



# Manage the Heat

Proven Solutions for Heat Stress Management

## Trusted.

- Utilizes WBGT (Wet Bulb Globe Temperature) sensing technology; the standard for heat stress management
- Intrinsic safety available on select models

## Versatile.

- Traditional wet bulb sensing technology available on QUESTemp° models 32, 34, and 36
- Waterless wet bulb on QUESTemp° models 44, 46, 48N eliminate daily maintenance
- Convenient stay time parameters per multiple standards help determine work-rest ratios

## Rugged.

- IP 54 ingress rating helps protect unit from exposure to dirt, dust, oil and water
- Designed to withstand the rigors of everyday use in demanding environments

To find out more about 3M Detection Solutions products, see [www.3M.com/Detection](http://www.3M.com/Detection).



## Complicated Heat Stress Measurement Made Intuitive

Heat stress management is often viewed as complex and time-consuming. Those assigned this task are commonly intimidated by the calculation of the WBGT (Wet-Bulb Globe Temperature) index used to measure the potential for heat stress. And beyond measurement of WBGT is the question of what to do with the data collected and how to transfer findings into a heat stress management program.

3M Detection Solutions helps simplify heat stress management with the brilliantly intuitive QUESTemp<sup>°</sup> family of heat stress monitors.

- QUESTemp<sup>°</sup> area heat stress monitors measure parameters including temperature and relative humidity and compute the Wet Bulb Globe Temperature, the generally accepted value for gauging human heat stress.
- QUESTemp<sup>°</sup> II personal heat stress monitor measures a worker's bodily response to the environment.
- 3M<sup>™</sup> Detection Management Software allows easy download of data for charting, reporting and interpreting measurements.

The data these instruments provide, along with features designed to make your job easier and supporting 3M<sup>™</sup> Detection Management Software, offer safety professionals a powerful solution to help establish a heat stress management program.



# Market Leading Technology

## QUESTemp° models 32/34/36

With traditional wet bulb sensor

### Traditional Wet Bulb

- Proven technology utilizes traditional wet bulb to calculate WBGT
- Equipped with wet bulb, dry bulb, globe and relative humidity sensors
- Provides a solid basis for determining if heat stress controls are needed

### Data Logging

- QUESTemp° models 34/36 store data for future download and analysis
- Compatible with 3M™ Detection Management Software DMS
- Analysis of data is crucial in developing a heat stress management program

### Stay Times

- QUESTemp° 36 displays stay times per ACGIH TLV, U.S. Navy PHEL charts, and U.S. Navy/Marine Corp. Ashore Flag Conditions; includes EPRI action limits
- Choose from various stay time standards to help determine work-rest ratios

### Intrinsic Safety Approvals

- QUESTemp° models 32/34/36 are certified to UL/CSA, ATEX standards



3M Detection Solutions: Brilliantly Intuitive

## QUESTemp° models 44/46/48N

With waterless wet bulb sensor

### Brilliant Waterless Wet Bulb

- Uses a proprietary algorithm to calculate the WBGT; eliminates daily wet bulb maintenance

### Data Logging

- QUESTemp° models 44/46/48N store data for future download and analysis
- Compatible with 3M™ Detection Management Software DMS
- Analysis of data is a critical step in developing a heat stress management program

### Stay Times

- QUESTemp° models 46/48N display stay times per ACGIH TLV, U.S. Navy PHEL charts, and U.S. Navy/Marine Corp. Ashore Flag Conditions; QUESTemp° 46 includes EPRI action limits
- Choose from various stay time standards to help determine work-rest ratios



## QUESTemp° II

Personal heat stress monitor

### Personal Heat Stress Monitor

Compact, wearable personal heat stress monitor directly detects an individual's physiological heat response. Intrinsically safe for use in potentially hazardous environments, with user-selectable audio alarm trip point. Minute-by-minute data logging allows safety professionals to closely monitor personal heat stress levels.



### Audible alarm

- Automatically signals user when selected heat level is reached

### Intrinsic safety approvals

- Certified to UL/CSA standards

### 3M™ Detection Management Software DMS

Designed for dosimetry, sound level measurements, heat stress assessments and environmental monitoring, this advanced software helps safety and occupational professionals:

#### Configure.

- Configure instrumentation and save pre-configured setups

#### Analyze.

- Retrieve, download, share, and save instrument data
- Create charts, tables, and panels to intuitively interpret your measurements

#### Report.

- Generate insightful charts and reports
- Export and share recorded data

The software integrates with 3M™ Detection Solutions data logging instruments and will help you improve both operating efficiency and reporting in acoustics, heat stress, and environmental monitoring.



