

Annex to the Getting Started with Altivar Machine ATV320



Short Circuit Current Ratings (SCCR) and Branch Circuit Protection

The combinations in the table below have been tested per UL61800-5-1 (Reference UL file E116875). These ratings allow proper coordination of short circuit protection. The product would exceed a 100 kA interrupt rating on the output.

Altivar Machine ATV320 drives are provided with integral overload and over-speed monitoring after activation of the function [Mot THR memo] $\pi \pi \pi$ and can provide motor overload protection at 100% of the full load motor current. The motor thermal protection current [Mot. therm. current] $\pi \pi H$ must be set to the rated current indicated on the motor nameplate. For more information refer to the ATV320 programming manual (NVE41295).

The opening of the branch circuit protective device may be an indication that a fault current has been interrupted.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Current-carrying parts and other components of the controller should be examined and replaced if damaged.
- If burnout of the current element of an overload relay occurs, the complete overload relay must be replaced.

Failure to follow these instructions will result in death or serious injury.

Use 75°C (167°F) copper conductor with the AWG wire size shown on nameplate for all sizes.

Suitable for use on a circuit capable of delivering not more than X rms symmetrical kiloAmperes, Y Volts maximum, when protected by Z1 with a maximum rating of Z2 .

Altivar 320 Short Circuit Current Ratings ^{1,2} With Enclosure, Without Line Reactor				Minimum Enclosure Volume		With Circuit Breaker		With GV-P			Fuses		Line Reactor Min. Value ¹⁰		
Input Voltage 50/60 Hz (Y)	Power Ratings		Catalog Number ⁸			PowerPact ³ Catalog Number (Z1, Z2)	SCCR (X) kA	GV-P (Z1, Z2)			SCCR (X) kA	600 V Class J (Z1, Z2)			SCCR (X) kA
	kW	HP						Type E ⁴	Voltage Rating V	Power ⁷ HP					
240 Vac Single-phase	0.18	1/4	ATV320U02M2•	53	3223	H•L36015	5 ¹²	GV2P08	240	1/3	5 ¹²	7	5 ¹²	–	–
	0.37	1/2	ATV320U04M2•	53	3223	H•L36015	5 ¹²	GV2P10	240	1/2	5 ¹²	15	5 ¹²	–	–
	0.55	3/4	ATV320U06M2•	53	3223	H•L36015	5 ¹²	GV2P14	240	1 1/2	5 ¹²	25	5 ¹²	–	–
	0.75	1	ATV320U07M2•	53	3223	H•L36015	5 ¹²	GV2P16	240	2	5 ¹²	25	5 ¹²	–	–
	1.1	1 1/2	ATV320U11M2•	53	3223	H•L36020	5 ¹²	GV2P16	240	2	5 ¹²	25	5 ¹²	–	–
	1.5	2	ATV320U15M2•	53	3223	H•L36030	5 ¹²	GV2P20	240	3	5 ¹²	40	5 ¹²	–	–
	2.2	3	ATV320U22M2•	53	3223	H•L36035	5 ¹²	GV2P32	240	5	5 ¹²	45	5 ¹²	–	–
	4	5	ATV320U75M3C	53	3223	H•L36050	5 ¹²	GV3P40	240	5	5 ¹²	70	5 ¹²	–	–
