

# DIN EN 1434-4:2019-08 (E)

## Thermal energy meters - Part 4: Pattern approval tests (includes Amendment A1:2018)

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions .....	7
4	General .....	7
5	Requirements .....	7
6	Specification of operating conditions .....	7
6.1	Rated operating conditions .....	7
6.2	Reference conditions .....	8
6.3	Reference values for the measurand, RVM .....	8
7	Tests and measurements .....	8
7.1	General .....	8
7.2	Test programme .....	9
7.3	Uncertainty of test equipment and influences of EUT .....	11
7.4	Performance tests .....	12
7.5	Dry heat .....	17
7.6	Cold .....	18
7.7	Static deviations in supply voltage .....	18
7.8	Durability test .....	20
7.9	Damp heat .....	23
7.10	Short time mains voltage reduction .....	24
7.11	Electrical transients .....	24
7.12	Electromagnetic field .....	27
7.13	Electromagnetic field specifically caused by digital radio equipment .....	27
7.14	Radio frequency amplitude modulated .....	28
7.15	Electrostatic discharge .....	30
7.16	Static magnetic field (fraud protection) .....	31
7.17	Mains frequency magnetic field .....	31
7.18	Internal pressure .....	31
7.19	Pressure loss .....	32
7.20	Electromagnetic emission .....	32
7.21	24 h interruption in the mains power supply voltage .....	33
7.22	Flow disturbances .....	33
7.23	Vibration/mechanical shock .....	34
8	Documentation .....	34
Annex A (informative) Testing procedure for temperature sensor pairs with pockets and without pockets .....		36
A.1	Test set-up .....	36
A.2	Test sequence .....	38
A.3	Calculations .....	38

<b>Annex B (informative) Checklist for type approvals of "thermal energy meters" according to EN 1434 .....</b>	<b>39</b>
<b>DIN EN 1434-4:2019-08 EN 1434-4:2015+A1:2018 (E) Annex C (informative) Criteria for a fully developed flow profile .....</b>	<b>56</b>
<b>Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2014/32/EU aimed to be covered .....</b>	<b>57</b>
<b>Bibliography .....</b>	<b>58</b>