



Testing laboratory for climatic, mechanical
and corrosive environmental stress


QUALITY TEST CERTIFICATE

Test report No. 13114 / 17 Rev.01

Client	Manfred K. Müller Ing. Nibelungenstraße 28 75179 Pforzheim	
Equipment under test	Fire alarm Quantity Status	SNS 2 samples (different housing types) July 2017
Purpose	Tests for the certification of the degrees of protection IP65	
Test program	Protection against access to hazardous parts Protection against solid foreign objects Protection against water jets	IP6X according to the IEC 60529 IP6X according to the IEC 60529 IPX5 according to the IEC 60529
Test period	25 July to 27 July 2017	
Execution / results	see pages 2 to 4	
Total number of page	6 (inclusive 1 appendix)	

Test results

**The tests were carried out according to the specifications
of the standards.**
The test of the degrees of protection IP65 has been passed.
The further evaluation will be done by the client.


Dipl.-Ing. (FH) Ch. Kretschmer
Head of the testing laboratory
Berlin, 18. August 2017




M. Jedamski
Test operator

4.3 Protection against water jets IPX5

according to the IEC 60529 § 14.2.5

EUT non operation
EUT position vertically inclined by 45°,
sensor connections below

For the test of the certifications of the **degrees of protection IPX5** the following specifications of the standards apply:

Test set-up water jets form a standardized jet nozzle
with 6.3 mm inner diameter
Water flow-rate 12.5 l/min ± 5 %
Water pressure according to the specified water flow rate
Water flow rate may not differ by more than 5K to that of the sample
Clearance approx. 2.5 m (jet nozzle to housing)
Test duration min. 3 min

Visual inspection

After the test IPX5 the EUT will be examined externally for damage and any other alterations. Subsequently, the EUT will be opened and checked for the presence of penetrated dust or water.

5 Execution

The tests for the degrees of protection IP65 for the **fire alarm SNS** were carried out according to the test program (section 4.1 to 4.3), in compliance with the specifications of the current standards and with the demands of the client.

Visual inspection

After each individual test the EUT was examined for the presence of external damage and any other alterations. After the water jet test IPX5 the housings of the EUT was opened and examined for the presence of penetrated dust or water.

Acceptance criteria

The **protection against access to hazardous parts IP6X** is proven when a test wire (Ø 1 mm, force 1 N) cannot penetrate the housing of the specimen.

The **protection against solid foreign objects IP6X (dust tight)** is satisfactory, if at the end of the test no visible dust deposits are detected inside the housing of the specimen.

The **protection against water jets IPX5** is considered proven if at the end of the test no water has penetrated into the housing, or if it has it is in a quantity such that it does not impair the proper functioning or safety of the equipment.

Measurement and test devices

Name	Type	Serial-No.	Maker	Remarks
IEC steel wire Ø1mm	P 10.27	5130337	PTL	IP6X
Dust chamber 63	SK 160	3024	AUCOTEAM	
Talcum dust	Talcum	27 04 15	KSL	
Rotary table	IPXX	489	Co. Gödel	IPX5
Jet nozzle 6,3 mm	P03.58	6130143	PTL	
Flow meter (0-50) l	SU 7000	11660294	ifm electronic	
Booster station	EVM 5-16N5	CN5230021	Ebara	
Frequency inverter	L200-075HFE2	277	Hitachi	
Manometer, electronic	PG2454	m0011170313	ifm electronic	
IR Thermometer	Fluke 561	14950036	Fluke	

6 Results

The certification of the degrees of protection IP65 for the **fire alarm SNS** with

- **Protection against access to hazardous parts** **IP6X** according to IEC 60529 § 13.2
- **Protection against solid foreign objects (dust proof)** **IP6X** according to IEC 60529 § 13.4
- **Protection against water jets** **IPX5** according to IEC 60529 § 14.2.5

was carried out according to the test program (sections 4.1 to 4.3).

6.1 Protection against access to hazardous parts IP6X

according to the IEC 60529 § 13.2

EUT non operation

The standardized test wire (\varnothing 1 mm, force 1 N) could not penetrate into the housing.

6.2 Protection against solid foreign objects IP6X (dust test)

according to the IEC 60529 § 13.4

EUT non operation

- After the protection against solid foreign objects test IP6X no external damage or any other alterations were detected on the EUT.
- No traces of dust were detected inside of the housing.

6.3 Protection against water jets IPX5

according to the IEC 60529 § 14.2.5

EUT non operation

- After the protection against water jets IPX5 no external damage or any other alterations were detected on the EUT.
- No traces of water were detected inside of the housing.

