

TEMPERATURE HiTESTER 3441/3442/3446-01/3447-01

Environmental Measuring Instruments



● 3447-01 for HACCP Temperature Recording/Management

- Compatible with Platinum temperature-measurement resistors (Pt 100) (-100°C to 300°C)
- Waterproof construction (IP67), 2-channel measurement
- Accommodates a temperature probe with hand switch
- Record temperature, time, and name of measurement object
- Record using either interval (28,800 data items) or manual (7,200 data items) recording modes

● 3446-01 For Temperature Recording/Management in Energy Conservation Applications

- 1-channel recording for use with Thermocouple (Type K) sensors (-100 C to 1000 C*)



3447



3442

● 3442 With Water-resistant Construction for Use in Damp Environments

- Use with Thermocouple (Type K) sensor with water-resistant construction (-100°C to 1300°C*)
- Max/min temperature recording

● 3441(-02) Basic Temperature HiTESTER

- Thermocouple (Type K) sensor (-100°C to 1300°C*)
- A choice of temperature sensors for different applications

* Measurable temperature range varies according to temperature sensor type.



ISO 9001
JMI-0216



ISO 14001
JQA-E-90091



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Temperature Management of Food Preparation and

■ 3446-01, 3447-01 Record data and memos using either manual or interval recording mode



- **3447-01** has waterproof construction in both thermometer and sensor.
- 2-channel Class A temperature measurement using a platinum temperature-measurement resistor.
- Single-channel recording with **3446-01** using type K thermocouple (-100°C to 1000°C).
- Both provide two recording modes, manual and interval, allowing recording at arbitrary times or at set intervals.
- Records product name and inspector name or pass/fail result along with temperature.
- Send data to a computer by RS-232C connection.
Print recorded data (using the optional Printer **9670**)

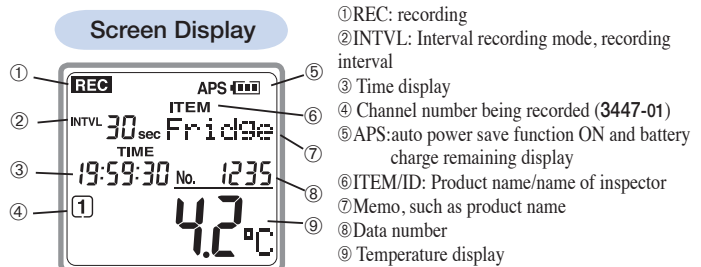
*1 Maximum recording time in interval recording mode

When using only interval recording, the relationship between recording interval and maximum recording time are as shown below:

Note that the amount of continuous recording time available may be limited by remaining battery charge.

Interval	Recording Time	Interval	Recording Time	Interval	Recording Time	Interval	Recording Time
1 sec	8 h	15 sec	5 days	1 min	20 days	15 min	300 days
2 sec	16 h	20 sec	6 days 16 h	2 min	40 days	20 min	400 days
5 sec	1 days, 6 h	30 sec	10 days	5 min	100 days	30 min	600 days
10 sec	3 days, 8 h			10 min	200 days	60 min	1200 days

Screen Display



- ① REC: recording
- ② INTVL: Interval recording mode, recording interval
- ③ Time display
- ④ Channel number being recorded (**3447-01**)
- ⑤ APS: auto power save function ON and battery charge remaining display
- ⑥ ITEM/ID: Product name/name of inspector
- ⑦ Memo, such as product name
- ⑧ Data number
- ⑨ Temperature display

■ 3447-01 Measurement Specifications

Sensor type : Platinum temperature-measurement resistor Pt 100 (3 line type)
 Measurement current : 0.5 mA
 No. of inputs : 2 channel
 Measurement range : -100.0 to 300.0°C
 Resolution : 0.1°C
 Accuracy : $\pm 0.1\%$ rdg. $\pm 0.4^\circ\text{C}$
 Sampling rate : 1/second
 Water resistance : IP67 (EN60529)

■ 3446-01 Measurement Specifications

Sensor type : Type K thermocouple
 No. of inputs : 1 channel
 Measurement range : -100 to 1000°C
 Resolution : 0.1°C (-100.0 to 300.0°C), 1°C (-100 to 1000°C)
 Accuracy : $\pm 0.1\%$ rdg. $\pm 0.5^\circ\text{C}$ (with 0.1°C resolution)
 $\pm 0.2\%$ rdg. $\pm 1^\circ\text{C}$ (with 1°C resolution)
 Sampling rate : 1/second

