



ATV630●●●M3  
ATV630●●●N4  
ATV650●●●N4  
ATV650●●●N4E

Altivar Process drive with dv/dt filter

Presentation

Altivar Process drives operate with the following maximum motor cable lengths: 150 m/492 ft for shielded cables and 300 m/984 ft for unshielded cables.

To limit the impact of dv/dt and overvoltages in the motor, it is recommended, for cables longer than 50 m/164 ft, that you check the motor insulation type and add an output filter if necessary.

Output filters are used to limit dv/dt at the motor terminals to 500 V/μs maximum.

Output filters are designed to limit overvoltages at the motor terminals to less than:

- 800 V with a shielded cable 0 to 50 m (0 to 164 ft) long, with a 400 V supply voltage
- 1,000 V with a shielded cable 50 to 150 m (164 to 492 ft) long, with a 400 V supply voltage
- 1,500 V with a shielded cable 150 to 300 m (492 to 984 ft) long, with a 400 V supply voltage (up to 500 m (1,640 ft) with an unshielded cable)

They are also used to:

- Limit overvoltages at the motor terminals
- Filter interference caused by opening a contactor placed between the filter and the motor

The performance of dv/dt filters will be affected if the maximum cable lengths are exceeded. For an application with several motors connected in parallel, the cable length must include all cabling. If a cable longer than that recommended is used, the dv/dt filters may overheat.

The switching frequency must be less than 100 Hz.

dv/dt output filters

For drives	Maximum length of motor cable		Degree of protection	In (3)	Reference	Weight
	Maximum switching frequency (2)	Shielded cable frequency (2)				
	kHz	m/ft	IP	A		kg/lb
Three-phase supply voltage: 200...240 V						
ATV630U07M3	4	300/984	20	6	VW3A5301	11.000/24.251
ATV630U15M3...U30M3	4	300/984	20	15	VW3A5302	12.000/26.455
ATV630U40M3	4	300/984	20	25	VW3A5303	12.000/26.455
ATV630U55M3...D11M3	4	300/984	20	50	VW3A5304	18.000/39.683
ATV630D15M3...D22M3	4	300/984	20	95	VW3A5305	19.000/41.888
ATV630D30M3...D45M3	2.5	300/984	00	180	VW3A5306	22.000/48.502
ATV630D55M3...D75M3	2.5	300/984	00	305	VW3A5307	40.000/88.185

(1) The filters are designed to operate in a switching frequency range of between 2 and 8 kHz.

(2) Values given depend on the nominal switching frequency of the drive. This frequency depends on the drive rating. These cable lengths are given as examples only as they can vary depending on the application. They correspond to motors conforming to IEC 6034-25 and NEMA MG1/31.2006.

(3) Nominal filter current.

## Variable speed drives

Altivar Process: Output filters

Option: dv/dt filters

dv/dt output filters (continued)						
For drives	Maximum length of motor cable	Degree of protection	In (3)	Reference (4)	Weight	
	Maximum switching frequency (1)	Shielded cable (2)				
	kHz	m/ft	IP	A		kg/lb
<b>Three-phase supply voltage: 380...480 V</b>						
ATV630U07N4...U22N4 ATV650U07N4...U22N4 ATV650U07N4E...U22N4E	4	300/ 984	20	6	<b>VW3A5301</b>	11.000/ 24.251
ATV630U30N4...U55N4 ATV650U30N4...U55N4 ATV650U30N4E...U55N4E	4	300/ 984	20	15	<b>VW3A5302</b>	12.000/ 26.455
ATV630U75N4...D11N4 ATV650U75N4...D11N4 ATV650U75N4E...D11N4E	4	300/ 984	20	25	<b>VW3A5303</b>	12.000/ 26.455
ATV630D15N4...D22N4 ATV650D15N4...D22N4 ATV650D15N4E...D22N4E	4	300/ 984	20	50	<b>VW3A5304</b>	18.000/ 39.683
ATV630D30N4...D45N4 ATV650D30N4...D45N4 ATV650D30N4E...D45N4E	4	300/ 984	20	95	<b>VW3A5305</b>	19.000/ 41.888
ATV630D55N4...D90N4 ATV650D55N4...D90N4 ATV650D55N4E...D90N4E	2.5	300/ 984	00	180	<b>VW3A5306</b>	22.000/ 48.502
ATV630C11N4...C16N4	2.5	300/ 984	00	305	<b>VW3A5307</b>	40.000/ 88.185

IP 21 protection kit for IP 20 filters			
Description	For dv/dt filters	Reference	Weight kg/lb
<b>Mechanical kit including cover and cable clamps</b>	<b>VW3A5301</b>	<b>VW3A53902</b>	1.300/ 2.866
	<b>VW3A5302</b>		
	<b>VW3A5303</b>		
	<b>VW3A5304</b>	<b>VW3A53903</b>	1.700/ 3.748
	<b>VW3A5305</b>	<b>VW3A53904</b>	2.700/ 5.952

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(3) Nominal filter current.

(4) When used with **ATV650U07N4/N4E...D90N4/N4E** drives, the filter must be mounted in a separate enclosure to maintain IP 55 protection for the installation.