TEST REPORT
ENVIRONMENTAL
EN 60529:1991+A1:2000

Report Reference No. ..... :	104703-2TRFENV	
Tested by..... :	Fabio Mauri	
Verified by ..... :	Cristian Simone	
Date of issue ..... :	2008-04-28	
Testing Laboratory..... :	**Nemko Spa**	
Address ..... :	Via del Carroccio 4, I-20046 Biassono MI (Italy)	
Testing location/ procedure..... :	Full application of Harmonised standards ☒ Partial application of Harmonised standards ☐ Other standard testing methods ☐ Non-standard testing methods ☐ SINAL accredited test report ☐	
Testing location/ address ..... :	Nemko Spa via del Carroccio 4, I-20046 Biassono MI (Italy)	
Applicant's name..... :	**Techno srl**	
Address ..... :	via Bancora e Rimoldi , 27- 22070 Guanzate (CO) Italy	
Test specification		
Standard..... :	EN 60529:1991+A1:2000	
Test procedure ..... :	Nemko WM L0177	
Non-standard test method……..:	N/A	
Test Report Form No. ..... :	TRF EN60529	
TRF Originator ..... :	Nemko Spa	
Master TRF ..... :	2005-04	

Test item description ..... :	Connector box system
Trade Mark..... :	Techno
Manufacturer ..... :	Techno S.r.l.
Model.....:	TH 211
Ratings ..... :	

Test Report No. : 104703-2TRFENV	2008-04-28 Date of issue

Type / Model : TH211

Equipment : Connector box system

Applicant : **Techno srl**

Address : via Bancora e Rimoldi , 27- 22070 Guanzate (CO) Italy

Manufacturer : **Techno srl**

Address : via Bancora e Rimoldi , 27- 22070 Guanzate (CO) Italy

Test Result (according to the standards on page 4)	**POSITIVE**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1 TEST STANDARDS

The tests were performed according to following standards:

EN 60529:1991+A1:00 Degrees of protection provided by enclosures (IP code)

Nemko WM L0177 Nemko S.p.A. Technical Procedure
Use of measuring equipment to perform standards tests

Nemko WM L1002 Measurement Uncertainty - Policy and Statement

2 SUMMARY

GENERAL REMARKS:

The dust test was performed in a dust chamber in accordance with clauses 13.4, 13.5.2 of standard EN 60529.
The water test was been performed in accordance with clauses 14.2.5 and 14.3 of EN 60529 standard (IPX5).

FINAL ASSESSMENT:

The protection requirements pertaining to the technical standards and tested operation modes are

o - fulfilled.

■ - not fulfilled.

The equipment under test

o - fulfils the protection requirements cited on page 4.

■ - does not fulfil the protection requirements cited on page 4.

Date of receipt of test sample : 2008-04-03

Testing commenced on : 2008-04-18

Testing concluded on : 2008-04-28

2.1 Power supply system utilised

Power supply voltage : o 230V/50 Hz / 1ϕ o 115V/60Hz / 1ϕ
o 400V/50 Hz 3PE o 400V/50 Hz 3NPE
o 12 V DC ■ Not relevant for IP test

2.2 Short description of the Equipment under Test (EuT)

The E.U.T. is a Connector box system.

Number of tested samples: 1

Serial number:

2.3 EuT operation mode:

o - unscreened power cables

■ - customer specific cables

2.4 EuT configuration:

EUT was equipped with its specific cable during the tests.
Ø 16mm; Ø 16mm.

2.5 Performance level

The EUT complies with all the tests described on paragraph 4 point: if

- the test probe didn't penetrate inside the enclosure;
- the dust is not present inside the enclosure and on live parts after the IP6X test
- no water is present inside the enclosure and on live parts after the IPX5 test.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Nemko Spa
Via Del Carroccio 4
I – 20046 Biassono MI – ITALY

3.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	17-28°C
Humidity:	30 ÷ 60%
Atmospheric pressure:	860-1060 hPa

3.3 Definitions of symbols used in this test report

■ - The black square indicates that the listed condition, standard or equipment is applicable for this report.
o - The empty circle indicates that the listed condition, standard or equipment is **not** applicable for this report.