	5.5	7.5	ATV320D11M3C	53	3223	H•L36070	5	GV3P50	240	7.5	5	100	5	–	–
7.5	10	ATV320D15M3C	53	3223	H•L36090	5	GV3P65	240	10	5	100	5	–	–	
240 Vac Three-phase	0.18	1/4	ATV320U02M3C	53	3223	H•L36015	5	GV2P08	240	3/4	5	5	5	–	–
	0.37	1/2	ATV320U04M3C	53	3223	H•L36015	5	GV2P08	240	3/4	5	7	5	–	–
	0.55	3/4	ATV320U06M3C	53	3223	H•L36015	5	GV2P10	240	1 1/2	5	15	5	–	–
	0.75	1	ATV320U07M3C	53	3223	H•L36015	5	GV2P10	240	1 1/2	5	15	5	–	–
	1.1	1 1/2	ATV320U11M3C	53	3223	H•L36015	5	GV2P14	240	3	5	25	5	–	–
	1.5	2	ATV320U15M3C	53	3223	H•L36015	5	GV2P14	240	3	5	25	5	–	–
	2.2	3	ATV320U22M3C	53	3223	H•L36020	5	GV2P16	240	3	5	25	5	–	–
	3	3	ATV320U30M3C	53	3223	H•L36020	5	GV2P20	240	5	5	45	5	–	–
	4	5	ATV320U40M3C	53	3223	H•L36030	5	GV2P21	240	7.5	5	45	5	–	–
	5.5	7.5	ATV320U55M3C	53	3223	H•L36040	22	GV3P40	240	10	22	60	22	–	–
7.5	10	ATV320U75M3C	53	3223	H•L36050	22	GV3P50	240	15	22	70	22	–	–	
11	15	ATV320D11M3C	53	3223	H•L36070	22	GV3P65	240	20	22	100	22	–	–	
15	20	ATV320D15M3C	53	3223	H•L36090	22	GV4P80S	240	20	22	100	22	–	–	
480 Vac Single-phase	0.37	1/2	ATV320U07N4•	53	3223	H•L36015	5	GV2P08	480Y/277	2	5	6	5	–	–
	0.55	3/4	ATV320U11N4•	53	3223	H•L36015	5	GV2P08	480Y/277	2	5	12	5	–	–
	0.75	1	ATV320U15N4•	53	3223	H•L36015	5	GV2P10	480Y/277	3	5	12	5	–	–
	1.1	1 1/2	ATV320U22N4•	53	3223	H•L36015	5	GV2P14	480Y/277	5	5	15	5	–	–
	1.5	2	ATV320U30N4•	53	3223	H•L36015	5	GV2P14	480Y/277	5	5	17.5	5	–	–
	2.2	3	ATV320U40N4•	53	3223	H•L36015	5	GV3P13 ⁵	480Y/277	7.5	5	25	5	–	–
	3	3	ATV320U55N4•	53	3223	H•L36020	22	GV3P18 ⁵	480Y/277	10	22	40	22	–	–
	4	5	ATV320U75N4•	53	3223	H•L36030	22	GV3P25 ⁵	480Y/277	15	22	40	22	–	–
5.5	7.5	ATV320D11N4•	53	3223	H•L36040	22	GV3P32	480Y/277	20	22	60	22	–	–	
7.5	10	ATV320D15N4•	53	3223	H•L36050	22	GV3P40	480Y/277	25	22	60	22	–	–	
480 Vac Three-phase	0.37	1/2	ATV320U04N4•	53	3223	H•L36015	5	GV2P07	480Y/277	1	5	6	5	–	–
	0.55	3/4	ATV320U06N4•	53	3223	H•L36015	5	GV2P07	480Y/277	1	5	6	5	–	–
	0.75	1	ATV320U07N4•	53	3223	H•L36015	5	GV2P08	480Y/277	2	5	6	5	–	–
	1.1	1 1/2	ATV320U11N4•	53	3223	H•L36015	5	GV2P08	480Y/277	2	5	12	5	–	–
	1.5	2	ATV320U15N4•	53	3223	H•L36015	5	GV2P10	480Y/277	3	5	12	5	–	–
	2.2	3	ATV320U22N4•	53	3223	H•L36015	5	GV2P14	480Y/277	5	5	15	5	–	–
	3	3	ATV320U30N4•	53	3223	H•L36015	5	GV2P14	480Y/277	5	5	17.5	5	–	–
	4	5	ATV320U40N4•	53	3223	H•L36015	5	GV3P13 ⁵	480Y/277	7.5	5	25	5	–	–
	5.5	7.5	ATV320U55N4•	53	3223	H•L36020	22	GV3P18 ⁵	480Y/277	10	22	40	22	–	–
	7.5	10	ATV320U75N4•	53	3223	H•L36030	22	GV3P25 ⁵	480Y/277	15	22	40	22	–	–
11	15	ATV320D11N4•	53	3223	H•L36040	22	GV3P32	480Y/277	20	22	60	22	–	–	
15	20	ATV320D15N4•	53	3223	H•L36050	22	GV3P40	480Y/277	25	22	60	22	–	–	

