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| Prüfbericht-Nr.: <i>Test report no.:</i> | CN22OLWN 001 part II of II | Auftrags-Nr.: <i>Order no.:</i> | 170314403 | Seite 1 von 13 Page 1 of 13 |
| Kunden-Referenz-Nr.: <i>Client reference no.:</i> | N/A | Auftragsdatum: <i>Order date:</i> | 2022-06-20 | |
| Auftraggeber: <i>Client:</i> | Shenzhen Sonoff Technologies Co.,Ltd. 3F & 6F, Bldg A, No. 663, Bulong Rd Shenzhen, 518000 Guangdong P.R. China | | | |
| Prüfgegenstand: <i>Test item:</i> | Smart temperature and humidity monitoring switch | | | |
| Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i> | THR316, THR316D, THR320, THR320D | | | |
| Auftrags-Inhalt: <i>Order content:</i> | Type Test | | | |
| Prüfgrundlage: <i>Test specification:</i> | EN IEC 60730-2-13:2018 | | | |
| Wareneingangsdatum: <i>Date of sample receipt:</i> | 2022-07-19 | | | |
| Prüfmuster-Nr.: <i>Test sample no.:</i> | A003285204-001~034 | | | |
| Prüfzeitraum: <i>Testing period:</i> | 2022-06-10 – 2022-08-04 | | | |
| Ort der Prüfung: <i>Place of testing:</i> | TÜV Rheinland (Guangdong) Ltd | | | |
| Prüflaboratorium: <i>Testing laboratory:</i> | TÜV Rheinland (Guangdong) Ltd | | | |
| Prüfergebnis*: <i>Test result*:</i> | Pass | | | |
| geprüft von: <i>tested by:</i> Vicky Du | genehmigt von: <i>authorized by:</i> Leo Yang | |  | |
| Datum: <i>Date:</i> 2022-10-14 | Ausstellungsdatum: <i>Issue date:</i> 2022-10-14 | | | |
| Stellung / Position: PE | Stellung / Position: Reviewer | | | |
| Sonstiges / Other: Supervisor: Yi Zeng |  | | | |
| Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i> | Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i> | | | |
| * Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested | | | | |
| Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i> | | | | |

V05

Test Report issued under the responsibility of:



| | |
|---|---|
| TEST REPORT IEC 60730-2-13 Automatic electrical controls – Particular requirements for humidity sensing controls | |
| Report Number..... | See cover page |
| Date of issue | See cover page |
| Total number of pages..... | See cover page |
| Name of Testing Laboratory preparing the Report | TÜV Rheinland (Guangdong) Ltd. No.199 Kezhu Road, Guangzhou Science City 510663, Guangzhou, CHINA |
| Applicant's name..... | See cover page |
| Address..... | See cover page |
| Test specification: | |
| Standard..... | IEC 60730-2-13:2017 |
| Test procedure..... | Type test |
| Non-standard test method | N/A |
| TRF template used..... | IECEE OD-2020-F1:2020, Ed.1.3 |
| Test Report Form No. | IEC60730_2_13C |
| Test Report Form(s) Originator.... | UL (US) |
| Master TRF | 2021-04-22 |
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| General disclaimer: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report. | |

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|---|--|--|
| Test item description : | Smart temperature and humidity monitoring switch | |
| Trade Mark(s) : |  | |
| Manufacturer : | Same as applicant | |
| Model/Type reference | THR316, THR316D, THR320, THR320D | |
| Ratings : | THR316, THR316D: Input: 100-240V~ 50/60Hz 16A Max Output:100-240V~ 50/60Hz 16A Max Resistive load THR320, THR320D: Input: 100-240V~ 50/60Hz 20A Max Output:100-240V~ 50/60Hz 20A Max Resistive load | |
| Responsible Testing Laboratory (as applicable), testing procedure and testing location(s): | | |
| <input type="checkbox"/> | CB Testing Laboratory: | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Approved by (name, function, signature) ..: | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 1: | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Approved by (name, function, signature) ..: | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 2: | |
| Testing location/ address | | |
| Tested by (name + signature) | | |
| Witnessed by (name, function, signature) .: | | |
| Approved by (name, function, signature) ..: | | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 3: | |
| <input type="checkbox"/> | Testing procedure: CTF Stage 4: | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Witnessed by (name, function, signature) .: | | |
| Approved by (name, function, signature) ..: | | |
| Supervised by (name, function, signature): | | |

