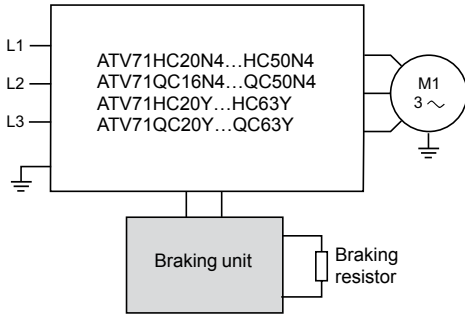


### Presentation



Resistance braking allows Altivar 71 drives to operate while braking to a standstill or during “generator” operation, by dissipating the energy in the braking resistor.

ATV71H●●●M3, ATV71H●●●M3X, ATV71H075N4...HC16N4, ATV71W●●●N4, ATV71P●●●N4Z, ATV71H●●●S6X and ATV71HU22Y...HC16Y drives have a built-in dynamic brake transistor.

For ATV71HC20N4...HC50N4, ATV71QC16N4...QC50N4, ATV71HC20Y...HC63Y and ATV71QC20Y...QC63Y drives, a braking unit must be used. This is controlled by the drive.

For the following drives:

- ATV71HC20N4, HC28N4 and ATV71QC16N4...QC25N4, the braking unit is mounted directly on the left-hand side of the drive
- ATV71HC40N4, HC50N4, ATV71QC40N4, QC50N4, ATV71HC20Y...HC63Y and ATV71QC20Y...QC63Y, the braking unit is an external module

Braking units provide IP 20 protection. Thermal protection is provided by an integrated temperature probe.

### Applications

High-inertia machines, machines with slow and fast cycles, high-power machines performing vertical movements.

### References

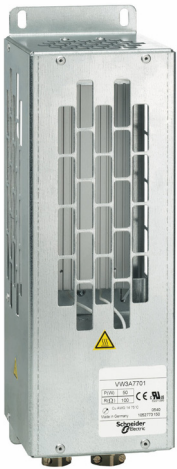
For drives	Power		Losses	Cable (drive-braking unit)		Cable (braking unit-resistors)		Percentage of conduction time	Reference	Weight
	Conti-nuous	Maximum	At continuous power	Cross-section	Maximum length	Cross-section	Maximum length			
	kW	kW	W	mm <sup>2</sup>	m	mm <sup>2</sup>	m			
<b>Supply voltage: 380...480 V 50/60 Hz</b>										
ATV71HC20N4, HC28N4 ATV71QC16N4... QC25N4	200	420	550	–	–	2 x 95	50	5% at 420 kW 15% at 320 kW 50% at 250 kW	<b>VW3A7101</b>	30.000
ATV71HC31N4... HC50N4 ATV71QC31N4... QC50N4	400	750	1050	2 x 150	1	2 x 150	50	5% at 750 kW 15% at 550 kW 50% at 440 kW	<b>VW3A7102</b>	80.000
<b>Supply voltage: 500...690 V 50/60 Hz</b>										
ATV71HC20Y... HC31Y ATV71QC20Y... QC31Y	300	450	650	2 x 150	1	2 x 150	50	5% at 450 kW 15% at 400 kW 50% at 350 kW	<b>VW3A7103</b>	80.000
ATV71HC40Y... HC63Y ATV71QC40Y... QC63Y	400	900	1150	2 x 150	1	2 x 150	50	5% at 900 kW 15% at 600 kW 50% at 500 kW	<b>VW3A7104</b>	80.000

**Note:** To increase the braking power, several braking resistors can be mounted in parallel on the same braking unit. In this case, do not forget to take the minimum resistance value to be associated with the braking unit into account, that is:

- 1.05 ohm for the VW3A7101 braking unit
- 0.7 ohm for the VW3A7102 braking unit
- 2 ohms for the VW3A7103 braking unit
- 1 ohm for the VW3A7104 braking unit

### Presentation

PF108659



VW3A7701

Braking resistors allow Altivar 71 drives to operate while braking to a standstill, by dissipating the braking energy. They enable maximum transient braking torque.

Braking resistors are designed to be mounted on the outside of the enclosure, but should not inhibit natural cooling. Air inlets and outlets must not be obstructed in any way. The air must be free of dust, corrosive gas and condensation.

Two resistor models are available, depending on the drive rating:

- With IP 20 casing and thermal protection provided by temperature-controlled switch or by the drive (VW3A7701...709)
- With IP 23 casing and thermal protection provided by thermal overload relay (VW3A771● and 8●●)

The internal circuits of Altivar 71 drives rated 160 kW or less have a built-in dynamic brake transistor.