Altivar 320 Short Circuit Current Ratings ^{1, 2} With Enclosure, With Line Reactor				Minimum Enclosure Volume		With Circuit Breaker		With GV-P				Fuses		Line Reactor Min. Value ¹⁰			
Input Voltage 50/60 Hz (Y)	Power Ratings		Catalog Number ⁸			L	in3	PowerPact ³ Catalog Number (Z1, Z2)	SCCR (X) kA	GV-P (Z1, Z2)			SCCR (X) kA			600 V Class J ⁶ (Z1, Z2) A	SCCR (X) kA
	kW	HP								Type E ⁴	Voltage Rating V	Power ⁷ HP					
240 Vac Single-phase	0.18	1/4	ATV320U02M2•	53	3223	H•L36015	65	GV2P08	240	1/3	65	7	100	2.5	3		
	0.37	1/2	ATV320U04M2•	53	3223	H•L36015	65	GV2P10	240	1/2	65	15	100	2.5	5		
	0.55	3/4	ATV320U06M2•	53	3223	H•L36015	65	GV2P14	240	1 1/2	65	25	100	2.5	5		
	0.75	1	ATV320U07M2•	53	3223	H•L36015	65	GV2P16	240	2	65	25	100	2.5	7		
	1.1	1 1/2	ATV320U11M2•	53	3223	H•L36020	65	GV2P16	240	2	65	25	100	1	10		
	1.5	2	ATV320U15M2•	53	3223	H•L36030	65	GV2P20	240	3	65	40	100	1	13		
	2.2	3	ATV320U22M2•	53	3223	H•L36035	65	GV2P32	240	5	65	45	100	1	18		
	4	5	ATV320U75M3C	53	3223	H•L36050	65	GV3P40	240	5	65	70	100	0.4	35		
240 Vac Three-phase	0.18	1/4	ATV320U02M3C	53	3223	H•L36015	65	GV2P08	240	3/4	65	5	100	6.4	1		
	0.37	1/2	ATV320U04M3C	53	3223	H•L36015	65	GV2P08	240	3/4	65	7	100	6.4	1.6		
	0.55	3/4	ATV320U06M3C	53	3223	H•L36015	65	GV2P10	240	1 1/2	65	15	100	6.4	2.3		
	0.75	1	ATV320U07M3C	53	3223	H•L36015	65	GV2P10	240	1 1/2	65	15	100	6.4	3.1		
	1.1	1 1/2	ATV320U11M3C	53	3223	H•L36015	65	GV2P14	240	3	65	25	100	1.5	4.4		
	1.5	2	ATV320U15M3C	53	3223	H•L36015	65	GV2P14	240	3	65	25	100	1.5	6		
	2.2	3	ATV320U22M3C	53	3223	H•L36020	65	GV2P16	240	3	65	25	100	1	9		
	3	3	ATV320U30M3C	53	3223	H•L36020	65	GV2P20	240	5	65	45	100	0.8	12		
480 Vac Single-phase	0.37	1/2	ATV320U07N4•	53	3223	H•L36015	65	GV2P08	480Y/277	2	65	6	100	12	2		
	0.55	3/4	ATV320U11N4•	53	3223	H•L36015	65	GV2P08	480Y/277	2	65	12	100	6.8	2.9		
	0.75	1	ATV320U15N4•	53	3223	H•L36015	65	GV2P10	480Y/277	3	65	12	100	6.8	3.7		
	1.1	1 1/2	ATV320U22N4•	53	3223	H•L36015	65	GV2P14	480Y/277	5	65	15	100	5	5.4		
	1.5	2	ATV320U30N4•	53	3223	H•L36015	65	GV2P14	480Y/277	5	65	17.5	100	3	7.4		
	2.2	3	ATV320U40N4•	53	3223	H•L36015	65	GV3P13 ⁵	480Y/277	7.5	65	25	100	3	10		
	3	3	ATV320U55N4•	53	3223	H•L36020	65	GV3P18 ⁵	480Y/277	10	65	40	100	2.5	14		
	4	5	ATV320U75N4•	53	3223	H•L36030	65	GV3P25 ⁵	480Y/277	15	65	40	100	1.5	18		
480 Vac Three-phase	0.37	1/2	ATV320U04N4C	30.2	1844	H•L36015	65	GV2P07	480Y/277	1	65	6	65	12	1		
	0.55	3/4	ATV320U06N4C	30.2	1844	H•L36015	65	GV2P07	480Y/277	1	65	6	65	12	1.3		
	0.75	1	ATV320U07N4C	30.2	1844	H•L36015	65	GV2P08	480Y/277	2	65	6	65	12	1.7		
	1.1	1 1/2	ATV320U11N4C	30.2	1844	H•L36015	65	GV2P08	480Y/277	2	65	12	65	6.8	2.4		
	1.5	2	ATV320U15N4C	30.2	1844	H•L36015	65	GV2P10	480Y/277	3	65	12	65	6.8	3.2		
	2.2	3	ATV320U22N4C	30.2	1844	H•L36015	65	GV2P14	480Y/277	5	65	15	65	5	4.7		
	3	3	ATV320U30N4C	30.2	1844	H•L36015	65	GV2P14	480Y/277	5	65	17.5	65	3	6.2		
	4	5	ATV320U40N4C	30.2	1844	H•L36015	65	GV3P13 ⁵	480Y/277	7.5	65	25	65	3	8		
600 Vac Three-phase	0.75	1	ATV320U07S6C	53	3223	H•L36015	22	GV3P13	600Y/347	10	22	6	22	9	1.4		
	1.5	2	ATV320U15S6C	53	3223	H•L36015	22	GV3P13	600Y/347	10	22	6	22	9	2.4		
	2.2	3	ATV320U22S6C	53	3223	H•L36015	22	GV3P13	600Y/347	10	22	10	22	5	3.3		
	4	5	ATV320U40S6C	53	3223	H•L36015	22	GV3P13	600Y/347	10	22	15	22	5	6		
	5.5	7.5	ATV320U55S6C	53	3223	H•L36025	22	GV3P13	600Y/347	10	22	20	22	2.5	8		
	7.5	10	ATV320U75S6C	53	3223	H•L36030	22	GV3P13	600Y/347	10	22	25	22	2.5	11		
	11	15	ATV320D11S6C	53	3223	H•L36045	22	GV3P18	600Y/347	15	22	35	22	1.2	16		
	15	20	ATV320D15S6C	53	3223	H•L36060	22	GV3P25	600Y/347	20	22	45	22	1.2	22		