3.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to Nemko SpA Technical Procedure VML1002 and is documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.
Hereafter the best measurement capability for Nemko Spa laboratory is reported:

6.2 IP Grade Protection

6.2.1 Water Flow

The measurement uncertainty is the same defined by calibration certificates, giving the table.

Range	Measurement Uncertainty
Water flow defined in EN 60529	± 2 %

6.2.2 Probe Dimension

The measurement uncertainty is the same defined by calibration certificates, giving the table.

Range	Measurement Uncertainty
Probe dimensions defined in EN 60529	$\pm 2 \cdot 10^{-2} \cdot L_m/m$

This table has been extracted from the relevant Technical Procedure VML1002

4 TEST CONDITIONS AND RESULTS

4.1 IP 6X

Test probe diameter.....: 1 mm
Enclosure category .....: 1
Volume hour……..: < 40 volume for hours
Maximum depression……..: 20mbar
Test Duration .....: 8h

4.1.2 Description of the test location

Test location: Nemko S.p.a. laboratory

4.1.3 Photo documentation of the test set-up

Typical setup for IP Dust test

4.1.4 Test result

The requirements are: **Fulfilled**

Test probe didn't penetrate inside the enclosure.
Dust was not present inside the enclosure and on live parts after test.

4.2 IP X5

For the test equipment refer to par. 6

Diameter of nozzle ..... : 6.3mm
Delivery rate..... : 12.5 l/min
Test duration ..... : 3min.
Distance to nozzle to E.U.T..... : from 2,5m to 3m

4.2.1 Description of the test location

Test location: Water IP room

5.2.2 Photo documentation the test set-up

Snooze for IP X5

4.1.4 Test result

The requirements are: **Fulfilled**

Water was not present inside the enclosure and on live parts after test. (see photos)

5 USED TEST EQUIPMENT

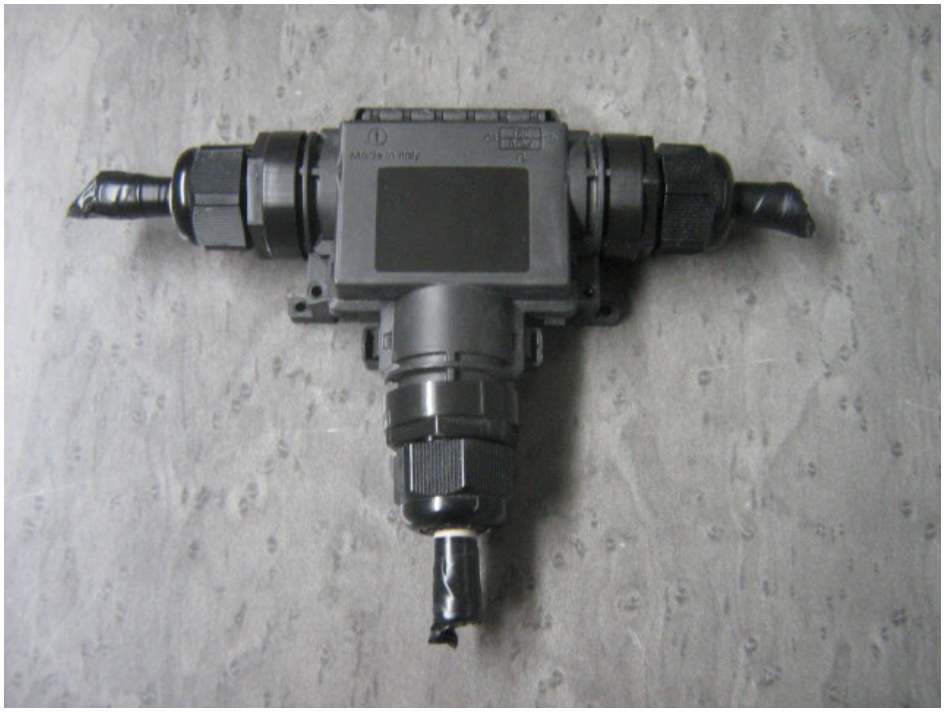
Equipment used for testing are recorded and saved into the company archive as instruments 104703-INS.doc

It will be made available if requested.

6 Finals Results:

According the EN60529 and A1 the connector models TH211 is considered IP65.

5 PHOTOS



E.u.t. general view, same equipment with different section of cable
Comply with IP65

Internal view, after Test