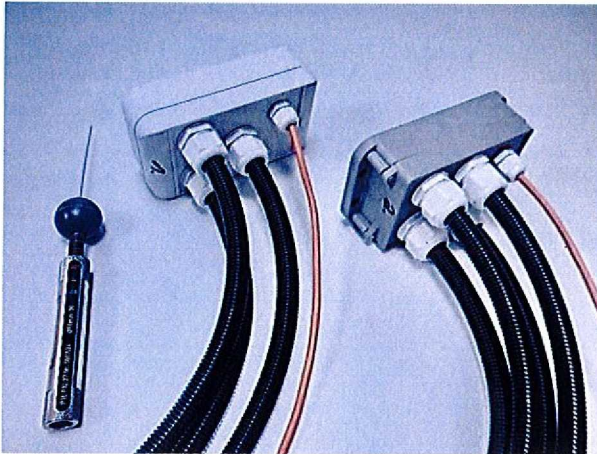
**The tests were carried out according to the specifications of the standards.
The test of the degree of protection IP65 has been passed.
The further evaluation will be done by the client.**

The results of the tests refer only to the above mentioned equipment under test. This report, or individual pages of this test report, may only be copied following the written consent of the testing laboratory. This test report No. 13114 / 17 Rev.01 includes 4 pages and 1 appendix – Pictures.

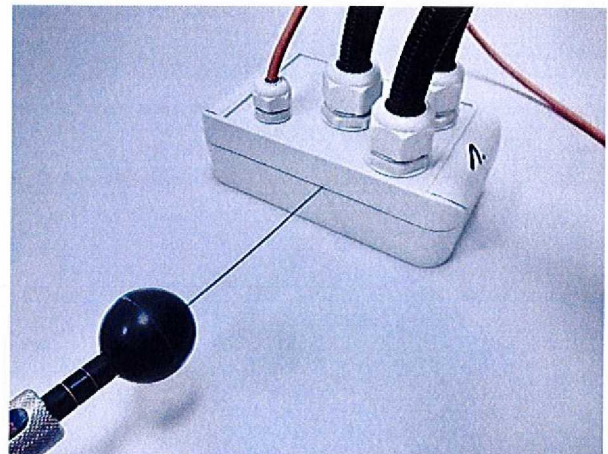
The following amendments were made in the revision of Pb no. 13114/17 to Pb no. 13114/17 Rev.01:

- Changes in the reference text in section 2.
The bimetal sensor was supplemented by the designation SEH.

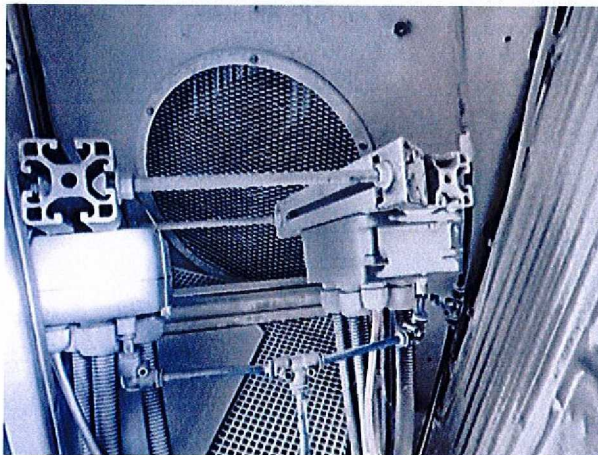
Pictures



picture 1
Fire alarm SNS EUT no.1 and no.2
with IEC-steel wire Ø 1 mm
before the access to hazardous parts test IP6X



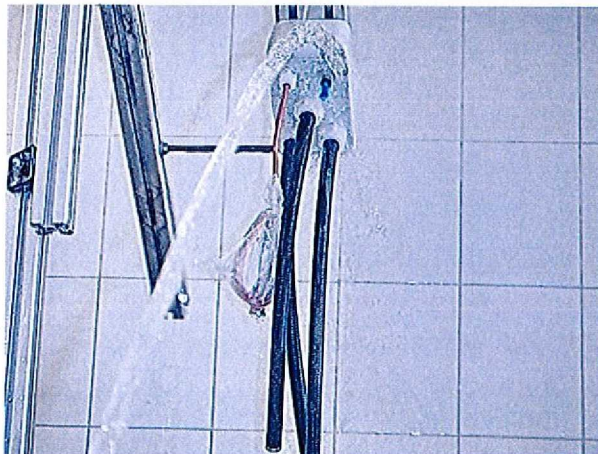
picture 2
EUT no.1
with wire on the housing
during the access to hazardous parts test IP6X



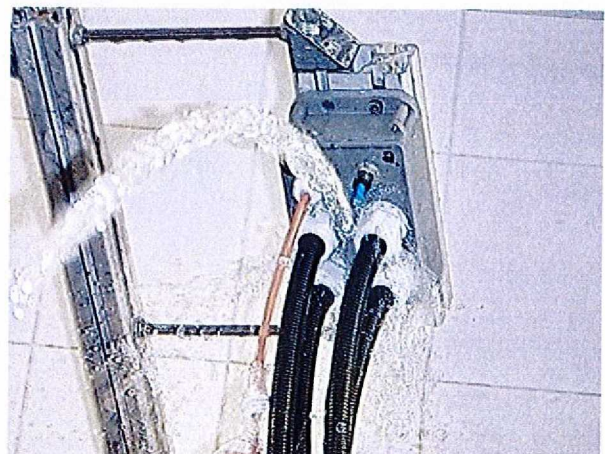
picture 3
EUT no.1 and no.2 with holder
in the dust chamber SK 160
after the access to hazardous parts test IP6X



picture 4
EUT no.1
with mounted holder on the turn table
before the water jets test IPX5