Altivar 320 Short Circuit Current Ratings ¹ UL Type 1 (with optional UL Type 1 conformity kits)				Fuses		Line Reactor Min. Value ¹⁰	
Input Voltage 50/60 Hz (Y)	Power Ratings		Catalog Number ⁸	600 V Class J ⁶	SCCR (X)		
	kW	HP		A	kA	mH	A
240 Vac Single-phase	0.18	1/4	ATV320U02M2C	7	5 ¹²	—	—
	0.37	1/2	ATV320U04M2C	15	5 ¹²	—	—
	0.55	3/4	ATV320U06M2C	25	5 ¹²	—	—
	0.75	1	ATV320U07M2C	25	5 ¹²	—	—
	1.1	1 1/2	ATV320U11M2C	25	5 ¹²	—	—
	1.5	2	ATV320U15M2C	40	5 ¹²	—	—
	2.2	3	ATV320U22M2C	45	5 ¹²	—	—
	4	5	ATV320U75M3C	70	5 ¹²	—	—
	5.5	7.5	ATV320D11M3C	100	5 ¹²	—	—
7.5	10	ATV320D15M3C	100	5 ¹²	—	—	
240 Vac Three-phase	0.18	1/4	ATV320U02M3C	5	5	—	—
	0.37	1/2	ATV320U04M3C	7	5	—	—
	0.55	3/4	ATV320U06M3C	15	5	—	—
	0.75	1	ATV320U07M3C	15	5	—	—
	1.1	1 1/2	ATV320U11M3C	25	5	—	—
	1.5	2	ATV320U15M3C	25	5	—	—
	2.2	3	ATV320U22M3C	25	5	—	—
	3	3	ATV320U30M3C	45	5	—	—
	4	5	ATV320U40M3C	45	5	—	—
	5.5	7.5	ATV320U55M3C	60	5	—	—
	7.5	10	ATV320U75M3C	70	5	—	—
480 Vac Single-phase	0.37	1/2	ATV320U07N4C	6	5	—	—
	0.55	3/4	ATV320U11N4C	12	5	—	—
	0.75	1	ATV320U15N4C	12	5	—	—
	1.1	1 1/2	ATV320U22N4C	15	5	—	—
	1.5	2	ATV320U30N4C	17.5	5	—	—
	2.2	3	ATV320U40N4C	25	5	—	—
	3	3	ATV320U55N4•	40	5	—	—
	4	5	ATV320U75N4•	40	5	—	—
	5.5	7.5	ATV320D11N4•	60	22	—	—
7.5	10	ATV320D15N4•	60	22	—	—	
480 Vac Three-phase	0.37	1/2	ATV320U04N4C	6	5	—	—
	0.55	3/4	ATV320U06N4C	6	5	—	—
	0.75	1	ATV320U07N4C	6	5	—	—
	1.1	1 1/2	ATV320U11N4C	12	5	—	—
	1.5	2	ATV320U15N4C	12	5	—	—
	2.2	3	ATV320U22N4C	15	5	—	—
	3	3	ATV320U30N4C	17.5	5	—	—
	4	5	ATV320U40N4C	25	5	—	—
	5.5	7.5	ATV320U55N4•	40	5	—	—
	7.5	10	ATV320U75N4•	40	5	—	—
600 Vac Three-phase	1.1	1 1/2	ATV320D11S6C	60	22	—	—
	1.5	2	ATV320D15S6C	60	22	—	—
	0.75	1	ATV320U07S6C	6	5	9	1.4
	1.5	2	ATV320U15S6C	6	5	9	2.4
	2.2	3	ATV320U22S6C	10	5	5	3.3
	4	5	ATV320U40S6C	15	5	5	6
	5.5	7.5	ATV320U55S6C	20	5	2.5	8
	7.5	10	ATV320U75S6C	25	5	2.5	11
11	15	ATV320D11S6C	35	5	1.2	16	
15	20	ATV320D15S6C	45	5	1.2	22	

