

IEC 61439-1			
Clause	Requirement + Test	Result - Remark	Verdict

Summary of testing

The tests listed do not constitute a complete type approval. The complete conformity of the equipment cannot be assessed on the basis of these tests.

The listed tests were performed at the request of the manufacturer.

-Clause 10.2.3.2 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects

-Clause 10.9.3 Impulse withstand voltage

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10.2.3.2	Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects		
10.2.3.2.1	Verification by test		
	The glow-wire test principles of IEC 60695-2-10 and the details given in IEC 60695-2-11 are used to verify the suitability of materials used:		-
	a) on parts of ASSEMBLIES, or		N/A
	b) on parts taken from these parts.		P
	The test is carried out on material with the minimum thickness used for the parts in a) or b).		P
	As an alternative the original manufacturer provides data on the suitability of materials from the insulating material supplier to demonstrate compliance with the requirements of 8.1.5.3.		P
	The temperature of the tip of the glow-wire is as follows:		-
	– 960 °C for parts necessary to retain current-carrying parts in position;		N/A
	- 850 °C for enclosures intended for mounting in hollow walls;		N/A
	– 650 °C for all other parts, including parts necessary to retain the protective conductor.	see :TABLE1: glow-wire test	P
	The specimen is considered to have withstood the glow-wire test if		-
	– there is no visible flame and no sustained glowing, or if		P
	– flames and glowing of the specimen extinguish within 30 s after removal of the glow-wire.		N/A
	There is no burning of the tissue paper or scorching of the pinewood board.		N/A
10.2.3.2.2	Verification by comparison to a reference design		
	If a part made from an identical material, having the same or greater thickness than the reference part that has already satisfied the requirements of 8.1.3.2.3, then the test need not be performed.		N/A
10.2.3.2.3	Verification by assessment		N/A

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	As an alternative, the original manufacturer shall provide data on the suitability of materials from the insulating material manufacturer to demonstrate compliance with IEC 60695-2-12 for		N/A
	the materials used and applicable temperature according to 10.2.3.2.1		N/A
10.9.3	Impulse withstand voltage		
10.9.3.1	General		
	Verification achieved by the application of tests in accordance with one of the alternative test methods detailed in subclauses 10.9.3.2 to 10.9.3.4, inclusive, of Part 1.		P
	In place of the impulse withstand voltage test the original manufacturer may perform, at his discretion, an equivalent a.c. or d.c. voltage test, in accordance with 10.9.3.3 or 10.9.3.4, but consideration is given to the fact that such a tests exert a higher stress.		P
10.9.3.2	Impulse withstand voltage test		
	The impulse voltage generator is adjusted to the required impulse voltage with the ASSEMBLY connected. The value of the test voltage is that specified in 9.1.3.		P
	Impulse withstand voltage (U _{imp})	4,8kV see :TABLE2 Impulse voltage	
	Auxiliary circuits not connected to main circuits are connected to earth.		P
	The 1,2/50 μs impulse voltage is applied to the ASSEMBLY five times for each polarity at intervals of 1 s minimum as follows:		P
	a) between all the poles of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the earthed enclosure, with the main contacts of all switching devices in the closed position or bridged by a suitable low resistance link;		P
	b) between each pole of the main circuit and, the other poles and the earthed enclosure connected together, with the main contacts of all switching devices in the closed position or bridged by a suitable low resistance link.		P
	For an acceptable result there are no unintentional disruptive discharge during the tests.		P
10.9.3.3	Alternative power-frequency voltage test		

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	The test voltage has a practically sinusoidal waveform and a frequency between 45 Hz and 65 Hz.		N/A
	The overcurrent relay does not trip when the output current is less than 100 mA.		N/A
	The value of the test voltage is that specified in 9.1.3 and Table 10 as appropriate with a permitted tolerance of $\pm 3\%$.		N/A
	Power-frequency		N/A
	The power-frequency voltage is applied once, at full value, for a duration sufficient for the magnitude to be ascertained, but it is not less than 15 ms or greater than 100 ms.		N/A
	It is applied:		
	a) between all the poles of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the earthed enclosure, with the main contacts of all switching devices in the closed position or bridged by a suitable low resistance link;		N/A
	b) between each pole of the main circuit and, the other poles and the earthed enclosure connected together, with the main contacts of all switching devices in the closed position or bridged by a suitable low resistance link;		N/A
	c) between each control and auxiliary circuit not normally connected to the main circuit and the – main circuit; – other circuits; – exposed conductive parts including the earthed enclosure.		N/A
	For an acceptable result the overcurrent relay does not operate and there is no disruptive discharge during the tests.		N/A
10.9.3.4	Alternative d.c. voltage test		
	The test voltage has negligible ripple.		N/A
	The high-voltage source used for the test is so designed that, when the output terminals are short-circuited after the output voltage has been adjusted to the appropriate test voltage, the output current is at least 200 mA.		N/A
	The overcurrent relay does not trip when the output current is less than 100 mA.		N/A
	The value of the test voltage is that specified in 9.1.3 and Table 10 as appropriate with a permitted tolerance of $\pm 3\%$.		N/A
	Alternative d.c. voltage		N/A

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	The d.c. voltage is applied once for each polarity for a duration sufficient for the magnitude to be ascertained, but it is not less than 15 ms or greater than 100 ms.		N/A
	It is applied:		N/A
	a) between all the poles of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the earthed enclosure, with the main contacts of all switching devices in the closed position or bridged by a suitable low resistance link;		N/A
	b) between each pole of the main circuit and, the other poles and the earthed enclosure connected together, with the main contacts of all switching devices in the closed position or bridged by a suitable low resistance link;		N/A
	c) between each control and auxiliary circuit not normally connected to the main circuit and the – main circuit; – other circuits; – exposed conductive parts including the earthed enclosure.		N/A
	For an acceptable result the overcurrent relay does not operate and there is no disruptive discharge during the tests.		N/A

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10.2.3.2	TABLE1: glow-wire test					P
part under test	material designation	test temperature (°C)	visible flame and sustained glowing (Y/N)	flame and glowing extinction time	ignition of the tissue paper (Y/N)	
Door	Transparent plastic material	650	N	N/A	N	
supplementary information:						

TABLE2: Impulse voltage			P
Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)	
Between L1- L2- L3	4840	No	
Between live and PE	4840	No	
Between live and accesable metal part	4840	No	
Supplementary information:			

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Photo documentation:



Photo1: External picture of product.



Photo 2: Identification and control equipment

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Measuring equipment list				
Equipment	Manufacturer	Type	Inventory / serial no.	Next calibration
Glow-wire test apparatus	TESTING EUROPE	T4-08	9014988	2026.05.17
Impulse voltage tester (CIRCUIT BREAKER TESTER)	EMC PARTNER	CIRCUIT BREAKER TESTER	9019343	2026.10.16

END OF TEST REPORT