■ 3446-01 / 3447-01 Common Specifications

Measurement Modes

Manual recording : Temperature recording by key operation
 (Recording also possible by the key on the **9479** Probe. **3447-01** only)

Data recorded: Time, temperature, item, ID, comparator test result

Data items recorded: Max 7,200 (for the **3447-01**: 4,800 with 2-ch recording)

Interval recording : Measurement values recorded at a set interval

Data recorded: Time, temperature, item, ID, comparator test result

Data items recorded: Max 28,800 (with the **3447**, 14,400 with 2-ch recording)

Recording interval: OFF, 1, 2, 5, 10, 15, 20, or 30 seconds,
 1, 2, 5, 10, 15, 20, 30, or 60 minutes

* Manual recording when set to OFF

Display

LCD display : Measured temperature, date, time, item, ID, etc.

Item display : 12 character (alphanumeric) item display, holds up to 300 entries

ID display : 12 character (alphanumeric), holds up to 100 entries

* Item and ID settings can be made from a computer using the **9674** PC software.

Functions

Comparator : Set for individual items (Hi, IN, Lo evaluation)

Result output: Result display, buzzer output

Clock : Real time control (year, month, day, hour, minute, second)

Data read-out : Measurement data, time, data number

Display hold : Holds measurement value.

Auto power save : Automatically switches the power off if no key is pressed for 10 minutes. Display automatically turned off during interval recording.
 * Auto power save function can be disabled.

Data back-up : Measurement data, Setting data

Interface : RS-232C (using a special cable), Output to printer

Applicable standards : Safety, EN61010; Measurement category I,
 Pollution level 2/ EMC EN61326

Ambient conditions

for use: 0 to 40°C, 80% rh or less (non-condensating)

for storage: -10 to 50°C, 80% rh or less (non-condensating)

Power supply : 4 LR03 (AAA) alkaline dry cell batteries

Maximum rated power : 60 mVA

Continuous use time : 15 days (at 20°C, with auto power save disabled)

1 month (at 20°C, using auto power save, with a recording interval of 1 min)

Dimensions/mass : Approx. 66 X 150 X 31.5 mm (2.6 X 5.9 X 1.24 in), approx. 240 g (8.5 ozs)

Accessories : Batteries, strap band

Storage, Support for Electronic Device Temperature Control

■ Settings can be made from and data transferred to a connected computer

When a PC is connected to the **3446-01/3447-01**, it can be used to make various settings (item, ID, comparator), or to store recorded data transferred from the Temperature HiTESTER. Computerization of temperature management can greatly increase work efficiency. The optional RS-232C Package **9674** is used for PC communications.

RS-232C Package 9674 (Optional)

(Package contents: RS-232C cable, PC software on CD-ROM)

RS-232C cable (cable length: 2 m; Connector on PC side: Dsub-9 pin(female) ; Connector on thermometer side: Dedicated connector)

PC software (Windows 95/98/Me/NT 4.0/2000/XP compatible)

Functions: Item/ID setting, comparator setting, data list display, graph display, printing, file storage (in proprietary format or text format)

Printer 9670



When outputting recorded data to the optional **Printer 9670**, use the RS-232C cable provided in the **RS-232C Package 9674** and a commercially-available connector adapter (male Dsub-9 pin <-> male Dsub-25 pin).

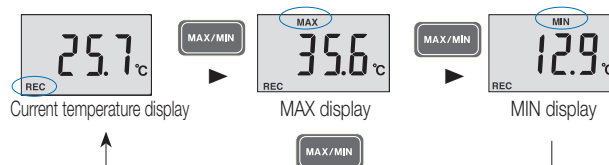
No.	DATE/TIME	IC	ITEM(LCD)	ITEM(Comment)	COMF UP	LOW	ID(LCD)	ID(Comment)
1	2002/02/12 14:21:51	87.9	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1
2	2002/02/12 14:22:00	90.4	CROQUETTE	CROQUETTE	Hi	90.0	80.0	OP1
3	2002/02/12 14:22:06	87.7	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1
4	2002/02/12 14:22:08	80.5	CROQUETTE	CROQUETTE	Hi	90.0	80.0	OP1

■ 3441/3442 Extended Operation, Max/Min Temperature Recording, Water-resistant Construction (3442 only)



- The **3442** has a water-resistant construction.
- Measurement in damp environments is possible by using the thermometer in combination with the **9472** or **9475** temperature probe.
- Choose from 9 different temperature probes (optional), according to your application.

- Recording of maximum temperature and minimum temperature



The **3441** and **3442** support temperature management by recording maximum and minimum temperatures in memory. By pressing the MAX/MIN key, you can switch to display of the current maximum and minimum temperatures at any time.

