Environmental compatibility statement for EMC [1], climate and mechanical load

RE 30260-U/07.12 1/4

Type VT-MSFA1...1X

Module amplifier

Product types

- VT-MSFA1-50-1X/V0 according to data sheet 30260
- VT-MSFA1-100-1X/V0 according to data sheet 30260
- VT-MSFA1-150-1X/V0 according to data sheet 30260

Description of the product family

Module amplifier for controlling hydraulic on/off valves which are to be switched fast.

[1] In the sense of the EMC directive 2004/108/EC and the EMVG (act on the electromagnetic compatibility of operating media) dated 02/26/2008

The products comply with the following standards:

1. EMC (electromagnetic compatibility)

Test according to basic technical standard **EN 61000-6-2:2005**

			Interference resistance
EN 61000-4-2:2009	VDE 0847-4-2	ESD (electrostatic discharge)	Air discharge: Severity level 3 / evaluation criterion B Contact discharge: Severity level 3 / evaluation criterion B
EN 61000-4-4:2004 + A1:2010	VDE 0847-4-4	BURST (transient interference)	Repetition rate 5 kHz Supply voltage: Severity level 3 / evaluation criterion B Data line: Severity level 3 / evaluation criterion B Repetition rate 100 kHz Supply voltage: Severity level 3 / evaluation criterion B Data line: Severity level 3 / evaluation criterion B
EN 61000-4-5:2006	VDE 0847-4-5	SURGE (surge voltages)	Supply voltage: symmetric (line against line) Severity level 1 / evaluation criterion B asymmetric (line against earth) Severity level 1 / evaluation criterion B Data lines: asymmetric (line against earth) Severity level 2 / evaluation criterion B
EN 61000-4-6:2009	VDE 0847-4-6	HF fields, conducted	Severity level 3 / evaluation criterion A 0.15...80…230 MHz
EN 61000-4-3:2006 + A1:2008 + A2:2010	VDE 0847-4-3	HF fields, freely beamed	Severity level 3 / evaluation criterion A 80…1000 MHz Severity level 3 / evaluation criterion A 1...2.7 GHz

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The products comply with the following standards (continued):

1. EMC (electromagnetic compatibility), continued

Test according to basic technical standard **EN 61000-6-3:2007 + A1:2011** and **EN 61000-6-4:2007 + A1:2011**

			Interference emission
EN 55016-2-1:2009 + A1: 2011	CISPR 16-2-1:2008 + A1:2010 Section 7	Emission Interference voltage Direct voltage / power supply connection	Limit values according to EN 61000-6-3:2007 + A1:2011 Table 3 / section 3.1 [1] Direct current network connection 0.15…30 MHz Corresponds to class A, EN 55022
		Low-voltage alternating current network connection	Table 2 / section 2.1 [2] Alternating current network connection 0.15…30 MHz Corresponds to class B, EN 55022
EN 55016-2-3:2010 + A1: 2010	CISPR 16-2-3:2010 + A1:2010	Emission Radio interference field strength (housing, freely beamed)	Limit values according to EN 61000-6-3:2007 + A1:2011 30…230…1000...2000 MHz Table 1 / section 1.1 and Table 1 / section 1.4 Corresponds to class B, EN 55022

Notices:

If not otherwise indicated, the data with regard to standard conformity apply to all VT-MSFA1-XXX-1X/V0 variants. The installation instructions according to the operating instructions 30260-B (set-up top hat rail mounting, cable shielding, shield connection, etc.) apply.

[1] Valid for all VT-MSFA1-XXX-1X/V0 variants with the following conditions:

- If the VT11110 capacitor module (mat. no. R900020293) and a folding ferrite (WE 74272733) are used, which is mounted on the supply line (UB) of the capacitor module.

[2] Valid for all VT-MSFA1-XXX-1X/V0 variants with the following conditions:

- If the VT-NE30 (Mat. no. R901082348) or VAP01 (mat. no. R911171065) power supply unit is used

2. Climate

Test according to EN 60068-2 / IEC 68-2 (environmental audit)

EN 60068-2-1:2007	Cold test	2 cycles –5 °C, Duration 2 hours Extended test: 2 h at –25 °C with active electronics
EN 60068-2-2:2007	Dry heating test	2 cycles +55 °C, Duration 2 hours
EN 60068-2-1:2007 EN 60068-2-2:2007	Storage temperature	–30 °C, duration 16 hours +80 °C, duration 16 hours
EN 60068-2-14:2009	Temperature change	2 cycles –5 °C to +55 °C Duration 3 hours each at min. / max. temperature
EN 60068-2-30:2005	Humid heat, cyclic	Variant 2 +25 °C to +55 °C 93 % to 97 % relative humidity 2 cycles 24 hours each

The products comply with the following standards (continued):

3. Mechanical load

Vibration and shock test according to EN 60068-2 / IEC 68-2 (environmental audit)
Tested on three axes (X/Y/Z)

EN 60068-2-6:2008	Vibrations, sine-shaped	10 cycles (20 sweeps) 10 to 500 to 10 Hz with logarithmic frequency changing speed of 1 oct./min. Sweep: 10 to 57 Hz, amplitude 0.3 mm (p-p) 57 to 500 Hz, amplitude 2 g
EN 60068-2-64:2008	Vibrations, random (Broadband noise)	20 to 500 Hz, Amplitude 0.01 g^2 / Hz (2.2 g RMS) Testing time 30 min
EN 60068-2-27:2009	Shock test	Half sine 15g / 11 ms, 3 shocks in positive/negative direction per axis, total of 18 individual shocks

Additional resonance examination

EN 60068-2-6:2008	Vibrations, sine-shaped	1 sweep 10 to 500 Hz with logarithmic frequency changing speed of 0.5 oct./min. Sweep: 10 to 57 Hz, amplitude 0.3 mm (p-p) 57 to 500 Hz, amplitude 2 g
IEC Publication 60068-2-6 Test FC (IACS Req. 1993/ Corr. 1, 2003 - Type testing condition for equipment covered by E10.1 Test-NO. 10)	Vibrations, sine-shaped Resonance test	1 sweep 2 to 100 Hz with logarithmic frequency changing speed of 0.5 oct./min. Sweep: 2 to 25 Hz, amplitude 1.6 mm (p-p) 25 to 100 Hz, amplitude 4 g

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