

# Test Report

No. 09 / 9013-3

## 475 Field Communicator S/N: prototype

The results refer only to the tested equipment. Without written permission of the test laboratory it is not allowed to publish parts of this test report.

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# Electrical safety requirements

**Customer:** IMST GmbH  
 Prüfzentrum EMV  
 Carl Friedrich Gauß Str. 2  
 47475 Kamp Lintfort

**Equipment under test:** 475 Field Communicator; S/N: prototype

**Date of receipt:** Feb. 19, 2009

**Date of test:** Feb. 20, 2009

**Test site:** EMV Services GmbH & Co. KG  
 Harburger Schloßstr. 6-12  
 D-21079 Hamburg

**Test personnel:**      **Tel.**                      **Fax**                      **Email**  
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## Applied standards:

### Applied standards:

EN 61 010 Part 1 (2001): Safety requirements for electrical equipment for measurement, control and laboratory use –  
 Part 1: General requirements

## The test results only apply to the Equipment under test.

The equipment under test (EUT):

Nominal voltage: 7,2 V (Battery voltage)

**Function:** The EUT (Equipment Under Test) is a field communicator. The EUT is equipped with a Foundation Field-bus and a HART-bus interface.

### Remark:

The manual was not present.

The type label was only as paper version present.

The external power supply / charger is not part of the tests.

The Li-Ion battery was not tested. A test report was present.

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Test in accordance with EN 61010-1		Result	
Theme	Chapter	Remarks	
<b>Scope and Object</b>	<b>1</b>	No test	
Scope	1.1		
Object	1.2		
Verification	1.3		
Environmental conditions	1.4		
<b>Normative references</b>	<b>2</b>	No test	
<b>Definitions</b>	<b>3</b>	No test	
Equipment and states of equipment	3.1		
Parts and accessories	3.2		
Electrical quantities	3.3		
Tests	3.4		
Safety terms	3.5		
Insulation	3.6		
<b>Tests</b>	<b>4</b>		
General	4.1	Type test	
Sequence of tests	4.2	No test	
Reference test conditions	4.3		
Ambient conditions	4.3.1	20°C, 1031hPa, 28% hum.	
Conditions of the equipment	4.3.2	Normal operation	
Orientation during use	4.3.2.1	horizontal	
Accessories	4.3.2.2	No accessories connected	

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Test in accordance with EN 61010-1		Result	
Theme	Chapter	Remarks	
Covers and und removable parts	4.3.2.3		N/A
Mains supply	4.3.2.4	Only battery	
Input and output voltages	4.3.2.5		
Earthing connections	4.3.2.6		N/A
Actuators	4.3.2.7		
Interconnections	4.3.2.8	No connections with other devices	
Strains of motors	4.3.2.9		N/A
Output	4.3.2.10	Not connected	
Duty cycle	4.3.2.11		
Load and fill	4.3.2.12		N/A
Equipment for heating	4.3.2.13		N/A
Testing in single fault condition	4.4		
General	4.4.1		
Causation of the fault conditions	4.4.2		
Protection impedance	4.4.2.1		N/A
PE	4.4.2.2		N/A
Equipment or parts for short time or intermittent duty	4.4.2.3		N/A
Motors	4.4.2.4		N/A
Capacitors	4.4.2.5		N/A
Mains transformers	4.4.2.6		N/A
Outputs	4.4.2.7		P

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Test in accordance with EN 61010-1		Result	
Theme	Chapter	Remarks	
Equipment with more than one voltage input	4.4.2.8		N/A
Cooling	4.4.2.9		N/A
Heating devices	4.4.2.10		N/A
Insulating between circuits and parts	4.4.2.11		N/A
Safety interlocks	4.4.2.12		N/A
Duration of tests	4.4.3	Max 1h	
Conformity after tests	4.4.4		P
<b>Marking and documentation</b>	<b>5</b>		
Marking	5.1		
General	5.1.1		
Identification of the equipment	5.1.2		P
Power supply	5.1.3		N/A
Fuses	5.1.4		N/A
Terminations, interconnectings and actuators	5.1.5		P
Terminations	5.1.5.1		N/A
Terminations of measure circuits	5.1.5.2		N/A
Switches and power switches	5.1.6		N/A
Equipment with double insulation	5.1.7		N/A
Terminal box	5.1.8		N/A