■ 3441/3442 Specifications (accuracy at 23°C ±5°C, 80% rh or less)

Measurement sensor : Type K thermocouple
 Measurement range : -100°C to 1300°C (-148°F to 2372°F)
 Resolution : 0.1°C (100.0 to 199.9°C), 1°C (200 to 1300°C)/
 0.1°F (-148°F to 392°F), 1°F (393°F to 2372°F)
 Accuracy : ±0.1% rdg. ±0.8°C (from -100.0 to 199.9°C)/
 (Period of Guaranteed Accuracy: 6 months) ±0.1% rdg. ±1.5°F (-148°F to 392°F)
 ±0.2% rdg. ±1°C (from 200 to 1300°C)/
 ±0.2% rdg. ±1.8°F (393°F to 2372°F)
 (Accuracy of temperature sensor is added.)
 Temperature coefficient : 0.03°C/C (from -100.0 to 199.9°C) / 0.054°F/F (-148°F to 392°F)
 0.05°C/C (from 200 to 1300°C) / 0.09°F/F (393°F to 2372°F)
 Sampling rate : 2 / second
 Display : LCD display
 Reference contact compensation : Automatic
 Functions : Max/Min temperature recording and display, display data hold, sensor discontinuity display (---), over-range display (O.F., -O.F), auto power save (operates after 30 min, can be disabled), low battery warning

Operating environment : Indoors, at altitude up to 2000 m
 Ambient conditions for use : 0 to 40°C (32°F to 104°F), 80% rh or less (non-condensating)
 for storage : -10 to 50°C (14°F to 122°F), 80% rh or less (non-condensating)
 Applicable standards : Safety, EN61010, Measurement category I, Pollution level 2/EMC, EN61326
 Water resistance: IP54 (EN60529)
 Power supply : 4 R6P manganese dry cell batteries or 4 LR6 alkaline batteries (AAA)
 Maximum rated power : 35 mVA
 Continuous operating time : 200 hours or more (using manganese batteries)
 Dimensions/mas : Approx. 74(W) × 155(H) × 24(D) mm (2.6 × 5.9 × 0.95 in), approx. 160g (5.6 oz) (not including batteries or probe)
 Accessories : Batteries, strap band

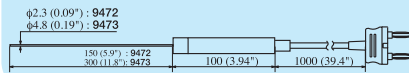
Choose from a wide range of temperature sensors for various applications (optional)

unit=mm (inch)

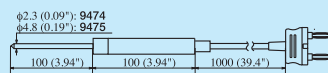
TEMPERATURE PROBE for 3441 / 3442

●:water-resistant structure

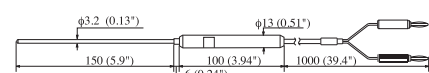
9472 / 9473 SHEATH TYPE



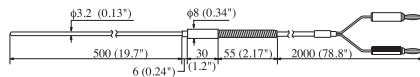
9474 / 9475 SHEATH TYPE



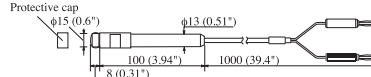
9180 / 9183 SHEATH TYPE



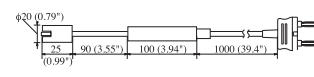
9182 SHEATH TYPE



9181 SURFACE TYPE

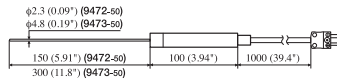


9476 SURFACE TYPE

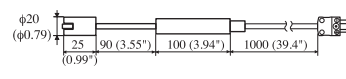


TEMPERATURE PROBE for 3446-01

9472-50 / 9473-50 SHEATH TYPE



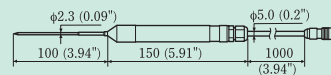
9476-50 SURFACE TYPE



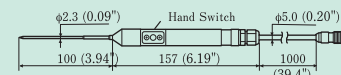
TEMPERATURE PROBE for 3447-01

●:waterproof structure

9478 SHEATH TYPE



9479 SHEATH TYPE with Hand Switch



Related Products

Gun-shaped design with easy-to-see display



- Hand-held infrared thermometer for hard-to-reach places
 - Easy battery replacement
 - C/F selectable
 - Audible Alarm Feature
- Range: -35.0°C to 500.0°C (-31.0 to 932.0°F), Diameter of field of measurement: 125mm at 1000mm (D:S=8:1)

