CRA SAMPLE

# F09 Validation record, safety function

Example after one year of operation, status 05.09.2027 · Nordwald Wärmetechnik GmbH, networked wood chip boiler NWT HACKTHERM 60 connect

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| **Publisher** | OT-Cyber.de, Max Gilg, Rosenheim |
| **Sample company** | Nordwald Wärmetechnik GmbH, networked wood chip boiler NWT HACKTHERM 60 connect (fictitious) |
| **Note** | Free sample, not legal advice |

Company, people, data and numbers are fictitious. This is how the document looks after one year of operation.

# 1 Purpose and scope

Validation of each safety function by fault injection in accordance with EN ISO 13849-2, stating result, tester and test item. After changes, verification of the signature or a new validation.

# 2 Document control

| Field | Entry |
|---|---|
| Document no. | NWT-CE-F09 |
| Version, status | 1.2, approved |
| Scope | NWT HACKTHERM 60 connect (18 to 60 kW), controller, gateway, portal and app |
| Author | Jonas Weiß, Engineering and Product Security (PSO) |
| Checked by | Ingenieurbüro Lechner (safety), Sichtwerk Security (security) |
| Approval | Michael Berger, Managing Director, 05.09.2027 |
| Next review | 15.03.2029 or in the event of a substantial modification |
| Confidentiality | internal |
| Filing | Technical documentation NWT-TD-HT60C, retained for at least 10 years after the last unit is placed on the market |

# 3 Validation record, safety function: overview

| SF | Test | Fault injection | Result | Date |
|---|---|---|---|---|
| SF1 | Drop chute 95 °C simulated | Sensor wire break | Rotary valve closed in 2.1 s | 02.03.2027 |
| SF2 | Boiler 101 °C | F-AI drift | Firing off, STL OK | 02.03.2027 |
| SF3 | Emergency stop, both buttons | Cross circuit | Stop cat. 0 | 03.03.2027 |
| SF4 | Door opened during operation | Switch bridged | Stop in 0.4 s | 03.03.2027 |
| SF5 | Cover opened | Contact welded | Stop, fault | 04.03.2027 |
| SF6 | Induced draught fan off | Pressure switch faulty | Fuel off | 04.03.2027 |
| SF7 | Ignition without pre-purge | Command forced | Blocked | 05.03.2027 |
| SF8 | Power restoration | Remote start | No restart | 05.03.2027 |
| SF9 | Ash box removed | Sensor bridged | Augers off | 08.03.2027 |
| SF10 | Setpoint 140 °C from portal | Limit value exceeded | Rejected | 08.03.2027 |

Legend: SF = safety function.

**Test item:** Pilot series HT60C-27-0001, controller 3.0.2, F-program 3.0.0

**Tester:** Ingenieurbüro Lechner with J. Weiß, measurement records in file 6

**After change 3.0.3:** 05.09.2027: overall signature of F-program unchanged, spot check of SF4 and SF8 passed again

**Method:** Fault list in accordance with EN ISO 13849-2 Annex D, each test with expected and measured response, response times measured with a data logger

# 4 Terms and abbreviations

**CE:** CE marking: the manufacturer declares that the product meets EU requirements

**F-AI:** fail-safe analogue input

**SF:** safety function

**STL:** safety temperature limiter

# 5 Revision history and approval

| Version | Date | Change | Approval |
|---|---|---|---|
| 1.0 | 08.03.2027 | Validation of SF1 to SF10 | M. Berger |
| 1.0 | 15.03.2027 | First issue for placing on the market (CE) | M. Berger |
| 1.2 | 05.09.2027 | Signature check after controller 3.0.3 | M. Berger |

Approved: Michael Berger, Managing Director, 05.09.2027 (signed in the original). Free sample from OT-Cyber.de, not legal advice. Company, persons, serial numbers and data are entirely fictitious.