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Test in accordance with EN 61010-1		Result	
Theme	Chapter	Remarks	
Warning markings	5.2		P
Durability of markings	5.3	The labels were present as paper version only	
Documentation	5.4	Not present	
General	5.4.1		
Rated values	5.4.2		
Installation of the equipment	5.4.3		
Operation of the equipment	5.4.4		
Maintenance of the equipment	5.4.5		
<b>Protection against electric shock</b>	<b>6</b>	Only SELV voltage Voltage < 42V <sub>AC</sub> and 60V <sub>DC</sub>	N/A
General	6.1		
Requirements	6.1.1		
Exceptions	6.1.2		
Determination of accessible parts	6.2		N/A
Test	6.2.1		
Openings 1	6.2.2		
Openings 2	6.2.3		
Permissible limits for accessible parts	6.3		N/A
Values at normal use	6.3.1		
Value at single error use	6.3.2		

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Test in accordance with EN 61010-1		Result	
Theme	Chapter	Remarks	
Protection in normal condition	6.4		N/A
Protection in single fault condition	6.5		N/A
Protection bonding	6.5.1		
Reliability of the der protection bonding	6.5.1.1		
Earthing connection	6.5.1.2		
Impedance of protection bondings of equipment with plug-type connection	6.5.1.3		
Impedance of protection bonding of permanently connected equipment	6.5.1.4		
Indirect interconnectings for measuring equipment	6.5.1.5		
Double insulation	6.5.2		
Protection impedance	6.5.3		
Automatic disconnection from the mains supply	6.5.4		
Connections to external circuits	6.6		N/A
General	6.6.1		
Connections of external circuits	6.6.2		
Circuits with hazardous active connections	6.6.3		
Accessible terminations for flexible wiring	6.6.4		

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Test in accordance with EN 61010-1		Result	
Theme	Chapter	Remarks	
Clearances and creepage distances	6.7	Only functional insulation required	N/A
General	6.7.1		
Clearances	6.7.1.1		
Creepage distances	6.7.1.2		
Mains circuits	6.7.2		
Other than mains circuits	6.7.3		
Clearances - General	6.7.3.1		
Clearances, if table 5 does not apply (CAT I)	6.7.3.2		
Values of creepage distances	6.7.3.3		
Measure circuits	6.7.4		
Values of creepage distances	6.7.4.1		
Values of clearances	6.7.4.2		
Procedure for electric strength tests	6.8		N/A
Reference earth for the tests	6.8.1		
Moisture pre-treatment	6.8.2		
Tests	6.8.3		
Voltage tests	6.8.4		
Altitude correction	6.8.4.1		



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Test in accordance with EN 61010-1		Result	
Theme	Chapter	Remarks	
Constructional requirements for protection against electric shock	6.9		N/A
General	6.9.1		
Casing of equipment with double insulating	6.9.2		N/A
Display of overranges	6.9.3		N/A
Connection to mains supply source and connections between parts of equipment	6.10		N/A
Power supply cords	6.10.1		N/A
To fix permanently connected power supply cords	6.10.2		N/A
Plugs and clutches	6.10.3		N/A
Disconnection from supply source	6.11		N/A
General	6.11.1		
Exceptions	6.11.1.1		
Requirements for specific type of equipment	6.11.2		
Permanently connected and more-phase equipment	6.11.2.1		
Single-phase equipment	6.11.2.2		
Hazard by function of an equipment	6.11.2.3		
Disconnect devices	6.11.3		