### Applications

Inertia machines, machines with cycles

### References

For drives	Degree of protection of the resistor	Ohmic value at 20°C	Average power available at 50°C (1)	Reference	Weight
		Ω	kW		kg
<b>Supply voltage: 200...240 V 50/60 Hz</b>					
ATV71H037M3, H075M3	IP 20	100	0.05	VW3A7701	1.900
ATV71HU15M3, HU22M3	IP 20	60	0.1	VW3A7702	2.400
ATV71HU30M3, HU40M3	IP 20	28	0.2	VW3A7703	3.500
ATV71HU55M3, HU75M3	IP 20	15	1	VW3A7704	11.000
ATV71HD11M3X	IP 20	10	1	VW3A7705	11.000
ATV71HD15M3X	IP 20	8	1	VW3A7706	11.000
ATV71HD18M3X, HD22M3X	IP 20	5	1.3	VW3A7707	11.000
ATV71HD30M3X	IP 20	4	1	VW3A7708	11.000
ATV71HD37M3X, HD45M3X	IP 20	2.5	1	VW3A7709	11.000
ATV71HD55M3X, HD75M3X	IP 23	1.8	15.3	VW3A7713	50.000
ATV71HD75M3X	IP 23	1.4	20.9	VW3A7714	63.000

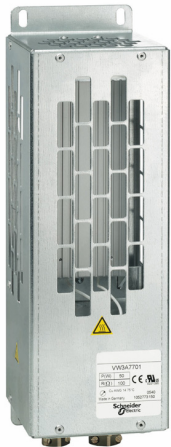
(1) Load factor for resistors: the value of the average power that can be dissipated at 50°C from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:

For VW3A7701...709:

- 2 s braking with a 0.6 T<sub>n</sub> braking torque for a 40 s cycle
- 0.8 s braking with a 1.5 T<sub>n</sub> braking torque for a 40 s cycle

For VW3A7713:

- 10 s braking with a 2 T<sub>n</sub> braking torque for a 30 s cycle



VW3A7701

## References (continued)

For drives	Degree of protection of the resistor	Ohmic value at 20°C	Average power available at 50°C (1)	Reference	Weight
		Ω	kW		kg
<b>Supply voltage: 380...480 V 50/60 Hz</b>					
ATV71H075N4...HU40N4 ATV71W075N4, WU40N4 ATV71P075N4Z...PU55N4Z	IP 20	100	0.05	<b>VW3A7701</b>	1.900
ATV71HU55N4, HU75N4 ATV71WU55N4, WU75N4 ATV71PU55N4Z, PU75N4Z	IP 20	60	0.1	<b>VW3A7702</b>	2.400
ATV71HD11N4, HD15N4 ATV71WD11N4, WD15N4 ATV71PD11N4Z	IP 20	28	0.2	<b>VW3A7703</b>	3.500
ATV71HD18N4...HD30N4 ATV71WD18N4...WD30N4	IP 20	15	1	<b>VW3A7704</b>	11.000
ATV71HD37N4 ATV71WD37N4	IP 20	10	1	<b>VW3A7705</b>	11.000
ATV71HD45N4...HD75N4 ATV71WD45N4...WD75N4	IP 20	5	1.3	<b>VW3A7707</b>	11.000
ATV71HD90N4 ATV71QD90N4	IP 23	2.75	25	<b>VW3A7710</b>	80.000
ATV71HC11N4, HC13N4 ATV71QC11N4, QC13N4	IP 23	2.1	37	<b>VW3A7711</b>	86.000
ATV71HC16N4 ATV71QC16N4	IP 23	2.1	44	<b>VW3A7712</b>	104.000
ATV71HC20N4 ATV71QC20N4	IP 23	1.05	56	<b>VW3A7715</b>	136.000
ATV71HC25N4, HC28N4 ATV71QC25N4	IP 23	1.05	75	<b>VW3A7716</b>	172.000
ATV71HC31N4, HC40N4 ATV71QC31N4, QC40N4	IP 23	0.7	112	<b>VW3A7717</b>	266.000
ATV71HC50N4 ATV71QC50N4	IP 23	0.7	150	<b>VW3A7718</b>	350.000

(1) Load factor for resistors: the value of the average power that can be dissipated at 50°C from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications:

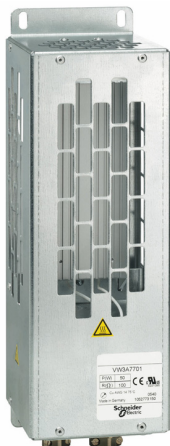
For VW3A7701...705 and VW3A7707:

- 2 s braking with a 0.6 T<sub>n</sub> braking torque for a 40 s cycle
- 0.8 s braking with a 1.5 T<sub>n</sub> braking torque for a 40 s cycle

For VW3A7710...712 and 715...718:

- 10 s braking with a 2 T<sub>n</sub> braking torque for a 30 s cycle

PF106669



VW3A7701

References (continued)						
For drives	Degree of protection of the resistor	Ohmic value at 20°C	Average power available at 50°C (1)	Quantity required per drive	Reference	Weight
		Ω	kW			kg
<b>Supply voltage: 500...600 V 50/60 Hz</b>						
ATV71HU15S6X...HU75S6X	IP 20	60	0.1	1	VW3A7702	2.400
<b>Supply voltage: 500...690 V 50/60 Hz</b>						
ATV71HU22Y...HU55Y	IP 20	100	0.05	1	VW3A7701	1.900
ATV71HU75Y, HD11Y	IP 20	60	0.1	1	VW3A7702	2.400
ATV71HD15Y, HD18Y	IP 20	28	0.2	1	VW3A7703	3.500
ATV71HD22Y...HD37Y	IP 20	15	1	1	VW3A7704	11.000
ATV71HD45Y, HD55Y	IP 20	10	1	1	VW3A7705	11.000
ATV71HD75Y, HD90Y	IP 20	5	1.3	1	VW3A7707	11.000
ATV71HC11Y, HC13Y ATV71QC11Y, QC13Y	IP 23	4.2	62	1	VW3A7806	126.000
ATV71HC16Y, HC20Y ATV71QC16Y, QC20Y	IP 23	8.1	44	2	VW3A7805 (2)	92.000
ATV71HC25Y ATV71QC25Y	IP 23	4.2	62	2	VW3A7806 (2)	126.000
ATV71HC31Y ATV71QC31Y	IP 23	1.05	75	2	VW3A7716 (3)	172.000
ATV71HC40Y ATV71QC40Y	IP 23	1.05	112	2	VW3A7814 (3)	280.000
ATV71HC50Y ATV71QC50Y	IP 23	0.7	112	2	VW3A7717 (3)	266.000
ATV71HC63Y ATV71QC63Y	IP 23	0.7	150	2	VW3A7718 (3)	350.000

(1) Load factor for resistors: the value of the average power that can be dissipated at 50°C from the resistor into the casing is determined for a load factor during braking that corresponds to the majority of normal applications.

For VW3A7701...705 and 707:

- 2 s braking with a 0.6 T<sub>n</sub> braking torque for a 40 s cycle
- 0.8 s braking with a 1.5 T<sub>n</sub> braking torque for a 40 s cycle

For VW3A7716...718:

- 10 s braking with a 2 T<sub>n</sub> braking torque for a 30 s cycle

For VW3A7805 and 806:

- 100 s braking with a 1 T<sub>n</sub> braking torque for a 200 s cycle
- 20 s braking with a 1.6 T<sub>n</sub> braking torque for a 200 s cycle

For VW3A7814:

- 10 s braking with a 2 T<sub>n</sub> braking torque for a 240 s cycle
- 110 s braking with a 1.25 T<sub>n</sub> braking torque for a 240 s cycle

(2) The two braking resistors must be connected in parallel. The dimensions of all the components must be taken into account as well as the required space of 300 mm to be left between each resistor (see our website [www.schneider-electric.com](http://www.schneider-electric.com)).

(3) The two braking resistors must be connected in series. The dimensions of all the components must be taken into account as well as the required space of 300 mm to be left between each resistor (see our website [www.schneider-electric.com](http://www.schneider-electric.com)).

#### Presentation

Hoist resistors are braking resistors which allow Altivar 71 drives to operate while braking to a standstill or during slowdown braking, by dissipating the braking energy. They enable maximum transient braking torque.

The resistors are designed to be mounted on the outside of the enclosure, but should not inhibit natural cooling. Air inlets and outlets must not be obstructed in any way. The air must be free of dust, corrosive gas and condensation.

The internal circuits of Altivar 71 drives rated 160 kW or less have a built-in dynamic brake transistor

The resistors have IP 23 degree of protection (except for VW3 A7 801, which provide IP 23 protection when mounted horizontally and IP 20 in all other cases). Thermal protection is provided by a thermal overload relay.