## Specifications For QUESTemp° 32, 34, 36, 44, 46, 48N

| Measurement Parameters:  | Natural Wet Bulb Models |       |       | Waterless Wet Bulb Models |       |        |
|--|-------------------------|-------|-------|---------------------------|-------|--------|
|  | QT°32                   | QT°34 | QT°36 | QT°44                     | QT°46 | QT°48N |
| Dry bulb, wet bulb and globe temperatures, relative humidity   | •                       | •     | •     | •                         | •     | •      |
| Air velocity   |                         |       | ○     |                           | ○     |        |
| WBGT (indoor) index  | •                       | •     | •     | •                         | •     |        |
| WBGT (outdoor) index   | •                       | •     | •     | •                         | •     | •      |
| Heat index / HUMIDEX   | •                       | •     | •     | •                         | •     |        |
| Temperature reading: Celsius or Fahrenheit   | •                       | •     | •     | •                         | •     | •      |
| Data logging intervals: 1, 2, 5, 10, 15, 30 or 60 minutes  |                         | •     | •     | •                         | •     | •      |
| Event logging mode   |                         |       |       |                           |       | •      |
| Display languages: Choose from Chinese, Czech, English, French, German, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, and Turkish | •                       | •     | •     | •                         | •     | •      |
| Time & date stamping with clock and calendar   |                         | •     | •     | •                         | •     | •      |
| Displayed stay times: ACGIH TLV, U.S. Navy PHEL charts, U.S. Navy/Marine Corp. Ashore Flag Conditions, EPRI action limits (QT°48N excludes EPRI)                         |                         |       | •     |                           | •     | •      |
| Head-Torso-Ankle Weighted Average WBGT (optional with tri-sensors)   | ○                       | ○     | ○     | ○                         | ○     |        |
| Sensors:   |                         |       |       |                           |       |        |
| Dry bulb sensor - 1000 Ohm platinum RTD  | •                       | •     | •     | •                         | •     | •      |
| Accuracy and ranges: +/-0.5 from 0° C to 120° C (+/-0.9° F from 32° F to 248° F)   |                         |       |       |                           |       |        |
| Wet bulb sensor - 1000 Ohm platinum RTD  | •                       | •     | •     |                           |       |        |
| Accuracy and ranges: +/-0.5 from 0° C to 120° C (+/-0.9° F from 32° F to 248° F)   |                         |       |       |                           |       |        |
| Waterless Wet Bulb (Humidity) sensor   |                         |       |       | •                         | •     | •      |
| Accuracy and ranges: +/-1.1° C (k=2) between 0° C and 80° C (32° F and 176° F)   |                         |       |       |                           |       |        |
| Globe sensor - 1000 Ohm platinum RTD   | •                       | •     | •     | •                         | •     | •      |
| Accuracy and ranges: +/-0.5 from 0° C to 120° C (+/-0.9° F from 32° F to 248° F)   |                         |       |       |                           |       |        |
| Relative humidity sensor   | •                       | •     | •     | •                         | •     | •      |
| Accuracy and ranges: +/-5% from 20 to 95% (non-condensing)   |                         |       |       |                           |       |        |
| Air Velocity Probe - Omni-directional heated thermistor  |                         |       | ○     |                           | ○     |        |
| Accuracy and ranges: +/- (0.1 m/s + 4%) from 0 to 20 m/s   |                         |       |       |                           |       |        |
| Operating Temperature Range:   |                         |       |       |                           |       |        |
| Sensor assembly: -5° C to 100° C (23° F to 212° F)   | •                       | •     | •     | •                         | •     | •      |
| Electronics: -5° C to 60° C (23° F to 140° F)  | •                       | •     | •     | •                         | •     | •      |
| Data Management:   |                         |       |       |                           |       |        |
| Detection Management Software DMS  | •                       | •     | •     | •                         | •     | •      |
| Thermal comfort indices in accordance with ISO 7730  |                         |       |       |                           |       |        |
| Predicted Mean Vote (PMV) and Predicted Percent Dissatisfied (PPD)   |                         |       | ○     |                           | ○     |        |
| Output:  |                         |       |       |                           |       |        |
| RS-232 serial printer / computer interface; Parallel printer interface   |                         | •     | •     | •                         | •     | •      |
| Power Source (All include AC power adapter wall power cube):   |                         |       |       |                           |       |        |
| 9V disposable batteries; hours of battery life:  | 140                     | 140   | 140   | 80                        | 80    | 80     |
| NiMH rechargeable battery; hours of battery life:  | 300                     | 300   | 300   | 160                       | 160   | 160    |
| Mechanical:  |                         |       |       |                           |       |        |
| D-ring with lanyard attachment. Allows for hands-free monitoring   |                         |       |       |                           |       | •      |
| Tripod mount / remote sensor bar.  |                         |       |       |                           |       |        |
| Allows for up to 61 m (~200 ft) long distance measurement  | •                       | •     | •     | •                         | •     | •      |
| IP54 water & dust ingress protection rating  | •                       | •     | •     | •                         | •     | •      |
| Case size (including mounted sensor assembly) 23.4 x 18.3 x 7.6 cm (9.2" x 7.2" x 3")  | •                       | •     | •     | •                         | •     | •      |
| Weight: 1.2 kg (2.6 lb) with mounted sensor assembly   | •                       | •     | •     | •                         | •     | •      |
| Standards / Approvals:   |                         |       |       |                           |       |        |
| Intrinsic Safety, UL/CSA standards for Class I groups A, B, C & D, Class II groups E, F & G, Class III temperature code T3 & ATEX  | •                       | •     | •     |                           |       |        |
| Electromagnetic conformance: CE Mark   | •                       | •     | •     | •                         | •     | •      |

Key: • Feature or Parameter of Unit ○ Option

All Specifications Subject to Change

For QUESTemp° II specifications, please visit [www.3M.com/detection](http://www.3M.com/detection).



### Personal Safety Division

3M Detection Solutions  
ISO 9001 Registered Company  
ISO 17025 Accredited Calibration Lab  
1060 Corporate Center Drive  
Oconomowoc, WI 53066

Customer Service: 262-567-9157  
Toll-free: 800-245-0779  
[www.3M.com/detection](http://www.3M.com/detection)

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