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Theme	Chapter	Remarks	
Switches as disconnect devices	6.11. 3.1		
Plugs as disconnect devices	6.11. 3.2		
<b>Protection against mechanical hazards</b>	<b>7</b>		
General	7.1		
Moving parts	7.2		N/A
Stability	7.3		N/A
Provisions for lifting and carrying	7.4		N/A
Wall mounting	7.5		N/A
Expelled parts	7.6		N/A
<b>Mechanical resistance to shock and impact</b>	<b>8</b>	Not tested	
Enclosure rigidity test	8.1		
Static test	8.1.1		
Dynamic test	8.1.2		
Drop test	8.2		
Equipment except hand-held and direct plug-in equipment	8.2.1		
Drop test at edges of cases	8.2.1.1		
Drop test at sides of cases	8.2.1.2		
Hand-held and direct plug-in equipment	8.2.2		
<b>Protection against the spread of fire</b>	<b>9</b>	Not tested	

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Theme	Chapter	Remarks	
Eliminating or reducing the sources of ignition within the equipment	9.1		
Containment of fire within the equipment, should it occur	9.2		
Physical requirements	9.2.1		
Limited-energy circuit	9.3		
Requirements for equipment containing or using flammable liquids	9.4		
Overcurrent protection	9.5		
Permanently connected equipment	9.5.1		
Other equipment	9.5.2		
<b>Equipment temperature limits and resistance to heat</b>	<b>10</b>		
Surface temperature limits for protection against burns	10.1		P
Temperatures of windings	10.2		N/A
Other temperature measurements	10.3		P
Conduct of temperature tests	10.4		
Temperature measurements of devices for heat production	10.4.1		N/A
Equipment for wall or cabinet mounting	10.4.2		N/A
Resistance to heat	10.5	Not tested	
Maintenance of clearances and creepage distances	10.5.1		
Non-metallic cases	10.5.2		

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Test in accordance with EN 61010-1		Result	
Theme	Chapter	Remarks	
Insulating materials	10.5.3		
<b>Protection against hazards from fluids</b>	<b>11</b>	Not tested	
General	11.1		
Cleaning	11.2		
Spillage	11.3		
Overflow	11.4		
Battery electrolyte	11.5		
Specially protected equipment	11.6		
Fluid pressure and leakage	11.7		
Highest pressure	11.7.1		
Leakiness and breakage at high pressure	11.7.2		
Leakiness at low pressure parts	11.7.3		
Over pressure protectors	11.7.4		
<b>Protection against radiation, including laser sources, and against sonic and ultrasonic pressure</b>	<b>12</b>	Not tested	
General	12.1		
Equipment producing ionizing radiation	12.2		
Ionizing radiation	12.2.1		
Accelerated Electrons	12.2.2		
Ultraviolet radiation	12.3		
Microwave radiation	12.4		

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Theme	Chapter	Remarks	
Sonic and ultrasonic pressure	12.5		
<b>Sonic pressure</b>	12.5.1		
<b>Ultrasonic pressure</b>	12.5.2		
Laser sources	12.6		
<b>Protection against liberated gases, explosion and implosion</b>	<b>13</b>	Not tested	
Poisonous and injurious gases	13.1		
Explosion and implosion	13.2		
Components	13.2.1		
Batteries and battery charge	13.2.2		
Implosion of cathode ray tubes	13.2.3		
Equipment for high pressure	13.2.4		
<b>Components</b>	<b>14</b>		
General	14.1		
Motors	14.2		N/A
Motor temperatures	14.2.1		N/A
Series-characteristic motors	14.2.2		N/A
Overtemperature protection devices	14.3	Li-Ion battery not tested	
Fuse holders	14.4		N/A
Mains voltage selecting devices	14.5		N/A
High integrity components	14.6	Not tested	

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Mains transformers tested outside equipment	14.7		N/A
Printed circuit boards	14.8	Not tested	
Circuits or components used as transient overvoltage limiting devices	14.9		N/A
<b>Protection by interlocks</b>	<b>15</b>		N/A
General	15.1		
Prevention of reactivating	15.2		
Reliability	15.3		
<b>Test and measurement equipment</b>	<b>16</b>		N/A
Current measuring circuits	16.1		
Multifunction meters and similar equipment	16.2		

**Legend:** P – Passed  
F – Failed  
N/A – Not applicable

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**End of the Test Report**