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Incutest

Infant Incubator & Radiant Warmer Testing System

Incutest was designed to help protect our most precious resource in life - the beginning of a new life itself!



It's not something we like to think about. But the possibility exists for an Infant Incubator or Infant Radiant Warmer to quietly malfunction while the medical staff thinks it is working perfectly and protecting the life of a critically ill or otherwise health-challenged newborn! If a serious malfunction occurs, even a healthy newborn can be placed at extreme risk! Whether we like it or not, the possibility exists. It's just another piece of technology, and technology breaks down all the time as we well know. So when was the last time you really tested your Infant Incubators or Infant Radiant Warmers as if your very own newborn baby was going

to need them working perfectly to help ensure his or her very fragile life? And if you did, what kind of test equipment did you use to accomplish this testing? Is your generic test equipment really up to this all-important task? The K-Type thermocouple temperature meter you may be using to test the water temperature of the hot packs in Physical Therapy isn't exactly up to the task when it comes to Infant Incubator and Infant Radiant Warmer testing. You need to select your test equipment for this task as if a life depended upon your selection. Why? Because it does!

Datrend Systems Inc. introduces Incutest, the first infant incubator and infant radiant warmer testing system meeting the requirements of the IEC Standards for incubators (IEC 60601-2-19). When an individual test can take more than an hour, and the Standard requires 5 or more tests, you don't want to have to wait until the end of all the tests to find out there has been a problem. With Datrend's unique wireless display and control capabilities, the sensing is done in the incubator and the results are viewed in real-time on the color graphics display external to the incubator (Netbook PC included with Incutest System). Changes to the test protocol can be made without disturbing the heating environment.

The Incutest's sensor matrix is placed centrally on the incubator or radiant warmer mattress. The four "quadrant" temperature sensors can be adjusted to be centered on the mattress quadrants, per the requirements of the Standard. In addition, the optional precision controlled heater allows testing of the body temperature sensor accuracy.

The FMS-3 is backed by the Datrend Systems 5-Year Warranty!



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Temperature:

Measurement Range: 0 deg C to 50 deg C

Accuracy: T1+/- 0.05 deg C

Resolution: 0.01 deg C

Convection: 5 "puck" sensors (T1-T5) - radiant warmer

Air Convection: 5 sensors (alternate "pos" T1 - T5) - incubator

Skin Sensor2: Sensor "oven" with thermal pad contact

28 deg C to 40 deg C in 2 deg C increments

Resolution: 0.01 deg C

Accuracy: +/- 0.05 deg C

Airflow:

Measurement Range: 0.1 to 1 m/s

Accuracy: +/- 0.1 m/s at 50% RH +/- 15%

Sound Level:

Measurement Range: 30 dbA to 90 dbA, Type II

Accuracy: +/- 5 dbA

Resolution: 0.1 dbA

Relative Humidity:

Measurement Range: 0 - 100%

Non-condensing

Accuracy: +/- 3 % to 100% RH

Resolution: 0.1% RH

Data Retention:

Capacity: up to 48 hours per test

Sample rate: 1/min or 1/sec

Test Specifications:

Incubator Testing Specifications

- Measures temperature at 5 points as per IEC 60601-2-19 (sub-clause 50.102)
- Measures humidity at the center of the enclosure per IEC 60601-2-19 (sub-clause 103.1)
- Measures airflow at 4 points in the enclosure per IEC 60601-2-19 (sub-clause 104.1)
- Measures sound level inside the incubator per IEC 60601-2-19 (sub-clause 102.1)
- Measures sound level inside the incubator during alarm per IEC 60601-2-19 (sub-clause 102.2)
- Measures sound level outside the incubator per IEC 60601-2-19 (sub-clause 102.3)
- Measures incubator temperature at center point (A) of incubator as per IEC 60601-2-19 (sub-clause 50.102)
- Measures average incubator temperature (AIT) per IEC 60601-2-19 (sub-clause 2.9.106)
- Measures incubator temperature (IT) per IEC 60601-2-19 (sub-clause 2.9.105)
- Measures average temperature (AT) per IEC 60601-2-19 (sub-clause 2.9.103)
- Measures average temperature at 4 points per IEC 60601-2-19 (sub-clause 50.102)
- Measures skin temperature sensor accuracy per IEC 60601-2-19 (sub-clause 50.104)²
- Confirms skin temperature sensor control of incubator per IEC 60601-2-19 (sub-clause 50.105)
- Confirms independent incubator temperature sensor accuracy per IEC 60601-2-19 (sub-clause 50.106)
- Measures difference between average temperature and control temperature per IEC 60601-2-19 (sub-clause 50.107)
- Measures actual warm-up time compared to operating manual per IEC 60601-2-19 (sub-clause 50.108)
- Measures overshoot and recovery to steady state per IEC 60601-2-19 (sub-clause 50.109)
- Confirms humidity reading per IEC 60601-2-19 (sub-clause 50.110)

Transport Incubator Testing Specifications³

- Follows incubator standard IEC 60601-2-19 above, subject to small variations in limits per IEC 60601-2-20
- Measures incubator response under cold conditions per IEC 60601-2-20 (sub-clause 50.112)

Radiant Warmer Testing Specifications¹

- Measures skin temperature sensor accuracy per IEC 60601-2-21 (sub-clause 50.101)²

- Measures average warmer temperature at 4 points per IEC 60601-2-21 (sub-clause 50.102)
- Measures average warmer temperature at center point (A) of incubator as per IEC 60601-2-21(sub-clause 50.102)
- Confirms skin temperature sensor control of warmer per IEC 60601-2-21 (sub-clause 50.103)
- Confirms airflow is less than 0.1 m/s per IEC 60601-2-21 (sub-clause 50.102)
- Measures sound level on the mattress per IEC 60601-2-21 (sub-clause 102.1)
- Measures sound level on the mattress during alarm per IEC 60601-2-21 (sub-clause 102.1)
- Measures sound level in front of the warmer per IEC 60601-2-21 (sub-clause 102.1)

¹ Radiant 1 warmer software to be released following general release of Incutest

² Sensor accuracy heater is an optional accessory

³ Transport incubator software to be released following general release of Incutest

Tutte le specifiche sono soggette a cambiamenti senza preavviso



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