INFRARED THERMO HiTESTER 3419-20

	water-resistant structure								waterproof structure	
Item	9472 (-50)	9473 (-50)	9474	9475	9183	9180	9476 (-50)	9181	9182	9478 9479
Thermocouple material	K type (Chromel/Almel)								Pt 100(3-wires)*1	
Tolerance	The greater of $\pm 1.5^{\circ}\text{C}(2.7^{\circ}\text{F})$ or $\pm 0.4\%$ of measured temperature				The greater of $\pm 2.5^{\circ}\text{C}(4.5^{\circ}\text{F})$ *2				$\pm 0.15^{\circ}\text{C} \pm 0.002^{\circ}\text{T}$ *3	
Response (90%)*	About 5 sec	About 10 sec	About 5 sec	About 10 sec	About 5 sec	About 3 sec	About 5 sec	About 5 sec	About 5 sec	About 5 sec
Size of Sheath	$\phi 2.3 \times 150\text{mm}$	$\phi 4.8 \times 300\text{mm}$	$\phi 2.3 \times 100\text{mm}$	$\phi 4.8 \times 100\text{mm}$	$\phi 3.2 \times 150\text{mm}$	$\phi 20\text{mm}$	$\phi 15\text{mm}$	$\phi 3.2 \times 500\text{mm}$	$\phi 2.3 \times 100\text{mm}$	$\phi 2.3 \times 100\text{mm}$
Cable	General use (-20°C to 90°C , -4°F to 194°F) 1 m								(0°C ~ 150°C) 2m	(-40°C ~ 120°C) 1m
Grip heat resistance	80°C				150°C	80°C	150°C	90°C	80°C	
Max use temperature	-100~300°C -148~572°F	0~800°C 32~1472°F	-100~300°C -148~572°F	-100~500°C -148~932°F	-50~750°C -58~1382°F	-40~500°C -40~932°F	-50~400°C -58~752°F	-50~750°C -58~1382°F	-100~300°C -148~572°F	-100~300°C -148~572°F

* Sheath type: Responsiveness in ice water at 0°C (32°F) and in boiling water at 100°C (212°F)
 Surface type: Responsiveness on a metal surface at 0°C (32°F) and at 100°C (212°F)

*1 Platinum Temperature-measurement Resistor
 *2 9180, 9182: The greater of $\pm 2.5^{\circ}\text{C}(4.5^{\circ}\text{F})$ or $\pm 0.75\%$ of measured temperature
 9476: $(-0.03 \times T)^{\circ}\text{C}$ to $+2.5^{\circ}\text{C}$ at $100^{\circ}\text{C} < (T - T_s)$
 9181: $(-0.035 \times T)^{\circ}\text{C}$ to $+2.5^{\circ}\text{C}$ at $100^{\circ}\text{C} < (T - T_s)$
 T: measured temperature, T_s : environmental temperature
 *3 T: measured temperature

TEMPERATURE HiTESTER 3446-01 TEMPERATURE HiTESTER 3447-01

Options for 3446-01, 3447-01

RS-232C PACKAGE (with PC Software)	9674
CARRYING CASE	9386-01
SHEATH TYPE TEMPERATURE PROBE	9472-50
SHEATH TYPE TEMPERATURE PROBE	9473-50
SURFACE TYPE TEMPERATURE PROBE	9476-50
SHEATH TYPE TEMPERATURE PROBE	9478
SHEATH TYPE TEMPERATURE PROBE	9479
PRINTER (with 1 roll of Recording Paper)	9670
AC ADAPTER for 9670	9671
RECORDING PAPER (for 9670, 80mm x 25m, 4 rolls)	9237

TEMPERATURE HiTESTER 3441 (°C only) TEMPERATURE HiTESTER 3441-02 (°C/°F selectable) TEMPERATURE HiTESTER 3442 (°C only)

Options for 3441(-02), 3442

SHEATH TYPE TEMPERATURE PROBE	9180
SURFACE TYPE TEMPERATURE PROBE	9181
SHEATH TYPE TEMPERATURE PROBE	9182
SHEATH TYPE TEMPERATURE PROBE	9183
SHEATH TYPE TEMPERATURE PROBE	9472
SHEATH TYPE TEMPERATURE PROBE	9473
SHEATH TYPE TEMPERATURE PROBE	9474
SHEATH TYPE TEMPERATURE PROBE	9475
SURFACE TYPE TEMPERATURE PROBE	9476
CARRYING CASE	9386-01

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DISTRAME S.A. - Parc du Grand Troyes - Quartier Europe Centrale - 40, rue de Vienne - 10300 SAINTE-SAVINE
 Tél. : +33 (0)3 25 71 25 83 - Fax : +33 (0)3 25 71 28 98 - E-mail : infos@distrame.fr - Site internet : www.distrame.fr