Altivar 320 Short Circuit Current Ratings ¹ UL Type 12			With Circuit Breaker						With GV•P			Fuses		
Input Voltage 50/60 Hz (Y)	Power Ratings		Catalog Number ⁸	PowerPact ³ Catalog Number (Z1, Z2)	Without Line reactor	With Line reactor			GV•P (Z1, Z2)			SCCR (X)	600 V Class J ⁶ (Z1, Z2)	SCCR (X)
					SCCR (X)	SCCR (X)	Line Reactor Min Value ¹⁰		Type E ⁴	Voltage Rating	Power ⁷			
	kA	kA			mH	A	V	HP				kA	A	kA
240 Vac Single-phase	0.18	1/4	ATV320U02M2W(S)	H•L36015	22	65	2.5	3	GV2P08	240	1/3	65	7 ¹¹	100
	0.37	1/2	ATV320U04M2W(S)	H•L36015	22	65	2.5	5	GV2P10	240	1/2	65	15 ¹¹	100
	0.55	3/4	ATV320U06M2W(S)	H•L36015	22	65	2.5	5	GV2P14	240	1 1/2	65	25 ¹¹	100
	0.75	1	ATV320U07M2W(S)	H•L36015	22	65	2.5	7	GV2P16	240	2	65	25 ¹¹	100
	1.1	1 1/2	ATV320U11M2W(S)	H•L36020	22	65	1	10	GV2P16	240	2	65	25 ¹¹	100
	1.5	2	ATV320U15M2W(S)	H•L36030	22	65	1	13	GV2P20	240	3	65	40	100
480 Vac Three-phase	2.2	3	ATV320U22M2W(S)	H•L36035	22	65	1	18	GV2P32	240	5	65	45	100
	0.37	1/2	ATV320U04N4W(S)	H•L36015	22	65	12	1	GV2P07	480Y/277	1	65	6 ¹¹	100
	0.55	3/4	ATV320U06N4W(S)	H•L36015	22	65	12	1.3	GV2P07	480Y/277	1	65	6 ¹¹	100
	0.75	1	ATV320U07N4W(S)	H•L36015	22	65	12	1.7	GV2P08	480Y/277	2	65	6 ¹¹	100
	1.1	1 1/2	ATV320U11N4W(S)	H•L36015	22	65	6.8	2.4	GV2P08	480Y/277	2	65	12 ¹¹	100
	1.5	2	ATV320U15N4W(S)	H•L36015	22	65	6.8	3.2	GV2P10	480Y/277	3	65	12 ¹¹	100
	2.2	3	ATV320U22N4W(S)	H•L36015	22	65	5	4.7	GV2P14	480Y/277	5	65	15 ¹¹	100
	3	4	ATV320U30N4W(S)	H•L36015	22	65	3	6.2	GV2P14	480Y/277	5	65	17.5 ¹¹	100
	4	5	ATV320U40N4W(S)	H•L36015	22	65	3	8	GV3P13 ⁵	480Y/277	7.5	65	25 ¹¹	100
	5.5	7.5	ATV320U55N4W(S)	H•L36020	22	65	2.5	11	GV3P18 ⁵	480Y/277	10	65	40	100
7.5	10	ATV320U75N4W(S)	H•L36030	22	65	1.5	15	GV3P25 ⁵	480Y/277	15	65	40	100	