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| <p>List of Attachments (including a total number of pages in each attachment): See CN22OLWN 001 part I of II.</p> | |
| <p>Summary of testing:</p> | |
| <p>Tests performed (name of test and test clause): All tests were performed on model THR316D and THR320D.</p> | <p>Testing location: TÜV Rheinland (Guangdong) Ltd. No. 199 Kezhu Road, Guangzhou Science City 510663, Guangzhou, CHINA</p> |
| <p>Summary of compliance with National Differences (List of countries addressed):</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of <u>EN IEC 60730-2-13:2018</u> (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)</p> | |
| <p>Statement concerning the uncertainty of the measurement systems used for the tests (may be required by the product standard or client)</p> <p><input type="checkbox"/> Internal procedure used for type testing through which traceability of the measuring uncertainty has been established: Procedure number, issue date and title:</p> <p>Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.</p> <p><input checked="" type="checkbox"/> Statement not required by the standard used for type testing (Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)</p> | |

Copy of marking plate:

See CN22OLWN 001 part I of II 'Copy of marking plate'.

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| Test item particulars : | |
| Classification of installation and use : Independently mounted control | |
| Supply Connection : Control for a.c. : | |
| Possible test case verdicts: - test case does not apply to the test object..... : N/A - test object does meet the requirement : P (Pass) - test object does not meet the requirement..... : F (Fail) | |
| Testing : | |
| Date of receipt of test item : See cover page | |
| Date (s) of performance of tests : See cover page | |
| | |
| General remarks: | |
| "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. | |
| Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. | |
| Manufacturer's Declaration per sub-clause 4.2.5 of IEC60730-2: | |
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....: | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable |
| When differences exist; they shall be identified in the General product information section. | |
| Name and address of factory (ies) | 1. Dongguan SI Electronic Co., Ltd Floor 1& Floor 2, Bldg B, Fuzhu 1st Street, Yinyang Industrial Zone, Zhangyang Zhangmutou Town, Dongguan, Guangdong 2. Shenzhen Yindao Micro-electronics Co., Ltd Floor 4, Building B2, Beihuan Hengkeng Industrial Park, Guantian Community, Shiyan Street, Bao 'an District, Shenzhen, Guangdong |
| General product information and other remarks: See CN22OLWN 001 part I of II 'General product information and other remarks'. | |

| IEC 60730-2-13 | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict |

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| 6 | CLASSIFICATION | | P |
| 6.3.9 | Additional subclauses: | | - |
| 6.3.9.101 | Humidity sensing control | | P |
| 6.3.9.102 | Room humidistat | | P |

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| 13 | ELECTRIC STRENGTH AND INSULATION RESISTANCE | | P |
| | This clause of Part I is applicable except as follows: | | N/A |
| | Addition of footnote p to Table 12: In the case of humidity sensing controls, it may be necessary to provide specially calibrated samples to enable this test to be performed. | | N/A |

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| 15 | MANUFACTURING DEVIATION AND DRIFT | | N/A |
| 15.4 | Alternatively, declared manufacturing deviation and drift, optionally, expressed separately as a tolerance value to the declared operating value..... : | Type 1 | N/A |
| 15.5.3.101 | Controls intended for adjustment by user set at maximum humidity value permitted, except when declared by manufacturer..... : | | N/A |
| 15.5.3.102 | Operation of the control sensed by a suitable device with a sensing current not exceeding 0.05A : | | N/A |
| | The circuit voltage was a convenient value resulting in a reliable indication of the function being monitored | | N/A |
| 15.5.4 | Not Applicable | | N/A |

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| 17 | ENDURANCE | | P |
| 17.1.3 | Test sequence and conditions | | P |
| 17.1.3.101 | Humidity sensing control subjected to tests of Clause 17 with the activating quantity as agreed between manufacturer and testing authority | | P |
| 17.8.4.101 | Number of automatic and manual cycles for independently mounted and in-line cord controls was as indicated in Clause AA.1 of Annex AA, except when a higher No. was declared by the manufacturer..... : | 10000 | P |
| 17.16.101 | – Sub-clauses 17.1 to 17.5, inclusive, applied to humidity sensing control | | P |

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| Clause | Requirement + Test | Result - Remark | Verdict |

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| | – Sub-clauses 17.6 applied to actions classified as type 1.M or 2.M, and value of "X" was as agreed between manufacturer and test authority | | P |
| | – Sub-clauses 17.7 and 17.8 applied | | N/A |
| | - Sub-clauses 17.9 applied, except 17.9.3.1 | | N/A |
| | – Sub-clauses 17.10 to 17.14, inclusive, applied | | N/A |

