
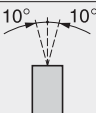


Environmental characteristics

Conformity to standards			Altivar 312 drives have been developed to conform to the strictest international standards and the recommendations relating to electrical industrial control devices (IEC), in particular: IEC 61800-5-1 (low voltage), IEC 61800-3 (EMC immunity and conducted and radiated EMC emissions).
EMC immunity			IEC 61800-3, Environments 1 and 2 (EMC requirement and specific test methods) IEC 61000-4-2 level 3 (electrostatic discharge immunity test) IEC 61000-4-3 level 3 (radio-frequency radiated electromagnetic field immunity test) IEC 61000-4-4 level 4 (electrical fast transient/burst immunity test) IEC 61000-4-5 level 3 (surge immunity test)
Conducted and radiated EMC emissions for drives	ATV 312H●●●●●		IEC 61800-3, Environments: 2 (industrial power supply) and 1 (public power supply), restricted distribution
	ATV 312H018M2...HU15M2 ATV 312H037N4...HU40N4		IEC 61800-3 category C2 With additional EMC filter (1): ■ IEC 61800-3 category C1
	ATV 312HU22M2, ATV 312HU55N4...HD15N4		IEC 61800-3 category C3 With additional EMC filter (1): ■ IEC 61800-3 category C2 ■ IEC 61800-3 category C1
	ATV 312H018M3...HD15M3		With additional EMC filter (1): ■ IEC 61800-3 category C2
CE marking			The drives are marked CE in accordance with the European low voltage (2006/95/EC) and EMC (2004/108/EC) directives
Product certification			UL, CSA, NOM, GOST and C-Tick
Degree of protection			IP 31 and IP 41 on upper part and IP 21 on connection terminals
Vibration resistance	Drive not mounted on  rail		Conforming to IEC 60068-2-6: 1.5 mm peak to peak from 3 to 13 Hz, 1 gn from 13 to 150 Hz
Shock resistance			15 gn for 11 ms conforming to IEC 60068-2-27
Maximum ambient pollution Definition of insulation			Degree 2 conforming to IEC 61800-5-1
Environmental conditions Use			IEC 60721-3-3 classes 3C2 and 3S2
Relative humidity		%	5...95 non condensing, no dripping water, conforming to IEC 60068-2-3
Ambient air temperature around the device	Operation	°C	- 10...+ 50 without derating - 10...+ 60 with derating removing the protective cover on top of the drive (see derating curves, page 60430/4)
	Storage	°C	- 25...+ 70
Maximum operating altitude	ATV 312H●●●●●	m	1000 without derating
	ATV 312H●●●●M2	m	Up to 2000 for single-phase supplies and corner grounded distribution networks, derating the current by 1% for each additional 100 m
	ATV 312H●●●●M3 ATV 312H●●●●N4 ATV 312H●●●●S6	m	Up to 3000 metres for three-phase supplies, derating the current by 1% for each additional 100 m
Operating position Maximum permanent angle in relation to the normal vertical mounting position			

(1) See table on page 60426/3 to check the permitted cable lengths.