- The amp rating of the short circuit protection devices in the table are maximum values. Smaller amp sizes may be used. Branch circuit protection must be provided in accordance with the National Electrical Code and any additional local codes.
- Ratings apply to an Altivar 320 drive mounted in a Type 1, 3R, 4(X) or 12 rated enclosure. Minimum enclosure volume allows for specified SCCR. Thermal requirements may require a larger enclosure.
- Circuit breaker part number designations: • = short circuit current rating.
For 240 V range, use • = D for 25 kA, G for 65 kA, J for 65 kA, L for 65 kA, R for 65 kA.
For 480 V range, use • = D for 18 kA, G for 35 kA, J for 65 kA, L for 65 kA, R for 65 kA.
For 600 V range, use • = D for 14 kA, G for 18 kA, J for 22 kA, L for 22 kA, R for 22 kA.
- For GV2P/3P use, 480 V and 600 V ratings are for Wye connected electrical distribution systems. GV2P•• self protected manual combination starter must be used with GV2GH7 insulating barrier to meet UL 508 Type E rating. GV3P•• self protected manual combination starter must be used with GV3G66 + GVAM11 insulating barrier and auxiliary contact to meet UL 508 Type E rating. The GVAM11 provides a visual indication if the GV3P has tripped.
- GV2P products detailed below can be used in place of the GV3P products for obtaining the ratings listed in the SCCR column for ratings listed lower than 10 kA, or ratings limited to 10 kA for ratings listed higher than 10 kA.
GV2P16 for GV3P13, GV2P20 for GV3P18, GV2P22 for GV3P25.
- Use Class CC or J fast acting or time delay.
- UL61800-5-1 Par. 6.3.7DV.2.1.1 require publishing the standard Type E combination motor controller power rating since this is a basic identification marking of type E devices.
However, when applied as an input overcurrent protective device for a drive, the rated current of the Type E combination motor controller, not the rated power, is the key parameter for dimensioning (reference UL61800-5-1Par. 5.2.3.6.2DV.4.1.11 & 5.2.3.6.2DV.4.1.12).
Schneider Electric GV•P Type E combination motor controllers are adjustable, their current range is shown on the adjustment dial and their selection is based on the input current and not the power rating of the drive.
- Catalog Number designations: • = B for the book form factor drives and C for compact form factor drives.
- Order optional UL Type 1 conformity kits separately.
- Reactor from Altivar 320 catalog or MTE series: RLW, do not substitute.
- 30 A class J fuse can be used in place of fuse rating listed.
- Despite a 5 kA SCCR, the thermal design is for 1 kA as indicated in the catalog. For an operating at 5 kA, do not exceed 45 °C (113 °F) ambient temperature at nominal load, or reduce slightly the load not to operate over the input current given in the catalog.

Note:

- Integral solid state short circuit protection in the drive does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code and any local codes.
- The Altivar 320 drive has a 100 kA interrupt rating on the output of the drive. In addition to providing a rating based on shorting the output of the drive, these short circuit current ratings have been obtained by shorting components internal to the Altivar 320. These ratings allow proper coordination of short circuit protection