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| H | REQUIREMENTS FOR ELECTRONIC CONTROLS | | P |
| H.7 | Information | | N/A |
| | Additional requirements to Table 1: | | N/A |
| | 58a – See footnote a of Table H.101 | | N/A |
| | 101 – The output condition of Type 2 humidity sensing controls after operation (Method x) | | N/A |
| | 102 – Frequency of the defined state test function (Method X) | | N/A |
| | 103 – The control is for permanent or non-permanent operation (Method X) | | N/A |
| H.6.18.1 | Software is class A | | P |
| H.23 | ELECTROMAGNETIC COMPATIBILITY (EMC) REQUIREMENTS – EMISSION | | P |
| H.23.1.2 | Integrated and incorporated electronic humidity sensing controls not subjected to tests of this sub-clause | see attachment 1: NN22S76T 004 EMC report | P |
| | Tests conducted under declared conditions when requested by manufacturer.....: | | P |
| H.26 | ELECTROMAGNETIC COMPATIBILITY (EMC) REQUIREMENTS – IMMUNITY | | P |
| H.26.2 | One or more of the following criteria applied after each test as in Table H.26.101 | | N/A |
| H.26.2.101 | Control remained in its current condition and then continued to operate as declared within the limits verified in Clause 15 as applicable | | N/A |
| H.26.2.102 | Control assumed the condition declared in Table 1, requirement 101, and then operated as in H.26.2.101 | | N/A |
| H.26.2.103 | Control assumed the condition declared in Table 1, requirement 101, such that it could not be reset automatically or manually. | | N/A |
| | Output waveform was sinusoidal, or as declared in 53 of Table 1 for normal operation | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| H.26.2.104 | Control remained in the condition declared in Table 1, requirement 101 | | N/A |
| | Non-self-resetting control could only be reset manually | | N/A |
| | Control operated as in H.26.2.101, or remained in the declared condition as in H.26.2.103 after the humidity was removed | | N/A |
| H.26.2.105 | Control operated as in H.26.2.101 after returning to its initial state | | N/A |
| | Control in the condition declared in Table 1, requirement 101, reset and resumed the declared condition again when the humidity causing it to operate was still present. | | N/A |
| H.26.2.106 | The output and functions were as declared in Table 1, requirement 58a or 58b, and the control complied with 17.5 | | N/A |
| H.26.5 | Voltage dips and voltage interruptions in the power supply network | | N/A |
| H.26.5.4 | Voltage variation test | | N/A |
| H.26.5.2.2 | Humidity sensing control subjected to each of the specified voltage test cycles three times with 10 s intervals between each test cycle | | N/A |
| | Humidity sensing control declared under requirement 101 of Table 1 subjected to each test cycle three times when in declared condition and three times when not in declared condition | | N/A |
| H.26.8.3.1 01 | Control declared under requirement 101 of Table 1, subjected to three of the tests when in declared condition and two tests when not in declared condition | | P |
| H.26.9.3.1 01 | Control declared under requirement 101 of Table 1, subjected to five tests when in declared condition and two tests when not in declared condition | | N/A |
| H.26.10.5. 101 | Control declared under requirement 101 of Table 1, subjected to three tests when in declared condition and two tests when not in declared condition | | N/A |
| H.26.12.2. 2.101 | Control declared under requirement 101 of Table 1, subjected to a sweep when in declared condition and not in declared condition | | N/A |
| H.26.12.3. 101 | Control declared under requirement 101 of Table 1, subjected to a sweep when in declared condition and not in declared condition | | N/A |

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|----------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| H.26.13.3.101 | Control declared under requirement 101 of Table 1, subjected to a sweep when in declared condition and not in declared condition | | N/A |
| H.26.14.3.101 | Control declared under requirement 101 of Table 1, subjected to a sweep when in declared condition and not in declared condition | | N/A |
| H.26.15 | Evaluation of Compliance | | N/A |
| H.26.15.2 | Addition: See Table H.101 for compliance criteria. | | N/A |
| H.26.15.4 | Addition: See Table H.101 for compliance criteria. | | N/A |
| H.27 | ABNORMAL OPERATION | | P |
| H.27.1.2 | Control declared under requirement 101 of Table 1 subjected to a sweep when in declared condition and not in declared condition | | P |
| H.27.1.1.3 | This clause of Part 1 is applicable except item c). | | P |
| H.27.1.2.2.2 | Item b) replaced as follows: the control is to react within the fault reaction time (see Table 1, requirement 91) by proceeding to the defined state provided that a subsequent restart under the same fault conditions results in the system returning to the same defined state condition. | | N/A |
| | Item c) replaced as follows: for systems with non-permanent operation only, the control is to continue to operate as intended, the fault is to be detected during the next start-up sequence. The compliance criteria will be a) or b). | | N/A |
| | Item d) last two paragraphs replaced as follows: The fault reaction time is to be declared by the manufacturer (see Table 1, requirement 91). For permanent operation as declared by the manufacturer (see Table 1, requirement 103), item c) is under consideration. For a control function, where a mechanical actuator is part of a circuit that characterizes the defined state, a test up to, but not including, the switching contacts is sufficient. If the test of the defined state fails, the control should initiate the safety shut-down. Frequency of test is as declared by the manufacturer (see Table 1, requirement 102). Internal faults of the components of the checking circuits are not considered. | | N/A |

