-350	LDFJ350	HSJ350	JHL350	-	-	-	-	-

Table 3

ACH/Q/S580-01
600V

Frame Size	575V ACH580-01 ACS580-01 ACQ580-01	Input Current	UL Fuse Size (A) and Voltage (V)		UL248-15 Class T Fast-Acting Fuses				UL 248-8 Fast-Acting Class J Fuses				UL 248-8 High-Speed Class J Fuses				UL 248-4 Class CC Fast-Acting Fuses				UL 248-17 Class CF Fast-Acting Cube Fuse
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen - Ferraz - Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz - Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz Shawmut	Edison	Bussmann
			A	V																	
R2	02A7-6	2.7	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	KTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R2	03A9-6	3.9	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	KTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R2	06A1-6	6.1	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	KTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R2	09A0-6	9	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	KTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R2	011A-6	11	15	600	JJS-15	JLLS015	A6T15	TJS15	JKS-15	JLS15	A4J15	JFL15	DFJ-15	LDFJ015	HSJ15	JHL15	KTK-R-15	KLKR15	ATMR15	HCLR15	FCF15RN
R2	017A-6	17	15	600	JJS-30	JLLS030	A6T30	TJS30	JKS-30	JLS30	A4J30	JFL30	DFJ-30	LDFJ030	HSJ30	JHL30	KTK-R-30	KLKR30	ATMR30	HCLR30	FCF30RN
R3	022A-6	22	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40	DFJ-40	LDFJ040	HSJ40	JHL40	-	-	-	-	FCF40RN
R3	027A-6	27	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40	DFJ-40	LDFJ040	HSJ40	JHL40	-	-	-	-	FCF40RN
R3	032A-6	32	40	600	JJS-40	JLLS040	A6T40	TJS40	JKS-40	JLS40	A4J40	JFL40	DFJ-40	LDFJ040	HSJ40	JHL40	-	-	-	-	FCF40RN
R5	041A-6	41	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100	DFJ-100	LDFJ100	HSJ100	JHL100	-	-	-	-	-
R5	052A-6	52	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100	DFJ-100	LDFJ100	HSJ100	JHL100	-	-	-	-	-
R5	062A-6	62	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100	DFJ-100	LDFJ100	HSJ100	JHL100	-	-	-	-	-
R5	077A-6	77	100	600	JJS-100	JLLS100	A6T100	TJS100	JKS-100	JLS100	A4T100	JFL100	DFJ-100	LDFJ100	HSJ100	JHL100	-	-	-	-	-
R7	099A-6	99	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150	DFJ-150	LDFJ150	HSJ150	JHL150	-	-	-	-	-
R7	125A-6	125	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200	DFJ-200	LDFJ200	HSJ200	JHL200	-	-	-	-	-
R8	144A-6	144	250	600	JJS-250	JLLS250	A6T250	TJS250	JKS-250	JLS250	A4J250	JFL250	DFJ-250	LDFJ250	HSJ250	JHL250	-	-	-	-	-

Table 4
ACH/Q580-31
480V

Frame Size	480V ACH580-31 ACQ580-31	Input Current	UL Fuse Size (A) and Voltage (V)		UL248-15 Class T Fast-Acting Fuses				UL 248-8 Fast-Acting Class J Fuses				UL 248-8 High-Speed Class J Fuses				UL 248-4 Class CC Fast-Acting Fuses				UL 248-17 Class CF Fast-Acting Cube Fuse
			Maximum Current	Voltage Rating	Bussmann	Littelfuse	Mersen - Ferraz - Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz - Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz Shawmut	Edison	Bussmann	Littelfuse	Mersen - Ferraz Shawmut	Edison	Bussmann
			A	V																	Bussmann
R3	07A6-4	7	15	600	JJS-20	JLLS020	A6T20	TJS20	JKS-20	JLS20	A4J20	JFL20	DFJ-20	LDFJ020	HSJ20	JHL20	CTK-R-20	KLKR20	ATMR20	HCLR20	FCF20RN
R3	012A-4	9	20	600	JJS-20	JLLS020	A6T20	TJS20	JKS-20	JLS20	A4J20	JFL20	DFJ-20	LDFJ020	HSJ20	JHL20	CTK-R-20	KLKR20	ATMR20	HCLR20	FCF20RN
R3	014A-4	12	25	600	JJS-35	JLLS035	A6T35	TJS35	JKS-35	JLS35	A4J35	JFL35	DFJ-35	LDFJ035	HSJ35	JHL35	CTK-R-35	KLKR35	ATMR35	HCLR35	FCF35RN
R3	023A-4	17	35	600	JJS-35	JLLS035	A6T35	TJS35	JKS-35	JLS35	A4J35	JFL35	DFJ-35	LDFJ035	HSJ35	JHL35	-	-	-	-	FCF35RN
R6	027A-4	24	40	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60	DFJ-60	LDFJ060	HSJ60	JHL60	-	-	-	-	FCF60RN
R6	034A-4	29	50	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60	DFJ-60	LDFJ060	HSJ60	JHL60	-	-	-	-	FCF60RN
R6	044A-4	34	60	600	JJS-60	JLLS060	A6T60	TJS60	JKS-60	JLS60	A4J60	JFL60	DFJ-60	LDFJ060	HSJ60	JHL60	-	-	-	-	FCF60RN
R6	052A-4	44	80	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110	DFJ-110	LDFJ0110	HSJ110	JHL110	-	-	-	-	-
R6	065A-4	54	90	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110	DFJ-110	LDFJ0110	HSJ110	JHL110	-	-	-	-	-
R6	077A-4	66	110	600	JJS-110	JLLS110	A6T110	TJS110	JKS-110	JLS110	A4J110	JFL110	DFJ-110	LDFJ0110	HSJ110	JHL110	-	-	-	-	-
R8	096A-4	72	150	600	JJS-150	JLLS150	A6T150	TJS150	JKS-150	JLS150	A4J150	JFL150	DFJ-150	LDFJ0150	HSJ150	JHL150	-	-	-	-	-
R8	124A-4	88	200	600	JJS-200	JLLS200	A6T200	TJS200	JKS-200	JLS200	A4J200	JFL200	DFJ-200	LDFJ0200	HSJ200	JHL200	-	-	-	-	-
R8	156A-4	120	225	600	JJS-225	JLLS225	A6T225	TJS225	JKS-225	JLS225	A4J225	JFL225	DFJ-225	LDFJ225	HSJ225	JHL225	-	-	-	-	-
R8	180A-4	144	300	600	JJS-300	JLLS300	A6T300	TJS300	JKS-300	JLS300	A4T300	JFL300	DFJ-300	LDFJ300	HSJ300	JHL300	-	-	-	-	-