**Note:** For ATV71HC20N4...HC50N4, ATV71QC16N4...QC50N4, ATV71HC20Y...HC63Y and ATV71QC20Y...QC63Y drives, a braking unit must be used (see page 1/56).

#### Applications

Machines performing vertical movements, machines with fast cycles, high-inertia machines.

#### References

For drives	Ohmic value at 20°C	Average power available at 50°C (1)	Quantity required per drive	Reference	Weight
	Ω	kW			kg
<b>Supply voltage: 200...240 V 50/60 Hz</b>					
ATV71H037M3, H075M3	100	1.6	1	<b>VW3A7801</b>	6.000
ATV71HU15M3	60	5.6	1	<b>VW3A7802</b>	21.000
ATV71HU22M3...HU40M3	24.5	9.8	1	<b>VW3A7803</b>	28.000
ATV71HU55M3, HU75M3	14	22.4	1	<b>VW3A7804</b>	54.000
ATV71HD11M3X, HD15M3X	8.1	44	1	<b>VW3A7805</b>	92.000
ATV71HD18M3X	4.2	62	1	<b>VW3A7806</b>	126.000
ATV71HD22M3X, HD30M3X	3.5	19.5	1	<b>VW3A7807</b>	51.000
ATV71HD37M3X, HD45M3X	1.85	27.4	1	<b>VW3A7808</b>	94.000
ATV71HD55M3X	1.8	30.6	1	<b>VW3A7809</b>	103.000
ATV71HD75M3X	1.4	44	1	<b>VW3A7810</b>	119.000

(1) Operating factor for hoist resistors: the value of the average power that can be dissipated at 50°C from the resistor is determined by a load factor during braking.

For VW3A7801...808:

- 100 s braking with 1 Tn braking torque for a 200 s cycle

- 20 s braking with 1.6 Tn braking torque for a 200 s cycle

For VW3A7809 and VW3A7810:

- 10 s braking with 2 Tn braking torque for a 240 s cycle

- 110 s braking with 1.25 Tn braking torque for a 240 s cycle

References (continued)					
For drives	Ohmic value at 20°C	Average power available at 50°C (1)	Quantity required per drive	Reference	Weight
	Ω	kW			kg
<b>Supply voltage: 380...480 V 50/60 Hz</b>					
ATV71H075N4...HU22N4 ATV71W075N4...WU22N4 ATV71P075N4Z...PU22N4Z	100	1.6	1	VW3A7801	6.000
ATV71HU30N4...HU55N4 ATV71WU30N4...WU55N4 ATV71PU30N4Z...PU55N4Z	60	5.6	1	VW3A7802	21.000
ATV71HU75N4, HD11N4 ATV71WU75N4, WD11N4 ATV71PD11N4Z	24.5	9.8	1	VW3A7803	28.000
ATV71HD15N4...HD30N4 ATV71WD15N4...WD30N4	14	22.4	1	VW3A7804	54.000
ATV71HD37N4...HD55N4 ATV71W37N4...WD55N4	8.1	44	1	VW3A7805	92.000
ATV71HD75N4 ATV71WD75N4	4.2	62	1	VW3A7806	126.000
ATV71HD90N4 ATV71QD90N4	2.75	56	1	VW3A7811	130.000
ATV71HC11N4, HC13N4 ATV71QC11N4, QC13N4	2.1	75	1	VW3A7812	181.000
ATV71HC16N4 ATV71QC16N4	2.1	112	1	VW3A7813	250.000
ATV71HC20N4 ATV71QC20N4	1.05	112	1	VW3A7814	280.000
ATV71HC25N4, HC28N4 ATV71QC25N4	1.05	150	1	VW3A7815	362.000
ATV71HC31N4, HC40N4 ATV71QC31N4, QC40N4	0.7	225	1	VW3A7816	543.000
ATV71HC50N4 ATV71QC50N4	0.7	330	1	VW3A7817	642.000
<b>Supply voltage: 500...600 V 50/60 Hz</b>					
ATV71HU15S6X	100	1.4	1	VW3A7801	6.000
ATV71HU22S6X...HU75S6X	60	4.8	1	VW3A7802	21.000
<b>Supply voltage: 500...690 V 50/60 Hz</b>					
ATV71HU22Y	100	1.6	1	VW3A7801	6.000
ATV71HU30Y...HU55Y	60	5.6	1	VW3A7802	21.000
ATV71HU75Y, HD11Y	24.5	9.8	1	VW3A7803	28.000
ATV71HD15Y...HD30Y	14	22.4	1	VW3A7804	54.000
ATV71HD37Y...HD55Y	8.1	44	1	VW3A7805	92.000
ATV71HD75Y, HD90Y	5	70	1	VW3A7818	159.000
ATV71HC11Y ATV71QC11Y	4.2	62	1	VW3A7806	126.000
ATV71HC13Y, HC16Y ATV71QC13Y, QC16Y	8.1	44	2	VW3A7805 (2)	92.000
ATV71HC20Y ATV71QC20Y	4.2	62	2	VW3A7806 (2)	126.000
ATV71HC25Y ATV71QC25Y	1.05	75	2	VW3A7716 (3)	172.000
ATV71HC31Y ATV71QC31Y	1.05	112	2	VW3A7814 (3)	280.000
ATV71HC40Y ATV71QC40Y	0.7	112	2	VW3A7717 (3)	266.000
ATV71HC50Y ATV71QC50Y	0.7	150	2	VW3A7718 (3)	350.000
ATV71HC63Y ATV71QC63Y	0.7	225	2	VW3A7816 (3)	543.000