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|------------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| H.27.1.2.3. 2 | Item b) replaces as follows: the control reacting within the fault reaction time (see Table 1, requirement 91) by proceeding to defined state provided that subsequent restart under the same fault condition results in the system returning to the defined state condition; | | N/A |
| | Item c) replaced as follows: for systems with non-permanent operation, the control is to continue to operate as intended, the fault is to be detected during the next start-up sequence. The compliance criteria will be a) or b). | | N/A |
| | Item d) replaces the last sentence with the following: The fault reaction time is to be declared by the manufacturer (see Table 1, requirement 91). For permanent operation as declared by the manufacturer (see Table 1, requirement 103), item c) is under consideration. For a control function, where a mechanical actuator is part of a circuit that characterizes the defined state, a test up to, but not including, the switching contacts is sufficient. If the test of the defined state fails, the control is to initiate the safety shut-down. Frequency of test is as declared by the manufacturer (see Table 1, requirement 102). Internal faults of the components of the checking circuits are not considered. | | N/A |
| H.27.1.2.3. 3 | Replace second sentence and items a) and b) with the following: During assessment, for systems with non-permanent operation, the second fault should only be considered to occur when a start-up sequence has been performed after the first fault. For systems with permanent operation, the second fault occurs 24 h after the first fault. | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |

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| | <p>Replace the last two sentences with the following:</p> <p>The fault reaction time, as well as the applicability of c), is to be as declared by the manufacturer.</p> <p>For a control function, where a mechanical actuator is part of a circuit that characterizes the defined state, a test up to, but not including, the switching contacts is sufficient. If the test of the defined state fails, the control is to initiate the safety shut-down. Frequency of test is as declared by the manufacturer (see Table 1, requirement 102). Internal faults of the components of the checking circuits are not considered.</p> | | N/A |
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|-----------|--|--|-----|
| AA | NUMBER OF CYCLES | | N/A |
| AA.1 | Number of cycles for independently mounted and in-line cord control were according to Table AA.1 (No. of cycles) | | N/A |

| | | | |
|------------|---|--|-----|
| BB | REGIONAL DIFFERENCES | | N/A |
| | CENELEC countries | | N/A |
| H.26.10 | Ring wave immunity test | | N/A |
| | Delete and replace by "Void" | | N/A |
| | United States | | N/A |
| 11 | Constructional requirements | | N/A |
| 11.4.5 | Addition: A capacitor may not be connected across the contacts of a control with a type 1.B or type 2.B action | | N/A |
| 17.8.4.101 | Addition: Minimum number of cycles for independently mounted and in-line cord controls in USA were according to Table BB.1 (No. of cycles)..... | | N/A |
| 17.16.101 | Addition: If a control has two or more electrical ratings (for example, inductive and resistive, or different currents at different voltages), it may be tested for not less than 25 % of its declared endurance (if equal to or greater than 30 000 cycles) at each rating, but the total number of cycles on any one sample is not to be more than its declared endurance. However, at least one sample is to be tested for a total number of cycles equal to its declared endurance. | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
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| | Canada | | N/A |
| 11.4.5 | Addition: A capacitor may not be connected across the contacts of a control with a type 1.B or type 2.B action | | N/A |
| 17.8.4.101 | Addition: Minimum number of cycles for independently mounted and in-line cord controls in Canada were according to Table BB.2 (No. of cycles)..... | | N/A |

| CC | SPECIFIC REGIONAL REQUIREMENTS FOR JAPAN | | N/A |
|------------|--|--|-----|
| 17.16 | Subclause not applicable in Japan | | N/A |
| 17.8.4.101 | Subclause not applicable in Japan | | N/A |
| H.26.10 | Ring wave immunity test | | N/A |
| | Subclause not applicable in Japan | | N/A |