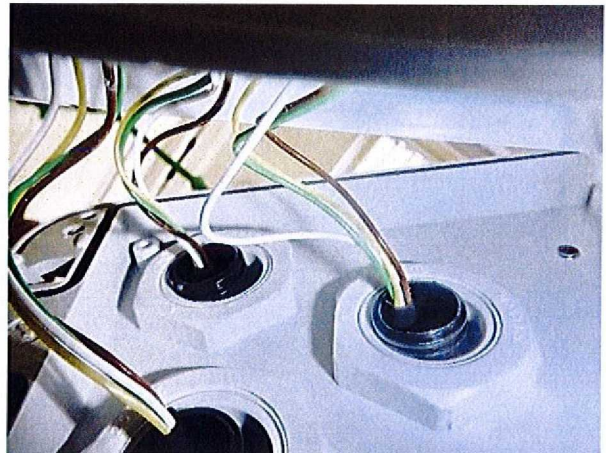
Picture 5
EUT no.1 mounted on the holder
with standardized water jet on the housing
during the water jets test IPX5



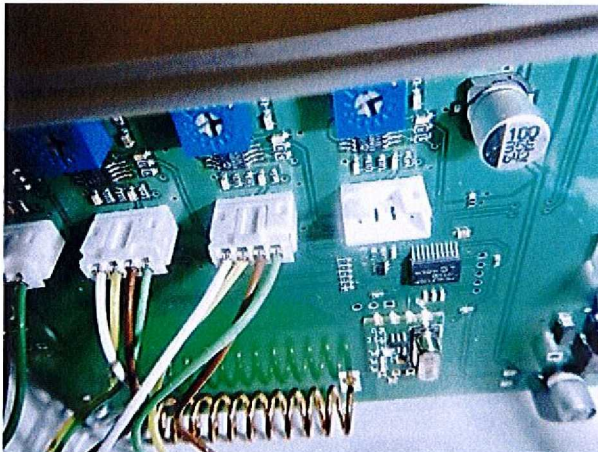
Picture 6
EUT no.2 mounted on the holder
with standardized water jet on the housing
during the water jets test IPX5



Picture 7
EUT no.1
mounted on the holder
after the water jets test IPX5



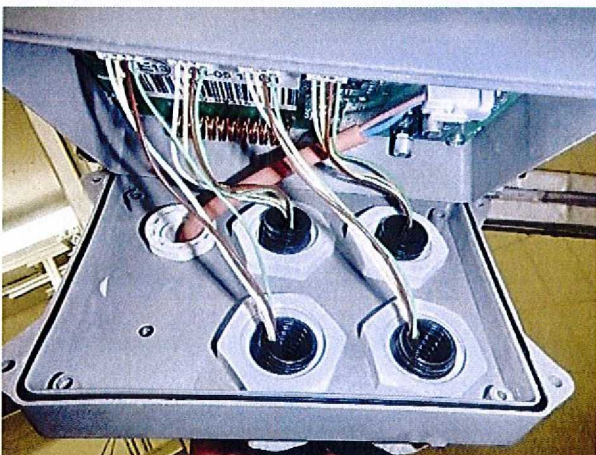
Picture 8
EUT no.1 (opened)
without visible traces of water on the housing
after the water jets test IPX5



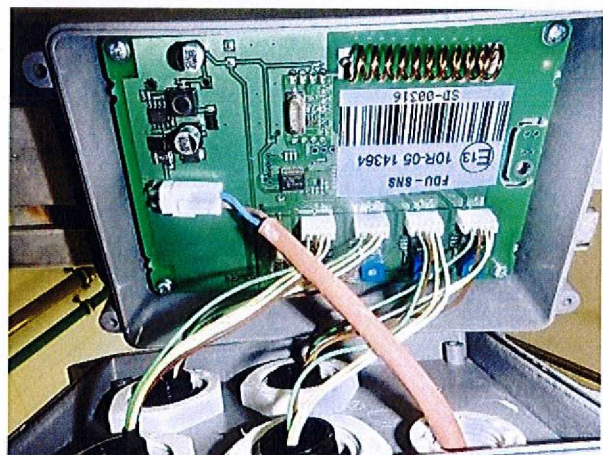
Picture 9
EUT no.1 (opened)
without visible traces of water on the housing
after the water jets test IPX5



Picture 10
EUT no.2
mounted on the holder
after the water jets test IPX5



Picture 11
EUT no.2 (opened)
without visible traces of water on the housing
after the water jets test IPX5



Picture 12
EUT no.2 (opened)
without visible traces of water on the housing
after the water jets test IPX5