(1) Operating factor for hoist resistors: the value of the average power that can be dissipated at 50°C from the resistor is determined by a load factor during braking.

For VW3A7716...718:

- 10 s braking with 2 T<sub>n</sub> braking torque for a 30 s cycle

For VW3A7801...808 and VW3A7818:

- 100 s braking with 1 T<sub>n</sub> braking torque for a 200 s cycle

- 20 s braking with 1.6 T<sub>n</sub> braking torque for a 200 s cycle

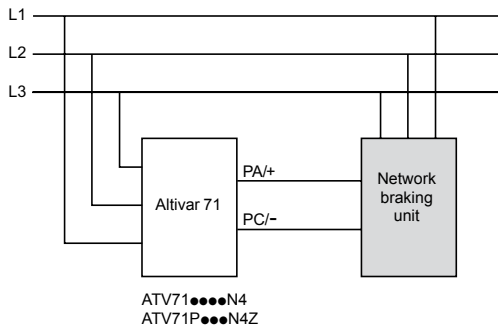
For VW3A7809...817:

- 10 s braking with 2 T<sub>n</sub> braking torque for a 240 s cycle

- 110 s braking with 1.25 T<sub>n</sub> braking torque for a 240 s cycle

(2) The two braking resistors must be connected in parallel. The dimensions of all the components must be taken into account as well as the required space of 300 mm to be left between each resistor (see our website [www.schneider-electric.com](http://www.schneider-electric.com)).

(3) The two braking resistors must be connected in series. The dimensions of all the components must be taken into account as well as the required space of 300 mm to be left between each resistor (see our website [www.schneider-electric.com](http://www.schneider-electric.com)).



### Presentation

Network braking units can be used to return the following to the line supply:

- The energy from the motor
- The energy from the motors controlled by several drives connected on the same DC bus

One of the many advantages of a network braking unit is that it allows a very quick, yet smooth transition between starting and stopping. It is therefore ideal for use in applications where strong braking dynamics are required. It is also very well suited to use on unstable line supplies.

It is available for **ATV71...N4** and **ATV71P...N4Z** drives.

Depending on the braking time required, a specific idle time is necessary between two consecutive braking operations: see the characteristics curves on our website [www.schneider-electric.com](http://www.schneider-electric.com).

Network braking units provide IP 20 protection.

**Note:** For applications requiring a very low total current harmonic distortion (THDI) (< 4%), use the Active Front End (see page 1/64).

### Applications

Braking on a driving load:

- Vertical movements
- Escalators
- Etc.

## Variable speed drives

Altivar 71

Option: network braking units

References							
Line voltage: 400 V ~							
Maximum current I <sub>rms</sub>		Continuous braking power	Continuous braking power	Fast-acting semi-conductor fuses		Reference	Weight
~	≡			~	~		
A	A	kW	kW	A	V		kg
11	13	7	7	20	660	VW3A7201	20.000
20	24	13	13	30	690	VW3A7202	25.000
32	38	11	22	50	690	VW3A7203	26.000
48	58	21.5	33	80	690	VW3A7204	30.000
65	78	26	45	100	690	VW3A7205	32.000
102	123	40	70	160	660	VW3A7206	43.000
130	157	50	90	200	660	VW3A7207	48.000
195	236	60	135	315	660	VW3A7208	52.000
231	279	86	160	350	660	VW3A7209	90.000
289	350	120	200	400	1000	VW3A7210	100.000
360	433	135	250	500	1000	VW3A7211	115.000
500	600	200	345	630	1000	VW3A7212	125.000